PUB. 157

SAILING DIRECTIONS (ENROUTE)

★

COASTS OF KOREA AND CHINA

★

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TWENTIETH EDITION

Preface

Pub. 157, Sailing Directions (Enroute) Coasts of Korea and China, Twentieth Edition, 2022, is issued for use in conjunction with Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia. Companion volumes are Pubs. 154, 155, 158, and 159.

Digital Nautical Chart 9, 12, and 28 provides electronic chart coverage for the area covered by this publication.

This publication is corrected to 12 February 2022, including Notice to Mariners No. 7 of 2022. Subsequent updates have corrected this publication to 17 February 2024 including Notice to Mariners No. 7 of 2024

Explanatory Remarks

Sailing Directions are published by the National Geospatial-Intelligence Agency (NGA) under the authority of Department of Defense Directive 5105.60, dated 29 July 2009, and pursuant to the authority contained in U. S. Code Title 10, Chapter 22, Section 451 and Title 44, Section 1336. Sailing Directions, covering the harbors, coasts, and waters of the world, provide information that cannot be shown graphically on nautical charts and is not readily available elsewhere.

Sailing Directions (Enroute) include detailed coastal and port approach information which supplements the largest scale chart produced by the National Geospatial-Intelligence Agency. This publication is divided into geographic areas called "Sectors."

Bearings.—Bearings are true, and are expressed in degrees from 000° (north) to 360°, measured clockwise. General bearings are expressed by the initial letters of the points of the compass (e.g. N, NNE, NE, etc.). Adjective and adverb endings have been discarded. Wherever precise bearings are intended, degrees are used.

Charts.—Reference to charts made throughout this publication refers to hard copy paper charts and electronic charts.

As the maritime community moves towards electronic navigation, the Maritime Safety Office will begin reducing NGA's Standard Nautical Chart portfolio. Further information can be found in the "What's New" section of the NGA Maritime Safety Information web site (https://msi.nga.mil).

Corrective Information.—Users should refer corrections, additions, and comments to NGA's Maritime Operations Desk or the Maritime Safety Office, as follows:

NGA Maritime—Contact Information	
Maritime Operations Desk	
Toll free	1-800-362-6289
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NGA Maritime—Contact Information	
Maritime Safety Office	
DNC web site	https://dnc.nga.mil
Maritime Domain web site	https://msi.nga.mil
E-mail	MarHelp@nga.mil
Maritime Quality Feedback System (MQFS)	https://marhelp.nga.mil
Mailing address	Maritime Safety Office National Geospatial-Intelligence Agency Mail Stop N64-SFH 7500 Geoint Drive Springfield VA 22150-7500

New editions of Sailing Directions are corrected through the date of publication shown above. Important information to amend material in the publication is available is updated as needed and available as a downloadable corrected publication from the NGA Maritime Domain web site.

NGA Maritime Safety Office Web Site
https://msi.nga.mil

Courses.—Courses are true, and are expressed in the same manner as bearings. The directives "steer" and "make good" a course mean, without exception, to proceed from a point of origin along a track having the identical meridional angle as the designated course. Vessels following the directives must allow for every influence tending to cause deviation from such track, and navigate so that the designated course is continuously being made good.

Currents.—Current directions are the true directions toward which currents set.

Distances.—Distances are expressed in nautical miles of 1 minute of latitude. Distances of less than 1 mile are expressed in meters, or tenths of miles.

Geographic Names.—Geographic names are generally those used by the nation having sovereignty. Names in parentheses following another name are alternate names that may appear on some charts. In general, alternate names are quoted only in the principal description of the place. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity.

Wherever possible, names used on NGA charts and in NGA publications are in the form approved by the United States Board on Geographic Names (BGN). Generally, local official

spellings are used for those features entirely within a single sovereignty, names of countries and those features which are common to two or more countries or which lie beyond a single sovereignty may carry Board-approved conventional spellings (i.e., names in common English language usage). When alternate names would be of value to the user, they may be shown for information purposes within parentheses. Important individual name changes are made to all revised charts as the opportunity permits.

Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government.

BGN approved names may be found at https://geonames.nga.mil/geonames/GNSHome/welcome.html.

Heights.—Heights are referred to the plane of reference used for that purpose on the charts and are expressed in meters.

Internet Links.—This publication provides Internet links to web sites concerned with maritime navigational safety, including but not limited to, Federal government sites, foreign Hydrographic Offices, and foreign public/private port facilities. NGA makes no claims, promises, or guarantees concerning the accuracy, completeness, or adequacy of the contents of these web sites and expressly disclaims any liability for errors and omissions in the contents of these web sites.

International Ship and Port Facility Security (ISPS) Code.—The ISPS Code is a comprehensive set of measures to enhance the security of ships and port facilities developed in response to the perceived threats to ships and port facilities in the wake of the 9/11 attacks in the United States. Information on the ISPS Code can be found at the International Maritime Organization web site:

International Maritime Organization Home Page
http://www.imo.org

Lights and Fog Signals.—Lights and fog signals are not described, and light sectors are not usually defined. The Light Lists should be consulted for complete information.

National Ocean Claims.—Information on national ocean claims and maritime boundary disputes, which have been compiled from the best available sources, is provided solely in the interest of the navigational safety of shipping and in no way constitutes legal recognition by the United States. These non-recognized claims and requirements may include, but are not limited to:

1. A requirement by a state for advance permission or notification for innocent passage of warships in the territorial sea.
2. Straight baseline, internal waters, or historic waters claims.
3. The establishment of a security zone, where a state claims to control activity beyond its territorial sea for security reasons unrelated to that state's police powers in its territory, including its territorial sea.

Radio Navigational Aids.—Radio navigational aids and radio weather services are not described in detail. Publication No. 117 Radio Navigational Aids and NOAA Publication, Selected Worldwide Marine Weather Broadcasts, should be consulted.

Soundings.—Soundings are referred to the datum of the charts and are expressed in meters.

Telephone and Facsimile Numbers.—Within this publication, the international telephone and facsimile numbers provided as contact information contain the minimum digits necessary to dial. Please note that these contact numbers do not include additional digits or special characters, such as (0) or (+), which may be required when dialing. The necessity of such digits and characters depend upon numerous factors and conditions, such as the user's geolocation and service provider. Mariners are advised to consult their communications equipment and service provider user manuals for guidance.

Time.—Time is normally expressed as local time unless specifically designated as Universal Coordinated Time (UTC).

Time Zone.—The Time Zone description(s), as well as information concerning the use of Daylight Savings Time, are included. The World Time Zone Chart is available on the Internet at the web site given above.

Standard Time Zone of the World Chart
https://www.cia.gov/maps/the-world-factbook/world-regional

U.S. Maritime Advisory System.—The U.S. Maritime Advisory System is a streamlined inter-agency approach to identifying and promulgating maritime security threats. The system replaces Special Warnings to Mariners (State Department), MARAD Advisories (Maritime Administration), and Marine Safety Information Bulletins (U.S. Coast Guard) and consists of the following items:

1. U.S. Maritime Alert—Provides basic information (location, incident, type, date/time) on reported maritime security threats to U.S. maritime industry interests. U.S. Maritime alerts do not contain policy or recommendations for specific courses of information.
2. U.S. Maritime Advisory—Provides more detailed information, when appropriate, through a "whole-of-government" response to an identified maritime threat.

Maritime Administration (MARAD)—U.S. Maritime Advisory System
https://www.maritime.dot.gov/msci-advisories

Winds.—Wind directions are the true directions from which winds blow.

Reference List

The principal sources examined in the preparation of this publication were:

British Hydrographic Department Sailing Directions.

Various port handbooks.

Reports from United States Naval and merchant vessels and various shipping companies.

Other U.S. Government publications, reports, and documents.

Charts, light lists, tide and current tables, and other documents in possession of the Agency.

Date of Change: 17 February 2024	
Notice to Mariners: 7/2024	
Sector	**Paragraphs**
Sector 1	Paragraph 1.27
Sector 7	Paragraph 7.19

Date of Change: 18 November 2023	
Notice to Mariners: 46/2023	
Sector	**Paragraphs**
Sector 1	Paragraphs 1.7, 1.27, and 1.44
Sector 2	Paragraph 2.22
Sector 3	Paragraph 3.14

Date of Change: 26 August 2023	
Notice to Mariners: 34/2023	
Sector	**Paragraphs**
Sector 1	Paragraph 1.42
Sector 2	Paragraphs 2.13 and 2.21
Sector 3	Paragraphs 3.19 and 3.21
Sector 4	Paragraphs 4.16, 4.29, and 4.38
Sector 6	Paragraphs 6.3 and 6.11
Sector 8	Paragraphs 8.14 and 8.23

Date of Change: 27 May 2023	
Notice to Mariners: 21/2023	
Sector	**Paragraphs**
Sector 1	Paragraphs 1.7, 1.27, 1.49, and 1.54
Sector 2	Paragraphs 2.8 and 2.13
Sector 4	Paragraph 4.29
Sector 5	Paragraph 5.21
Sector 8	Paragraph 8.14

Date of Change: 18 February 2023	
Notice to Mariners: 7/2023	
Sector	**Paragraphs**
Sector 1	Paragraphs 1.7, 1.27, 1.45, 1.49, and 1.54
Sector 2	Paragraphs 2.8 and 2.13
Sector 3	Paragraphs 3.11, 3.14, and 3.19
Sector 4	Paragraphs 4.6 and 4.18

Date of Change: 12 November 2022	
Notice to Mariners: 46/2022	
Sector	**Paragraphs**
Sector 1	Paragraphs 1.7, 1.45, and 1.54
Sector 2	Paragraph 2.13
Sector 3	Paragraphs 3.14 and 3.23
Sector 7	Paragraph 7.36
Sector 8	Paragraph 8.4

Date of Change: 3 September 2022	
Notice to Mariners: 36/2022	
Sector	**Paragraphs**
Sector 1	Paragraph 1.49
Sector 2	Paragraphs 2.8 and 2.13
Sector 3	Paragraphs 3.11 and 3.14
Sector 4	Paragraph 4.3
Sector 5	Paragraphs 5.20 and 5.21
Sector 6	Paragraph 6.3
Sector 8	Paragraphs 8.17, 8.18, and 8.23

Date of Change: 28 May 2022	
Notice to Mariners: 22/2022	
Sector	**Paragraphs**
Sector 1	Paragraphs 1.8, 1.13, 1.27, 1.49, and 1.54
Sector 2	Paragraph 2.13
Sector 3	Paragraphs 3.19 and 3.23
Sector 4	Paragraphs 4.3, 4.18, and 4.20
Sector 5	Paragraph 5.7
Sector 9	Paragraph 9.15

SECTOR LIMITS — PUB. 157

Feet to Meters

Feet	0	1	2	3	4	5	6	7	8	9
0	0.00	0.30	0.61	0.91	1.22	1.52	1.83	2.13	2.44	2.74
10	3.05	3.35	3.66	3.96	4.27	4.57	4.88	5.18	5.49	5.79
20	6.10	6.40	6.71	7.01	7.32	7.62	7.92	8.23	8.53	8.84
30	9.14	9.45	9.75	10.06	10.36	10.67	10.97	11.28	11.58	11.89
40	12.19	12.50	12.80	13.11	13.41	13.72	14.02	14.33	14.63	14.93
50	15.24	15.54	15.85	16.15	16.46	16.76	17.07	17.37	17.68	17.98
60	18.29	18.59	18.90	19.20	19.51	19.81	20.12	20.42	20.73	21.03
70	21.34	21.64	21.95	22.25	22.55	22.86	23.16	23.47	23.77	24.08
80	24.38	24.69	24.99	25.30	25.60	25.91	26.21	26.52	26.82	27.13
90	27.43	27.74	28.04	28.35	28.65	28.96	29.26	29.57	29.87	30.17

Fathoms to Meters

Fathoms	0	1	2	3	4	5	6	7	8	9
0	0.00	1.83	3.66	5.49	7.32	9.14	10.97	12.80	14.63	16.46
10	18.29	20.12	21.95	23.77	25.60	27.43	29.26	31.09	32.92	34.75
20	36.58	38.40	40.23	42.06	43.89	45.72	47.55	49.38	51.21	53.03
30	54.86	56.69	58.52	60.35	62.18	64.01	65.84	67.67	69.49	71.32
40	73.15	74.98	76.81	78.64	80.47	82.30	84.12	85.95	87.78	89.61
50	91.44	93.27	95.10	96.93	98.75	100.58	102.41	104.24	106.07	107.90
60	109.73	111.56	113.39	115.21	117.04	118.87	120.70	122.53	124.36	126.19
70	128.02	129.85	131.67	133.50	135.33	137.16	138.99	140.82	142.65	144.47
80	146.30	148.13	149.96	151.79	153.62	155.45	157.28	159.11	160.93	162.76
90	164.59	166.42	168.25	170.08	171.91	173.74	175.56	177.39	179.22	181.05

Meters to Feet

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.06	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.80	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.54	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.28	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80

Meters to Fathoms

Meters	0	1	2	3	4	5	6	7	8	9
0	0.00	0.55	1.09	1.64	2.19	2.73	3.28	3.83	4.37	4.92
10	5.47	6.01	6.56	7.11	7.66	8.20	8.75	9.30	9.84	10.39
20	10.94	11.48	12.03	12.58	13.12	13.67	14.22	14.76	15.31	15.86
30	16.40	16.95	17.50	18.04	18.59	19.14	19.68	20.23	20.78	21.33
40	21.87	22.42	22.97	23.51	24.06	24.61	25.15	25.70	26.25	26.79
50	27.34	27.89	28.43	28.98	29.53	30.07	30.62	31.17	31.71	32.26
60	32.81	33.36	33.90	34.45	35.00	35.54	36.09	36.64	37.18	37.73
70	38.28	38.82	39.37	39.92	40.46	41.01	41.56	42.10	42.65	43.20
80	43.74	44.29	44.84	45.38	45.93	46.48	47.03	47.57	48.12	48.67
90	49.21	49.76	50.31	50.85	51.40	51.95	52.49	53.04	53.59	54.13

Abbreviations

The following abbreviations may be used in the text:

Units

°C	degree(s) Centigrade	km	kilometer(s)
cm	centimeter(s)	m	meter(s)
cu.m.	cubic meter(s)	mb	millibars
dwt	deadweight tons	MHz	megahertz
FEU	forty-foot equivalent units	mm	millimeter(s)
gt	gross tons	nt	net tons
kHz	kilohertz	TEU	twenty-foot equivalent units

Directions

N	north	S	south
NNE	northnortheast	SSW	southsouthwest
NE	northeast	SW	southwest
ENE	eastnortheast	WSW	westsouthwest
E	east	W	west
ESE	eastsoutheast	WNW	westnorthwest
SE	southeast	NW	northwest
SSE	southsoutheast	NNW	northnorthwest

Vessel types

LASH	Lighter Aboard Ship	Ro-ro	Roll-on Roll-off
LNG	Liquified Natural Gas	ULCC	Ultra Large Crude Carrier
LPG	Liquified Petroleum Gas	VLCC	Very Large Crude Carrier
OBO	Ore/Bulk/Oil	VLOC	Very Large Ore Carrier
Lo-lo	Lift-on Lift-off	FSO	Floating Storage and Offloading
NGL	Natural Gas Liquids	FSU	Floating Storage Unit
FSRU	Floating Storage and Regasification Unit	FPSO	Floating Production Storage and Offloading

Time

ETA	estimated time of arrival	GMT	Greenwich Mean Time
ETD	estimated time of departure	UTC	Coordinated Universal Time

Water level

MSL	mean sea level	LWS	low water springs
HW	high water	MHWN	mean high water neaps
LW	low water	MHWS	mean high water springs
MHW	mean high water	MLWN	mean low water neaps
MLW	mean low water	MLWS	mean low water springs
HWN	high water neaps	TFW	Tropical Fresh Water
HWS	high water springs	HAT	highest astronomical tide
LWN	low water neaps	LAT	lowest astronomical tide

Communications

D/F	direction finder	MF	medium frequency
R/T	radiotelephone	HF	high frequency
GMDSS	Global Maritime Distress and Safety System	VHF	very high frequency
LF	low frequency	UHF	ultra high frequency

Navigation

LANBY	Large Automatic Navigation Buoy	SBM	Single Buoy Mooring
NAVSAT	Navigation Satellite	SPM	Single Point Mooring
ODAS	Ocean Data Acquisition System	TSS	Traffic Separation Scheme
CBM	Conventional Buoy Mooring System	VTC	Vessel Traffic Center
MBM	Multi-Buoy Mooring System	VTS	Vessel Traffic Service

The following abbreviations may be used in the text:

CALM	Catenary Anchor Leg Mooring

Miscellaneous

AIS	Automatic Identification System	MMSI	Maritime Mobile Service Identity Code
COLREGS	Collision Regulations	No./Nos.	Number/Numbers
IALA	International Association of Lighthouse Authorities	PA	Position approximate
		PD	Position doubtful
IHO	International Hydrographic Organization	Pub.	Publication
IMO	International Maritime Organization	SOLAS	International Convention for Safety of Life at Sea
IMDG	Intermational Maritime Dangerous Goods Code		
LOA	length overall	St./Ste.	Saint/Sainte
UKC	Under keel clearance	ISPS	International Ship and Port facility Security
ITC	International Convention on the Tonnage Measurement of Ships (1969)	ECDIS	Electronic Chart Display and Information System

Contents

Preface II
Chartlet—Sector Limits VII
Conversion Tables VIII
Abbreviations IX

Sector 1
Sector 1—Korea—South Coast 1

Sector 2
Sector 2—Korea—East Coast 57

Sector 3
Sector 3—Korea—West Coast 91

Sector 4
Sector 4—China—The Yalu River to Shandong Bandao 135

Sector 5
Sector 5—China—Shandong Bando to Chang Jiang 207

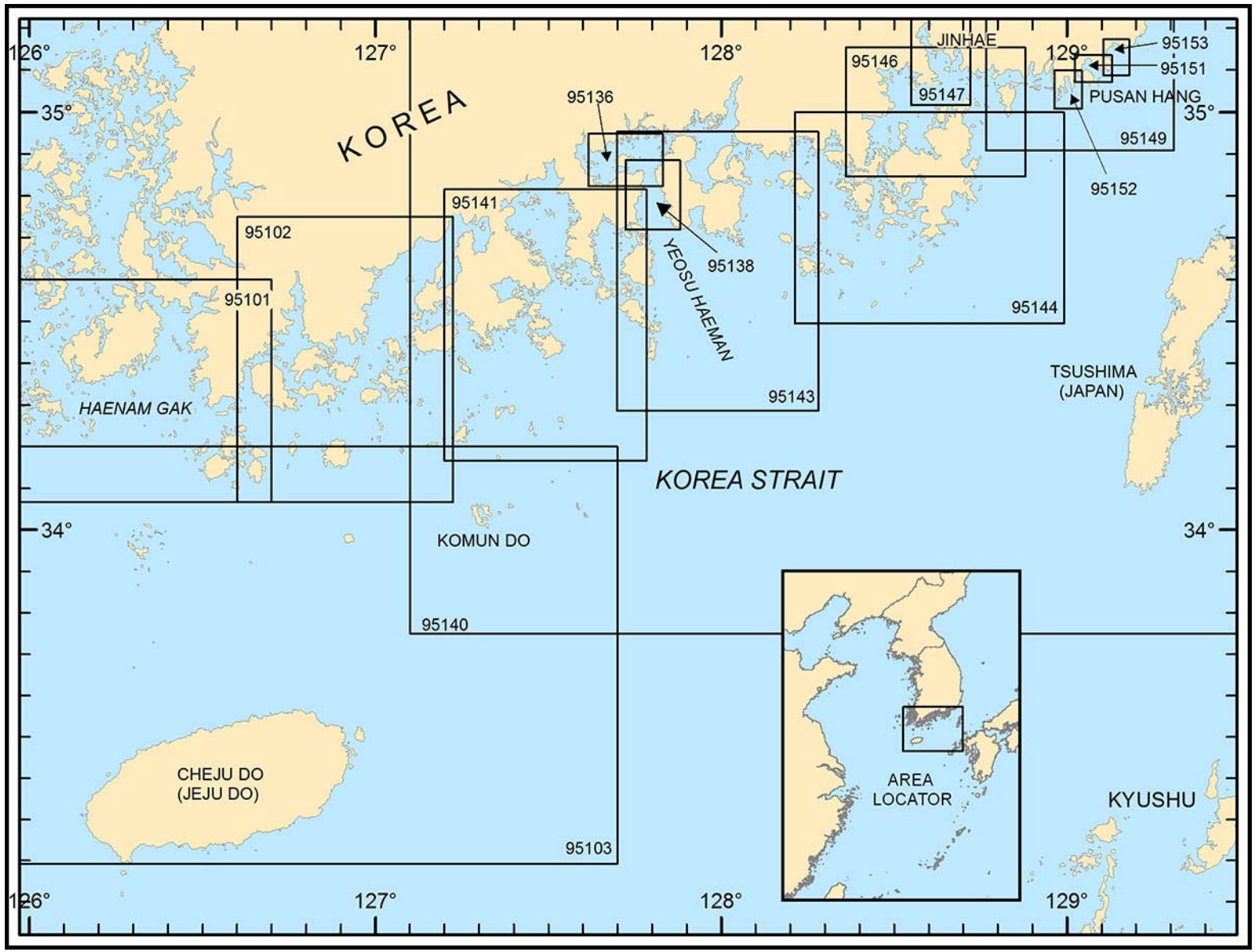
Sector 6
Sector 6—China—Hangzhou Wan and Approaches 255

Sector 7
Sector 7—China—San-Men Wan to Min Jiang 287

Sector 8
Sector 8—Taiwan and Taiwan Strait 321

Sector 9
Sector 9—China—Min Jiang to Dapeng Jiao 351

Glossaries 385
Chinese Hydrographic Names 391
Index—Gazetteer 417



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 1 — CHART INFORMATION

SECTOR 1

KOREA—SOUTH COAST

Plan.—This sector describes the S coast of Korea from Haenam Gak, the S tip of the Korean peninsula, to Pusan (Busan) Hang. It also includes Cheju Do in the W entrance of Korea Strait or Joseon Haehyeob (known as Tsushima Kaikyo to the Japanese). The general descriptive sequence is from W to E.

General Remarks

1.1 The S coast of Korea, from Haenam Gag (34°18'N., 126°31'E.), its SW extremity, to the vicinity of Pusan Hang 135 miles ENE, is indented by large peninsula projections, and is fronted by numerous groups of islands, islets and rocks. Generally speaking, the islands and islets are steep-to and there are few below-water dangers.

The conversion to IALA Maritime Buoyage System (Region B) in the Republic of Korea is reported completed.

Mined Areas.—Extensive mine-laying operations took place in Korean waters during the 1950-1953 war. For further details, refer to Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Fishing Industries.—The increasing number of fishing industries and their operations are developing in the offshore areas and around the coasts of Korea. These operations are performed throughout the year. Aquaculture farms, fish havens, fixed net fishing, and squid fishing operations may be established in positions where they constitute a hazard to navigation.

Fixed net fishing are set within 2 miles offshore in many places off the coasts of Korea; however, the distance may be extended up to 5 miles offshore. Newly established fixed nets are considered hazardous to navigation, and they are either published in the weekly Notices to Mariners in the Republic of Korea or an announcement is made through the Radio Navigation Warnings system.

Generally squid fishing operation is carried out throughout the year in the Sea of Japan, by boats up to 100 tons. Lights from these boats may be shown to attract the fish and not necessarily in conformity with the lights specified in 72 COLREGS.

Fish havens may be encountered on the surface, on the sea bed, or suspended below the surface, at distances within 5 miles of the coast. Those on the sea bed may consist of concrete blocks, scrap metal (including junked vehicles), or sunken hulks laid in a fixed position to develop a fish habitat and a marine environment in coastal waters. Those on the surface may consist of floating rafts under which fish are encouraged to feed out of the sunlight.

These contraptions are also known as fish aggregating devices (FADS). Concentration of fishing vessels may be expected in the vicinity of fish havens where conventional methods are used to catching fish. Occasionally fish havens may be marked by lights or special lighted buoys.

Caution should be exercised if it becomes necessary to pass over a fish haven or when anchoring near it.

Marine farms consist of rectangular cages made of thick wire mesh in two layers, having a standard measure of 20 by 30m. Fish are bred, fed, and harvested in these cages. Marine farms are encountered either in deep water or in an area close inshore, and may be marked by lights or lighted buoys.

The deep water marine farms may be positioned as far as 30 miles offshore, and they are usually attended by service vessels. Although they are moored in a temporary position on the surface, there are also others suspended 20 to 25m below the surface. These farms are frequently moved to safe water before the onset of winter. Inshore marine farms are more likely situated in permanent positions and they are shown on the appropriate charts.

Winds—Weather.—In the Korea Strait the winds are predominantly NE during the winter, but are not felt strongly W of Maemul To. During this season very light breezes blow from between NW and NE between Maemul To and Tumi Do.

On the S side of Namhae Do, W winds blow regularly during this season, and between this island and Kuma Yolto the prevailing winds are W. Between Kuma Yolto and Naro Yolto there are gales from between NW and WSW. Although these gales usually blow strongly during the night, they tend to moderate toward dawn.

At Chuja Kundo the prevailing winds during the spring are E, during the summer E and S, during the autumn N, and during the winter W and NW. The strongest winds are E, and bad weather with these winds often last for a period of 10 days.

Tides—Currents.—Along the S coast of Korea from the S end of Naro Yeoldo to the S end of Koje Do, the tidal currents are very weak. To the S of this area, between the islands off this part of the coast the tidal currents set W with the rising tide E with the falling tide, attaining a velocity between 1 to 1.5 knots. In the narrow channels between Koje Do and Busan the tidal currents attain velocities between 3 to 4 knots.

The tidal currents N and S of Soan Kundo set E and W, with the change occurring about 2 hours after HW and LW. At spring tides there is a brief period of slack water.

Off the S end of Soan Do the W currents divide into two branches, one setting into Soan Hang and the other flowing past both sides of Chagea Do, past the S end of Pogil To and then setting NW. The ebb current sets in the opposite direction. The maximum velocity is 4.5 knots.

In Chuja Kundo the tidal currents usually set in a W or E direction. The velocity of the tidal currents at springs is about 2.3 knots, but in the narrow channels between the islands and islets they attain a velocity of 5 knots in some places, producing dangerous overfalls.

During the ebb tide, eddies are experienced among the islets SE and S of Heonggan Do, and tide rips are common.

The W current flows from about 2 hours before HW until 4 hours after HW at Chang Jiang. The E current flows from about 4 hours after HW until about 2 hours before the following HW.

Pilotage.—The Korea Maritime Pilots Association (KMPA)

provides the following web site:

Korea Maritime Pilots Association
http://www.kmpilot.or.kr

Regulations.—The Korean Ship Reporting System (KOSREP) is in place for all vessels transiting the Republic of Korea Search and Rescue (SAR) area and the Korean Peninsula, bounded by an area between 30°N and 40°N and from 121°E to 135°E. Participation in KOSREP is voluntary with no charges applying to any KOSREP message directed through a Republic of Korea Coast Radio Station as designated by the Korea National Maritime Police Agency. Provision will be made for cooperation between KOSREP, the Japanese Ship Reporting System (JASREP), and the Automated Mutual-assistance Vessel Rescue System (AMVER) to ensure a smooth transition from the Korean SAR area to another SAR area.

Participation is encouraged the following types of vessels of any nationality:

1. International passenger vessels.
2. International voyage vessels of 300 gt or above with a continuous navigating time of 12 hours or more.
3. Any kind of vessel not under command, restricted in ability to maneuver, or limited by draft.
4. Towing vessels with an loa of 200m and over.
5. Vessels carrying dangerous cargo (such as crude oil tankers, product tankers, chemical carriers, and other similar type vessels).

For further details, see Appendix II for South Korea in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

1.2 **Cheju Do** (Jeju Do) (33°25'N., 126°30'E.), a large and rugged island, lies about 45 miles S of the S tip of the Korean peninsula. The volcanic island has few indentations, and no secure anchorages for large vessels. Halla San, the highest point on the island rises to an elevation of 1950m, has two peaks, the W of which is a precipitous wall of rock, and the E is slightly sloping. The lower slopes of the mountain are wooded.

From NE of Haryur Ag, about 12 miles NE of Halla San, is the N of two sharp peaks, about 1 mile apart, which are useful to vessels approaching from this direction. Also very conspicuous from this same direction is a thickly-wooded sharp-peaked mountain about 3 miles NW of Halla San. The most conspicuous feature on the SW coast of the island is Sanbang San. This dome-shaped mountain rises precipitously from the coast about 13 miles SW of Halla San.

An Ocean Data Acquisition System (ODAS) buoy lies in the approaches to Jeju Hang in position 33°31.5'N, 126°29.6'E.

Tides—Currents.—Off the S coast of Cheju Do the tidal current sets in an E and W direction, roughly parallel to the coast, at a velocity of 0.5 to 0.75 knot. The W current runs from 3 to 4 hours before until 2 to 3 hours after the time of HW. The E current flows from 2 to 3 hours after HW until from 3 to 4 hours before the time of the following HW.

Off the SW coast of Cheju Do the velocity of the tidal currents is strongest in the vicinity of **Mara Do** (33°07'N., 126°16'E.), where it attains about 3 knots. The passage N of Mara Do has strong tidal currents which generally cause a tidal race.

Sanbang San

Tidal currents off the N coast of Cheju Do set parallel to the coast. In the vicinity of **Piyang Do (Biyang Do)** (33°24'N., 126°14'E.) the velocity of the tidal currents is about 2.5 knots.

Chagwi Do (33°19'N., 126°09'E.), lying close off the W extremity of Cheju Do, is a cliffy island covered with grass. A conspicuous rocky peak rises about 1 mile ESE of Chagwi Do.

Cheju Do—South and East Coasts

1.3 **Hwasun Hang** (33°14'N., 126°28'E.) is a fishing harbor protected by two breakwaters. The L-shaped S breakwater is 230m long, and extends S then W from the coast. The N breakwater has a landing quay for small craft and extends 250m WSW. An Ocean Data Acquisition System (ODAS) buoy lies in the approaches to Hwasan Hang in position 33°13.5'N, 126°23.6'E.

Hyeongjedo Moyji (33°13'N., 126°20'E.) is the roadstead SW of Hwasun and partially protected from the S by **Hyeong Do** (33°12'N., 126°19'E.), a small island, 25m high, lies 1.3 miles NE of Bunam Gag. A detached rock, 47m high, lies close S of Hyeongje Do. Foul ground lies between Hyeonggi Do and the coast NW.

Anchorage.—The best anchorage may be obtained, in a depth of 22m, sand bottom, about 1 mile offshore and midway between Hwasun Hang and Hyeongjedo. This anchorage is exposed to S and E winds which quickly raise a heavy sea.

Good marks in addition to Sanbang San include Gun San, about 5 miles NE of Bunam Got, and which may be identified by two large rocks on summit. A pier extends 183m W from a point 2 miles NE of Hyeongjedo. Hyeongjedo lies about 1.3 miles NE of the SE extremity of Bunam Got. Foul ground extends about 183m E from this islet, and there is a rock 45m high, close S of the islet; between the N extremity of the islet and the mainland NNW, there are reefs and shallow water.

Seogwip'o Hang (33°14'N., 126°34'E.), a fishing harbor, lies at the mouth of Yenoe Chon. A breakwater extends about 0.25 mile SE then 183m protecting the E side of the approach channel to the harbor. Lights are shown from the breakwater heads on the E and W sides of the harbor entrance. There are eight wharves within the breakwaters, with depths of 3.2 to 9.3m alongside.

Seogwi Ri is the principal town on the S coast of Cheju Do. It stands on a hill on the E side of the harbor. Nok Som and

Sam Do lie in the approach to Seogwi Ri; the former, S of the town, has steep sides and a flat summit, the latter, SE of the town, has a sharp peak conspicuous from E or W. A prominent waterfall, located at the mouth of a river close E of Seogwi Ri, is a good landmark for vessels approaching the harbor from seaward between Nok Som and Sam Do. It is 26m high and looks like a white pillar from a distance. Two ODAS buoys are moored off Pom-do island in the vicinity of position 33°13'N, 126°31'E.

Anchorage.—Large vessels can obtain temporary anchorage off the small harbor at Seogwi Ri, but it is open to the S.

1.4 Jeju Naval Base Harbor (33°14'N., 126°29'E.) is located in restricted waters on the S coast of Cheju Do.

Tides—Currents.—Significant tides of up to 2.5m have been observed at high water in the basin.

Average tidal currents along the southern coast of Cheju Do set in an E and W direction, nearly parallel to the coast, at a velocity of 0.5 to 0.75 knot. The W current runs from 3 to 4 hours before and until 2 to 3 hours after the time of HW. The E current flows from 2 to 3 hours after HW and from 3 to 4 hours before the time of the following HW.

Depths—Limitations.—The harbor has a least depth of 11.28m with average depths of 13.7m throughout. The maximum turning diameter in the basin is 594m.

Three piers, designated 3, 4, and 5, are located in the harbor Pier No. 3 is a floating pier. Pier No. 4 is 608m long, made of concrete with an apron approximately 37m wide, has a depth alongside of 12m. but an obstruction prevents full usage of Berth No. 1. Additional obstructions have been reported in position 33°13'20.1"N, 126°29.03.6"E near Berth No. 2 on Pier No. 4.

Aspect.—The harbor is protected to the S and E by a breakwater. Ships may moor along several piers available in the basin.

No channel boundaries are charted for the approaches to Jeju Naval Base. However, the entrance to the harbor is a narrow channel that forms a sharp bend from the N-S approach to the breakwater into an E-W entrance to the basin.

Pilotage.—Pilotage is compulsory for vessels entering Jeju Naval Base.

The pilots monitors VHF channel 16 and use VHF channels 6, 67, and 73 as working channels.

Anchorage.—Good anchorage may be obtained within 3 miles of the base. A charted fish haven lies S of the harbor breakwater. The bottom, sand and mud, has good holding characteristics.

Directions.—The entrance to the harbor is marked by lateral buoys ,with a 247m gap between them. Once passed the buoys, a buoy clearly marks shoal water to the E. Ships must execute a sharp left turn into the breakwater entrance, marked to port by the breakwater with a green beacon and, to starboard, by Buoy No. 4. The gap between these is 328m. Ships departing follow the same track in reverse.

1.5 Seongsan Bando (33°28'N., 126°56'E.) is the peninsula which forms the E extremity of Cheju Do and to which it is joined by a 50m wide and sandy isthmus. The NW part of the peninsula is low, flat and cultivated, but at the SE end, an extinct volcano rises sharply to a remarkable dish-shaped summit, 178m high. The rocks around the crater, the sides of which are almost perpendicular, are lower to the NE and higher to the NW, and have a conspicuous serrated outline providing a good landmark from some distance.

Seongsan Bando

Aspect.—In addition to the volcano at the SE end of Seongsan Bando, there is Seongsan Am, an isolated rock lying close offshore NE of Seongsan Du; it is pointed, 22m high and prominent when seen from the N.

Four radio towers, each 65m high, are situated in the central NW part of Seongsan Bando.

The port of Ojolip'o is located on the NW side of the Seongsan Bando isthmus, on the S side is the port of Songsanp'o. These two ports are collectively known as Songsanp'o Hang, an important fisheries base.

Seongsan Du, the SE extremity of Seongsan Bando, is distinctive, projecting from the SE side of the peninsula and rising steeply to a sharp pointed summit 72m high.

Songsanp'o Hang East Breakwater Light (33°28.4'N., 126°56.3'E.) is shown from a framework tower standing at the end of a breakwater extending 660m from the end of Seongsan Bando, and runs NNE then N.

The N breakwater extends W from a position about 180m W of the head of the E breakwater. Lights are shown from round towers at each end of the breakwater.

Ojolip'o is protected by two breakwaters; the E breakwater, L-shaped and about 380m long, extends NW then WNW from Seongsan Bando; the W breakwater extends 524m NE from the mainland.

Small vessels up to 300 tons can berth alongside in depths of between 2 to 4m; the total quay length is 500m.

A submarine pipeline crosses the harbor 0.3 mile S of the breakwaters.

Songsanp'o lies on the SE side of the Seongsan Bando isthmus.

Anchorage.—Good anchorage may be obtained in the N part of Songsanp'o, about 0.7 mile WSW of Seongsan Du, in depths of 10 to 15m sand; the S part of the bay is rocky. This anchorage, which is a fishing station, is protected from NW winds in winter but is exposed to SE winds in summer.

Cheju Do—North Coast

1.6 The nearly straight N coast between Piyangdo Myoji and Udo Sudo consist mostly of black lava rocks, piled up in heaps, and projecting rocky ledges. Cheju (Jeju), about midway along this coast, is the principal town on the island. To the E of Cheju the hills rise steeply inland and are broken by narrow valleys.

Piyang Do (Biyang Do) (33°25'N., 126°15'E.) affords anchorage, in about 13 to 15m, sand, between the E side of the island of Piyangdo and Cheju Do. Anchorage may also be had SW of Piyangdo, in 13 to 31m, sand and shells. Local knowledge is necessary for both anchorages. Small local vessels can anchor either 0.3 mile S of Piyangdo, in 10 to 11m, sand, or in a bay on the SE side of the island in depths of 2 to 3m; the latter is a good anchorage except in S winds. The bottom is rocky and uneven in the vicinity of these anchorages, and vessels may experience difficulty in weighing anchor. A light is exhibited on Piyangdo. A submarine pipeline has been laid SE from Piyangdo.

Hanrim Hang (33°25'N., 126°16'E.), a fishing harbor, is entered about 1.3 miles E of Piyangdo. The harbor is protected to the N and W by a breakwater which, connecting with Chiku Do on the N side, extends over 1,500m W and SW; another breakwater projects 180m from the shore to form an inner harbor basin. Breakwater extension works were in progress.

Aewol Got (Aeweol Got), the NW extremity of Cheju Do (Jeju Do), lies 3.5 miles NE of Hanrim Hang. A prominent hill 172m high, with an old beacon on its summit, lies 1.5 miles ESE of the point.

Aewol Hang (33°28'N., 126°20'E.), 1 mile E of Aewol Got, is a small fishing harbor protected by a breakwater with the entrance open NE.

Aewol Li (Aeweol Li) and another fishing village lie a short distance E of the harbor.

1.7 **Cheju** (Jeju) (33°31'N., 126°32'E.), the administrative center of the island, stands on the shore at the head of a small basin protected by a breakwater on its NW side and a breakwater on its E side. The inner harbor SE of the NW breakwater provides shelter and berthing for small vessels with drafts of less than 4.6m.

Cheju Hang (Jeju Hang) (33°31'N., 126°32'E.) (World Port Index No. 60350) is protected on its W and NW sides by a breakwater 0.5 mile long, on the inside of which a breakwater spur forms the N side of the harbor entrance. A mole projects 183m NW from the shore to form the S entrance point of the harbor. A new breakwater (2011) protects the NE side of the harbor.

Winds—Weather.—Strong NW winds are frequent in the winter months and often make it impossible to work cargo. Gales are most frequent in January.

Depths—Limitations.—The international passenger terminal, situated near the foot of the W breakwater.

The inner harbor side of the E breakwater provides shelter and berthing for large commercial cargo vessels Dredging is done as needed to maintain a depth of at least 8m. The harbor area can handle up to 13 vessels: one of 10,000 dwt, two of 5,000 dwt, six of 3,000 dwt, and four of 1,000 dwt. For further berthing information refer to the table titled **Cheju (Jeju)—Berth Information**.

Cheju VTS—Reporting Information

Report Type	Reporting Time	Information Required
Advance Notice of Entry	One (1) hour prior to entering the VTS area.	1. Vessel name and call sign. 2. Destination and ETA. 3. Last port of call. 4. Number of crew and passengers. 5. Cargo type and tonnage.
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Shifting Report	10 minutes prior to or when shifting within harbor limit.	1. Vessel name and call sign. 2. Time of unberthing (anchor clear/berthing (anchor))
Advance Notice of Departure	Thirty (30) minutes and 5 minutes prior to departure.	1. Vessel name and call sign. 2. Berth or anchorage name. 3. Position. 4. Next port of call.
Departure Report	Upon departure from Cheju (Jeju) port.	1. Vessel name and call sign. 2. ATD. 3. Position. 4. Next port of call. 5. Cargo. 6. Number of boarding persons.

Cheju (Jeju)—Berth Information		
Berth	**Length**	**Remarks**
Jeju Raw Harbor		
No. 1	204m	Passengers.
No. 2	104m	Passengers/ro-ro.
No. 3	229m	Ro-ro and cargo.
No. 5	180m	General cargo, passengers, and ro-ro.
No. 6	158m	General cargo, passengers, and ro-ro.
No. 7	140m	General cargo.
No. 8	178m	General cargo.
No. 9	395m	Passengers/ro-ro.
No. 10	373m	Passengers and cruise vessels.
No. 11	625m	Ro-ro and general cargo.
Tanker Berths		
Jeju Harbor		
No. 4	163m	LPG and chemicals.
Jeju Thermal Power Plant		
No. 1	24m	Clean products.

Cheju Hang

Aspect.—In the vicinity of Cheju are several conspicuous peaks. To the W of the city is a prominent pine wood, and to the S is a group of pine trees.

Pilotage.—Pilotage is not compulsory, but is available. The pilot boards in approximate position 33°34.0'N, 126°33.0'E.

Regulations.—Vessels are required to report the following:

1. Preliminary arrival report.
2. Entry report.
3. Arrival report.
4. Shifting report.
5. Departure report.

The harbor is redtricted to vessels up to 3,000 in daylight. Vessels of 100t must wait outside the breakwater until vesssels leaving the harbor are clear.

Vessel Traffic Service.—A VTS has been established for Cheju (Jeju) by the authority of Cheju Port Service. The VTS area is enclosed within the area bounded by lines joining the following positions:

6. 33°28'53"N, 126°18'41"E.

a. 33°37'41"N, 126°20'37"E.

b. 33°43'00"N, 126°29'35"E.

c. 33°41'26"N, 126°40'20"E.

d. 33°34'46"N, 126°46'25"E.

Participation in the VTS is compulsory for:

1. Vessels engaged in international voyages.
2. Vessels greater than 300 gt (except fishing vessels operating in the inner harbor).
3. Vessels laden with dangerous cargo.
4. Vessels engaged in towing with total length of 200m or greater.
5. Fishing vessels greater than 45m in length.
6. Vessels required by the VTS (passenger vessels, towing vessels engaged in operations in the inner harbor, bunker and supply vessels, service boats, ferries, and vessels engaged in port operations).

Vessels must maintain a listening watch on VHF channels 12 and 16 at all times and must report to the VTS at the times specified in the table titled **Cheju VTS—Reporting Information**.

Cheju Hang Traffic Control Center

Contact Information.—Cheju (Jeju) VTS can be contacted, as follows:

1. Call sign:Jeju VTS
2. VHF:VHF channels 12 and 16
3. Telephone:82-64-720-2656
4. Facsimile:82-64-720-2636

Anchorage.—The quarantine anchorage lies about 1.5 miles NW of the breakwaters in position 33°32'N, 126°31'E.

1.8 U Do (33°30'N., 126°58'E.), close off the E end of Cheju Do (Jeju Do), is separated from it by a passage with a general width of about 1 mile, and depths of 13 to 28m in the fairway. The tidal currents set through this passage in a NNW and SSE direction, attaining a maximum velocity of 3 knots.

Anchorage may be obtained 0.5 mile SW of the SW extremity of U Do, in depths of 15 to 22m, sand and shells.

Cheju Haehyob (Jeju Haehyeob) (33°50'N., 126°40'E.), lying between the N side of Cheju Do and Chuja Gundo and the islands E, is deep and unobstructed, except in its SW part.

Haeam Yeo (33°40'N., 126°18'E.), about 12 miles off the NW coast of Cheju Do, is steep-to and pointed. A depth of 4m lies close E of Haeam Yeo. Hwa Do, about 4.5 miles NE of Haeam Yeo, has a flat summit which can be easily identified.

Nakano Se, about 4.5 miles NNW of Hwa Do, is relatively steep-to.

An Ocean Data Acquisition System (ODAS) buoy lies about 11.5 miles SSW of Sasudo in position 33°49.3'N, 126°35.4'E.

Changsu Do (Jangsu Do) (Sasudo) (33°55'N., 126°38'E.), about 22 miles N of Cheju Do (Jeju Do), has a wooded flat summit and steep cliffs.

Yeoseo Do (33°59'N., 126°56'E.), about 14 miles ENE of Changsu Do, is very conspicuous. When seen from W it appears as a round hill with a long ridge extending NE, but from E it appears flat and resembles the back of an ox. A light is exhibited on the N side of the island.

Small local vessels obtain temporary anchorage, in a depth of 9m, in a shallow bay on the N side of Yeoseo Do, but care must be taken to avoid a rock awash lying on the E side of the entrance.

1.9 Chuja Kundo (Chuja Gundo)(33°57'N., 126°20'E.) is a group of islands, islets, and rocks lying about 25 to 30 miles N of Cheju Do (Jeju Do). Vessels should avoid passing through this group. **Jeolmyeong Seo** (33°52'N., 126°19'E.), considered to be the southernmost of the group, is a conical shaped rock lying 9 miles NNW of Hwa Do. Heavy tide rips are reported within 1 mile of Jeolmyeong Seo. Sudeog Do, 2.75 miles NE of Jeolmyeong Seo, is prominent as its N side is a precipitous cliff 126m high.

Bang Seo (33°55'N., 126°24'E.), the SE islet of the group, lies about 3 miles ENE of Sudeog Do.

Heonggan Do, the N of the group, lies about 8.5 miles NNE of Jeolmyeong Seo, and has two peaks. A light is exhibited on Heonggan Do.

Sangchuja Hang, on the NE side of Sangchuja Do, is a small harbor with depths of 3.7m. Winds from the N and E cause a swell in the harbor, but it is comparatively calm close offshore.

Hachuja Do (33°57'N., 126°20'E.), the largest and highest island of Chuja Gundo, 163m high, is connected to Sangchuja Do close NW, by a bridge with an overhead clearance of 9m. Foul ground extends 0.75 mile S and SE of the S point of Hachuja Do. A 10m wide breakwater extends 0.3 mile SSW from a position on the shore SE of the summit of the island.

Anchorage may be obtained SE of the summit of Hachuja Do, in depths of 18 to 20m, sand.

The islet of Jiggu Do lies about 2 miles NW of Sangchuja Do.

Abnormal magnetic variation was reported to exist about 10 miles NNW of Chuja Gundo.

1.10 Soan Kundo (Soan Gundo) (34°10'N., 126°27'E.), NE of Chuja Gundo, is separated from the Korean mainland by Hoenggan Sudo. The group consists of three large islands, several smaller islands, and numerous rocks.

Judun Cho (Chulon Cho), a rocky head awash, lies about 3.75 miles SW of Jagae Do. The sea breaks over this rock during strong winds and tidal currents.

Dangsado, the southernmost of the group, rises to a sharp peak at its S end. This wooded islet is an excellent landmark for vessels passing S of the group. A light is shown from the SE extremity of Dangsado.

Soan Do, the E island of the group, consists of two highlands joined by a low narrow isthmus. The E end of the N part of the island is surmounted by a conspicuous conical peak. Soan Hang is formed by a narrow passage between Soan Do and the islands W of it. An overhead power cable, with a clearance of 31m, extends from the W extremity of Soan Do to the island W of it. Nohwa Do, the N island, can be distinguished from the other two large islands of the group because its hills vary little in height, and it is almost bare.

Bogil Do (Pogil To) (34°09'N., 126°32'E.), separated from Nohwa Do by a narrow channel, is densely wooded, with many sharp peaks. A submarine cable has been laid from the NW coast of Bogil Do and Na Do, 1.5 miles NW.

Hoenggan Do, the N island of the group, is separated from Nohwa Do by Janggu Sudo (Changgu Sudo), which has depths of 20 to 31m in the fairway. An overhead power cable spans the channel with a clearance of 31m. From E the island appears as a flat ridge terminating in a steep, rugged slope which ends in a cliff.

The maximum velocity of the tidal currents in the passage is 4.5 knots. A light is exhibited on the N coast of Hoenggan Do.

Yongjeon Cho, about 1.5 miles E of Hoenggan Do, marked by a light, is a drying pinnacle rock. There are heavy overfalls over this rock when the tidal currents are strong, but at slack water it is extremely dangerous as it is not seen.

A wreck lies sunk about 0.5 mile SSW of Yongjeon Cho.

1.11 Hoenggan Sudo (34°16'N., 126°35'E.), deep and free from dangers in the fairway, lies between the N island of Soan Gundo (Soan Kundo) and the islands E of Haenam Gag. Baegil Hang lies E of Haenam Gag and N of the islands of Heugil Do and Baegil Do.

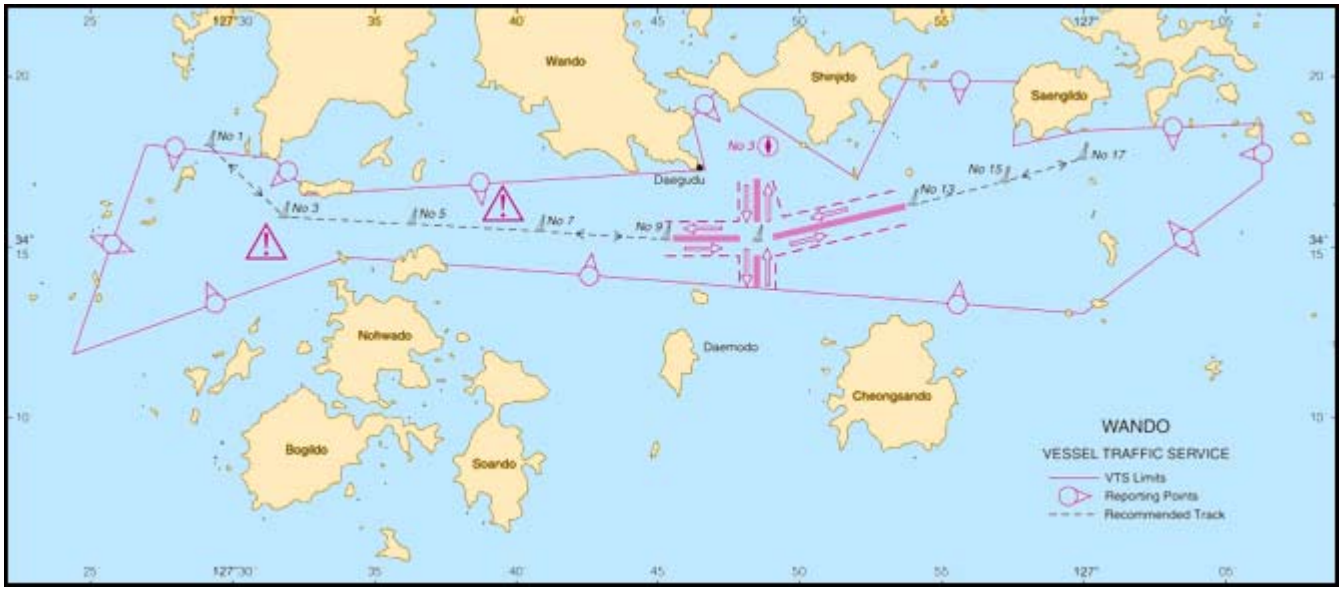
Haenam Gag (34°18'N., 126°31'E.), the SW extremity of the Korean peninsula, is surmounted by a pointed hill and another hill close N, both of which are conspicuous. It is also the SW extremity of Tarumasan Sammyaku, which extends to Delma San 489m high, 6 miles NNE, and has a very irregular outline.

Baegil Hang (Paegil Hang) (34°18'N., 126°34'E.) is entered from W between Haenam Gag and the W end of Heugil Do (Hugil To) about 1 mile SE. The S and E sides of the harbor are formed by two islands, Heugil Do and Baegil Do, 0.5 mile NE.

Tides—Currents.—In Baegil Hang, currents attain a rate of 4 knots.

Anchorage.—Anchorage may be obtained by small local vessels in Baegil Hang, in a depth of 10m. A good berth is with the NE tangent of Baegil Do in line with the S summit of **Gye Do** (34°18.5'N., 126°36.8'E.), bearing 069°, and the SW extremity of Baegil Do, bearing 155° in a depth of 9m, where the tidal currents are weak.

Caution.—An overhead power cable runs between Baegil Do and Donghwa Do, and has a 37m vertical clearance. A dangerous wreck, at a depth of 26m, lies in the SW entrance to



Wando Vessel Traffic Service

Baegil Hang about 1 mile W of Heugil Do.

1.12 Heugil Do (Hugil To) (34°17'N., 126°33'E.), 184m high and wooded, is fringed by a bank, with depths of less than 5m extending 1 mile ENE from its NW point. Baegil Do, 109m high, lies 0.5 mile NE of Heugil Do. An overhead cable, with a vertical clearance of 49m, spans the channel between the E end of Heugil Do and Baegil Do, 0.4 mile NE.

The E continuation of Hoenggan Sudo leads N of Somo Do and the islands E of Soan Hang, and S of the islands on the W side of the approach to Tungnyang Man (Deugryang Man). Meeruan, a rock, lies on the N side of the passage about 2.8 miles NNW of Somo Do. A light is exhibited from a red round concrete tower, with black bands, standing on the rock.

Somo Do (Soma Do) (34°14'N., 126°47'E.) is 121m high at its E extremity. Somo Do has a conspicuous clump of trees on the W side of its summit. A reef extends 0.5 mile SW from Somo Do; two above-water rocks, the inner 17m high, stand on the reef. A light is shown from the NW extremity of Somo Do. Taema Do, about 0.8 mile S of Somo Do, has an irregular serrated summit. A bank, with a depth of 9.6m at its W edge, extends about 1 mile W from Taema Do. The high and flat **Pulgun Do** (Bulgeun Do) (34°09'N., 126°45'E.), with two small islets close S, lies about 1.5 miles S of Taema Do. A rock, with a depth of less than 1.8m, lies close N of the N extremity of the island.

1.13 Wando (34°21'N., 126°42'E.) is a large island located N of Some Do, rising to an elevation of 645m in its center. The town of Wando is located in the SE part of the island at the head of Wando Bay, which is approached through Wando Hang. The island of **Sinjido** (34°20'N., 126°51'E.) is located close E of Wando and rises to a peak of 225m in its center and even higher to 324m at its W extremity. A bridge, with vertical clearance of 35m, connects the E end of Wando close S of Wando Hang to the W extremity of Sinjido. A power cable located close S of the bridge spanning the same channel between these two islands has a vertical clearance of 29m.

Tides—Currents.—The mean spring range of tides in Wando Hang is about 2.1m, with the mean neap rang about 1.2m.

Depths—Limitations.—Wando Hang (34°19'., 126°45'E.) is a bay lying between a drying reef (Molseo) and a point 1 mile NW, from which the W breakwater of the harbor extends ESE.

The main berthing area is located on the SE side of the harbor; however there is presently expansion taking place to extend the main berthing area to Molseo on reclaimed land.

Three main berthing quays, with a total length of 1,000m, have charted depths of 6.1 to 10.8m alongside. The harbor can accommodate vessels up to 20,000 tons.

Pilotage.—Pilotage is compulsory and should be requested at least 12 hours in advance. For pilot boarding positions and contact details, see Mokpo (paragraph 3.11).

Wando VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	Upon passing the reporting line.	1. Vessel name and call sign. 2. Destination and ETA. 3. Cargo on board.

Wando VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Passing	1. Eastbound vessels—Upon passing TSS Lighted Buoy No. 1 (34°17'48"N, 126°29'06"E.), Lighted Buoy No. 9 (34°15'12"N, 126°45'14"E.) and Lighted Buoy No. 20 (34°17'30"N, 127°06'18"E.). 2. Westbound vessels—Upon passing TSS Lighted Buoy No. 20, Lighted Buoy No. 13 (34°16'06"N, 126°53'18"E.) and Lighted Buoy No. 1.	1. Vessel name and call sign. 2. Position.
Arrival	Upon arrival at anchorage or berth.	1. Vessel name and call sign. 2. Position. 3. Arrival Time.
Advance Notice of Shifting	Ten (10) minutes prior to vessel shifting.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting	When shifting within harbor limits.	1. Vessel name and call sign. 2. Time of unberthing (anchor clear/berthing (anchor)).
Advance Notice of Departure	Ten (10) minutes prior to departure.	1. Vessel name and call sign. 2. Berth or anchorage name. 3. Position. 4. Next port of call.
Departure	When departing Wando port.	1. Vessel name and call sign. 2. Departure time. 3. Position. 4. Next port of call.

Anchorage.—A quarantine anchorage, with a radius of 1,100m, in a depth of 18m, mud and shells, is centered on position 34°17'23"N, 126°49'08"E. Vessels up to 50,000 tons can use this anchorage.

Two designated anchorage areas are, as follows:

1. Anchorage No. 1—Centered on position 34°19'42"N, 126°45'58"E with a radius 250m, in depths of 14m, gravel and shells. Vessels up to 20,000 tons can use this anchorage.
2. Anchorage No. 2—Centered on position 34°19'31"N, 126°46'33"E with radius a radius of 200m, sand and mud. Vessels up to 2,000 tons can use this anchorage.

Anchoring is prohibited within a radius of 450m of Moleso. Two lighted buoys mark this area.

Regulations.—The channel leading to Wando Hang is regulated by a traffic separation scheme (TSS) established by the government of Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Vessel Traffic Service.—A vessel traffic service (VTS) in effect for vessels sailing S of Wando covers the area shown in the graphic titled **Wando Vessel Traffic Service**.

Participation in the Wando VTS is mandatory for the following vessels:

1. Vessels engaged in international voyages.
2. Vessels greater than 300 gt (except fishing vessels operating in the inner harbor).
3. Vessels laden with dangerous cargo.
4. Towing vessels with barge or connected in a composite unit.
5. Towing vessels engaged in construction.
6. Fishing vessels greater than 45m in length.
7. Passenger vessels, official ships, pilot boats and tugs.

Wando VTS provides navigational warnings and information on VHF channel 10.

Contact Information.—Wando VTS can be contacted, as follows:

Wando VTS	
Call sign	Wando VTS
VHF	VHF channels 10 and 16
Telephone	82-61-550-2650
Facsimile	82-61-553-2450

1.14 Ch'ongsan Do (Cheongsan Do) (34°11'N., 126°53'E.), is 343m high at the SE end of the island. The island is mostly cultivated but the peaks are bare. There are several villages on the coast. Close off the NW coast of Ch'ongsan Do are two islets, Chang Do (Jang Do) and Chich'o Do (Jicho Do), 1 mile S of it. A rock, 21m high, lies about 0.7 mile SW of Chich'o Do (Jicho Do) and 0.55 mile offshore. An important fishing village lies at the head of an inlet entered 0.5 mile SSE

of Chich'o Do. A light is exhibited from the head of two breakwaters near the village.

A submarine power cable is laid between the N side of Ch'ongsan Do and the S end of Sinji Do, 5.5 miles NNW. The cable is marked along its length at intervals of about 1 mile by several lighted buoys.

Tides—Currents.—In the middle of Hoenggan Sudo the tidal currents set in an E and W direction. The E current attains a velocity of 4.5 knots, and the W about 3.5 knots. In Baegil Hang (Paegil Hang), the tidal currents reach a velocity of from 4 to 5 knots.

Between Ch'ongsan Do and Soan Hang the tidal currents set in a N direction with the rising tide, and in a S direction with the falling tide. The current attains a velocity of about 2 knots.

Anchorage.—Anchorage may be obtained by vessels with local knowledge in fine weather, off the W side of Ch'ongsan Do in position 34°10.7'N 126°50.9'E, in a depth of about 15m. Anchorage may be also obtained during N winds in a bay on the S side of Ch'ongsan Do at its W end. The bay has depths of 10 to 15m and the best anchorage during N winds is in a depth of 11m. A sandy beach lies at the head of the bay.

On the E side of Ch'ongsan Do lies a shallow bay the S entrance point of which is formed by **Hang Do** (34°11'N., 126°56'E.), 89m high. In this bay small local vessels can obtain shelter from SW winds, in depths of 7m, sand and mud.

Off-lying Islands

1.15 Geomun Do (Komun Do)(34°02'N., 127°19'E.), the outermost group of islands along this part of the coast, lies about 23 miles S of the Korean coast and about 37 miles NE of Cheju Do (Jeju Do). The group consists of two large islands, Seo Do (So Do) and Dong Do (Tong Do), and a smaller island Go Do (Ko Do) lying between their SE ends. The islands of this group are easily distinguished from the numerous other islands and rocks in the vicinity, being larger, rugged, and densely wooded. Except when seen from SE, Seo Do and Dong Do have the appearance of one island. A breakwater extends for 72m from the E side of the village on the NE side of Seo Do, about 0.3 mile SW of the NE extremity of Seo Do. A light is shown near the S extremity of Seo Do.

Daesambu Do, with some smaller islets lying close offshore, lies about 3 miles E of Dong Do. Its summit rises to a conspicuous conical peak.

Sosambu Do, about midway between Daesambu Do and Dong Do, is a small group of islets and rocks, the S islet of which has a dome-shaped peak, conspicuous because of its brownish color.

Man Am, nearly 0.75 mile N of Dong Do, is 3m high and steep-to.

Donae Hae (34°03'N., 127°18'E.), lying between Dong Do and Seo Do, is a sheltered spacious harbor with depths of 15 to 18m. The holding ground is good, but strong E winds cause a swell. The main entrance, and the only one which can be used by deep draft vessels, is through a channel about 0.18 mile wide between the SW end of a rocky spit, extending 0.45 mile SSW from the SW point of Dong Do and Go Do. A lighted buoy marks the fairway SW of the rocky spit.

Tides—Currents.—Tidal currents in Donae Hae set N with the rising tide and S with the falling tide, attaining a velocity of 1.25 to 1.75 knots in the N entrance.

Anchorage.—The best anchorage is on the E side of the harbor between the N entrance point and the SW point of Dong Do, in a depth of 15m, mud. The swell caused by the SE gales is less felt here than on the W side.

1.16 Sangbaeg Do (Sangbaek To) (34°02'N., 127°37'E.), the S of the off-lying islets, lies about 14 miles E of Geomun Do. This group consists of three unmistakable islets which resemble a castle from all directions. It was reported that Sangbaeg Do is an excellent radar target.

Habaeg Do (Habaek To) (34°03'N., 127°35'E.), 1.5 miles NW of Sang Baeg Do, is a group consisting of three islets and several pinnacle rocks; the S of the two W islets is 147m high and pyramidal in shape. From its S end several above-water rocks extend 0.5 mile S.

Both Sangbaeg Do and Habaeg Do are easy to identify because of the precipitous summit of Habaeg Do. A light, with a racon, is situated on the summit of Habaeg Do. The summits of both groups are also thickly covered with shrubs.

Mun Do (34°07'N., 127°31'E.), about 4.75 miles NW of Habaeg Do is 102m high, and, with the exception of its summit, is thickly covered with shrubs. Its coasts, except on its E side, consist of vertical cliffs which are prominent.

Mun Seo (Mun So) (34°08'N., 127°34'E.), 23m high, lies about 2.75 miles ENE of Mun So, and consists of two pinnacle rocks lying close together. An 8.5m rocky shoal lies about 0.8 mile S of Mun Seo.

Islands in the Approach to Deugryang Man (Tungnyang Man)

1.17 Maemu To (Maemu Do) (34°13'N., 127°00'E.), on the E side of the W approach to Deugryang Man, lies about 17 miles NW of Geomun Do and 4 miles NE of Ch'ongsan Do. Maemul To (Maemul Do) is one of three islands of similar appearance, all thickly wooded and darker than other islands in the vicinity. The island Ku Do (Gu Do), 127m high, lies about 0.75 miles E of Maemul To. The third island lies about 0.35 mile S of Ku Do. A light is shown from the NW side of Oyudo Island.

A local magnetic anomaly, with a deflection of 4°E and 5°E, was reported in a position 2 miles SSW of Maemul Do covering an area of about 1 mile.

Hwangje Do (34°11'N., 127°05'E.), about 4.3 miles ESE of Maemul To, consists of a group of six islets which, when seen from E or W, have the appearance of being three islets.

Togu Do (Deogu Do) (34°15'N., 127°01'E.), about 1 mile N of Ku Do, presents two distinct peaks when seen from E or W. Sodogu Do, about 1.5 miles N of Togu Do, is conical with thickets of brushwood. A light is exhibited on the NW coast of Sodogu Do. A bank, with a depth of 5.5m, extends 0.2 mile NW from the islet.

Hyongje Do (Choko To), midway between Togu Do and Sodogu Do, consists of three islets lying close together; from a distance these islets have the appearance of one island.

Chodo Gundo (Chodo Kundo) (34°14'N., 127°15'E.), about 10 miles N of Geomun Do, consists of one fairly large island and a number of islets and rocks. Cho Do, the largest island, may be identified by a peculiar long ridge which appears as a

sharp peak when seen from N or S. Chang (Jang) Do, the westernmost island of the group, lies about 2.75 miles WSW of Cho Do; it is high, cliffy, and flat-topped. The N islet of the group lies about 2.75 miles N of Cho Do; a rock which dries 0.9m lies close W of another rock about 1.3 miles SE of this islet.

Vessels transiting Chodo Gundo must report to Yeosu (Yosu) Coastal Vessel Traffic Service (VTS) as illustrated in the graphic titled **Yeosu (Yosu) Coastal Vessel Traffic Service**. See paragraph 1.27 for details.

1.18 Yongman Do (Yeogman Do) (34°10'N., 127°21'E.), about 5 miles SE of Chodo Gundo and 7 miles NNE of Geomun Do, has a flat summit about 216m high and is thickly covered with trees. The N part of the island is a bare conical hill, 113m high, joined to the S part by a sandy isthmus and is prominent from E or W. Yongman Do Light is shown from the N part of the island.

Sonjug Yeoldo (34°17'N., 127°23'E.), consists of three islands, Sonjug Do and Geomun Do with the smallest, Sogeomun Do, between them. Sonjug Do, the W island, is wedge-shaped with a conical hill at its NE end. Sogeomun Do, 92m high and somewhat flat, lies close off the NE extremity of Sonjug Do. Geomun Do, 0.75 mile E of Sonjug Do, is the easternmost island of the group and has a sharp double peak.

Mog Seo, 44m high, with an above-water rock 183m S of it, lies a little over 0.75 miles W of Sonjug Do.

Dae Am (Tae Am)(34°17'N., 127°26'E.), a red rock 55m high with a single pine tree on its summit, lies 1.75 miles E of Geomun Do.

Wang Do (34°16'N., 127°32'E.), about 6.5 miles E of Sonjug Yeoldo, is cliffy and cultivated. A rock, 27m high, lies about 0.4 mile SE of Wang Do. Vessels should not approach the N side of Wang Do within 0.2 mile. Daeduyeog Seo, two black rocks, the S of which is 28m high, steep-to, and marked by a light, lies 1 mile S of Wang Do.

Gansu Jedo, lying SW of Wang Do, is a group of five islands and rocks lying 3 miles SE of Geomun Do. Pyeong Do, the central and largest island is cliffy along its S coast and there is a sharp peak at its SW end. The central part of the island is low-lying, while its N part is flat and attains an elevation of 137m. Gu Do, 158m high, the S and highest island of the group, is cliffy except at its SE point. Sopyeong Do, 65m high, lies less than 0.5 mile N of Pyeong Do, with an islet midway between.

Between Chodo Gundo and Sonjug Yeoldo and the entrance of Deugryang Man to the N, there is a chain of islets extending about 15 miles ENE from **Paek So** (34°15'N., 127°06'E.) to **Jima Do** (34°20'N., 127°22'E.).

The latter islet is saddle-shaped and thickly covered with shrubs.

Deugryang Man (Tungnyang Man)

1.19 Deugryang Man (34°35'N., 127°05'E.), which affords shelter, is about 8 miles wide and 20 miles long. This extensive inlet is approached by one of three channels which leads between several islands and islets which encumber the entrance. The NW side of the bay is fairly shoal, with depths of less than 5m extending up to 2 miles offshore in places. Depths on the SE side, which is mostly steep-to, are greater. The bottom everywhere is soft mud.

The NW side of the bay is backed by mountain ranges, with many bare or rocky peaks, rising precipitously from the coast. Ch'ongwan San, the highest peak, has a conspicuous cairn on its summit. The E side of the bay is formed by **Goheung Bando** (Kohung Bando) (34°33'N., 127°20'E.), which has several barren peaks. P'aryeong Sa (Palyong Sa), the summit of this large peninsula, is very conspicuous.

Changgodo Sudo, the main channel leading into Deugryang Man, lies between Sinji Do and Choyak To, on the W, and Saengil To and Pyongil To, on the E. The direct approach to this channel from seaward is between Ch'ongsan Do and the islets extending SSE from Saengil To. The channel N of Saengil To leads W of Taech'ilgi Do, Changgu Do and Chilma Do, and then NNE into the bay.

Saengil To (34°19'N., 127°00'E.), one of the most conspicuous islands in the vicinity, has two distinct peaks, both of which are conspicuous because of a blackish color and of their being densely wooded. The N peak is slightly flat, and the S peak has the appearance of two nipples. Pyongil To, separated from Saengil To by a passage about 0.5 mile wide, rises to a sharp peak near its middle part.

Sinji Do rises to its summit near its W end. This summit shows as two conspicuous peaks when seen from E. Chang Do and Mohwang Do lie S of Sinji Do. A light is exhibited on the NE coast of Mohwang Do. Choyak To, separated from Sinji Do by a passage with moderate depths in the fairway, is hilly. The summit of Choyak To appears as a level ridge, the easternmost peak being sharp and conspicuous. A light is shown from about 2.3 miles SE of the W extremity of Sinji Do. A power cable with a vertical clearance of 29m spans the channel between Sinji Do and Wan Do. Red and white metal towers, marked by obstruction lights, stand at each end of the cable.

A bridge is under construction close N of the power cable.

A second bridge, with a safe vertical clearance of 30m., has been constructed in the Changjingno Strait, at the W end of Sinji Do. A power cable in the vicinity of the bridge has a vertical clearance of 42m.

Geumdang Sudo (Kumdang Sudo)(34°25'N., 127°07'E.), the central channel leading into Deugryang Man, lies between Ch'ung Do and Kumdang Do, on the W, and Geogeum Do, on the E. The channel leads W of the densely wooded and conspicuous **Hou Do** (34°24'N., 127°07'E.) and Yonhong Do, about 2.75 miles farther NNW. Chungang Do (Chuo To), the black steep-to rock about 0.5 mile SW of the S end of Yonhong Do, can be passed on either side, but the W side is recommended. Overhead cables exist between Yonhong Do and Geogeum Do. They have a minimum clearance of 19m.

Kumdang Do, with several bare hills, lies at the N end of the E side of Changgodo Sudo, in addition to the N end of the W side of Geumdang Sudo.

Geogeum Sudo (Kogum Sodo) (34°26'N., 127°16'E.), the N channel leading into Deugryang Man lies between Geogeum Do and Sisan Do, on the SW, and Goheung Bando (Kohung Bando), on the NE and N. The channel leads between **Gye Do** (34°30'N., 127°14'E.), the largest and highest of a group of islets and rocks lying off the NE extremity of Geogeum Do, and Kamdung So (Kanton Yo), a detached rock, 2m high, about 0.6 mile farther NNE. The main channel through the W end of Geogeum Sudo is N of Sanghwa Do, and between Taegodu Do,

on the S, and Sorok To, on the N.

Numerous overhead power cables are located in Geogeum Sudo, Mado Sudo and between Choyak To, Geogeum Do, Sinji Do, and Wan Do. The charted vertical clearances of these cables range from 12m for those S of Sorok To to 35m for those in Mado Sudo.

Caution.—A dangerous wreck is located W of Oenarodo Island in depths of 7.8m in position 34°25'30"N, 127°23'48"E.

1.20 Geogeum Do (34°27'N., 127°10'E.) is covered with trees which stand out in contrast to the bare appearance of the hills on Goheung Bando (Kohung Bando). The wooded mountains in the E part of the island are conspicuous when seen from seaward. Sisan Do, on the SW side of the entrance of Geogeum Sudo, lies about 1.75 miles ESE of Geogeum Do. The summit of Sisan Do appears almost round from any direction. A light is exhibited close SE of the S extremity of Sisan Do. Another light is shown from the N end of the island. Bua Do (Pua Do), 89m high, lies about 2.5 miles W of Sisan Do is conical and wooded.

Jijug Do (Jiho Do), on the NE side of the entrance of Geogeum Sudo, is the largest of numerous islets and rocks lying off the S extremity of Kohung Bando (Goheung Bando). The summit of this islet is a black hill which rises steeply over the S extremity.

Tides—Currents.—In Kumdang Sudo the tidal currents set in a NW and SE direction, attaining a velocity of 3 knots at spring tides. Slack water occurs about 40 minutes after high water at Ch'ang Chiang, with the ebb beginning to run almost immediately.

In Kogum Sudo the tidal currents set in a NW and SE direction, attaining a velocity of 2 knots. Slack water occurs about 30 minutes after high water, with the ebb beginning to run almost immediately.

Anchorage.—Vessels may obtain anchorage anywhere in Deugryang Man according to draft. The holding ground is very good, and the tidal currents are not felt much here.

Islands in the Approach to Yeoja Man (Suncheon Man)

1.21 Tanggeon Yeo (34°22'N., 127°31'E.), a group of conical rocks, lies about 10 miles SE of the S extremity of Goheung Bando, and is the outermost of the dangers on the W side of the entrance of Yeoja Man. A light is shown from Tanggeon Yeo; a racon is situated at the light.

Gogdu Seo, about 1.8 miles NNW of Tanggeon Yeo, consists of two rocky islets, the SE one of which is wooded and of a conspicuous reddish color. A dangerous wreck lies sunk between Tanggeon Yeo and Gogdu Seo.

Naro Yeoldo (34°30'N., 127°30'E.) consists of two relatively large islands and several islets lying on the W side of the approach to Yeoja Man (Suncheon Man). Onaro Do, 392m high, the S island, has a wooded range of hills extending from its S end to its summit, on which stands a conspicuous tower.

Naenaro Do (34°30'N., 127°28'E.), 240m high, separated from Oenaro Do by a narrow passage, is largely wooded and hilly. Several islets and rocks lie within 3 miles of the E side of these two islands. Samam Lighted Beacon stands at the W end of Naenaro Do, 1.3 miles N of Sayang Do Light. A drying rock was reported to lie about 0.5 mile W of this beacon. Sayang Do, 201m high, lies at the W end of the Oe Sudo passage separating Oenaro Do and Naenaro Do. Oe Sudo is a narrow intricate channel with depths of 6 to 20m in the fairway. It it suitable for small local craft. A bridge spans connecting the two islands at the W end of the channel. Overhead power cables, laid between pylons painted red and white in stripes and each marked by a light, connect Naenaro Do with Oenaro Do and with Sayang Do; the least vertical clearance is 39m. A light is exhibited on the S side of Sayang Do. A light is exhibited on the SE extremity of Naenaro Do. A breakwater extends 45m WNW from the W side of Oenaro Do, a little over 1 mile SE of Sayang Do S extremity. There is an oil tank close SSE of the root of the breakwater and there is a mooring buoy off the head of the breakwater. A quay about 305m long with a short concrete pier projecting from it, is situated close N of the breakwater.

Kumo Yolto (Geumo Yeoldo) (34°30'N., 127°47'E.), consisting of three islands and several islets, lies on the E side of the approach to Yeoja (Suncheon) Man, and the W side of the approach to Yeosu Haeman. Sori Do (Sorido), the S island of the group, has a conspicuous pyramidal peak, 230m high, at its S end. Sori Do Light is shown from the S point of the island.

An Do (Ando) is separated from Sori Do by a channel. Shingang Sudo (Singang Sudo) has a clump of trees on its summit which is a good landmark. **Geumo Do** (Kumodo) (34°32'N., 127°45'E.), the largest island of the group, is densely wooded. The peak at the SE end of the island is a good mark.

Caution.—An overhead power line with a vertical clearance of 19m extends from An Do to the mainland. Shoals, with a depth of 6.4m, lie about 2.3 miles SSW of the W end of Geumo Do.

1.22 Geumo Sudo (Kumo Sudo) (34°33'N., 127°45'E.), N of Geumo Do, is deep and free of dangers in the fairway. Vessels should keep in mid-channel to avoid the tide rips off the points of Geumo Do.

Regulations.—A Precautionary Area and a Restricted Area exist within **Kumo Sudo** (34°33.3'N., 127°45.3'E.) and are bounded by lines joining the following positions:

a. 34°35'N, 127°41'E.
b. 34°35'N, 127°50'E.
c. 34°30'N, 127°50'E.
d. 34°30'N, 127°41'E.

Vessels over 100 gt are recommended not to navigate within this area. Between Tarduri Do and Soduri Do to the N and Geumo Do to the S, navigation is restricted during the period from April 1 to July 31 each year due to reduced visibility.

Kumo San (34°35'N., 127°48'E.), a 320m high hill with a saddled-shaped depression, forms a good landmark near the SE end of Tulsan Do. Koma Gak Light is shown from a white, round, 7m high, concrete tower that stands near the coast 0.75 mile E of Kumo San.

An islet, 39m high, lies 0.25 mile off the SE side of Tulsan Do, fronting a small bay, 1 mile NNE of Tulsan Do. A patch drying 2.7m lies close ESE of the islet.

Fish nets are set within the area extending up to 4 miles ESE and 6 miles SE of the SE end of Tulsan Do. A fish haven (concrete blocks) extends up to 0.75 mile SSE of the point.

Tides—Currents.—The tidal currents about 1 mile S of Tang-

geon Yeo have a velocity of about 2 knots. Vessels are recommended to give Tanggeon Yeo and Gogdu Seo a berth of at least 1 mile because of the strong tidal currents in their vicinity.

In Geumo Sudo, the tidal currents set in a W direction with the rising tide at a velocity of 4.3 knots, and in an E direction with the falling tide at a velocity of 3.25 knots.

Anchorage.—Small local vessels can obtain good anchorage in the bay SW of the 39m high islet, in a depth of 8m, mud. A drying reef extends 137m SE from this islet.

Caution.—Pinnacle rocks are reported to exist and they are extended up to 4 miles from the coast between **So Yong Dan** (34°24'N., 127°48'E.), and **Tulsan Do Light** (34°42'N., 127°48'E.).

Yeoja Man (Suncheon Man)

1.23 Yeoja Man (34°40'N., 127°30'E.) lies between the E side of Goheung Bando and the W side of Yosu Pando (Yeosu Bando). The entrance is encumbered by numerous islands which extend SE to the N side of Geumo Sudo. The recommended channel into the inlet is So Sudo, which lies between **Nang Do** (34°36'N., 127°33'E.) and the E end of Goheung Bando. This passage is about 0.6 mile wide, but is reduced to a width of 0.3 mile at its N end by the reef extending from the W side of the channel. Nang Do has a cairn on its summit which is conspicuous from seaward.

Caution.—Two overhead power cables, one with a vertical clearance of 38m, the other with a vertical clearance of 35m, cross the S end of So Sudo. The channel between Sayangdo and Naenarodo, 600 yards NE, is spanned by a bridge (34°28.8'N, 127°26.9'E) with a safe vertical clearance of 20 m; a power cable with a safe vertical clearance of 40m also spans the channel. A bridge (34°37.3'N, 127°32.7'E) with a vertical clearance of 16m spans the channel between the N extremity of Nangdo and Dunbyeongdo.

Gae Do (Kae Do) (34°34'N., 127°40'E.), about 5 miles SE of Nang Do, is the largest of the several islands fronting the entrance of Gamag Yang. The summit of Gae Do, 337m high, along with a 330m high summit close NW of it, are both pointed and form good landmarks. Anchorage may be obtained in the E bay on the S coast of Gae Do, by small local vessels, in depths of 7 to 13m.

Yosu Haeman (Yeosu Haeman)

1.24 Yosu Haeman (34°40'N., 127°51'E.) is an extensive inlet between **Tolsando** (34°38'N., 127°48'E.) and Yosu Bando on the W side, and Namhae Do on the E side. At its head are two branches, the W leading into Kwangyang Man, and the E leading into Noryang Sudo.

Kanyo Am (34°17'N., 127°51'E.) is the outermost of dangers lying on the approach to Yosu Haeman. It is 23m high and lies 16 miles E of Kwang Do and is marked by a lighted beacon. **Chag To** (34°25'N., 127°54'E.) lying about 8 miles NNE of Kanyo Am, is 100m high and flat-topped.

Sejon Do (34°30'N., 128°05'E.), about 10 miles ENE of Chag To, shows two curiously-shaped rocky peaks when seen from NW, and when seen from NE, these two peaks are in line. A light has been established on Sejon Do. A village is located on the W side of Sejon Do. A dangerous wreck lies 7 miles WNW of Sejon Do.

Kal To, about 6 miles NE of Sejon Do, shows four peaks when seen from SE. Near the S coast of the island there is a 64m high pointed rock, which is conspicuous when seen from the SW.

Kudol So (Gudol Seo) (34°37'N., 128°07'E.) lies about 4.5 miles NW of Kalto. Kudol So Light stands on the islet.

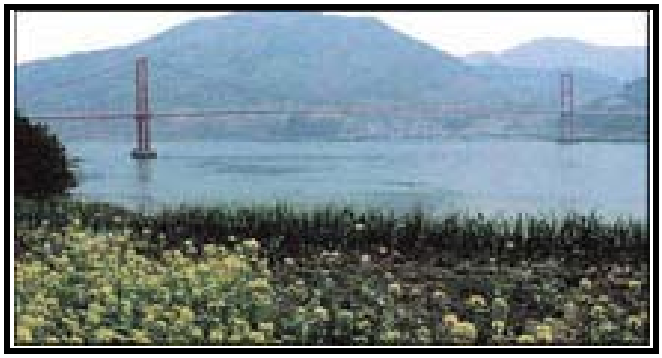
1.25 Paekso (Baeg Seo) (34°38'N., 128°00'E.) lies 6 miles W of Kudolso; it is a brown, flat, rocky islet. A light, from which a racon transmits, is shown from the islet. Taedo (Dae Do), about 3.5 miles NW of Paekso, is covered with brushwood. A light is exhibited on Paek So (Baeg Seo). A lighted buoy is moored 3.5 miles WNW of Taedo (Dae Do) and marks a 16.8m patch. Lighted buoys mark the approaches to Yosu oil terminal.

Tides—Currents.—In Yosu Haeman, the tidal currents set in a N direction with the rising tide, attaining a velocity of about 1 knot. A velocity of 2 knots is reached in the vicinity of the S end of the group of islets and reefs lying in the channel off the NW side of Namhae Do.

In the vicinity of Sejon Do, the ENE current has a velocity of 1.3 knots, while the tidal currents between Sejon Do and Kal To (Gal Do), which set WSW and E, attain a velocity of about 1 knot.

To the S of Paek So, the WSW current has a velocity of 1.3 knots, and the SSE current, 0.75 knot. Northward of the area between Paek So and Kudol So the tidal currents set in a WNW and a NE direction at 0.75 knot.

Aspect.—Tolsan Do (34°38'N., 127°48'E.) is an irregular island with rugged hills rising inland. A good landmark is the hill with a saddle-shaped depression in it at the SE extremity of the island. Another conspicuous peak is about 4.3 miles farther NW. The Tolsan Bridge (34°39'N., 127°49'E.), with a vertical clearance of 22m, crosses the strait between Tolsan Do and Yeosu in position 34°44.1'N, 127°44.9'E. Tai Tan, about 4 miles N of the SE end of the island, is a conspicuous point, backed by several conical hills.



The Tolsan Bridge

1.26 Namhae Do (34°48'N., 128°00'E.), one of the largest islands off the S coast of Korea, is mountainous. A bridge, with a vertical clearance of about 25m, spans Noryang Sudo at the N end of Namhae Do. Mangun San, the conspicuous summit of the island, rises near the middle of the W part of the island. A metal framework television tower, marked by an obstruction light, stands on the mountain. In the SE part of the island is a

pointed peak about 1.3 miles WNW of its SE extremity; a stone enclosure, which is very conspicuous, stands on this summit. About 3.5 miles farther NW is the highest peak in this part of the island. It is a black rocky mountain, conspicuous from a distance. In the SW part of the island, Sori San is the summit of a precipitous range, the S side of which slopes steeply to the coast. A conspicuous tower stands on the summit of Sori San. Ungbong San, about 1 mile W of Sori San, shows a conspicuous pointed peak from E or W. Another peak, about 2 miles NW of Ungbong San, has a conspicuous pointed summit when seen from N or S.

Aenggang Man, on the S side of Namhae Do, affords shelter from all directions, except from S. Anchorage can be taken off the village on the W side of the head of the bay, in 7 to 15m, mud.

Mijo Kundo is the group of islands and islets separated from the SE extremity of Namhae Do by Mij Sudo.

U Am (34°43'N., 127°48'E.), 1 mile NE of Tolsan Do, is a white rock easily identified in the daytime. A light is shown from U Am.

In the inner part of Yosu Haeman, on the E side of the channel, is **Samgi** (Sam Gi) (34°48'N., 127°49'E.), a reef with three drying heads, the highest being 3m. Fishing boats assemble in this vicinity.

Yang Am (34°44'N., 127°47'E.), a reef, drying 2.8m, lies 0.45 mile E of Odongdo. A lighted beacon stands on the reef. A 4.5m patch, marked by a lighted buoy, lies in the harbor 0.7 mile NW of Odongdo. Yosu Haehyop is the channel separating the N end of Tulsando from the SE end of **Yosu Bando** (34°44'N., 127°45'E.), 0.1 to 0.2 mile wide, with depths of 6 to 16m in the fairway.

Tides—Currents.—Tidal currents in Yosu Haehyop set W with the rise and E with the fall.

Changgun Do (34°43.8'N., 127°44.3'E.) is situated at the W end of Yosu Haehyop on the S side of the channel. A bridge with an overhead clearance of 20m spans the channel 183m S of Changgun Do Light, shown from 10m high concrete tower.

Yeosu (Yosu) (34°44'N., 127°45'E.)

World Port Index No. 60370

1.27 Yeosu (Yosu) is a major commercial port consisting of three parts, as follows:

1. Yeosu (Yosu) New Port (34°44'50"N, 127°45'26"E.), which is also known as Yeosu (Yosu) North Harbor.
2. Yeosu (Yosu) South Harbor,
3. The subport of Gwangyang Hang.

Yeosu (Yosu) South Harbor is the old port located close SW of Yeosu (Yosu) New Port in the narrow passage between Tolson Do and Yosu Bando. The much larger and still expanding port area of Gwangyang Hang is located about 5 miles N of Yeosu (Yosu) New Port.

Yeosu (Yosu) Home Page
http://www.yeosu.mltm.go.kr

Winds—Weather.—During the summer and autumn a heavy swell may be raised by the strong E winds which predominate at these periods. In spring the prevailing winds are S and in winter they are W. Gales are frequent during the spring and autumn transition periods between the winter and summer monsoons.

Tides—Currents.—The maximum tidal range is 3.8m, with the mean spring range reaching 3.3m and the mean neap range equaling 2.4m. Tidal currents are negligible around Yeosu (Yosu) New Harbor but in the narrow passage between Tolson Do and Yosu Bando leading to the old port area velocities of 4 knots can be reached between HW and LW and 2.6 knots during flood tide. Slack water usually occurs between 30 minutes and 1 hour after HW and LW.

Depths—Limitations.—Yeosu (Yosu) and Gwangyang Hang are approached through a recommended deep water channel, marked by lighted buoys, through the E side of Yosu Man, passing between Yosu Bando and Namhae Do. This channel narrows to 1.5 miles in the N part, in the vicinity of position of 4°51'30"N, before turning W for most of the Gwangyang harbor facilities. The W side of Yosu Man N of Yeosu (Yosu) should be avoided due to the presence of much shallower water depths and isolated rocks and shoals. The recommended deep-water channel to Gwangyang has a least charted depths of 20.8m.

Yeosu (Yosu) Old Harbor (South Harbor) is only used by local fishing vessels and coasters; an oil tanker terminal available. The Sami Pier has four berths available for fertilizer, salt, and minerals. For further berthing information see the table titled **Yeosu (Yosu)—Berth Information.**

Aspect.—Odong Do, a flat islet 45m high and wooded, is joined to Yosu Bando, 0.4 mile WSW by a breakwater. A light is exhibited near the center of Odong Do. Yang Am, a drying reef, lies about 0.45 mile E of Odong Do.

Landmarks include two silos on the shore near the W end of the breakwater which connects Odong Do and the mainland, the radio tower about 0.3 mile farther W, and the statue about 0.2 mile SW of the silos.

Pilotage.—Pilotage for Yeosu (Yosu) or Gwangyang is compulsory for vessels of more than 500 gross tons. It has been reported (2016) that pilotage is also required for anchoring in Yeosu (Yosu).

The pilot boards in the following positions:

1. Pilot Boarding Station No. 1 (34°41'06"N., 127°56'53"E.)—Tankers of more than 50,000 gt; other vessels, excluding container vessels, of more than 70,000 gt; container vessels of more than 100,000 gt; and vessels having a draft of more than 14m.
2. Pilot Boarding Station No. 3 (34°44'31"N., 127°49'30"E.)—All other vessels.

Pilots will disembark outbound vessels at the following positions:

1. Pilot Boarding Station No. 2 (34°42'18"N., 127°51'30"E.)—Tankers of more than 50,000 gt; other vessels, excluding container vessels, of more than 70,000 gt; container vessels of more than 100,000 gt; and vessels having a draft of more than 14m.
2. Pilot Boarding Station No. 3 (34°44'31"N., 127°49'30"E.)—All other vessels.

Regulations.—Vessel should send ETA at the pilot station, including maximum draft, when within VHF range and 24 hours in advance of expected arrival. The ETA should also be sent to the pilots and the agents.

Night berthing is not allowed in either the old or new port of Yeosu (Yosu).

A maximum speed limit of 12 knots is enforced within the recommended deep-water channel, marked by lighted buoys, N of Pilot Boarding Station No. 1.

A TSS has been established by the Korean government in the approach to Yeosu (Yosu) Haeman. This TSS has not been adopted by the IMO; however, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Vessel Traffic Service.—Yeosu (Yosu) Port Service operates a coastal Vessel Traffic Service (VTS) as well as one for the approaches to Yeosu (Yosu). The name of the coastal VTS is the East Jeonnam Coastal VTS and details for this VTS will follow after the one for the harbor approach.

Participation in the VTS for the approaches to Yeosu (Yosu) and Gwangyang is compulsory for the following vessels:

1. Vessels engaged in international voyages.
2. Vessels over 300 gt (excluding fishing vessels operating in the inner harbor).
3. Vessels carrying dangerous cargo.
4. Towing vessels engaged in towing of 200m or more in length.
5. Towing vessels engaged in port operations.
6. Passenger vessels.
7. Fishing vessels over 45m in length.
8. Oil or oil waste carrier under 300 gt.

The VTS area for the approaches to Yeosu (Yosu) and Gwangyang is bounded by lines joining the following positions:

a. 34°50'06"N, 127°46'30"E.
b. 34°50'50"N, 127°48'12"E.
c. 34°43'30"N, 127°51'30"E.
d. 34°41'15"N, 128°00'00"E.
e. 34°35'00"N, 128°00'00"E.
f. 34°35'00"N, 127°48'12"E.
g. 34°45'35"N, 127°45'25"E.

The VTS is divided into four sectors, as follows:

1. Sector No. 1 lies S of the SR Reporting Line, latitude 34°49'13"N to 34°28'30"N.
2. Sector No. 2 lies S of the Reporting Line, latitude 34°48'26"N.
3. Sector No. 3 lies N of the Reporting Line, latitude 34°48'26"N.
4. Sector No. 4 is bounded by the lines joining the following positions:
   a. 34°49'48"N, 127°40'30"E.
   b. 34°50'45"N, 127°39'36"E.
   c. 34°52'27"N, 127°41'12"E.
   d. 34°52'42"N, 128°45'00"E.
   e. 34°51'51"N, 128°46'18"E.

The vessel's ETA should be advised, via the agent, 24 hours prior to arrival or 12 hours prior to arrival for domestic ports.

For further information, see the graphic titled **Yeosu (Yosu) Vessel Traffic Service**.

The established reporting lines are, as follows:

ER Reporting Line—A line joining position 34°41'15"N, 128°00'00"E and position 34°35'00"N, 128°00'00"E.

5. SR Reporting Line—A line joining position 34°35'N, 128°00'E and position 34°35'N, 127°54'E.
6. Within 10 miles SE of position 34°35'N, 128°00'E (Inbound only).
7. NR Reporting Line—A line joining position 34°49'13"N, 127°46'20"E and position 34°49'13"N, 127°48'33"E.

Vessels should maintain a continuous listening watch on VHF channel 67 when in Sector No. 3 and Sector No. 4 and VHF channel 12 when in Sector No. 1 and Sector No. 2.

Navigation safety and meteorological information is broadcast on VHF channel 12.

Yeosu (Yosu)—Berth Information

Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
Yeosu (Yosu) Raw Materials Terminal							
Loading Cargo	320m	15.0m	30,000 dwt	—	—	—	Iron ore
No. 1	370m	15.0m	30,000 dwt	—	—	—	Iron ore.
No. 2	370m	21.5m	200,000 dwt	—	—	—	Breakbulk.
No. 3	400m	21.5m	250,000 dwt	—	—	—	Iron ore.
No. 4	470m	23.5m	250,000 dwt	—	—	—	Iron ore.
No. 5	370m	21.0m	200,000 dwt	—	—	—	Iron ore.
No. 6	320m	19.0m	—	—	—	—	Nickel and ore
No. 7	320m	15.0m	—	16.0m	—	—	Nickel and ore
CTS Carry-out	262m	11.8m	30,000 dwt	—	——	—	General cargo.
Ro-Ro Terminal							
Pier No. 1	140m	14.0m	8,000 dwt	—	—	—	Steel coils and steel products.

Yeosu (Yosu)—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
Pier No. 2	—	12.0m	30,000 dwt	—	—	—	Steel coils and steel products.
Gwangyang Steel Product Terminal							
No. 1	280m	14.0m	50,000 dwt	200m	32.6m	—	Steel products.
No. 2	240m	12.0m	30,000 dwt	109m	17.0m	—	Steel products.
No. 3	240m	12.0m	30,000 dwt	109m	18.0m	—	Steel products.
No. 4	240m	12.0m	30,000 dwt	132m	25.0m	—	Steel products.
No. 5	240m	11.0m	20,000 dwt	184m	32.0m	—	Steel products.
No. 6	126m	7.0m	5,000 dwt	190m	32.6m	—	Steel products.
No. 7	183m	7.0m	5,000 dwt	197m	32.2m	—	Steel products.
No. 8	183m	7.0m	5,000 dwt	199m	32.6m	—	Steel products.
No. 9	183m	7.0m	5,000 dwt	206m	32.2m	—	Steel products.
No. 10	183m	7.0m	5,000 dwt	199m	32.2m	—	Steel products.
No. 11	107m	7.0m	3,000 dwt	206m	36.0m	—	Steel products.
Management Terminal							
No. 1	207m	5.0m	3,000 dwt	79.9m	15.0m	—	Titanium dioxide, sand, and general cargo.
Cement Terminal							
No. 1	160m	9.0m	10,000 dwt	123m	19.4m	—	Cement.
No. 2	160m	9.0m	10,000 dwt	123m	20.6m	—	Cement.
No. 3	160m	9.0m	10,000 dwt	133m	19.6m	—	Cement.
No. 4	160m	9.0m	10,000 dwt	133m	19.6m	—	Cement.
No. 5	160m	9.0m	10,000 dwt	127.8m	20.6m	—	Cement.
No. 6	130m	9.0m	10,000 dwt	97.1m	15.6m	—	Cement.
Yeocheon Cargo Terminal							
No. 1	210m	15.0m	20,000 dwt	—	—	—	General cargo.
No. 2	210m	15.0m	20,000 dwt	—	—	—	General cargo.
Yeosu Thermal Power Plant							
Coal Berth	67m	—	—	198m	—	—	Coal.
Jungma General Terminal							
No. 1	210m	11.0m	20,000 dwt	—	—	—	General cargo.
No. 2	210m	11.0m	20,000 dwt	—	—	—	General cargo.
Gwangyang Container Terminal							
Phase 1							
No. 1	350m	15.0m	50,000 dwt	199.9m	32.2m	—	Containers.
No. 2	350m	15.0m	50,000 dwt	206m	40.0m	—	Containers.
No. 3	350m	15.0m	50,000 dwt	199.9m	40.0m	—	Containers.
No. 4	450m	16.0m	50,000 dwt	278m	40.0m	—	Containers.
HSGT Phase 2-1							

Yeosu (Yosu)—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
No. 5	450m	16.0m	50,000 dwt	—	—	—	Containers.
No. 6	350m	16.0m	50,000 dwt	—	—	—	Containers.
No. 7	200m	16.0m	20,000 dwt	—	—	—	Containers.
No. 8	250m	12.0m	20,000 dwt	—	—	—	Containers.
Phase 2-2							
No. 9	250m	12.0m	20,000 dwt	—	—	—	Containers.
No. 10	200m	16.0m	20,000 dwt	—	—	—	Containers.
No. 11	233m	16.0m	50,000 dwt	—	—	—	Containers.
No. 12	233m	16.0m	50,000 dwt	—	—	—	Containers.
Phase 3-1							
No. 13	233m	17.0m	50,000 dwt	—	—	—	Containers.
No. 14	233m	17.0m	50,000 dwt	—	—	—	Containers.
No. 15	233m	17.0m	50,000 dwt	—	—	—	Containers.
No. 16	233m	17.0m	50,000 dwt	—	—	—	Containers.
Phase 3-2							
No. 17	350m	—	50,000 dwt	—	—	—	Vehicles.
No. 18	350m	—	50,000 dwt	—	—	—	Vehicles.
No. 19	350m	—	50,000 dwt	—	—	—	Vehicles.
No. 20	250m	—	20,000 dwt	—	—	—	Vehicles.
Hadong Power Station							
Kepco No. 1 (N)	214m	185m	110,000 dwt	270m	42.0m	—	Coal. Berth length of 342m (including dolphins).
Kepco No. 2 (S)	214m	185m	135,000 dwt	370m	42.0m	—	Coal. Berth length of 342m (including dolphins).
Hyundia Steel Company (HYSCO) Terminal							
HYSCO berth	170m	5.3m	12,000 dwt	—	—	—	Coils.
Yosu Port (Sin Hang)							
No. 1	290m	5.4-7.8m	50,000 dwt	—	—	—	Breakbulk.
No. 2	121m	4.8-6.3m	2,000 dwt	—	—	—	General cargo.
No. 3	580m	4.9-6.3m	6,000 dwt	—	—	—	General cargo.
Napko Coal Terminal							
No. 1	300m	15.0m	70,000 dwt	229m	35.6m	—	Coal,
No. 2	120m	—	10,000 dwt	109m	24.0m	—	Coal.
Honam Thermal Power Plant							
Coal Berth	—	7.4m	15,000 dwt	—	—	—	Bituminous coal. Length, including dolphins, is 185m.
Old Port (KU Hang)							

Yeosu (Yosu)—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
Public Ship Pier	239m	—	—	—	—	—	—
Landing Pier No.1	892m	—	—	—	—	—	—
Landing Pier No. 2	503m	—	—	—	—	—	—
Old Landing Pier	440m	—	—	—	—	—	—
SooHyup Landing Pier	123m	—	—	—	—	—	—
Coastal Passenger Pier	137m	—	—	—	—	—	—
Multipurpose Berths							
Napko							
No. 1	120m	6.7m	3,000 dwt	120m	—	6.0m	Chemicals, crude, LPG, and multipurpose.
No. 2	200m	9.4m	20,000 dwt	—	—	—	Chemicals, crude, LPG, and multipurpose.
No. 3	220m	9.4m	30,000 dwt	—	—	—	Chemicals, crude, LPG, and multipurpose.
No. 4	270m	14.0m	50,000 dwt	—	—	—	Chemicals, crude, LPG, and multipurpose.
No. 5	270m	12.6m	50,000 dwt	240m	—	—	Chemicals, crude, LPG, and multipurpose.
STS Anchorage							
D-1	—	21.5m	—	—	—	16.0m	Multipurpose.
D-2	—	21.5m	—	—	—	16.0m	Multipurpose.
W-2	—	16.3m	—	—	—	14.5m	Multipurpose.
Sapo Terminal No. 2							
LG Chemical Berth	200m	16.5m	100,000 dwt	—	—	15.0m	Chemicals.
Jungheung Terminal 2							
No. 1	130m	6.5m	5,000 dwt	—	—	—	General cargo.
No. 2	130m	6.5m	5,000 dwt	—	—	—	General cargo.
Tanker Terminals							
Gwangyang LNG Terminal							
Posco LNG	60m	14.0m	82,000	—	49.0m	11.5m	LNG.
GS Caltex Crude Oil Terminal							
No. 1	—	21.5m	255,000 dwt	330m	—	20.5m	Crude oil.
No. 2	—	23.5m	320,000 dwt	340m	—	20.5m	Crude oil.
No. 3	—	20.0m	120,000 dwt	—	—	—	Crude oil.
GS Caltex Product Terminal (Gwangyang)							

Yeosu (Yosu)—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
No. 1	38m	13.8m	7,000 dwt	110m	—	—	Clean products.
No. 2	—	8.2m	2,000 dwt	60m	—	6.2m	Clean products.
No. 3	—	13.0m	35, 000 dwt	183m	—	11.3m	Clean products.
No. 4	100m	9.5m	5,000 dwt	100m	—	6.2m	Clean products.
No. 5	—	13.1m	50,000 dwt	195m	—	12.0m	Clean products.
No. 6	—	8.5m	5,000 dwt	110m	—	6.2m	Clean products.
No. 7	46m	11.9m	12,000 dwt	120m	—	10.3m	Clean products.
No. 8	30m	11.0m	750 dwt	50m	—	6.2m	Reported under construc-tion.
GS Caltex Product Terminal No. 2							
No. 1	32m	9.0m	10,000 dwt	127m	20.8m	7.9m	Clean products.
No. 2	45m	9.0m	—	207m	—	—	Petroleum products.
LPG and E-1 Gas Terminal							
LPG Terminal	—	14.0m	65,200 dwt	250m	—	12.6m	LPG and chemicals.
E-1 Terminal	38m	7.5m	3,800 dwt	120m	—	5.5m	LPG.
Sapo Terminal No. 1							
Tank Terminal Quay	—	15.7m	100,000 dwt	319m	—	—	Clean and dirty products.
U-1 Terminal							
Crude Oil berth	44m	23.5m	325,000 dwt	400m	—	20.5m	Crude oil.
LG VMC							
Chemical Pier	—	6.6m	5,000 dwt	—	—	6.0m	Chemicals.
Cosmos							
Cosmos Berth	130m	6.0m	5,000 dwt	121m	—	—	Chemicals.
Jungheung Terminal							
No. 1	100m	6.6m	3,000 dwt	—	—	5.7m	LPG.
No. 2	100m	6.6m	3,000 dwt	—	—	5.7m	LPG.
No. 3	100m	13.0m	3,000 dwt	—	—	5.7m	LPG.
No. 4	130m	8.0m	5,000 dwt	—	—	5.0m	Chemicals.
No. 5	130m	8.0m	5,000 dwt	—	—	5.7m	Chemicals.
KNOC Terminal							
No. 1	40m	17.0m	80,000 dwt	340m	—	13.9m	Dirty products.
No. 2	46m	18.0m	120,000 dwt	380m	—	15.5m	Crude oil.
No. 3	45m	19.5m	320,000 dwt	440m	—	17.7m	Crude oil.
No. 4	64m	12.0m	30,000 dwt	200m	—	10.3m	Clean products.
Samnam Terminal							
No. 1	12m	6.5m	3,000 dwt	—	—	—	Chemicals.
Petrochemical							
No. 1	165m	9.0m	10,000 dwt	—	—	—	Chemicals.

Yeosu (Yosu)—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
No. 2	165m	9.0m	10,000 dwt	—	—	—	Chemicals.

Yeosu (Yosu) Vessel Traffic Service—Reporting Information		
Report Type	Reporting Time	Information Required
Advance Notice of Entry	Ten (10) miles from the reporting line.	1. Vessel name and call sign. 2. Destination and ETA. 3. Last port of call.
Entry and Passing	Upon passing the Reporting Line.	1. Vessel name and call sign. 2. Position.
Arrival	Upon arrival at anchorage or berth. Vessels are to comply with VTS instruction for anchor position when attempting to anchor within the VTS area	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Shifting	When shifting within the harbor limits.	1. Vessel name and call sign. 2. Time of unberthing (anchor clear/berthing (anchor)).
Departure	When departing Yeosu (Yosu) port.	1. Vessel name and call sign. 2. Departure time. 3. Position. 4. Next port of call.

The reporting points and schedule are listed in the table titled **Yeosu (Yosu) Vessel Traffic Service—Reporting Information**.

Yeosu (Yosu) VTS can be contacted, as follows:

1. Call sign:Yeosu VTS
2. VHF:VHF channel 12—Sectors 1 and 2
VHF channel 67—Sectors 3 and 4
VHF channel 10—Sector 4
VHF channel 16—any sector
3. Telephone: 82-61-840-2552,
82-61-840-2652
4. Facsimile: 82-61-840-2852

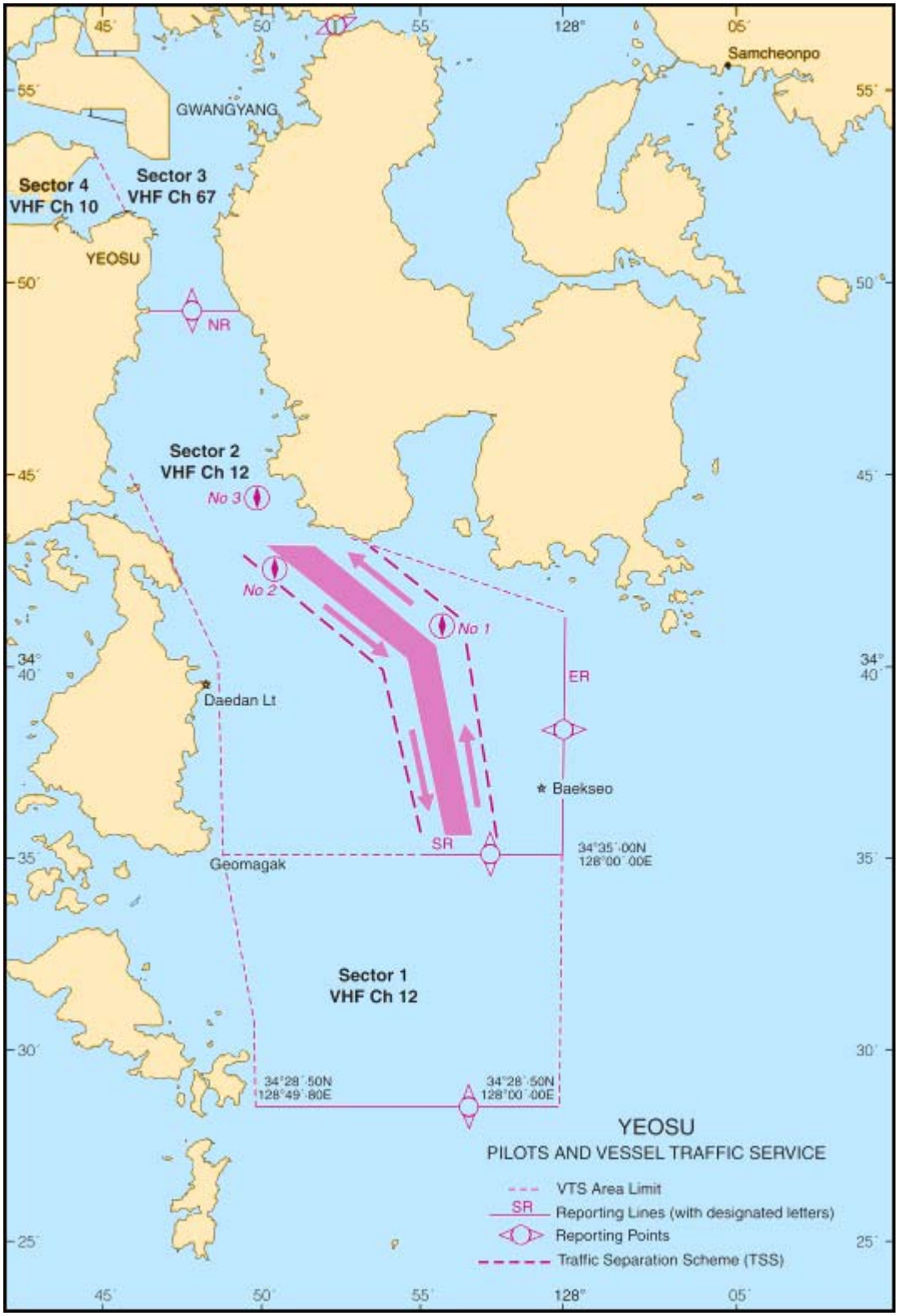
Vessel Traffic Service (Coastal).—Participation in the East Jeonnam Coastal VTS is compulsory for the following vessels:

1. Vessels engaged in international voyages.
2. Vessels over 300 gt (excluding fishing vessels operating in the inner harbor).
3. Vessels transporting dangerous cargo.
4. Towing vessels over 50 gt or pushing with a combined length greater than 200m equipped with AIS.
5. Passenger vessels.
6. Any other vessels considered necessary by the Korean Coast Guard.

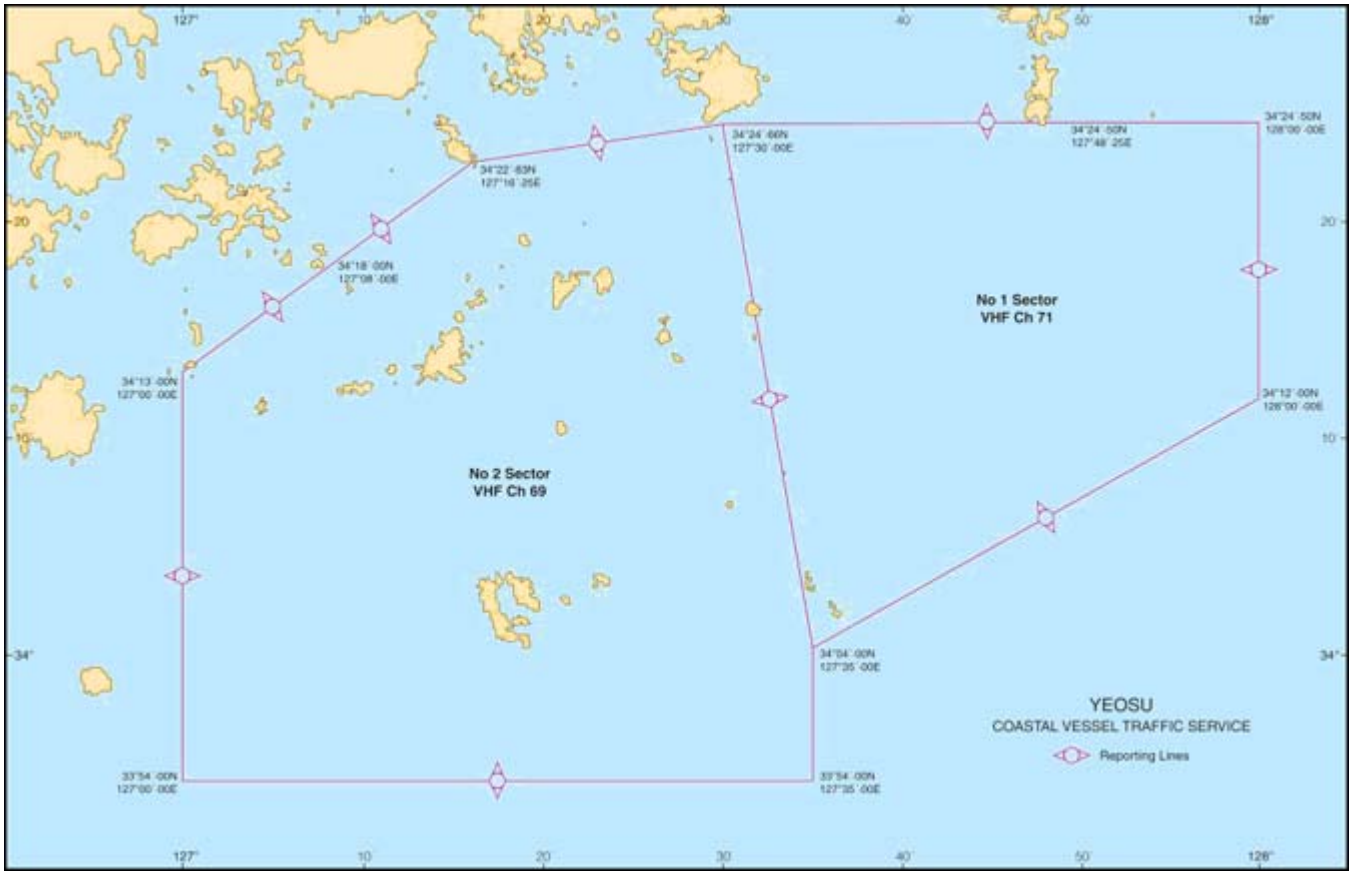
The East Jeonnam Coastal VTS is comprised of two sectors as defined, as follows:

1. **Sector 1—**Bounded by lines joining the following positions**:**
   a. 34°24'30"N, 128°00'00"E.
   b. 34°12'00"N, 128°00'00"E.
   c. 34°04'00"N, 127°35'00"E.
   d. 34°26'40"N, 127°30'00"E.
   e. 34°24'30"N, 127°48'15"E.
   f. 34°24'30"N, 128°00'00"E.
2. **Sector 2—**Bounded by lines joining the following positions**:**
   a. 34°24'40"N, 127°30'00"E.
   b. 34°04'00"N, 127°35'00"E.
   c. 33°54'00"N, 127°00'00"E.
   d. 34°13'00"N, 127°00'00"E.
   e. 34°18'00"N, 127°08'00"E.
   f. 34°22'50"N, 127°16'15"E.
   g. 34°24'40"N, 127°30'00"E.

Vessels are required to report to the East Jeonnam Coastal VTS on VHF channel 71 when entering or departing Sector 1 and on VHF channel 69 when entering or departing Sector 2.



Yeosu (Yosu) Vessel Traffic Service



East Jeonnam Coastal VTS Coastal Vessel Traffic Service

East Jeonnam Coastal VTS can be contacted, as follows:

East Jeonnam Coastal VTS	
East Jeonnam Coastal VTS contact information	
Call sign	East Jeonnam Coastal VTS
VHF	VHF channel 71—Sector 1
	VHF channel 69—Sector 2
Facsimile	82-51-463-1652
E-mail	pilotbusan@pilotbusan.co.kr
Web site	http://www.pilotbusan.co.kr

Contact Information.—Yeosu (Yosu) pilots can be contacted, as follows:

Yeosu	
Yeosu Pilots	
Call sign	Yeosu Pilots
VHF	VHF channels 8 and 13
Telephone	82-61-662-3383
Facsimile	82-61-666-0322
E-mail	yspilot3@hanmail.net
Yeosu Port Control	
Call sign	Yeosu Port Control
VHF	VHF channels 12, 16, 20, and 22
Gwangyang (Kwangyang) contact information	
Call sign	Gwangyang Port Control
VHF	VHF channels 12, 16, 20, and 22
Yeosu Port Authority	
Telephone	82-61-660-6061
Facsimile	82-61-654-2358

Anchorage.—Yosu Haeman Outer Anchorages.—The following designated anchorages, the limits of which are best seen on the chart, are available in the outer approaches to Yosu Haeman:

1. Area D-1, a quarantine anchorage, about 2 miles NW of Paek So, is a circle with a radius of 0.6 mile centered on

position 34°39.1'N, 127°57.9'E, with depths of 26 to 27m

2. Area D-2, a general anchorage, is a circle with a 0.4 mile radius centered on position 34°40.2'N, 127°53.9'E, with a depth of 21.5m.

Yosu Haeman Anchorage.—There are four designated anchorage areas, the limits of which are best seen on the chart, situated on the W side of the main channel, as follows:

Yosu Haeman Anchorage	
Designated Anchorages	
Area A	For vessels with a draft of less than 8m.
Area B	For vessels with a draft between 8 and 11m.
Area C	For vessels with a draft between 11 and 14.5m.
Area W	(quarantine anchorage)—For vessels with a draft of less than 14.5m
E-mail:	pilotbusan@pilotbusan.co.kr
Web site	http://www.pilotbusan.co.kr

Caution.—Fish havens have been established in close proximity to the route in the vicinity of the VLCC pilot boarding station and NW of the VLCC quarantine anchorage.

It has been reported that a precautionary area lies close to Pilot Boarding Station No. 3 with many small fishing buoys observed inside and outside the channel.

A dangerous wreck is located S of the TSS leading into the approach to Yeosu (Yosu) Haeman, at position 34°29'42"N., 127°57'00"E, in a depth of 25.5m.

Gwangyang Hang (Kwangyang Hang) and Vicinity

1.28 Nakp'ogak (34°51'N., 127°47'E.) is a cliffy point forming the NE extremity of Yosu Bando. Nakp'ogak Light is shown from a white, round, concrete tower, that stands near the point.

Noryang Yo, a rock with a depth of 1.5m, lies on the edge of the coastal bank 0.5 mile SE of the E extremity of Myodo. Another rocky shoal, with a depth of 1.1m, lies in the fairway about 0.3 mile E.

Myodo (Myo Do) (34°53'N., 127°45'E.), located 2.25 miles WNW of Nakp'ogak and the highest point on the island rises to 248m.

Noryang Yo, a rock with a depth of 1.4m, lies on the edge of the coastal bank 0.5 mile SE of the E extremity of Myodo. Another rocky shoal, with a depth of 1.1m, lies in the fairway about 0.4 miles farther E. Another rock, with a depth of 0.1m, lies 0.5 mile N of the same point. Buoys mark the fairway in the vicinity of the dangers. Passage II connects, S of Lighted Buoy No. 19; a buoyed channel, with a least depth charted depth of 6.5m, leads through Myodo Sudo about 3.5 miles W then SW direction for about 2 miles to a jetty situated 5 miles WSW of Nakp'ogak.

Myodo Sudo is the channel S of Myodo. It is narrow and encumbered by several islets and shoals towards its W end.

Anchorage.—There are two designated anchorages, K-12 and K-13, with limits as best seen on the chart, NW of Myodo, in depths of 8 to 13m. Anchorage S of Myodo is suitable only for small local craft. Although the holding ground in the S part is good, the tidal currents are strong and cannot be relied as a safe anchorage.

Gwangyang Hang (Kwangyang Hang)

1.29 Gwangyang Hang (Kwangyang Hang) (34°51'N., 127°48'E.) (World Port Index No. 60376) is a natural harbor and an open basin, which lies at the head of Yosu Haeman. The port facilities support the steel industry established at Kwangyang, but can also accommodate container vessel trade. Extensive reclamation has taken place and is continuing N and NE of Myodo, resulting in a deep water terminal constructed on the N side of the channel. This terminal accommodates vessels of up to 250,000 dwt handling bulk, coal, and ore cargo.

The Gwangyang Bridge (34°54.5'N, 127°42.3'E), a suspension bridge with a vertical clearance 76m, links Myodo and Geumhodo.

Tides—Currents.—At the head of Yosu Haeman, from N of the N limits of Designated Area and where the Deep Water Route ends, Passage I (Fairway I) begins. This passage leads NW between Lighted Buoy No. 13 and Lighted Buoy No. 14, then divides into four directional traffic flows at 1.5 miles NW of Lighted Buoy No.13. The channel to the NE leads to Kwangyang Hang Basin Zone-1 Anchorage, and further NE it leads to Noryang Sudo. The traffic flow leading S of Lighted Buoy No. 19 is Passage II. This passage leads W to LPG, Energy, Oil terminals, Zone-2 Anchorage, through Myodo Sudo and further. Passage III leads WNW between Lighted Buoy No. 19 and Lighted Buoy No. 20 to Zone-3 Anchorage NW of Myodo. Passage IV leads NW between Lighted Buoy No. 41 and Lighted Buoy No. 42 to the Steel Mill terminals.

As a result of the reclamation work that has been carried out on both sides of the strait, it is reported that the rate of the tidal currents is increasing. The currents were reported by a Japanese man-of-war to have attained a rate of over 6 knots for about 1 hour at springs.

Depths—Limitations.—Dry cargo berths, including steel, raw materials, cement, and product terminals, are located on the reclaimed land terminal N of Myodo. A large LNG plant with associated berthing is situated at the E end of this terminal. A crude oil berth and LNG and chemical berths are located along the NE and N coast of Yosu Bando. The Gwangyang (Kwangyang) Container Terminal, which is still expanding, is located along the shore across Gwangyang Man WNW of Myodo. For details on the berths see the table titled **Gwangyang (Kwangyang) Hang—Berth Information**.

Pilotage.—See paragraph 1.27 (Yeosu).

Regulations.—Vessels proceeding to the LPG terminals and all vessels greater than 30,000 dwt are restricted to daylight only berthing. Vessels berthing at the LPG terminal can do so only at HW.

A TSS has been established by the Korean government in the approach to Yeosu (Yosu) Haeman. This TSS has not been adopted by the IMO; however, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Kwangyang Hang—Container Terminals

A VTS, operated by Yeosu (Yosu) Port Service, is available for vessels arriving and departing Gwangyang Hang (Kwangyang Hang). For details, see paragraph 1.27.

Anchorage.—The basin provides anchorage areas in three zones:

1. Zone 1 lies N of Lighted Buoy No. 16 and NE of Passage I (Fairway). It provides seven anchor berths (Anchor Berth No. 1 through Anchor Berth No. 7) for vessels of less than 100,000 dwt.
2. Zone 2 lies in Myodo Sudo and provides Anchor Berth No. 8 through Anchor Berth No. 10.
3. Zone 3 designated in two areas. One section lies SW of Myodo and the other section lies off the NW coast of Myodo and lies centered approximately in position 34°54'N, 127°42'E.

The Designated Area is bounded by lines joining the following positions:

a. 34°50'12"N, 127°47'00"E.
b. 34°43'04"N, 127°49'21"E.
c. 34°40'07"N, 127°54'48"E.
d. 34°35'30"N, 127°55'30"E.
e. 34°35'30"N, 128°00'00"E.
f. 34°40'30"N, 127°59'43"E.
g. 34°42'54"N, 127°53'30"E.
h. 34°43'05"N, 127°51'42"E.
i. 34°43'50"N, 127°50'42"E.
j. 34°44'46"N, 127°50'06"E.
k. 34°46'02"N, 127°50'03"E.
l. 34°50'42"N, 127°48'30"E.
m. 34°50'12"N, 127°47'00"E.

Gwangyang (Kwangyang) Hang—Berth Information						
Berth	Berth		Maximum Vessel			Remarks
	Length	Depth	Size	Draft	LOA	
Dry Cargo Berths						
Yeochun Industrial Complex						
Quay No. 1 (Sapo)	319m	15.7m	100,000 dwt	15.0m	280m	Salt.
Quay No. 2 (Sapo)	285m	16.5m	100,000 dwt	15.0m	—	Containers and salt.
Raw Material Quay						
No. 1	260m	15.0m	30,000 dwt	—	—	—
No. 2	370m	21.5m	200,000 dwt	—	—	—
No. 3	400m	21.5m	250,000 dwt	—	—	—
No. 4	400m	22.5m	250,000 dwt	—	—	—

Gwangyang (Kwangyang) Hang—Berth Information						
Berth	Berth		Maximum Vessel			Remarks
	Length	Depth	Size	Draft	LOA	
No. 5	370m	18.0m	200,000 dwt	—	—	—
Ro-Ro No. 1	140m	14.0m	8,000 dwt	—	—	—
Ro-Ro No. 2	240m	12.0m	30,000 dwt	—	—	Steel coils.
Steel Product Quay						
No. 1	280m	14.0m	50,000 dwt	—	—	Steel products.
No. 2	240m	12.0m	30,000 dwt	—	—	Steel products.
No. 3	240m	12.0m	30,000 dwt	—	—	—
No. 4	240m	12.0m	30,000 dwt	—	—	Steel products.
No. 5	240m	11.0m	20,000 dwt	—	—	Steel products.
No. 6	126m	7.0m	5,000 dwt	—	—	Steel products.
No. 7	183m	7.0m	5,000 dwt	—	—	Steel products.
No. 8	183m	7.0m	5,000 dwt	—	—	Steel products.
No. 9	183m	7.0m	5,000 dwt	—	—	Steel products.
No. 10	183m	7.0m	5,000 dwt	—	—	Steel products.
No. 11	107m	7.0m	3,500 dwt	—	—	Steel products.
Scrap Iron	270m	14.0m	50,000 dwt	—	—	—
Management Quay						
No. 1	103m	5.0m	3,000 dwt	—	—	—
No. 2	103m	5.0m	3,000 dwt	—	—	—
No. 3	61m	4.0m	1,000 dwt	—	—	—
Cement Quay						
No. 1	160m	9.0m	10,000 dwt	—	—	—
No. 2	160m	9.0m	10,000 dwt	—	—	—
No. 3	160m	9.0m	10,000 dwt	—	—	—
No. 4	160m	9.0m	10,000 dwt	—	—	—
No. 5	160m	9.0m	10,000 dwt	—	—	—
No. 6	130m	9.0m	5,000 dwt	—	—	—
Jungma General Wharf						
No. 1	210m	11.0m	20,000 dwt	—	—	—
No. 2	200m	11.0m	20,000 dwt	—	—	—
Gwangyang (Kwangyang) Container Terminal						
Phase 1						
No. 1	350m	15.0m	50,000 dwt	—	—	Containers.
No. 2	350m	15.0m	50,000 dwt	—	—	Containers.
No. 3	350m	15.0m	50,000 dwt	—	—	Containers.
No. 4	350m	15.0-16.0m	50,000 dwt	—	—	Containers.
HSGT Phase 2-1						
No. 5	450m	16.0m	50,000 dwt	—	—	Containers.

Gwangyang (Kwangyang) Hang—Berth Information						
Berth	Berth		Maximum Vessel			Remarks
	Length	Depth	Size	Draft	LOA	
No. 6	350m	16.0m	50,000 dwt	—	—	Containers.
No. 7	200m	16.0m	20,000 dwt	—	—	Containers.
No. 8	250m	12.0m	20,000 dwt	—	—	Containers.
KIT Phase 2-2						
No. 9	250m	12.0m	20,000 dwt	—	—	Containers.
No. 10	200m	16.0m	20,000 dwt	—	—	Containers.
No. 11	233m	16.0m	50,000 dwt	—	—	Containers.
No. 12	233m	16.0m	50,000 dwt	—	—	Containers.
KE Phase 3-1						
No. 13	233m	17.0m	50,000 dwt	—	—	Containers.
No. 14	233m	17.0m	50,000 dwt	—	—	Containers.
No. 15	233m	17.0m	50,000 dwt	—	—	Containers.
No. 16	233m	17.0m	50,000 dwt	—	—	Containers.
Phase 3-2						
No. 17	350m	—	50,000 dwt	—	—	Under construction.
No. 18	350m	—	50,000 dwt	—	—	Under construction.
No. 19	350m	—	50,000 dwt	—	—	Under construction.
No. 20	250m	—	20,000 dwt	—	—	Under construction.
Public 1	250m	6.0m	2,000 dwt	—	—	—
Public 2	300m	6.0m	2,000 dwt	—	—	—
Lighters	132m	—	1,000 dwt	—	—	—
Hadong Power Station						
Kepco 1 (N)	214m	—	110,000 dwt	18.5m	—	Coal.
Kepco 2 (S)	214m	—	135,000 dwt	18.5m	—	Coal.
Miscellaneous Dry Cargo Multipurpose Berths						
Coal Terminal	185m	7.4m	15,000 dwt	—	—	Bituminous coal.
CTS Carry-out	262m	11.8m	30,000 dwt	11.8m	—	—
Hyundai Hysco	170m	5.3m	12,000 dwt	—	—	Steel coils.
Nakpo 1	120m	6.7m	3,000 dwt	6.0m	120m	LPG, chemicals, crude products, and multipurpose.
Nakpo 2	200m	9.4m	20,000 dwt	—	200m	LPG, chemicals, crude products, and multipurpose.
Nakpo 3	220m	9.4m	20,000 dwt	—	220m	LPG, chemical gases, crude products, and multipurpose.
Nakpo 4	270m	14.0m	50,000 dwt	13.0m	127m	LPG, chemicals, and multipurpose.
Nakpo 5	240m	12.6m	50,000 dwt	—	240m	LPG, chemical gases, crude products, and multipurpose.
Anchorage Berths						

Gwangyang (Kwangyang) Hang—Berth Information						
Berth	Berth		Maximum Vessel			Remarks
	Length	Depth	Size	Draft	LOA	
STS D1	—	21.5m	—	16.0m	—	Multipurpose.
STS D2	—	21.5m	—	16.0m	—	Multipurpose.
West section	—	16.3m	—	16.0m	—	Multipurpose.
Sapo No. 2	200m	16.5m	100,000 dwt	15.0m	240m	Multipurpose and chemicals.
Tanker Berths						
Gwangyang (Kwangyang) LNG Terminal						
Posco	430m	14.0m	82,000 dwt	11.5m	300m	LNG. Maximum beam of 49m.
GS Caltex Crude Oil Terminal						
No. 1	—	21.5m	255,000 dwt	20.5m	330m	Crude oil and clean products.
No. 2	—	23.5m	320,000 dwt	20.5m	340m	Crude oil and clean products.
No. 3	—	20.0m	129,000 dwt	—	345m	Crude oil and clean products.
GS Caltex Product Terminal No. 1 and No. 2						
No. 1	38m	13.8m	7,000 dwt	—	110m	Clean and dirty products.
No. 2	—	8.2m	2,000 dwt	6.2m	60m	Clean and dirty products.
No. 3	—	13.0m	35,000 dwt	11.3m	183m	Chemicals, clean products, and dirty products.
No. 4	100m	9.5m	5,000 dwt	6.2m	100m	Chemicals, clean products, and dirty products.
No. 5	—	13.1m	50,000 dwt	12.0m	195m	Chemicals, clean products, and dirty products.
No. 6	—	8.5m	5,000 dwt	6.2m	110m	Chemicals, clean products, and dirty products.
No. 7	46m	11.9m	12,000 dwt	10.3m	120m	Chemicals, clean products, and dirty products.
No. 8	80m	11.0m	750 dwt	6.2m	50m	Clean products. Under construction.
Product Berth	30m	9.0m	10,000 dwt	7.9m	50m	Clean products. Maximum beam of 20.8m.
LPG and E-1 Gas Terminal						
LPG	350m	14.0m	65,200 dwt	12.6m	250m	LPG, chemicals, and clean products.
E1	137m	7.5m	3,800 dwt	5.5m	120m	LPG.
Sapo Terminal No. 1 Tank Terminal						
Quay	319m	15.7m	100,000 dwt	—	280m	Clean and dirty products.
U-1 Terminal						
Crude Oil	480m	23.5m	325,000 dwt	20.5m	400m	Crude oil.
LG VMC						
Chemical Pier	143m	6.6m	5,000 dwt	6.0m	—	Chemicals, chemical gases, and clean products.
Cosmos Berth	125m	6.0m	5,000 dwt	—	121m	Chemicals, chemical gases, and clean products.

Gwangyang (Kwangyang) Hang—Berth Information						
Berth	Berth		Maximum Vessel			Remarks
	Length	Depth	Size	Draft	LOA	
Jungheung Terminal						
No. 1	100m	6.6m	3,000 dwt	5.7m	100m	LPG and chemicals.
No. 2	100m	6.6m	3,000 dwt	5.7m	100m	LPG and chemicals.
No. 3	100m	6.6m	3,000 dwt	5.7m	100m	LPG and chemicals.
No. 4	130m	8.0m	5,000 dwt	6.0m	130m	LPG and chemicals.
No. 5	130m	8.0m	5,000 dwt	5.7m	130m	LPG and chemicals.
KNOC Terminal						
No. 1	40m	17.0m	80,000 dwt	13.9m	340m	Chemicals, clean products, and dirty products.
No. 2	46m	18.0m	120,000 dwt	15.5m	380m	Crude oil, clean products, and dirty products.
No. 3	45m	19.5m	320,000 dwt	17.7m	440m	Crude oil, clean products, and dirty products.
No. 4	64m	12.0m	30,000 dwt	10.3m	200m	Chemicals, clean products, and dirty products.
Samnam Terminal						
No. 1	12m	6.5m	3,000 dwt	—	160m	Chemicals.
Petrochemical Terminal						
No. 1	165m	9.0m	10,000 dwt	—	—	LPG and chemicals.
No. 2	165m	9.0m	10,000 dwt	—	—	LPG and chemicals.
Lighter Wharves						
Napco	100m	5.6m	—	—	—	Lightering.
Jungheung	182m	4.5m	1,000 dwt	—	—	Lightering.
Napco	340m	4.5m	300 dwt	—	—	Lightering.
Hangumi	100m	—	1,000 dwt	—	—	Lightering.

Caution.—See paragraph 1.27 for details on fish havens and a wreck lying in the approaches to Gwangyang Hang (Kwangyang Hang).

Off-lying Islands—Namhae Do to Geoje Do (Koje Do)

1.30 Yokchi Do (Yogj Do) (34°38'N., 128°15'E.), about 10 miles SE of Namhae Do, is an irregular island covered with grass. The SW end of the island is a cliffy peninsula joined to the island by a low neck of land. The summit of the peninsula is round, covered with grass, and prominent. A light is exhibited near the summit of the SW peninsula.

On the W side of the island are two bays, but they are exposed and not recommended as anchorages. The small port of Yokchi Hang is located in an inlet on the NE side of the island and is a national fishing port. There are depths of 5 to 20m in the harbor leading to the port.

Nodae Gundo is a group of islands and rocks located between 0.7 and 1.5 miles N and NE of Yokchi Do. The two largest islands in this group are Hanodae Do and Sangnodae Do.

Hanodae Do is located about 0.7 mile N of Yokchi Do; Sangnodae Do is close N of Hanodae Do. Hanodae Do rises to an elevation of 95m and is densely wooded in the vicinity of the dome-shaped summit. There is a village on the N side of the island while the S side is steep-to. Sangnodae Do is the largest of the islands in the Nodae Gundo group and rises to an elevation of 202m.

Caution.—A bridge connects the N coast of Yokchi Do and the S tip of Sangnodae Do, crossing over the W side of Hanodae Do. The safe vertical overhead clearance beneath this bridge is 26m.

Chwasari Do (Jwasari Do)(34°34'N., 128°21'E.), about 4.5 miles SE of Yokchi Do, is the southernmost and largest of a group of islands and rocks. A light is exhibited on Chwasari Do. A fish haven, consisting of concrete blocks and hulks, lies one mile SE of the S island of Chwasari Do.

Kuk To (Gug Do), about 4.75 miles ESE of Chwasari Do, is a steep brown-colored island. A red pinnacle rock lies close S of the island. From the SW direction Kuk To (Gug Do) is

sometimes mistaken for Hong Do, about 14 miles E. **Go Am** (34°30'N., 128°29'E.), about 3 miles SE of Kuk To and marked by a light, is a black rock, 20m high, with a flat top.

Hong Do (34°32'N., 128°44'E.), the outermost danger E of the S extremity of Geoje Do (Koje Do), is rugged and steep. A light, equipped with a racon, is exhibited from the summit of Hong Do.

Yo Do (Yeo Do), about 8.5 miles NNE of Hong Do, consists of two groups of rocks about 0.5 mile apart.

Maemul To (Maemul Do) (34°38'N., 128°34'E.), the largest island S of Geoje Do, rises to a conspicuous pointed peak near its middle part. Another pointed, but lower peak NE of the summit, may be mistaken for the summit from N. Tungga Do, Taeguulbi Do, and Soguulbi Do lie S of Maemul To, and Kaik To and Soji Do lie W of Maemul To. Taeguulbi Do and Soguulbi Do are both very conspicuous black rocks when seen from a distance, and Kaik To, which has a reddish brown color and consists of a group of pillar-shaped rocks, shows as five or six pinnacles when seen from E or W; several of these latter rocks have the appearance of junks.

1.31 Samcheonpo (Samch'onp'o) (34°55'N., 128°04'E.) stands on the Korean mainland, and is approached between Namhae Do and Ch'angson Do, on the W, and Saryang Do a little over 4.3 miles E. The town is fronted by **Samch'onp'o Hang** (34°55'N., 128°05'E.) is a large harbor with its limits extending N and E of Shinsu Do. During the fishing season large numbers of fishing boats use the harbor, the oldest part of which is a basin protected by a breakwater situated close NW of No Mal.

Depths—Limitations.—A deep water wharf, capable of accommodating vessels of up to 100,000 dwt, is located about 1.75 miles ESE of No Mal. It has a berthing face about 540m long, with depths of 13.4 to 16m alongside reported. It is used mainly for importing coal for the power station.

Reclamation was in progress on the shoreline NE of Hang Do Light. The breakwater extending SW from Changdung Mal is completed. Samch'onp'o town is situated N of the old harbor.

Aspect.—Landmarks and their locations described are made in reference from the N end of Shinsudo Sado (34°54.6'N., 128°04.6'E.), with 81m high pylon obstruction light, lies 0.3 mile N. Siyado, 11m high, lies 1.3 miles NW. Mogaedo, 19m high, lies 2 miles WNW. A war memorial on No Mal lies 1 mile N. A prominent war memorial stands on high ground at the S end of the peninsula 0.2 mile E of the Samch'onp'o breakwater light. Two radio towers and another tower, marked by obstruction lights, stand close together 0.2 mile NNW of the same light.

Pamam Light is shown from a black, round concrete tower, red band and stands 18m high on the NW end of a rocky shoal 0.4 mile WSW of Sa Do.

Hangdo, 23m high, with a sparsely-wooded summit, lies 0.2 mile E of **No Mal** (34°55.2'N., 128°04.5'E.). Hangdo Light is shown from a white round concrete tower on the S side of the island.

Coal Pier Light (34°54.2'N., 128°06.6'E.), shown from a red metal tower, stands 4m high at the SE end of Hangdo, off the deepwater wharf. A lighted beacon marks a drying reef situated 0.2 mile WNW of the breakwater head. The harbor is entered via Samcheonpo Sudo.

Pilotage.—Pilotage is compulsory. Pilots will board in position 34°52'07"N., 128°05'15"E.

Vessel Traffic Service.—The approaches to Samcheonpo are covered by the Masan VTS. See paragraph 1.48 for details.

Anchorage.—There are four designated anchorages, best seen on the chart, in Samch'onp'o Hang. Anchorage No. 1 is suitable for vessels of up to 3,000 gt. Anchorage No. 2 and Anchorage No. 3 are suitable for vessels of up to 10,000 gt. Vessels of up to 100,000 gt can anchor in Anchorage No. 4. Another designated anchorage area, with a radius of 200m, lies centered on position 34°55'13"N, 128°04'58"E.

1.32 Maan Do (34°45'N., 128°05'E.), lying close off the E coast of Namhae Do, has a conspicuous conical summit.

Ch'angson Do (Changseon Do) (34°51'N., 128°02'E.), separated from Namhae Do by the channel Changseon Haehyeob, rises to **Taebangsan** (Daebang San) (34°51'N., 127°59'E.), its summit in the SW part. Ch'angson Haehyop has a depth of 18m in the E entrance, but 1.5 miles within the entrance the channel becomes shallow and is encumbered with rocks and shoals. It is therefore not recommended even for small vessels.

Saryang Do (34°49'N., 128°14'E.) consists of two large islands about 3.75 miles E of Ch'angson Do (Changseon Do). Ha Do (Hado), the SE island of Saryang Do, is 344m high. Sang Do (Sangdo), the NW island, is 398m high.

The summits of both islands consist for the most part of rocky boulders, and the ridges are black and serrated.

Saryang Haehyop, a narrow channel separates **Ha Do** (34°49'N., 128°14'E.) and Sang Do.

Chukto (Jug Do), 48m high, lies about 0.5 mile WSW of the SW extremity of Sang Do.

Suu Do (Suudo) (34°50'N., 128°08'E.), 188m high and rugged, lies 2.5 miles W of the S point of Sang Do.

Nonggaedo (Nong-gae Do), a conical islet 45m high, lies midway between Suu Do and Sang Do.

Samcheonpo Sudo, with a least depth of 7.2m, lies between **Sinsu Do** (34°54'N., 128°05'E.) and the mainland NE. Sinsu Do lies about midway between Ch'angson Do and the mainland. Sa Do, about 0.3 mile N of Sinsu Do, is conspicuous. On the mainland a tower standing on a hill, about 0.5 mile NNW of **Yulpo Mal** (34°53'N., 128°08'E.), is conspicuous when seen from a distance. The channel is spanned by an overhead power cable, with a vertical clearance of 25m.

Shinsu Hang (34°54'N., 128°04'E.), a bay on the W side of Shinsudo is protected by two breakwaters. Lights are shown from the heads of the breakwaters.

Taebang Sudo (34°56'N., 128°02'E.) leads between the mainland and the islands off the NE extremity of Ch'angsondo, and connects Chinju Man with Samch'onp'o Sudo.

1.33 Chodo (34°56'N., 128°02'E.), 37m high with a wooded summit, is the N island of the group lying off the NE extremity of Ch'angsondo. Chodo Lighted Beacon stands on the S end of the island.

The fairway from Chinju Man leads S of Chodo, and keeps to the mainland side NE of **Mado** (34°56'N., 128°02'E.) before it connects with Samch'onp'o Sudo.

The direction of buoyage should be observed that leads SE through Taebang Sudo from Chinju Man. A beacon stands in the shoal water 0.7 mile SE of Chodo Lighted Beacon; it marks

the fairway. A lighted beacon stands on a drying rock 1.5 miles SE of Chodo Lighted Beacon; N of this rock the fairway narrows to about 0.15 mile wide.

Tides—Currents.—In Samcheonpo Sudo the flood current has a velocity of 2 knots and the ebb current 2.5 knots. In the narrow W part of this channel, the flood current has a velocity of 4.25 knots and the ebb 4.5 knots.

In the SE approach and E entrance to Chinju Man, the tidal currents generally set NE on the rising tide and SE on the falling tide. By the shore, the tide turns at about the times of high and low water, with a short interval of slack water. The rate of the current is weak for about 30 minutes before and after low or high water. Maximum rates have been observed, as follows:

Location	Speed/Direction
So Sudo	Flood—1.5 knots Ebb—2.3 knots
Samcheonpo Sudo	Flood—2.0 knots Ebb—2.3 knots
Samcheonpo Sudo—Narrow part of channel	Flood—4.3 knots Ebb—4.5 knots
Channel W of Nukto (34°55'N., 128°02'E.)	5.5 knots
Taebang Sudo	Flood—5.8 knots Ebb—6.5 knots

In So Sudo both currents attain a velocity of 5.5 knots in its narrow W part.

Fog appears frequently from May to September with storms occurring most often in August and September.

Anchorage.—Samcheonpo Myoji, between No Mal and Changdung Mal, 0.75 mile ESE, affords good anchorage. The bay is fringed by a bank, with depths of less than 5m, extending 0.4 mile from its head; another bank, with depths of less than 5m, extends about 183m S from No Mal. The best position to anchor is with the S extremity of Hang Do in line with the 26m high hill about 0.2 mile N of No Mal, bearing 318°, in a depth of 9m, sand and mud.

Anchorage No. 1, Anchorage No. 2, and Anchorage No. 3 are located 0.15 mile SE, 0.6 mile S, and 0.35 mile SW respectively, from Hang Do Light.

During W or N winds, vessels can obtain temporary anchorage 0.2 mile SE of **Ch'u Do** (34°55'N., 128°05'E.) in a depth of 13m. However, local knowledge is necessary.

Depths—Limitations.—The deep water wharf has a berthing face 540m long with depths between 13.4 to 16m alongside. There are numerous berths and piers in the NW part of the harbor, in the vicinity of Samch'onp'o harbor basin.

Signals.—Storm signals are displayed from white metal masts, 12m high, at the N of Shinsu Do, at the N part of Nukto, and on the E shore of Chinju Man, 1.25 miles NNE of Nukto.

T'ongyong Haeman

1.34 T'ongyong Haeman (Tongyeong Heaman)(34°47'N., 128°27'E.) lies between Miruk (Mireug) Do and the mainland on the W, and Hansan Do and Geoje Do (Koje Do), on the E. The bay is approached between **Ogok To** (Ogog Do) (34°44'N., 128°26'E.) and **Pijin Do** (Bijin Do) (34°43'N., 128°28'E.), and extends about 10 miles N to a shallow channel of 2.8m leading into Jinhae Man (Chinhae Man). Chungmu Hang is between the N end of Miruk Do and the mainland. The Hansan Do Bridge has a vertical clearance of 15m and a horizontal clearance of 30m on either side of its center stanchion (34°46.0'N., 128°30.6'E.).

Off-lying islands.—Oebuji Do (34°42'N., 128°24'E.), on the W side of the approach to T'ongyong Haeman, has a flat summit and cliffy sides. Naebuji Do, about 0.7 mile N of Oebuji Do, has a sharp summit.

Pijin (Bijin) Do on the E side of the approach, consists of two parts joined by a sandy isthmus. Yongcho Do, about 0.6 mile NE of Pijin Do, also consists of two parts connected by a low isthmus, the E part of which is the higher.

Ogok To (Ogog Do), about 1.3 miles W of Pijin Do, lies on the W side of the approach to the bay. **Hangnim Do** (Hagnim Do)(34°45'N., 128°25'E.), 140m high, is divided in two by a narrow, shallow channel. **Yondae Do** (34°44'N., 128°24'E.), with a wooded summit 219m high lies 0.75 mile W of Ogok To (Ogog Do). A light is exhibited approximately 0.5 mile NW of Yondae Do.

Caution.—Two islets, fringed by foul ground, lies on the E side of the channel close off the W coast of Hansan Do. Another small islet, on which a light is exhibited, and wrecks lie about 1.75 miles S and 0.75 mile SSW respectively, of these two islets. About 2 miles farther N of the two islets, two other islets joined by a reef lie close off the NW end of Hansan Do. A light is exhibited on a small islet on the N side of the entrance to Hansan Hang, an inlet on the W side of Hansan Do.

1.35 Hwa Do (34°49'N., 128°28'E.), 0.25 mile N of Hansan Do, is an island 115m high and is fringed by drying and below-water rocks extending about 0.15 mile SW from the SW end. A below-water rock lies 0.2 mile SW of the N extremity of Hwa Do and 183m offshore. A bank, with depths of less than 10m, extends about 0.3 mile W from the island.

Hwa Do is separated from the N end of Hansan Do by Ch'ukp'a Sudo (Chugpa Sudo), and it is free from dangers. Panghwa Do (Banghwa Do), fringed by a reef, lies in the fairway about 0.3 mile NW of Hwa Do. A light is shown from the W extremity of Panghwa Do. An electric transmission cable, having a vertical clearance of 50m, spans the channel between Hwa Do and the mainland.

Chungmu (Ch'ungmu) (34°50'N., 128°26'E.) stands on the mainland on the N side of Chungmu Hang. It is the principal fishing harbor in this part of Korea. The harbor affords protection against winds from all directions.

Changso Do, in the middle of the N coast of the bay, is joined to the mainland N by reclaimed land.

Changso Light (34°50.1'N., 128°26.3'E.) is shown from a black, round, concrete tower with a yellow top, stands on the SE end of the peninsula extending 0.5 mile SE from Changso Do.

Tongyong (Ch'ungmu Hang) (34°50'N., 128°25'E.), an important commercial port, is entered N of Jongsong Mal, the NE point of Mirugto (Mireug Do), 31m high and nearly steep-to E. The entrance to the bay is about 1 mile wide indents the coast 2 miles as far as the E entrance of Ch'ungmu Unha.

The port is sheltered from all winds, but the anchorage area

is limited to a few vessels.

Pilotage.—Pilotage is compulsory for vessels over 500 tons. Requests for pilot are made through an agent or directed to the harbor administration office. Pilotage is free and there is only one pilot, who boards near **Pijin Do** (34°43'N., 128°28'E.).

Anchorage.—Vessels can obtain anchorage in the E part of the harbor, in 9m, mud and shells. The quarantine anchorage is on the W side of the channel about 1.75 miles SSW of Panghwa Do.

1.36 KOGAS LNG Terminal (34°57'N., 128°26'E.) is operated by the Korea Gas Corporation.

Pilotage.—Pilotage is compulsory. The pilot boards in position 34°56.2'N, 128°48.9'E.

Regulations.—Vessels should contact Masan Port Service on VHF channel 14 at least 1 hour before passing Dondu Mal Light and report the following:

1. Vessel name and call sign.
2. ETA at the pilot station.

Contact Information.—The terminal may be contacted, as follows:

KOGASLNG	
Terminal contact information	
VHF	VHF channels 8 and 16
Telephone	82-61-662-3383
E-mail	tymarine@kogas.or.kr

Nam Po (34°49.5'N., 128°29.0'E.) is protected by breakwaters and affords good anchorage for fishing vessels. Lights are shown from the breakwater heads.

1.37 Geoje Do (Koje Do) (34°50'N., 128°40'E.), large and mountainous, forms the W side of Kadok Sudo (Gadeog Sudo) and its approach, and the S sides of Jinhae Man (Chinhae Man). The SW coast of the island is indented by several bays and inlets and is fringed by several islands and islets. Saegam Mal, the E end of the S extremity of Geoje Do (Koje Do), is surmounted by a conical hill. Kao Do, Sobyongdae Do, and Taebyongdae Do lie within 1.3 miles of the S end of the island.

The SE side of Geoje Do, between Saegam Mal and **Soi Mal** (Seoi Mal) (34°47'N., 128°44'E.), about 6.5 miles NE, is high and bold. The tide rips off this stretch of coast causing the mud in the open bays to be stirred up creating discolored patches of water. Tadae (Dadae) Man, entered N of Saegam Mal, has deep water with good holding ground of mud but is open SE. When there is a swell from NE it sets into the bay.

Tojang P'o (Dojang Po) (34°46'N., 128°41'E.), NE of Tadae (Dadae) Man, has depths of 20 to 27m, mud and sand in its center. Tojang P'o is entered between Kalgot Tu (Galgod Do) and Soi Mal (Seoi Mal), 4 miles NE. A light is shown from Soi Mal. The island Changhuk To (Jungheug Do), rugged with dark steep cliffs, and Naohuk To (Naeheug Do), with two summits, lie on the N side of the entrance of Tojang P'o.

Chisim Do (Jisim Do) lies about 2 miles NNE of Soi Mal. Two radio towers stand on the summit of the island near its S end.

The oil terminal about 0.7 mile W of Chisim Do and its attendant submarine pipeline have been removed (2012) and have been replaced by an unmarked works in progress area. A new jetty, marked by lights, with a fog signal, has been constructed (2015) in the vicinity of position 34°48'40"N, 128°43'42"E. A new fish haven has been established close E of the small bay approximately 0.85 mile N of the new jetty.

There is no deballasting facility. The pilot boards about 3 miles E of Jisim Do.

The coast N of 38°48'N to Yangji Am (Yangjiam), 5.5 miles NNE, is high, bold, and indented.

Anchorage.—The quarantine and holding anchorage is centered at 34°51'"N., 128°44'49"E., with radius of 500m.

Caution.—Anchoring is prohibited N and S of Chise P'o extending E of Chisim Do and bounded by lines joining the following positions:

a. 34°50'45"N, 128°44'10"E. (coast)
b. 34°50'45"N, 128°46'59"E.
c. 34°47'57"N, 128°46'59"E.
d. 34°47'57"N, 128°44'11"E. (coast)

Chise P'o (Jise Po) (34°50'N., 128°43'E.), entered 3.3 miles N of Soi Mal (Seoi Mal), is 0.2 mile wide at its entrance. This fishing port affords a safe haven, deep and free from dangers. Two silver-colored oil tanks stand on the SW shore of the bay, about 0.8 mile WSW of its S entrance point.

The village Daedong Ri stands at the head of the bay. A pier, 150m long where small vessels can berth alongside, is situated near the village.

Ongnyo Bong (Ognyeo Bong), 554m high, stands 1.5 miles NW of the harbor entrance.

1.38 Jangseungpo Hang (34°52'N., 128°44'E.) is a small port used by a large number of fishing vessels. A short breakwater extends from each side of the harbor entrance.

A radio tower, 30m high, stands close NE of the entrance to the port.

On the E side of the head of the harbor there is an embankment, on the SE side of which is a pier, 16m long, where vessels of 100 tons can berth.

1.39 Okp'o Do (Okpo Hang) (34°53'N., 128°43'E.) is situated on the E side of Geojedo. 19 miles SSE of Masan. The harbor is home to Daewoo Shipyard, one of the largest ship-building yards in the world. Okp'o Hang extends from the SE, passing between Yangjiamchwi and a point 1.25 miles NW. Yangjiamchi is a narrow point and is marked by a light. Two breakwaters, each marked by a light, protect the harbor.

Depths—Limitations.—There is more than 1,500m of berthing space in the harbor, with depths ranging from 8.8 to 14.6m alongside. The Royal Docks, all floating docks used for repair services, lie at the head of the harbor and have charted depths of 10 to 20m alongside.

Daewoo Shipyard, including large dry docks and shipbuilding and repair facilities, occupies the SW shore of Okp'o Man.

A new berthing area was under construction (2014) close W of the Okp'o Hang S breakwater.

Pilotage.—Pilotage is compulsory and is coordinated from Masan Hang. Pilots board at No. 5 Boarding Area (34°54'13"N, 128°43'20"E.) unless vessels are 1,000 tons or smaller, then they board at No. 6 Boarding Area within the quarantine anchorage located 0.5 mile NNE of the N breakwa-

ter light.

Another pilot boarding area has been established and is bounded by lines joining the following points:

a. 34°57'36"N, 128°49'50"E.
b. 34°57'21"N, 128°49'06"E.
c. 34°58'45"N, 128°48'30"E.
d. 34°58'58"N, 128°49'10"E.

A pilot disembarking area has also been established and is bounded by lines joining the following points:

a. 34°59'39"N, 128°48'02"E.
b. 34°59'23"N, 128°47'28"E.
c. 35°00'20"N, 128°47'08"E.
d. 35°00'38"N, 128°47'36"E.

Anchorage.—Anchorage may be obtained in the NW corner of the harbor, in depths of 12 to 15m, mud and sand.

1.40 There is a small harbor at **Oepo Ri** (34°56'N., 128°43'E.). A light is exhibited from the seaward end of the S of two piers close S of Oepo Ri.

Isu Do (34°58'N., 128°44'E.), 77m high, is located about 1.75 miles N of Oepo Ri. It is flat, bare, and red in color. Rocks, which dry 0.6m, extend 91m S from the SW extremity of Isu Do. A 4m rocky shoal lies 0.18 mile N of the E extremity of the island.

Kyok To (Gyeog Do), 15m high, lies 1 mile NW of Isu Do and 0.6 mile offshore. A spit, with a depth of 0.9m over the outer end, extends 0.2 mile S and SW from the islet. A detached rock, with a depth of 4m, lies about 0.5 mile S and another rock, with a depth of 6.7m, lies 1 mile NE of Kyok To (Gyeog Do).

Kalsan Do (Galsan Do) (34°58'N., 128°46'E.), 1 mile E of Isu Do, consists of 4 rocks from 11 to 19m high. The two S rocks are the highest and are pointed. Paekso Do (Baeg Seo) rock is 15m high and whitish. Rocky ground extends about 183m NW from this rock.

1.41 Gadeog Sudo (Kadok Sudo) (35°00'N., 128°48'E.), the principal approach to Jinhae (Chinhae) Man and Masan, lies between the islets E of the NE extremity of **Geoje Do (Koj Do)** (34°50'N., 128°40'E.) and **Gadeog Do** (Kadok To) (35°00'N., 128°50'E.). This passage leads NW into Budo Sudo (Pudo Sudo), and then into Jinhae Hang and Masan Hang. The channel is marked by lighted buoys and beacons. A light, equipped with racon, is shown from Gadeog Do.

Tides—Currents.—In Gadeog Sudo, the set is NW on the rising tide at a maximum rate of about 2 knots and SE on the falling tide at a maximum rate of about 2.3 knots.

Tongdumal (Dongdumal) (34°59'N., 128°50'E.), the S point of Gadeog Do, is almost steep-to. Tongdumal Light is shown from a brick tower on a dwelling, 9m high, stands on the point; a fog signal is sounded from the light.

A surveillance radar is mounted on a white building near the light.

Regulations.—A TSS has been established by the Korean government in the approach to Gadeog Sudo and the waters W extending into Jinhae Man and NW into Budo Sudo. The TSS passes on both sides of Cham-Do (Jamdo) as well as S of the island. This TSS has not been adopted by the IMO; however, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Speed limits established for the portions of the TSS are described, as follows:

1. A speed limit of 12 knots is in effect for the portions of the TSS that pass W and S of Cham-Do (Jamdo), within an area bounded by lines joining the following positions:
   a. 35°03'16"N, 128°38'42"E.
   b. 35°03'04"N, 128°39'18"E.
   c. 34°02'09"N, 128°38'20"E.
   d. 34°02'19"N, 128°37'43"E.

   and within an area bounded by lines joining the following positions:
   a. 35°03'07"N, 128°40'11"E.
   b. 35°02'33"N, 128°40'29"E.
   c. 34°01'32"N, 128°38'33"E.
   d. 34°02'09"N, 128°38'20"E.
2. A speed limit of 15 knots is in effect for the portion of the TSS located NE Cham-Do (Jamdo), within an area bounded by lines joining the following positions:
   a. 35°04'59"N, 128°39'04"E.
   b. 35°04'07"N, 128°41'14"E.
   c. 34°03'43"N, 128°40'52"E.
   d. 34°04'35"N, 128°38'43"E.

Caution.—A dangerous wreck lies about 1 mile SE of the light.

1.42 Cheonseong Man (35°01'N., 128°49'E.) is the only bay on the W coast of Gadeog Do to afford any protection from S. A fishing village is located at the head of the bay. Cheonsutae Mal is the S point of the entrance to the bay, where a breakwater projects ENE from the N side of it.

Pilotage.—The pilot boards about 1.5 miles S of the E entrance of the TSS.

Regulations.—A traffic separation scheme (TSS) leads through Gadeog Sudo, then NW through Budo Sudo, W through Chinhae Man, SW into Gohyeonseong Man and NNE into Haengam Man.

Vessels transiting within the indicated sections of the TSS, must observe a maximum speed limit of 15 knots. The sections where the speed restriction is in force, lie within an arc of 1.2 miles NE of **Byeongsan Yeoldo** (35°01'N., 128°46'E.); in the vicinity of the junction close N of Jam Do; in the section between Gwangji Mal and Deogwan Mal; and close NE of Baeg Am.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) is in operation in Cheonseong Man. Inbound and outbound vessels should contact the Gadeog Sudo traffic center at the following reporting points:

a. 35°04'15"N, 128°44'44"E.
b. 35°01'15"N, 128°45'32"E.
c. 34°56'20"N, 128°45'15"E.

Anchorage.—Anchorage Area S2 lies about 3.5 miles ENE of Tongdumal Light in depths of approximately 20m.

Small local vessels with a draft not exceeding 5m anchor in Cheonseong Man. The best anchorage is with Cheonsutae Mal in line with the SE extremity of Daejug Do, bearing 242°, in a depth of 5.9m, mud bottom.

Anchorage is prohibited in Ga-deog Sudo S of Cheonsutae Mal.

Caution.—A restricted area prohibiting fishing and anchoring extends across the main channel over a width of 4 miles from Geoje Do (Koje-Do) to Gadeog Do (Kadok-To).

An underwater tunnel crosses Kadok Sudo traffic separation scheme between Koje-Do and Kadok-To, in the area N of Pyongsan-Yolto.

Gohyeon Hang (34°55'N., 128°36'E.), is a commercial port which includes Samsung ShipyardIt is situated in the SE end of Gohyeonseong Man. Approaches to the harbor are made by transiting the Gohyeong Fairway. The harbor is divided into 3 sections, as best seen on chart. Section 1 is currently (2023) undergoing additional land reclamation.

Depths—Limitations.—Section 1 of the harbor has berths with charted depths ranging from 2 to 12m. Section 2 has several piers and quays with depths alongside ranging from 6.5m to 15.3m.

Pilotage.—Pilotage is compulsory and available 24 hours The pilot boards either at the No 1 boarding area just S of Busan New Port, or No 4 boarding area in the Quarantine Anchorage 1.5 miles NW of the harbor. Additional details see pilotage for Masan.

1.43 Namhyongje Do (Namhyeongje Do) (34°53'N., 128°57'E.), about 8.5 miles SE of Gadeog Do (Kadok To), is the S of three groups of islets and rocks lying in the approaches of both Gadeog Sudo (Kadok Sudo) and Pusan. Namhyongje Do, marked by a light on its E side, is very rugged, with steep sides and a wooded summit. A reef extends a short distance N from Namhyongje Do and a 10.8m patch lies 0.4 mile NNE of the island, with a 16m patch about 0.7 mile farther NNE. An ammunition dumping ground lies centered 1 mile NW of Namhyeongje Do.

Bughyeongje Do (Pukhyongje Do), about 3 miles NNE of Namhyongje Do, consists of five above water rocks which appear as two islets from a distance. A rock, 3.5m high, lies detached from the main group a short distance SW. Bunghyeongje Do, an island 60m high, with several above water rocks on the reef extending NE and E of the island. A detached rocky patch, 5.4m high, lies 0.3 miles NW of the island.

Mok To (Mog Do) (Namuseom) (34°59'N., 129°00'E.), 3 miles NNE of Pukhyongje Do (Bughyeongje Do), is an island 60m high with several above water rocks on the reef extending NE and E of it. A detached 5.4m rocky patch lies about 0.35 mile NW of the island. A light is shown from Mok To; a racon is located at the light.

Dangerous wrecks lie about 9.5 miles and 10.3 miles NW of Namhyongje Do.

Gadeog Do (Kadok To), rugged and irregular, rises to Yeondae San, 459m high, 2.3 miles N of its S point. On the S side of the summit of Yeondae San there is a large prominent boulder. The N coast of the island is high, precipitous, and barren.

Byeongsan Yeoldo (Pyongsan Yolto), forming the W side of the recommended channel through Gadeog Sudo (Kadok Sudo), consists of three conical islets about 183m apart and fringed by foul ground. A rock, 15.9m high, and a drying reef lie about 0.3 mile SE of K'undae So, the easternmost islet of the group.

Jeo Do (35°01'N., 128°45'E.) is a wooded islet with cliffy sides. Near its SE end stands a conical summit 88m high. The NW side of the island is cultivated and terminates in a shingle beach on which is a village. A jetty projects 45m from the N side of Jeo Do near its NW end.

A rock, with a depth of 5.4m, lies about 0.3 mile ESE of the SE extremity of Jeo Do.

Sakunso Seo (Saegeun Seo) (35°02'N., 128°44'E.), 0.5 mile NNW of Jeo Do, is a group of rocks, above and below-water. The highest rock, 4m high, stands in the middle of the group. A light is exhibited on Saegeun Seo.

Mangwa Do (35°02'N., 128°43'E.), 58m high, lies about 0.8 miles WNW of Sakunso Seo. It has a conical appearance when seen from SE or NW.

1.44 Chinhae Man (Jinhae Man) (35°00'N., 128°34'E.) is a large landlocked bay formed by the NW side of Geoje Do (Koje Do) and the mainland.

Tides—Currents.—In Gadeog Sudo, tidal currents set NW on the flood tide with a maximum rate of 2 knots, then set SE at a maximum rate of about 2.3 knots during the ebb tide.

Depths—Limitations.—The bay, which has moderate depths, is entered from E through the deep passages on either side of **Jam Do** (35°03'N., 128°40'E.), which lies 1 mile N of the N extremity of Geoje Do.

It has been reported that the route through Chinhae (Jinhae Man), SW of Jam Do, is entered between Daeyul Do and Somo Do, 2.5 miles NW. A channel leading to Chinhae Hang, is marked by lighted buoys, and passes W of Bu Do has a swept depth of 9.4m.

Chinhae (Jinhae) (35°09'N., 128°40'E.), standing at the head of the promontory separating Haengam Man and Jinhae Hang, is the site of the Republic of Korea's principal naval base. The port approach channel has a width of 100m and a depth of 11m. Vessels with drafts of up to 7.9m can be accommodated. For further berthing information see the table titled **Chinhae—Berth Information**.

Aspect.—Hwangdeog Do (Hwangdok To) is an islet lying close off the NW side of Chilcheon Do. A light is shown from Hwangdeog Do (Hwangdok To).

Gajo (Kajo) Do, the largest island in the S part if Jinhae Man, consists of two hilly sections joined by a narrow neck of land. Ognyeo Bong, the summit of the N section, has a conical appearance when seen from the E entrance of the bay.

Chwi Do, 9m high, lies about 0.6m NE of the NE side of Gajo Do. A black round concrete beacon on the summit of Chwi Do makes a good landmark.

Pilotage.—Pilotage is compulsory. Korean naval officers act as pilots on request. It has been reported that pilots prefer embarking and disembarking in the vicinity of Buoy E.

Regulations.—A TSS has been established by the Korean government throughout Chinhae (Jinhae Man). This TSS has not been adopted by the IMO; however, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Chinhae—Berth Information

Berth	Length	Depth	Remarks
Haeng Man Harbor			

Chinhae—Berth Information			
Berth	**Length**	**Depth**	**Remarks**
New Ammo Pier	268m	11.0m	General cargo, containers, and bulk cargo.
Old Ammo Pier	401m	11.0m	General cargo, containers, and bulk cargo.
Jinhae Terminal			
No. 1 North	182m	2.9m	Lumber, chemical products, and natural sand.
No. 2 South	201m	2.9m	Lumber, chemical products, and natural sand.
No. 2	644m	11.2m	Lumber, soy bean, chemical products, and farm products.
No. 3	140m	7.0m	Petroleum and general cargo.

Contact Information.—Pilots can be contacted (call sign: Chinhae Pilot) on VHF channel 8.

Anchorage.—Designated numbered anchorage berths are assigned in an area N and W of Bu Do, in 10 to 16m. The N anchor berth is for vessels in quarantine. Mooring buoys in the harbor are normally used only by Korean naval vessels.

Caution.—A mine warfare exercise area lies close offshore on the S side of the peninsula forming the NE coast of Chinhae (Jinhae Man). This area, which is centered on position 35°02'47.4"N, 128°35'E, is 1.5 miles long and 0.5 mile wide.

A rock, Baeg Am (35°02"N., 128°38'E.), 2m high, lies 2 miles SW of Jam Do. Another rock (Heug Am), lies about 1 mile W of Baeg Am, drying at 1.5m, and is marked by a light. A power transmission lne with a vertical clearance of 26m spans the narrow channel between N of Point Sill Do mainland NNW.

Chilcheon Sudo, a narrow fairway separating the E side of the bay from the NW side of Geoje Do, has a least depth of 8.5m, with an overhead obstruction (Chilcheon bridge span) and vertical clearance of 15m.

Kajodo Sudo lies between the S tip of Kajo Do and Koje Do, forming a channel that is spanned by a bridge, with an overhead clearance of 20m, and an overhead cable with an overhead clearance of 25m.

A wreck lies in the N traffic lane about 0.75 mile SW of Hwangdeog Do, in a depth of 13.1m.

Care must be taken to avoid marshy shoal water on the opposite side of Pier No. 11, Berth No. 5.

Baeg Am (Paek-am) (35°02'N., 128°38'E.), a rock 2m high, lies 2 miles SW of Jam Do.

Heug Am (Huk-am), drying 1.5m, lies about 1 mile W of Baeg Am. It is marked by a light.

Chilcheon Do, on the E side of the bay, is separated from the NW side of Geoje Do by the narrow Chilcheon Sudo. This fairway has a least depth of 8.5m and is spanned by a bridge, with a vertical clearance of 15m. The overhead power lines have been incorporated into the Chilcheon Bridge.

Hwangdeog Do (Hwangdok To) is an islet lying close off the NW side of Chilcheon Do. A light is shown from Hwangdeog Do (Hwangdok To).

A wreck, with a depth of 13.1m, lies in the N traffic lane a little over 0.75 mile SW of Hwangdeog Do.

Gajo Do (Kajo Do) (34°58'N., 128°32'E.), the largest island in the S part of Jinhae Man, consists of two hilly sections joined by a narrow neck of land. Ognyeo Bong (Ongnyobong), the summit of the N section, has a conical appearance when seen from the E entrance of the bay.

Chwi Do, 9m high, lies about 0.6 mile NE of the NE side of Gajo Do. A black round concrete beacon on the summit of Chwi Do forms a good landmark.

Kajodo Sudo (34°55'N., 128°32'E.) lies between the S tip of Kajo Do and Koje Do. A bridge, with a vertical clearance of 20m, and an electric cable, with a vertical clearance of 25m, cross this channel.

1.45 Budo Sudo (Pudo Sudo) (35°05'N., 128°39'E.), the N continuation of Gadeog Sudo (Kadok Sudo) is entered between Jam Do and **Ung Do** (35°04'N., 128°43'E.) about 1.75 miles ENE. Jinhae Hang lies at its N end, and the port of Masan at its NW end, about 9 miles NNW of Jam Do. There are general depths of 9 to 18m S of Masan, with most of this area having been swept to depths of 8.5 to 10m. Both sides of the strait are mountainous, with barren ridges, and are indented by several small bays.

Regulations.—A TSS has been established by the Korean government in Budo Sudo. This TSS has not been adopted by the IMO; however, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Jam Do (35°03'N., 128°40'E.), about 1 mile N of the N end of Geoje Do, lies on the W side of the entrance of Budo Sudo. It also lies at the entrance of Jinhae Man. Tide rips are off the S side of the island. A storm signal station is on the E extremity of the island.

Chori Do, on the E side of the entrance of Budo Sudo, has steep sides and a rounded summit depressed in the middle.

Channel Cho, 0.75 mile W of Chori Do, lies on the N side of Budo Sudo; at low water the sea breaks over two rocky heads which dry. Channel Cho Lighted Beacon, 12m high, stands on Channel Cho.

Kureisser Cho (K'uresa Ch'o) (35°05'N., 128°38'E.), on the SW side of the fairway, lies about 1.75 miles W of Channel Cho. It has a least depth of 4.7m, and is marked on its NW side by a lighted buoy.

Bu Do (35°06'N., 128°39'E.), the largest island in Budo Sudo, lies about 2.3 miles N of Jam Do. The island appears darker in color than the neighboring hills and islets and has a few clumps of trees. On the W tip of the island is a degaussing station. Hwa Do, 35m high and bare with a flat summit, lies 0.5 mile ENE of the S end of Bu Do. Dotumari Am, about 0.3 mile E of Hwa Do, is a reef on which there are two rocks 9m high. Totumariam Lighted Beacon stands on the E end of the reef.

Nam Do and Song Do lie on the NE side of the fairway about 2 miles NW of Bu Do.

Anchorage.—Vessels may obtain anchorage, sheltered from seaward, in 9.1m, mud, N of the W end of Chori Do. A quarantine anchorage is located S of Chori Do. It is centered in position 35°04'N 128°42'E.

Jinhae

1.46 Jinhae Hang (35°08'N., 128°39'E.) is entered between Daeyul Do and Somo Do, 2.5 miles NW. This is a prohibited area as indicated on the chart. A channel leading to Jinhae Hang, passing W of Bu Do, has been swept to a depth of 9.4m.

Chinhae (Jinhae) (35°09'N., 128°40'E.), standing at the head of the promontory separating Haengam Man and Jinhae Hang, is the site of the Republic of Korea's principal naval base. The port is restricted to entry by naval vessels only. See paragraph 1.44 for details including pilotage and anchorages.

1.47 Haengam Man (35°08'N., 128°41'E.), NE of Bu Do, is a commercial harbor entered between Daeyul Do, the NW entrance point, and the promontory about 1.3 miles ESE. Madang So, which dries, lies near the middle of the entrance of the bay. A light is exhibited on Madang So. Daeyul Do and So-yul Do, on the W side of the entrance of the bay, are joined by a reef with the mainland.

Winds—Weather.—The weather in Masan Hang is not extreme and is not affected by the NW seasonal winds in winter. In summer, typhoon precautions may be necessary. Rain occurs most frequently in the months of June, July, and August with an annual rainfall of 245cm, but in winter there is only 30cm. Fog is fairly frequent in March and April but rare in August and September.

Tides—Currents.—Currents in the harbor run SE at up to 0.5 knot on the ebb and run NE at up to 1 knot on the flood. Velocities in the lower harbor may reach 2 knots on the ebb.

Depths—Limitations.—Masan Hang is an excellent natural harbor which is almost completely sheltered. The bay is narrow and long with widths ranging from less than 1 to 2 miles. The harbor is open to the S and three sides surrounded by mountains.

The channel to the main deep water berth has a least charted depth of 9.8m; however, vessels with drafts of more than 6.5m should approach No. Pier 1 with caution.

Anchorage.—There are two designated anchorages in Haengam Man. Anchorage Area J-01, with a radius of 335m, is centered on position 35°37'36"N, 128°41'12"E. Anchorage Area J-02, with a radius of 335m, is centered on position 35°07'10"N, 128°41'15"E.

Daejug Do (Taejuk To) (35°08'N., 128°41'E.), with a drying rock N, lies off the W side of the bay, and Sojug Do lies a little over 0.5 mile farther NE.

A buoyed channel leads from E of Madang So to the facilities about 1.5 miles NE. The berth, about 201m long, can accommodate vessels with a draft of 10.4m.

A pier, with a dolphin close off its head, extends about 0.15 mile SW from Daeil Mal, the SE entrance point.

There is a depth of 11m alongside the NW side of the pier where vessels of 20,000 tons can berth. A storm signal station is on the SE side of the bay, about 1.3 miles NE of Madang So.

Caution.—Two wrecks in the S entrance to Haengam Man are located, as follows:

1. Position 35°05'48"N, 128°40'41"E, close off Madang So, in a depth of 10.2m.
2. Position 35°06'23"N, 128°41'01"E, in a depth of 9.3m.

Masan (35°11'N., 128°34'E.)

World Port Index No. 60380

1.48 Masan, on the W side of Masan Hang, an extension of Budo Sudo, is entered between the SW extremity of Somo Do and a point 0.5 mile SW. The channel is deep and free from dangers in the fairway. Somo Do, 127m high, is connected to the mainland by a causeway; a number of oil tanks stand in the middle of the island. Makkae Do, a black rock, lies on the W side of the fairway about 0.35 mile W of Somo Do. A light is exhibited on Makkae Do.

Cho Do (Jeo Do), the barren islet close within the S limit of the harbor, can be passed on either side.

A small harbor, fronting the old town, is protected by a detached breakwater with lights on each end.

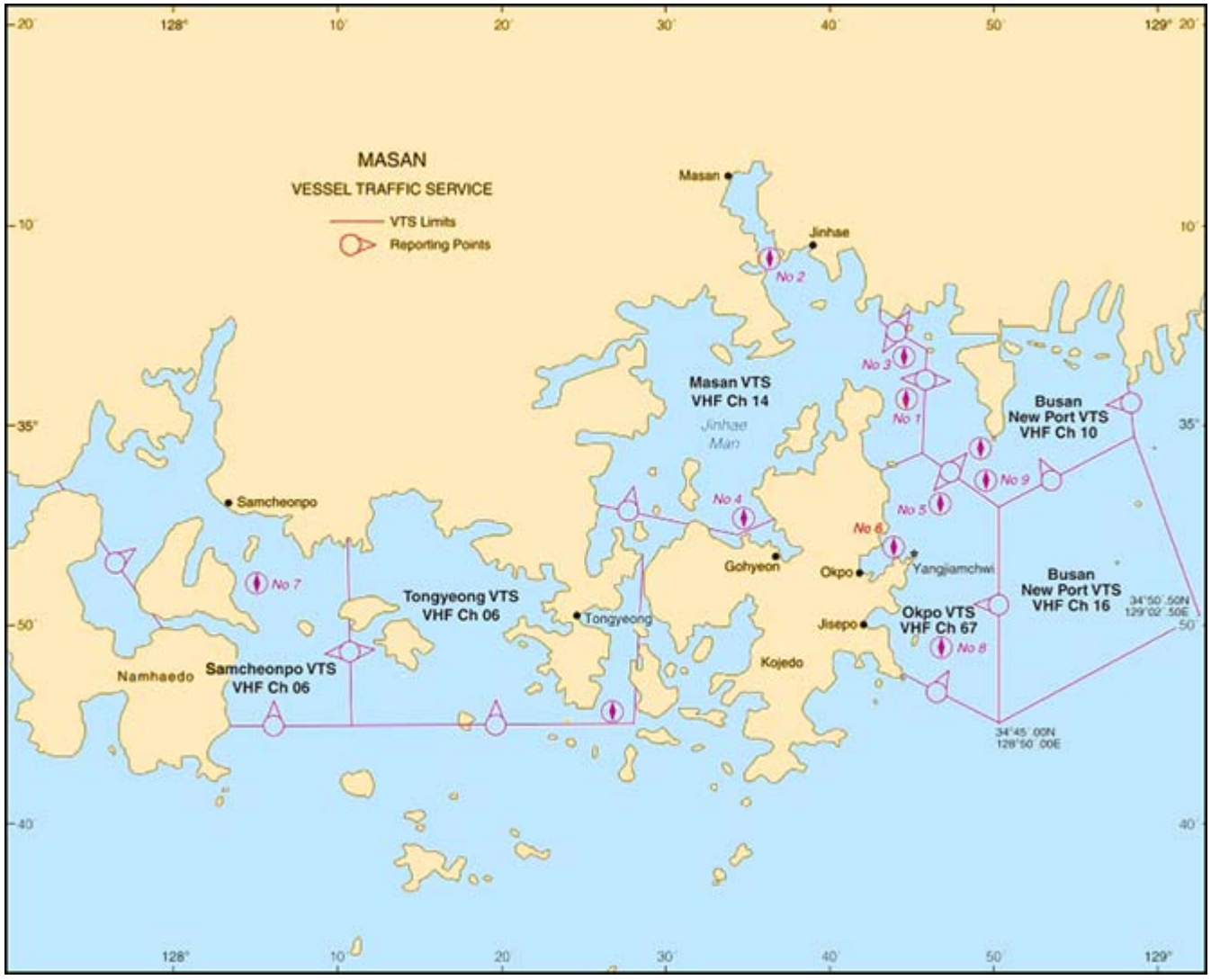
A bridge, with a vertical clearance of 64m, crosses Masan Hang and extends NE for approximately 0.6 mile from position 35°09'37"N, 128°35'19"E close N of Noch'ul Mal; an overhead power transmission line, with a vertical clearance of 68m, is located close S of the bridge, For further berthing information refer to the table titled **Masan—Berth Information.**

Development and reclamation works continue in the SW corner of Masan Hang, 1.5 miles S of Cho Do; and in the harbor fronting the old town.

No. 1 Pier and No. 2 Pier serve the Free Port Zone. There are oil product pipelines at No. 2 Pier. A conveyor belt at No. 3 Pier has a 500 tons/hour working capacity.

A submarine pipeline crosses the channel between the W end of Cho Do and the mainland. An overhead cable, with a clearance of 58m, crosses the channel in the same area between pylons displaying red obstruction lights.

Aspect.—Landmarks include a silvery radio tower, marked by an obstruction light standing on Isim Mal. A group of three



Masan Vessel Traffic Service

Masan—Berth Information						
Pier	Depth	Length	Maximum Vessel			Remarks
			Size	LOA	Draft	
Masan Port						
No. 2	8.0m	540m	8,000 dwt	—	—	—
No. 3	11.0m	420m	20,000 dwt	—	—	Steel, fish, and pulp.
No. 4	11.0m	1,050m	30,000 dwt	—	10.1m	Machinery.
No. 5	10.0-13.0m	790m	20,000 dwt	—	—	Scrap iron, timber, and general cargo.
Korea Express	10.5m	210m	20,000 dwt	—	—	—
Doosan	9.5m	120m	20,000 dwt	—	—	Machinery.
HSD Engine Pier	—	100m	30,000 dwt	—	—	Machinery.
Jeokhyun Dolphin	—	210m	—	—	—	General cargo.

Masan—Berth Information						
Pier	Depth	Length	Maximum Vessel			Remarks
			Size	LOA	Draft	
Dongyang	—	150m	8,000 dwt	—	—	Cement.
Pocheol	—	210m	20,000 dwt	—	—	Steel products.
Hanla	—	210m	20,000 dwt	—	—	Cement.
Donglim	—	26m	3,000 dwt	—	—	—
Sand	—	103m	3,000 dwt	—	—	Sand.
Gapo Pier						
No. 1	12.0m	245m	—	—	11.5m	General cargo, ro-ro, and bulk cargo.
No. 2	12.0m	245m	—	—	11.5m	General cargo, ro-ro, and bulk cargo.
No. 3	12.0m	245m	—	—	11.5m	General cargo, ro-ro, and bulk cargo.
No. 4	12.0m	245m	—	—	11.5m	General cargo, ro-ro, and bulk cargo.
No. 5	—	245m	—	—	—	Administration wharf.
Pier 3 Terminal						
No. 31	11.0m	105m	20,000 dwt	—	—	Breakbulk.
No. 32	11.0m	105m	20,000 dwt	—	—	Breakbulk
No. 33	11.0m	105m	20,000 dwt	—	—	Breakbulk.
No. 34	11.0m	105m	20,000 dwt	—	—	Breakbulk.
Pier 4 Terminal						
No. 41	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 42	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 43	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 44	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 45	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk and bunkers.
No. 46	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 47	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 48	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 49	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
No. 49-1	11.0m	105m	20,000 dwt	—	10.1m	Breakbulk.
Pier 5 Terminal						
No. 51	11.0m	105m	20,000 dwt	—	—	Breakbulk.
No. 52	11.0m	105m	20,000 dwt	—	—	Breakbulk.
No. 53	11.0m	105m	20,00 0dwt	—	—	Breakbulk.
No. 54	11.0m	105m	20,000 dwt	—	—	Breakbulk.
No. 55	11.0m	105m	20,000 dwt	—	—	Scrap metal and breakbulk.
No. 56	11.0m	105m	20,000 dwt	—	—	Scrap metal and breakbulk.
No. 57	11.0m	105m	20,000 dwt	—	—	Scrap metal and breakbulk.

Masan—Berth Information						
Pier	Depth	Length	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 58	11.0m	105m	20,000 dwt	—	—	Scrap metal and breakbulk.
Tanker Berths						
SK Terminal						
SK Berth	—	95m	5,000 dwt	120m	5.5m	Clean products. Maximum beam of 20m.
GS Caltex Terminal						
Products Berth	16.0m	47m	5,000 dwt	105m	—	Clean products.
Hanil Pier	—	80m	—	—	—	Closed.

chimneys stands 0.3 mile W and a group of 3 oil tanks 0.75 mile WNW of Isim Mal.

Masan Hang

Pilotage.—Pilotage is compulsory. Nine pilot boarding positions are assigned, as follows:

a. 34°58'00"N, 128°49'09"E.—No. 1 (for Busan New Port and Masan Hang).

b. 35°02'27"N, 128°44'20"E.—No. 1 (for Masan, Gohyeon, and Jinhae).

c. 35°08'42"N, 128°36'18"E.—No. 2 (for Masan).

d. 35°04'11"N, 128°42'06"E.—No. 3 (Quarantine Anchorage).

e. 34°55'31"N, 128°33'54"E.—No. 4 (in the Gohyeonseong Man Quarantine Anchorage).

f. 34°56'14"N, 128°45'47"E.—No. 5 (for Okpo).

g. 34°54'13"N, 128°43'25"E.—No. 6 (in the Okpo Hang Quarantine Anchorage).

h. 34°52'07"N, 128°05'15"E.—No. 7 (for Samcheonpo).

i. 34°49'11"N, 128°48'51"E.—No. 8 (for Jisepo).

j. 34°56'11"N, 128°50'12"E.—No. 9 (LNG Terminal).

Vessels should advise their ETA with a request for pilots 24 hours in advance of expected arrival.

The Korean Pilot Association	
Pilot contact information	
VHF	VHF channels 8 and 16
Telephone	82-55-222-8122 82-55-222-8125 82-55-222-8126
Facsimile	82-55-222-8126
Harbor Pilots	
Call sign	Chinhae Pilots (for vessels proceding to naval base)
VHF	VHF channel 8
Telephone	82-55-222-2724
Facsimile	82-55-981-2850

Regulations.—Vessels transiting Masan Hang must not exceed a speed of 10 knots.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) in operation in the approaches to Masan Hang covers the area from Yeondo (35°03'49"N, 128°45'52"E) to the port of Masan. See the diagram titled **Masan Vessel Traffic Service**.

Participation in the VTS is mandatory for the following vessels:

1. All ocean-going vessels.
2. Vessels over 300 gt (excluding coastal fishing vessels).
3. Vessels carrying dangerous cargo.
4. Towing vessels engaged in towing with combined length of 200m or more.
5. All other vessels as directed by the VTS.

Four Reporting Lines have been established, as follows:

1. From Yangjiamchwi (34°53'44"N, 128°45'07"E) to Galsando (34°58'29"N, 128°45'22"E).
2. From Galsando to Yeondo (35°03'40"N, 128°45'41"E).
3. From Yeondo to position 35°05'05"N, 128°43'23"E.
4. From position 35°05'05"N, 128°43'23"E to position 35°05'43"N 128°43'12"E.

Additional reports and requirements for vessels operating within the VTS or departing and entering the area are, as follows:

1. Vessels leaving the Masan VTS area S of Galsan Do should report to Busan New Port Service on VHF channel 10, including their destination.
2. Vessels should maintain a constant watch on VHF channels 14 and 16 within 6 miles of Dongdumal Light or in Jinhae Man.
3. Vessels should report any deficiencies in navigational equipment.
4. Vessels must adjust VHF from Masan Port Service (VHF channel 14) to Busan New Port Service (VHF channel 10) when passing Lighted Buoy D (35°02'13"N 128°45'30"E).
5. Vessels entering the ports of Tongyong or Samcheonpo should pass reports directly to the Port Services at these ports.

Contact Information.—The port can be contacted, as follows:

Masan VTS	
Pusan (Busan) Main Port contact information	
Call sign	Masan Port Service
VHF	VHF channels 14 and 16
Telephone	82-55-981-2650
	82-55-981-2651
Facsimile	82-55-981-2850
Masan Port Control	
Call sign	Masan Port Control
VHF	VHF channels 14 and 16
Telephone	82-55-981-5000
Facsimile	82-55-245-0885

Masan Hang—Anchorages

Anchorage	Position	Depth	Ship
A-1	35°11'5'0'N, 128°34'60"E	6-8m	Area within a circle of radius 300m centered upon the indicated position. Ships under 7,000 gt.
A-2	35°11'35"N, 128°34'56"E	6-8m	Area within a circle of radius 250m centered upon the indicated position. Ships under 7,000 gt.
A-3	35°11'50"N, 128°34'60"E	6-8m	Area within a circle of radius 250m centered upon the indicated position. Ships under 7,000 gt.
A-4	35°11'18"N, 128°34'56"E	6-8m	Area within a circle of radius 250m centered upon the indicated position. Ships under 7,000 gt.
A-5	35°11'09"N, 128°34'90"E	6-8m	Area within a circle of radius 250m centered upon the indicated position. Ships under 7,000 gt.
A-6	35°11'09"N, 128°34'90"E	6-8m	Area within a circle of radius 250m centered upon the indicated position. Ships under 7,000 gt.
A-7	35°09'23"N, 128°36'08"E	6-8m	Area within a circle of radius 300m centered upon the indicated position. Ships under 7,000 gt.

Anchorage.—The quarantine anchorage is centered close S off the E end of the bridge with a 64m vertical clearance spanning Masan Hang (described in **Depth—Limitations** paragraph above) with a radius of 300m and depths of 11.7 to 13m, as best seen on the chart. General Anchorage A7 is located within the quarantine anchorage, with depths 12 to 13m, and is best seen on the chart.

Three additional anchorages, with depths of 6 to 8m, are centered N of the bridge, E of Fairway No. 2, and N of Cho Do, as follows for further anchorage information refer to the table titled **Masan Hang—Anchorages.**

Caution.—Numerous uncharted and unlit surface level wrecks have been reported (2014) in an area bounded by position 35°02'29"N, 128°33'00"E and position 35°00'46"N, 128°35'26"E.

A prohibited area surrounding the island of Todo extends about 300 yards from the island and is marked by lighted buoys

1.49 The coast between Morun Mal and Danggang Mal is indented by Tadaep'o and Kamnaep'o, both opening to the S.

Sodo (Seo Do) (35°01'N., 128°59'E.), 62m high, 0.4 mile SE of Morun Mal is steep at the S end; several rocks, the largest

being 20m high, lie within 0.2 mile of its NE and W sides. Seodo Light, from which a racon transmits, stands on a 9m high concrete tower. A fishing reef is situated between 0.2 mile S and 0.3 mile WSW of the S point of Sodo.

Kyongdo, a rocky islet 30m high, lies 0.5 mile NE of Sodo. A spit, with depths of less than 5m and drying rocks on it, extends 0.2 mile from N end of the islet. A light is shown from a 10m high concrete tower on Kyongdo.

1.50 Tadaep'o (35°03'N., 128°59'E.), on the NE side of Morun Mal, affords good sheltered anchorage to small local vessels, in depths of 2m to 11m, but it is exposed to S winds and waves. Tadaep'o-hang, a harbor located N and W of the anchorage, is used by small local craft and is protected by two breakwater. Two berths, designated MKD01 and MKD02, have depths alongside of 7 to 9m; the berths are located outside of the breakwaters at the NW end of Tadaep'o and are used for handling general cargo and passenger vessels up to 400m in length and 5,000 dwt.

Tadaep'o

The anchorage is used by fishermen as a place of refuge. A breakwater, 150m long, fronts the head of the bay. Extensive reclamation works have been in progress.

Tadae Ri stands close WSW of this breakwater.

Songdo, 61m high, is a peninsula which lies on the W side of the entrance to Tadaep'o with a timber pond between it and the W side of the bay. The saw mill, protected by the breakwater, lies close S of the timber pond.

1.51 Nagdong Po (Naktong P'o) (35°03'N., 128°54'E.), E of Gadeog Do, is shoal. A spoil ground, marked by lighted buoys, lies centered off the mouth of Naktong P'o (Nagdong Po), 2 miles WSW of **Morun Mal** (35°02'N., 128°58'E.).

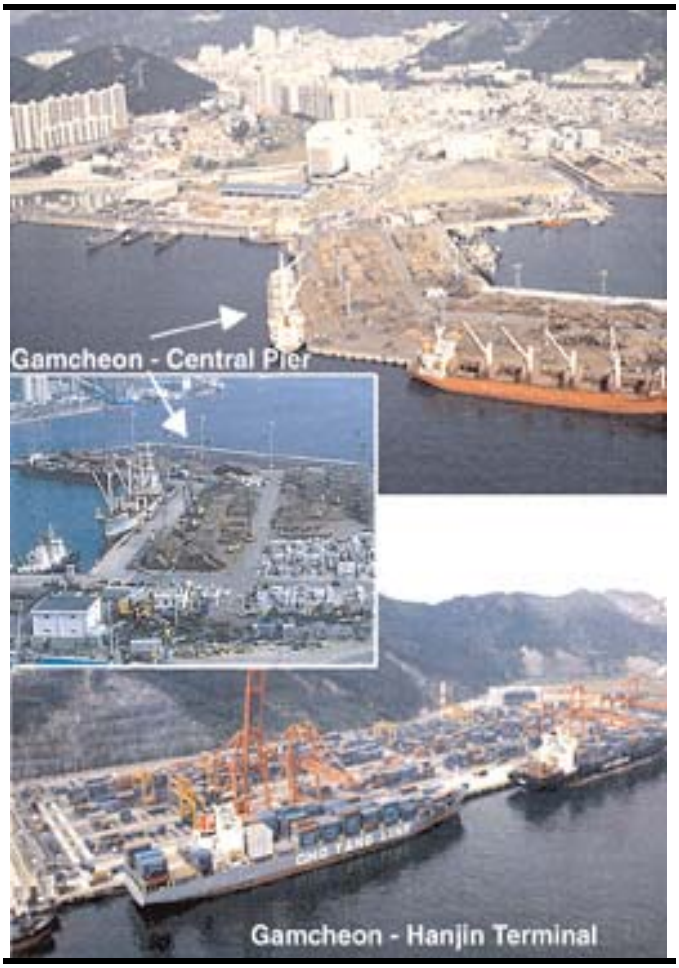
Nagdong Gang is about 170 miles long and discharges into Nagdong Po through several channels, in which there are some low islets. Some islets are covered with clusters of reeds and others, wooded and cultivated. A least depth of 0.9m exist on the bar, and within the bar for a distance of 11 miles there are even lesser depths.

Anchorage.—Nagdong Po is open to S and SE winds but vessels can obtain anchorage, in a depth of 12m, on the E side of Gadeog Do. Vessels should not proceed into a depth of less than 9m as the sandbanks obstruct the head of Nagdong Po.

Caution.—Depths in Nagdong Po are continually changing and charted soundings should not be relied on.

Nagdong Gang appears to be navigable by small craft for about 100 miles. Motor boats of 4 to 5 tons are able to proceed 15 miles up the river.

Two silos stand on reclaimed land in the area. Reclamation work and quay constructions are in progress.



Gamcheon

1.52 Kamnaep'o (Kamch'on) (Gamcheon) (35°03'N., 129°00'E.), E of Tadaep'o, is separated from it by Tusongsan peninsula 95m high, the S end of which is Jadam Mal. Kamnaep'o (Gamcheon) is a subport of Pusan and handles containers, dry and liquid bulk cargo as well as providing ship repair and drydock facilities. Kamnaep'o (Gamcheon) continues to undergo additional expansion and development.

Kamnaep'o is a small bay which forms a narrow and long indentation between Jadam Mal and Tanggang Mal. The harbor is open to the S. It is surrounded by high mountains on the mainland, which makes it a good anchorage for avoiding winds and waves except from the S.

Depths—Limitations.—A Traffic Separation Scheme leads

into the harbor and is approached through Fairway III. A lighted range marks the inbound lane of the Traffic Separation Scheme. The entrance to Kamnaep'o is protected by an E breakwater and a W breakwater, leaving an opening of 250m for entry into the harbor. The W breakwater extends about 525m ENE from the shore while the E breakwater extends about 400m WSW from the opposite shore N of Tu-Do. A light is shown from the head of each breakwater. A new detached breakwater is being constructed S of the W breakwater between position 35°02'45"N., 129°00'22"E and position 35°02'43"N., 129°00'36"E. Completion of this new breakwater is expected by the end of 2013.

The Kamnaep'o (Gamcheon) Center Wharf, along with most all of the other port facilities, are situated at the N end of the harbor. The Center Wharf has five berths, with depths of 8 to13m alongside and handles liquid bulk cargo, frozen fish, and general cargo for vessels up to 50,000 dwt. Berths D1 through D4, with depths alongside of 6m, can accommodate vessels up to 5,000 dwt handling cargoes of oil and sand.

Kamnaep'o continues to undergo extensive land reclamation and development work which extends from the breakwaters to the head of the inlet.

Tanggang Mal (Danggang Mal) (35°03'N., 129°01'E.), the E entrance point of Kamnaep'o, is also the W entrance to Pusan (Busan) South Outer Harbor. A breakwater extends about 0.2 mile WSW from the W side of Taaggang Mal (Dannggang Mal).

Du Do (35°03'N., 129°01'E.), an islet 57m high, lies about 0.15 mile S of Danggang Mal. A light, 8m high, is situated S of the summit of the islet. Fairway No. 3 leads W of Du Do from Pusan South Outer Harbor to the entrance of Kamnaep'o.

Depths—Limitations.—A jetty 61m long lies in a cove, dredged to 6.1 to 7.9m, at the NE end of Kamnaep'o. It is protected by a breakwater S of it which projects NW from the S side of the cove. A pier, 520m long, 0.3 mile WNW of the jetty fronts a power station. Land has been reclaimed in both the NW and NE corners of Kamnaep'o.

Two T-head piers, 70m long, are situated on the E side of Kamnaep'o 0.35 mile S of the dredged cove; vessels of 10,000 tons can berth alongside.

The bottom is muddy and the depths are 7 to 17m.

Pusan (Busan) (35°06'N., 129°02'E.)

World Port Index No. 60390

1.53 Pusan (Busan), is the country's principal port and handles virtually all kinds of cargo. Considerable expansion continues in the port and there is a New Port area, located W of the main port area, partially operational and still under construction to primarily handle containers. Pusan (Busan) extends along the W and N shores of the harbor.

Pusan (Busan) Home Page
http://www.busanpa.com

The Bukhang Bridge

Winds—Weather.—Pusan is protected from the cold NW winds of winter by high mountain ranges and gets the full advantage of the warm winds coming from the sea, S and E winds during the summer.

From October to May, NW winds prevail and from June to July SE winds prevail. During August and September, NE winds are predominant.

With winds from E and S, heavy seas may run in the outer harbors, but the inner harbor is afforded some protection by the breakwaters at the entrances.

Although within the typhoon belt, the port is affected no more than approximately twice a year by winds on the fringe of typhoon storms.

Fog may occur from mid-May to mid-June but is rarely thick or of long duration. Fog with visibility of 500m or less occurs about three times a year and each may last about 3 hours. Radar assistance is available in conditions of limited or reduced visibility through harbor control.

Tides—Currents.—In the area of the Korea Strait about 10 miles off Pusan, the surface current flows in a general NE direction at a velocity which is constantly changing but usually somewhat exceeds 1 knot. The combined flow of the current and tidal currents reaches its maximum velocity about 3 hours after the time of LW at Pusan, and its weakest about 3 hours after low water. A SW set may be experienced when the ocean current is weak.

In the vicinity of Saeng Do, about 0.75 mile S of the S end of Yongdo, the tidal currents are very strong. The flood current attains its maximum velocity E of **Sangi Mal** (35°03'N., 129°06'E.), and the ebb current between Saeng Do and Yongdo; the tidal currents have a velocity of 2.5 knots in this vicinity, and there are often overfalls during the ebb current.

At the approach to the entrance of Pusan Hang the tidal currents usually set SW with the rising tide, and NE with the falling tide. Within the harbor the maximum velocity of the tidal currents is about 2 knots, and it sets in the same directions as in the approach.

Depths—Limitation.—Pusan (Busan) is divided into six major port areas, as follows:

1. **North Port** is the main harbor and has a natural deep water area divided by Yong Do into an outer and inner harbor, with the latter being protected by breakwaters. The inner harbor area will eventually be urbanized with the present cargo handling facilities moved to other areas of the port. The outer harbor handles mostly containers and large cruise vessels.
2. **South Port** is used primarily by fishing vessels and coasters.
3. **Gamcheon Port** handles container cargo, dry and liquid bulk cargo, and has ship repair and drydock facilities.
4. **Dadaepo Port** is only a small port for ferries and general cargo vessels, with a fishing harbor on the NW side. Dadaepo is protected by two breakwaters. The breakwater on the E side of the harbor extends 340m WSW from the shore with a light shown from the end. The other breakwater, 600m long, is located above the E breakwater and is L-shaped, with lights shown from the NW and E ends.
5. **Suyeong Man** contains a berthing area for commercial vessels on its SW side. A small harbor used by the Busan Yacht club is located on its E side.
6. **Pusan (Busan) New Port** handles mostly container cargo with a small area for multipurpose cargo. This area is still undergoing extensive expansion.

Pusan (Busan)—Port Facilities

Berth	Pier Length	Depth Alongside	Maximum Vessel Size	Remarks
North Port				
International Passenger Terminal				
No. 12	220m	7.5-8.6m	10,000 dwt	Passengers and car ferries.
No. 13	192m	8.3-8.5m	10,000 dwt	Passengers and car ferries.
No. 14	200m	8.3-9.1m	10,000 dwt	Passengers and car ferries.
Pier 2 (Berth 21)	190m	6.5-10.0m	—	General cargo and container feeder vessels.
Pier 2 (Berth 22)	190m	6.5-10.0m	—	General cargo and container feeder vessels.
Pier 2 (Berth 23)	68m	10.0m	—	General cargo and container feeder vessels.
Pier 3 (MBF 01)	360m	12.0m	10,000 dwt	Passengers.
Pier 3 (MBF 02)	240m	9.0m	20,000 dwt	Ro-ro.
Pier 3 (MBF 03)	60m	9.0m	500 gt	Ferries.
Pier 3 (MBF 04)	60m	9.0m	500 gt	Ferries.
Pier 3 (MBF 05)	60m	9.0m	500 gt	Ferries.
Pier 3 (MBF 06)	60m	9.0m	500 gt	Ferries.
Pier 3 (MBF 07)	60m	9.0m	500 gt	Ferries.
Pier 3 (MBF 08)	60m	9.0m	500 gt	Ferries.

Pusan (Busan)—Port Facilities				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Pier 3 (MBF 09)	60m	9.0m	500 gt	Ferries.
Pier 4 (MBF 10)	60m	9.0m	500 gt	Ferries.
Pier 4 (MBF 11)	240m	9.0m	20,000 gt	Ferries and ro-ro.
Pier 4 (MBF 12)	240m	10.0m	20,000 gt	Ferries and ro-ro.
Pier 4 (MBF 13)	240m	10.0m	20,000 gt	Ferries and ro-ro.
Pier 4 (MBF 14)	240m	9.0m	20,000 gt	Ferries and ro-ro.
Steel Terminal Pier 5 Terminal				
No. 51	200m	12.0m	15,000 dwt	Passengers and car ferries.
No. 52	220m	12.0m	50,000 dwt	Passengers and car ferries.
Jaseongdae Container Terminal				
No. 61	350m	15.0m	50,000 dwt	Containers.
No. 62	283m	15.0m	50,000 dwt	Containers.
No. 63	357m	15.0m	50,000 dwt	Containers.
No. 64	270m	15.0m	50,000 dwt	Containers.
No. 65	180m	15.0m	10,000 dwt	Containers.
No. 73	166m	3.0-11.0m	15,000 dwt	Containers and general cargo.
No. 74	166m	3.0-11.0m	15,000 dwt	Containers and general cargo.
No. 75	200m	11.0m	20,000 dwt	Containers.
No. 76	300m	11.0m	20,000 dwt	Containers.
Pier 8	170m	4.3m-10.0m	15,000 dwt	Frozen fish and general cargo.
Shingamman Container Terminal				
E-1	275m	7.0-15.0m	50,000 dwt	Containers.
E-2	275m	7.0-15.0m	50,000 dwt	Containers.
E-3	275m	7.0-15.0m	50,000 dwt	Containers.
Gamman Container Terminal (BIT)				
R-1	350m	15.0m	50,000 dwt	Containers.
R-2	350m	15.0m	50,000 dwt	Containers.
R-3	350m	15.0m	50,000 dwt	Containers.
R-4	350m	15.0m	50,000 dwt	Containers.
Shinsundae Container Terminal				
S-1	300m	6.0-8.0m	50,000 dwt	Containers.
S-2	300m	14.0m	50,000 dwt	Containers.
S-3	300m	14.0m	50,000 dwt	Containers.
S-4	300m	14.0m	50,000 dwt	Containers.
S-5	300m	16.0m	50,000 dwt	Containers.
Suyeong Bay				
Yongho Pier Q1	293m	11.0m	20,000 dwt	Dangerous cargo.
International Cruise Terminal				

Pusan (Busan)—Port Facilities				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
International Cruise	360m	12.0m	80,000 dwt	Passengers. Mega cruise ships of 100,000 gt.
Gamcheon Port				
Pier No. 1 (MK11-14)	351m	4.0-7.0m	8,000 dwt	Frozen fish and general cargo.
Pier No. 2 (MK21-24)	1,150m	9.5m-10.0m	20,000 dwt	Frozen fish and general cargo.
Pier No. 3 (MK31-34)	670m	9.0-11.0m	5,000 dwt	Frozen fish and general cargo.
Pier No. 4 (MK41-45)	1,017m	11.0-12.0m	20,000 dwt	Dredged soil.
Central Pier (MKC1-6)	1,102m	6.0-12.0m	30,000 dwt	Wood and general cargo.
Pier No. 5 (MK51-54)	425m	6.0-8.0m	5,000 dwt	Frozen fish, general cargo, and scrap iron.
Pier No. 6 (MK61-63)	884m	8.0-13.0m	5,000 dwt	Frozen fish, general cargo, and liquid cargo.
Hanjin	600m	13.0m	50,000 dwt	Hanjin Container Terminal.
Kepko Quay (MQZ01)	170m	5.5m	3,000 dwt	Raw material for electric power plant generation.
Dongmyeong (D1-D4)	385m	6.0m	5,000 dwt	Oil and sand.
West Breakwater (MKW01-02)	260m	9.0-13.0m	5,000 dwt	Ship repair.
Dadaepo Port (commercial berthing areas)				
No. 3	400m	16.0m	—	Containers. Quay length of 1,200m.
Pusan (Busan) New Port Co Ltd (PNC)				
No. 4	270m	16.0m	—	Containers.
No. 5	270m	16.0m	—	Containers.
No. 6	270m	16.0m	—	Containers.
No. 7	270m	16.0m	—	Containers.
No. 8	270m	16.0m	—	Containers.
No. 9	270m	16.0m	—	Containers.
No. 7	400m	17.0m	—	Containers.
No. 8	400m	17.0m	—	Containers.
No. 9	400m	17.0m	—	Containers.
Hanjin New Port Container Terminal (HJNC)				
No. 10	275m	18.0m	—	Containers—13,000 teu.
No. 11	275m	18.0m	—	Containers—13,000 teu.
No. 12	275m	18.0m	—	Containers—13,000 teu.
No. 13	275m	18.0m	—	Containers—13,000 teu.
New Port Central Pier	400m	—	—	Multi-purpose dry cargo and ro-ro.
South Container Terminal				
(Construction continuing. Located close SW of Busan New Container Terminal (BNCT).				
Hyundai Pusan New Port Terminal (HPNT)				
No. 1	—	16.0m	—	Containers. Maximum beam of 51.0m.
No. 2	—	16.0m	—	Containers. Maximum beam of 51.0m.

Pusan (Busan)—Port Facilities				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 3	—	16.0m	—	Containers. Maximum beam of 61.0m.
No. 4	—	16.0m	—	Containers. Maximum beam of 64.0m.
Note.—Berths No. 1 through No. 4 have a continuous berthing length of 1,150m.				
Busan New Container Terminal (BNCT)				
No. 1	350m	16.0-17.0m	50,000 dwt	Containers. Continuous quay 1,400m long. Maximum beam of 51.2m.
No. 2	350m	16.0-17.0m	50,000 dwt	Containers. Continuous quay 1,400m long. Maximum beam of 59.0m.
No. 3	350m	16.0-17.0m	50,000 dwt	Containers. Continuous quay 1,400m long. Maximum beam of 59.0m.
No. 4	350m	16.0-17.0m	50,000 dwt	Containers. Continuous quay 1,400m long. Maximum beam of 59.0m.
Note.—Berths No. 1 through No. 4 have a continuous berthing length of 1,400m.				
Phase 2-4				
Ssangyong	1,050m	16.0-17.0m	50,000 dwt	Containers (three berths)—under construction.
West Container Terminal (under construction)				
Phase 2-5	700m	—	—	Two vessel capacity.
Phase 2-6	1,050m	—	—	Three vessel capacity.
Tanker Berths				
South Outer Harbor Anchorage	—	26.0m	—	Dirty products.
Modern Tank Terminal	210m	9.5m	35,000 dwt	Vegetable oils and chemicals. Maximum loa of 210m. Maximum draft of 10.0m.
Dongmyung Tank Terminal—Pier No. 2	139m	7.0m	5,000 dwt	Petroleum products. Maximum loa of 139m. Maximum draft of 6.1m.
Michang Tank Terminal	80m	—	—	Chemicals. Maximum draft of 4.8m.
Samhwan Tank Terminal	—	4.5m	500 dwt	Chemicals. Maximum loa of 100m.
LG Caltex Oil (Gamman East Berth)	—	—	—	Petroleum products. Maximum loa of 293m. Maximum draft of 7.5m.
Yougong Dolphin MBEQ3	150m	7.0m	5,000 dwt	Petroleum products.
HanWhan Dolphin MDK-01	130m	7.0m	6,000 dwt	Petroleum products.
Hyundai Oil Refining Quay	557m	4.5-11.0m	50,000 dwt	Four berths for petroleum products.
SK Energy Terminal				
East Berth	50m	—	—	Clean and dirty products.
North Berth	100m	—	—	Clean and dirty products.

Pusan (Busan) is approached directly from Korea Strait and, with the exception of Dadaepo Port, all areas are entered through fairways marked by lighted buoys and can all be best seen on the chart. Dadaepo Port has a detached breakwater constructed on the W side described by lines joining the following positions:

a. 35°02'38"N, 128°58'58"E.
b. 35°02'30"N, 128°59'10"E.
c. 35°02'30"N, 128°59'23"E.

This will eventually narrow the opening to Dadaepo Port to approximately 80m between the breakwater and Song Do (35°02'37"N., 128°59'31"E.). Song Do is marked by a light.

The depths in the approach to Pusan (Busan) decrease as the inner harbor is approached, from a depth of 13.5m between the breakwaters. Depths in the navigable part of North Inner Harbor range from 5 to 10.4m.

The Nam Hang Bridge, with a vertical clearance of 30m, crosses Passage II Fairway about 0.3 mile S of the E breakwater to South Harbor.

The Namhang Bridge, with a vertical clearance of 30m, crosses the entrance to South Outer Harbor.

The Bukhang Bridge (35°06'20"N., 129°03'54"E.), a new bridge, crosses the channel between the North Outer Harbor and the Inner Harbor. The vertical clearance beneath the bridge is 60m. This bridge is also equipped with AIS.

The Korean naval basin is located just inside the breakwaters.

It has been reported (2016) that one of the most prominent navigational aids available for entering the harbor is a lighted (green) range located the top of the mountain (35°08'N., 129°01'E.) in the harbor. The range lights will align with the center of the Bukhang Bridge when the vessel is in the channel.

The buoyage in Busan New Port is subject to frequent changes due to ongoing works. Please consult the local port authority for the latest information.

Details of the port facilities for Pusan (Busan) are contained in the table titled **Pusan (Busan)—Port Facilities**.

Aspect.—The country in the vicinity of Pusan is almost devoid of trees, except for Yongdo and the city itself. The hills, which in general parallel the coast, are covered to their summits by a rank growth of grass. In autumn and winter this grass takes on a brownish, barren appearance with outcroppings of rock.

Cultivated areas lie in the valleys, between the spurs running down to the shore.

The principal peaks near the coast are **Kudok San** (35°07'N., 129°00'E.), about 2.8 miles NW of Yongdo; Kumyor (Gumyeon San) with two summits, the higher reaching an elevation of 428m about 5 miles NE of Kudok San; and Chang San (Jang San), lying about 4 miles farther NE of Kumyor (Gumyeon San), 634m high.

Yongdo, which separates the N harbor from the S harbor, rises to Bongrae San (Pongrae San), its summit in its N part at 395m. The hills slope down to its N and NE shores; the SW coast consists of steep cliffs. The reclaimed land on the NE side of Yongdo is fronted by the coastal bank, which at the N end is encumbered with rocks. Several radio masts and towers stand on the island.

Pusan Tower, a large white tower with a pagoda-like top, standing close W of the Yunan Ferry Terminal, stands out very well; at night it is lit until about 2330.

The North Outer Harbor of Pusan is entered between Sangi Mal and Seungdu (Sungdu) Mal, about 2.75 miles NNE. The former, the E extremity of Yongdo, is a bold precipitous headland; the latter can be identified by a group of four islets lying within 0.5 mile S of the point. A light is exhibited on the SE end of Yongdo, about 0.5 mile SSW of Sangi Mal, the E extremity of the island. A DGPS station and ramark are situated on the S islet of Oryuk To. Cho Do, on the SW side of North Outer Harbor, is faced with cliffs on its E and N sides. South Outer Harbor is entered between **Dangang Mal** (35°03'N., 129°01'E.) and Seangdo, 4 miles ESE.

Pilotage.—Pilotage is compulsory for vessels over 500 gross tons.

Pilots for Pusan (Busan) Main Port board vessels, as follows:

1. Busan Port (Pilot Station No. 1)—position 35°04'11"N, 129°08'48"E.
2. Gamcheon Port (Pilot Station No. 2)—position 35°01'41"N, 129°02'23"E.

Pilots for Pusan (Busan) New Port board and disembark vessels, as follows:

1. Pilot Station No. 9 (for LNG vessels)—position 34°56'11"N, 128°50'12"E.
2. For all other vessels pilots will board within the area bounded by lines joining the following positions:
   a. 34°57'36"N, 128°49'51"E.
   b. 34°57'21"N, 128°49'06"E.
   c. 34°58'45"N, 128°48'30"E
   d. 34°58'58"N, 128°49'09"E.
3. Pilots will disembark within the area bounded by lines joining the following positions:
   a. 34°59'39"N, 128°48'02"E.
   b. 34°59'23"N, 128°47'28"E.
   c. 35°00'21"N, 128°47'09"E
   d. 35°00'27"N, 128°47'36"E.

Vessels are to report their ETA (or ETD) at the pilot station at least 3 hours in advance with any changes being reported within 1 hour of the original time reported. The ETA message should include the following information:

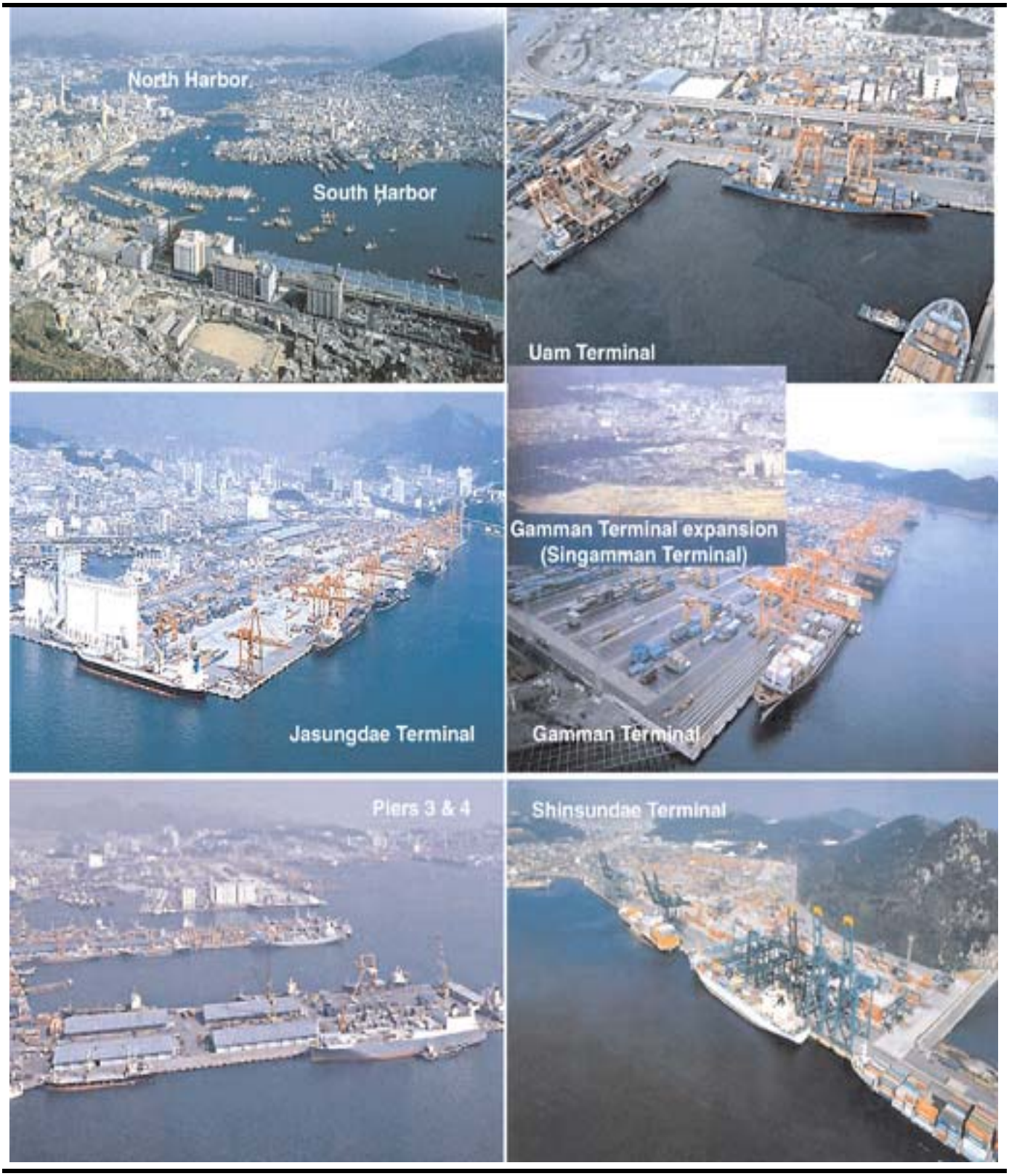
1. Vessel's name and call sign.
2. Nationality of vessel.
3. Vessel's gt and loa.
4. Vessel's maximum draft.
5. Any defects or other problems.
6. If so equipped, the horsepower of the bow thruster.

Pusan (Busan) Main Port—Required VTS Reporting Information

Type of Report	When to Make Report	Information to Report
Advance Notice of Entry	One (1) hour prior to entering VTS area.	1. Vessel name and call sign. 2. Destination and ETA. 3. Last port of call and present position.
Entry	When passing any of the Reporting Lines.	1. Vessel name and call sign. 2. Position.
Arrival	When arriving at an anchorage or at a berth.	1. Vessel name and call sign. 2. Position. 3. Arrival time.

Pusan (Busan) Main Port—Required VTS Reporting Information		
Type of Report	**When to Make Report**	**Information to Report**
Advance Notice of Shifting	Ten (10) minutes prior to commencement of vessel shift.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting	When changing berths or anchorages within the harbor limits.	1. Vessel name and call sign. 2. Time of unberthing or anchor clear. 3. Times of berthing at new berth or anchoring at new anchorage.
Advance Notice of Departure	Ten (10) minutes prior to departure.	1. Vessel name and call sign. 2. Name of berth or anchorage. 3. Position. 4. Next port of call.
Departure	Upon departure from Pusan (Busan) port.	1. Vessel name and call sign. 2. Departure time. 3. Position. 4. Next port of call.

Pusan (Busan) New Port—Required VTS Reporting Information		
Type of Report	**When to Make Report**	**Information to Report**
Advance Notice of Entry	One (1) hour prior to entering VTS area.	1. Vessel name and call sign. 2. Destination and last port of call. 3. ETA.
Entry and Passing	When passing any of the Reporting Lines.	1. Vessel name and call sign. 2. Passing point.
Arrival	When arriving at an anchorage or at a berth.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Advance Notice of Shifting	Ten (10) minutes prior to commencement of vessel shift.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting	When changing berths or anchorages within the harbor limits.	1. Vessel name and call sign. 2. Time of unberthing or anchor clear. 3. Times of berthing at new berth or anchoring at new anchorage.
Departure	Upon departure.	1. Vessel name and call sign. 2. Departure time. 3. Position. 4. Next port of call.



Pusan—North Harbor Terminals

The pilots can be contacted, as follows:

Pusan (Busan) Pilot	
Pusan (Busan) contact information	
Call sign	Busan Pilots
VHF	VHF channel 77

Pusan (Busan) Pilot	
Pusan (Busan) contact information	
Telephone	82-51-465-1651
Facsimile	82-51-463-1652
E-mail	pilotbusan@pilotbusan.co.kr
Web site	http://www.pilotbusan.co.kr

Pusan Hang

Regulations.—Speed in the fairway of the North Outer Harbor and in North Inner Harbor is restricted to 10 knots in depths over 18m and to 5 knots in shallower depths.

Entry to North Inner Harbor may also be made from South

Inner Harbor but this is regulated by the height for the Pusan Bridge and the opening of the drawbridge close W of it. The bridge has conclusive times of the day when it is open, and when under certain weather conditions it is closed.

A Traffic Separation Scheme (TSS) has been established in the approaches to Pusan Harbor. The scheme is not IMO-adopted; it is, however, implemented by the local authorities where Rule 10 of 72 COLREGS applies.

Pusan—Namhang

Vessel Traffic Service—Pusan (Busan) Main Port.—Pusan (Busan) Main Port Vessel Traffic Service (VTS) operates 24 hours and serves the main port area. The VTS area includes the port limits, as well as the N-5 anchorage and the TSS approaching Pusan.

Participation in this VTS is mandatory for the following vessels:

1. Vessels engaged in international voyages.
2. All Korean vessels larger than 300 gt except for coastal fishing vessels.
3. All vessels carrying dangerous cargo.
4. Towing vessels of combined length of 200m or longer.
5. Towing vessels engaged in port operations.
6. Passenger vessels.
7. Fishing vessels over 45m in length.

The VTS area is divided into three reporting areas, as follows:

1. **Reporting Area No. 1—**Bounded by Reporting Lines joining the following positions:
   a. 35°09'10"N, 129°09'12"E.
   b. 35°05'11"N, 129°14'52"E.
   c. 35°00'11"N, 129°09'52"E.
   d. 34°59'39"N, 129°05'48"E.
   e. 35°03'05"N, 129°05'32"E.

   Vessels should maintain a continuous listening watch and communicate with the VTS on VHF channel 12.

2. **Reporting Area No. 2—**Bounded by Reporting Lines joining the following positions:
   a. 35°03'05"N, 129°05'32"E.
   b. 34°59'39"N, 129°05'48"E.
   c. 34°58'48"N, 128°59'26"E
   d. 35°01'57"N, 128°57'57"E.

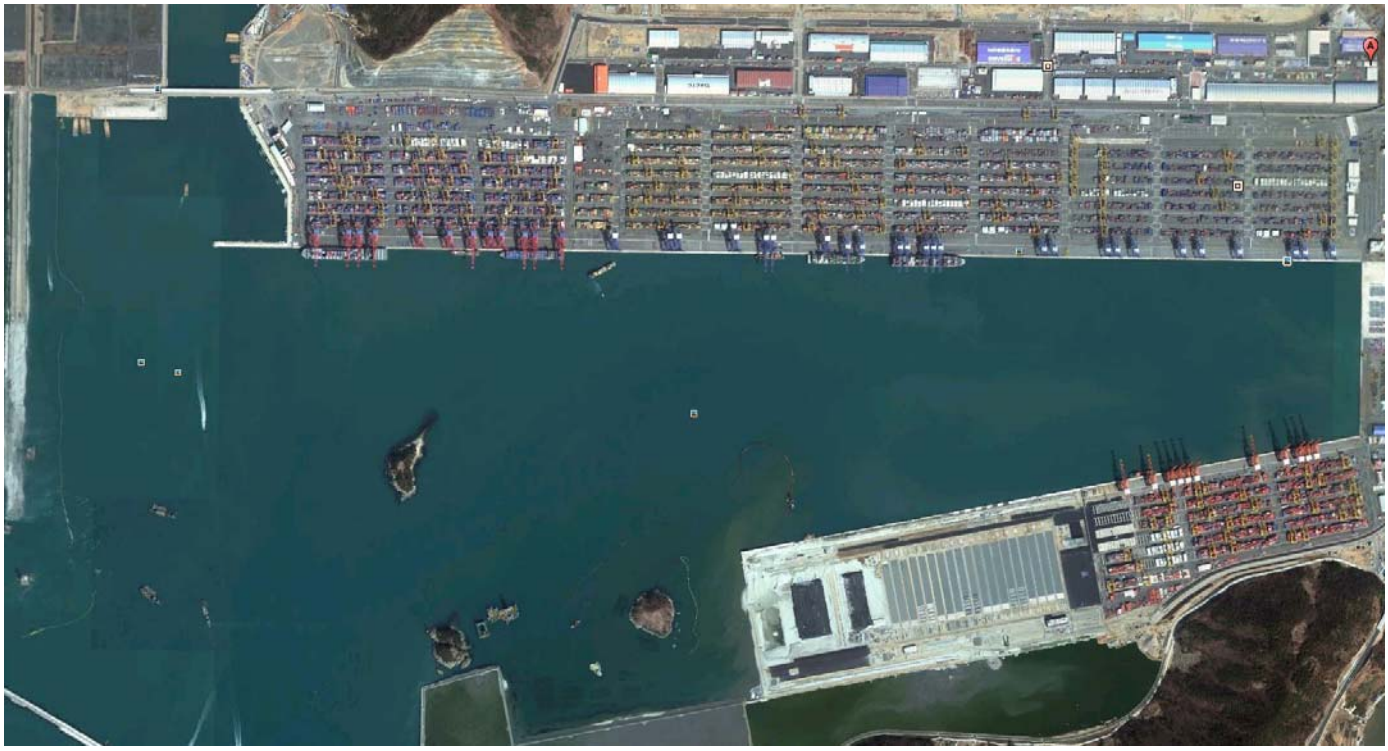
   Vessels should maintain a continuous listening watch and communicate with the VTS on VHF channel 9.

3. **Reporting Area No. 3—**Bounded by Reporting Lines joining the following positions:
   a. 35°11'46"N, 129°13'47"E.
   b. 35°05'00"N, 129°20'00"E.
   c. 34°56'00"N, 129°15'00"E
   d. 34°50'31"N, 129°02'31"E.
   e. 34°58'48"N, 128°59'26"E.
   f. 35°01'57"N, 128°57'57"E.

Vessels bound for Gamcheon should advise their ETA of passing the breakwater on their initial report. When departing Gamcheon, vessels should report to the VTS 30 minutes prior to departure.

Reports need to be made to the Pusan (Busan) VTS at the following times as listed in table titled **Pusan (Busan) Main Port—Required VTS Reporting Information**.

Vessels anchoring in southern anchorages should keep a proper anchor watch and prepare main engines to prevent anchors being dragged in extreme weather conditions.

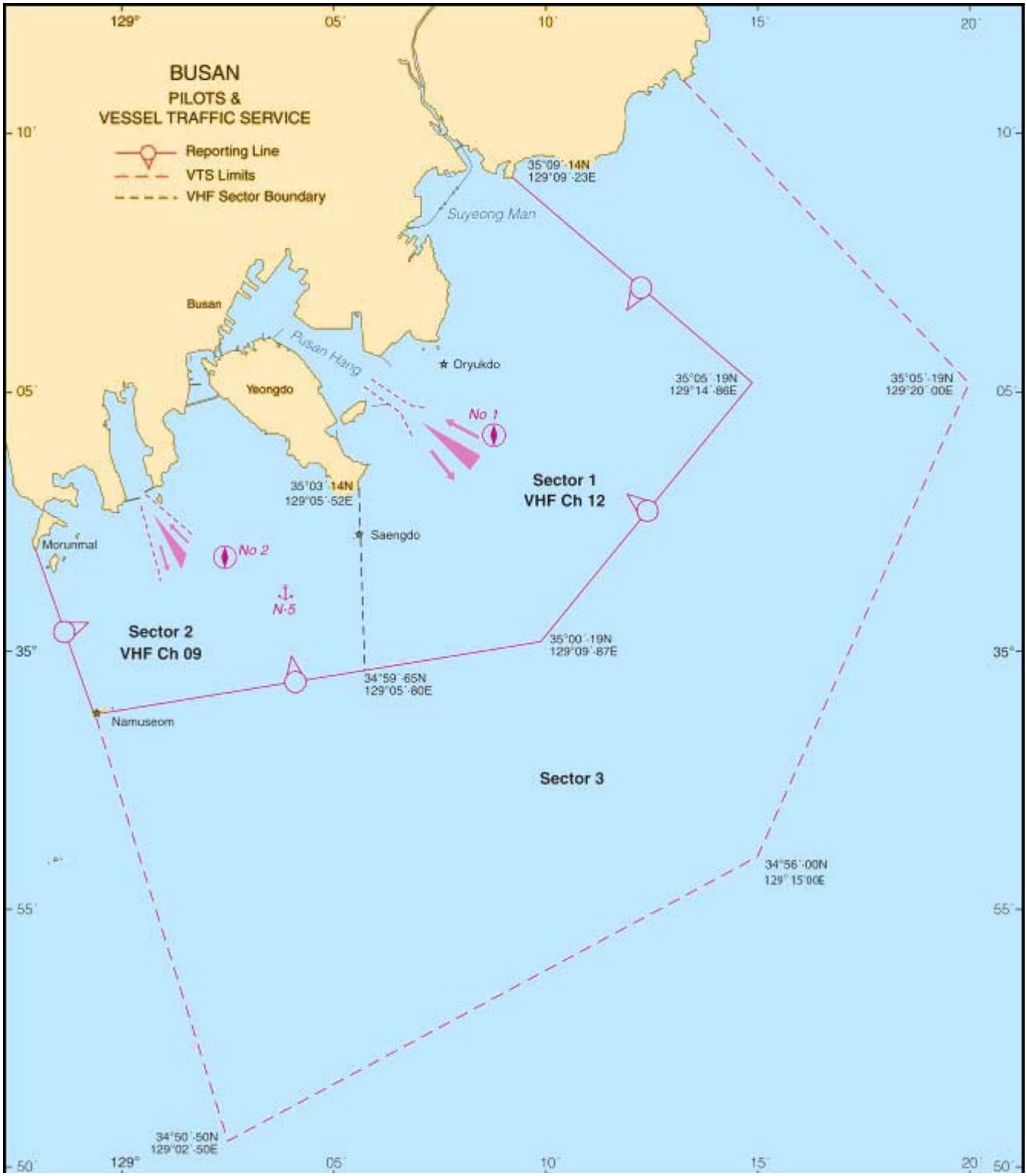


Pusan New Port—Container Terminal

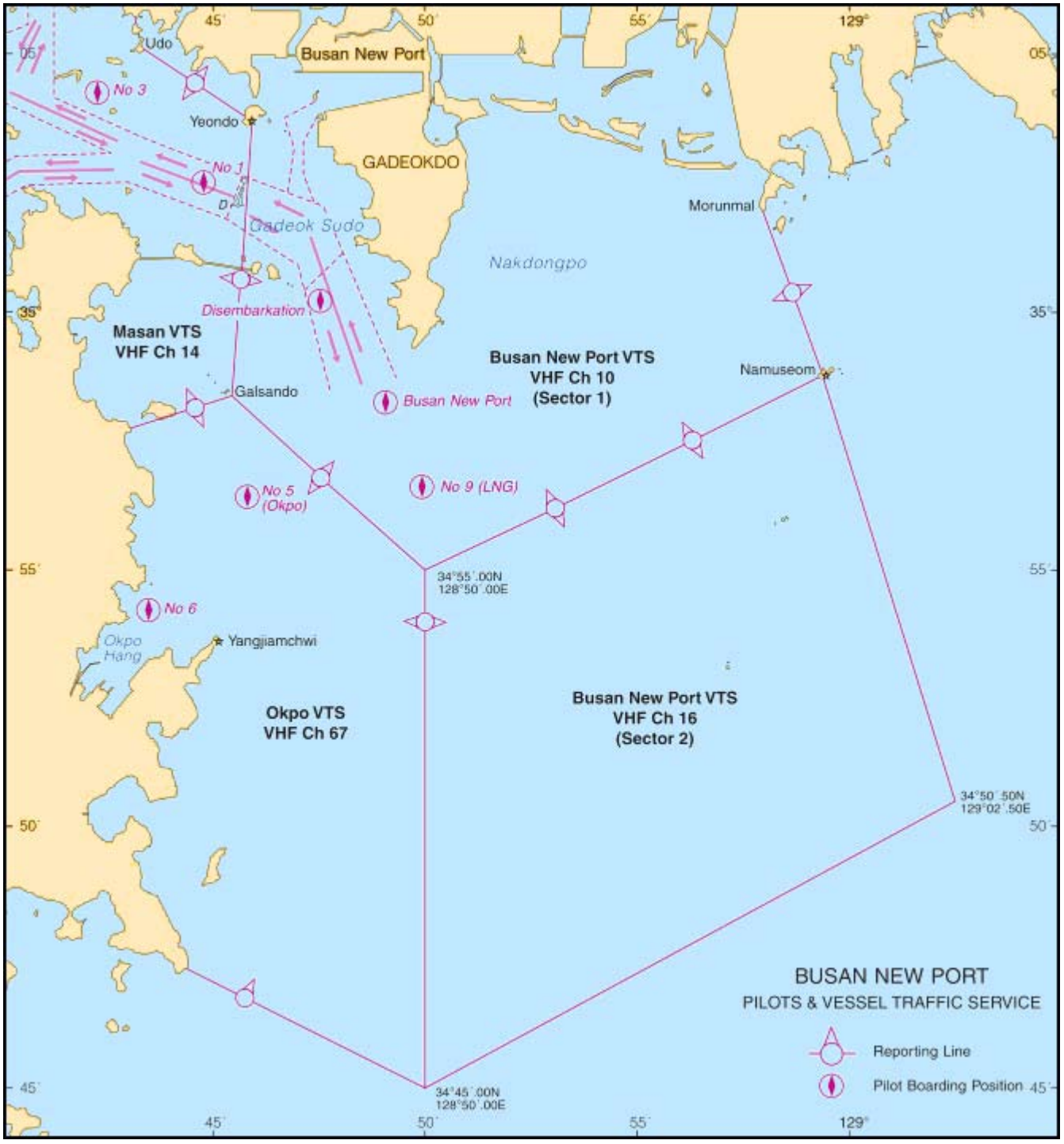
Pusan—Namhang North Harbor

The VTS will broadcast safety information and vessels should report to the VTS immediately in the case of any event that might harm vessel safety.

A **Ship Safety Call Center** is maintained by the Pusan (Bu-



Busan Main Port Vessel Traffic Service



Busan New Port Vessel Traffic Service

san) VTS, providing current information about the location of floating objects, including whales, in order to prevent collisions between such objects and high-speed vessels navigating between Korea and Japan. A Designated Reporting Area has been established bounded by lines joining the following positions:

a. 35°03'46"N, 129°09'41"E.
b. 34°44'40"N, 129°30'13"E.
c. 33°45'55"N, 130°14'41"E.
d. 34°04'50"N, 129°07'49"E.

Vessels navigating through the designated reporting area encountering floating objects (including whales) should advise Busan VTS by VHF or AIS.

Example messages for AIS communications:

1. Three non-dolphin whales at 34°12.05'N 129°23.82'E moving SW would be transmitted as: WH3/341205N/1292382E/SW
2. Discovery of floating material (logs and containers) at 34°12.05'N 129°23.82'E would be transmitted as: FM(LOG/CNTR)/341205N/1292382E

Contact Information.—Pusan (Busan) Main Port VTS can be contacted, as follows:

Pusan (Busan) VTS	
Pusan (Busan) Main Port contact information	
Call sign	Busan VTS
VHF	VHF channel 77
	Sector 1—VHF channel 12
	Sector 2—VHF channels 9 and 16
	Sector 3—VHF channel 16
Telephone	82-51-405-2735
Facsimile	82-51-404-2623

Vessel Traffic Service—Pusan (Busan) New Port.—Pusan (Busan) New Port VTS operates 24 hours and serves the new port area. The VTS area is bounded by lines joining the following positions:

1. Morunmal (35°01'57"N., 128°57'57"E.).
2. Namuseom Light (34°58'47"N., 128°59'22"E.).
3. Position 34°50'31"N, 129°02'31"E.
4. Position 34°45'N, 128°50'E.
5. Position 34°55'N, 128°50'E.
6. Galsando (34°58'29"N., 128°45'22"E.).
7. Yeondo (35°03'40"N., 128°45'41"E.).
8. Udo (35°08'05"N., 128°43'23"E.).
9. Myeong-dong, Jinhae (35°05'43"N., 128°43'12"E.).

Participation in this VTS is mandatory for the following vessels:

1. Vessels engaged in international voyages.
2. All vessels larger than 300 gt except for coastal fishing vessels.
3. All vessels carrying dangerous cargo.
4. Towing vessels of combined length of 200m or longer.
5. Towing vessels engaged in port operations.
6. Passenger vessels.
7. Fishing vessels over 45m in length.

Pusan (Busan) VTS provides navigational warnings and information on VHF channel 10.

The Pusan (Busan) New Port VTS area is divided into two reporting sectors, as follows:

1. **Reporting Sector No. 1—**Bounded by Reporting Lines joining the following positions:
   a. 35°01'57"N, 128°57'57"E.
   b. 34°58'48"N, 128°59'26"E.
   c. 34°55'00"N, 128°50'00"E.
   d. 34°58'27"N, 128°45'22"E.
   e. 35°03'40"N, 128°45'41"E.
   f. 35°05'05"N, 128°43'23"E.
2. **Reporting Sector No. 2—**Bounded by Reporting Lines joining the following positions:
   a. 34°58'48"N, 128°59'26"E.
   b. 34°50'52"N, 129°02'31"E.
   c. 34°45'00"N, 128°50'00"E
   d. 34°55'00"N, 128°50'00"E.

Vessels should maintain a continuous watch on VHS channels 10 and 16 while in the New Port VTS area of operation.

Vessels must comply with traffic and port regulations.

Vessels must not navigate at low speed or drift in the precautionary area near buoy "C" of the Ga-Duk waterway without permission from the VTS.

See the description of the Ship Safety Call Center in the description for **Vessel Traffic Service—Pusan (Busan) Main Port** for details of a call center that provides real time information about the location of floating objects in order to prevent collisions

Contact Information.—Pusan (Busan) New Port VTS can be contacted, as follows:

Pusan (Busan) New Port VTS	
Pusan (Busan) Main Port contact information	
Call sign	Busan Port VTS
VHF	VHF channel 6
Telephone	82-51-664-2750
Facsimile	82-51-404-2632

Anchorage.—Numerous designated anchorage areas, best seen on the charts, exist in both the Pusan (Busan) Main Port and New Port areas. All anchorages are sheltered and have good holding in mud bottom.

Anchorages in Pusan (Busan) Main Port are, as follows:

1. **North Inner Harbor—**Good anchorage can be obtained in this area at any time of the year. Three numbered anchorages, in depths up to 10m, with center positions, as follows:
   a. Anchorage E1 (35°06'00"N, 129°03'00"E.) can accommodate vessels up to 5,000 gt.
   b. Anchorage E2 (35°06'12"N, 129°03'18"E.) can accommodate vessels up to 10,000 gt.
   c. Anchorage E3 (35°06'24"N, 129°03'06"E.) can accommodate vessels up to 10,000 gt.
2. **North Outer Harbor—**The quarantine anchorage is centered in position 35°05'00”N, 129°07'15”E, in North Outer Harbor. A dangerous wreck lies close SE of this anchorage; unexploded ordnance lies within 0.5 mile E of this anchorage.

The O-2 anchorage can accommodate up to eight vessels of 3,000 gt. Other anchorages designated M7, M8, M9, and M11 can accommodate vessels up to 10,000 gt in depths of 7 to 14m.

3. **South Outer Harbor—**Anchorage areas N1, N2, N3, and N4 have been established as quarantine anchorages. Area N5 is also a quarantine anchorage and is located 2 miles SW of Saeng Do.
4. **Gamcheon Harbor—**Three designated anchorages are, as follows:
   a. Anchorage K-C—Marked by three lighted buoys within the area established in the SE part of Kamnaep’o, inside the E breakwater. Can accommodate vessels as

large as 20,000 gt.

b. Anchorage K1 (35°04'12"N, 129°00'00"E.).

c. Anchorage K2 (35°04'06"N, 129°00'00"E.).

5. **Dadaepo Harbor—**Two designated anchorages on the W side of the entrance to the harbor, as follows:

a. Anchorage K3—SE of Goraeseom, centered on position 35°02'00"N, 128°59'27"E. with depths 19m, mud.

b. Anchorage K4—A circle, with a radius of 250m, centered on position 35°02'18"N, 128°59'12"E. Can accommodate vessels up to 4,000 gt.

Anchorages in Pusan (Busan) New Port are, as follows:

1. Anchorage S1 (35°00'11"N., 128°52'58"E.) has depths of 18 to 22m and can accommodate one vessel up to 80,000 dwt.

2. Anchorage S2 (35°00'19"N., 128°53'40"E.) has depths of 18 to 22m and can accommodate one vessel up to 50,000 dwt.

3. Anchorage S3 (35°00'23"N., 128°54'17"E.) has depths of 19 to 22m and can accommodate one vessel up to 30,000 dwt.

Caution.—A Designated Area is established in the approaches to Pusan (Busan), seaward of the SE harbor limit, within the area of 6 miles radius, centered on a position 0.2 mile SE of the SW end of Oryukto Breakwater.

Anchoring and fishing is prohibited within the approaches to North Outer Harbor extending E to meridian 129°12'E, as seen on the chart.

Fish havens are located NE of Oryuk To in the following positions with the following depths:

a. 35°05'52"N., 129°07'50"E.—depth of 21.3m.

b. 35°05'40"N., 129°07'56"E.—depth of 29.9m.

Several spoil grounds lie in the harbor approaches. The limits of these areas may best be seen on the chart.

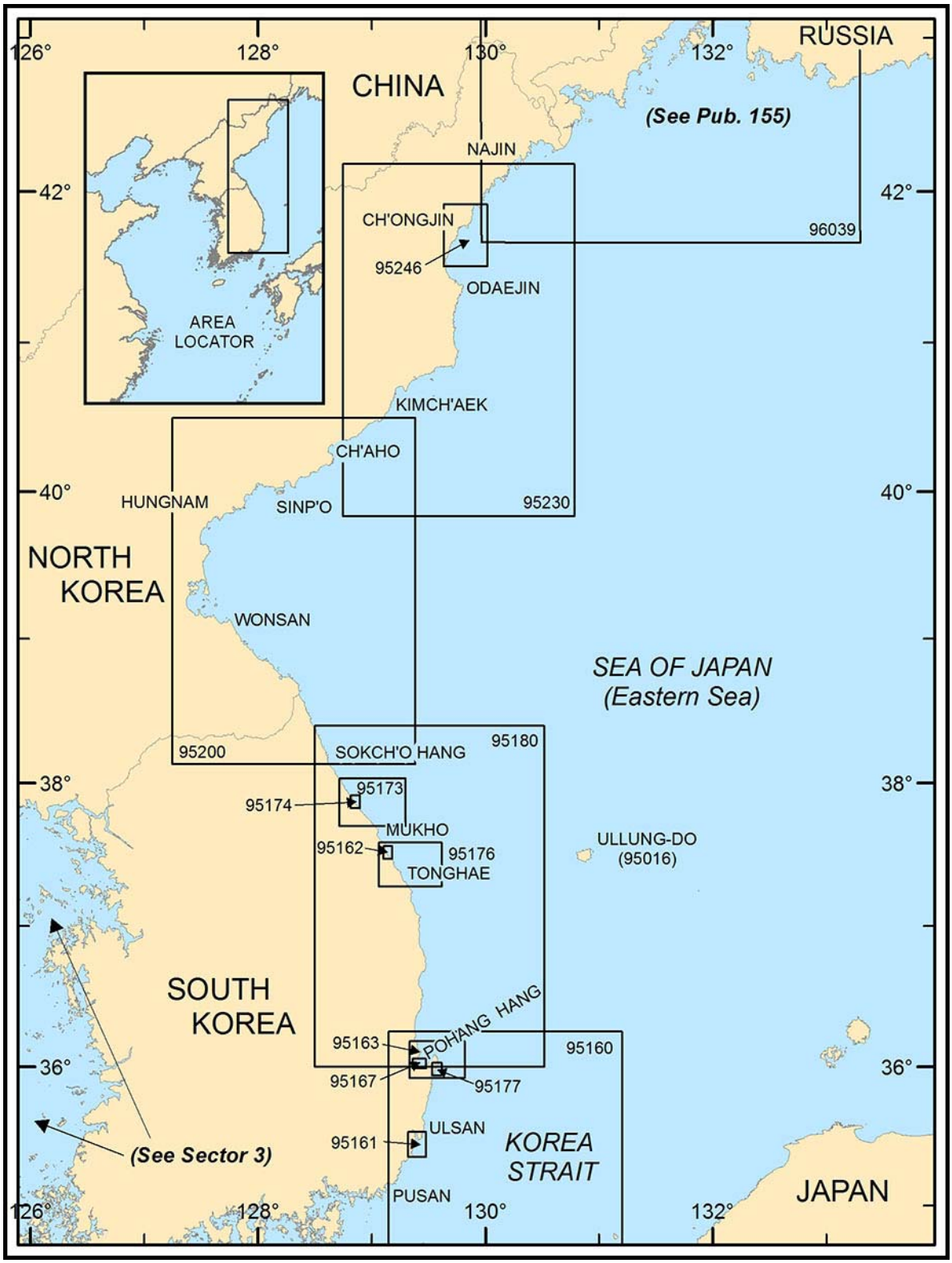
Fishing nets are laid on either side of the fairway through North Outer Harbor from September to March. They are also laid over most of the head of the N part of North Inner Harbor. The limits of these nets may be extended and caution is necessary, especially at night.

A partially-submerged wreck, also dangerous to navigation, is located close SSE of Saeng Do in position 35°02'08"N, 129°05'32"E.

A dangerous wreck, with a depth of 18.3m, is located in the South Outer Harbor within the anchorage area N2 at position 35°03'25"N., 129°01'40"E.

An Ocean Data Acquisition System (ODAS) buoy lies in the seaward approach from S to Pusan (Busan) in position 34°56'N, 129°08'E.

A wreck, dangerous to navigation, lies on the E side of the fairway leading into South Harbor, 183m S of the head of the E breakwater.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **2** — CHART INFORMATION

SECTOR 2

KOREA—EAST COAST

Plan.—This sector describes the E coast of Korea from Pusan (Busan) Hang, at the NE entrance of Korea Strait, to the Tumen River, at the border between Korea and Siberia. The descriptive sequence of this coast, which forms the W limit of the Sea of Japan, is from S to N.

General Remarks

2.1 Winds—Weather.—Between Yongchu Gap and Suwon Gap local inhabitants report on this coast W winds prevail in December and January, changing to a NW direction in February and March, with rough weather. During June the direction is variable with intermittent S, SE and NE winds. Gales may sometimes accompany SE or NE winds in late August. Fisherman report that the heaviest seas on the E coast of Korea are raised along this stretch, particularly with N winds from October to March.

Tides—Currents.—Between Busan and Ulsan the current which flows through the Western Channel of the Korea Strait, flows NE parallel to the coast. In winter this current is weak, but in April or May its strength gradually increases. The S current ordinarily does not extend to this area, but it may be experienced on rare occasions.

The flood tidal currents between Busan and Kwaogge Mal sets SW and the ebb current is NE. The SW current is extremely weak, but the NE ebb attains a velocity of about 1.5 to 2 knots. The NE current usually flows for about 9 hours, and the SW current for about 3 hours. Both currents may be influenced greatly by winds and seasonal conditions.

Between Orang Dan and the Tuman River, there are no regular currents, but irregular currents may set in any direction for 1 or 2 days at a velocity of 1 knot or less, depending on the winds prevailing for the few preceding days.

The current between Musu Dan and Orang Dan at a distance between 2 to 10 miles offshore sets in a S direction with a velocity of about 1 knot. Near the two headlands it increases somewhat in strength, especially during strong N winds when a velocity of about 2 knots may be attained.

The current between Yujin Dan and Musu Dan S of Al Som probably sets in a S direction. To the N of Al Som it may set in an E or W direction. The direction and velocity of these currents cannot be depended on. Its irregularity is because it is being deflected by Al Som and Yang Do.

Pilotage.—The Korea Maritime Pilots Association (KMPA) provides the following web site:

Korea Maritime Pilots Association
http://www.kmpilot.or.kr

Regulations.—The Korean Ship Reporting System (KOSREP) is in place for all vessels transiting the Republic of Korea Search and Rescue (SAR) area and the Korean Peninsula, bounded by an area between 30°N and 40°N and from 121°E to 135°E. Participation in KOSREP is voluntary with no charges applying to any KOSREP message directed through a Republic of Korea Coast Radio Station as designated by the Korea National Maritime Police Agency. Provision will be made for cooperation between KOSREP, the Japanese Ship Reporting System (JASREP), and the Automated Mutual-assistance Vessel Rescue System (AMVER) to ensure a smooth transition from the Korean SAR area to another SAR area.

Participation is encouraged the following types of vessels of any nationality:

1. International passenger vessels.
2. International voyage vessels of 300 gt or above with a continuous navigating time of 12 hours or more.
3. Any kind of vessel not under command, restricted in ability to maneuver, or limited by draft.
4. Towing vessels with an loa of 200m and over.
5. Vessels carrying dangerous cargo (such as crude oil tankers, product tankers, chemical carriers, and other similar type vessels).

For further details, see Appendix II for South Korea in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Caution.—Offshore fishing industries and their operations are frequently met in the areas covered by this sector. For further information, see paragraph 1.1.

A dangerous wreck lies about 0.3 mile N of Cho Do.

Although the E coast of Korea has generally a uniform appearance, its character changes suddenly from being mountainous and rocky it becomes low and sandy, and then resuming its former appearance after a short interval. This coast is generally steep-to at a short distance offshore; in some places sunken dangers lie close to the coast. At night or in thick weather, vessels should not proceed into depths of less than 200m.

Extensive mine-laying operations took place in Korean waters during the 1950-1953 war. For further details, refer to Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Off-lying Islands

2.2 Liancourt Rocks (Dok To) (Take Shima) (37°15'N., 131°52'E.), about 118 miles off the Korean coast, consists of two barren, rocky islets, about 183m apart and surrounded by numerous rocks. A depth of 19m was reported, 2 miles NW of Liancourt Rocks. The W islet has a sharp peak, 157m high, with the E islet being lower and flatter. A light is shown from the E islet.

Ullung Do (Ulleung Do)(37°30'N., 130°50'E.), about 70 miles off the Korean coast, is a mountainous island with sharp conical peaks, most of which are wooded. Several islets and rocks lie close off the coast, particularly its N and E sides. Jug Do (Chuk To), with a flat summit and covered with trees, lies off the NE extremity of Ullung Do.

Landing can be effected in fine weather on the occasional small

shingly beaches, but the greater part of the island is inaccessible.

Kanyong Mal, the southernmost extremity of Ullung Do, has a light on a white tower 5m in height. A light is shown on a rock close off the N point of the island. A light is situated on the W extremity of the island. Hyongnangap Light stands about 2.8 miles NE of Kanyong Mal. There are two breakwaters and a cargo handling wharf situated about 0.5 mile NNW of the light structure.

A shoal, with depths of 22 to 58m, lies about 55 miles NNW of Ullung Do.

An Ocean Data Acquisition System (ODAS) buoy is moored in Jumunjin Hang in position 37°32'N, 130°00'E.

Busan Hang to Ulsan Man

2.3 Between the NE entrance of Busan Hang and Ulsan Man, about 25 miles NNE, mountain ranges run parallel with the coast. Other ranges slope to the coast. Trees are extremely rare on this part of the coast and mountains are mostly covered with verdure. There is a green appearance in summer, but in autumn and winter the mountains show no signs of vegetation.

Suyeong Man (Suyong Man) (35°08'N., 129°09'E.), NE of Busan Hang, is entered between Tongsaeng Mal (Dongsaeng Mal) at the N end of a promontory and Kodu Mal (Godu Mal), about 3.3 miles ENE. The bay is open SE and has depths of 5 to 14.5m, but it is encumbered with rocky shoals varying in depth from less than 2 to 9m. The bottom is irregular and consequently this bay is not suitable as an anchorage.

Suyeong Gang discharges into the head of Suyeong Man. Land has been reclaimed on both sides of the river mouth. Vessels calling at Suyeong Man should proceed first to Busan to obtain pratique, then proceed to Suyeong Man. There is quayage in the SW corner of Suyeong Man which fronts a Steel Manufacturing Company Works. There are reported depths of between 2.9m and 6.3m alongside.

Jang San (Chang San), 634m high lying N of the bay, is a good landmark standing 3 miles NW of Kodu Mal. Busan Aerodrome Light is shown from about 3 miles WNW of Kodu Mal. Another light for the use of aircraft is shown from Kumyor (Kumnyon San), a 415m high summit about 2 miles NW of Tongsaeng Mal.

Pilotage.—Pilotage is available during daylight hours only.

Signals.—Storm signals are displayed during the daylight hours from a white metal mast, 12m high, on a breakwater 1.6 miles NW of Tongsaeng Mal.

Off-lying Dangers

2.4 A rock, which dries 0.5m, lies 0.5 mile SW of Kodu Mal and there are others closer inshore SW and E of the point.

A detached reef, consisting of above and below water rocks and on which there is a wreck, lies 1 mile ENE of Kodu Mal.

Songjungri Light marks a reef with above and below water rocks lying 2 miles NE of Kodu Mal. A detached rocky 8.5m patch lies 0.5 mile offshore, 0.75 mile NE of Sungjungri Light.

The coastal bank along the stretch S of **Daebyeon Hang** (35°13'N., 129°14'E.) is narrow; there are several islets and below water rocks, but they all lie close inshore.

Daebyeon Hang

2.5 **Daebyeon** (Taebyon) (35°13'N., 129°14'E.), where there is a small harbor, is situated at the head of Daebyeon Hang. A breakwater, 180m, extends W from the E side of the harbor. It affords shelter to small vessels up to 100 tons except during S and SW winds.

The harbor is used by many fishing boats during the months of August and November. A light is shown from the head of the breakwater.

Signals.—Storm signals are shown from about 0.3 mile NE of the breakwater head.

A rock, drying 0.3m, lies on the E side of the approach 0.3 mile SE of the breakwater head. An islet lies on the W side of the approach, 0.2 mile S of the head of the breakwater at the end of a spit extending from the W shore. A rock, 2m high, lies 0.45 mile SSE of the breakwater head at the end of another spit extending from the W shore.

Gwanggye Mal (Kwanggye Mal) (35°14'N., 129°15'E.) is a promontory, dark brown and fringed by scattered boulders. A pointed hill, 228m high and very prominent, stands on Gwanggye Mal.

Godong Mal (Kodong Mal) (35°19'N., 129°18'E.), is a low sandy point; a short distance inland is a sharp hill covered with vegetation.

A reef of below-water rocks lies 0.2 mile SSE of Gwanggye Mal.

A black rock, 10m high, lies close offshore 0.5 mile E of Godong Mal.

A small bay lies on the W side of Godong Mal and has depths of 5 to 12m, sand and mud. There is a wharf at the head of this bay with a depth of 5.2m alongside.

The N and E sides of Godong Mal are being reclaimed to become the site of S Korea's first nuclear power station. In front of the site there is a breakwater, 80m in length, on the inner side of which is a coast wall, 110m long and with depths of 5.3m alongside, where vessels of 1,000 tons can berth.

Anchorage.—Small local vessels obtain temporary anchorage in the small bay W of Godong Mal except with winds between E and S, in depths of 11m, mud.

Caution.—An ODAS buoy is situated less than 1 mile E of the coast at Kodong Mal in position 35°19'53"N, 129°18'46"E.

Kanjol Gap (Ganjeol Gap) (35°21'N., 129°22'E.) is a flat point of sand and gravel, fringed with rocks which extend 1 mile offshore. A light is shown from Kanjol Gap. A mountain, the best landmark between Busan and Ulsan, stands about 7.8 miles WNW of Kanjol Gap. The summit of this mountain has several sharp peaks. Two other mountains, with conspicuous sharp summits, stand about 12 miles NW of Kanjol Gap.

Hoeya Gang

2.6 Hoeya Gang discharges 2 miles NNW of Kanjol Gap. Small vessels with local knowledge and a draft of not more than 1m can proceed about 2 miles up this river. An islet, 16m high and covered with pine trees, lies about 0.3 mile SE of the mouth of the river.

Yonja Do (Yeonja Do) (35°25'N., 129°22'E.), 11m high and foul all round, lies in the middle of the bay. Vessels should not proceed W of a line drawn N and S through Yonja Do as the

bay W of this islet is foul. There is a jetty on both the N and S sides of Yonja (Yeonja) Do.

Beomweo Gabl (Pomwol Gab) is the N entrance point of Yonja Do. A rocky shoal, with 14.3m and marked SE by a lighted buoy, lies 0.7 mile NE of Beomweal Gab.

A restricted area, 0.4 mile wide, is centered on a large mooring buoy (35°25'N., 129°23'E.), which is connected by submarine pipeline to the shore, 0.5 mile NW of Yonja Do (Yeonja Do).

Choam Do (Joam Do) (35°26'N., 129°22'E.), 7m high, lies close offshore 0.5 mile NNW of Beomweol (Pomwol) Gab.

Onsan

2.7 **Onsan** (On San) (35°27'N., 129°22'E.) lies at the mouth of Sangnam Cheon (Oehwang Gang), which flows from the W and empties into Ulsan Man. The port is entered 0.6 mile NNE of Choam Do. between the head of a breakwater which extends 0.5 mile NNE of Choam Do.

Depths—Limitations.—Six jetties, with berthing depths of 11.1 to 13.9m alongside their NW and SE sides, are available for unloading tankers, and situated close NE of **Chun Do** (35°26.3'N., 129°21.3'E.).

Ships normally berth with bows NE; berthing and unberthing is carried out in daylight hours only. Ships should be well secured as the pier is open to E swells which are common in the summer months.

Dongbuk Wharf, with an alongside depth of 12m, lies close E of Damneungsan summit (35°26.5'N., 129°21.1'E.). Berth No. 1 through Berth No. 6, situated S of Dongbuk Wharf, have alongside depths of 10.6 to 12.0m. Administration Wharf, at the head of the basin, has alongside depths of 5.3 to 8.3m. Jeongil Wharf No. 1 has an alongside depth of 14.6m. Jeongil Wharf No. 2, which lies NE of Jeongil Wharf No. 1, has depths of 12.0 to 13.6m.

Onsan SBM is situated 0.9 mile SE of Pomwol Gap. Tankers of 30,000 dwt berth at the terminal. A light is shown and a fog signal is sounded from the SBM, and a submarine pipeline leads W to the shore 0.5 mile NW of Yonja Do (35°25'N., 129°22”E.).

See paragraph 2.8 for more details concerning Onsan harbor, as well as the table titled **Onsan and Ulsan—Port Facilities** for details of the berths at On San.

Pilotage.—Pilotage is mandatory for entering into the port of On San. Vessels proceeding to Onsan must also participate in the Ulsan Vessel Traffic Service. See paragraph 2.8 for details of pilotage and VTS requirements.

Anchorage.—Anchorage in On San is not recommended, although it is sheltered from the W and protected by breakwaters from E, because of the rock and shoals which encumber it.

Ulsan Man (35°27'N., 129°24'E.)

World Port Index No. 60400

2.8 Ulsan, a port of entry, is situated about 3.5 miles upstream from the mouth of the Taehwa Gang which flows into the head of Ulsan Man. Ulsan Man is one of the main ports of South Korea and includes the port area of Onsan located close S and the large shipbuilding yard at Mipo operated by Hyundai situated close N. Land reclamation works are in progress (2018) for the second phase of the North-East Asia Oil-hub in Ulsan Sin Hang.

Ulsan Hang (35°30'N., 129°23'E.) is the inner port of Ulsan Man. It lies between two rugged, mountainous peninsulas and is entered at the N end of Ulsan Man. The peninsulas form the E and W shores of the harbor and protect ships from the prevailing winds. Extensive ship repair facilities exist on the W coast of the peninsula that forms the E shore of Ulsan Hang.

Ulsan Home Page
http://www.ulsan.mltm.go.kr

Winds—Weather.—In summer the winds are frequently E, but in other seasons N winds prevail. Southerly winds may send a heavy sea into the inlet. Heavy fogs occur from April to late August, most frequently in June and July.

Tides—Currents.—In the area from 1 to 2 miles outside the entrance of Ulsan Man, the ebb current sets to the NE with a velocity of about 2 knots, and the flood current to the SW with a velocity of about 1.3 knots.

Ulsan Hang

Depths—Limitations.—Ulsan Man is approached from the SE where the depths are deep and clear of dangers. There is a

single approach channel, 500m in width, extending NNW for about 2.5 miles from the pilot boarding station to a junction position where Fairway III leads WNW into Onsan Harbor and Fairway I continues NNW into Ulsan Harbor.

Onsan Harbor is protected by a breakwater to the N that extends 500m SE from the Ulsan New Port General Wharf. The S breakwater is a T-shaped breakwater creating an opening of about 350m into the harbor. Depths remain in excess of 20m around the center of Fairway III until W of the breakwaters.

Extensive works are in progress (2014) close N of the Ulsan New Port General Wharf; this area is being protected by a detached breakwater extending from a S extremity at position 35°27'02"N, 129°22'44"E to a bend northward at position 35°27'20"N, 129°22'50"E. Both of these positions are marked by lights. The breakwater extends NNE another 660m from the bend position; new construction has commenced (2014) to extend the breakwater an additional 1,100m to the NNE. The area of construction for the new portion of the breakwater is marked by lighted buoys.

Additional land reclamation works for the construction of a large new port facility are in progress (2017) in the vicinity of position 35°27'58"N, 129°22'40"E .

Onsan and Ulsan—Port Facilities

Berth	Pier Length	Depth Alongside	Maximum Vessel			Remarks
			Draft	LOA	Size	
Sebang Terminal						
General Cargo Berth	230m	—	—	225m	20,000 dwt	General cargo.
Daedong Wharf						
Cargo Berth.	490m	—	—	—	—	Dry bulk.
Hanjin						
Cargo Pier	240m	7.0m	—	—	5,000 dwt	General cargo.
Hyundai Automobile Terminal						
Auto Pier	830m	11.5m	—	232m	50,000 dwt	Automobiles.
S-Oil Jetties						
S1-1	—	12.2m	10.3m	190m	20,000 dwt	Petroleum products.
S1-2	—	12.6m	10.7m	190m	50,000 dwt	Petroleum products.
S1-3	54m	9.3m	7.8m	120m	10,000 dwt	Petroleum and chemical products.
S2-1	60m	16.0m	13.5m	250m	120,000 dwt	Petroleum products.
S2-2	—	11.9m	10.0m	150m	15,000 dwt	LPG and chemicals.
S2-3	—	—	7.0m	120m	5,000 dwt	Dirty products.
S3-1	—	14.2m	12.7m	219m	50,000 dwt	Aviation fuel and clean products.
S3-2	—	11.6m	9.7m	150m	10,000 dwt	LPG and chemicals.
All S-Oil Jetties have two berths alongside and one at the end of the jetty.						
KPIC—Korean Petrochemical Industry Company						
KPIC 1	86m	14.0m	12.5m	280m	80,000 dwt	Chemicals and aviation fuel. Maximum beam of 42m.
KPIC 2	86m	12.5m	11.3m	280m	50,000 dwt	Chemicals and aviation fuel. Maximum beam of 42m.
Michang Terminal						
Michang Pier	270m	14.0m	—	—	50,000 dwt	Petroleum. Under construction.
Hyundia Oil Terminal						
Oil Berth	270m	14.0m	—	—	50,000 dwt	Petroleum products.
Odfjell Terminal						
OTK (N)	210m	11.2m	10.1m	210m	20,000 dwt	Chemicals and clean products.

Onsan and Ulsan—Port Facilities						
Berth	Pier Length	Depth Alongside	Maximum Vessel			Remarks
			Draft	LOA	Size	
OTK (S)	220m	11.4m	11.4m	210m	40,000 dwt	Chemicals, clean products, and crude products.
Tae Young Horizon Terminal						
HTKT	15m	8.5m	8.0m	47m	30,000 dwt	Chemicals.
HTKT	240m	12.0m	10.8m	200m	50,000 dwt	Chemicals and clean products.
Ulsan New Port						
Sand Pier	157m	7.0m	—	119m	3,000 dwt	Sand. One berth.
General Pier	340m	12.0m	—	255m	20,000 dwt	General cargo. Two berths.
Container Pier	920m	12.0-14.0m	—	—	3,000 dwt	Containers. Four berths.
UNCT 1	230m	14.0m	—	268m	52,773 dwt	Containers.
UNCT 2	230m	12.0m	—	268m	52,773 dwt	Containers,
UNCT 3	230m	12.0m	—	261m	51,750 dwt	Containers.
UNCT 4	230m	12.0m	—	212m	62,041 dwt	Containers
Onsan Port						
Pier 1	270m	11.0m	—	—	20,000 dwt	General cargo.
Pier 2	210m	11.0m	—	—	20,000 dwt	Iron ore
Pier 3	230m	12.0m	—	—	20,000 dwt	Zinc ore.
Pier 4	219m	11.0m	—	—	20,000 dwt	Cement.
Daplo	325m	7.0m	—	—	3,000 dwt	General cargo.
Onsan Main Port						
No. 1	149m	8.0m	—	—	5,000 dwt	General cargo.
No. 2	602m	9.0-12.0m	—	—	40,000 dwt	General cargo. One berth each for 5,000 dwt, 20,000 dwt, and 40,000 dwt vessels.
No. 3	347m	9.0m	—	—	10,000 dwt	General cargo. Two berths for 10,000 dwt vessels.
No. 4	322m	11.0m	—	—	20,000 dwt	Chemicals. One berth for 5,000 dwt vessels and one berth for 20,000 dwt vessels.
No. 5	220m	11.5m	—	—	20,000 dwt	General cargo.
No. 6	990m	12.0m	—	—	30,000 dwt	General cargo. Four berths for 30,000 dwt vessels.
No. 7	210m	11.0m	—	—	20,000 dwt	General cargo.
No. 8	375m	11.0m	—	—	20,000 dwt	General cargo. One berth for 10,000 dwt vessels and one berth for 20,000 dwt vessels.
No. 9	150m	8.0m	—	—	5,000 dwt	General cargo.
Coal Pier	270m	12.0m	—	—	40,000 dwt	Coal.
General Pier	675m	7.0m	—	—	5,000 dwt	General cargo. Six berths for 1,000 dwt vessels and two berths for 5,000 dwt vessels.

Onsan and Ulsan—Port Facilities						
Berth	Pier Length	Depth Alongside	Maximum Vessel			Remarks
			Draft	LOA	Size	
Ulson Container Terminal						
Jeongil Pier No. 5	220m	12.0m	10.0m	220m	30,000 dwt	Containers
Ulsan Tank Terminal						
Jeongil Pier 1 No. 2	160m	13.5m	10.5m	239m	50,000 dwt	Chemicals, aviation fuel, clean products, and dirty products. Maximum beam of 60.0m.
Jeongil Pier 2 No. 1	28m	12.5m	11.25m	233m	50,000 dwt	Chemicals, aviation fuel, clean products, and dirty products. Maximum beam of 60.0m.
Jeong l Pier 2 No. 2	28m	11.0m	10.0m	164m	20,000 dwt	Chemicals, aviation fuel, clean products, and dirty products. Maximum beam of 60.0m
JSTT Pier 3	—	14.0m	—	270m	—	Chemicals.
JSTT Pier 4	—	14.0m	—	270m	—	Chemicals.
Onsan Korea Oil SBMs						
SBM Berth	—	37.5m	23.5m	—	350,000 dwt	Crude oil.
Ssangyong Oil (SBM)						
SBMD	—	27.0m	22.0m	360m	350,000 dwt	Crude oil.
SK SBM 1 (Buoy A)	—	23.0m	—	—	—	Closed.
SK SBM 2 (Buoy B)	—	27.0m	21.6m	220m	300,000 dwt	Crude oil.
SK SBM 3 (Buoy C)	—	27.0m	21.6m	220m	325,000 dwt	Crude oil.
North East Tank Terminal (NETT)						
NETT 1	—	12.0m	10.5m	200m	45,000 dwt	Chemicals and clean products.
NETT 2						
NETT 3	180m	12.0m	10.5m	—	30,000 dwt	Chemicals.
KNOC						
SBM	—	27.0m	24.5m	—	300,000 dwt	Crude oil.
SK Gas						
Pier 1	—	10.0m	9.0m	142m	7,000 dwt	LPG.
Pier 2	110m	10.0m	9.0m	142m	5,000 dwt	LPG.
Pier 3	107m	10.0m	6.0m	107m	1,500 dwt	LPG.
SK Corporation						
SK 1-1	130m	7.5m	6.5m	104m	5,000 dwt	Clean products.
SK 1-2	130m	7.5m	6.5m	104m	5,000 dwt	Petroleum products.
SK 2-1	—	4.0m	3.6m	100m	5,000 dwt	Petroleum products.
SK 2-2	—	7.4m	6.7m	100m	6,000 dwt	Petroleum products.
SK 2-4	—	7.8m	7.0m	100m	6,000 dwt	Petroleum products.

Onsan and Ulsan—Port Facilities						
Berth	Pier Length	Depth Alongside	Maximum Vessel			Remarks
			Draft	LOA	Size	
SK 2-5	—	7.8m	7.0m	100m	2,500 dwt	LPG and chemical gases.
SK 2-6	—	8.0m	7.0m	110m	4,000 dwt	LPG and chemical products.
SK 2-7	155m	8.0m	7.0m	115m	6,000 dwt	LPG, chemical gases, and aviation fuel.
SK 3 (Main)	294m	11.2m	10.2m	230m	35,000 dwt	Petroleum products and chemical gases.
SK 4-1	19m	9.4m	8.6m	160m	10,000 dwt	Petroleum products and chemicals.
SK 4-2	52m	9.1m	8.3m	120m	4,000 dwt	Petroleum products and chemicals.
SK 4-3	15m	8.5m	7.7m	160m	4,000 dwt	Petroleum products.
SK 5-1	35m	6.0m	5.4m	90m	2,000 dwt	Petroleum products.
SK 5-2	35m	6.0m	5.4m	90m	2,000 dwt	Petroleum products.
SK 5-3	46m	7.0m	6.3m	120m	4,000 dwt	Chemicals and clean products.
SK 5-4	45m	7.5m	6.7m	150m	5,000 dwt	Petroleum products and chemicals.
SK 5-5	55m	9.2m	8.2m	170m	10,000 dwt	Petroleum products and chemicals.
SK 6	50m	15.0m	13.3m	280m	70,000 dwt	LPG, petroleum products, and chemicals.
SK 7	—	15.0m	13.5m	280m	60,000 dwt	Petroleum products, crude, and aviation fuel.
SK 8	—	18.5m	16.5m	280m	150,000 dwt	Petroleum products, crude, and aviation fuel.
Onsan Tank Terminal						
Onsan Peir No. 6	230m	12.0m	10.8m	240m	30,000dwt	General cargo.
Ulsan Tank Terminal						
Yonggot Silo Pier	185m	13.0m	12.0m	245m	50,000 dwt	Grain.
Yongjiam 1	85m	7.0m	—	100m	3,000 dwt	Chemicals, clean products, and vegetable oils.
Yongjiam 2	150m	11.0m	10.3m	—	—	Chemicals, clean products, and vegetable oils.
Yongjiam 3	—	7.0m	—	200m	45,000 dwt	Chemicals, clean products, and vegetable oils.
Miscellaneous Wharfs and Piers						
Namhwa Wharf	110m	5.8 -6.3m	—	—	3,000 dwt	Waste products. Two berths.
Hwaam Wharf	820m	7.0m	—	—	4,000 dwt	Total of four berths.
Yeompo Pier	570m	12.0m	—	—	50,000 dwt	Steel and general cargo. Two berths. Located on E side of fairway.
Jangsaengpo Pier	754m	3.0-8.0m	—	—	—	Mooring area.
Maeam Wharf	440m	4.5m	—	—	—	Mooring area.

Works are also in progress (2017) on the Ulsan Sin Hang North Breakwater (35°27'43"N., 129°22'9"E.).

Fairway I continues NNW from the junction point for another 1.25 miles then passes close W of a floating breakwater,

650m in length, well marked by lights. The shipyard at Mipo is located NNE of the breakwater. A shoal, with a depth of 3m, lies about 0.4 mile SSE of Hwaam Chu. This shoal, which is reported to break in rough weather, can be identified at high water.

Fairway I then curves more NNE entering into the central part of Ulsan harbor where the depths range from 10 to 20m. In the N part of the harbor a buoyed channel, with depths of 11.8 to 13.6m, leads to the quays.

Jangsaengpo Hang (Changsaengp'o Hang) is entered through Fairway II, approximately 2,.3 miles NNW of the floating breakwater. Lighted buoys mark the fairway in places. International Signal Stations A and B stand on the W side of Changsaengp'o Hang in approximate position 35°30'N, 129°22"E.

The entrance to Jangsaengpo Hang is narrow and the sides of the channel are marked by buoys. An overhead cable, with a vertical clearance of 40m, spans the entrance. Within Jangsaengpo Hang, land has been reclaimed on the S shore, 0.25 mile within the entrance.

A refinery stands at the head of Jangsaengpo Hang.

Care should be taken when entering Jangsaengpo Hang to avoid the shallow water on the N side of the entrance which is only 91m wide. When navigating in Jangsaengpo Hang large vessels should exercise great caution due to shoals, lack of maneuvering room, and fishing nets.

Mipo Port is the northernmost part of Ulsan Hang and is primarily a shipbuilding port located two bays N of Pangojin Hang. See paragraph 2.10 for details.

Onsan is the southernmost part of Ulsan Hang, with tanker facilities on the same side as Onsan NW of the point. **Ulsan New Port** is located directly across the harbor from the Onsan non-tanker facilities. **Ulsan Main Port** is located N of the floating breakwater along both sides of the main channel and Fairway No. 2. Details of the berths in these three port areas are detailed in the table titled **Onsan and Ulsan—Port Facilities.**

Aspect.—Three prominent chimneys, 149m high, stand near **Sin Po** (35°28'N., 129°23'E.), the W entrance point of Ulsan Hang.

Bongdae San (Pongdae San), 132m high, stands about 0.4 mile NW of Sin Po. Bongdae San summit, on which is a ruined cairn, appears dome shaped from a distance and forms a good mark.

Several silver oil tanks stand near the shore S of Bongdae San. The peninsula forming the E side of Ulsan Hang presents an ochre appearance. Hwaam Chu, the S extremity of this peninsula, consists of reclaimed land.

In the approach, good radar returns will be received from the tanks ashore at about 20 miles, the Imodco buoys at about 8 miles, and the small buoys marking the floating hose at about 1.5 miles.

Pilotage.—Pilotage is compulsory for all vessels over 500 gt except for vessels proceeding to any one of the three designated anchorages (E1, E2, or E3) outside Ulsan Man.

Pilots should be ordered by the master or through the ship's agents 24 hours before arrival at the pilot station but no later than 3 hours prior to arrival. When the vessel is within 2 hours of the pilot boarding area, the vessel should contact the pilots directly via VHF channel 13, giving the vessel's position using a range and bearing from Hwaam Chu Light.

Pilots board in the following positions:

a. 35°22'36"N, 129°26'00"E.—No. 1.

b. 35°22'00"N, 129°27'30"E.—No. 2 (for vessels 200m loa and longer or 50,000 gt and larger).

c. 35°20'55"N, 129°28'00"E—No. 3 (VLCCs only).

d. For vessels at anchor, the boarding position is at the anchorage.

Ulsan Pilots can be contacted, as follows:

Ulsan Pilots	
Ulsan Pilots contact information	
Call sign	Ulsan Pilot
VHF	VHF channel 13
Telephone	82-52-261-7703
Facsimile	82-52-266-4256
E-mail	uspilot@kmpilot.or.kr
Web site	http://www.ulsanspilot.co.kr

Vessel Traffic Service.—Ulsan Vessel Traffic Service (VTS) is in operation 24 hours. Participation is mandatory for all vessels entering or departing the port, except for fishing vessels.

The VTS area limit (also described as the VTS Reporting Line) is bounded by lines joining the following positions:

a. 35°34'00.0"N, 129°28'24.0"E.

b. 35°32'47.1"N, 129°38'03.7"E.

c. 35°21'09.6"N, 129°36'19.6"E

d. 35°15'24.0"N, 129°31'12.8"E.

e. 35°19'46.4"N, 129°18'41.5"E.

Participation in the Ulsan VTS is mandatory for the following types of vessels:

1. Vessels engaged in international voyages.
2. Vessels greater than 300 gt (except fishing vessels operating in the inner harbor).
3. Oil tankers, gas carriers and chemical carriers.
4. Towing vessels with barge or connected in a composite unit.
5. Towing vessels with a combined length of more than 200m.
6. Towing vessels engaged in port operations.
7. Passenger vessels.
8. Fishing vessels greater than 45m in length.

Ulsan VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	One (1) hour prior to entering harbor limits.	1. Vessel name and call sign. 2. ETA and destination. 3. Last port of call.

Ulsan VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Passing (inbound vessels only)	When crossing any reporting line.	1. Vessel name and call sign. 2. Position.
Arrival	Upon arrival at berth or anchorage.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Shifting	Ten (10) minutes prior to changing berth or position within the harbor limit.	1. Vessel name and call sign. 2. Shifting details (from where to where). 3. Start and end times of shift.
Departure	Ten (10) minutes prior to leaving Ulsan port.	1. Vessel name and call sign. 2. ATD. 3. Position. 4. Next port of call.

Reporting Lines for vessels participating in the VTS have been established between the following positions:

a. 35°29'34.0"N, 129°26'34.5"E. (Ulgi Light)
b. 35°28'30.0"N, 129°30'30.0"E.
c. 35°23'30.0"N, 129°30'30.0"E
d. 35°20'00.0"N, 129°26'00.0"E.
e. 35°21'33.1"N, 129°21'37.7"E.

Vessels are required to make several types of reports to the Ulsan VTS on VHF channel 14 as detailed in the table titled **Ulsan VTS—Reporting Requirements**. Vessels are also required to monitor VHF channels 14 and 16 at all times when operating in the VTS area.

Contact Information.—Ulsan VTS can be contacted, as follows:

Ulsan VTs	
Ulsan VTS contact information	
Call sign	Ulsan VTS
VHF	VHF channels 10, 14, and 16
Telephone	82-52-230-2650 82-52-230-2750
Facsimile	82-52-230-2850

Anchorage.—Anchorage may be obtained in Ulsan Man, in depths of about 12m, but S winds raise a heavy swell.

Quarantine Anchorage E1 and Quarantine Anchorage E2 lie 1 mile SSE and 2 miles S of Hwaam Chu, respectively. Area E1 is for vessels of 10,000 gt or less, while E2 is for vessels of 10,000 to 30,000 gt. Anchorage E3 lies 3 miles SSE of Hwaam Chu and is for vessels greater than 30,000 gt. All anchorages are exposed from N through E to S. Radio pratique is not granted. Anchorage is prohibited within 500m of the obstruction in position 35°25'54"N, 129°25'54"E.

Anchorage W-1, with a radius of 400m, is used by vessels of less than 20,000 gt and can only accommodate one vessel at a time. Two obstructions lie in the E portion of the anchorage area. Two more obstructions lie in the S portion of Anchorage M7.

Vessels are advised to contact local authorities for further details on anchorage berths, anchorage areas, and anchorage regulations.

Vessels must keep clear of the charted prohibited anchorage areas.

Caution.—Fishing stakes, partly obstructing navigation, may be found from September to March in any part of Ulsan Man. Near the entrance, and along the coast outside the bay, they may be found at anytime.

A new bridge is being built (2014) across Ulsan Hang close N of Lighted Buoy No. 11 and Lighted Buoy No. No. 12.

A power transmission line, with a vertical clearance of 60m, is located approximately 300 to 350m N of Lighted Buoy No. No. 13 and Lighted Buoy No. No. 14.

Bangeojin Hang

2.9 Bangeojin Hang (Pangojin Hang), entered between a position about 0.8 mile ENE of Hwaam Chu, the E entrance point of Ulsan Man, and Seul Do 0.4 mile SE, is a major fishing harbor open S, with depths of 3 to 10m, sand and mud.

A breakwater extends E from the W entrance point to within about 0.2 mile of the E shore. A light is shown from the head of the breakwater.

Seul Do (35°29'N., 129°26'E.), an islet 9m high with a flat top, has isolated depths of less than 5.5m extending about 0.3 mile S and SE.

Anchorage.—The best anchorage outside the breakwater is about 0.35 mile SSW of the E end of the breakwater, in a depth of 16m, sand and mud.

Ul Gi (Ulgi) (35°29'N., 129°27'E.), a peninsula about 1 mile NW of Seul Do, is covered with pine trees and, from a distance S, appears as an island. A light is shown from Ul Gi.

Daeyang Am, an island 21m high, lies close off the SE point of Ul Gi.

There is a small bay close N of Ul Gi, with depths of 7m in the middle and a drying reef 183m SE of the N entrance point. The major part of this bay is used for seaweed cultivation.

Mi Po

2.10 **Mi Po** (Mipo) (35°31'N., 129°27'E.) port consists of two bays 1.75 miles and 2.75 miles N of Seul Do. The designated harbor limit is found by a semicircle which has a 2,000m radius and is centered about a midpoint located on the E shores of the port.

Mipo is engaged in major shipbuilding and repair of tankers and has several drydocks and a main pier that separates the bay into a N and S harbor. Both harbors are protected by breakwaters.

North Harbor has irregular depths within the harbor. The quays, concrete and rubber faced, are 1,140m long with depths alongside of 7.9 to 10.4m. Temporary lights can be shown from the heads of the breakwaters; the quays are well lit at night.

The drydocks and main pier are detailed in the table titled **Mipo—Port Facilities**.

Anchorage.—Designated anchorages T-1, T-2, and T-3, for vessels of less than 5,000 gross tons, lie E of Mi Po Hang centered in approximate position 35°31'N, 129°28'E.

Mipo—Port Facilities

Drydock Name	Length	Width	Height	Maximum Vessel Size
Hyundai Dockyard Company				
No. 1	380m	65m	12.5m	400,000 dwt
No. 2	380m	65m	12.5m	400,000 dwt
No. 3	380m	65m	12.5m	400,000 dwt
No. 4	300m	76m	12.5m	350,000 dwt
Dongsun Engineering and Ship Repair Company				
Floating Dock No. 1	155m	23.4m	—	—
Floating Dock No. 2	129.4m	23m	—	—
Hanjin Heavy Industries				
Floating Dock	—	—	—	120,000 dwt
Far Eastern Maritime Services and Engineering Company				
Floating Dock	256m	51m	20m	—
INP Heavy Industries Company				
Graving Drydock	100m	20m	—	8,000 dwt
Graving Drydock	116m	25m	—	8,000 dwt
Mipo Pier				
Steel Berth	210m	9m	—	20,000 dwt

Mi Po (Mipo) to Gampo Hang (Kampo Hang)

2.11 The coast is fringed by numerous rocks and vessels should keep well offshore.

Reoeo Mal (35°35'N., 129°28'E.) is a low point from which below-water rocks extend 0.3 mile E. A flat rock, 1.5m, lies 0.3 mile SW of this point.

Uga Mal (Ugi Mal) (35°36'N., 129°28'E.) is a rocky point with a flat summit, 153m high. This point is densely wooded, blackish in color, and prominent from a distance.

Sunyeom Mal (35°40'N., 129°28'E.), 3.5 miles N of Uga Mal, is a flat cultivated point 3m high.

Daebon Mal (35°45'N., 129°30'E.), 5 miles NNE of Sunyeom Mal, is a black rocky point, fringed with rocks.

Songdae Mal, 3.5 miles N of Daebon Mal, is a low rocky point, densely wooded, and prominent. A light is shown from **Songdae Mal** (35°48'N., 129°31'E.).

Fish havens, composed of sunken hills and concrete blocks, lie within about 0.5 mile E and SE of Songdae Mal.

A rock, 4m high, lies 0.2 mile SE of Songdae Mal.

Gampo Hang (Kampo Hang) (35°48'N., 129°31'E.) is a small fishing harbor close SW of Songdae Mal, and affords shelter from N and W winds. There are some wooden piers at which small boats can go alongside.

Winds—Weather.—In spring and summer, S through SE winds are the most frequent; in winter, the W through NW winds are strong. The air is generally dry and, with the influence of the currents, most of the time the humidity level is healthy. From June until August, there is sometimes dense fog.

Anchorage.—The best anchorage outside the breakwater is 0.3 mile SE of the head of the S breakwater, in a depth of 18m, sand, but this anchorage is not suitable with a heavy swell between E and S. Small local vessels up to 300 tons anchor inside the breakwater, in depths of 4 to 8m, coarse sand.

Directions.—When approaching Gampo Hang, Daebon Mal and the low-lying land at the mouth of Daejong Cheon, 0.75 mile SW of that point, can usually be identified, even when visibility is restricted. When a vessel is closer to the dense growth of pine trees on Songdae Mal, the village standing on the W shore of Gampo Hang can be seen.

Yangpo Hang to Changgi Gap (Janggi Gab)

2.12 **Yangpo Hang** (Yang Po Hang) (35°52'N., 129°32'E.) lies a little over 4 miles N of Gampo Hang. A breakwater extends S from the northern entrance point of the bay. Rocky reefs extend 0.5 mile NE of the root of the breakwater.

A light with remark and a DGPS station is situated on Jeongjog Mal, the S entrance point of Yangpo Hang

There are depths of 18m in Yangpo Hang on a line joining the two entrance points of the bay, and the depths shoal gradually towards the shore.

Anchorage.—Small local vessels anchor, in a depth of 5m, in Yangpo Hang, sheltered from S and W winds.

Guryongpo Hang (Kuryongp'o Hang) (35°59'N., 129°34'E.) is a small fishing harbor, lying about 7 miles N of Yangpo Hang. It is sheltered by hills and one of the principal fishing harbors on the E coast of Korea. A breakwater, 0.25 mile long, extends SW from the N side of the harbor. Inside the breakwater there is a concrete pier, 15m long, and also a num-

ber of quays. A pier, 120m long, extends SE from the NW side of the harbor.

Good landmarks at a distance of about 5 miles offshore include the town on the NE side of the harbor and the tanks near the root of the breakwater. Storm signals are shown. A light is shown from Saramal (Sara Mal), close NE of Guryongpo Hang.

Anchorage.—Anchorage may be obtained by small vessels, in depths of 7 to 10m, sand, but there are rocky patches and the holding ground is poor.

Changgi Gap (Janggi Gab) (36°05'N., 129°34'E.) is the NE point of a promontory and is described in paragraph 2.13.

A light is situated on Kyosokch'o (Gyoseog Cho), 1 mile NW of Changgi Gap.

Yongil Man (Yeongil Man) (36°04'N., 129°28'E.), bay is surrounded by the mainland on the W and S and Changgi Gap on the E. It is entered between Changgi Gap and **Talman Gap** (Dalman Gap) (36°06'N., 129°26'E.), a low point 6 miles WNW.

Pohang Hang (36°03'N., 129°23'E.)

World Port Index No. 60410

2.13 Pohang stands at the entrance of a shallow river (Hyongsan Gang) at the W end of Yongil Man. Pohang Hang, which includes the entire SW part of Yongil Man, consists of two harbors; Guhang (old harbor) and Pohang New Harbor. Main exports are fish, fish products, and steel. Main imports are iron ore, coal, and petroleum. The new private port of Pohang Yeongil, located 6 miles NNE, is discussed in more detail in paragraph 2.14.

Winds—Weather.—From November to April, NE winds cause a heavy swell making it difficult for small vessels to enter the harbor; during the summer when S winds prevail the inner part of Yongil Man is calm. This bay is reported to have the least fog on the E coast of Korea. Yongil Man is never ice bound.

Vessels berthed at Pohang New Harbor may experience difficulty from September to April, when heavy NE winds may occur, or during the passage of a tropical cyclone in summer and early autumn.

Depths—Limitations.—Yongil Man, open to the NE, has depths of 15 to 29m in the entrance decreasing to less than 10m about 0.8 mile from the head.

Pohang Hang is approached from the NE and there is no channel or any approach hazards.

Guhang (old harbor) consists of an outer basin located NW of the new harbor, protected by a breakwater to the E, 1,000m in length and a breakwater to the S, 350m in length. This harbor provided facilities for small passenger vessels, coasters, fishing boats, and has a ferry terminal.

Pohang New Harbor has been built on reclaimed land E of Hyongsan Gang and consists of a nearly enclosed basin protected on the W side by reclaimed land and on the N and E sides by breakwaters. The S breakwater (on the E side of the harbor) extends 0.7 mile N from the entrance to a small stream. The N breakwater consists of all reclaimed land and additional works in progress. A light is shown from the head of each breakwater. This leaves an opening of 500m between the N breakwater and the S breakwater for entry into the new harbor.

There are two detached breakwaters, marked by lights at either end, that have been constructed within the new port basin in order to protects berths along the S side of the harbor.

There is a submerged oil pipeline berth, marked at its seaward end by buoys, with a depth of about 12m.

See the table titled **Pohang—Cargo Berth Information** for details on berths available in both Guhang and the New Harbor area.

Aspect.—Changgi Gap (36°04'N., 129°34'E.), the SE entrance of Yongil Man, is the NE extremity of the peninsula which forms the E side of the bay. In clear weather the cape can be identified at about 18 miles. Talman Gap, the NW entrance of the bay, about 6 miles WNW, is a low promontory. A light is shown from the point.

The SE side of the bay is high with black rocky hills rising somewhat abruptly. The NW shore is backed by hills, about 95 to 115m high, with cultivated valleys. The head of the bay consists of white sandy beaches with two or three streams emptying into it.

Pilotage.—Pilotage is compulsory and available 24 hours.

Pilots will board within a 2 mile radius of position 36°06.2'N, 129°29.9'E.

Pilots and the Port Authority contacted, as follows:

Pohang Hang Pilots	
Pohang Hang contact information	
Call sign	Pohang Pilot
VHF	VHF channel 8
Telephone	82-54-242-5221
Facsimile	82-54-242-5223
E-mail	phpilot2001@nate.com
Port Authority	
Telephone	82-54-242-1812 82-54-242-1813 82-54-242-1814 82-54-242-1815
Facsimile	82-54-245-1649
Web site	pohang.mof.go.kr

Pohang—Cargo Berth Information					
Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	Draft	
Guhang (Old Harbor)					

Pohang—Cargo Berth Information					
Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	Draft	
General Cargo Pier	200m	7.5m	1,099 dwt	—	Coastal cargo only.
Ferry Terminal	373m	6.5m	329 dwt	—	Three passenger berths.
Songdao Pier E	354m	5.5m	8,153 dwt	—	Public berth. Cement and sand.
Songdao Pier W	190m	5.5m	277 dwt	—	Public berth. Cement and sand.
Multipurpose Pier—Pier No. 2					
No. 21	295m	9.0-12.0m	2,000 dwt	—	Limestone oils and bulk ore.
No. 22	260m	9.0-12.0m	56,631 dwt	—	Limestone oils and bulk ore.
No. 23	260m	9.0-12.0m	63.686 dwt	—	Limestone oils and bulk ore.
No. 24	160m	9.0-12.0m	63,913 dwt	—	Limestone oils and bulk ore.
No. 25	160m	9.0-12.0m	34,302 dwt	—	Limestone oils and bulk ore.
No. 26	280m	9.0-12.0m	—	—	Limestone oils and bulk ore.
Pohang Port					
Pier No. 1					
No. 10	390m	16.0-19.5m	326.932 dwt	18.0m	Steel and soft coal.
No. 11	340m	16.0-19.5m	301,206 dwt	17.4m	Steel and soft coal.
No. 12	280m	16.0-19.5m	326,932 dwt	17.4m	Steel and soft coal.
No. 13	400m	16.0-19.5m	326,932 dwt	17.4m	Steel and soft coal.
No. 14	370m	16.0-19.5m	261,085 dwt	17.4m	Steel and soft coal.
No. 15	326m	16.0-19.5m	200,000 dwt	17.4m	Steel and soft coal.
Pier No. 3					
No. 31	173m	9.0-12.0m	5,000 dwt	—	Steel.
No. 32	240m	9.0-12.0m	5,000 dwt	—	Steel.
No. 33	130m	9.0-12.0m	10,000 dwt	—	Steel.
Pier No. 4					
No. 41	225m	11.0m	30,000 dwt	10.0m	Steel.
No. 42	195m	11.0m	20,000 dwt	9.0m	Steel.
Pier No. 5					
No. 51	300m	6.8-10.8m	20,000 dwt	9.0m	Steel.
No. 52	170m	6.8-10.8m	10,000 dwt	10.0m	Steel.
No. 53	192m	6.8-10.8m	5,000 dwt	6.0m	Steel. All-weather berth.
No. 54	193m	6.8-10.8m	5,000 dwt	6.5m	Steel.
Pier No. 6 (total length of quay is 704m)					
No. 61	141m	6.8-9.5m	2,000 dwt	6.0m	Steel, ore, and general cargo.
No. 62	141m	6.8-9.5m	2,000 dwt	4.5m	Steel, ore, and general cargo.
No. 63	112m	6.8-9.5m	2,000 dwt	6.0m	Steel, ore, and general cargo.
No. 64	150m	6.8-9.5m	5,000 dwt	6.8m	Steel, ore, and general cargo.
No. 65	196m	6.8-9.5m	10,000 dwt	—	Steel and breakbulk.

Pohang—Cargo Berth Information					
Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	Draft	
Pier No. 7					
No. 70	176m	7.5-12.0m	10,000 dwt	6.7m	Steel, scrap iron, timber, and ore.
No. 71	191m	7.5-12.0m	10,000 dwt	6.7m	Steel, scrap iron, timber, and ore.
No. 72	157m	7.5-12.0m	5,000 dwt	6.7m	Steel, scrap iron, timber, and ore.
No. 73	—	7.5-12.0m	10,000 dwt	9.0m	Steel, scrap iron, timber, and ore.
No. 74	250m	7.5-12.0m	30,000 dwt	11.0m	Steel, scrap iron, timber, and ore.
No. 75	250m	7.5-12.0m	30,000 dwt	11.0m	Steel, scrap iron, timber, and ore.
No. 76	290m	7.5-12.0m	20,000 dwt	10.0m	Steel, scrap iron, timber, and ore.
Pier No. 8					
No. 81	270m	9.5-12.0m	30,000 dwt	11.0m	Steel, scrap iron, timber, and iron ore.
No. 82	230m	9.5-12.0m	30,000 dwt	11.0m	Steel, scrap iron, timber, and iron ore.
No. 83	200m	9.5-12.0m	10,000 dwt	9.5m	Steel, scrap iron, timber, and iron ore.
No. 84	224m	9.5-12.0m	30,000 dwt	12.0m	Steel, scrap iron, timber, and iron ore.
No. 85	224m	9.5-12.0m	30,000 dwt	12.0m	Steel, scrap iron, timber, and iron ore.
No. 86	300m	9.5-12.0m	30,000 dwt	—	Steel, scrap iron, timber, and iron ore.

Regulations.—A TSS has been established for the approach to and departure from Pohang New Harbor and may be best seen on the chart.

Pohang VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Entry Report	When crossing a reporting line.	1. Vessel name and call sign. 2. Position. 3. Destination. 4. ETA. 5. Cargo. 6. Last port of call.
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position berthed or anchored. 3. Arrival time.
Shifting Report	10 minutes prior to shifting.	1. Vessel name and call sign. 2. Current Position. 3. Start time and shifting position. 4. Intended position.
	When shifting.	1. Vessel name and call sign. 2. Time and position when unberthed or anchor clear. 3. Completed time and position of berthing or anchoring.

Pohang VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Departure Report	10 minutes prior to departure.	1. Vessel name and call sign. 2. Time and position when unberthed or anchor clear.
	When departing from port.	1. Vessel name and call sign. 2. Time and position when unberthed or anchor clear. 3. Destination.
Leaving Report	When crossing a reporting line.	1. Vessel name and call sign. 2. Departure time. 3. Position.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates within the harbor and within the area enclosed by the lines connecting the following list of positions:

a. 36°07'16"N, 129°25'56"E.
b. 36°07'16"N, 129°26'00"E.
c. 36°19'11"N, 129°26'00"E.
d. 36°19'11"N, 129°43'52"E.
e. 35°53'32"N, 129°43'52"E.
f. 35°53'32"N, 129°37'30"E.
g. 36°00'11"N, 129°37'31"E.
h. 36°00'11"N, 129°34'23"E.

This VTS provides navigational information to vessels sailing within the port limit.

Participation in the VTS is mandatory for the following types of vessels:

1. All ocean-going vessels.
2. Vessels over 300 gt, except for fishing vessels operating in the harbor.
3. Vessels carrying dangerous cargo.
4. Towing vessels equipped with AIS.
5. Passenger vessels.
6. Excursion vessels 2 gt or greater, equipped with AIS.
7. Pilot boats, harbor tugs, water supply vessels, fuel supply vessels, service boats, official vessels (except navy warships, coast guard ships) and vessels engaged in construction or work within the harbor limit.

Reporting requirements for the VTS are listed in the table titled **Pohang VTS—Reporting Requirements.**

The VTS Center can be contacted, as follows:

Pohang Hang VTS	
Pohang VTS contact information	
Call sign	Pohang VTS
VHF	VHF channels 12, and 16
E-mail	phpilot2001@nate.com
Port Authority	
Telephone	82-54-750-2550 82-54-750-2650 82-54-750-2750
Facsimile	82-54-750-2850

Anchorage.—Three designated quarantine anchorages are centered in the following locations:

1. Q1—36°07'15"N, 129°30'25"E.—radius 900m.
2. Q2—36°05'37"N, 129°28'42"E.—radius 500m.
3. Q3—36°03'20"N, 129°24'35"E.—radius 400m.

Pohang Anchorage		
Pohang Quaratine Anchorages		
Q1	36°07'15"N, 129°30'25"E	radius 900m.
Q2	36°05'37"N, 129°28'42"E.	radius 500m.
Q3	36°03'20"N, 129°24'35"E.	radius 400m.

Five designated anchorage areas are situated close E of the port, numbered from S1 through S5, as follows:

1. Area S1 is bounded by lines joining the following positions:
   a. 36°01'15"N, 129°26'03"E.
   b. 36°01'21"N, 129°27'44"E.
   c. 36°01'11"N, 129°28'03"E.
   d. 36°00'24"N, 129°27'00"E.
   e. 36°00'24"N, 129°26'03"E.
2. Area S2 is bounded by lines joining the following positions:
   a. 36°02'49"N, 129°27'41"E.
   b. 36°02'11"N, 129°26'39"E.
   c. 36°02'11"N, 129°26'00"E.
   d. 36°02'42"N, 129°24'21"E.
   e. 36°03'36"N, 129°25'54"E
3. Area S3 is bounded by lines joining the following positions:
   a. 36°03'00"N, 129°23'24"E.
   b. 36°04'36"N, 129°26'16"E.
   c. 36°04'22"N, 129°26'48"E.
   d. 36°03'36"N, 129°25'54"E.
   e. 36°02'36"N, 129°24'00"E.
4. Area S4 is bounded by lines joining the following positions:
   a. 36°03'00"N, 129°25'54"E.
   b. 36°04'36"N, 129°26'48"E.
   c. 36°04'22"N, 129°29'12"E.
   d. 36°03'36"N, 129°29'12"E.
   e. 36°02'30"N, 129°27'41"E.

5. Area S5 is bounded by lines joining the following positions:

a. 36°07'16"N, 129°28'36"E.
b. 36°07'16"N, 129°29'45"E.
c. 36°05'24"N, 129°29'45"E.
d. 36°05'24"N, 129°28'36"E.

Caution.—In summer it is reported that numerous fishing nets may extend as much as 3 miles offshore.

A rock, dangerous to surface navigation, lies in a depth of 0.4m in position 36°18'56"N, 129°22'56"E.

A sunken wreck, dangerous to surface navigation, lies in position 36°01'10"N, 129°27'10"E and is marked by Pohang Shin Hang Lighted Buoy.

Tonghae (Donghae) Hang

2.14 Pohang Yeongil (36°07'N., 129°26'E.), a new small private port located 6 miles NNE of Pohang, handles containers and general cargo.

Winds—Weather.—Prevailing winds are from the W and NW but during the summer, winds within the inner part of the harbor are usually calm. The harbor experiences a heavy swell from the NE at times from November to April.

Depths—Limitations.—The harbor is approached from the SSE; there is no channel. A TSS, established close W of the harbor limit (36°05'N) for the approach to and departure from Pohang Yeongil, may be best seen on the chart.

There is presently only one wharf, approximately 1,500m in length, for handling general cargo and containers. The general cargo area is located at the S end of the wharf while containers are worked across four berths, each 250m in length, with depths alongside of 12m. The container berths can accommodate vessels as large as 30,000 dwt.

The main wharf is protected by a detached breakwater that starts NE of the wharf, extending SE for 1.5 miles, then S for another 0.5 mile. This breakwater is marked by a light at both ends.

A small inner harbor has been formed N of the container terminal by the construction of a breakwater; the new breakwater, which extends E from position 36°06'48"N, 129°25'56"E for 450m and then SE for another 265m, is marked by a light at its SE extremity. A smaller breakwater has been completed from the shore beginning at position 36°06'38"N, 129°26'23"E and extending 200m NE; a light stands at its seaward end.

Pilotage.—See paragraph 2.13 for details.

Anchorage.—See paragraph 2.13 for details.

Caution.—There is a considerable amount of reclamation and new construction taking place S of the general cargo area of the main wharf.

Changgi Gap to Yongchu Gap

2.15 Between Changgi Gap and Yongchu Gap, about 60 miles N, the coast is backed by a range of mountains attaining heights of over 975m and running parallel to the coast about 10 miles inland. The first 25 miles of this stretch of coast is backed by a range of mountains lying about 7 miles inland. This range, over 600m high and with several conspicuous sharp peaks, is mostly treeless, grass and weeds being the general vegetation. In winter this range has an ochre color. In summer it appears green. Lower ranges extend from this range to the coast.

Bihag San (36°09'N., 129°16'E.), the highest peak in this part of the coastal range, is conical and very conspicuous.

Pohang New Harbor

About 9 miles farther NNE is a summit with three sharp peaks which can be easily identified from a considerable distance.

Weolpo Man, approximately 6 miles NNW of Talman Gap, is about 1.8 miles wide at its entrance. A light is shown from Weolpo Man.

Ganggu Hang (Kanggu Hang) (36°21'N., 129°24'E.), a fishing harbor used only by local small craft, lies at the mouth of Osib Chon which discharges 9 miles N of Weolpo Man. A sand bank often forms at the river mouth.

Changpo Mal (36°25'N., 129°26'E.), 4 miles NNE of Ganggu Hang, is a sandy point; from S it appears to project a good distance from the coast.

Daetan Mal (Taet'an Mal), 1 mile NNE of Changpo Mal, is a black point of rock and cliffs; it is the most projecting point between Yeongil Man and Chugsan Hang. The point is marked by a light.

2.16 Chugsan Hang (Ch'uksan Hang) (36°31'N., 129°27'E.), marked by a light, is a small inlet with depths of approximately 3.7m; the head of the inlet is sandy.

Chukto, 78m high and conical, is a peninsula connected to the mainland by a narrow isthmus forming the S sides of Chugsan Hang. The harbor lies between two isolated hills. The S hill appears as an island at a distance. Ponghwa San, 286m high, about 1.3 miles NW of the S hill, is the highest hill in this vicinity.

Anchorage.—Small local vessels find temporary anchorage, in a depth of 11m, sand, about 0.15 mile offshore in a small bay on the S side of Chukto off a river mouth.

Hup'o Hang (36°40.5'N., 129°27.0'E.) is a small bay on the W side of **Bingjang Mal** (Pingjang Mal) (36°41'N., 129°28'E.) with depths of 2.7 to 4.6m, sand. It is protected by three breakwaters; the W breakwater extends from the coast in a SSE direction for a little over 0.3 mile. Another breakwater extends about 0.5mile SW from the E side of the harbor. A light is situated at the head of the E and W breakwater.

A fish haven is established 1.5 miles S of Pingjang Mal.

Signals.—Storm signals are displayed from a storm signal station at Hup'o Ri, a village standing at the head of Hupo Hang. A light is shown about 1 mile E of Hup'o Ri.

Caution.—A bank, with a number of dangerous shoals of which the shallowest is a 5.4m patch, lies between 14 miles E and 13 miles ENE of Bingjang Mal. North of these dangers is a coral patch, with a depth of 6.5m, lying 13.5 miles ENE of

Hup'o Light.

2.17 To the W of Hupo Hang there are several conspicuous peaks in the coastal range, which is from 3 to 9 miles inland on this part of the coast. Geumjeong San (Kumjong San), about 10.5 miles WNW of Bingjang Mal, is a sharp summit covered with dark trees and is very conspicuous. The height of the mountain range decreases N of Geumjeong San until it rises again N of latitude 37°N. A fish haven is established about 4 mile NNE of Hup'o Hang.

Hwamo Mal, 5.5 miles N of Bingjang Mal, is a hilly sandy point 69m high. A light is shown from the point.

Hasa Mal (36°50'N., 129°27'E.), about 4 miles NNW of Hwamo Mal, is a black rocky point, 115m high. A prominent conical hill, 198m high, lies about 1 mile SW of this point. A fish haven is situated about 2 miles SSE of Hasa Mac.

Hyeonjong San, 2.75 miles NW of Hasa Mal and 0.75 mile from the coast, is a very prominent mountain with three peaks; the middle peak, 415m high, is the highest.

Gyujem Cho (Kyujem Cho), a rock with a depth of less than 2m, lies about 3.3 miles NNW of Hasa Mal and 0.75 mile offshore. It is steep-to and the sea breaks over it in rough weather. An 8.6m patch, which is also steep-to, lies 0.75 mile S of Gyujem Cho.

Jinmi Mal (36°54'N., 129°25'E.), a salient point 4.25 miles NNW of Hasa Mal, rises to over 100m high a short distance W of the point. A light is shown from the point.

Sujeon Mal (37°00'N., 129°25'E.) is a steep headland, 37m high, with several rocks close offshore in its vicinity.

Jugbyeon Man (Chukpyon Man)(37°03'N., 129°25'E.), on the SW side of Yongchu Gap, is a shallow harbor protected by breakwaters. The bay affords protection from NW winds, but it is not a good anchorage because of the heavy swells. A light is shown from Jugbyeon Man.

Yongchu Gap to Mukho Hang

2.18 **Yongchu Gap** (37°03'N., 129°26'E.) is a promontory, covered with bamboo, which forms the E side of Chukpyon Man. Ungbong San, 999m high and covered with dark trees, lies about 10 miles W of Yongchu Gap. Kum San, another mountain, sharp-peaked, stands about 8 miles SE of Ungbong San.

The coast N continues mountainous with few breaks. Most of the peaks are densely wooded, with an occasional conspicuous rocky peak. The hills close to the coast are for the most part barren, but the valleys are cultivated.

Hosan Hang (37°10'N., 129°21'E.), a small settlement, lies about 8 miles NNW of Yongchu Gap, A new port for the importation of liquefied gas has been constructed on reclaimed land.

Depths—Limitations.—A detached breakwater, 1 mile in length that leads NW to S protects the harbor along the following points:

a. 37°10'46"N, 129°21'28"E.
b. 37°10'14"N, 129°21'56"E.
c. 37°09'55"N, 129°21'56"E.

The breakwater has lights shown at both ends. The single dolphin berth for the discharge of LNG has depths of 14m alongside.

Aspect.—A small fishing harbor with two breakwaters, with a light showing from each breakwater, is located close NW of Hosan Hang.

Additional land reclamation is taking place close N and S of Hosan Hang and a large area of land about 1 mile in length and 250m wide is also being reclaimed N of the port.

Pilotage.—See Tonghae Hang in paragraph 2.21.for details.

Vessel Traffic Service.—See Tonghae Hang in paragraph 2.21 for details.

Contact Information.—Hosan VTS can be contacted, as follows:

Hosan VTS	
Hosan VTS contact information	
Call sign	Hosan VTS
VHF	VHF channels 14 and 16
Telephone	82-33-680-2550
Facsimile	82-33-680-2850

Anchorage.—Two designated anchorages are located in the approaches to the port, as follows:

1. W1—37°09'58"N, 129°23'00"E.
2. W2—37°12'12"N, 129°22'07"E.

2.19 **Imwon Hang** (37°14'N., 129°21'E.), about 11 miles NNW of Yongchu Gap, is a light brown rocky point rising close inland to a hill on which are the conspicuous remains of a cairn. A light is shown on Imun Mal.

Depths—Limitations.—Imun Hang is a small harbor protected by breakwaters and entered about 0.8 mile SW of Imun Mal. The harbor contains several wharves, totalling 514m in length, along with a passenger vessel quay that can handle vessels as large as 1,000 tons.

Anchorage.—Vessels with local knowledge can anchor SW of Imun Mal, in 12.8 to 20.1m, sand and rock. This small bay is completely open to winds from E and SE.

Galsan Man (Kalsan Man) (37°17'N., 129°19'E.), about 3 miles NNW of Imun Mal, is a high, steep, and conspicuous point. A group of rocks lie between Galsan Mal and Jangho (Changho), a bare sandy point 0.75 mile NW. A light is shown from Jangho.

Sail Dan (Sail Tan) (37°18'N., 129°18'E.), 1.75 miles NW of Jangho, is a black cliffy point.

2.20 **Samchok Hang** (Samcheok Hang) (37°26'N., 129°12'E.) is an international shipping port specializing in the export of cement and to a lesser degree handling general cargo and petroleum. Samchok Hang is also home to a fishing harbor.

Depths—Limitations.—The harbor is approached from the E; there is a least charted depth of 8.9m in the entrance channel to the harbor. The harbor is protected by two breakwaters with an opening between them only 150m wide. International shipping is carried out using three wharves inside the breakwaters in the outer harbor while the fishing vessels use an inner basin to the N.

The three wharves for cargo vessels in the outer harbor are described, as follows:

1. Wharf No. 1 (Berth No. 11, Berth No. 12, and Berth No. 13)—On the N side with a total length of 157m and depths alongside from 5.0m.
2. Wharf No. 2 (Berth No. 21 and Berth No. 22)—On the W side with a total length of 305m and depths alongside from 5.0 to 8.3m; can accommodate vessels up to 8,000 dwt.
3. Wharf S (Berth No. 31 and Berth No. 32)—On the S side with a total length of 270m and depths alongside from 6.7 to 8.5m.

Aspect.—A prominent chimney, 53m high, is a good landmark lying 0.25 mile SW of the harbor entrance with numerous other chimneys. Pi Mal (Bi Mal), about 4.5 miles SE of Samcheog Hang, is black and cliffy and is a good landmark; an islet close off this point is conspicuous when seen from N or S. A light is shown on Pi Mal.

Tut'a San, 1,353m high about 9 miles W of Samcheog Hang (Samchok Hang), is somewhat dome-shaped and when seen from a distance is prominent.

Pilotage.—Pilotage is compulsory; there are three pilots for the area of Muk'o Hang and Samchok Hang. See paragraph 2.21 for pilot boarding positions.

Vessel Traffic Service.—See Tonghae Hang in paragraph 2.21.

Anchorage.—Three designated anchorages outside the harbor have depths of 9 to 19m, sand and mud, and are located, as follows:

1. S1—37°26'09"N, 129°11'50"E.
2. S2—37°26'14"N, 129°12'06"E.
3. Quarantine—37°25'56"N, 129°12'02"E.

2.21 Tonghae Hang (Donghae) (Pukp'yong Hang) (37°29'N., 129°09'E.) (World Port Index No. 60431), 3 miles N of Gwangjin Dan (Kwangjindan), is a port designed to provide increased handling capacity to that of Mukho Hang. The primary export is bulk cement while handling imports of coal, limestone, gypsum, and iron ore.

Depths—Limitations.—The port is approached from the E, where a least charted depth of 13.8m exists in the harbor entrance. The harbor basin is protected by two breakwaters; the N breakwater extending 1,500m SE and ESE from the shore and the short S breakwater extending 300m NNE towards the knuckle of the N breakwater leaving an entrance 240m wide. There are also two new (2023) breakwaters protecting the entrance fairway. One is an offshore breakwater, approximately 1600m long, to the N of the harbor entrance, There is another breakwater 1500m SE of the harbor entrance which extends NE for approximately 1200m then NW for another 1200m. The harbor itself is comprised of a large S basin where the cargo vessels will load and discharge and a small N basin, likely for utility craft and fishing vessels.

Tonghae (Donghae)—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Cement Terminal (South)				
No. 11	—	11.8m	50,000 dwt	Clinker.
No. 12	—	11.5m	50,000 dwt	Bulk cement.
No. 13	—	11.4m	50,000 dwt	Bulk cement
No. 14	—	12.2m	50,000 dwt	Bulk.
No. 15	—	10.0m	20,000 dwt	Bulk cement.
Cement Terminal (North)				
No. 21	—	11.8m	63,531 dwt	Cement and general cargo.
No. 22	—	11.8m	63,498 dwt	Bulk cement.
No. 23	—	9.8m	66,604 dwt	Bulk cement.
General cargo Terminal				
No. 24	—	9.0m	20,000 dwt	General cargo.
Passenger Terminal				
No. 25	—	8.0m	10,000 dwt	Passengers.
Coal Terminal				
No. 10	—	12.5m	70,252 dwt	Coal.
Bulk Terminal (East)				
No. 30	270m	12.3m	50,000 dwt	Bulk cargo.
Bulk Terminal (West)				
No. 41	195m	8.0m	32,382 dwt	Bulk cargo.

Tonghae (Donghae)—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
No. 42	205m	8.0m	46,622 dwt	Bulk cargo.
Tanker Berths				
Donghae Harbor				
Yukong	120m	6.5m	3,000 dwt	Clean products.

Only one ship is permitted to enter or exit the port at a time due to the narrow width of the fairway.

Vessels up to 65,000 dwt, with a maximum draft of 12.5m, can use the harbor. Charted depths inside the harbor are 10 to 17m. For further berthing information refer to the table titled **Tonghae (Donghae)—Berth Information.**

Aspect.—A chimney standing about 0.75 mile SSW of the North Breakwater light is reported conspicuous.

The N breakwater has a red pillar at the S end; a white pillar stands on the S breakwater. Both provide an excellent visual aid for vessels entering the port.

A tower on the commercial pier also serves as a good navigational aid.

Pilotage.—Pilotage is compulsory and is available during daylight hours only. Berthing instructions are usually advised by the agents.

Pilots board in the following positions:

Tonghae (Donghae) Pilotage		
Pilot Boarding Positions		
1	37°32'40"N, 129°09'02"E	(Mukho)
2	37°29'42"N, 129°11'18"E	(Donghae)
3	37°25'40"N, 129°12'52"E	(Samcheok)
4	37°37'22"N, 129°06'22"E	(Okgye)
5	38°11'25"N, 128°37'22"E	(Sokch'o)

Tonghae VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	One (1) to two (2) hours prior to crossing a reporting line.	1. Vessel name and call sign. 2. Destination. 3. ETA. 4. Last port of call.
Entry Report	When crossing a reporting line.	1. Vessel name and call sign. 2. Position.
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Advance Notice of Shifting	Ten (10) minutes prior to vessel movement.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting Report	When shifting berths within the harbor limit.	1. Vessel name and call sign. 2. Start time and position. 3. Completion time and position.
Advance Notice of Departure	Ten (10) minutes prior to departure.	1. Vessel name and call sign. 2. Current position. 3. ETD. 4. Next port of call.
Departure Report	Upon departure from berth or anchorage.	1. Vessel name and call sign. 2. Departure time. 3. Position.

The pilots can be contacted, as follows:

Tonghae (Donghae) Pilotage	
Tonghae (Donghae) contact information	
Call sign:	Donghae Pilot
VHF	VHF channels 6 and 10
Telephone	82-33-5350172
Facsimile	82-33-5350173
E-mail	dhpilot2324@hanmail.net

Regulations.—It has been reported that only one vessel is able to enter or exit the port at a time due to the narrow opening between the breakwaters.

Vessel Traffic Service.—A VTS is in operation over a circular area in Donghae, centered on position 37°33'45"N, 129°07'00"E., with radius of 12 miles. For further information, see the graphic titled **Tonghae Hang (Donghae) Vessel Traffic Service**.

Participation in the VTS is compulsory for the following vessels:

1. Vessels engaged in international voyages.
2. Vessels over 300 gt (excluding fishing vessels operating in the inner harbor).
3. Vessels carrying dangerous cargo.
4. Towing vessels engaged in towing of 200m or more in length.
5. Passenger vessels.
6. Fishing vessels over 45m in length.
7. Tankers and vessels carrying garbage under 300 gt.
8. Vessels engaged in marine construction or research work.

Vessels must report, as detailed in the table titled **Tonghae VTS—Reporting Requirements**

Donghae VTS provides the following information upon request:

1. Traffic information.
2. Local weather and visibility.
3. Anchorage availability.
4. Aids to navigation status.
5. Pilot schedule and tug assistance.

Donghae VTS can be contacted, as follows:

1. Call sign: Donghae VTS
2. VHF: VHF channels 12 and 16
3. Telephone: 82-33-680-2550
   82-33-680-2650
4. Facsimile: 82-33-680-2850

Anchorage.—A quarantine anchorage, 500m in radius, lies approximately 0.8 mile NE of the of the N breakwater. Anchorages A1 through A5 and B1 through B3, best seen on chart, lie N and E of the N breakwater.

Caution.—The harbor is exposed to an E swell, which can prevent berthing.

A wreck, dangerous to navigation, lies in the approach to Bugpyeong Hang in position 37°31.2'N, 129°09.2'E.

A large fishing sanctuary is located close S of the port entrance; a high volume of fishing vessels and gear, including nets and buoys, needs to be avoided, with some even extending beyond the sanctuary limits.

Mukho Hang (37°33'N., 129°07'E.)

World Port Index No. 60430

2.22 Mukho Hang (Mugho Hang) (Muk'o Hang) specializes in the export of coal, graphite, and cement, making it a relatively large industrial port.

Depths—Limitations.—Mukho Hang is a small artificial harbor protected by breakwaters. Since there is limited manuevering room in the harbor, departures and arrivals are discouraged whenever winds exceed Force 3. Berthing of vessels is allowed only during the daylight hours.

The harbor is approached from the E, with a least charted depth of 7.4m in the entrance.

The harbor is protected by the E breakwater extending S and SSE for 1,500m from the shore. The harbor itself is an elongated inner basin with berths along the W side and a smaller outer basin to the S. The outer basin in protected by two smaller breakwaters extending E from the shore.

Muko Hang Ferry Terminal contains one pier and one quay. The North Passenger Pier has a length of 134m; the South Passenger Quay has a length of 228m.

Mukho Port contains four berths, as follows:

1. The North General Cargo Jetty has a length of 150m.
2. The South General and bulk cargo Jetty has a length of 150m.
3. Berth No. 3 has a length of 330m and an alongside depth of 7.9m handling bulk cargo and cement.
4. Berth No. 4 has a length of 140m, with an alongside depth of 7.0m handling bulk cargo, passenger and Ro-Ro.

Aspect.—Ch'oroksan, the best landmark in the vicinity, is a conspicuous mountain with two peaks standing about 3 miles SW of the harbor. This mountain is almost barren except for a small dense growth of pine trees near its summit. It appears ochre and contrasts with the dark green color of the neighboring mountains. Mukhojinni (Mughojin Ri) stands at the head of the harbor.

Pilotage.—Pilotage is compulsory. See Tonghae Hang in paragraph 2.21.

Vessel Traffic Service.—See Tonghae Hang in paragraph 2.21.

Anchorage.—A quarantine anchorage lies approximately 0.6 mile ESE of the E breakwater.

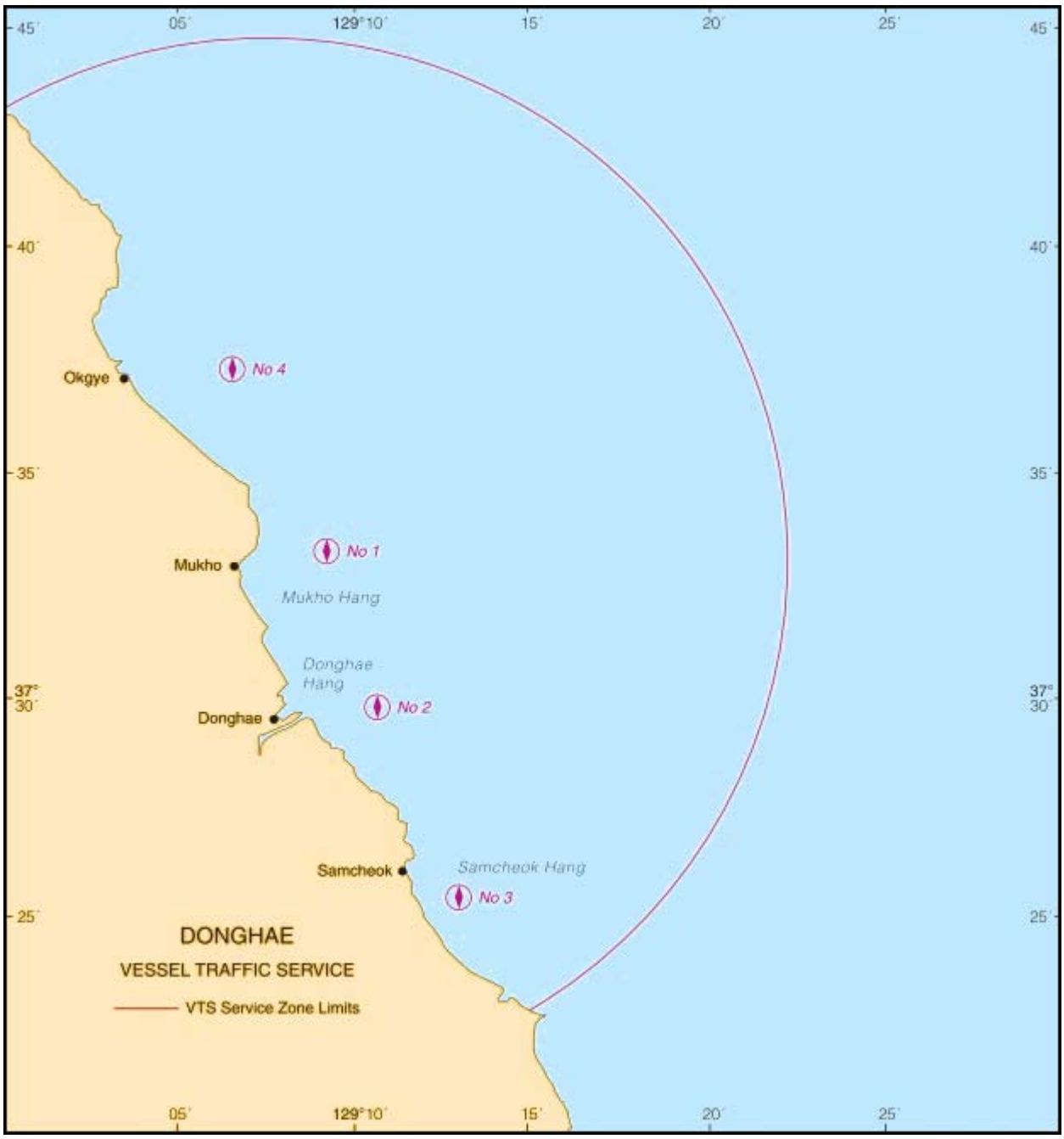
Fve designated anchorages lie outside the E breakwater, with depths ranging from 11 to 25m. These anchorages are not sheltered very well. The anchorages designated A1, A2, and A3 are intended for vessels of 5,000 tons or less. The anchorages designated B1 and B2 are for vessels between 5,000 and 10,000 tons.

Caution.—A rocky shoal with depth 7.4m lies 900m NNE of the E breakwater head.

An obstruction, with a depth of 8.3m, lies in the approach to Wharf No. 1.

Kanshin Tan to Sokch'o Hang

2.23 Between **Kanshin Tan** (37°34'N., 129°07'E.) and Chongdongjin Dan (Jeongdongjin Dan), about 6.5 miles NNW, is an open sandy bay. Lights are shown on both Kanshin Tan and



Tonghae Hang (Donghae) Vessel Traffic Service

Chongdongjin Dan. Chongdongjin Dan is a rocky and cliffy point, which appears to project some way from the coast and to be an unusual dark blue color when seen at a considerable distance either N or S. Detached patches, ochre in color, can be seen on this point within a distance of about 7 miles.

Okgye Hang (37°37'N., 129°03'E.), at the mouth of the Jusucheon River, is a commercial port open to international shipping. The port, protected by breakwaters, handles raw materials and cement. There are three wharves in Okgye Hang with alongside depths of 11 to 15.6m. An oil terminal that can accommodate vessels of up to 5,000 dwt is situated on the inside of the S breakwater.

Pilotage.—See Tonghae Hang in paragraph 2.21.for details.

Vessel Traffic Service.—See Tonghae Hang in paragraph 2.21 for details.

Anchorage.—The pilot and quarantine anchorage lies approximately 1.2 miles E of the light at the head of the N breakwater.

Mukho Hang Light

2.24 Chumunjin Hang (37°53'N., 128°50'E.), lying between Chumunjin Dan and the river Yongok Ch'on, about 2 miles SSE, is a roadstead well protected from N winds, but exposed to swells from E. The holding ground, which is mostly sand, gradually becomes rocky as Chumunjin Dan is approached. Breakwaters enclose the fishing harbor and commercial port. A light and a DGPS are located 0.3 mile N of the S extremity of **Chumunjin Dan** (37°54'N., 128°50'E.)

Aspect.—About 10 miles inland a high range of mountains runs parallel to the coast. Within it are several conspicuous mountains and peaks. The range extends from a position about 14 miles SSW of Chumunjin Dan at an elevation of 1,123m, in a NNW direction for about 30 miles. The S end of the range is cone-shaped and has a dark blue color.

This very conspicuous mountain is the best landmark in the vicinity, unless there are low thick clouds. Sorak San (Seorag San), at the N end of this range, is of an indigo color and also a good landmark when there are no low-lying clouds. At a distance its pointed summit towers up over the other mountains.

A light has been established on Namae Ri (Namae Hang), approximately 4 miles NNW of Chumunjin Hang. Kisamun Dan is a low-lying inconspicuous cliffy point, 8.5 miles NW of Chumunjin Dan. A light is shown on the point.

Anchorage.—Anchorage may be obtained about 0.15 mile S of the E breakwater head, in a depth of 9m, sand.

2.25 Susan Dan (38°05'N., 128°41'E.), about 13.5 miles NW of Chumunjin Dan, is a rocky precipitous point with a cairn on its summit. A light is shown from Susan Dan. About 0.5 mile farther NW is a small point, dark-colored and conspicuous, which has the appearance of an islet when seen at a distance.

Sokch'o Hang (38°12'N., 128°36'E.) (World Port Index No. 60435), about 8.5 miles NNW of Susan Dan, is an international commercial port. The bay, open between E and S, has depths of 5 to 14.6m.

Pisonjang (Biseonjang) is a small, protruding, cliffy cape 36m high, its summit covered with pine trees. A silvery radio tower stands 0.5 mile SW of the cape. Sokch'o Hang Light is situated on Pisonjang. A dangerous shoal, over which the sea breaks in rough weather, lies in the entrance of the harbor.

Chodo (Cho Do), about 1 mile SE of Pisonjang, is 21m high, ochre-colored, and conspicuous.

Ongjin Dan (Ongjindan), about 1 mile S of Chodo, is a slightly-projecting point, the cliffs of which are composed of ochre-colored rocks and are conspicuous. Taep'o Hang (Daebo Hang), open between E and S, is on the SW side of Ongjin Dan. It is a small fishing harbor with wharves where fishing vessels can berth. A breakwater, 240m long, extends from the N shore.

Pilotage.—See Tonghae Hang in paragraph 2.21.for details.

Regulations.—A restricted area, best seen on chart, exists in the E approaches to Sokch'o Hang. All vessels over 100 gt, except military and fishing vessels, are prohibited to enter. Reports are made to Sokch'o Port Service.

Vessel Traffic Service.—See Tonghae Hang in paragraph 2.21 for details.

Anchorage.—Anchorage may be obtained off the N breakwater. A quarantine anchorage lies approximately 1.5 miles SE of Cho Do.

Ayajin Ni (38°16'N., 128°33'E.) stands at the head of a small bay about 5 miles NNW of Chodo.

Deogpo Dan to Suwon Dan

2.26 Deogpo Dan (Tokp'o Dan) (38°22'N., 128°31'E.), lying a little over 6 miles NNW Ayajin Ni, is a slightly-projecting point 47m high. Half of the face of this point is wooded and the other half is barren, which has the effect of rendering it very prominent.

Geojin Hang (38°27'N., 128°28'E.), SW of Geojin Dan, is a small artificial harbor protected by breakwaters. The shore of the roadstead consists of a sandy beach.

Geojin Dan (Kojin Dan) (38°27'N., 128°28'E.) is a projecting point with a deep blue color. A light is shown on Geojin Dan. The E side of Geojin Dan is foul up to 183m offshore.

The E breakwater extends about 0.4 mile SW of Geojin Dan. The W breakwater, 0.15 mile in length, extends E from a position a little over 0.5 mile SW of Geojin Dan Light. Koro Ho, about 10 miles SW of Geojin Dan, is a good mark in the approach to the roadstead. This rugged peak, 1,293m high, is indigo-colored and resembles a hat.

Anchorage.—Anchorage can be obtained, in 7.8 to 9.1m, fine sand, close off the harbor. It is sheltered from N winds, but a swell runs into the roadstead with strong N winds.

Taejin Ni (Daejin Ri) (38°30'N., 128°26'E.), a small bay, is entered close S of a small promontory marked by a light 3.75 miles NNW of Geojin Dan, with depths of less than 2m. A sandy beach lies at the head of the bay.

The coast between Geojin Dan and Suwon Dan, about 15 miles NNW, is precipitous in places with rocky cliffs and a few off-lying rocks. It is backed by a range which runs parallel with the coast and has only a few conspicuous peaks.

Tongjoson Man

2.27 Tongjoson Man (39°30'N., 128°00'E.), the major indentation on the E coast of Korea, is usually defined as lying between Suwon Dan and Mayang (Mayan) Do, about 80 miles N. The gulf recedes about 40 miles and has no obstructions in its approach and central part.

Nan Do (39°00'N., 128°05'E.), a good mark for vessels approaching from SE, lies about 8 miles offshore. This islet has a pointed summit and steep cliffs on its E side.

Ranges of high mountains fringe the N and S shores of the gulf; lower hills and coastal plains are at the head of the gulf.

Winds—Weather.—From October to May, prevailing W winds blow offshore, being especially strong in winter. In summer E winds are fairly prevalent and frequent gales send heavy swells into the gulf. Typhoons are of rare occurrence. Fog prevails during the rainy season, which is usually in July and August.

Tides—Currents.—In Tongjoson Man, the tidal currents are weak and irregular, but the warm and cold ocean currents off the E coast of Korea meet in this area, flowing in directions which are counterclockwise. Generally, in summer the cold current sets in a S direction along the shores of the gulf and the warm current is N in the offing. In the area N of latitude 39°N, between these two currents, a circular counterclockwise set is formed. The velocity of this current seldom exceeds 1 knot.

According to observations made from June to August, the currents near Mayang Do usually set in an E direction. One branch flowing from S of Mayang Do and another N of that island. The velocity is about 1 knot. These branches combine off Songdo Gap, about 5 miles E of the island, and the resultant current appears to turn gradually to the SW through S.

Caution.—A danger area bounded by a circle, radius of 1 mile, lies in position 39°16'N., 128°02'E.

Anchoring is prohibited in an area extending SW from Nan Do to the mainland.

Tongjoson Man—Southwest Shore

2.28 Suwon Dan (38°41'N., 128°22'E.), the S entrance of Tongjoson Man, is a low promontory which gradually rises inland. The cape is fringed by rocks. A light is shown on Suwon Dan. Between Suwon Dan and **Irari Gak** (39°09'N., 127°36'E.), about 45 miles NW, the mountains slope gradually to the coast. Piro Bong (Kumgang San), about 12 miles WSW of Suwon Dan, is a good mark for vessels approaching this cape. This mountain, which has several peaks, is dark-colored and conspicuous, but is sometimes obscured by clouds.

Changjon Man (38°44'N., 128°12'E.), about 7 miles NW of Suwon Dan, is a fishing harbor entered between Changadae Kkut and GyeganMal (Kyegan Mal), about 3 miles WSW. A light is shown from the N part of the entrance. The shores of the bay are low and sandy, but inland are several conspicuous peaks. Changadae Kkut, which consists of black rocks piled one on another, is a good mark in the approach from S. Also, conspicuous from the offing is the isolated mountain, 333m high, about 4 miles S of Changadae Kkut.

The inlet has depths of about 7 to 11m and afford shelter. Small vessels with local knowledge can obtain good anchorage, in 6.4m, sand, sheltered from all directions, about 0.2 mile W of the point about 0.8 mile SW of Gyegan Mal. Close SE of this anchorage the depths are about 9m, sand, but the holding ground is not good.

Large vessels can anchor outside the inlet, in 13 to 15m, about 1 mile SSW of the N end of Changadae Kkut during E winds, but the holding ground is not very good. Strong N winds cause a swell in the inlet.

Sol Som (Song Do), about 3.5 miles NNW of Gyegan Mal, is wooded with a flat summit. The islet is very conspicuous and presents a black color when seen from a distance.

A hill, 145m high at the head of Changjon Man, bearing 222° leads through the middle of the fairway of the entrance to the harbor.

Caution.—Winds, which are dangerous to shipping, periodically blow down from Piro Bong. Warnings of these winds are shown by dark clouds covering the highest peak of Piro Bong, and rain clouds moving fast in a NE direction; distant thunder in this direction is a further warning.

2.29 Kojo P'o (38°58'N., 127°53'E.), about 20 miles NW of Changjon Man, is a small fishing harbor sheltered from all directions except E. Ch'ongsok Tan, the SE entrance of the harbor, is a long, somewhat conspicuous rocky point. A light is shown from Ch'ongsok Tan. Kusin Dan, about 3.3 miles SE, is a steep cliffy point, easily identified by wood on its summit. From a point on the E side of the harbor, about 0.9 mile W of the E extremity of Ch'ongsok Tan, a breakwater extends W.

Amyong Kkut (Amnyong Kkut) (39°08'N., 127°45'E.) 11 miles NW of Kojo P'o, is a black, cliffy, rocky point about 30m high. From it a low sandy isthmus, on which there is a green dome-shaped hill 31m high, extends 2 miles SE where it joins the mainland. The islet Kuk To, about 1 mile WNW of Amyong Kkut, is precipitous.

Caution.—An area which is dangerous to navigation lies 16 miles NE of Amyong Kkut.

Irari Gak (39°10'N., 127°36'E.), the S entrance point of Yonghung Man, is 44m high; there is a large village on the neck of land within the point. Umi Do, lying about 0.2 mile NNW of Irari Gak, is 29m high and wooded. A spit, with a depth of 3.7m, extends about 0.2 mile N from this islet.

Anchoring is prohibited in an area close W of Irari Gak; this area extends NNE to Yo Do.

Yonghung Man

2.30 Yonghung Man (39°15'N., 127°30'E.), in the SW part of Tongjoson Man, is entered between Irari Gak and Taegang Got, about 8.5 miles N. There is fairly good holding ground throughout the bay, and considerable protection is afforded by the islets and reefs in the entrance. The port of Wonsan is on the S side of the bay, and the sheltered anchorage of Songjon Man is on the N side of the bay.

Yo Do, the largest of the islets at the seaward end of Yonghung Man, lies close outside the middle of the entrance about 4 miles NNE of Irari Gak. This high islet is densely wooded and fringed by shoals extending SW from it. The main fairways leading into the bay pass on either side of Yo Do.

Taegang Got, the N entrance of the bay, is the small tongue of land at the S end of **Hodo Pando** (Ho Do) (39°20'N., 127°33'E.). Duyu Bong (Samsang Bong), about 1.5 miles NNW of Taegang Got, has two sharp pointed peaks close together. These peaks, together with the islets in the entrance, make identification of the entrance of Yonghung Man easy for vessels approaching from E. Some low wooded hills on the sandy isthmus N of Hodo Pando appear to be islets from a distance.

Regulations.—A TSS has been established for Yonghung

Man as seen on chart.

Caution.—Vessels are required to follow the traffic separation scheme as shown on the chart. If approaching from the S steer to pass between Irari Gak and **Taeo Do** (39°13'N., 127°38'E.). Care should be taken not to pass within a distance of 1 mile of Irari Gak, or into depths of less than 11m. Proceed E of Sin Do to join the traffic scheme which leads into the harbor.

Wonsan

2.31 **Wonsan** (39°10'N., 127°27'E.) (World Port Index No. 60440), an important industrial and transportation center, stands on the SW side of Wonsan Hang. This natural harbor is sheltered on its E side by **Kalma Bando** (39°11'N., 127°29'E.) which is low except at its N end. Kalma Gak, the N extremity of Kalma Bando, is cliffy and precipitous, and from a distance appears as an island. The harbor area is protected by breakwaters.

Winds—Weather.—At Wonsan, W winds prevail, and a strong blow from that direction will often last intermittently for several days in winter. These winds are very cold in January and February. Thick fogs, often low lying, have been recorded at Wonsan on an average of about 10 days annually, and are said to be still more frequent at the entrance of the bay where they come in from the E and gradually dissipate.

Ice.—Wonsan Hang is never icebound, but during W winds in winter, drift ice accumulates on the W side of Kalma Bando, and when the comparatively warm E wind sets in, the drift ice moves in a SW direction into the harbor.

Tides—Currents.—The average tidal range is relatively small, ranging between a low of 0.1m to a high of 0.2m. Tidal currents in the harbor are not significant.

Depths—Limitations.—In the approach to the harbor there are general depths of 11 to 18.5m, decreasing to depths of 6.7 to 8.2m in the entrance and middle part of the inner harbor. A chain of rocky shoals, with a least depth of 3.7m, extends SE from Ghangdok To. The positions of the buoys marking these shoals can not be relied on during the winter because of drift ice. Other dangers lie in the approach to the harbor and in the vicinity of Kalma Gak.

A breakwater connecting Changdok to the shore within the harbor protects numerous wharves and quays within Wonsan Hang, the Customs Wharf, is the main berthing area and is 275m in length, with depths alongside of 6 to 8m. An oil pier is located at the head of the bay but depths in the vicinity are not documented.

Pilotage.—It was reported that the pilot boarding station was situated in a position about 3 miles NE of Yo Do.

Regulations.—Wonsan Hang is approached through a traffic separation scheme (TSS) established by the government of North Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Anchorage.—Foreign vessels can anchor outside the harbor ENE of Yo Do centered on position 39°13'56"N, 127°37'37"E.

The quarantine station is centered at Galma Dong (39°11'50"N, 127°28'18"E).

Caution.—A restricted area where anchoring and fishing are prohibited is located within a 3-mile corridor between Yo Do and the mainland SSW.

Songjon Man

2.32 **Songjon Man** (39°20'N., 127°30'E.), the N part of Yonghung Man, is entered between Mangdok Kot, the SW extremity of Hodo Pando (Ho Do), and Wonch'u Gak, about 3 miles W. The bay affords sheltered anchorage to large vessels, with good holding ground, but has no commercial importance.

Ice.—The bay for about two months during the winter may be covered with thin ice, but it is broken up with strong winds; N winds drift it into Wonsan Hang.

Anchorage.—There is good anchorage in the outer part of Songjon Man in position 39°20.5'N, 127°29.5'E, in depths of 10 to 16m, mud. Vessels can anchor with Mangdok Kot bearing 154° and Wonch'u Gak bearing 227°. Wonch'u Gak is very conspicuous.

Hungnam (39°50'N., 127°37'E.)

World Port Index No. 60450

2.33 Hungnam stands along the N shore of Sohojin Hang at the N end of Hamhung Man. This bay is entered between Yongo Dan and Oeyangdo Dan, about 11.5 miles NNE, and has a low sandy beach on which the sea breaks during E winds. The city of Hamhung is about 6 miles above the entrance of the Songch'on Gang in the N part of the bay. The harbor consists of a small basin protected by a breakwater and has limited berthing space.

Winds—Weather.—In winter and spring, when W winds prevail, gales from the NW usually raise a considerable sea. Winds from the S sometimes send in a heavy sea in summer, but this is not common. The harbor is fog bound only about twice a year. Thin ice, causing no hindrance to navigation, may be experienced.

Depths—Limitations.—In the approach to Hamhung Man, the depths are deep and clear of dangers. The 18.5m curve lies roughly across the entrance of the bay. In the middle of the bay are general depths of 11 to 14.7m, with a gradual shoaling toward the shore. Hyongje Do, two conspicuous white rocks, 15.8m and 14.9m high, lie near the S and N ends of the steep-to rocky shoal about 4.3 miles NNE of Yongo Dan.

At Hungnam, vessels up to 7.6m draft can berth alongside; vessels in excess of this draft discharge cargo into barges at the anchorage, about 1 mile S of the breakwater. The maximum draft for this port is 7.6m.

Hungnam—BerthInformation

Berth	Length	Remarks
Hungnam Cargo Terminal		
No. 1	880m	Scrap metal, bulk cargo, and general cargo.
No. 3	570m	Fertilizer.
Hungnam Cargo Terminal		
No. 2	227m	Fertilizer, general cargo, and chemical products.

Aspect.—A good mark in the approach to the bay is Tansok San. This peak, conical in shape, stands at the S end of a ridge of mountains about 21 miles WNW of Yongo Dan. Also, conspicuous from a distance, is the clump of scrub surmounting the knoll on the summit of Hwa Do. The sea breaks on the spit which connects this island to the mainland NW.

Oeyangdo Dan, where a light is shown, the N entrance of Hamhung Man, is faced with reddish cliffs which can be identified from a distance. This point along with two hills close N appear to be detached when seen from offshore.

A dangerous wreck lies 3 miles SE of Oeyangdo Dan Light.

A waiting area is located 4 miles SSE of the same light.

Unju Bong, about 7.5 miles N of Oeyangdo Dan, is conspicuous.

Pilotage.—Pilotage is compulsory. Pilots board in a waiting area bounded by the lines joining the following positions:

a. 39°45'30"N, 127°40'00"E.
b. 39°45'30"N, 127°42'00"E.
c. 39°44'00"N, 127°42'00"E.
d. 39°44'00"N, 127°40'00"E.

Regulations.—Sohojin Hang is approached through a traffic separation scheme (TSS) established by the government of North Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Anchorage.—An anchorage area is located 1.25 miles S of Taejin Do breakwater light, in depths of from 10.9 to 12.8m. The area off the breakwater, where vessels often have to anchor because of the limited facilities, is exposed to winds from SE to SW through S.

Tongjoson Man—Northwest Shore

2.34 T'oejo Man (39°53'N., 127°47'E.), about 7.5 miles NE of Oeyangdo Dan, affords the best anchorage on this stretch of coast. The shores of the inlet are high, steep, and indented with small bays with sandy beaches at their heads. The coast on either side of the entrance of T'oejo Man consists of high precipitous cliffs. Chindong Do and Tae Som lie E of the entrance of the bay.

Anchorage may be obtained in T'oejo Man, in depths of 10 to 16m, mud, where it is sheltered from all winds except those from SE which do not cause much swell. The bay is never ice bound, but during exceptionally cold periods there is thin ice close inshore.

Ansong Gap (39°53'N., 127°53'E.) together with Ongnyo Bong, about 1.8 miles WNW, make good landmark for identifying the coast in this vicinity. This cape, connected to the mainland by a sandy isthmus, has high precipitous cliffs on its S and E sides. When seen from a distance, the peninsula appears as a dark island. During SW winds, shelter can be obtained, in 14.6 to 18.3m, off the NE side of the peninsula.

Between Ansong Gap and Songnyong Man, about 10 miles NE, the coast consists mainly of low sandy beaches. Chonsuk To lies off the entrance of a bay about 3.3 miles N of Ansong Gap; Som Pawi lies about 1.3 miles farther ENE. Chuk To, two islets lying close together, is about 3 miles NE of Chonsuk To.

Songnyong Man (40°02'N., 128°00'E.), about 4 miles wide at its entrance, affords shelter from N winds to vessels with local knowledge. Mukpang San, about 8 miles NNE of the W entrance of the bay, has a conical shape and is a good mark when seen from seaward. **Kiwa Pau** (Wa Am) (40°01'N., 128°02'E.), a black prominent rock 5m high, lies close off the middle of the entrance to the bay.

Anchorage.—Anchorage for small vessels, sheltered from the N, may be obtained in the bay, in a depth of about 12m.

2.35 Pongsu Pando (40°00'N., 128°09'E.), a conspicuous headland, rises to a conical peak which has the appearance of an island at a distance. A fairly conspicuous white landslip is at the SW end of this headland.

Mayang Do (Mayan Do)(40°00'N., 128°11'E.), the N entrance of Tongjoson Man, is an irregularly shaped island lying close offshore. The pointed summit of the island surmounts a chain of hills which rise steeply along the S side of the island. The lower part of the two highest peaks has a striking reddish appearance.

Caution.—During the fishing season, from June to September, nets may be encountered in the area at the E end of Mayang Do.

2.36 Sinp'o (40°02'N., 128°12'E.) stands at the head of Sinp'o Hang, the largest of the coves N of Mayang Do. The harbor, sheltered from all except S winds, is approached via the strait lying between Mayang Do and the mainland. The E entrance is free from dangers in the fairways; the W entrance is comparatively shallow and should not be used by large vessels.

Winds—Weather.—In December and January, thin ice forms in the inlets on the coast of Mayang Do, but the strait is never icebound. Some fog, usually accompanied by E winds, occurs from April through June. The prevailing winds are from E to SE in spring and summer, S to SW from late summer to early autumn, and W to NW in winter.

Depths—Limitations.—The E and recommended entrance of the strait is unobstructed over a width of about 0.8 mile between the reef extending about 183m off the NE point of Mayang Do and Taegu Do, close off the N side of the strait. The S side of this islet is cliffy and somewhat conspicuous. Sinp'o Hang has depths of 5.5 to 9.1m.

Aspect.—The E part of the mainland N of Mayang Do consists of spurs of hills which terminate in three small and rocky points. The W part, low and sandy, extends to Pongsu Pando which serves as a good mark for the W entrance of the strait.

Landmarks for Sinp'o Hang include a black rock, 11.9m high, close off Saam Dan, the W entrance of the harbor and two chimneys, three radio masts, and a flag staff, all on the W side of the harbor. The above black rock can be identified from both the E and W entrances of the strait.

Anchorage.—Anchorage, protected except from the S, may be obtained, in a depth of about 7m, mud and sand.

Songdo Gap to Hwangdan Tan

2.37 Songdo Gap (40°02'N., 128°20'E.), the E entrance of Yanghwa Man, is the extremity of a blackish promontory, which is joined to the mainland by a low, flat, white sandy beach. The cape has two conspicuous summits which have the appearance of being detached islets when seen from a distance.

Yanghwa Man, free from dangers, affords shelter to large vessels, in depths of 14.6 to 21.9m.

Sinch'ang Hang (40°07'N., 128°29'E.), about 8.5 miles NE of Songdo Gap, is entered between Yonggo Dan and Ungam Dan, about 4 miles NE. The bay is exposed to swells with all but N winds. A basin fronts the village in the NE part of the bay. Some brown cliffs stand on the N side of the mouth of the shallow river at the head of the bay and help to identify it.

Yonggo Dan is cliffy on its SE side and is conspicuous when seen from a distance. Ungam Dan is precipitous and can be identified by a brownish rock, about 35m high, on its SW side. Taedok San, about 12 miles NNW of Ungam Dan, is conspicuous. Mountain ranges extend in a S and SE direction from Taedok San toward the coast.

Ch'aho (40°12'N., 128°39'E.)

World Port Index No. 60470

2.38 Ch'aho, the principal fishing harbor in the area, stands at the head of Ch'aho Hang, a deep narrow inlet entered W of Chinsuk To (Chonch'o Do). The harbor, which is sheltered by the surrounding hills, is about 0.4 mile wide.

Winds—Weather.—Dense fog occurs on an annual average of nine days from March through August, and is a slight hindrance to navigation. Light snowfall begins in November. Ice may form in the inlet, but it does not freeze over solidly.

Depths—Limitations.—The depths in the entrance range from 14.6 to 21.9m. The navigable channel has a depth of 9m or more. An iron pier, with a depth of 9.1m alongside its T-head, lies at the S end of town, about 1 mile N of the W entrance point. There are also three small wharves in the harbor, one of which has a depth of 5.8m alongside.

Aspect.—Hwangdan Tan, about 1 mile SW of the entrance of Ch'aho Hang, is a precipitous cape, particularly conspicuous because of its reddish color. It is backed by the conspicuous Kwan San with its sharp peak. Sam Bong, with three sharp peaks, is about 4 miles farther WNW. Nip Am, 24m high and conspicuous, lies close S of the W entrance of Ch'ho Hang.

Chinsuk To (Chonch'o Do), forming the E entrance of Ch'aho Hang, is high and densely wooded. The island appears black when seen from a distance. A treeless islet lies between Chinsuk To and the mainland N.

Anchorage.—Ch'aho Hang affords anchorage to moderate sized vessels, in a depth of about 16m, mud, in the middle of the harbor.

Iwon Hang to Kimch'aek

2.39 Iwon Hang (40°17'N., 128°39'E.), about 4 miles wide at its entrance, affords shelter during S winds, but E winds cause a heavy swell. The S entrance point is treeless, rising to a wooded hill about 0.5 mile inland. Close ESE of the S entrance point is a prominent grayish rock 11m high. Ch'ongnyong Mal, the N entrance of the bay, is a headland with brownish cliffs which can be made out fairly easily from seaward. Ch'udok San, about 7 miles NNW of Ch'ongnyong Mal, is dome-shaped, and can, together with two other peaks farther W, be easily identified. Chokoku San, about 5 miles farther NNW, is, together with two other peaks about 2 miles NW, conspicuous from a distance.

Anchorage.—Anchorage can be taken in Iwon Hang, in 12.8 to 14.6m. The shore of the bay consists of a white sandy beach which is densely wooded.

2.40 Nan Do (40°19'N., 128°46'E.), about 4.3 miles E of Ch'ongnyong Mal and 1.5 miles offshore, is a gray cliffy islet, densely wooded and conspicuous from a distance. Chak To (Jag Do) islet, about 2.3 miles WNW of Nan Do, is wooded with a flat summit.

The W part of the coast between Iwon Hang and Yongdae Gap, about 21 miles NE, is characterized by steep cliffs interspersed with sandy beaches, while the E part is mostly low and sandy. Sabujin, about 8.3 miles NE of Nan Do, is an artificial harbor sheltered by two breakwaters.

Kwae Do (40°27'N., 129°00'E.), about 5 miles NE of Sabujin and 0.75 mile offshore, is a brownish rock conspicuous from a distance. Unju San, about 5.3 miles WNW of Kwae Do, has three gray peaks and is conspicuous. The mountain range extends about 8 miles N from Unju San, then about 6 miles NW; it contains peaks that can be identified. Another good landmark is the black mountain with two peaks about 4 miles NW of Unju San.

Yongdae Gap (40°28'N., 129°04'E.) is the S extremity of a peninsula which forms the E side of Yongdae Myoji. Wonsandok San, about 4 miles N of Yongdae Gap, has a pointed summit and is conspicuous at a distance. Yongyon San, about 17 miles farther NNW, is the highest mountain of a range which extends about 25 miles N from the cape.

Yongdae Myoji affords anchorage, in 9.1 to 13m, fine sand, about 0.5 mile off the shallow cove in its NE part. It is not a safe anchorage, except with NE winds.

The coast for a distance of about 13 miles NNE is high and fringed by numerous rocks, most of which are steep to.

Kimch'aek (40°40'N., 129°12'E.)

World Port Index No. 60480

2.41 Kimch'aek stands on the coast at the SW entrance of Immyong Hae. Songjin Hang, one of the important harbors of NE Korea, occupies two small bights separated by Songjin Pando. Songjin Pando is a cliffy tongue of land, surmounted by conspicuous pine trees, and joined to the mainland by a low neck of land. The principal harbor is N of Songjin Pando; the S harbor, S of Songjin Pando, is the fishing center. Both harbors are somewhat protected by breakwaters.

Winds—Weather.—The prevailing winds from September to March are NW; in the remaining months, the direction is predominantly S or SE. During April and May, from about 1100 to 1500, strong S or SSE winds are liable to blow toward Kimch'aek. Sea fogs from NE usually occur in the morning.

Winds from the E coastal mountains, known as Foehn winds, are generally experienced in fair weather.

The rivers always freeze in the winter, but the harbor is never obstructed by ice. It is reported that weather rarely interferes with the working of cargo. Light snow, frequently accompanied by N or NW winds, falls on an average of about forty days. Drift ice does not penetrate to the shores of Immyong Hae. Thin ice, not sufficient to obstruct navigation, is sometimes seen floating in the middle of the bay.

Depths—Limitations.—In the greater part of Immyong

Hae, there are depths of 18.3 to 36.6m. The shores of the bay are fringed in places by rocks, but there are no dangers beyond a distance of about 0.2 mile offshore.

Dangerous wrecks lie about 0.5 mile SSW of Yujin Dan, the N entrance point of Immyong Hae.

Within the N harbor there are depths of 9.1 to 18.3m. Alongside the 400m long quay on the N side of Songjin Pando there is a depth of 9.8m. The small basins at the head of the N and S harbor are shoal.

Aspect.—The land on either side of the entrance of Immyong Hae is high, but the head of the bay is low and sandy. Yujin Dan, the E entrance of the bay, is conspicuous from E and S.

Also conspicuous are the white cliffs at the foot of the mountain, about 1 mile N of Yujin Dan; these cliffs are the best mark in approaching from S. Other prominent peaks are farther N.

Anchorage.—The outer harbor affords adequate protection from W winds, but with S or SE winds shelter is limited to the constricted section close N of Songjin Pando. Depths are from 12.8 to 14.6m.

Yujin Dan to Musu Dan

2.42 The coast NE of Yujin Dan is high for a distance of about 4 miles, then it becomes low and sandy to Tadong Dan, about 8 miles farther NE. Then between Tadong Dan and Musu Dan, about 9.5 miles ENE, the coast is indented by several small coves. Kwanam Bong, about 4.5 miles NW of Tadong Dan, is very conspicuous because of its distinctive cockscomb appearance.

Hwangamdong Myoji (40°49'N., 129°34'E.), about 2 miles NE of Tadong Dan, affords anchorage, in about 11m, about 0.4 mile offshore. Hyongje Do is a group of rocks lying about 0.4 mile SE off the SW entrance of the bay. The two E rocks of this group are rugged, bare, and reddish-brown in color; the S of these two rocks, somewhat higher than the other, is dome-shaped. Yom Am, light brown in color, lies in the entrance of the bay.

Kalma P'o, about 1 mile NW of Musu Dan, affords shelter to small vessels. The inlet is surrounded by high steep hills.

Al Som (Nan Do) (40°39'N., 129°33'E.), about 11.3 miles E of Yujin Dan, is a conspicuous white, barren, rocky islet. The two rocks close E of the islet are very pointed. Al Som, a good mark for vessels running the coast, is reported to be altered in appearance due to a mirage occurring from about the middle of May to the end of July.

Yang Do, about 2 miles S of Tadong Dan, consists of the two NW islets in a group of three. Kanghui Do is the SE islet and the highest of the group.

Anchorage.—Large vessels can obtain shelter from S winds, in 18.3 to 21.9m, about 0.2 mile N of Yang Do.

Musu Dan to Orang Dan

2.43 **Musu Dan** (40°50'N., 129°43'E.) consists of high, reddish cliffs at the extremity of a bold promontory projecting S. These cliffs slope gradually to their S end.

A light is shown on the S extremity of Musu Dan. A rock, reported to be 16.8m high, lies close S of the cape. Another rock lies close offshore approximately 1.8 miles N of Musu Dan. This rock, which is conspicuous, resembles two crouching dogs facing each other when seen from N or S.

Abnormal magnetic variation has been reported over the years in the vicinity of Musu Dan.

Between Musu Dan and Orang Dan, about 33 miles N, the coast is entirely composed of steep rocky cliffs, with ranges of hills and low mountains rising inland. Rocky peaks, often oddly shaped, are common. The color of the cliffs on either side of Poksuk Tan, about midway along this stretch of coast, creates a distinct contrast. Those S of Poksuk Tan are reddish-brown, while those N of the point are whitish-brown. In addition, the elevations S of Poksuk Tan are higher than those N.

The coast N of Musu Dan consists of high, precipitous, ash-colored cliffs for a distance of about 5 miles to Mokchin Dan, a conspicuous black, rocky point. Unmandae Dan, about 2 miles farther N, is also conspicuous. Prominent peaks backing this part of the coast include Ch'imabawi San, about 3 miles N of Musu Dan; Kaegi Bong, about 4.5 miles W of Unmandae Dan, and Kkach'i Bong (Kakch'i Bong), about 5 miles NW of Kaegi Bong.

P'ohang Man (40°59'N., 129°44'E.), about 3.3 miles NNW of Unmandae Dan, affords shelter to small vessels in a 10.5m depth about 0.2 mile off the SW part of the bay. The bay is encumbered by islets and foul ground. Chondok Tan, the N entrance of the bay, is the extremity of a densely wooded peninsula with conspicuous cliffs on its S side.

2.44 **Hwangjin Man** (41°06'N., 129°44'E.), with steep cliffy shores, is entered N of Poksuk Tan. The bay affords shelter to small vessels in a depth of 13m, fine sand, about 0.8 mile W of Poksuk Tan. This conspicuous point consists of reddish-black cliffs.

Taeryanghwa Man (41°13'N., 129°44'E.), about 6.5 miles N of Poksuk Tan, is entered between Song Dan and a point about 0.4 mile N. Song Dan, 51m high and densely wooded, is the NE end of a peninsula which appears as a detached island from seaward; its SE end is composed of light brown cliffs. It is always a good mark because in winter the trees on the point are almost black and in summer the cliffs on the SE side of the peninsula are white.

Anchorage.—Taeryanghwa Man is open to the E. It affords anchorage to large vessels, except during E winds when there is a heavy swell, 0.4 mile NW of Song Dan, in depths of 11 to 15m, sand. Smaller craft can anchor closer to the N or S shore of the bay according to the direction of the wind.

Tajin Man (Dajin Man)(41°16'N., 129°45'E.) lies about 3.5 miles NNE of Taeryanghwa Man. It consists of two almost identical bays. Between them is Haeju Do, 55m high, a good landmark. Both bays are open to the SE and their waters sufficiently deep. For small vessels. they are good anchorages. The central part of the S bay provides shelter from SE to SW winds; vessels of less than 1,000 tons can better avoid the strong E wind here which occasionally blows in the area in the summer and winter than in Taeryanghwa Man.

2.45 **Kyongsong Man** (41°35'N., 129°50'E.), crescent-shaped, lies between Orang Dan and Komalsan Dan, about 23 miles N. The head of this bay, which is open E, is mostly sandy and presents a white color, except for two or three rocky points. The several hills sloping down to the shore of the bay divide

the land within the head into a number of valleys and wide plains. Conspicuous among these hills are **Chinjudok San** (41°30'N., 129°37'E.), about 11 miles NW of Orang Dan, and one located about 7 miles N of Chinjudok San.

Orang Dan (41°23'N., 129°48'E.), the S entrance of Kyongsong Man, is a treeless, rocky, precipitous point with a pointed summit. A pointed rock, 15m high and conspicuous from seaward, is close off Orang Dan. A light is situated on Orang Dan.

The harbors within Kyongsong Man include Odaejin Hang and the important Ch'ongjin Hang.

Odaejin (41°23'N., 129°47'E.) stands at the head of the small boat basin about 1 mile WNW of Orang Dan. Odaejin Hang, off the boat basin, is shallow, but affords some shelter. Bagaso Gan, a pointed rock 9m high, lies about 0.15 mile N of the E entrance of the bay. Another rock, 12m high, lies about 137m S of Bagaso Gan, and between the two lies a rock with a depth of less than 2m.

Fishing nets usually extend some distance seaward from the E entrance point to Odaejin Hang.

Anchorage.—Large vessels can obtain anchorage, in a depth of 15m, 0.3 mile W of the 12m rock. Small vessels can obtain safe anchorage in the boat basin, in depths of 1 to 5m.

Caution.—Anchorage is reported to be poor during N and E winds.

Ch'ongjin (41°46'N., 129°49'E.)

World Port Index No. 60500

2.46 Ch'ongjin, the principal commercial center of NE Korea, stands along the N shores of Ch'ongjin Hang at the extreme N end of Kyongsong Man. The harbor is entered on the W side of the promontory terminating in Komalsan Dan. The city is backed by an alluvial plain, through which the Susong Ch'on flows into the sea. Encircling mountains rise farther inland. It is an important developing port area consisting of Main Harbor, Fishing Harbor, and West Harbor. Main Harbor is the built up area to the NE of Ch'ongjin. Breakwaters protect the harbors.

Winds—Weather.—The prevailing winds are NW in winter and from E directions in summer. Thick fog, sometimes continuing for several days and hindering navigation, is frequently blown in by E winds from the Japan Sea in the foggy season from April until early August. The snowfall, usually light, lasts from early November to April.

Ice is not a hindrance to navigation, though ice about 0.2m thick has been encountered in the E basin, and floes from N occasionally drift to the vicinity of the harbor.

Tides—Currents.—Observations made indicated that a S current flows about 5 miles from the coast of Ch'ongjin Hang at a velocity of 0.3 to 0.75 knot. It was also reported that vessels have been set toward the mouth of Susong Ch'on, particularly during E or S winds, and during the seasons when thick fogs occur and snow falls.

It has also been reported (1994) that vessels entering the harbor are set to the W.

Depths—Limitations.—In the approach to Ch'ongjin Hang the depths are deep and clear of dangers, except for the shoal reported to lie about 2.3 miles SSW of Komalsan Dan. Depths of over 18.3m are within 0.3 mile of the basins.

The E basin, protected by a breakwater on its S side, is entered from W in depths of 10 to 17m, a wharf, with 7.6 to 8.8m alongside, can accommodate a vessel up to 9,000 tons.

The W basin, protected by breakwaters, is entered from S. Depths of 6.1 to 9.1m are reported in this basin; vessels of up to 10,000 tons can be accommodated.

Aspect.—Komalsan Dan is the SE extremity of the promontory which forms the E side of the harbor. A light is shown on Komalsan Dan. Komal San, near the center of the promontory, is a rounded treeless hill, 183m high; it is conspicuous from E. Ch'oltan Bong, farther N, is also conspicuous.

Chonma San rises near the W end of the E basin and is an excellent mark. Radio masts are on the slope of this hill. Several stacks are in the area about 1 mile WSW of Chonma San.

The walls surrounding the town of Kyongsong, about 10 miles SW of Komalsan Dan, can be sighted from several miles seaward.

Pilotage.—Pilotage is compulsory. Approach beyond Komalsan Dan without a pilot is forbidden. The vessel's ETA at Komalsan Dan must be passed through the ship's agent as no VHF contact is possible.

Pilots board in a waiting area bounded by the lines joining the following positions:

a. 41°43'30"N, 129°49'30"E.
b. 41°43'30"N, 129°51'30"E.
c. 41°42'00"N, 129°51'30"E.
d. 41°42'00"N, 129°49'30"E.

The pilot does not board before 0800 and entry is not normally allowed after 1600. Vessels leaving must do so at least 1 hour 30 minutes before sunset.

Regulations.—Ch'ongjin Hang is approached through a traffic separation scheme (TSS) established by the government of North Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Anchorage.—Large vessels can anchor off the NE side of Ch'ongjin Hang, in depths of about 10.1 to 34.7m, mud and sand, with good holding ground.

This anchorage is reported to be exposed and SW winds create a heavy sea.

Kidong Man to Najin Man

2.47 **Kidong Man** (41°54'N., 129°56'E.), entered W of Kal Tan, is suitable for temporary anchorage except during strong winds between E and SW. The shore of the bay, consisting of rocky places alternating with sandy beaches, is backed by hills. Fishing nets are laid in the entrance of the bay from the beginning of March until the end of August.

Kal Tan is a conspicuous, barren, cliffy point, fringed by rocks which are steep-to, and the highest being 7m.

Ssangp'o Man (41°57'N., 129°59'E.), about 4 miles N of Kal Tan, is the first of three small bays indenting the coast N of Kal Tan. Yongje Man and Sajin Man are the two other bays. Chungbong Dan, the S entrance point of Ssangp'o Man, is foul for a distance of 183m offshore. A bank, with depths of less than 5m, extends 0.2 mile from the SW side of the bay. Yongje Man, the center of the three bays, is open E and strong E winds raise a heavy swell. Sajin Dan, the E entrance of Sajin Man, is the extremity of a narrow peninsula. It is a rocky precipitous point which rises to a grassy rounded summit. The S rock off

Sajin Dan is conspicuous.

Anchorage.—Ssangp'o Man affords anchorage, except during strong E winds, in 6.9 to 20.1m, fine sand. The other two bays, Yongje Man and Sajin Man, are better anchorages, except during August and September when S winds are frequent. Moderate-sized vessels can anchor in Yongje Man, in 14.6 to 20.1m, mud, good holding ground. A bare rock, lying about 0.3 mile offshore from the SW side of the bay, somewhat restricts the anchorage.

2.48 Ijin Man (42°04'N., 130°07'E.), about 5 miles NNE of Sajin Dan, affords temporary shelter to vessels with local knowledge. The bay is entered between Piso Dan and Hwa Dan. The latter point is cliffy and conspicuous. Anchorage is available in the bay, in 10.5 to 29.3m, sand or mud. Care is necessary in the approach because of the dangers SW of Hwa Dan and in the center of the bay. At the head of the bay are two projecting points with green woods on their summits. At a distance these points appear as islets with trees on them and are prominent.

Naksan Man (42°05'N., 130°11'E.), the inlet N of Hwa Dan, is divided into two parts by the two islets at its head. Nose Dan, the NE entrance of the bay, has a bluish aspect from seaward and is conspicuous. The NW side of Nose Dan is cone-shaped. Large vessels can obtain good sheltered anchorage in the NE part of the bay, in depths of up to 20.1m, sand. Care is necessary to avoid the dangers off Nose Dan.

Najin (42°14'N., 130°18'E.)

World Port Index No. 60510

2.49 Najin, an important commercial outlet, stands at the head of Najin Hang at the N end of Najin Man. The port was the first in North Korea to be declared a free port and improvements to the berths are expected.

This deep natural bay, surrounded by hills, indents the coast about 5 miles in a NNE direction and is reported to be the best natural harbor on the NE coast of Korea. The main entrance lies W of Taech'o Do and Soch'o Do.

Winds—Weather.—The prevailing winds are SE from May to September, and NW during the balance of the year. During strong SE winds, a heavy swell runs in past the islands on its exposed side. The rainy season lasts from June through August, and snow falls from October to February. Dense fogs occur from April to August, being especially frequent from June until the end of July.

Ice does not seriously hinder navigation in the main part of the harbor.

Depths—Limitations.—In the comparatively unobstructed W part of the entrance of Najin Man the depths are from 27.4 to 36.6m, decreasing gradually toward the head of the bay. Depths of less than 11m lie within about 0.2 mile of the NW shore, and up to a maximum of 1 mile from the NE shore of the harbor.

There are three quays in the NW part of the harbor, all of which have dredged depths of 9.5m. The cargo handling wharf to the N of these quays has a dredged depth of 4m. Oryong Am, about 0.7 mile W of the SW side of Taech'o Do, breaks in bad weather. Vessels should pass W of this danger. It is marked on its W side by a lighted buoy.

Numerous shoals lie between Taech'o Do and the coast NE, and Soch'o Do and the coast E. Both navigation and anchorage is prohibited within this area, and fishing nets extend from **Kolsom** (42°10'N., 130°19'E.). For further berthing information, see the table titled **Najim—Berth Information.**

Najim—Berth Information

Berth	Length	Depth	Remarks
Najim Terminal			
Quay No. 1	478m	11.8m	Coal.
Quay No. 2 (East)	300m	11.5m	Coal.
Quay No. 2 (West)	350m	11.4m	Coal.
Quay No. 3 (East)	—	12.2m	Breakbulk
Quay No. 3 (West)	300m	10.0m	Breakbulk.

Aspect.—Kwangjang Bong, on the W side of the entrance of Najin Man about 2.5 miles NNW of Nose Dan, has a somewhat sharp peak, covered with vegetation and conspicuous. Another conspicuous sharp conical peak is about 0.8 mile farther NNE. The E side of the entrance of Najin Man rises to Yondu Bong about 1 mile NE of Songjong Dan. The two peaks of Such'o Bong, about 2 miles farther NNE, are good marks.

Kamt'o Bong, on the NW side of the bay about 4.3 miles WNW of Songjong Dan, is a conspicuous densely wooded mountain with a green appearance and a sharp summit. Poroji Bong, about 5 miles farther N, has a sharp and very conspicuous summit. It is the highest peak in the mountain range NNW of the bay.

Taech'o Do, in the middle of the entrance of Najin Man, has a somewhat sharp summit which is wooded. The E side of this conspicuous island is mostly cliffy, but the W side slopes gradually to the coast.

Soch'o Do, about 0.8 mile NE of Taech'o Do, is a round-topped islet that appears saddle-shaped when seen from SE. A conical knob at the N extremity of the islet is conspicuous.

Song Do, densely wooded and conspicuous, lies on the N side of the bay about 1.8 miles WNW of Taech'o Do at the NE entrance of Yujin Man.

Between **Songjong Dan** (42°11'N., 130°19'E.) and Ch'wijin Dan (Chujin Dan), 4 miles NE, there are several bays exposed to S and E winds. There are no off-lying dangers. Small boats can land at the head of the bay on the W side of Ch'wijin Dan, except when the wind is blowing from S.

Pilotage.—Pilotage is compulsory. The pilot will board in the inner anchorage area in position 42°12'24"N, 130°17'38"E.

Regulations.—Wonsan Hang is approached through a traffic separation scheme (TSS) established by the government of North Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Foreign vessels waiting to enter Najin Hang are to use the designated area 1 mile SE of P'i Do best seen on the chart.

Anchorage.—Good anchorage for large vessels may be obtained anywhere in Najin Hang according to draft, in depths of about 10 to 22m.

The foreign vessel anchorage is located 0.5 mile NE of Soch'o Do.

Caution.—Vessels approaching Najin Man in thick weather should exercise great caution. A possible SW or W set, in which vessels may close the land in the vicinity of Hwa Dan, has been reported. As the coast is steep-to, very little warning can be had from soundings.

Chosan Man

2.50 **Chosan Man** (42°17'N., 130°30'E.), entered between Ch'wijin (Chujin Dan) and Op'o Dan, about 10 miles E, contains several inlets and coves, all of which, with the exception of Sosura Hang, are exposed to heavy seas from the E. In winter the inlets and coves afford shelter from the prevailing NW winds; they are occasionally covered by a thin coating of ice. Unggi Hang is in the NW corner of the bay.

The W side of Chosan Man is backed by a range of hills, about 305m high, which slope down from the inland ranges. Songjin San, about 7 miles NW of Unggi, has a sharp peak and is an excellent landmark. Its summit, the highest in the vicinity, may be made out frequently during fog and rain. The NE shore of the bay is low; a few isolated hills inland resemble scattered islands at a distance.

Al-Som (Nan Do), with a conspicuous irregular rocky summit, lies in the entrance of Chosan Man about 3 miles SW of Op'o Dan. A light is shown on the SW end of Al-Som (Nan Do). Two small islets lie on the reef which extends about 0.5 mile NE from Al-Som. About 1.5 miles NW of Al-Som (Nan Do), Sogunsok and Tonggunsok are islands lying at either end of a rocky reef.

Kwak Tan, the N entrance of the bay of **Kaidae Man** (42°15'N., 130°23'E.), is formed by a high cliff with a grass-covered summit.

A conspicuous sharp peak is about 1 mile NNW of Kwak Tan. Kaidae Man is open SE and has depths of 9 to 27m. Anchorage for small vessels during E winds may be obtained E of **Song Do** (42°15.0'N., 130°22.5'E.), which lies close off the W side of Kaidae Man.

Ch'angjin Man, about 2 miles N of Kwak Tan, affords temporary anchorage, except during SE winds.

Taejin Man, on the N side of Chosan Man, is an open bay exposed to the S and SE winds in the summer. In other seasons it affords good shelter. It is entered between **Tae Dan** (42°18.2'N., 130°27.1'E.) and a point 3.3 miles ENE. A rock, 2m high, lies 0.55 mile NW of the E entrance point of Taejin Man.

Og Am (42°18'N., 130°30'E.), 2.5 miles E of Tae Dan has a depth of about 3.2m and is steep-to.

Sosura Hang lies at the E end of Chosan Man, and is entered between **Hung Dan** (42°18'N., 130°35'E.) and P'ansok Tan, 1.75 miles S. It affords shelter from N through E to SE winds, but not S or SW winds.

In the N part of the bay, E of Hung Dan, stands a range of hills with four prominent peaks. The two W peaks have rocky summits.

Sosuraji (42°16'N., 130°36'E.) stands on the S side of Sosura Hang and is an important fishing station. The port is used by vessels according to season and wind direction. The shallow basin off the town is protected by breakwaters.

Aspect.—The red chimney of a sardine factory lies about 137m E of P'ansok Tan.

Senbong (42°20'N., 130°24'E.)

World Port Index No. 60520

2.51 Senbong, at the northernmost point of North Korea, is the terminal for a crude oil refinery established on the NE side of the head of Unggi Hang. The crude oil facilities consist primarily of a SPM buoy berth surrounded by a prohibited area located in the entrance to Unggi Hang.

Winds—Weather.—During the winter, N winds prevail in Unggi Hang, blowing down from Unggi San. In summer, when S winds are predominant, occasional SE gales may send in heavy seas which interrupt cargo operations.

Fogs occur from April to August, most frequently in June and July. They are usually of short duration, but may last for days, especially when accompanied by fine rain.

The harbor is never ice-bound. Fast ice may fringe the shores of the outer harbor, interfering with the operation of lighters, and on occasion the small craft basin freezes solidly.

Depths—Limitations.—In the outer part of Unggi Hang, the depths vary from 11 to 23.8m. There is a crude oil berth at Yongsu-dong, 455m long with an alongside depth of 30m; vessels of up to 200,000 dwt can be accommodated.

Closer in the depths decrease to about 3m at the head of the harbor. There was 6.4m reported between the breakwaters. Within the basin, there are reported depths of from about 1.8 to 4.9m.

Five vessels of 5,000 tons can berth at a quay protected by breakwaters and there is a quay with a reported depth of 7.3m alongside.

Aspect.—Pip'a Do (Pip'a-som) and Tae Dan are both conspicuous. The former has a conspicuous rock on a flat summit covered with grass. A beacon stands on the E extremity of the islet.

Other conspicuous landmarks reported are Unggi San, about 2 miles NNW of Tae Dan, and the red brick meteorological station on the NE side of the head of the harbor.

It was reported that at night Pip'a Do is difficult to make out against the hills behind it. In thick weather Songjin San, about 6.5 miles NW of Unggi, may sometimes be a useful mark.

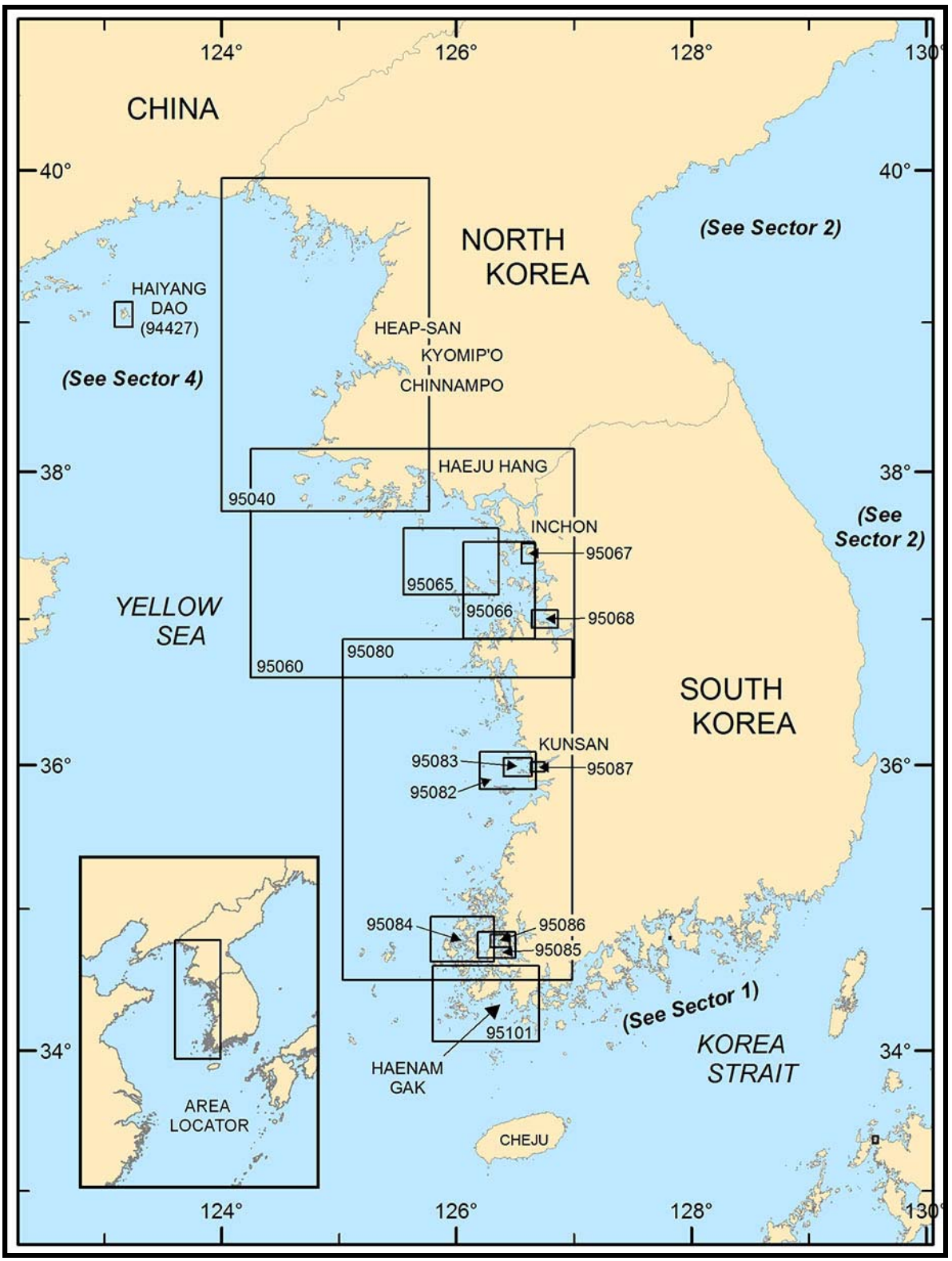
Pilotage.—Pilotage is compulsory for foreign vessels. Pilots board about 2 miles SSE of the SPM buoy.

Anchorage.—Large vessels are afforded suitable anchorage, and though SE winds may send in long swells, there is good holding ground with little danger of dragging. Vessels may anchor anywhere in the harbor, in 5.4 to 21.9m, mud or sand, good holding ground.

2.52 The **Tumen River** (42°17'N., 130°41'E.), the boundary between Korea and Siberia, is reported to be generally navigable by junks for a distance of about 40 miles from its mouth. The entrance, partly blocked by a shifting bar, has a maximum depth of about 1.8m in a very narrow channel.

The coast in the vicinity of the river is low, with Chogaram-san (Ogaram San), about 2 miles W of the river entrance, rising to jagged summits resembling somewhat a conspicuous castle. The sea surface which is from 5 to 6 miles offshore in this vicinity has a very muddy color.

Tides—Currents.—The direction of the current off the mouth of the Tumen River appears, from earlier observations, to be very irregular. It attains a velocity of about 0.3 knot.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **3** — CHART INFORMATION

SECTOR 3

KOREA—WEST COAST

Plan.—This sector describes the W coast of Korea, which forms the E side of the Yellow Sea, between Haenam Gak, its SW extremity, and the Yalu River, about 250 miles N. The general descriptive sequence is from S to N.

General Remarks

3.1 Tides—Currents.—In the approach to Inchon in the area W of a line through Gyeongryeolbi Yeoldo, Tokchok Kundo, and Youp'yong Yolto and E of a line S from Sunwi Do, the tidal currents are rotary, turning clockwise in 12 hours. That is at the time of LW at Inchon the direction is between S and SE, 3 hours after LW between N and NE, at HW between N and NW, and 3 hours after HW between W and SW. The lowest velocity occurs about the time of HW and LW, and about the maximum velocity about 3 hours after HW and LW.

In Ch'onsu Man the tidal currents run N and S. The N current runs from about 6 hours before HW to the time of HW and Inchon, and the S current from the time of HW until 6 hours later. Slack water lasts for only about 10 minutes. The maximum velocity of the tidal currents near Tasurigii Amu is from 1.5 to 2 knots, and in the channel between the islets in the entrance the maximum velocity is from 4.5 to 6.25 knots.

Heavy overfalls occur off the SE end of Wonsan Do and on the E side of the fairway. The tidal current near the N end of Hyoja Do are very irregular and may cause the vessel to yaw.

In the passage between Anma Do and Songman Do the tidal currents are weak, but outside the latter and along the SE coast of the former they are strong. Near the W ends of Hoeng Do and Chuck To the tidal currents are somewhat stronger, with a velocity of 2 to 2.75 knots having been experienced.

Pilotage.—The Korea Maritime Pilots Association (KMPA) provides the following web site:

Korea Maritime Pilots Association
http://www.kmpilot.or.kr

Regulations.—The Korean Ship Reporting System (KOSREP) is in place for all vessels transiting the Republic of Korea Search and Rescue (SAR) area and the Korean Peninsula, bounded by an area between 30°N and 40°N and from 121°E to 135°E. Participation in KOSREP is voluntary with no charges applying to any KOSREP message directed through a Republic of Korea Coast Radio Station as designated by the Korea National Maritime Police Agency. Provision will be made for cooperation between KOSREP, the Japanese Ship Reporting System (JASREP), and the Automated Mutual-assistance Vessel Rescue System (AMVER) to ensure a smooth transition from the Korean SAR area to another SAR area.

Participation is encouraged the following types of vessels of any nationality:

1. International passenger vessels.
2. International voyage vessels of 300 gt or above with a continuous navigating time of 12 hours or more.
3. Any kind of vessel not under command, restricted in ability to maneuver, or limited by draft.
4. Towing vessels with an loa of 200m and over.
5. Vessels carrying dangerous cargo (such as crude oil tankers, product tankers, chemical carriers, and other similar type vessels).

For further details, see Appendix II for South Korea in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Caution.—Fishing nets and aquaculture farms are set within 2 miles offshore in numerous places off the coast of Korea. In some places they extend as far as 5 miles offshore. For additional information see paragraph 1.1.

Extensive mine-laying operations took place in Korean waters during the 1950-1953 war. For further details, refer to Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Heugsan Jedo

3.2 Heugsan Jedo, consisting of five groups of islands, lies about 50 miles off the SW part of the Korean peninsula and is separated from it by Maemul Sudo.

These groups extend along the coast for a distance of nearly 50 miles. The coasts of the various islands are more or less indented by bays which afford anchorage for small vessels.

Jitsuko Sho (Himuki Sho) (33°57'N., 124°36'E.), with a depth of 6.7m, lies about 27 miles WSW of Sohuksan Do, the SW group of Heugsan Jedo.

Gageocho Ocean Research Station (33°56'31"N., 124°35'34"E.) stands on Ilhyang Ch'o, a pinnacle rock; the station exhibits a light and is equipped with a racon.

Sohuksan Do (Gageodo) (34°04'N., 125°07'E.) consists of precipitous coasts, with its higher parts densely wooded, especially on its N side; the summit of the island is a rounded peak. The SE extremity of the island consists of high cliffs rising to a sharp, conspicuous peak, while the N extremity is low and covered with grass. Several islets and rocks lie close off the island. A light is situated on the S extremity of Sohuksan Do. A light is shown from an elevation of 88m on the N end of Sohuksan Do.

A sunken rock, the position of which is approximate, was reported to lie about 10 miles N of the island.

Sojunggwan Kundo (34°12'N., 125°30'E.), the SE group of Heugsan Jedo, lies about 20 miles NE of Sohuksan Do at the SW entrance of Maemul Sudo. This group consists of one large island and a number of islets and rocks. A light is situated on the N extremity of the large island.

Samt'ae Do (Hataedo) (34°25'N., 125°17'E.), the middle group of Heugsan Jedo, lies about 20 miles NNE of Sohuksan Do. The group consists of three islands and several islets and rocks. The S and largest island of the group shows a light on the extremity of land extending from the N side. Sangt'ae Do,

the central island of the group, is reported to be a good radar target at 14 miles. Pyon So, about 5 miles NNE of Sangt'ae Do, has a summit which appears pointed when seen from E or W, but rounded from N or S.

The tidal currents near Pyon So run N with the rising tide, with a maximum velocity of about 1 knot, and ESE with the falling tide, with a maximum velocity of 2 knots.

Hong Do (34°42'N., 125°12'E.), the NW group of Heugsan Jedo, lies about 35 miles N of Sohuksan Do. It is the outermost island among the islands lying SE of Korea. It is rugged and isolated; the surrounding waters are deep.

When seen from a distance NW, the island appears as two separate islands. A light is shown from an elevation of 88m on the N end of Hong Do.

3.3 **Daeheugsan Gundo** (Taehuksan Gundo) (34°42'N., 125°26'E.), the NE group of Heugsan Jedo, lies about 35 miles NNE of Sohuksan Do at the NW entrance of Maemul Sudo. The group consists of Taehuksan Do, the main island, which exhibits a light, and several smaller islands, islets, and rocks.

Yongsan Do, off the SE coast of Taehuksan Do, is difficult to identify from E as it does not show up plainly against Taehuksan Do. A light with racon is situated on the NW end of **Ka Do** (34°42'N., 125°27.8'E.). A light is situated on Hajuk To.

Yori Am, about 4 miles NE of Daeheug Gundo, is the most dangerous rock in Heugsan Jedo. This rock barely covers and reefs extend about 0.2 mile from it. Caution is necessary in this vicinity because the tidal currents are strong, and it is not always marked by ripples.

Chinni Hang, on the N side of Taehuksan Do, affords the only good anchorage in Heugsan Jedo. The small harbor, which is protected by a breakwater, is sheltered from all except NE winds. A radio tower, painted in red and white bands, stands on a hill on the E side of the harbor, and about 0.2 mile NE of the village. Temporary anchorage, in 26 to 35m, can be taken off the N coast of Taehuksan Do and W of Chinni Hang. The tidal currents which run along the E and W sides of Taehuksan Do meet here and are weaker. Care should be taken to avoid the axis of the current running through Kado Sudo, the passage between Taehuksan Do and Ka Do. The flood and ebb tidal currents in this passage flow NW and SE with velocities which may attain 3 or 4 knots or more.

Caution.—In general, the tidal currents in the vicinity of Heugsan Jedo set between N and NNW with the rising tide, and in the opposite direction with the falling tide. The maximum velocity in Maemul Sudo has been estimated at 2 knots, but this velocity increases in the narrow channels between the various islands of each group and off the promontories. Caution is therefore necessary when approaching these islands in foggy weather.

Maemul Sudo

3.4 Maemul Sudo (Single Channel), lying between Heugsan Jedo and the islands and islets off the SW end of Korea, is wide and deep with good passage to Inchon Kunsan, or to Mokpo through Jungdeung Hae on the W.

Regulations.—Traffic Separation Schemes have been established in Mae-mul Sudo. The schemes are not IMO-adopted, but adherence to Rule 10 of the International Regulations for Preventing Collisions at Sea (1972) is recommended by the Korean authorities. Vessel speeds of less than 15 knots are advised in the TSS.

Vessel Traffic Service.—Jindo (Chin Do) Vessel Traffic Service (VTS) (34°27'N., 126°15'E.) is in operation in Maemul Sudo and the waters E, including the channels between the islands S and E of Chin Do.

Jindo VTS provides the following informational services upon request:

1. Traffic.
2. Aids to navigation.
3. Weather.
4. Any other miscellaneous information as requested, if able.

Participation in the Jindo VTS is mandatory for the following vessels:

1. All ocean-going vessels.
2. Any other vessels larger than 300 gt, except coastal fishing vessels.
3. Any vessels carrying dangerous cargo.
4. Towing vessels with combined length of 200m or more.
5. All passenger vessels, piloted vessels, and tugs used for berthing or departing from anchorage.

All vessels should report to Jindo VTS upon entering the VTS area (when crossing the Reporting Line which is the same as the boundary lines of the VTS as shown in the graphic titled **Jindo Vessel Traffic Service**. For vessels equipped with AIS this entry report is not necessary.

When navigating within the Jindo VTS area vessels must monitor VHF channels 16 and 67 at all times and should immediately report any navigational problems to Jindo VTS.

Contact Information.—Jindo VTS can be contacted, as follows:

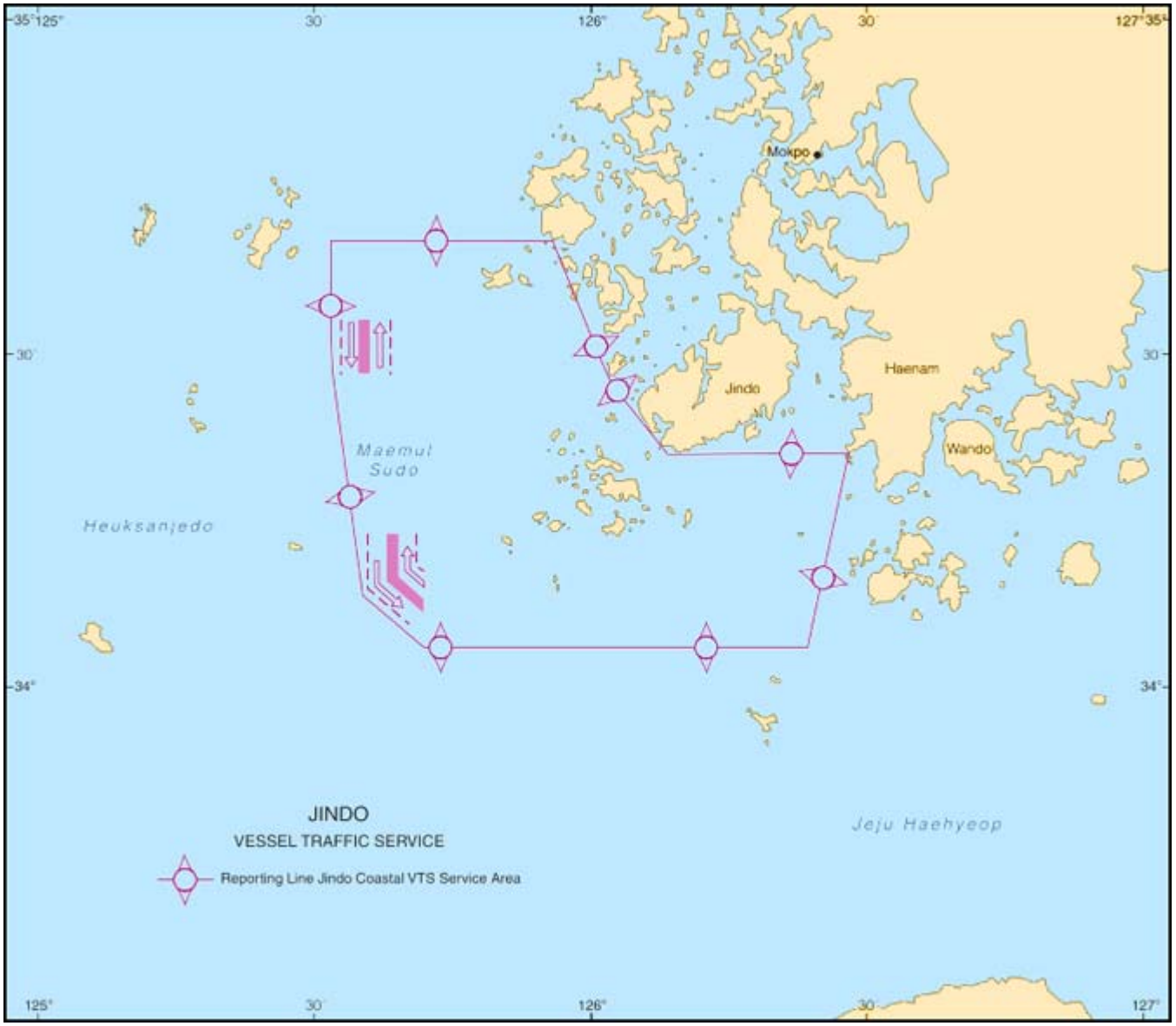
Jindo VTS	
Jindo VTS contact information	
Call sign:	Jindo VTS
VHF	VHF channels 16 and 67
Telephone	82-61-288-2550
Facsimile	82-61-288-2550

The general depths in the passage are over 36m throughout, except for the small bank with a depth of 19.2m, lying about 7 miles NW of **Chuk To** (Jug Do) (34°13'N., 125°51'E.), and a depth of 21.9m lying about 17 miles NNW of the same island. Two wrecks lie about 7 miles W of Chuk To. A light, equipped with a racon and siren, is situated on the summit of Chuk To.

Caution.—A dangerous wreck, depth unknown, lies in approximate position 34°09'08"N, 125°41'13"E.

Kyomaek To (Maemul To) (34°31'N., 125°41'E.), in the fairway of Maemul Sudo, rises vertically on its N side.

Maenggol Kundo (34°13'N., 125°51'E.) lies on the E side of the S entrance of Maemul Sudo, about 18 miles E of Sojunggwan Kundo. This group consists of three main islands which appear as one when seen from SE. A light, equipped



Jindo Vessel Traffic Service

with a racon, is shown from Maenggoldo (34°13'28"N., 125°50'51"E.).

Pyongp'ung Do, about 5 miles SE of Maenggol Kundo, is very conspicuous.

Ui Do, the largest island of Ui Gundo, lies on the E side of the passage about 8 miles NE of Kyomaek To. The summit of the island, a sharp peak, is a good landmark.

A regular passenger ship is running between Ui Do (Jinri) and Mokpo.

Ch'ilbal To (34°47'N., 125°47'E.) lies on the E side of the N entrance of Maemul Sudo, about 10 miles N of Ui Do. A light is situated on Ch'ilbal To.

Tides—Currents.—On the E side of Kyomaek To, the N tidal current runs from about 1 hour before to 5 hours after the time of HW at Ch'ang Chiang; the S current runs for the remainder of the time. The maximum velocity is 3 knots.

About 1 mile E of Ch'ilbal To, the N current runs from about 30 minute before to 5 hours after the time of HW at Ch'ang Chiang; the S current runs for the remainder of the time. The maximum velocity of either current is about 4 knots.

Maenggol Sudo

3.5 Maenggol Sudo (34°14'N., 125°53'E.), lying between Maenggol Kundo and Koch'a Kundo, is a deep passage about 2 miles wide. Mongdok To on the SW side of the channel, is a conspicuous islet as is Yanggan So, about 2 miles N of the N island of Koch'a Kundo.

Tides—Currents.—The tidal currents in Maenggol Sudo run NW from 2 hours after LW until about 2 hours after HW at Hajo Do, and SE from 2 hours after HW until about 2 hours after LW at the same island.

Approaches to Mokp'o Hang

3.6 **Mokp'o Hang** (34°47'N., 126°23'E.), on the SW side of the Korean peninsula can be approached by any one of several channels which lead through the numerous off-lying islands. While there are several passages suitable only for small craft and coasters with local knowledge, there are a few available for shipping. These latter passages, all of which meet at **Mogp'o Gu** (34°46'N., 126°18'E.), the principal entrance of Mokp'o Hang, will be the only ones described. From S these are Maro Hae and Changjuk Sudo, both of which lead into Chongdung Hae and Si Hae, from W directly into Chongdung Hae via Maemul Sudo, and from N through Myondo Sudo.

A bridge, with a vertical clearance of 50m, crosses the channel to Mokp'o Hang in position 34°47.3'N, 126°21.3'E.

Although Jindo VTS, previously described in paragraph 3.4, regulates the approaches to Mokp'o, the port and closer vicinities are regulated by Mokp'o Port Traffic Management Service. Each of the two reporting systems is mandatory.

Maro Hae (34°23'N., 126°25'E.) lies between the coast N of Haenam Gak and the E side of Chin Do. At its N end this passage leads into Chongdung Hae via the narrow Myongyangdo. A least depth of 9.1m can be carried throughout, but it should not be entered without local knowledge because of the numerous dangers and the strong tidal currents. The S approach to Maro Hae is encumbered by several island groups, islets, and dangers. Chang Kundo, lying WSW of Haenam Gak, consists of five small islands and a few islets. A light is situated on the summit of Oryong Do. A fog signal is sounded from the light. Oryong Do is the largest island of the Chang Kundo group. Oemo Gundo, SW of Chang Gundo, consists of three small islands and several rocks. Am Do, the middle island of this group, is a good mark when seen from SE, having the appearance of a dog lying down with its head raised.

Other islands in the S approach include Milmae Do, Man So, Kalmyong Do, Kuja Do, and Soguja Do. A light is situated on Kuja Do.

Tides—Currents.—In Maro Hae the tidal currents run N and S near Samma Do with a maximum velocity of from 2 to 2.5 knots. In the SE entrance of Myongyangdo, HW and LW occur about 40 minutes later than at Samma Do, and in the NW entrance about 1 hour 30 minutes later.

In Myongyangdo, the tidal currents set NW with the flood and SE with the ebb. Off the light structure in the narrows the tidal currents attain a velocity of 7 knots at neap tides and 9 knots at spring tides, but close within the strait these velocities increase to 9 and 11 knots.

Aspect.—A useful mark for vessels proceeding N through the gulf is the conical hill on the W side of the second island N of Samma Do. A light is situated on the W side of this island. The rocky hill on the coast ENE is a good mark when entering Maro Hae from N. In the vicinity of Myongyangdo several hills are useful marks. **Kumgol San** (34°32'N., 126°18'E.), near the N end of Chin Do, is a sharp rocky peak and conspicuous from all sides. Manggum San, about 1 mile farther NNE, plainly indicates the position of the narrowest part of the strait.

An overhead cable, with a vertical clearance of 30m, spans Myongyangdo at its narrowest part. A bridge (34°34.1'N., 126°18.4'E.), with a vertical clearance of 30m, also spans the channel.

Caution.—A wreck, with a depth of 9.7m, lies in position 34°36.9'N, 126°14.0'E in the center of the channel through Myonyangdo and on the E edge of the SW fairway through Chongdung Hae.

Changjuk Sudo

3.7 **Changjuk Sudo** (34°19'N., 126°07'E.), the best approach to Mokp'o Hang from the S, lies between the SW side of Chin Do and the NE side of Tokko Kundo, Hajo Do, and Sangjo Do. The passage leads SW of a group of islands lying off the SW end of Chin Do, and then E of Songnam Do, at the NW entrance of the channel.

Tides—Currents.—In Changjuk Sudo, the tidal currents run NW from about 1 hour 20 minutes after LW at Hajo Do until about 1 hour 20 minutes after HW, and SE for the remainder of the time. The maximum velocity is 7 knots.

Chin Do, the largest island off the SW extremity of the Korean peninsula, is generally hilly. Sangoru San, the summit of the island, is difficult to identify except from N, but Yogwi San in the S part of the island is conspicuous from all sides. Somangni, at the SW extremity of the island, is a conical wooded hill useful as a landmark for vessels using the passage. A rocky peak, the S side of which is steep, stands near the coast about 1 mile E and appears as a horn when seen from E or W.

Bogsa Ch'o (34°06'N., 126°10'E.), about 10 miles S of the S entrance of Changjuk Sudo, has two rocky heads on which the sea breaks heavily.

On the SW side of Changjuk Sudo, Tokko Do, the largest and E island of the Tokko Kundo group, has a conspicuous and somewhat pointed summit. Pyon Do is also conspicuous.

Hajo Do has a fairly conspicuous sharp summit with a ridge running W and terminating in a conspicuous sharp, rocky crag. The rocky peak in the middle of the N side of the island is very conspicuous from N. A light is situated from the NE extremity and the NW side of Hajo Do. The summit of Sangjo Do is a sharp peak which is conspicuous from W.

Caution.—A wreck dangerous to navigation exists about 0.5 mile W of Chin Do.

Chongdung Hae

3.8 **Chongdung Hae** (34°27'N., 126°04'E.), the S and deepest approach to Mokp'o Hang, is the passage lying between the NW coast of Chin Do and the SE islands of Naju Kundo. Si Hae is the N continuation of this channel. Chongdung Hae is entered from S through Changjuk Sudo, and from W through Maemul Sudo.

Kasa Do, in the middle of the SW entrance of Chongdung Hae, lies about 3 miles NW of the W end of Chin Do. The summit of the island, in the N part, is a double peak and, along with the peak at the S end of the island, are conspicuous from W. From S only the N one is visible. Kunsodong Som (Taesodong Do), close off the S end of Kasa Do, is conspicuous. A light is situated on the S point of Kasa Do.

The pilot station off Kasa Do is approached from SE through Changjuk Sudo, and then E of Pul To, which lies about 1 mile SE of the S end of Kasa Do. A group of trees stands on the summit of Pul To. If approaching from W, vessels pass S of Puksong Do and Mosa Do, and then between Kasa Do and Pul

To. Both of the former islets, lying about 3 miles SW of Kasa Do, are covered with low trees, and Puksong Do has a pointed summit.

Chongdung Hae is about 10 miles in length and extends to a position off the N extremity of Chin Do where it joins Sia Hae. The recommended track is buoyed and passes on either side of Yangdok To and Panggu Do, and then on either side of Chakto Do. A light is situated on the NW point of Cho Do. Cho Do is located approximately 2 miles E of Panggu Do in position 34°30.5'N., 126°09.9'E. The track then leads about midway between Ku Do and Song Do. A light is situated on Ku Do. **Yangdeog Do** (34°30'N., 126°07'E.), with a peculiar-shaped rock on its summit, is thickly covered with pine trees and is a good landmark. Chuji Do, about 0.75 mile W of Yangdeog Do, has a large, conspicuous boulder on its summit and is the best mark in the vicinity. Chakto Do, in the middle of the main fairway, is cliffy with a flat summit.

Song Do, at the NE end of Chongdung Hae, is round-topped with a single pine tree on it.

Tides—Currents.—At the SW entrance of Chongdung Hae, SE of Kasa Do, the tidal currents run NE during the flood and SE during the ebb. The maximum velocity is about 4 knots. The flood runs from about 2 hours before to 4 hours after the time of HW at Ch'ang Chiang. At the NE end of Chongdung Hae, between Song Do and Ku Do, the tidal currents run NE with the flood, and SW with the ebb; it turns to SW about 4 hours after time of HW at Ch'ang Chiang and has a maximum velocity of about 3 knots, and to the NE about 1 hour before the time of HW and has a maximum velocity of about 4 knots.

3.9 **Sia Hae** (34°40'N., 126°14'E.), the N continuation of Chongdung Hae, lies between Hwaweon Pando and the SE islands of Naju Kundo. The bottom is very irregular throughout this passage, and there are several rocky islets on either side of the fairway.

Siha Do, on the E side of the fairway about 8 miles NNE of Ku Do, has a flat summit; a conspicuous clump of trees is E of the light. Vessels should steer a mid-channel course between Siha Do and the sunken rock about 1 mile WSW. Vessels should continue N, passing E of Pulmugi Do, and continuing far enough N so as to approach Mogp'o Gu on an ESE course. Pulmugi Do, a useful mark in clear weather, is a flat islet covered with grass.

Tides—Currents.—Near the middle of the channel through Sia Hae the tidal currents run N with the rising tide and S with the falling tide. The maximum velocity is 4 knots. The tidal currents turn to S about 4 hours the time of HW at Ch'ang Chiang, and to N about 1 hour before HW at Ch'ang Chiang. About 1 mile E of Pulmugi Do the direction of the tidal currents is the same as above, but the maximum velocity of the N current is 2 knots.

Caution.—An Ocean Data Acquisition System (ODAS) buoy has been placed NW of Pulmugi Do in position 34°46'00"N, 126°12'28"E.

Myondo Sudo

3.10 **Myondo Sudo** (34°58'N., 126°06'E.), the N approach to Mokp'o Hang, lies between the N islands of Naju Kundo, and Hujung Do and Chonjung Do to the NE. This passage, which narrows to a navigable width of about mile, has a least depth of 7.3m. Vessels approaching from N generally use Chaewonso Sudo, which is about 1 mile wide and free from known dangers.

Bichi Do (35°13'N., 125°55'E.), the N group on the W side of the N approach to Myondo Sudo, are two cliffy islets covered with grass. Heosa Gundo, two grass covered islets, lie about 4 miles S of Bichi Do. Bunam Dundo lies about 3 miles farther SSE; a conspicuous group of trees stand on the S and higher of the two peaks on Gal Do, the SE islet of this group.

Jaeweonseo Sudo (Chaewonso Sudo) (35°06'N., 126°00'E.) lies between Taenorok To and Chaewon Do. The channel is deep and clear, but there are some dangers to the N of Taenorok To. A light is situated on the SE side on Taenorok To. Depths in the fairway over the bank extending NNE from Taenorok To are from 7.3 to 9.1m.

The summit of Jaeweon Do is conspicuous, and the summit of Imja Do, separated from Jaeweon Do by Jaewondong Sudo, is also a good landmark.

Myondo Sudo is about 2 miles wide at its entrance, NNE of Chaun Do, but it is narrowed by a large shoal. The summit of Chaun Do is a conspicuous rocky peak, as is the summit of Amt'ae Do, close SE. On the latter island, a rocky ridge runs SE from the conspicuous hill on the central promontory on the E side of the island to a prominent cliff.

Jaeweon Do, shaped like a helmet and covered with grass, lies in the middle of the channel about 1 mile N of Amt'ae Do. A light is situated on the NE point of Amt'ae Do. The fairway is W of this islet. After passing the NE extremity of Amt'ae Do, conspicuous landmarks include the conical summit of **Amhae Do** (34°51'N., 126°16'E.) and the sharp summit of Yok To, lying off its SW extremity.

Tides—Currents.—In Chaewonso Sudo and Chaewondong Sudo, the tidal currents run N with the rising tide and S with the falling tide, with a maximum velocity of 3 knots. The currents turn to S about 5 hours after, and to N about 1 hour before the time of HW at Ch'ang Chiang.

In Myondo Sudo, the tidal currents run N with the rising tide and S with the falling tide. The N current has been reported to attain a velocity of over 3 knots off the W end of Hujung Do.

Caution.—Depths of 0.9m and 3.7m were reported to lie approximately 1 and 2 miles SSW, respectively, of the S extremity of Jaeweon Do, and charted depths in the area up to 2 miles SW of Imja Do were reported to be unreliable.

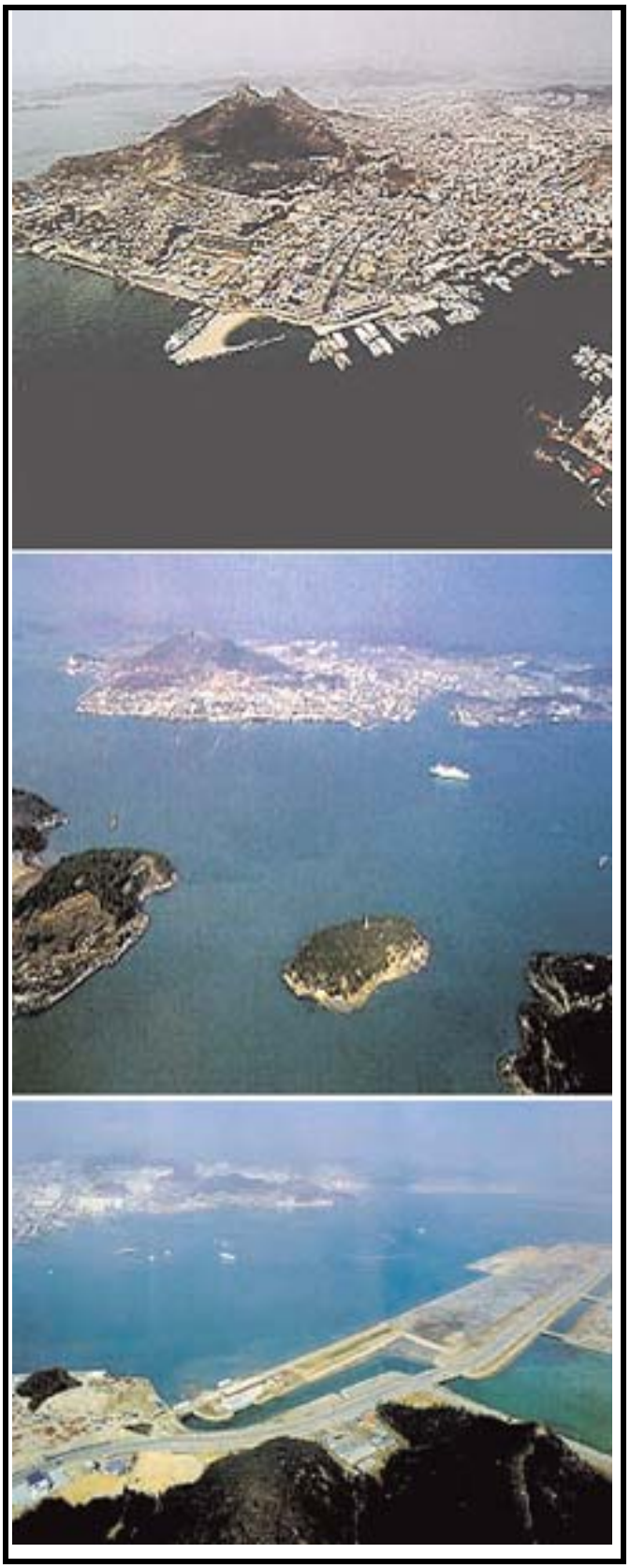
Mokp'o (34°47'N., 126°23'E.)

World Port Index No. 60340

3.11 Mokp'o, principally a lighterage port, stands on the N side of the entrance of Yongsan Gang. Mokp'o Hang, S of the town, is a landlocked ice-free harbor entirely protected from wind and sea. It is bounded on the N by Muan Pando and on the S by Koha Do and Yongam Pando. The port is approached via Mokp'o Gu, lying between the N extremity of Hwawon Pando and the S extremity of Talli Do.

Winds—Weather.—At Mokp'o Hang the prevailing winds are N or NNW in winter, and S or SSW in summer. Gales are usually from directions between N and NW.

Fog will increase in frequency from April to June, and are



Mokp'o

most prevalent during the rainy season in July. In August the number decreases sharply.

Tides—Currents.—In Mokp'o Gu the tidal currents are very rapid and subject to considerable diurnal inequality. According to observations made in the autumn during spring tides, it appears that the current in this passage turns as soon as it is HW in Mokp'o Hang and flows W with the falling tide. During the next hour the velocity increases rapidly to 6 knots, and two hours later it has reached its maximum velocity of 10 knots. One hour before LW the velocity is 6 knots and during the next half hour it falls to 2 or 3 knots. About the time of LW in the harbor the tidal currents in Mokp'o Gu turns, without any period of slack water.

The velocity of the E current is less than that of the W current. It attains its maximum velocity of about 4 knots about two hours after LW. The velocity then decreases slightly, but it is still as much as 3 knots 1 hour before HW after which it decreases rapidly to 1 knot. At night, the E current appears to have the same characteristics as the W current during the day and attains a velocity of 10 knots. In summer when the Yongsan Gang is in flood, the W current is reported to attain a velocity of 13 knots. Many vessels proceed through Mokp'o Gu with the E current, and all avoid meeting the full strength of the W current.

After flowing through Mokp'o Gu, a branch of the E current forms an eddy around the S of the shoals between Talli Do and Hosa Do; the major part of the current flows SE. About 3 hours after LW at Mokp'o, this eddy spreads out and the tidal currents along the E side of Talli Do and the W side of Hosa Do attain a velocity of about 1 knot. This current runs N past Koha Do and, after rounding Yong Do with a velocity of 2 to 3 knots, flows E into Mokp'o Hang. Another branch of the E current sets N through the narrow channel E of Koha Do, with a maximum velocity of 2 to 3 knots, and enters the S side of Mokp'o Hang.

The W current flows down the Yongsan Gang, and part of it sets S through the channel E of Koha Do. The main branch strikes Koha Do and is deflected NW along this coast with a maximum velocity of 3 to 4 knots. The greater part sets W and then S along the E side of Changja Do at a maximum velocity of 3 knots. This branch then forms an eddy around the shoals W of Koha Do, gradually spreading out to the S, with the main current flowing SW to the S end of Talli Do and then through Mokp'o Gu. As a result of the above currents, there is an almost constant current running SW along the E side of Talli Do, and a N current up the W side of Koha Do.

In the middle of Mokp'o Hang, it appears, from observations made in the autumn at spring tides, that the tidal currents turn about 50 minutes after HW and LW. The time of the turn, however, is influenced by the state of the Yongsan Gang, and at times it has occurred before high and LW.

To the SW of Samhak To, the tidal currents are irregular because of the water emptying out of the passage W of the island.

Depths—Limitations.—Mokp'o Gu, about 0.3 mile wide, with depths reported (2015) to be 24 to 27m, is free from dangers. Talli Pakchi, the deep passage E of Talli Do, has a minimum width of about 0.2 mile. Another deep channel, with about the same minimum width, is between Hosa Do and Koha Do on the E and extensive shoals on the W.

Three new jetties, centered in position 34°47'N, 126°25'E,

extend approximately 275m from the shore.

Mokp'o Vessel Traffic Service

A dangerous rock, with a depth of 1.3m and marked by a buoy, lies in the vicinity of Shihado Light.

Vessels of 8,000 tons can enter the harbor, but because of the tortuous and narrow access channel, combined with the strong tidal currents, it is difficult.

Samhak To Pier, to the E of the harbor, is 168m long with a depth alongside of about 9m. Navy Pier can be used by vessels of 600 gt and 1,000 gt simultaneously. Hyundai Samho Wharf has a depth of 8.6m and lies on the N side of Haeman Gang. The Cement Wharf, on the W side of Hosa-do has depths alongside of 10.3 to 11.9m.

An overhead cable, with a vertical clearance of 59m, spans Mokp'o Gu in a NE and SW direction 0.5 mile SE of Hwawon Bando Light to Talli Do.

Overhead cables, with a vertical clearance of 53m, span the S entrance between Talli Do and Oedal To.

A power cable, with a safe vertical clearance of 130m, spans Mokpogu from a position 0.5 mile SE of Mokpogu Light (34°45'44"N., 126°17'51"E.) to Dallido, 0.5 mile N.

A power cable, with a safe vertical clearance of 40m, spans the channel between Dallido (34°46'30"N., 126°19'00"E) and Oedaldo, 1,200 yards W.

Power cables, with a safe vertical clearance of 31m, span Junggu (34°47'15"N., 126°19'00"E.).

A power cable, with a vertical clearance of 12m, spans the channel between Jangjwado (34°47'18"N., 126°20'15"E.) and Udo island to the NW.

A bridge (34°45'04"N., 126°21'52"E.), with a vertical clearance of 5m, spans the channel between Heosado (34°45'15"N., 126°21'30"E.) and Yängam Pando, close E. A power cable, with a safe vertical clearance of 22m, spans the passage 500 yards S of the bridge.

Mokpo Bridge, with a vertical clearance of 50m, crosses the fairway from close W of Yong Du (34°47'05"N., 126°21'20"E.) to the mainland to N; a number of lighted buoys are laid in the area and approaches.

A dangerous wreck lies approximately 0.6 mile SSW of Oedal To.

A dangerous wreck is located in Mokp'o Gu between Dallido and Hwawon Bando in position 34°45'46"N, 126°18'04"E, in a depth of 26m.

Two wrecks lie close outside Anchorage Area No. 9 in Section V, in the following positions:

MOKPAnchorage area wrecks Area 9 Sector V		
#	Position	Depth
1.	35°13'04"N., 125°42'13"E.	27.5m
2.	35°04'02"N., 125°41'55"E.	21.0m

Aspect.—Talli Do (34°46'N., 126°19'E.), on the N side of Mokp'o Gu, is hilly and covered with pine trees; Sach'i San and Kumsong San are the highest points on the island. Oedal To, close W of Talli Do, is also hilly and covered with pine trees. Ch'onch'uk Pi, the NE extremity of Talli Do, is a conspicuous hillock, densely wooded and dark in appearance. Pak Pi is about mile SSW of Ch'onch'uk Pi. Changja Do, about mile NE of Ch'onch'uk Pi, has a densely wooded summit.

Yong Du, the N extremity of Koha Do, is a conspicuous headland.

Yudal San (34°47'N., 126°22'E.), close W of Mokp'o, is a good mark for determining the position of the city from a distance. It consists of two peaks to the N and S. The S peak is somewhat higher. They are rugged cliffs of peculiar shape and easily seen. A shrine stands on a hill about 0.2 mile ESE; a tower is about 183m farther E. The chimney, about 0.15 mile NE of Nam Gak, is conspicuous, as are the two tall white chimneys of the power station about 0.5 mile E of the same point. There are four radio signal masts, the most prominent is 58m in height with red lights at the top, middle, and bottom.

Taea San, on the S side of the harbor about 2 miles SE of Yudal San, is a conspicuous bare peak. Some conspicuous oil tanks stand on the shore about 1 mile W of Taea San. Several oil tanks also stand near the S end of the reclaimed land at the W end of Samhak To.

Pilotage.—Pilotage is compulsory and available at any time. ETA is advised 24 hours in advance while pilots should be requested at least 12 hours in advance of expected arrival at any of the pilot stations. Pilots will board in one of the following three positions:

MOKPO Pilot Boarding	
A.	34°27'42"N, 126°04'21"E (Mokp'o Hang No. 1)
B.	34°46'00"N, 126°15'00"E.(Mokp'o Hang No. 2)
C.	34°18'00"N, 126°48'48"E. (Wando Hang No. 3)

The MOKPO pilots recommend that vessels depart on the flood as it is easier to avoid fishing craft.

Mokp'o VTS—Reporting Information		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	One (1) to two (2) hours prior to entering the harbor.	1. Vessel name and call sign. 2. ETA. 3. Last port of call.

Mokp'o VTS—Reporting Information		
Report Type	**Reporting Time**	**Information Required**
Arrival Report	On arrival.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Shifting Report	Ten (10) minutes prior to or when shifting within harbor limit.	1. Vessel name and call sign. 2. Time of unberthing (anchor clear/berthing (anchor))
Departure Report	Ten (10) minutes prior to or when departing Mokpo.	1. Vessel name and call sign. 2. ATD. 3. Position. 4. Next port of call.

Pilots can be contacted, as follows:

MOKPO Pilots	
Call sign	Wando VTS
VHF	VHF channel 12
Telephone	82-61-241-2550
Facsimile	82-61-241-2850
E-mail	mokpilot@kmpilot.or.kr

Vessel Traffic Service.—Mokp'o Vessel Traffic Service (VTS) is in operation for the approaches and channel transit to Mokp'o. See the graphic titled **Mokp'o Vessel Traffic Service** for area limits.

Participation in the VTS is compulsory for:

1. Vessels engaged in international voyages.
2. Vessels greater than 300 gt (except fishing vessels operating in the inner harbor).
3. Vessels laden with dangerous cargo.
4. Towing vessels with barge or connected in a composite unit.
5. Towing vessels engaged in construction.
6. Fishing vessels greater than 45m in length.
7. Passenger vessels, official ships, Pilot boats and tugs.

Vessels must maintain a listening watch on VHF channels 14 and 16 at all times and must report to the VTS at the times specified in the table titled **Mokp'o VTS—Reporting Information.**

The VTS can be contacted, as follows:

1. Call sign: Mokpo VTS
2. VHF: VHF channels 14 and 16
3. Telephone: 82-61-242-1307
4. Facsimile: 82-61-244-0696

Anchorage.—Vessels can anchor in designated Area No. 14, best seen on the chart, approximately 5.5 miles W of the pilot station, in depths of 21 to 34m, gravel.

Upon reaching the harbor area are four designated areas, best seen on the chart between 34°43'N and 34°47'N, with the following characteristics:

1. Area No. 13—Depths of 25 to 34m. Two obstructions, with a least depth 15.6m, lie on the W edge of the area.
2. Area No. 12—Depths of 15 to 30m, with a dangerous wreck lying on the NE boundary in a depth of 25.5m.
3. Area No. 11—Depths of 14 to 21m.
4. Area No. 10—Depths of 5 to 22m, with a submerged obstruction on the NW edge of area in a depth of 4.5m. An obstruction (34°47'33"N, 126°16'23"E), with a depth of 4.7m, lies within the N part of the anchorage.

The quarantine anchorage has been designated to be the same as Anchorage Area No. 7, as detailed below.

Three additional designated anchorage areas are located outside the harbor, SE of Dallido in Haenam Gang, as best seen on the chart, with the following characteristics:

1. Area No. 7—With radius of 300m centered on position 34°44'29"N, 126°20'20"E and a least depth of 17.2m, mud and sand.
2. Area No. 8—With radius of 300m centered on position 34°44'18"N, 126°20'45"E and a least depth of 9.5m on the SE side.
3. Area No. 9—With radius of 300m centered on position 34°44'07"N, 126°21'10"E with depths of 7 to 11m. This area is meant for vessels less than 5,000 dwt. Two dangerous wrecks are located close E of the area boundary.

Five additional anchorage areas lie inside the harbor, as best seen on the chart, with the following characteristics:

1. Area No. 1—Depths of 12 to 17m, mud.
2. Area No. 2—With a least depth of 15.8m, mud and sand.
3. Area No. 3—With a least depth of 15.7m and a submerged obstruction located in S part of area in a depth of 17.6m.
4. Area No. 4—With a least depth of 14.7m, mud and shale. Numerous obstructions exist all throughout this area.
5. Area No. 6—With a least depth of 7.8m in the center of the area. Vessels less than 10,000 dwt should use this area. Caution needs to be taken to avoid a shoal bank, with a least depth of 7.8m near the center of this anchorage, and a dangerous wreck, with a least depth of 11.8m, lying WNW of the anchorage.

Vessels are advised not to anchor in mid-channel, where the tidal currents combine with the full strength of the river current. Vessels are also advised not to anchor in the area NNE of Munha Som because the tidal currents there are strong and irregular, although anchorage farther E is good.

Directions.—Mokp'o Gu should be approached on an ESE course in order to avoid the shoals lying W of the N end of Hwawon Pando. After passing through Mokp'o Gu, vessels should turn sharply N.

Kunsan

Keep the extremities of Pak Pi and Ch'onch'uk Pi in line bearing 016°, until clear N of the shoals E of the SE end of Talli Do. Then a course should be steered along the E coast of changja Do until Nam Gak bears about 115° and is open NE of Yong Du. Course can then be altered E, passing N of the shoals W of Yong Du. After rounding Yong Du a mid-channel course may then be steered for the anchorage.

Caution.—A number of obstructions are reported (2007) to exist in the anchorages.

During strong S and E winds there is an eddy in the opposite direction through Mokp'o Gu and off Yong Du, making it difficult to handle a vessel. It is also dangerous to approach the N end of Hwawon Pando before altering course to pass through Mokp'o Gu during spring tides at the middle of the ebb tide because the velocity of the tidal currents about 1 mile W of the entrance is about 9 knots. It is therefore better to steer for the middle of the entrance when about 1 mile off.

After passing through Mokp'o Gu about the middle of the flood current, vessels should not, when rounding the SE end of Talli Do, alter course too suddenly. For if the turn is made too sharply the vessel, because of the check in her speed and the eddy, may not answer her helm when put the other way, and her head may be gradually driven dangerously near the SE extremity of Talli Do. The vessel may also be carried toward this point by the reverse current setting SW along the E coast of the island.

Myeondo Sudo to Kunsan Hang

3.12 The coast between Kaum Do (35°13'N., 126°19'E.), close offshore E of the N entrance of Myondo Sudo and Ch'ulp'o Hang, about 22 miles NNE, is mostly high. Its fringing bank is studded with rocks and islets, and depths of less than 11m are found as far as 7 to 9 miles offshore. The coast for a distance of about 25 miles farther NNE to Kunsan Hang is fronted by mud flats and shoals and should not be approached.

Anma Gundo (35°21'N., 126°00'E.), the SW group of the islands lying off this part of the coast, consists of seven islets, the coasts of most of which are cliffy. A conspicuous clump of pine trees stands on the N side of the summit of Anma Do, the largest of these islets. Above-water dangers lie within 5 miles E and 4 miles NE of Anma Do. A light is situated on the W end of **Hoeng Do** (35°20.1'N., 125°59.5'E.).

Caution.—Numerous fish havens are located within 15

miles NW of Anma Gundo, as well as several wrecks and an obstruction lying up to 17 miles NW and WNW of the islands, all of which can best be seen on the chart.

Two dangerous wrecks located about 20 miles SW of Anma Gundo lie in the following positions:

1. 34°44'13"N., 126°21'30"E.—depth unknown.
2. 34°44'08"N., 126°21'30"E.—depth of 4.3m.

The Uisatoe Ocean Observation Platform is located NW of Anma Gundo in position 35°28'35"N, 125°54'55"E and is marked by a light mounted on a yellow metal post, 3m in height, on the platform.

Wi Do (35°35'N., 126°17'E.), about 17 miles NE of Anma Gundo, is hilly and wooded. The summit of the island, in the NE part, is a conspicuous blunt peak. Sik To, consisting of two hills joined together by a low neck, lies close NW of the N end of Wi Do. Drying rocks lie within about 1 mile of the W side of Wi Do. An area fouled by the remains of a salvaged wreck lies about 5 miles W of the S end of Wi Do. A light is situated on the summit of Ch'aryun Do, close SW of Wi Do. A light is shown between Wi Do and Sik To.

Caution.—A military practice area, with a radius of 5 miles, is centered on Miyo-do, about 7 miles ESE of Wi Do.

3.13 **Sangwangdung Do** (35°39'N., 126°07'E.), with several smaller islets close E, lies about 8 miles NW of Wi Do. Hawangdung Do, close S, has two peaks, the W one of which is higher. An area fouled by the remains of a salvaged wreck lies about 5 miles NE of Sangwangdung Do. A light is situated from the summit of Sangwangdung Do.

Caution.—A dangerous wreck lies close NNW of Sangwangdungdo, in a depth of 29m, in position 35°41'54"N, 126°05'11"E.

Kogunsan Kundo (35°50'N., 126°25'E.), about 12 miles NNE of Wi Do, consists of several islands lying in two chains, and separated by a channel about 1 mile wide. All the islands have mostly bare and precipitous hills. Kwallido, the W island of the S chain, has a conspicuous wooded peak at its N end. Mal To is the W island of the N chain. A light is situated on the W extremity of Mal To. Hoenggyong Do, 0.2 mile E of **Pangch'uk Do** (35°51.0'N., 126°22.6'E.), has a light at the W end of the islet.

Huk To, about 7 miles W of Mal To, is bare with a pointed summit. Chik To, about 4 miles farther WNW, is a precipitous rocky islet with a sharp summit.

Caution.—A military practice area, with a radius of 11 miles, is centered on Chik To.

Fishing nets are laid for a distance of about a mile SE from a position the same distance SSE of the W end of Mal To. To the S of Huk To and Chik To, buoys with red flags are found.

The Gwallido Offshore Platform is located in Kogunsan Kundo in position 35°49'40"N, 126°12'45"E and is marked by a light

Sibidongp'a Do (35°59'N., 126°13'E.), about 9 miles NW of Mal To, is a group of about a dozen islets lying on a horseshoe-shaped reef. A light is situated on the largest island in Sibidongp'a Do. A dangerous wreck lies sunk about 7 miles E of this group, and an area fouled by the remains of a salvaged wreck lies about 1 mile W of the dangerous wreck. Another dangerous wreck lies sunk about 3 miles N of the group.

Kunsan (Gunsan) (35°59'N., 126°37'E.)

World Port Index No. 60330

3.14 Kunsan (Gunsan), of considerable importance as an outlet for rice exports, is comprised of Jang-hang, located on the N bank opposite Kunsan (Gunsan) city and the new port of Kunsan (Gunsan) Hang, which has been built up on reclaimed land extending seaward along the S bank W of the city. Kunsan (Gunsan) is along known as the outer harbor.

Winds—Weather

The prevailing winds are between NE and NW in winter, and between SE and SW in summer. The winds are generally light and gales are rare.

The handling of cargo is sometimes hindered or interrupted by NW winds, which are most frequent from September to February. There are about 30 days in a year when it is impossible to work cargo in the river mouth, and about 10 days when handling is prevented in the harbor.

Fog is most prevalent during June and July. It sometimes lasts for several days, but usually occurs around sunrise and is dissipated during the morning.

Tides—Currents.—Kunsan harbor has a greater range of tide due to the flow of the Kum Gang river. The tidal range is about 6.5m at MHWS and 4.8m at MHWN. In Kunsan Hang, the flood current slackens about 20 minutes after **Osik To** (Osig Do) (35°58'N., 126°34'E.), and ebbs about 30 minutes later. The flood current attains its maximum velocity of 3 knots midway between Chonmang San and Kunsan Hang, about 4 hours before the time of HW at Inchon. The ebb current is strongest off the S side of Yubu Do, where it attains a velocity of 4 knots about 2 hours after the time of HW at Inchon.

At the anchorage off the piers at Kunsan, the flood current runs for about 5 hours, with a maximum velocity of 2 knots; the ebb current runs for 6 hours, with a maximum velocity of 3 knots. The slack lasts for about 15 minutes. For several days after a freshet the ebb current may run at twice its usual velocity, and it runs for a longer period while the flood current runs for a correspondingly shorter period.

Off Osik To, slack water at the end of the rising tide occurs about 1 hour before the time of HW at Inchon, and at the end of the falling tide about 5 hours after HW.

Depths—Limitations

The harbor is approached through a fairway that is protected by a breakwater approximately 4 miles in length extending WSW from the SW tip of Yubu Do (36°00'N., 126°36'E.) and marked by a light at the seaward extremity. A small breakwater extends about 300m W, then 600m NW, from the end of the reclaimed land on the S side of the fairway. The seaward end of this breakwater is also marked by a light equipped with AIS. Another breakwater has been constructed NW of the harbor entrance, 1.75 miles in length, marked at either end by lights equipped with AIS. This forces vessels to approach the fairway from the SW until abeam of the light at the end of the breakwa-

ter extending from the reclaimed land, then turning eastward.

Kunsan (Gunsan) Hang—Berth Information							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	Draft (plus tide height minus 10% UKC)	LOA	Beam	
Kunsan (Gunsan) Hang							
International Passenger Pier	180m	8.0m	—	—	—	—	Used mainly for passenger or vehicle ferries with some military craft. A ro-ro ramp is also located at this pier.
Passenger Pontoon	51m	8.0m	300 dwt	—	—	—	Passengers only. Connected by ramp to the International Passenger Pier.
Official Pier	144m	3.0m	200 dwt	—	—	—	For official launches, police boats, tugs, and any other emergency craft.
Wharf 1							
No. 11	228m	11.0m	57,836dwt	4.0m	—	32.26m	Grain, raw lumber, and general cargo.
No. 12	180m	9.0m	129.142 dwt	4.0m	127m	21.0m	Grain, raw lumber, and general cargo.
No. 13	117m	9.0m	17, 599dwt	4.0m	127m	21.0m	Grain, raw lumber, and general cargo.
Wharf 2 (Dry cargo and ro-ro operations possible)							
No. 21	100m	11.0m	34,022 dwt	4.0m	190m	32.0m	Grain, raw lumber, and general cargo.
No. 22	221m	11.0m	61.320 dwt	4.0m	190m	32.0m	Grain, raw lumber, and general cargo.
No. 23	220m	11.0m	61,388 dwt	4.0m	190m	32.0m	Grain, raw lumber, and general cargo.
Wharf 3							
No. 31	220m	11.0m	12,764 dwt	4.0m	133m	20.0m	Grain, liquids, and cement.
No. 32	210m	11.0m	34,428 dwt	4.0m	190m	32.0m	Grain, liquids, and cement.
No. 33	210m	11.0m	49,875 dwt	4.0m	175m	28.0m	Grain, liquids, and cement.
Wharf 4							
No. 41	300m	11.0m	62.862dwt	—	265m	32.0m	PCC and bunkers.
No. 42	300m	—	38,300 dwt	—	—	—	PCC and bunkers.
Wharf 5							
Nos. 51-58	210m (each)	11.0m	20,000 dwt	6.1m	—	—	Automobiles, newsprint, and containers.
Wharf 6							
Nos. 61-62	210m (each)	11.0m	20,000 dwt	6.9m	230m	35.0m	Grain.
Nos. 63-64	240m (each)	13.0m	50,000 dwt	—	148m	23.0m	Containers.

Kunsan (Gunsan) Hang—Berth Information							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	Draft (plus tide height minus 10% UKC)	LOA	Beam	
West of Wharf 6							
Cement Pier	220m	—	20,000 dwt	—	—	—	Cement.
Silica Pier	53m	—	700 dwt	—	—	—	Silica discharge.
Wharf 7							
No. 71	280m	—	—	—	—	—	Sand and bunkers.
No. 72	280m	—	—	—	—	—	Sand and bunkers.
No. 73	240m	—	—	—	—	—	Sand and bulkers.
No. 74	240m	—	30,000dwt	—	—	—	Coal and bunkers.
No. 79	250m	—	30,000dwt	—	—	—	Coal and bunkers
No. 79-1	250m	—	30,000dwt	—	—	—	Sand and bunkers.
Janghang Port							
1	165m	—	10,000 dwt	—	—	—	Dry bulk and general cargo.
2	165m	—	10,000 dwt	—	—	—	Dry bulk and general cargo.
Floating Piers	—	—	8,000 dwt	—	—	—	Cement. Two piers.
Tanker Port							
USAF POL	—	—	3,000 dwt	—	100m	—	Attached to Caltex Pier. T-shaped with a 262m walkway.
Hyundai	—	—	—	5.0m	150m	—	Petroleum products.
SSang-Yong	—	—	—	5.0m	150m	—	Petroleum products.
LG Caltex No.2	—	—	—	—	144m	—	Petroleum products.
LG Caltex No.1	—	—	—	—	100m	—	Petroleum products. Gunsan AB pipeline.

The old port area of Jang-hang has only a few berths alongside a wharf adjacent to silos. Two floating piers that handle cement and oil front the silos and can accommodate vessels up to 8,000 dwt.

A T-shaped finger pier connected to shore by a walkway, 262m in length, is located approximately 0.1 mile to the SW of Minya Am.

Most of the cargo handling and the International Passenger Pier are located along the new port area of Kunsan (Gunsan) Hang. This area is divided into numbered wharf (quay) areas. Wharf No. 1, Wharf No. 2 and Wharf No. 3 are along the sides of a basin protected by a breakwater located close W of the International Passenger Pier, located the furthest E of any of the Kunsan (Gunsan) Hang facilities.

See the table titled **Kunsan (Gunsan) Hang—Berth Information** for details of the port facilities along the S shore W of the city and through the reclaimed area.

Aspect

Piung Do (Bieung Do) (35°57'N., 126°32'E.), brown-colored and conspicuous, lies on the E side of the entrance of the approach channel. A light is situated on the W end of Piung Do. Osik To, about 1 mile NE of Piung Do, has a conspicuous clump of trees on the hill at the E end of the island; two groups of pine trees stand on the W side of the summit of the island. An overhead power cable, with a vertical clearance of 17m, is in position between Naecho Do and Piung Do. Towers with obstruction lights are at the ends and at the connecting point of the cable.

Ponghwa-Ryong, a sharp peak close SW of Kunsan, is the highest hill in the vicinity and is easily identified. Chonmang San stands on the N entrance of Kum Gang. A conspicuous stack, reported visible at a distance of 20 miles in clear weather, is on the summit of Chonmang San.

Pilotage

Pilotage is compulsory for vessels larger than 500gt. Pilots need to be requested at least 24 hours in advance.

Pilots will board vessels within a 2-mile radius of position 35°57'00"N, 126°25'30"E and disembark within a 1-mile radius of position 35°58'00"N, 126°28'00"E.

Pilots can be contacted, as follows:

Kunsan (Gunsan) Pilots	
Kunsan (Gunsan) Pilots contact information	
VHF	VHF channel 12
Telephone	82-61-288-2550 82-63-4457334
Facsimile	82-63-4454070
E-mail	gspilot@hanmail.net

Regulations

Passage between the N bulwark and the Mung-AM Beacon is prohibited due to the base rock of the sea bottom.

Entry into the inner harbor is dependent on the height of the tide for vessels with drafts greater than 5.5m due to the narrow fairway over the bar. Vessels must maintain a UKC of 0.6m.

Vessels should not navigate at speeds exceeding 10 knots in the areas around Wharf No. 1 and Wharf No. 2, and not to exceed 5 knots around Wharf No. 3.

Vessel Traffic Service

A Vessel Traffic Service has been established for Kunsan (Gunsan) harbor area and is bounded by lines joining the following positions, including the harbor limits:

a. 35°56'48"N, 126°32'29"E.
b. 35°51'30"N, 126°30'00"E.
c. 35°57'00"N, 126°18'48"E.
d. 35°57'00"N, 126°16'30"E.
e. 36°04'42"N, 126°20'00"E.
f. 36°07'30"N, 126°24'00"E.
g. 36°00'12"N, 126°31'00"E.

Participation in the VTS is mandatory for the following types of vessels:

1. All foreign vessels.
2. Korean vessels larger than 300 gt, except for coastal fishing vessels.
3. Korean vessels carrying dangerous cargo.
4. Korean vessels involved in towing or pushing operations.

The VTS broadcasts the following information on VHF channel 12:

1. Maritime safety information.
2. Special weather reports.
3. Maritime incidents.
4. Obstacles and failures of aids to navigation.

See the table titled **Kunsan (Gunsan) VTS—Reporting Requirements** for reporting requirements.

Contact Information

The VTS can be contacted, as follows:

Kunsan (Gunsan) VTS	
Kunsan (Gunsan) VTS contact information	
Call sign	Gunsan Port Service
VHF	VHF channels 12 and 16
Telephone	82-63-467-1375
Facsimile	82-63-467-1953

Anchorage

Five designated anchorages are located outside the harbor limits. Details are given in the table titled Kunsan (Gunsan)—Anchorage Areas.

Kunsan (Gunsan) VTS—Reporting Requirements		
Report Type	**When Report is Required to be Submitted**	**Information Required**
Estimated Arrival	One (1) hour prior to arrival at the boundary of the VTS.	1. Vessel name and call sign. 2. Destination. 3. Details of any dangerous cargo on board. 4. Other information requested by the VTS center.
Arrival	Upon entering the VTS area.	1. Vessel name and call sign. 2. Destination. 3. Details of any dangerous cargo on board. 4. Other information requested by the VTS center.
Anchoring, Berthing, or Shifting Berth	Upon commencement of anchoring, berthing, or shifting a berth.	1. Vessel name and call sign. 2. Time of operation.

Kunsan (Gunsan) VTS—Reporting Requirements		
Report Type	**When Report is Required to be Submitted**	**Information Required**
Departure	Upon departure.	1. Vessel name and call sign. 2. Departure place and time. 3. Next port of call. 4. Details of any dangerous cargo on board. 5. Other information requested by the VTS center.

Kunsan (Gunsan)—Anchorage Areas		
Name	**Center Position**	**Depths**
Area A1	36°59'24"N, 126°26'48"E.	10-11m
Area A2	35°56'42"N, 126°26'48"E.	8-10m
Area A3	35°55'30"N, 126°26'48"E.	8-10m
Area A4	N of 35°59'00"N, 126°33'00"E.	5-8m
Quarantine	35°57'24"N, 126°26'48"E.	9-10m

Notes:
1. Area A1 can accommodate up to ten vessels of up to 30,000 gt each awaiting berth assignments.
2. Area A2 can be used as second quarantine anchorage and is also for vessels not entering port.
3. Area A3 can accommodate up to 12 vessels of up to 20,000 gt each awaiting berth assignments.

Caution

A considerable amount of silting occurs in the main channel. As a result, depths in the bar, the entrance channel, and in the harbor are continually changing and constant dredging is required.

A submarine power cable has been laid from the S end of Yubu Do across the Kunsan (Gunsan) Fairway to the shoreline close E of the International Passenger Pier, passing through the following positions:

a. 35°59'29"N, 126°36'14"E. (coast)
b. 35°59'20"N, 126°36'51"E.
c. 35°59'13"N, 126°37'31"E.
d. 35°59'08"N, 126°37'44"E.
e. 35°58'55"N, 126°37'50"E.
f. 35°58'49"N, 126°38'01"E.
g. 35°58'42"N, 126°38'02"E. (coast)

3.15 Och'ong Do (Eocheongdo) (36°07'N., 125°59'E.), about 28 miles WNW of the entrance of Kunsan Hang, is a high wooded island with either cliffy or rocky coasts. A sharp rock rises conspicuously about 0.3 mile off the SE extremity of the island. A dangerous wreck lies sunk about 8 miles WSW of the island. A light is situated on the NW end of Och'ong Do.

Och'ongdo Myoji, the inlet on the S side of Och'ong Do, affords sheltered anchorage, in 11 to 15m, sand and mud, good holding ground in its middle part.

Oeyon Yolto, lying to the N and NNE of Och'ong Do, consists of six islands and several rocky islets and dangers. **Hwang Do** (36°14'N., 125°58'E.), the W island of the group, is barren and rocky. Pyon Do, about 1 mile NE, is a conspicuous pointed rock of light brown color and covered with grass; a shoal lies about 183m off its NE side. A barren, round topped islet lies about 1 mile ESE of Hwang Do.

Caution.—An Ocean Data Acquisition System (ODAS) buoy is moored in the waters E of Oeyon Yolto in position 36°10'N, 126°20'E.

Numerous fish havens are located about 3 miles SE of Och'ong Do; a fish trap area to be avoided lies close NE of Shibidongp'a Do (35°59'N., 126°14'E.).

Oeyondo Myoji (36°13'N., 126°03'E.), enclosed by Hoenggyon Do, O Do, Oeyon Do, and Taech'ong Do, can be entered from NW, the preferred approach, or SE. The N part of this area has moderate depths and a sandy bottom, while the S part is deeper and the bottom is rocky.

Anchorage can be taken, in about 16.5m, with Hwang So, which lies about 1 mile N of O Do, bearing 152°. The approach should be made with the conspicuous hill on the SW end of Oeyon Do bearing 114°.

3.16 Ch'onsu Man (36°25'N., 126°28'E.) is a narrow bay lying between the mainland and Anmyon Do. The depths within the bay are convenient for anchoring, but the numerous islets and reefs in the entrance make the fairway tortuous. The approach from S is also encumbered with numerous islets and shoals. Songju San, E of the entrance of the bay, is a sharp and conspicuous peak.

Pilotage.—Pilotage is compulsory and the boarding station is situated about 2.5 miles W of the entrance channel fairway buoys No. 1 and 2. The pilot boards during daylight hours only.

Directions.—The main approach to Ch'onsu Man is along a dredged channel, with a least depth of 14.1m, entered 8 miles NW of Yon Do.

The channel, marked by lighted buoys, leads ENE for 2 miles then gradually turns NNE to pass W of **Soyo Am** (36°19'N., 126°29'E.). Between the entrance and Lighted Buoy No. 10 (36°13.7'N., 126°25.2'E.) the channel is 0.2 mile wide, then widens to 1 mile abreast Soyo Am.

A depth of 14.5m in the center of the channel is marked by a (isolated danger) lighted buoy, 0.75 mile WNW of Soyo Am. A fish haven extends 3 miles S of Soyo Am.

Boryeong (Kojong Hang) (Gojeong Hang) (36°24'N., 126°29'E.), at the mouth of Ch'onsu Man, is a private coal terminal feeding a power station.

Depths—Limitations.—The port is approached from the SSW and entered through a difficult and narrow passage. The entrance channel has a charted least depth of 13.1m but there

Daesan Hang

are shallower areas in the approach passage. The entrance to the port is about 800m in width.

Two piers for vessels going to the power station can accommodate vessels as large as 135,000 dwt. Two other wharves are available for much smaller vessels as large as 2,000 dwt.

Pilotage.—Pilotage is compulsory but available only during daylight hours. Pilots board in position 36°11'19"N, 126°18'27"E.

Vessel Traffic Service.—Vessels proceeding to Boryeong must participate in the Daesan VTS. See paragraph 3.19 for details.

Anchorage.—Anchorage areas have been designated as follows:

1. **A1**—centered in position 36°20'32"N, 126°29'15"E, with depths of 13 to 17m.
2. **A2**—centered in position 36°20'01"N, 126°28'28"E, with depths of 17 to 21m. Caution needed to avoid a rocky shoal, marked by a lighted beacon, about 800m S of this anchorage,
3. **A3**—centered in position 36°18'31"N, 126°27'32"E, with depths of 20 to 25m.
4. **A4**—centered in position 36°17'42"N, 126°27'02"E, with depths of 21 to 23m. The E limit to this area is marked by two lighted buoys.
5. **A5**—centered in position 36°16'13"N, 126°26'42"E, with depths of 21 to 23m. A fish haven lies close to the E boundary of this area.

Caution.—A dangerous wreck lies close E of the approach to the pilot boarding area in position 36°11'N, 126°19'E.

3.17 Yon Do (36°05'N., 126°26'E.), the S island in the approach to Ch'onsu Man, is a useful landmark. A light is situated on the summit of the island. Its SE extremity is a cultivated plateau, and a small village stands at the inner end of a wooded promontory on the E side of the island. Anchorage can be taken, in 9 to 11m, mud, NE of the island.

The recommended approach to Ch'onsu Man leads NNE from a position about 2 miles W of Yon Do, and between this island and the dangerous wreck about 3 miles NW.

Yong Do, on the W side of the approach about 11 miles NNW of Yon Do, has some low trees on its summit. Several shoals lie within 2 miles SE of Yong Do, and between the islet and the SE extremity of Wonsan Do, about 6 miles NNE.

Tabo Do (Tasurigii Amu), on the E side of the fairway, about 4.5 miles ENE of Yong Do, is a small rock with two peaks of a reddish-gray color.

Soyo Am (Soniyo Amu), about 2.5 miles N of Tasurigii Amu, consists of three rocks which dry, and which are marked by ripples except during the period of slack water. The recommended track leads about 0.5 mile W of these rocks. A light is situated on Soyo Am.

Wonsan Do lies on the W side of the entrance of Ch'onsu Man close S of the S end of Anmyon Do. A pine forest on a hill on the E extremity of the island is a useful mark when approaching the bay. Anchorage can be take, in 12.8m, sand and shells, about 1 mile E of Wonsan Do, with a group of conspicuous trees on Ponha San, about 1.8 miles E of Soru Somu, bearing 057°, and the summits of Mongdok To and Ch'u Do in line bearing 318°. This anchorage is sheltered from all except S winds, and the tidal currents are not strong.

The principal channel through the entrance of Ch'onsu Man leads NW between Hyoja Do and Mongdok To, and then N past the W sides of Samhyongje Do and Yuk To.

A quarantine anchorage is located mid-channel. It is centered in position 36°18'18"N, 126°27'25"E.

Gyeongryeolbi Yeoldo (Kyongnyolbi Yolto), (36°37'N., 125°34'E.), the outermost of a chain of islets extending nearly 30 miles W from the mainland consists of three islets about 1 mile apart. A light is situated on Pukkyongnyolbi Do, the middle island.

Sodung Do (Sodein) (36°38'N., 125°43'E.), E of Gyeongryeolbi Yeoldo, presents a conical appearance when seen from E or W, but shows two rounded hummocks of unequal height when seen from N. Sok To, about 0.5 mile NW of Sodung Do, has a rock close off its N end which resembles a junk when

seen from E or W. Huk To, about 12 miles NE of Sodung Do, is easily identified because of its double summit. Kaui Do is the innermost of this chain of islets. A light is situated on **Ong Do** (36°38.8'N., 126°00.5'E.).

Caution.—A Traffic Separation Scheme (TSS), best seen on the chart, is located between Ong Do and Gungsi (Kungsi) Do, extending N to Heug Do and then NE to Gadae Am.

A dangerous wreck lies in the separation zone close SW of Gadae Am.

An Ocean Data Acquisition System (ODAS) buoy is moored in the waters SE of the TSS in position 36°34'24"N, 126°08'18"E.

Approach to Inchon

3.18 The approach to Inchon from S leads W and N of Gyeongryeolbi Yeoldo, and then NE to a position about 1 mile NW of **An Do** (36°57'N., 126°10'E.). From N or NW vessels should pass S of **Moktokto** (36°56'N., 125°47'E.) and then ENE passing N of An Do. Tong Sudo and Seo Sudo, the two channels of approach, unite about 10 miles SW of Inchon.

An Do, with a double summit, lies near the SW end of Changan T'oe. A light, equipped with a racon, is situated on An Do; storm signals may be shown from the light. This bank, on which there are several islets and drying sand patches, forms the SE side of the approach to Tong Sudo. The mainland to the SE is very irregular and indented by several large inlets.

Moktokto, small and conical, lies about 21 miles NE of Gyeongryeolbi Yeoldo and about 18 miles W of An Do. A light is situated on Moktokto. A sunken wreck exists in position 36°50'50"N, 125°54'45"E, SE of Mogjeog To.

This islet, together with Kadok To and Toeryong Do to the N, form the SW end of Tokchok Kundo.

Ul Do (Wi Do) and Son'gap To lie on the NW side of the approach to Seo Sudo, about 11 miles and 16 miles NE of Moktokto. So-som, a drying rock, lies about 1 mile S of Son'gap To. A light is situated on the S summit of Ul Do.

Tong Sudo (Dong Sudo) (37°06'N., 126°20'E.) is the passage used by deep-draft vessels because, even though the dangers are more numerous, the tidal currents are not as strong as in So Sudo, never exceeding 4 knots. It can be navigated at night. However, caution is still necessary in the approach.

The entrance of Tong Sudo, from a position about 1 mile NW of An Do, should be approached on a NE course until on the 038° range, and then passing between Jangan Seo (Changan So) and the 8.5m shoal about 1 mile NW. In the vicinity of Jangan Seo, which dries 2.1m, vessels have reported strong sets and sudden fogs. A light, equipped with a racon, is situated on Jangan Seo.

3.19 Daesan Hang (Taesan Hang) (37°01'N., 126°25'E.) (World Port Index No. 60323) consists of a steel jetty and concrete dolphins, with a least charted alongside depth of 13m, capable of handling vessels up to 200m in length and 35,000 dwt. The jetty is aligned 110°-290° and has three berths. Daesan is a newly-developed industrial area.

Daesan Port Home Page
http://daesan.mof.go.kr/eng

Tides—Currents.—The tidal current runs at a rate of 4 knots; the tidal range at springs is 8m.

Depths—Limitations.—Sindo Fairway, the SW approach to Daesan, has a least depth of 22m. The NW fairway to Daesan Hang has a least depth of 19.1m.

A T-head pier, marked by a light on each end of its head, is situated 6 miles S of the S extremity of Pung Do. The pier extends NNW into Tong Sudo. For further information see the table titled **Daesan—Berth Information**.

Pilotage.—Pilotage is compulsory for all foreign vessels exceeding 500 gt that are entering or departing the port or moving anywhere within the pilotage area. Pilots should be requested at least 24 hours prior to arrival. Pilots are available during daylight hours only and board in the following positions:

1. Sindo—36°51'47"N, 126°07'03"E.
2. Jangan-Daesan (for vessels less than 6,000 gt)—37°03'32"N, 126°18'41"E.

Daesan—Berth Information

Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
Dajin Power Station							
Coal Jetty SE	225m	21.0m	273m	17.6m	43.0m	150,000 dwt	Coal.
Dangjin 01 NW	—	21.0m	300m	18.0m	50.0m	170,000 dwt	Coal.
Dangjin 02 NW	—	21.0m	300m	18.0m	50.0m	170,000 dwt	Coal.
Taean Port							
MDT-51	254m	19.2m	273m	16.6m	46.0m	150,000 dwt	Coal.
MDT-52	226m	18.4m	273m	16.7m	46.0m	130,000 dwt	Coal.
MDT-53	271m	—	292m	—	45.0m	181,000 dwt	Coal and break-bulk.
Boryeong Port							
MDB-41	231m	24.0m	270m	16.3m	46.0m	151,000 dwt	Coal.

Daesan—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
MDB-42	241m	24.0m	270m	16.3m	46.0m	151,000 dwt	Coal.
Yeocheon Cargo Terminal							
No. 1	210m	15.0m	—	—	—	20,000 dwt	General cargo.
No. 2	210m	15.0m	—	—	—	20,000 dwt	General cargo.
Daesan Container and General Cargo Terminal							
Quay 1	495m	—	193m	10.7m	28.0m	33,000 dwt	Containers and general cargo.
Quay 2	410m	—	172m	9.2m	27.0m	23,000 dwt	Containers and general cargo.
Samsung General Chemicals							
MSB-01	140m	—	140m	7.0m	—	7,200 dwt	General cargo and breakbulk.
Shinboryeong Thermal Power Plant Terminal							
L jetty	406m	—	—	—	—	—	Under construction.
Tanker Berths							
Seetec Terminal							
MDH-21	50m	12.5m	280m	13.5m	—	100,000 dwt	Chemicals.
MDH-22	50m	9.6m	140m	8.0m	—	20,000 dwt	Clean products
MDH-23	50m	14.6m	219m	16.4m	—	50,000 dwt	Chemicals.
MDH-24	200m	13.9m	130m	16.4m	—	10,000 dwt	Chemicals.
MDH-25	30m	13.5m	—	16.4m	—	10,000 dwt	LPG and clean products.
Hyundai Oilbank							
MDK-11	130m	8.0m	100m	6.70m	16.5m	5,000 dwt	Clean products.
MDK-12	140m	8.9m	103m	7.5m	15.1m	5,000 dwt	Clean and dirty products.
MDK-13	90m	6.7m	60m	3.5m	9.2m	1,000 dwt	Clean products
MDK-14	215m	8.9m	164m	9.7m	23.7m	20,000 dwt	Clean and dirty products.
MDK-15	315m	15.4m	280m	15.0m	45.0m	120,000 dwt	Crude oil, dirty and clean products.
MDK-16	235m	13.6m	200m	12.0m	32.0m	51,000 dwt	Clean and dirty products.
MDK-17	235m	12.2m	141m	10.0m	18.8m	10,000 dwt	Clean and dirty products.
New Paraxylene Berth	50m	—	130m	8.7m	20.5m	13,200 dwt	Chemicals.
SPM	—	30.0m	333m	21.6m	—	300,000 dwt	Crude oil.
Samsung Total Daesan Marine Terminal							

Daesan—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
STC A (MDS-31)	45m	14.0m	270m	13.6m	45.0m	100,000 dwt	Clean products.
STC B (MDS-32)	60m	13.0m	139m	12.4m	20.0m	10,000 dwt	Clean products.
STC C (MDS-33)	60m	13.0m	139m	—	20.0m	13,000 dwt	Chemicals.
STC D (MDS-34)	50m	14.0m	139m	—	20.0m	13,000 dwt	Chemicals.
STC E (MDS-35)	50m	13.0m	110m	8.0m	15.0m	5,000 dwt	Chemicals.
STC F	60m	20.0m	280m	16.5m	50.0m	170,000 dwt	Clean products.
STC G	60m	20.0m	280m	—	50.0m	170,000 dwt	Clean products.
Korea National Oil Corporation (KNOC)							
MDN-11	480m	25.5m	336m	23.0m	60.0m	325,000 dwt	Crude oil and aviation fuel.
Boryeong LNG Terminal							
LNG berth	447m	—	300m	11.8m	—	97,000 dwt	LNG.

Daesan Pilots can be contacted, as follows:

Daesan Pilots	
Daesan Pilots contact information	
Call sign	Daesan Pilot
VHF	VHF channel 12
Telephone	82-41-950-2550
Facsimile	82-41-663-0349
E-mail	dspilot@kmpilot.or.kr

Regulations.—Two tugs assist with the berthing operations and meet vessels in the vicinity of Lighted Buoy No. 13. Berthing and unberthing is done only during daylight hours.

Vessel Traffic Service.—Participation in Daesan VTS is compulsory for all ocean-going vessels. The VTS is in effect in the area bounded by lines joining the following positions:

a. 36°50'45"N, 126°08'57"E.
b. 36°51'47"N, 126°07'03"E. (Sindo Pilot Boarding Position)
c. 36°57'32"N, 126°10'05"E. (Ando Light)
d. 37°03'32"N, 126°18'41"E.
e. 37°05'57"N, 126°23'35"E. (Pungdo)
f. 37°07'39"N, 126°26'41'"E. (Mallyuk Pilot Boarding Position)
g. 37°07'52"N, 126°27'13"E.
h. 37°07'26"N, 126°27'31"E.
i. 37°06'29"N, 126°28'06"E.
j. 37°04'41"N, 126°29'49"E.
k. 37°04'41"N, 126°31'31"E.
l. 37°03'08"N, 126°31'31"E.

Vessels bound for the ports of Daesan, Taean, Boryeong, and the Dangjin Thermal Power Station are required to report to the Daesan Vessel Traffic Service.

Vessels should maintain a continuous listening watch on VHF channels 12, 16, and 67 while within the VTS area.

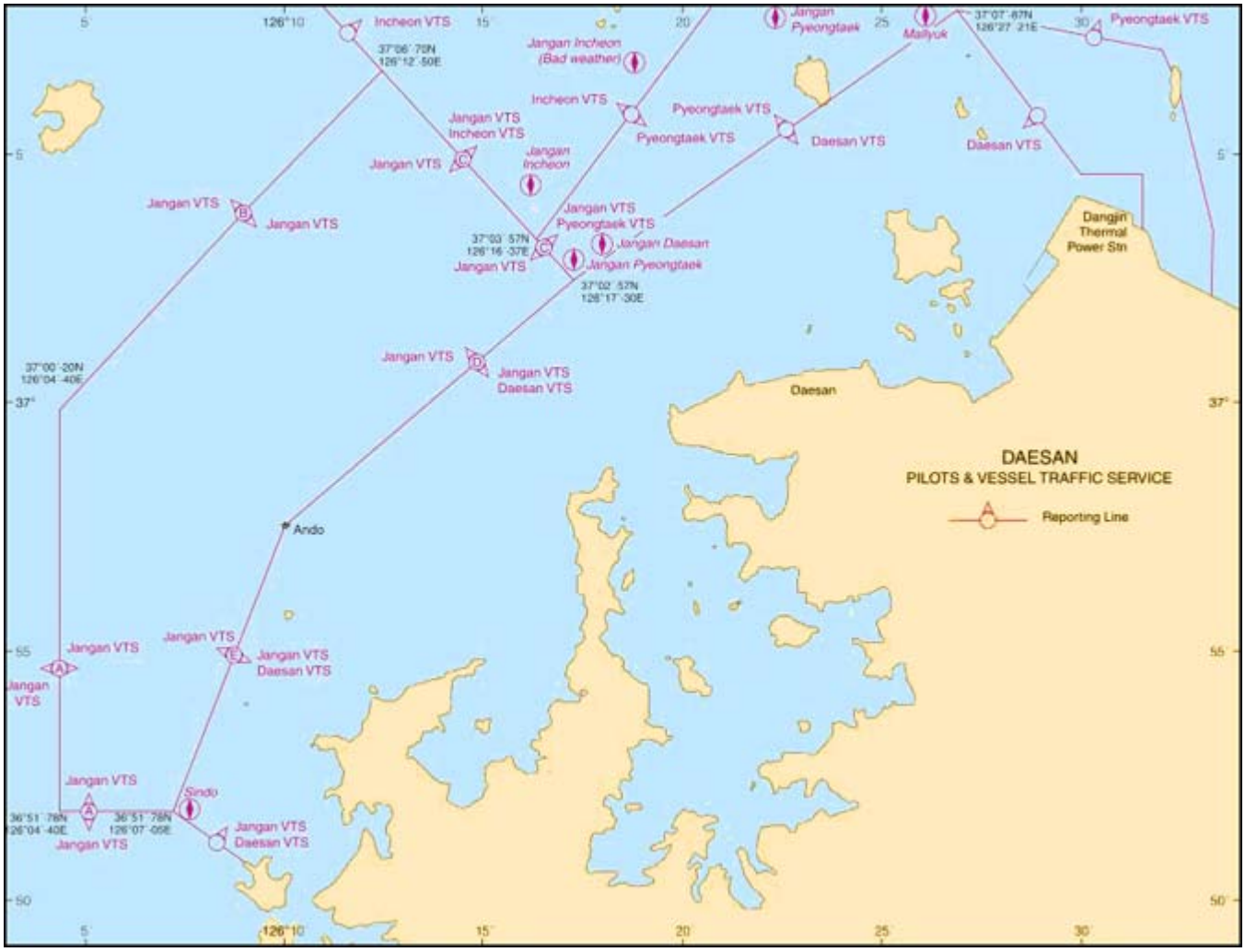
Participation in the VTS is mandatory for the following vessels:

1. All ocean-going vessels.
2. Vessels over 300 gt, except coastal fishing vessels.
3. Vessels carrying dangerous cargo.
4. Towing vessels where the total length of tow is 200m or longer.
5. Boats, bunkering vessels, passenger ships, towing vessels (except in Jangan VTS Area).
6. Fishing vessels 45m or more in length.
7. Vessels engaged in construction.

Reporting requirements for the Daesan VTS, including times inside the Jangan (Changan) VTS, are listed in the table titled **Daesan VTS—Reporting Requirements.**

Jangan (Changan) Vessel Traffic Service (VTS) (37°00'N., 126°11'E.) shares a reporting line with the Daesan VTS and lies seaward of the Daesan VTS. The Jangan (Changan) VTS is in effect in the waters bounded by the following Reporting Lines:

1. **Reporting Line A—**Position 36°51'47"N, 126°07'03"E (Sindo Pilot Boarding Position) to position 36°51'47"N, 126°04'24"E to position 37°00'12"N, 126°04'24"E.
2. **Reporting Line B—**Position 37°00'12"N, 126°04'24"E to position 37°06'42"N, 126°12'30"E.
3. **Reporting Line C—**Position 37°06'42"N,



Daesan—Jangan VTS

126°12'30"E to position 37°02'34"N, 126°17'18"E.

4. **Reporting Line D—**Position 37°02'34"N, 126°17'18"E to position 36°57'32"N, 126°10'05"E. (Ando Light)

5. **Reporting Line E—**Position 36°57'32"N, 126°10'05"E (Ando Light.) to position 36°51'47"N, 126°07'03"E (Sindo Pilot Boarding station).

Daesan VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	1-2 hours prior to crossing a reporting line.	1. Vessel name and call sign. 2. Destination. 3. ETA. 4. Last port of call.
Entry Report	When crossing a reporting line.	1. Vessel name and call sign. 2. Position.
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position. 3. Arrival time.

Daesan VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Shifting	Ten (10) minutes prior to vessel movement.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting Report	When shifting berths within the harbor limit.	1. Vessel name and call sign. 2. Start time and position. 3. Completion time and position.
Advance Notice of Departure	Ten (10) minutes prior to departure.	1. Vessel name and call sign. 2. Current position. 3. ETD. 4. Next port of call.
Departure Report	Upon departure from berth or anchorage.	1. Vessel name and call sign. 2. Departure time. 3. Position.

Daesan Hang—Anchorages					
Port	**Area**	**Depths**	**Center Position**	**Maximum Vessel Size**	**Remarks**
Daesan	A1	9-11m	37°02'17"N, 126°24'18"E	6,000 dwt	—
	A2	12-16m	37°02'36"N, 126°24'00"E	6,000 dwt	—
	A3	19-23m	37°02'56"N, 126°23'39"E	12,000 dwt	—
	A4	26-27m	37°02'50"N, 126°22'21"E	6,000 dwt	—
	A5	25-29m	37°02'36"N, 126°21'48'E	20,000 dwt	—
	A6	33-36m	37°01'38"N, 126°19'03"E	6,000 dwt	—
	A7	31-32m	37°01'28"N, 126°18'36"E	6,000 dwt	—
	A8	32-34m	37°01'11"N, 126°18'03"E	20,000 dwt	—
	A9	33-35m	37°00'47"N, 126°17'29"E	65,000 dwt	—
Daesan	A10	26-33m	37°00'24"N, 126°16'50"E	65,000 dwt	Quarantine
	W1	26-36m	36°59'36"N, 126°15'42"E	—	—
	W2-A	22-29m	36°58'52"N, 126°14'47"E	—	—
	W2-B	23-33m	36°58'25"N, 126°14'12"E	—	—
	W3	17-31m	36°57'24"N, 126°13'06"E	—	—
	A13	12-14m	37°04'00"N, 126°20'45"E	6,000 dwt	—
	A14	29-35m	37°03'42"N, 126°19'33"E	12,000 dwt	—
Boryeong Port	A1	19-24m	36°19'54"N, 126°28'29"E	—	—
	A2	15-20m	36°20'43"N, 126°29'01"E	—	—
	QS	20-28m	36°18'29"N, 126°27'18"E	—	Quarantine only
Taean Port	A1	26-29m	36°55'34"N, 126°13'07"E	—	—
	QS	20-27m	36°55'34"N, 126°13'07"E	—	Quarantine only

Daesan VTS can be contacted, as follows:

1. Call sign: Daesan VTS
2. VHF: VHF channels 12 and 16
3. Telephone: 82-41-660-7660
4. Facsimile: 82-41-663-0349

Jangan (Changan) VTS can be contacted, as follows:

1. Call sign:Jangan VTS
2. VHF: VHF channels 16 and 67

Anchorage.—There are 14 designated anchorages for Daesan, three for Boryeong port, and two for Taean port. The locations of these anchorages with descriptions are listed in the table titled **Daesan Hang—Anchorages**.

Caution.—Currents of up to 4 knots may be experienced at the Daesan Hang anchorages.

3.20 **Pung Do** (P'ung Do) (37°06'N., 126°23'E.), with two peaks, lies about 4 miles ENE of Jangan Seo at the entrance of the approach to Asan Man.

Asan Man (36°59'N., 126°49'E.) lies at the head of the narrow gulf which extends about 20 miles SE from P'ung Do, on the E side of Dong Sudo in the approach to Inchon. The islets and shoals extending E and SE from P'ung Do divide the gulf into two channels, the N one of which is the one generally used. The S passage, although greater in depth, requires local knowledge.

Imye Som (Ipp'a Do) (37°06'N., 126°32'E.), about 7 miles E of P'ung Do, is a good mark for the channel. Haksan So lies about 1 mile NW of Imye Som. A shoal lies in mid-channel, with a depth of 7.6m, 1 mile NNE of Haksan So. Yuk To, the largest of the islets between P'ung Do and Imye Som, has a small group of trees on its summit; the tidal currents among these islets are very strong. A light is situated on Yuk To.

Songmun San, on the peninsula about 2 miles S of Imye Som, is a pointed peak. The summit of the peninsula, about 0.8 mile WNW, is wooded with pine trees.

Tangjin Hwaryok (37°03'N., 126°30'E.) is a berth 2.5 miles SW of Imye Som. The berth consists of a 400m-long jetty with a 350m-long T-head, which has an alongside depth of 18.5m.

There is a 5 mile long channel, with a least charted depth of 17.7m, leading SE to the berth. Approaches to this channel begin about 1 mile NW of Mallyuk To. An anchorage has been established 0.6 mile NW of the berth and has a radius of 450m.

Tori Do (37°07'N., 126°37'E.), on the NE side of the channel, lies at the W end of a drying shoal about 3 miles E of Imye Som; the W side of this islet is precipitous. A light is situated on Tori Do.

Pang Do, about 8.3 miles SE of Tori Do, consists of a group of rocks, above water, surrounded by shoals. The narrowest part of the channel lies between the shoal around Pang Do and the SE extremity of Chungang Ch'ont'oe. A depth of not more than about 7.3m can be carried through this very narrow passage.

Asan Myoji, to the SE of Pang Do, lies between Nae Do and the narrow peninsula terminating in Nomi Gak, about 2 miles ENE. Depths in the greater part vary between 12.8m and 18.3m, rock or sand bottom. The tidal currents are strong and sometimes attain a velocity of 3.5 knots. A shoal, with a depth of 4.5m, lies 0.75 mile SE of the highest rock of Pang Do.

Nae Do is marked by two orange range beacons and a red and white triangle about 183m WSW of the front range beacon. A conspicuous ancient fire beacon stands on the peak about 3 miles SW.

Pyeongtake Hang (Danjin) (37°00'N., 126°44'E.)

World Port Index No. 60325

3.21 Pyeongtaek Hang (Danjin) a developing port with several land reclamation projects in progress, is situated approximately 30 miles SSE of Inchon. The port provides LNG to Seoul and to LNG/LPG tankers from the four thermal power plants. Additionally Pyeongtaek has several container terminals, general and break-bulk port facilities, an international ferry terminal, and a car terminal.

Pyeongtaek—Berth Information

Berth Name or Number	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Dong Bu Steel						
No. 1	120m	7.0m	5,000 dwt	—	—	Steel coils.
No. 2	280m	—	50,000 dwt	—	—	Steel coils.
No. 3	280m	—	50,000 dwt	—	—	Steel coils.
No. 4	280m	—	50,000 dwt	—	—	Steel coils.
No. 5	240m	—	30,000 dwt	—	—	Steel coils.
No. 6	240m	—	30,000 dwt	—	—	Steel coils.
Godae (Dangjin Zone 1 and 2)						
07	240m	—	30,000 dwt	—	—	General cargo.
08	280m	—	50,000 dwt	—	—	General cargo.
Dongkuk Steel Terminal (Godae)						
09	280m	—	50,000 dwt			Steel products.
International Passenger Terminal						
North Berth	200m	—	—	—	—	Passengers.
South Berth	200m	—	—	—	—	Passengers.
Pyeongtaek International Ro-Ro Terminal (PIRT)						

Pyeongtaek—Berth Information						
Berth Name or Number	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 2 (East)	290m	—	50,000 dwt	—	—	Vehicles and ro-ro.
No. 3 (East)	290m	—	50,000 dwt	—	—	Vehicles and ro-ro.
Hyundai (Kia Mortors Corp) Terminal						
No. 4 (East)	240m	—	30,000 dwt	—	—	Vehicles.
No. 4 (East)	290m	—	50,000 dwt	—	—	Vehicles.
Pyeong Taek Container Terminal						
No, 6 (East)	280m	—	50,000 dwt	—	—	Containers.
No, 7 (East)	280m	—	50,000 dwt	—	—	Containers.
No, 8 (East)	240m	—	30,000 dwt	—	—	Containers.
No, 9 (East)	240m	—	30,000 dwt	—	—	Containers.
Pyeong Taek Terminal Operating (PTO) General						
No. 10 (East)	240m	—	30,000 dwt	—	—	General cargo.
No. 11 (East)	240m	—	30,000 dwt	—	—	General cargo.
No. 12 (East)	240m	—	30,000 dwt	—	—	General cargo.
Yoosung						
No. 13 (East)	240m	—	30,000 dwt			Steel products.
Pyeongtaek I Port (New Container Terminal)						
No. 14 (East)	240m	12.5m	30,000 dwt	—	—	Containers and general cargo.
No. 15 (East)	220m	12.5m	30,000 dwt	—	—	Containers and general cargo.
No. 16 (East)	240m	12.5m	30,000 dwt	—	—	Containers and general cargo.
Hanil Cement						
No. 1 (West)	240m	—	30,000 dwt	—	—	Cement.
Young Jin Global Co. Ltd.						
No. 2 (West)	240m	—	30,000 dwt	—	—	Cement.
Hyundia Cement						
No. 3 (West)	240m	—	30,000 dwt	—	—	Cement.
Pyeongtaek Dangjin Central Terminal						
No. 4 (West)	240m	—	30,000 dwt	—	—	General cargo.
No. 5 (West)	240m	—	30,000 dwt	—	—	General cargo.
Pyeongtaek Dangjin Port LTD Inc.						
No. 6 (West)	240m	—	30,000 dwt	—	—	Steel coils—Dongbu Steel.
No. 7 (West)	240m	—	30,000 dwt	—	—	Steel coils—Dongbu Steel.
Taeyong Grain Terminal						
No. 8	280m	—	50,000 dwt	—	—	Grain.
No. 9	280m	—	50,000 dwt	—	—	Grain.
Songak (Dangjin)						
No. 1	110m	—	5,000 dwt	—	—	Slag.
No. 2	110m	—	3,000 dwt	—	—	Tar.

Pyeongtaek—Berth Information						
Berth Name or Number	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 3	120m	—	5,000 dwt	—	—	Coal.
No. 4	390m	22.5m	200,000 dwt	—	—	Coal and ore.
No. 5	330m	20.0m	100,000 dwt	—	—	Coal and limestone.
No. 6	280m	14.0m	50,000 dwt	—	—	Steel.
No. 7	240m	12.0m	30,000 dwt	—	—	Steel.
No. 8	220m	—	—	—	—	Under construction.
No. 9	240m	14.0m	50,000 dwt	—	—	Scrap metal.
No. 10	240m	12.0m	30,000dwt	—	—	Scrap metal.
No. 11	230m	12.0m	30,000 dwt	—	—	Scrap metal.
No. 12	120m	—	—	—	—	Under construction.
No. 13	120m	—	—	—	—	Under construction.

LPG—LNG Berths (NE part of port)						
Dangjin Tank Terminal (Godae)						
No. 10	—	—	—	—	—	Liquid cargo (under construction).
Pyeong Taek						
SK Gas Pier	260m	15.0m	70,000 dwt	280m	14.0m	LPG.
SP Tank Terminal						
Jetty	245m	12.0m	30,000 dwt	187m	10.9m	Chemicals, clean products, and dirty products.
Korea Gas Corporation (KOGAS) Terminal						
No. 1	420m	14.0m	100,000 dwt	—	—	LNG. Maximum width of 50.0m.
No. 2	437m	14.0m	100,000 dwt	290m	11.5m	LNG. Maximum width of 50.0m.
KNOC Terminal						
No. 1	270m	15.0m	55,000 dwt	250m	13.5m	LPG. Maximum width of 35.5m.
No. 2	167m	5.6m	5,000 dwt	—	—	LPG.
Korean Western Power						
KOWEPO Berth	267m	—	20,000 dwt	—	—	Petroleum products.

P'yongt'aek VTS—Reporting Information		
Report Type	Reporting Time	Information Required
Entry Report	When crossing a reporting line.	1. Vessel name and call sign. 2. Destination. 3. ETA. 4. Cargo. 5. Last port of call.
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position berthed or anchored. 3. Arrival time.

P'yongt'aek VTS—Reporting Information		
Report Type	**Reporting Time**	**Information Required**
Shifting Report	10 minutes prior to shifting.	1. Vessel name and call sign. 2. Current Position. 3. Start time. 4. Intended position.
	When shifting.	1. Vessel name. 2. Position. 3. Completed time and position of berthing or anchoring.
	At completion of shifting.	1. Vessel name. 2. Completed time and position of berthing or anchoring.
Departure Report	10 minutes prior to departure.	1. Vessel name and call sign. 2. Intended position and ETD. 3. Destination.
	When departing from port.	1. Vessel name and call sign. 2. Position. 3. Departure time.
Leaving Report	When crossing a reporting line.	1. Vessel name. 2. Position.

Asan Man, with depths of 7.3 to 23m, extends about 8 miles WNW from Nomi Gak (37°00'N., 126°47'E.). Yong Am is a conspicuous pointed rock on the SW side of the channel in the vicinity of the naval base.

Tides—Currents

About 2 miles N of a line between P'ung Do and Imye Som the tidal currents run E and W, turning at about the times of high and LW at Inchon. The maximum velocity is 4 knots. The tidal currents from 1 to 4 miles E of Imye Som run SE and NW.

At Asan Myoji, the tidal currents run ESE and WNW, turning at about the times of HW and LW at Inchon. The maximum velocity is 3 knots. Within the harbor limits, the average tidal range is 6.4m at neaps to 9.2m at springs, and is reported to cause a tidal current with velocities of 0.5 to 4.0 knots between HW and LW.

Depths—Limitations

The port is approached through a channel, 17.6 miles in length, marked by buoys, and approximately 200m in width. Port facilities are concentrated between two sides of an estuary in Asan Man, with the Songak (Hyundai Steel), Godae, and Bugok Complexes located along the W shore and container and car terminals, the ferry terminal, and steel terminals located on the E shore, with a cement terminal, general cargo, and grain terminal located on a floating pier in the middle of the estuary. The LNG/LPG terminals are located NW of these facilities and will be encountered first. See the table titled **Pyeongtaek—Berth Information** for details of these berths.

Pyeongtaek is also home to a large naval base for the Republic of Korea's (ROK) Second Fleet. The ROK naval base consists of an E and W harbor, at the E end of the channel. The W harbor is for small patrol craft, while the E harbor can accommodate larger naval vessels with a maximum length of about 140m and drafts up to 8m. The naval harbor is protected by a breakwater with a light on the seaward end. The E harbor consists of a turning basin and six floating piers which accommodate the large tidal range. Depths alongside of up to 11m are reported in the E harbor.

Pilotage

Pilotage is compulsory from Lighted Buoy No. 1 to the port and is available 24 hours. For large and very large vessels carrying dangerous cargo, pilotage is recommended from Changanso.

The pilot boards in the following positions:

a. 37°03'22"N, 126°17'17"E—Jangan (Pyongtaek).

b. 37°07'42"N, 126°22'30"E—inclement weather at Jangan (Pyongtaek).

c. 37°08'14"N, 126°22'46"E—Pungdo.

d. 37°08'10"N, 126°29'53"E—Ipp'a Do.

e. 37°06'12"N, 126°36'00"E—Dondo.

The pilots can be contacted, as follows:

Pyeongtack Pilots	
Pyeongtack Pilots contact information	
Call sign	Pyongtaek Pilot
VHF	VHF channel 77
Telephone	82-31-683-0036 82-31-683-2691
Facsimile	82-31-683-2183
E-mail	ptpilot1@daum.net

Pyeongtack Pilots	
Web site	http://www.ptpilot.co.kr

Regulations

Vessel speed is restricted in four separate areas within the harbor as described below:

1. Area No. 1—vessels must not navigate at a speed exceeding 15 knots.
   a. 36°59'52"N, 126°42'01"E.
   b. 37°02'04"N, 126°44'49"E.
   c. 37°00'21"N, 126°46'21"E.
   d. 37°00'08"N, 126°46'08"E.
   e. 36°59'28"N, 126°47'10"E.
   f. 36°59'23"N, 126°47'38"E
   g. 36°58'56"N, 126°47'31"E.
   h. 36°58'37"N, 126°46'41"E.
2. Area No. 2—vessels must not navigate at a speed exceeding 12 knots.
   a. 36°59'38"N, 126°47'42"E.
   b. 36°58'56"N, 126°46'31"E.
   c. 36°58'51"N, 126°48'06"E.
   d. 36°58'07"N, 126°49'18"E.
   e. 36°58'22"N, 126°49'53"E.
3. Area No. 3—vessels must not navigate at a speed exceeding 8 knots.
   a. 37°00'22"N, 126°46'22"E.
   b. 37°00'08"N, 126°46'08"E.
   c. 36°59'28"N, 126°47'10"E.
   d. 36°59'23"N, 126°47'38"E.
   e. 36°59'38"N, 126°47'42"E.
4. Area No. 4—vessels must not navigate at a speed exceeding 8 knots.
   a. 36°59'22"N, 126°49'53"E.
   b. 36°58'07"N, 126°49'18"E.
   c. 36°58'00"N, 126°50'12"E.
   d. 36°58'13"N, 126°50'41"E.

Vessel Traffic Service

P'yongt'aek VTS is compulsory for the following vessels:

1. Vessels engaged in international voyages.
2. All vessels over 300 gt, with the exception of fishing vessels operating in the inner harbor.
3. Vessels carrying dangerous cargo.
4. Towing vessels engaged in towing of 200m or more in length.
5. Passenger vessels.
6. Fishing vessels over 45m in length.

The P'yongt'aek VTS is in effect on the waters bounded by lines joining the following positions:

a. 37°02'10"N, 126°33'30"E.
b. 37°04'41"N, 126°31'31"E.
c. 37°04'41"N, 126°29'49"E.
d. 37°06'29"N, 126°28'05"E.
e. 37°07'52"N, 126°27'13"E.
f. 37°05'57"N, 126°23'35"E
g. 37°02'34"N, 126°17'18"E.
h. 37°03'22"N, 126°16'22"E.
i. 37°10'18"N, 126°23'07"E.
j. 37°10'36"N, 126°23'24"E.
k. 37°10'36"N, 126°24'36"E.
l. 37°10'01"N, 126°24'59"E.
m. 37°10'18"N, 126°26'55"E.
n. 37°12'36"N, 126°26'48"E.
o. 37°11'44"N, 126°32'10"E.

Required reports to the VTS must be made on VHF channel 10 according to the information contained in the table titled **P'yongt'aek VTS—Reporting Information**.

Pyongtaek VTS can be contacted, as follows:

Pyeongtack VTS	
Pyeongtack VTS contact information	
Call sign	Pyongtaek VTS
VHF	VHF channels 10 and 16
Telephone	82-31-804-62750
Facsimile	82-31-805-37789

Anchorage

Anchorages for vessels less than 110,000 gt are located, as follows:

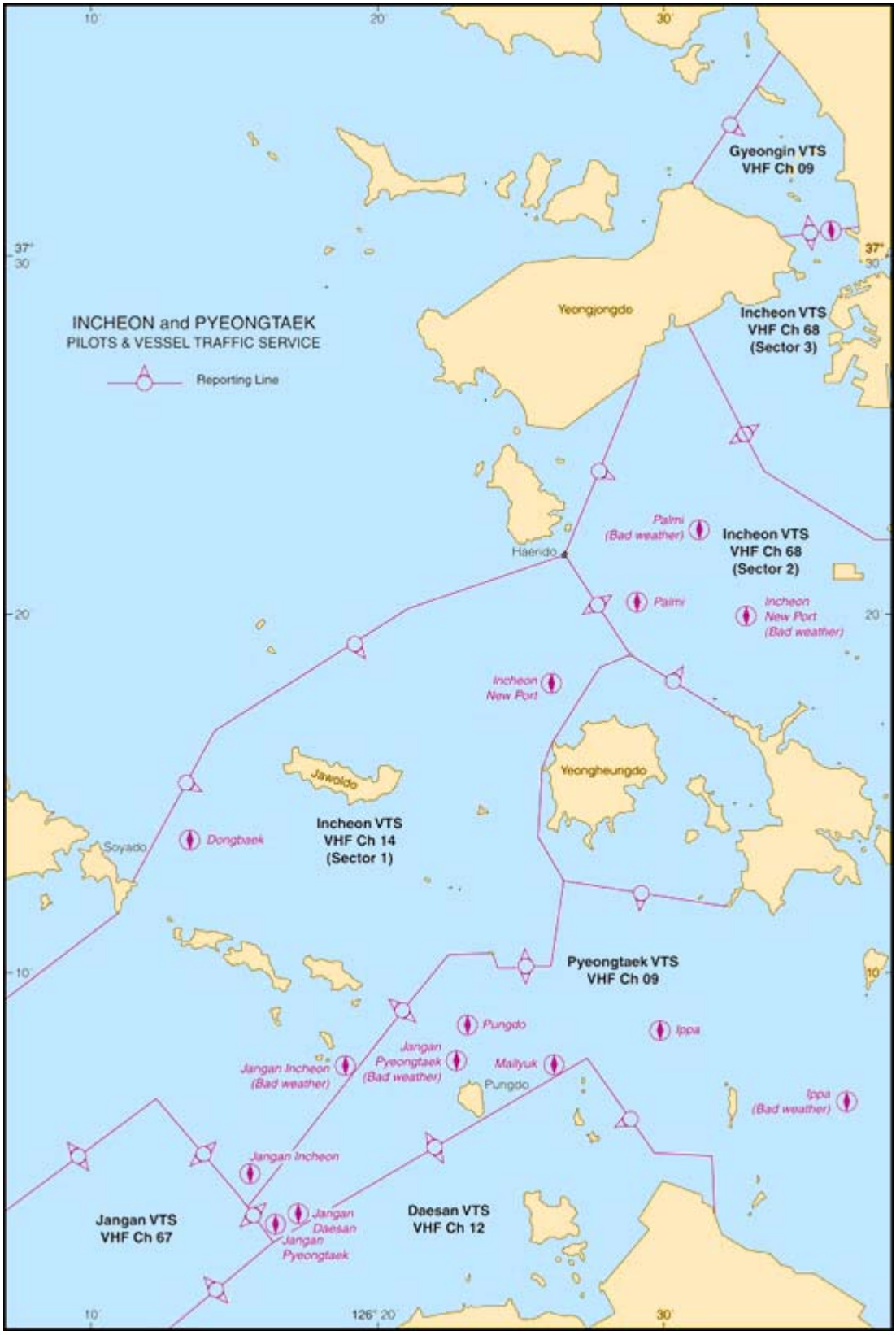
1. Anchorage No. 01 for vessels less than 110.000 tons, is centered in position 37°00'N, 126°45'E., in depths of 14 to 21m, mud and sand.
2. Ipp'ado Anchorage and Quarantine Area lies in position 37°08'06"N, 126°29'48"E., in depths of 19.3 to 27.5m, rock.
3. Anchorage No. 03, for vessels less than 110,000 tons., is centered in position 37°05'N, 126°39'E, in depths up to 17.4m, mud and sand.

Directions

Vessels proceeding to Asan Man by the N channel should pass about 1 mile N of P'ung Do, and steer an E course to a position about 1 mile N of Haksan So. Then alter course to 118° to a position about 1 mile S of Tori Do, when course is altered again to 135° for the 0.9m rock at the SW end of Pang Do. Pass midway between the NW end of Pang Do and the SE end of Chungang Ch'ont'oe and fairly close SW of the above 0.9m rock on a course of 144°. A sector light can be observed along this leg of the channel. Course can then be shaped for the pipeline berth, taking care to avoid the shoals 0.5 mile SSE and 1 mile SE of Pang Do.

The summit of Sungbong Do, with some large pine trees, is a good landmark when passing W of Bu Do (Pu Do); vessels should pass about midway between Bu Do and the small islet lying off the SE end of Sungbong Do. There is a rock, which has less than 9m, E of the small islet. The bottom between Bu Do and Baeg Am (Paek Am), about 5 miles NNE, is foul, making it dangerous for anchorage in fog.

When approaching Baeg Am from S, its light structure does not show up well by day because of the dark background. Care is also necessary when passing E of Baeg Am, because of the 7.3m shoal about 0.5 mile E.



Inchon/P'yongt'aek Vessel Traffic Service

When abreast the N end of Yong-hung Do (Yeongheung Do), course should be altered to the NE when the light structure on **Pukchangja So** (37°20'N., 126°29'E.) is in line with the light on Palmi Do (P'almido).

Between Yeongheung Do and Pukchangja So, vessels are liable to be set E by the tidal current during the rising tide, and W during the falling tide; the effects of the falling tide is the stronger of the two.

Caution

Although many of the previously-existing fish havens are reportedly being cleared (2012), caution should be exercised as the remainder of the fish havens may be encountered near the entrance to the channel leading to Pyeongtaek Hang.

An ODAS buoy, located in the center of the approach channel, is moored IN position 37°09.0'N, 126°22.5'E.

The Seohae Bridge extends from the W mainland (36°56'35"N., 126°47'40"E) across the island of Haengdam-do then to the E mainland, crossing the floating W pier (36°56'53"N., 126°49'50"E). The overhead clearance for this bridge is 45m between the W mainland and Haengdam-do and 62m between the floating W pier and the E mainland.

So Sudo (Seo Sudo)

3.22 So Sudo channel is designated as a channel for departing vessels of more than 500 tons from Inchon Hang (Incheon Hang). From about 0.5 mile S of Palmi Do (P'almido) at the junction of So Sudo and Tong Sudo, follow the outbound route of the traffic separation scheme in a general WSW, SW, and SSW direction to **Soya Do** (37°12'N., 126°11'E.) and to the end of the channel.

Tides—Currents.—The tidal currents in Tong Sudo and So Sudo run, in general, NE and SW, turning at about the times of high and LW at Inchon.

From observations made at spring tides, the currents in Tong Sudo attain a velocity of about 2 knots from 5 to 6 miles SW of Sanggongyong Do, 4 knots between Seungbong Do and Pung Do, and 3 knots off the W coast of Yeongheung Do.

Between Yeongheung Do and Daemueui Do (Taemuui Do), the tidal currents run E and W, turning at about the times of high and LW at Inchon, and attaining a velocity of 3 knots. In So Sudo, with observations at the same time, the currents attain a velocity of nearly 4 knots between Soya Do and Dongbaek Do (Tongbaek To), and 2 knots about 2 miles NW of Jaweol Do (Chawol Do). In the narrow part of So Sudo, the currents may attain a velocity of 6 knots at times, but velocities of up to 8 knots have been reported.

Caution.—A wreck is located in the S part of So Sudo in depths of 13.8m in position 37°05'53"N, 126°10'22"E. Several obstructions, with a least depth 5.6m, lie in the fairway in position 37°33'30"N, 126°34'56"E.

Inchon (Incheon) (37°28'N., 126°37'E.)

World Port Index No. 60320

3.23 Inchon (Incheon), on the E side of the entrance of Yom Ha, is the harbor for the capital city of Seoul, about 15 miles inland. The port, which consists of an outer and inner harbor, is well sheltered and ice-free.

Inchon Home Page
https://www.icpa.or.kr/eng/index.do

Winds—Weather

The prevailing winds are, as follows:

1. January until March—NNW.
2. April and May—WSW, prevailing gradually to the S.
3. June until August—Frequent S to SW seasonal winds.
4. September and October—East winds prevailing to the N alternate with W winds prevailing to the N.
5. November and December—NW.

Fog occurs with greatest frequency from April through August. The foggiest season is in June and July. Fog is mostly accompanied by rain. Around dawn outside Inchon, fog is particularly frequent, making the afternoon the best time for entering.

Tides—Currents

The tidal range in the outer harbor is considerable, reaching 10 to 11m at maximum. At LW it is impossible for large vessels to berth and they have to be anchored in the outer harbor for cargo handling. In order to reduce this inconvenience, the inner harbor is protected by lock facilities, making it a non-tidal basin allowing the berthing of ocean vessels up to 50,000 tons.

In the outer harbor, the flood current sets N toward the W end of Wolmi Do from about 30 minutes after LW to about 30 minutes after HW. The S current runs the rest of the time. Both currents have a maximum velocity of about 3 to 3.5 knots. For about 15 minutes at each turn the velocity is less than 0.25 knot.

Depths—Limitations

The port is approached from the SW, with two secondary fairways splitting off from the main fairway in the vicinity of position 37°20'N, 126°28'E.

The Coastal Passenger Ship Fairway, which is rather short and located W of the main fairway, has a least charted depth of 3.9m.

The other secondary channel (Fairway III) leads 7 miles generally E to the LNG/LPG berths (37°21'N, 126°37'E.) and has least charted depths of 12m, although silting may reduce this depth at times; the harbormaster should be consulted before entry is commenced. A rocky shoal, with a depth of 9.3m, lies close S of the fairway entrance.

The main fairway (Fairway I), marked by lighted buoys, leads to the outer and inner harbors and is divided into an Outbound (West—Seosudo) portion and an Inbound (East—Dongsudo) portion. The main fairway generally has depths greater than 10m, although there are some areas of lesser depths, with the shallowest being 8m in position 37°29'08"N, 126°35'37"E.

The entrance to the inner harbor (non-tidal basin) has depths

of 6.8m.

Inchon—Port Facilities						
Berth Name/No.	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
E1CT (E1Container Terminal)						
Container Berth	260m	12.0m	35,000 dwt	—	—	Containers.
Gimpo Container Terminal						
Container Berth	252m	—	—	—	—	Containers.
Hanjin Incheon Container Terminal (HICT)						
3	300m	16.0m	—	—	—	Containers.
4	250m	16.0m	—	—	—	Containers.
5	250m	16.0m	—	—	—	Containers.
Incheon Container Terminal						
Container Berth	500m	—	—	—	—	Containers.
Inner Harbor						
Pier 1-10	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-11	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-12	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-13	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-14	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-15	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-16	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-17	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-18	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-19	—	8.2-11.8m	50,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 1-19 (Geongyeong)	165m	8.2-11.8m	—	—	—	General cargo, steel, and fruit.
Pier 2-20	213m	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-21	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-22	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-23	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.

Inchon—Port Facilities						
Berth Name/No.	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Pier 2-24	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-25	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-26	—	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-27-1	172m	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 2-34-1	180m	8.7-11.2m	30,000dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-30	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-31	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-32	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-33	151m	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-34	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-35	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 3-36	—	8.3-11.4m	20,000 dwt	—	—	Breakbulk, general cargo, steel, logs, and feed.
Pier 4-40	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-41	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-42	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-43	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-42	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-43	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 4-44	—	11.0-11.5m	50,000 dwt	—	—	Containers.
Pier 5-50	—	12.5m	50,000 dwt	—	—	Ro-ro and general cargo.
Pier 5-51	—	12.5m	50,000 dwt	—	—	Ro-ro and general cargo.
Pier 5-52	—	12.5m	50,000 dwt	—	—	Ro-ro and general cargo.
Pier 5-53	—	12.5m	50,000 dwt	—	—	Ro-ro and general cargo.
Pier 6-60	270m	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust).
Pier 6-61	—	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust).
Pier 6-62	—	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust)
Pier 6-63	—	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust).

Inchon—Port Facilities						
Berth Name/No.	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Pier 6-64	—	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust).
Pier 6-65	203m	7.5-12.5	50,000 dwt	—	—	Breakbulk and non-pollutant cargo (no dust).
Pier 7-70	237m	4.0-4.3m	50,000 dwt	—	—	Grain.
Pier 7-71	237m	4.0-4.3m	50,000 dwt	—	—	Grain.
Pier 7-72	237m	4.0-4.3m	50,000 dwt	—	—	Grain.
Pier 7-73	237m	4.0-4.3m	50,000 dwt	—	—	Grain.
Pier 8-81	—	11.5m	50,000 dwt	—	—	Timber products and pulp.
Pier 8-82	—	11.5m	50,000 dwt	—	—	Timber products and pulp.
Pier 8-83	—	11.5m	50,000 dwt	—	—	Timber products and pulp.
Pier 8-84	—	11.5m	50,000 dwt	—	—	Timber products and pulp.
International Container Terminal (ITC)						
No. 1	300m	14.0m	40,000 dwt	—	—	Containers.
No. 2	300m	14.0m	40,000 dwt	—	—	Containers.
No. 3	300m	14.0m	40,000 dwt	—	—	Containers.
International Passenger Terminal						
Pier 1	224m	7.5m	10,000 dwt	—	—	Cruise ships.
Pier 2	243m	9.5m	15,000 dwt	—	—	Cruise ships.
Pier 3	220m	7.5m	15,000 dwt	—	—	Cruise ships.
Pier 4	184m	7.5m	10,000 dwt	—	—	Passengers.
New International Passenger Terminal						
Car Ferry Pier (North)	—	—	30,000 dwt	—	—	Under construction.
Car Ferry Pier (South)	—	—	30,000 dwt	—	—	Under construction.
Car Ferry Pier (Inner)	—	—	30,000 dwt	—	—	Under construction.
Car Ferry Pier (Outer)	430m	—	50,000 dwt	—	—	Under construction.
Cruise Wharf	430m	—	150,000 dwt	—	—	Under construction.
North Harbor						
N11 Dongbu Multipurpose	280m	14.0m	50,000 dwt	—	—	Timber and multipurpose.
N12 Dongbu Multipurpose	280m	14.0m	50,000 dwt	—	—	Timber and multipurpose.
N13 Dongbu Multipurpose	280m	14.0m	50,000 dwt	—	—	Timber and multipurpose.
N14 Dongbu Heavy Industry.	280m	14.0m	50,000 dwt	—	—	Timber and general cargo.
N15 Dongbu Heavy Industry.	280m	14.0m	50,000 dwt	—	—	Timber and general cargo.
N 16 Hanjin Incheon	210m	11.0m	20,000 dwt	—	—	General cargo.

Inchon—Port Facilities						
Berth Name/No.	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
N 22 CJ Korea Express Wharf	210m	11.0m	20,000 dwt	—	—	General cargo.
N 31North Port Multi-purpose.	288m	11.0m	20,000 dwt	—	—	General cargo.
N 41 Terminal Operations	245m	11.0m	20,000 dwt	—	—	General cargo.
N 42 North Terminal Operations.	245m	11.0m	20,000 dwt	—	—	General cargo.
N 43 North Terminal Operations	200m	11.0m	20,000 dwt	—	—	General cargo.
N 44	225m	11.0m	20,000 dwt	—	—	Timber.
N 45	225m	11.0m	20,000 dwt	—	—	Timber.
N 51 Hyndai	280m	11.0m	20,000 dwt	—	—	Steel.
N 52 Hyndai	280m	11.0m	20,000 dwt	—	—	Steel.
N 53 Dongkuk	270m	14.0m	50,000 dwt	—	—	Iron ore and steel.
SICT (Sunkwang Incheon Container Terminal)						
Berth	407m	11.0m	18,000 dwt			Closed.
South Harbor						
Dongyang Cement	188m	9.0m	10,000 dwt	—	—	Cement.
Hanil Daewoo Cement Pier	120m	—	5,000 dwt	—	—	Cement.
Korea Express Quay (East)	—	7.5m	5,000 dwt	—	—	General cargo and containers.
Korea Express Quay (West)	—	7.5m	5,000 dwt	—	—	General cargo and containers.
RH Cement	188m	9.0m	10,000 dwt	—	—	Cement.
South Port Sand Quay 1	235m	4.0m	3,000 dwt	—	—	Sand.
North Port Sand Quay 2	70m	4.0m	3,000 dwt	—	—	Sand.
Sangyong Cement	186m	10.0m	10,000 dwt	—	—	Cement.
Young Jin Pier	171m	4.0m	10,000 dwt	—	—	Containers, general cargo, and timber products.
Sunkwang New Container Terminal (SNCT)—Phase 2						
No. 6	300m	16.0m	18,000 dwt	—	—	Containers.
No. 7	250m	16.0m	—	—	—	Containers.
No. 8	250m	16.0m	—	—	—	Containers.
(Phase 3)	—	—	—	—	—	Developing.
Youngheung Island Power Station						
T Jetty (N)	320m	—	—	—	—	Coal.
T Jetty (S)	320m	—	—	—	—	Coal.
L Jetty	240m	—	100,000 dwt	—	—	Dirty products and coal.
L Jetty	260m	—	—	—	—	—

Inchon—Port Facilities						
Berth Name/No.	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
South Harbor						
Joyang Ltd.	40m	7.4m	5,000 dwt	—	—	Ocean waste
LNG/LPG Terminal						
SK Energy Jetty No. 1	78m	11.0m	40,000 dwt	—	—	Crude oil and chemicals.
SK Energy Jetty No. 2	52m	—	5,000 dwt	125m	6.4m	LPG.
Kogas No. 1	420m	16.0m	75,000 dwt	290m	12.5m	LNG. Maximum beam of 50m.
Kogas No. 2	452m	16.0m	127,000 dwt	350m	—	LNG. Maximum beam of 55m.
E1 LPG Jetty	338m	14.0m	55,000 dwt	260m	7.0m	LPG.
LG Caltex Honam CBM	—	—	30,000 dwt	180m	12.6m	—
LG Caltex Honam Dolphin Berth	165m	8.0m	6,000 tons	110m	7.0m	LPG.
South Oil Jetty No. 1	226m	—	30,000 dwt	230m	10.5m	Clean and dirty products.
South Oil Jetty No. 2	226m	—	3,000 dwt	150m	—	LPG.
Outer Harbor						
Outer—North Port—Tanker Berths						
SK Refinery Jetty No. 1	32m	16.0m	75,000 dwt	230m	—	Clea products, dirty products, crude oil, and chemicals.
SK Refinery Jetty No. 2	220m	14.0m	60,000 dwt	210m	—	Clean products and chemicals.
SK Refinery Jetty No. 3	388m	15.0m	100,000 dwt	280m	13.38m	Clean products, crude oil, and chemicals.
KA (Korea Airlines)	315m	17.0m	50,000 dwt	350m	—	Aviation fuel. Dolphin berth.
Kepco Jetty	235m	—	20,000 dwt	175m	8.5m	Clean products.
Hanil Tank Terminal Chemical Berth	29m	7.0m	3,000 dwt	—	—	Chemical products.

The outer harbor has most of the loading and unloading facilities for the port and is divided into South Harbor, Coastal Harbor, the International Passenger Quay, the International Container Terminal, and North Port. The Inner Harbor (non-tidal basin protected by locks) has eight berths.

The Inchon Grand Bridge, which crosses the main fairway in vicinity of position 37°24'49"N, 126°34'01"E, is South Korea's longest cable-stayed bridge (about 11.5 miles) and connects the mainland to the island of Yongjong Do (Yeongjong Do). It is recommended that vessels pass under the center section of the bridge, which is marked by a series of lighted port and starboard markers, for a vertical clearance of 66m. A series of special yellow markers indicates the positions of all the bridge's support structures. The vertical clearance for the E and W spans is 59m.

The Yongjong Bridge spans the waters N of the North Port area between the mainland and Yongjong Do (Yeongjong Do). This bridge has a vertical clearance of 35m.

The inner harbor has been built upon reclaimed land between the mainland coast and the former islands of **Wolmi Do** (37°28'N., 126°36'E.), on the N side of the lock gates, and Sowolmi Do, on the S side. Entrance to the inner harbor is by way of two parallel locks. The larger lock has a total length of 381m and are 36m wide, accommodating vessels up to a maximum 50,000 tons. The secondary lock, which is for vessels 10,000 tons or less, is about 288m long and 22.5m wide. The two locks are situated between Wolmi do and Sowolmi do. The lock control tower, painted red and white in bands, stands between the locks.

Inchon New Port has opened a new LNG terminal comprised of three berths, on two T-headed jetties, with minimum depths of 10m alongside. A new container wharf opened (2016) in the Inchon New Port area, with minimum depths of 12.6m alongside.

For details of all the berths in the older part of Inchon, including the LNG/LPG terminal, see the table titled **Inchon—Port Facilities**.

Aspect

Yeongjong Do lies on the W side of the entrance of Yom Ha and, together with the extensive mud flats that are extending

from it, forms the W side of the outer harbor.

Baegun San (37°29'N., 126°31'E.), the summit of the island, is surmounted by a conspicuous clump of trees. Sinbul Do, about 0.4 mile SW of Yeongjong Do, has two summits of about equal height and a pale yellow color.

The Lock Control Tower is conspicuous. A white tower, 7.6m high, stands about 280m NW of the lock control tower. A similar tower is located about 210m WSW of the same lock control tower.

There are numerous conspicuous black and red banded chimneys, located about 3 miles SE of the lock control tower.

Jagyag Do (Chagyak To), E of Yeongjong Do, lies on the S part of a drying mud bank, and is easily identified because it is more densely wooded than others. A light is situated on Jagyag Do (Chagyak To).

The W side of the outer harbor is bounded by islands and mud flats which spread SW. They connect with a shallow bank extending NE from **Tokchok To (Deogjeog Do)** (37°14'N., 126°07'E.), thus forming the W boundary of the port approach.

From the SW, inbound and outbound routes, about 20 to 22 miles in length, lead through the island studded approach to the S limit of the harbor at **Palmi Do** (P'almido) (37°21'N., 126°31'E.).

Pilotage

Pilotage is compulsory from Palmi Do to Inchon and is recommended from Janganseo (Changan So) to Palmi Do.

Pilots board in the following positions:

a. 37°20'22"N, 126°28'18"E. (Palmi Do).
b. 37°22'40"N, 126°32'23"E. (Palmi Do—bad weather).
c. 37°13'50"N, 126°13'05"E. (Dongbaek Do).
d. 37°04'40"N, 126°16'05"E. (Jangan—Inchon).
e. 37°06'40"N, 126°19'05"E. (Jangan—bad weather).
f. 37°07'39"N, 126°26'41"E. (Mallyuk To).
g. 37°30'36"N, 126°35'56"E. (Gyeongin).
h. 37°18'06"N, 126°25'54"E. (Inchon New Port).
i. 37°19'47"N, 126°33'00"E. (Inchon NP—bad weather).

The pilots can be contacted, as follows:

Incheon Pilots	
Incheon Pilots contact information	
Call sign	Incheon Pilots
VHF	VHF channels 8 and 16 (Janganseo)
	VHF channel 13 and 14 (Palmido)
Telephone	82-32-883-8113
Facsimile	82-32-884-7091
E-mail	agi10042@hanmail.net

Regulations

A Traffic Separation Scheme (TSS) has been established by the Government of Korea for the approaches to Inchon, including the Inner Harbor basin; these are best seen on the chart. Although this TSS is not IMO approved, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collision at Sea (1972) from which the Korean authorities advise the principles for the use of the TSS have been derived.

During fog or port congestion vessels are instructed to anchor off the outer pilot boarding position SW of Changan So Light. Vessels wait at the anchorage for the port to reopen or await the pilot to take the vessel to a designated anchorage for clearance.

There is a general speed limit of 12 knots from the vicinity of 1 mile S of the Inchon Grand Bridge until the Yongjong Bridge (N of North Port) with the following exceptions:

In addition to the overall speed limit of 12 knots, certain vessels approaching the Inchon Grand Bridge should reduce their speed, as follows:

1. Vessels of more than 100,000 gt should reduce their speed to less than 7 knots
2. Vessels of less than 50,000 gt should reduce their speed to less than 10 knots.

All vessels approaching the Yeongmuseon wharf and dock areas should reduce their speed to less than 8 knots.

Vessel Traffic Service

Inchon Vessel Traffic Service (VTS) is in operation in the approaches to and within the Inchon harbor limits, and is divided into three sectors separated by Reporting Lines, as follows:

1. **Sector 1:**
   a. 37°21'41"N, 126°26'26"E.
   b. 37°18'56"N, 126°28'50"E.
   c. 37°18'30"N, 126°27'31"E.
   d. 37°16'28"N, 126°25'58"E.
   e. 37°15'41"N, 126°25'41"E.
   f. 37°14'06"N, 126°25'39"E.
   g. 37°12'36"N, 126°26'48"E.
   h. 37°10'18"N, 126°26'55"E.
   i. 37°10'01"N, 126°24'59"E.
   j. 37°10'36"N, 126°24'36"E.
   k. 37°10'36"N, 126°23'24"E.
   l. 37°03'24"N, 126°16'24"E.
   m. 37°06'42"N, 126°12'30"E.
   n. 37°00'46"N, 126°05'05"E.
   o. 37°05'01"N, 126°04'12"E.
   p. 37°11'36"N, 126°11'00"E.
   q. 37°16'40"N, 126°14'14"E.
   r. 37°20'06"N, 126°19'59"E.
   s. 37°21'41"N, 126°26'26"E.
2. **Sector 2:**
   a. 37°17'19"N, 126°31'59"E.
   b. 37°18'56"N, 126°28'50"E.
   c. 37°21'41"N, 126°26'26"E.
   d. 37°26'47"N, 126°29'11"E.
   e. 37°28'05"N, 126°30'53"E.
   f. 37°24'22"N, 126°36'36"E.
3. **Sector 3:**
   a. 37°30'16"N, 126°38'22"E.
   b. 37°30'36"N, 126°36'08"E.
   c. 37°30'36"N, 126°34'05"E.
   d. 37°28'05"N, 126°30'53"E.

e. 37°24'22"N, 126°36'36"E.

Inchon VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Advance Notice of Entry	1. When passing the position of 2 miles away from the Jang-An-SeoBut. 2. Inbound vessels not coming through Jang-An-Seo shall report vessel name and time when entering the VTS area.	1. Vessel name and call sign. 2. ETA at the Pal-Mi pilot station or at the inbound waiting anchorage No. 1). 3. Destination (berth or anchorage).
Arrival Report	When berthing or anchoring.	1. Vessel name and call sign. 2. Position. 3. Arrival time.
Advance Notice of Shifting	Ten (10) minutes prior to vessel movement.	1. Vessel name and call sign. 2. Current position. 3. Intended position.
Shifting Report	When shifting berths within the harbor limit.	1. Vessel name and call sign. 2. Time of departure from berth or anchor clear from anchorage.
Advance Notice of Departure	Ten (10) minutes prior to departure.	1. Vessel name and call sign. 2. Berth or anchorage name. 3. Position. 4. Next port of call.
Departure Report	Time of departure from Inchon port.	1. Vessel name and call sign. 2. Departure time. 3. Position. 4. Next port of call.

Participation in the VTS is mandatory for the following types of vessels:

1. All ocean-going vessels.
2. Vessels over 300 gt, except coastal fishing vessels operating in the inner harbor.
3. Vessels carrying dangerous or hazardous cargo.
4. Towing vessels engaged in towing or pushing operations, 200m or more in length.
5. Passenger vessels.
6. Fishing vessels over 45m in length.

Vessels are required to submit a preliminary notice of arrival or departure via agents to Inchon VTS 12 hours to 24 hours before entering or departing port.

Vessels must maintain a continuous listening watch on VHF channels 14, 16, and 68 at all time when within the VTS area.

Reporting requirements for vessels approaching and sailing within the VTS area are listed in the table titled **Inchon VTS—Reporting Requirements.**

Inchon VTS can be contacted, as follows:

1. Call sign:Incheon VTS Center
2. VHF: VHF channels 6 and 16 (broadcast)
   VHF channel 14 (Sector 1)
   VHF channel 68 (Sector 2)
3. Telephone: 82-32-8850025
4. Facsimile: 82-32-8850024

Vessels transiting the Yom Ha River and proceeding N of Inchon should report to the Gyeongin VTS, which is in effect in the area bounded by lines joining the following positions:

a. 37°35'36"N, 126°34'08"E.
b. 37°34'44"N, 126°33'20"E.
c. 37°32'04"N, 126°30'53"E.
d. 37°30'36"N, 126°34'05"E.
e. 37°30'36"N, 126°36'08"E.

Gyeongin VTS may be contacted on VHF channel 9 around the clock.

Signals

Weather signals are displayed from a yellow framework tower on the N side of the entrance of the tidal basin. There are four signal stations in the vicinity of the locks. The light signals used are listed in the accompanying table titled **Inchon—Signals**.

Inchon—Signals	
Signal	**Meaning**
At the Control Tower	
White letter I	Inbound vessels
White letter O	Outbound vessels
White letter X	Stop
At the Signal Stations	
GG	Enter
RR	Stop

Inchon—Signals	
Signal	**Meaning**
GR	Wait
GG W	Enter left lock
GG W	Enter right lock
Both Sides of the Lock	
Lights at 10m intervals. The alignment of the locks is approximately 103°.	Berthing position

Anchorage

The outer harbor has 24 numbered anchorages, lying E and W of the main approach fairway and W of Fairway 1, as follows

1. Anchorages W1 and W5 are W of the main fairway below the Inchon Grand Bridge; Anchorages W9 to W17 above the bridge. The anchorages have depths from 7 to 12m and are capable of accommodating vessels up to 50,000 tons. A wreck lies W of Anchorage W14. An explosives anchorage (not numbered) lies NNE of Anchorage W15.
2. The Quarantine Anchorage (W16), centered on position 37°31'14"N, 126°35'26"E, lies to the N of Jagyakdo and W of the buoyed channel. Anchorage W17 lies 0.25 mile N of Anchorage W16.
3. Anchorages E1 to E6, with depths from 7 to 16m, lie to the E of the main fairway below the bridge and are capable of accommodating vessels up to 50,000 tons.
4. Anchorages A3 to A6 are located N of the quarantine anchorage (W16) and E of the E numbered anchorages.
5. Anchorage A9 is N of the Inchon Grand Bridge and is designated as a recommended anchorage.

Caution

A dangerous wreck, marked by buoys, lies near the SE limit of Inbound Anchorage No. 1.

A dangerous wreck, with a depth of 13.3m, lies at the E point of Anchorage Area No. W-14.

Another wreck lies close NW of Inbound Anchorage No. 2 in position 37°05'53"N, 126°10'22"E, in depths of 13.8m.

A dangerous wreck lies less than 1 mile W of Anchorage Area No. W5 in position 37°24'10"N, 126°31'11"E in depths of 7m.

Inchon to Youp'yong Yolto

3.24 Yonp'yong Yolto (Yeonpyeong) (37°40'N., 125°42'E.), about 44 miles WNW of Inchon, lies on the SE side of the approach to Haeju Man. This area is under the control of the United Nations. The group consists of two islands and several islets and rocks. Soyonp'yong Do, the S island, has a very conspicuous summit. A light is situated on the SE point of the island. Taeyonp'yong Do, the larger of the two islands, has a level summit.

Yong'yong-ni, on the SE side of Taeyonp'yong Do, stands at the head of Yonp'yong-ni Hang, a shallow fishing harbor. Two radio towers, painted in red and white bands, stand near the shore at the village.

Tides—Currents.—About 3 miles S of Soyonp'yong Do, the tidal currents turn counter clockwise in 12 hours and attain their maximum velocity from 2.5 to 3.5 hours after HW at Inchon. Observations made during spring tides show that the current runs S at LW at Inchon with a velocity of nearly 1.5 knots, E at 3 hours 30 minutes after LW with a velocity of 2 knots, NNW at HW with a velocity of nearly 1 knot, and W at 2 hours 30 minutes after HW with a velocity of nearly 2 knots.

Caution.—A restricted area, reserved for military operations lies approximately 10 miles SW of Yonp'yong Yolto and is delimited by the following positions;

a. 37°25'N, 125°39'E.
b. 37°34'N, 125°30'E
c. 37°33'N, 125°30'E
d. 37°25'N, 125°39'E

U-do (37°36'N., 125°59'E.), 12 miles E of Yonp'yong Yolto, lies within a restricted area under the control of the United Nations. An area prohibited to navigation is delimited by the following positions:

a. 37°33'N, 126°00'E.
b. 37°33'N, 126°03'E
c. 37°30'N, 126°03'E
d. 37°30'N, 126°00'E

Haeju Man

3.25 Haeju Man (37°45'N., 125°40'E.) is an extensive bay, encumbered by shoals, extending about 20 miles N from its entrance NW of Yonp'yong Yolto. Haeju Hang, at the head of the bay, is the port for Haeju about 3 miles farther N. The bay is entered by three channels which unite N of **Sosuap To** (37°50'N., 125°45'E.).

So Gu, the W passage, is entered between Hari Sho and Yuk To, about 0.75 mile NW. A light is situated on Hari Sho. The channel, from 0.5 to nearly 1 mile wide, leads NE between the partly drying banks extending from the W shore and the narrow shoal about 2.5 miles NE of Hari Sho. There are depths of about 14.6m in So Gu, except at its N end, about 1 mile N of Wa Am, where there are depths of from 5.8 to 7.6m. A light is situated off the NE end of Wa Am.

Chungang Sudo, the middle passage, leads NE between the above narrow shoal NE of Hari Sho and the shoal between Changjae Do and Sosuap To, and then between Sosuap To and Wa Am, about mile WNW. This channel has depths of more than 9.1m in the fairway at its N end, where the tidal currents may exceed a velocity of 3 knots at spring tides.

Tong Gu, the E passage, is entered between **Kal To** (37°43'N., 125°39'E.) and Sok To, about 1 mile ESE; the former islet has two peaks, the higher one of which is sharp and conspicuous. This channel, which leads E of Taesuap To, is suitable for small vessels only. The summit of Taesuap To appears as a whales back when seen from S, and has a small group of trees on it.

Tides—Currents.—In Haeju Man the flood tidal current sets toward the head of the bay, and the ebb sets in the opposite direc-

tion. The turn occurs at about high and LW. In the W entrance the maximum velocities are about 2 knots on the flood and 4 knots on the ebb. In the E entrance the velocity is about 2 knots. Within the bay, a velocity of about 2 knots is to be expected between Taesuap To and Hyongje Do, about 7 miles N.

Regulations.—Haeju Hang is approached through a traffic separation scheme (TSS) established by the government of North Korea. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

3.26 Yongdangp'o (38°00'N., 125°42'E.) (World Port Index No. 60310), the port for Haeju, stands on the N side of Haeju Hang at the N end of Haeju Man. The main export is cement.

Ice.—The harbor, reported to be entirely frozen over from January to March, is only about 0.25 mile wide.

Tides—Currents.—The tidal currents in the harbor are reported to attain a maximum velocity of about 4 knots. The winds are variable making great caution necessary at night. Storm signals are displayed.

Depths—Limitations.—The harbor is approached through So Gu, the W passage through Haeju Man and is protected by breakwaters. Lights are shown from the breakwater heads. There is a quay, 1,000m in length with reported depths of 7m alongside in the harbor.

Pilotage.—Pilotage is compulsory. ETA should be sent 10, 3, 2, and one day in advance. The port can be contacted via VHF channel 16. Pilots will board in vicinity of 37°41.0'N, 125°34.0'E.

Anchorage.—Anchorage can be obtained in the vicinity of the pilot boarding area in depths of 20 to 22m.

Anchorage can also be obtained, in 6.7 to 9.1m, rocky bottom, S of Chong Do, at single anchor with plenty of chain out. Vessels must anchor in mid-channel, where the tidal currents are very strong, because the space is so restricted.

Anchorage can also be obtained S of Kyo Do, in an area centered at 37°45'33"N, 125°39'37"E., in depths of 22m. This area can only be approached from the S.

Regulations.—The Korean Navy has advised vessels to keep the following routes because of special circumstances that exist between North Korea and South Korea.

Vessels en route between a South Korean port and a Chinese port should navigate near the following trackline:

a. 37°03'N, 125°40'E.
b. 37°29'N, 124°43'E.
c. 38°00'N, 124°18'E.

Vessels en route between Haeju and a Chinese port should navigate near the trackline:

a. 37°42'N, 125°34'E.
b. 37°29'N, 125°23'E.
c. 37°29'N, 124°43'E.
d. 38°00'N, 124°18'E.

Vessels en route between Haeju and a South Korean port should navigate near the following trackline:

a. 37°42'N, 125°34'E.
b. 37°33'N, 125°32'E.
c. 37°03'N, 125°40'E.

Vessels seeking shelter from heavy weather should keep to the S of Soch'ong Do, and avoid the areas around Paengnyong Do and Taech'ong Do.

Caution.—Navigation in Haeju Man is seasonal. Aids to navigation may be withdrawn or extinguished in winter.

3.27 Sunwido Myoji (37°45'N., 125°20'E.) lies between the E side of Sunwi Do and the W side of the peninsula which terminates S in Tungsan Got. The channel formed is the S part of Kangnyong Gang which continues another 13 miles NE. Ong Do, and the drying shoal about 1 mile S, lying about 5 miles SW of Tungsan Got, are the outermost dangers in the vicinity.

Kari Got, the SW extremity of Sunwi Do, is a precipitous headland with a conspicuous peak on it.

In the entrance of Sunwido Myoji scattered reefs and shoals, many of which dry, reduce the approach to two narrow channels, the W one is preferred. Depths in the passage E of the NE side of Sunwi Do vary from 12.8 to 27.4m. To the N of Sunwi Do the depths are from 12.8 to 18.3m over a width not less than mile. Good anchorage is available off Yonghodo-ri, at the SE end of **Yongwi Do** (37°47'N., 125°20'E.), in 11 to 14.6m, sand and mud.

Vessels entering Sunwido Myoji should exercise extreme caution due to the strong, irregular tidal currents and the banks which constantly shift their positions. The E approach can be made between Un So and Ong Am, but Apchon, lying in mid channel must be avoided. The W channel, the one generally used, lies between Sunwi Do and Yohyong Ch'lloe. From E, a vessel should pass S of Ong Do and the shoal S of it, or NE of Ong Do, steering for the SW extremity of Sunwi Do. When the hillock on P'ogi Got bears 062°, course should be altered to that heading. This course leads about 0.15 mile SE of Suya So. When Tungsan Got bears 132°, course should be altered to 034°, proceeding to the anchorage in mid-channel.

Taech'ong Kundo

3.28 Taech'ong Kundo, lying 8 to 13 miles off the Korean coast, consists of three islands and several islets, rocks and shoals. The group is frequented each year by fishing vessels. **Soch'ong Do** (37°46'N., 124°45'E.), the S island of the group, is reported to afford the only shelter in the vicinity during the N gales of winter. The SE extremity of the islands consists of white cliffs.

A day signal station, the mast of which is conspicuous, is close WNW of the light structure on Soch'ong Do.

Soch'ong Ju, about 2 miles ESE of Soch'ong Do, is the outermost danger surrounding the island.

Taech'ong Do, about 2 miles NW of Soch'ong Do, appears conical when seen from W. The coasts are mostly cliffy, with the middle part of the S coast precipitous and the NE coast made up of a white sandy beach.

Anchorage can be obtained in the small bay with a shingle beach on the E side of the island, in 10.4 to 16.5m, sand, with the E extremity of Paengnyong Do in line with the NE end of Taech'ong Do.

Kapchug Am, about 1 mile W of the S end of Taech'ong Do, is high and precipitous.

Paengnyong Do (37°57'N., 124°40'E.), the largest of the Taech'ong Kundo, lies about 4 miles N of Taech'ong Do. The nearly flat summit of the island can be easily distinguished

from SE. Yonggiwon San, the E extremity of the island, rises precipitously to an isolated hill. A light is situated on the E end of Paengnyong Do. Yon Bong consists of two conspicuous rocks lying close together between Paengnyong Do and Taech'ong Do; this vicinity is encumbered with shoals extending from each island.

The passage, between Taech'ong Kundo and the mainland E, leads between Soch'ong Ju and Paengnyong Ju on the W, and Kirin Ju and Chung Ju on the E. When a sea makes up, Chung Ju is marked by breakers and can be easily located, but under ordinary conditions it is not easily located because the water is uniformly discolored.

Tides—Currents.—In the vicinity of Taech'ong Kundo the tidal currents generally set N and S, with a maximum velocity of 3 to 4 knots. The turn of the currents occurs about 3 hours after high and LW at Inchon. It should be remembered that the tidal currents may be influenced by the direction and force of recent winds.

Approaches to Taedong Gang

3.29 **Changsan Got** (38°08'N., 124°39'E.), 32 miles SSW of the entrance of Taedong Gang, is the most prominent headland on the W coast of Korea. The peninsula rises to T'aesan Bong, about 5 miles E. A large rock lies close off Changsan Got. In the vicinity of this headland, the tidal currents set N with the rising tide and S with the falling tide; a velocity of 5 to 7 knots may be attained.

The coast NE, for a distance of about 16 miles to Oryuji Gi, consists of a bight with sandy beaches and backed by hilly ranges a few miles inland. Within Oryuji Gi, the land rises steeply to Kwangsok San, and then continues hilly for another 4 miles NE. Continuing to Naengjong Dong, about 9 miles farther N, the land is low.

Chang Ju, with depths of less than 3.7m, extends about 18 miles N from a position about 4 miles NNE of Changsan Got, and forms the W side of the approach to Ch'odo Sudo.

Ch'o Do (38°32'N., 124°50'E.), the large island lying on the SW side of the main entrance of Taedong Gang, serves as a good landmark for the river mouth. A prohibited entry area, with a 2 mile radius, covers an underwater obstruction that lies 13 miles W of Ch'o Do.

An area dangerous to navigation, with a radius of 13 miles centered on position 38°37.5'N, 124°04.9'E, lies about 32 miles W of Ch'o Do.

So Do (38°32.9'N., 124°45.9'E.) lying W of Ch'o Do, is an islet 89m high with a light is shown from its summit. Tok To, another islet, lies close W to the NW point of Ch'o Do.

Songmun Am (38°30.5'N., 124°54.5'E.), an islet close E of Ch'o Do from which a light is shown, marks the 4 mile stretch of Nae Ju shoal, with a least depth of 0.4m. Ch'odo Sudo lies between Ch'o Do and the mainland E.

Pansong Ch'o, a rock with a depth of 1.8m, lies 2 miles NE of Songmun Am Light.

Sok To (Soku To) (38°39'N., 125°00'E.), about 9 miles NE of Ch'o Do, lies off the S side of the entrance of Taedong Gang, and, together with Chamae Do (Shimai To) lying close NW, lie on the S side of the main entrance channel of the river.

The People's Republic of Korean Regulations require foreign vessels to send their estimated arrival times at the pilot station 5 days, 24 hours, 12 hours, and 4 hours in advance; the arrival draft must be included in the ETA message. It was reported that foreign vessels are required to keep 15 miles off the Korean coast until near approach to the port-of-call in the People's Republic of Korea; vessels are also to report the position and speed prior to and on crossing the latitude of 37°N.

Pilotage.—Pilotage is available and compulsory. Pilots board at No. 1 Pilot Station and Waiting Area No. 1 for foreign vessels, centered at position 38°41.0'N, 125°02.5'E during daylight hours only. Health and Custom officials board together with the pilot.

When the estuary is covered in pack ice, during January and February, the pilots board inward at Waiting Area No. 2 for foreign vessels, centered at position 38°41.0'N, 125°02.5'E.

Regulations.—A TSS has been established in the approaches to Taedong Gang. This scheme is not IMO-adopted and it is not known what regulations are in force; mariners are advised to assume that Rule 10 of the 72 COLREGS applies.

Taedong Gang

3.30 Taedong Gang (Daido Ko) flows in a general W direction into the Yellow Sea through a large estuary encumbered by islands, banks, and shoals. The river is more discolored than any other in Korea, and with the ebb current the dirty water is carried far out to sea.

The entrance channel leads N of **Chamae Do** (Shimai To) (38°41'N., 124°59'E.) and Sok (Soku) To, SW of **Chiri To** (38°42'N., 125°08'E.), and then through P'ido Sudo (Pito Suido). A light is shown from Pido (38°41'N., 125°11'E.).

Caution.—Vessels must pass through a lock in the Western Sea Barrage located S of Pido to reach Nampo. Vessels with a maximum length of 210m, a maximum beam of 30m, and a maximum draft of 10.5m can transit the lock. Transits take place during daylight hours only.

Nampo—Berth Information

Berth Name or Number	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Hwanghae Steel Complex						
General cargo	—	—	—	—	—	Breakbulk.
North berth	205m	—	50,000 dwt	—	—	Coal and breakbulk.
South berth	302m	—	50,000 dwt	—	—	Coal and breakbulk.

Nampo—Berth Information						
Berth Name or Number	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Nampo General Bulk Terminal						
No. 1	—	6.0m	3,000 dwt	—	5.6m	Breakbulk.
No. 2	—	—	—	—	3.0m	Breakbulk.
No. 3	163m	11.0m	—	—	5.6m	Breakbulk.
No. 6	26m	11.5m	20,000 dwt	130m	—	Breakbulk.
No. 7	—	—	—	—	—	Breakbulk.
No. 8	—	11.0m	20,000 dwt	—	9.6m	Coal.
No. 9	25m	—	20,000 dwt	—	9.6m	Coal
Shipping Container Terminal						
Container	302m	13.0m	50,000 dwt	—	—	Breakbulk.
Nampo Port (Sadong-ch'on Oil Terminal)						
Middle Pier (End)	17m	—	—	107m	—	Steel products.
Middle Pier (West)	105m	—	—	—	—	—
No. 1 (West)	25m	11.0m	—	—	—	—
No. 2 (East)	14m	—	—	—	—	—
Ryongnam Shipyard						
Ryongnam Main	284m	—	—	—	—	DDP, steel, and breakbulk.

Nampo stands on the N side of the river about 20 miles within the entrance, and can be reached by large vessels. Kyomip'o, on the E side of the river about 17 miles above Nampo, can be reached by vessels of 5,000 tons; Posan on the W side of the river about 9 miles farther upriver, can be reached by vessels of 3,000 tons. P'yongyang (Pingyang) is about 37 miles above Nampoo.

Nampo (38°43'N., 125°24'E.)

World Port Index No. 60280

3.31 Nampo (Chinnanpo), on the N bank of Taedong Gang, is the outlet for the industrial and mining region of P'yongyang. Nampo Hang (Chinnanpo Hang), S of the city, is nearly 1 mile wide and has sufficient space to accommodate several large vessels at the same time.

Winds—Weather.—From December to May NW winds prevail, while during the remainder of the year W winds are common. Heavy fog is prevalent from June to August.

Ice.—From late December to the middle of March the Taedong Gang usually freezes over and is impassable above Namp'o. For about three weeks during this period Namp'o is liable to be cut off from the sea because of drift ice. At times the river mouth, particularly the channel in the vicinity of Chamae Do, may be blocked temporarily by dense packs of drift ice. These drift ice conditions between Chamae Do and P'i Do (Pi To), about 10 miles E, determine whether or not entry into the river is possible.

The color of the ice is important to notice. Green or white ice is easily broken and is not dangerous, but brown or gray ice, formed on the drying banks, is full of mud and sand, not easily broken, and dangerous.

Navigational warnings concerning drift ice and other conditions of the fairway are issued by the radio station on Chamae Do; the continually changing effects of the tidal currents and the wind must also be taken into account.

Tides—Currents.—In the entrance of Taedong Gang near Ch'o Do and Sok To, the tidal current runs N or NE with the rising tide from about 2 hours before to 4 hours after the time of HW at Inchon. With the falling tide, the tidal current runs S or SW from about 4 hours after to 2 hours before the next HW at Inchon.

Off Ch'o Do, the maximum velocities are 2 knots with the N current, and 3 knots with the S currents. Off Sok To, they are 2 and 3 knots, respectively.

In the river the tidal currents are, in general, regular in some features, but do vary considerably with the season, wind, and rainfall. Both the flood and ebb currents follow the course of the river in mid-channel; the flood current runs for a shorter period than the ebb current, and there is only a short period of slack water. The currents are also stronger in the lower reaches than in the upper reaches. It has been reported that the main incoming current runs down the middle of the channel, while the main outgoing current is on the S side of the channel.

In P'ido Sudo the E current has a maximum velocity of 3.5 knots and the W current 4.5 knots. The flood current turns about 4 hours after the time of HW at Inchon, and the ebb current turns about 2 hours before the time of HW, and runs for about 7 hours.

In mid channel, SW of the basin at Namp'o, the ebb current runs for 7 to 7 hours 30 minutes, the turn occurring shortly before HW and a 1.5 to 2 hours after LW. The flood current attains a maximum velocity of about 3.25 knots and the ebb about 4 knots. Off both banks of the river the ebb current begins to run 1 to 2 hours earlier than in the middle of the river. Near the basin the tidal currents are very complex because of the irregular contour of the banks W of the basin.

Depths—Limitations.—In the W approach to Taedong Gang the depths are deep and clear of dangers; in the passage between Tok Som (Toku Somu) and Chamae Do the depths decrease to about 13m. This latter track leads close N of the NE end of a shoal extending about 5 miles NE from Tok Som.

P'ido Sudo, the narrowest part of the passage, is about 0.3 mile wide between the shoals on either side, but is deep in the fairway.

East of P'ido Sudo, the relatively wide channel leading to Namp'o is free from dangers in its middle part. Depths of 9.8m and over are found in the fairway of this channel.

Ch'odo Sudo, with depths of 11 to 29m in its approach from S, has a least width of about 1 mile in the fairway between Pansong Ch'o (Banjo Sho), about 2.8 miles NE of Huibong Gap, the SE extremity of Ch'o Do, and the shoal W. The track passes close W of the 9.4m patch about 3 miles N of Pansong Ch'o.

The Port of Namp'o basin has facilities to handle vessels of 3,000 tons, with a dredged depth of 6m. The E side of the basin has a depth of 3m and the head of the basin has a depth of 1.5m, and used only by small craft.

During the ebb current, there is a strong eddy along the E wall of the basin and vessels are liable to be swung round by it. It is difficult to go alongside or leave this wall between 1 and 2 hours after HW and LW.

Mariners are advised that due to salinity variations the drafts shown alongside are subject to changes. For further berthing information refer to the table titled **Nampo—Berth Information.**

Aspect.—Excellent marks in the approach to the river include Ch'o Do, Sok To (Soku To), and **Tok To** (38°45'N., 124°58'E.). **Manryokiki** (38°43'N., 125°23'E.), close within the W limit of the harbor, has a flagstaff on it. A conspicuous white building stands on the shore about 0.5 mile E of Manryokiki, and about 0.5 mile farther NE are two conspicuous radio masts. Three chimneys, one very high, stand near the shore about 1 mile NE of the basin, and are particularly conspicuous. Mangdalli Gi **(Botatsuri Saki)** (38°43.0'N., 125°26.4'E.), the most prominent headland on the S shore, has a flat-like summit and is easily identified.

Pilotage.—Pilotage is compulsory. Pilots board in a position about 3 miles NNW of **So Do** (38°33'N., 124°46'E.), but in rough weather, or at night, they board in the vicinity of Chamae Do, 13 miles NE. It has been reported (1994) that vessels enter or leave during daylight hours only.

Korean regulations require foreign vessels to send their estimated arrival times 5 days, 24 hours, 12 hours, and 4 hours in advance.

Anchorage.—Vessels can anchor, in 12.8 to 27.4m, mud or sand, outside the basin, at a distance of not less than 0.2 mile offshore. The holding ground, mud or sand over hard rock bottom, is not good, and caution should be exercised at the turn of the strong tidal currents. It is better to anchor in mid-river in about 18.3m, where the holding ground is better and the tidal currents are not so strong.

Taedong Gang (Continued)

3.32 The upper reaches of the Taedong Gang has not been reported on for quite some time, and information on this part of the river should therefore be used with caution.

Between Chinnanpo and **Aeam Gap** (38°39'N., 125°36'E.), the SW extremity of the peninsula formed by Taedong Gang where it changes its course to N, depths of 9.8m and over were reported. The tidal currents are very strong through this narrow part of the river.

Anchorage can be taken, although not recommended, in 15 to 17m, close off the SW bank of the river and W of **Ch'ol To** (38°39'N., 125°39'E.). The holding ground is good, but the tidal currents are strong and rotary.

Kyomip'o (38°44'N., 125°37'E.) (World Port Index No. 60290), on the E bank of the river, is the site of a large iron and steel works. The anchorage off the town can accommodate vessels of moderate size, in about 9.4m and greater. To the SW of the town, the rocky bottom affords poor holding ground, but farther downstream better holding of deep silt over rock was reported.

Posan (38°53'N., 125°34'E.), about 9 miles above Kyomip'o, is an anchorage off some coaling piers. Depths are from 8 to 9m, with good holding ground. Above this anchorage the river is reported to be unnavigable.

Taedong Gang to the Yalu River

3.33 Between the entrance of the Taedong Gang and Ch'olsan Pando, about 60 miles NNW, the coast forms a very extensive bay, which is encumbered with numerous shoals and drying banks. These narrow shoals lie more or less parallel to the E shore of the bay.

Nap-Som, with Chagunnap Som (Sorap To) close E and Mugi Do (Mungi Do) about 1 mile NNE, lie near the outer edge of these shoals. At night or in foggy weather the cries of the numerous sea birds that frequent these islets may indicate their positions.

Caution.—Unexploded ordnance lies in position 39°23'N, 123°45'E.

Ch'olsan Pando (39°40'N., 124°40'E.), on the E side of the approach to the entrance of the Yalu River, is rugged and hilly. The coastal area between the S extremity of Ch'olsan Pando and the Yalu River is fronted by broad tidal flats, beyond which are sand bars lying several miles offshore. Pae San (Chu San), about 2 miles N of the S end of the peninsula, has three peaks. Orang San, about 6 miles farther N, is also conspicuous, as is Yondae San, a sharp, isolated peak which rises steeply about 4 miles farther NW.

Taehwa Do, about 8 miles S of Ch'olsan Pando, is the southernmost of the group of islands extending S from the peninsula.

The Yalu River

3.34 The **Yalu River** (39°40'N., 124°15'E.), narrow and shallow, is the boundary between North Korea and China. This

river and estuary are encumbered with drying sand and mud banks intersected by constantly changing channels. Only small vessels of limited draft and with local knowledge can reach the cities of Antung and Sinuiju, about 15 miles upriver. Tong Sudo, the E passage, and So Sudo, the W passage, are the only practicable approaches to the river mouth. The former leads into Tasado Hang, the outer of the two ports at the entrance of the river, and the latter into Yongamp'o Hang.

Ice.—The river is practically closed to navigation from the end of October until the end of April or beginning of May.

Tides—Currents.—In Tong Sudo, the tidal currents run in the direction of the channel. The N current runs for about 5 hours, from 1 to 2 hours after LW until the time of HW. The S current runs for about 7 hours 30 minutes, from the time of HW until 1 or 2 hours after LW.

At Suun Do, the N and S current attain velocities of 2.25 and 2.75 knots, respectively; at Taedasa Do the currents attain velocities of 3.25 and 4.25 knots.

In So Sudo, the tidal currents set NE on the rising tide and SW on the falling tide. The times of change in direction are about the same as those in Tong Sudo, attaining maximum velocities of nearly 4 knots. Within the mouth of the river, the tidal currents are strong. They attain velocities of about 3 knots, but when the river is in flood the ebb current may attain a velocity of 5 knots.

Pilotage.—Vessels should notify the Pilots' Association at Sinuiju at least 24 hours prior to arrival off the estuary. Pilots board vessels off the entrance of So Sudo; pilots for Tong Sudo are usually picked up off the entrance of So Sudo. The limiting drafts of vessels are determined by the pilots.

Caution.—Vessels approaching the estuary should take soundings continuously, and should not attempt to enter the channels without a pilot. Extreme caution is also advised because the buoys and beacons that mark the shifting channels are moved without notice. During the ice season, the buoys are removed and the lights are extinguished.

Tong Sudo

3.35 Tong Sudo, which leads into Tasado Hang, was reported to have a depth of 6.1m in the fairway to the terminal at Kwakkot Ch'oe. **Suun Do** (39°41'N., 124°25'E.), on the E side of Tong Sudo, is the westernmost of the Pansong Yolto. It has a rounded top, and is connected to the next islet E by drying rocks. A light is situated on the summit of Suun Do. Won Do, the easternmost and largest of the group, has a somewhat pointed summit. The entire group lies on the extensive bank forming the E side of Tong Sudo.

Un Do, on the W side of Tong Sudo, about 2.5 miles N of Suun Do, is a useful mark for the channel. A light is situated on Un Do. Pyok Do, about 1.25 miles NW of Un Do, is a reddish, rocky islet. Se Do, about 3.5 miles farther NNW, appears pyramidal when seen from S.

Kach'a Do, on the E side of the fairway, about 3.5 miles NNE of Un Do, is nearly flat on top and bare. A beacon stands on the islet.

Tae-dasa Do (Tasa Do), about 1.8 miles NW of Kach'a Do, has two peaks, the N being slightly higher. Beacons mark the outer edge of the fringing reef.

Kwakkot Ch'oe (39°49'N., 124°25'E.) is a rocky headland, the E side of which is precipitous, and a village is on the W side. A seawall extends SW to Sodasa Do, while harbor works extend about 1 mile farther S. This artificial port lies between Sodasa Do and Tasa Do, and provides about 745m of berthing space with depths of 7.9 to 9.1m alongside. Another 610m of berthing space has depths of 3.7 to 4.9m alongside. The terminal is connected to the cities upriver by railroad.

Vessels, with a draft of about 4.8m, can anchor, in 5.8 to 10.1m, about 0.5 mile W of the N end of Tasa Do. Other vessels can anchor about 3 miles S of Tasa Do.

So Sudo

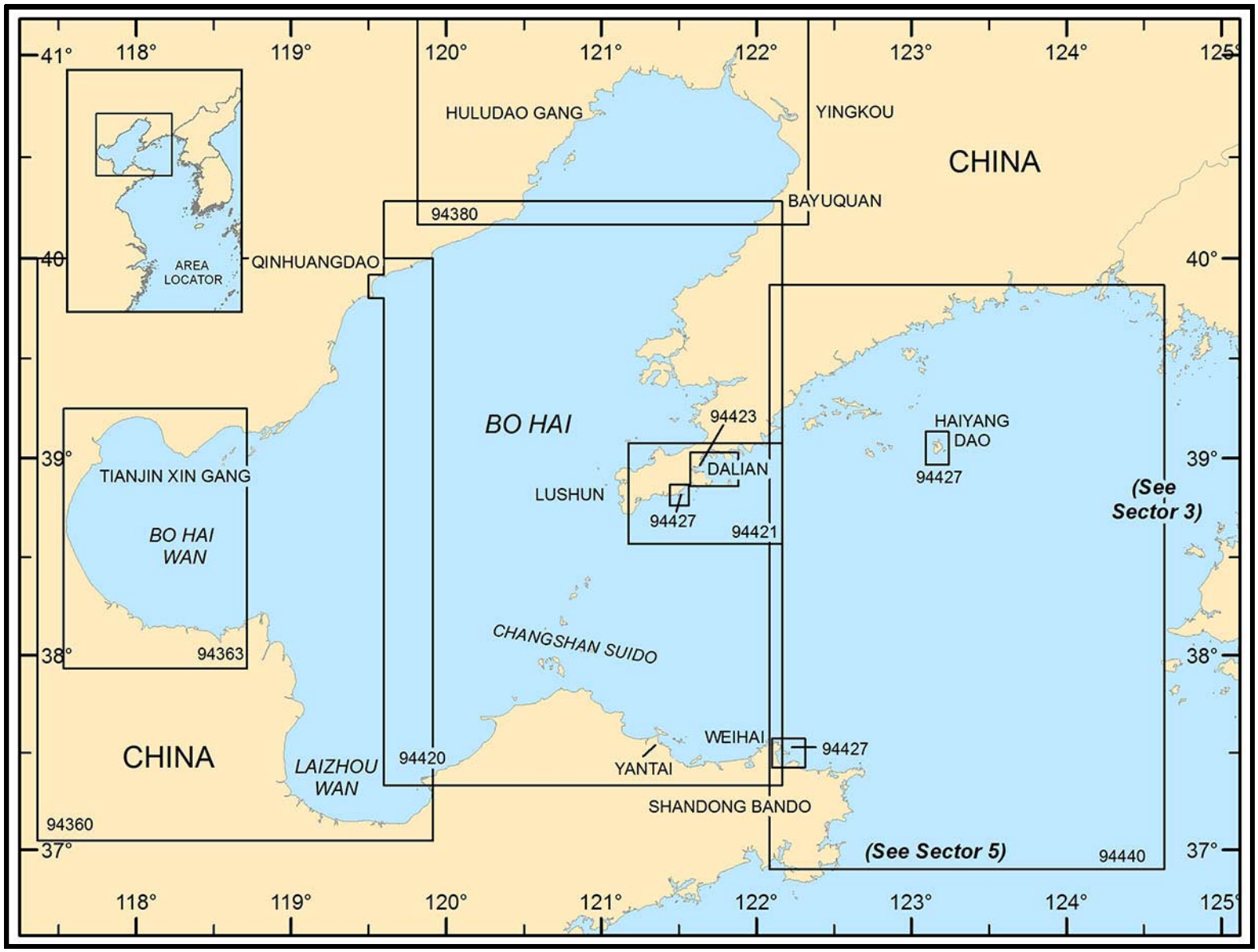
3.36 So Sudo, which leads into Yongamp'o Hang, is generally used by small vessels proceeding upriver. The passage is subject to great change, making local knowledge essential. The channel entrance is about 5 miles S of **Ku-lung Shan** (39°49'N., 124°01'E.), an isolated hillock on the low coast and which appears as an islet from the offing.

Two conspicuous red brick buildings stand at the SW end of the town about 6 miles NE of Ku-lung Shan. The channel runs between the coastline and the shoals and banks W and N of Sindo Yolto.

Maan Do (39°48'N., 124°11'E.) is the largest of the islets on the W side of Sindo Yolto. A light is situated on the SW peak of Maan Do. The light is not lit when the river is closed by ice. Sin Do, the largest islet of the group, rises to sharp peaks at its N and S ends. A large area of the bank N of Maan Do and Sin Do is covered with grass and only covers at HW spring tides.

Yongamp'o (39°56'N., 124°22'E.) stands on the E bank of the Yalu River just within its entrance. Small vessels with a draft not exceeding 4.1m can obtain indifferent anchorage off the town. Currents in the river are strong here.

Antung and Sinuiju, about 11 miles farther upriver, are connected by a railroad bridge, with a clearance of 10.1m.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **4** — CHART INFORMATION

SECTOR 4

CHINA—THE YALU RIVER TO SHANDONG BANDAO

Plan.—This sector describes the N coast of China between the W entrance point of the Yalu River and Chengshan Jiao, a point about 165 miles SSW. The description is W to Laotieshan Xijiao from the Yalu River. Liaoding Wan is described counterclockwise from Laotieshan Xijao to Bo Hai Strait. Bo Hai is also described counterclockwise.

General Remarks

4.1 Winds—Weather.—Winds are seasonal and largely conform to the Northeast Monsoon/Southwest Monsoon pattern typically for the waters adjacent to mainland China. The Northeast Monsoon sets in abruptly and, persisting between September and March, has winds predominantly from the N and NW and to a lesser extent, from the NE. Storms are frequent, particularly from November to March. Storms in Liaodong Wan are often from the E and NE. The Southwest Monsoon occurs between April and August and has largely light airs which, originating from the SW, tend to veer to the NW and N.

Typhoons are rare and tend to appear at infrequent intervals only during the peak expectancy months of July and August.

Fog is infrequent in Bo Hai Haixia and rare in Bo Hai and Liaodong Wan.

Ice.—Ice forms in November and continues to April. It reaches its greatest concentration in January and February. Drifting sea ice in light concentration occurs during the winter months. Landfast ice occurs only during the coldest months and generally only in the Yalu River and in the rivers entering the NE side of Liaodong Wan. Ice conditions tend to vary considerably from year to year.

Tides—Currents.—Ocean currents in general set E out of Liaodong Wan and Bo Hai and then through Bo Hai Haixia. Winter winds from then accentuate the set. Summer winds from the S tend to produce a variable set or, in the area S of the Yalu River, a counterclockwise set. Tidal currents tend to parallel the coast.

In the N approach to Bo Hai Haixia add SW of the Yalu River, the flood sets W to SW and the ebb NE at a maximum velocity of 3 knots, with the W current the stronger. Between Chengshan T'ou and Dalian Wan, the flood sets SW and the ebb NE at velocities of 1.5 to 2.5 knots. Between Dalian Wan and Lushun, the W current runs from 2 hours 30 minutes to 3 hours 30 minutes after LW until 3 hours 30 minutes to 4 hours 30 minutes after HW. The E current runs during the remainder of the tidal period.

In the S approach to Bo Hai Haixia, tidal currents are variable and subject to the influence of the wind. In general, the flood sets W and the ebb E with offshore and inshore currents frequently setting in opposite directions.

The W current begins about one hour after HW and the E current about 5 hours.

In Bo Hai and Liaodong Wan, tidal currents as well as tidal rise and fall are considerably affected by run off water carried seaward by the many rivers in the area. The flood sets W through Bo Hai Haixia into Bo Hai then NE along each side of Liaodong Wan, the ebb sets in the opposite direction. Maximum velocity for both flood and ebb ranges from 1 to 3 knots, depending on local conditions.

The several bodies of water confined by the coastline between the Yalu River and Chengshan Jiao consist of an approach waterway, Bo Hai Haixia, and an extensive inland sea to the W which, sometimes termed Pei Hai, is divided N into Liaodong Wan and S into Bo Hai. The many islets and islands of Miaodao Qundao lie in Bo Hai Haixia and encumber free access to Pei Hai.

Depths throughout the area are shoal and rarely exceed 54m.

The coast presents a general appearance of being low to hilly and only exceptionally of being mountainous. The N approaches to Bo Hai Haixia consist of low-lying coast rising inland to high hills and barren interior mountains and fronted seaward by scattered islands and drying mud flats. The S approaches are similarly low-lying and rise to interior peaks having the appearance of islands from a distance.

The islands of Miaodao Qundao are low-lying and hilly. The coast of Bo Hai is low throughout and consists largely of muddy coastal plains merging with swamps, marshlands and wide margins of drying mud flats. The coast of Liaodong Wan is, in general, hilly to the SE, flat and marshy to the NE, and low-lying to hilly to the NW.

The major deep water seaports of the area are Luda, in the N approach to Bo Hai Haixia, and Tianjin Xin Gang, on the NW side of Bo Hai. Several minor ports accommodate deep-draft vessels.

Regulations.—An Emission Control Areas (ECA) has been established off the coast of China in the Bohai Sea to reduce harmful emissions from shipping. Vessels using these areas must use fuel oil with a sulphur content of no more than 0.5% m/m or other equivalent measures to reduce emissions, including gas scrubbing, alternative clean fuels, or shore power. These regulations will be implemented annually through 2019. See the **China—Pollution** section in Pub.120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for details and the ports affected.

Caution.—Numerous wells or well heads, which may rise up to 2m above the sea bed, may be encountered in the waters described in this sector. Safety zones, usually having a radius of 500m, surround operational wells.

Bo Hai Haixia

4.2 The N approaches to Bo Hai Haixia comprise the S littoral of the extensive peninsula Liaodong Bandao between the Yalu River and Laotieshan Jiao, a point about 159 miles WSW. The coastline throughout is irregular and much indented.

Inland, coastal lowlands rise gently to high hills and the largely barren mountains forming the interior of Liaodong

Bandao. Seaward, the near-shore area consists of wide margins of drying mudflats which front the coastline continuously for two-thirds of the distance from the Yalu River. The offshore area is reported to be generally shoal and contains numerous offlying islands and islets. The major seaport of Luda (Dalian) and the minor port of Lushun are located near the SW extremity of Liaodong Bandao.

The Yalu River to Nanshan Zui

4.3 The W entrance point of the **Yalu River** (Yalu Chiang) (39°55'N., 124°20'E.) is low, flat and swampy. The coastline between the river entrance and Nanshan Zui, about 131 miles WSW, is irregular and indented by numerous inlets, bays and coves which lie separated one from another by low, hilly peninsulas, bluff promontories, and reef-fringed, rocky headlands. A well-cultivated level to rolling coastal plain, crossed by many shallow streams, immediately backs the coastline. This continues inland to the high hills and barren mountains of the interior which lie some 15 to 25 miles inland near the Yalu River, but which reach the sea at **Chengshan Tou** (Terminal Head) (39°09'N., 122°09'E.), a rocky headland about 105 miles to the WSW. The near-shore area is encumbered by a coastal margin of drying mud and sand flats extending 1 to 3 miles offshore before disappearing with the rocky headlands SW of Chengshan Tou.

The offshore area is encumbered throughout by groups of large hilly islands and a scattering of lesser islands and isolated rocks.

Dandong (Dadong Gangqu) (39°49'N., 124°09'E.) is located in the SE part of Liaoning Province close W of the Yalu River entrance. Dandong is comprised of Langtou River port area (situated in Langtou Town, on the W bank of the Yalu River, 5 miles S of Dandong City), and Dandong, also known as Dadong, situated on a headland of reclaimed land on the W side of a tributary close W of the Yalu River estuary.

Dandong handles imports of general cargo, edible oils, steel products, grain, and ore and exports of general cargo, pig iron, grain, wood chips, and coal.

Dadong and the Yalu River estuary is free of ice all year round.

Tides—Currents.—The maximum tidal range is 6.9m and the minimum range is 1.6m.

Depths—Limitations.—The port areas of Langtou and Dandong are approached through Dadong Shuidao. Dadong navigation channel has a mean depth of 12.5m during the summer and 11.5m in the winter. The Langtou navigation channel is approximately 12 miles in length, with a mean depth of 5.5m in the winter and 4.2m during the summer. The main channels are marked by buoys and beacons in Dadong Shuidao but these positions can be subject to frequent change without notification due to alterations in the banks and channels.

See the table titled **Dandong—Berth Information** for details on loading and unloading capabilities at Dandong and Langtou.

Dandong—erth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Langtou				
No. 1	68m	6.5m	3,000 dwt	Breakbulk.
No. 2	126m	6.5m	3,000 dwt	General cargo.
No. 3	126m	6.5m	3,000 dwt	General cargo.
No. 4	126m	6.5m	3,000 dwt	General cargo.
Oil Wharf	16m	4.5m	3,000 dwt	Oil products.
Dandong (Dadong)				
No. 1	190m	10.5m	30,000 dwt	Bulk cargo and coal.
No. 2	182m	12.0m	5,000 dwt	Bulk and general cargo.
No. 3	187m	12.5m	50,000 dwt	Bulk and general cargo.
No. 4	153m	10.5m	30,000 dwt	Bulk and general cargo.
No. 5	184m	9.5m	5,000 dwt	General cargo and containers.
No. 6	230m	8.0m	10,000 dwt	General cargo, passengers, and ro-ro.
No. 7	230m	13.6m	70,000 dwt	Bulk and general cargo.
No. 8	200m	12.0m	5,000 dwt	Breakbulk.
No. 9	165m	7.8m	20,000 dwt	Bulk cargo.
No. 10	150m	9.0m	5,000 dwt	Bulk cargo.
No. 11	136m	9.0m	5,000 dwt	Breakbulk.

Dandong—erth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
No. 12	240m	13.0m	70,000 dwt	Grain.
No. 13	230m	12.0m	6,000 dwt	Grain.
No. 14	240m	12.0m	50,000 dwt	Breakbulk.
No. 15	254m	12.0m	30,000 dwt	Breakbulk.
Dandong Dadong Gou Basin 1				
Cargo Berth	500m	—	—	Breakbulk.
Coal Berth	550m	—	—	Coal.
Container Berth	280m	—	—	Containers.
General Berth	210m	—	—	Breakbulk.
Dandong Dadong Gou Basin 3				
Iron Ore Berth	420m	20.6m	30,000 dwt	Iron ore.

Pilotage.—Pilotage is compulsory and is available 24 hours. The ETA should be advised through local agents 72 hours, 48 hours, and 24 hours prior to expected arrival. Pilots board in position 39°37'43"'N, 123°59'10"E.

Contact Information.—Dandong Port can be contacted, as follows:

Dandong Contact information	
Port control	
Call sign	Dandong Port Control
VHF	VHF channel 14
Port Authority	
Telephone	86-415-3819666
Facsimile	86-415-3123512
Web site	http://www.dandongport.com

Anchorage.—Quarantine anchorage is located with its center near position 39°32'N., 123°55'E. Four other anchorages outside Dandong Shuidao have their center positions designated as follows:

a. 39°38'N, 123°59'E.—No. 1 (for tankers).
b. 39°33'N, 123°55'E.—No. 2 (for tankers).
c. 39°27'N, 123°55'E.—Large vessels.
d. 39°34'N, 124°04'E.—Dry cargo vessels.

Dalu Dao (Ta-lu Tao) (39°45'N., 123°44'E.), about 22 miles WSW of the entrance to the Yalu River, is a small, hilly island which, rising to a conspicuous double summit, lies near the seaward edge of the drying mud flats choking the entrance to the river Ta-yang Ho. A light is shown from the S side of the island.

Ta-Ku Shan, a 335m high hill, rises steeply on the N side of a town 10 miles NW of Dalu Dao, and is very prominent. There are two large shrines, and a dense growth of trees in a ravine, on the seaward side of the hill.

Anchorage can be obtained 3 miles SSE of the E part of Dalu Dao, in a depth of 8.6m. Smaller vessels can anchor 1.3 miles S of the same point, sheltered from NW winds, in depths of 5.5 to 6.7m, mud. Vessels handle cargo from lighters able to enter Ta-yang Ho at HW and proceed to berthing facilities for Ta-Ku-shan, a community lying within the W entrance point of the river.

4.4 Haiyang Dao (39°03'N., 123°12'E.), about 69 miles SW of the entrance to the Yalu River, is a large, mountainous, and steep-sided island which, rising steep-to from surrounding depths greater than 36m, constitutes the farthest seaward danger in the N approaches to Bo Hai Haixia.

Small vessels, seeking shelter from all but W winds and their accompanying swell, anchor, in 6.4 to 7.3m within a landlocked inlet indenting the W side of Haiyang Dao.

Local magnetic anomalies have been reported in the vicinity of Haiyang Dao.

Caution.—An area closed to foreign shipping, within a radius of 8 miles of Badouyinzi Light (39°04'N., 123°09'E.), is established at Haiyang Dao.

Zhuanghe (39°37'N., 122°57'E.) is a small port located on the S coast of the Liaodong Peninsula, approximately 4 miles N of Shicheng Dao. Shicheng Dao is the largest and northernmost island of Shicheng Liedao with Dawangjia Dao being the southernmost island of this group. This port is used primarily for fishing vessels and local small vessels.

The port is protected by a breakwater which is marked by a light. There are two berths in the port; one for vessels up to 10,000 dwt, and one for vessels up to 5,000 dwt. The buoyed approach channel to the harbor crosses an area prohibited to anchoring and fishing lying N of Shicheng Dao. The channel and turning basin have depths of 9m.

Anchorage.—Two anchorages lie E and SE of Dawangjia Dao, as follows:

1. **East of Dawangjia Dao**—bounded by lines joining the following positions:
   a. 39°28'24"N, 123°06'44"E.
   b. 39°29'38"N, 123°08'23"E.

c. 39°29'13"N, 123°08'55"E.
d. 39°27'58"N, 123°07'17"E.

2. **Southeast of Dawangjia Dao**—bounded by lines joining the following positions:
a. 39°25'12"N, 123°10'30"E.
b. 39°26'00"N, 123°09'36"E.
c. 39°26'54"N, 123°11'00"E.
d. 39°26'12"N, 123°11'54"E.

Caution.—A marine cultivation area which needs to be avoided is bounded by lines joining the following positions:
a. 39°35'04"N, 123°02'32"E.
b. 39°35'40"N, 123°04'08"E.
c. 39°35'04"N, 123°04'36"E.
d. 39°34'21"N, 123°03'07"E.

Wai-ch'ang-shan Shuidao (Blonde Group) (39°03'N., 122°47'E.), about 15 miles W of Haiyang Dao, is a group of hilly steep-sided islets of which Zhangzi Dao is the largest and westernmost.

Damoding, with the appearance of a small vessel under sail, is an isolated, steep-to rock 11m high standing about 4.5 miles S of the S extremity of Zhangzidao.

Vessels, seeking shelter from S through SW winds, anchor in 12.8 to 20.1m, sand and mud, at the entrance to a small bay on the NE side of Zhangzidao.

There is also anchorage in the bay on the W side of the island sheltered from E winds, in similar depths.

Changshan Qundao (Elliot Group) (39°15'N., 122°35'E.) is an extensive, hilly island group which, separated from the mainland at Chengshan Tou by a largely clear channel about 7 miles wide, consists of several larger islands, a number of lesser islands, and a scattered multitude of navigational dangers. Jiaoliu Dao (39°16.5'N., 122°42.8'E.) is marked by a light equipped with a racon. Dachangshan Dao is the largest and northernmost island.

Vessels anchor in 9.1 to 21.9m, mud, sand and shell, in a position between a peninsula extending S from Dachangshan Dao and Sai-li Tao (Suili Tao), a hilly islet about 2 miles farther to the S. The anchorage is best approached from the S through Ha-hsien Tao (Hasien Strait), the clear deepwater channel W of Sai-li Tao.

4.5 Dalian Wan (38°57'N., 121°45'E.) (World Port Index No. 60250) is a commodious deep-water bay having an irregular shoreline everywhere backed by high rolling hills except for populated, well-cultivated lowlands at the head of several arms and narrow inlets on the NW side of the bay. The entrance is encumbered by two hilly steep-sided islets. Dasanshan Dao (Ta-shan Tao), the larger islet, lies with its S extremity about 5.5 miles S of **Shanxi Tou** (Shan-hsi T'ou) (38°59'N., 121°49'E.), the precipitous reef-fringed E entrance point of the bay. A light, with a radiobeacon, is situated on the S end of Dashanshan Dao.

The main navigable entrance channel, Dasanshan Shuidao, lies between Dasanshan Dao and Huangbai Zui, the steep-to precipitous W entrance point of the bay which is marked by a light. Berthing facilities for Luda lie along the shore WNW of Huangbai Zui.

4.6 Dalian (38°55'N., 121°40'E.), a large deep-water port, is situated in Dalian Gang. Dalian Wan (38°58'N., 121°45'E.) and Dalian Xingang (38°58'N., 121°54'E.) are incorporated into the port. There are additional port facilities along with land reclamation in Dayao Wan (39°01'N., 121°53'E.).

Dalian handles grain, steel products, ore, timber, oils (both clean and dirty), coal, containers, ro-ro vessels, and almost every other kind of cargo.

Winds—Weather.—Winds are from the N and NW during the year; in summer and spring, S and SE winds often occur.

Fog begins in the spring, usually occurring in the morning, and continues until September. July is the month of the most frequent occurrence of fog.

Ice.—The ice season normally lasts from the early part of January to the beginning of March. In very cold weather, ice floes may consolidate into a continuous sheet of ice over the whole of the outer harbor, but icebreakers have no difficulty in keeping the berthing area open.

Tides—Currents.—The minimum tidal range is 0.6m and the maximum is 4.6m. The average neap ranges are 2.9 and 2.6m respectively. Tidal currents set W during the flood and E during the ebb at speeds of about 0.5 to 1 knot.

Depths—Limitations.—Vessels approaching Dalian Wan should keep to the Dasanshan Channel, situated between Dasanshan Dao (38°52'N, 121°49'E) and Huangbai Zui (38°54'N, 121°43'E), using the TSS in place for the port and best seen on the chart. Dasanshan Channel is 4.7 miles in width, with depths from 13 to 42m.

Dalian is comprised of separate dock areas, most of which are described below.

Dagang Qu (38°56.5'N., 121°39.0'E.) is the work area immediately W of Siergou Qu and is the main berthing area. It is protected by breakwaters giving vessels access from the E. The N and W entrances, closed by ice booms from early December to the middle of March, are used by small craft.

Dagang Piers extend from the S shore of the area in succession from E to W and are separated from one another at their root by Pier A, Pier B, and Pier C.

Xianglujiao Qu is the work area immediately W of Dagang Qu. A channel, in which there is a depth of 7m leads through Xianglujiao Qu to two large piers on its W side.

Ganjingzi Qu (38°57.4'N., 121°38.0'E.) is the work area NW of Dagang Qu and has a chemical pier and coal wharf.

Dalian Wan—Berth Information

Berth	Berth Length	Depth Alongside	Maximum Vessel Size	Remarks
Dagang				
No. 1	180m	9.0m	10,000 dwt	General cargo, grain, and soybeans.
No. 2	133m	7.0m	5,000 dwt	General cargo.

Dalian Wan—Berth Information				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 3	133m	6.0m	3,000 dwt	General cargo.
No. 4	134m	7.0m	5,000 dwt	General cargo.
No. 5	150m	6.0m	5,000 dwt	Ferry terminal with ramp.
No. 6	196m	8.8m	7,000 dwt	General cargo.
No. 7	140m	9.0m	10,000 dwt	Ferry terminal.
No. 8	232m	10.0m	25,000 dwt	Grain and general cargo.
No. 9	246m	11.0m	30,000 dwt	Iron ore.
No. 10	250m	12.0m	60,000 dwt	Urea.
No. 11	236m	10.7m	—	General cargo and dry bulk.
No. 12	236m	10.7m	—	General cargo.
No. 13	156m	7.7m	3,000 dwt	Ferry terminal with ramp.
No. 14	125m	7.3m	3,000 dwt	Ferry terminal with ramp.
No. 15	80m	7.3m	5,000 dwt	General cargo.
No. 16	180m	8.5m	—	Ferry terminal with ramp.
No. 17	180m	8.8m	—	Ferry terminal with ramp.
No. 18	180m	10.4m	—	Ferry terminal with ramp.
No. 19	180m	9.0m	10,000 dwt	General cargo.
No. 20	210m	9.0m	10,000 dwt	Dry bulk.
No. 21	216m	8.8m	10,000 dwt	General cargo.
No. 22	135m	9.0m	10,000 dwt	General cargo.
No. 23	135m	9.0m	10,000 dwt	General cargo.
No. 24	180m	10.6m	15,000 dwt	Dry bulk.
No. 25	180m	10.9m	15,000 dwt	Dry bulk.
No. 26	246m	11.1m	25,000 dwt	Dry bulk.
No. 27	180m	8.6m	10,000 dwt	General cargo.
No. 28	180m	8.6m	10,000 dwt	General cargo and grain.
No. 29	123m	8.9m	10,000 dwt	Chemical products.
No. 30	123m	8.9m	10,000 dwt	General cargo and grain.
Wharf No. 1 Pierhead	131m	8.0m	—	Project and general cargo. Ferry terminal with ro-ro ramp.
East Breakwater	150m	8.0m	—	General cargo. Ferry terminal and ramp.
Xianglujiao Marine Shipping Wharf				
Nos. 1-3	200m (each berth)	—	—	Dry cargo.
Nos. 4-5	136m (each berth)	—	—	Dry cargo.
Ganjingzi Qu—Dahua Chemical Terminal				
No. 1	57m	6.0m	1,000 dwt	General cargo.
No. 2	197m	8.7m	10,000 dwt	General cargo.
No. 3	174m	8.7m	10,000 dwt	General cargo.
No. 4	60m	5.6m	1,000 dwt	General cargo.

Dalian Wan—Berth Information				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Ganjingzi Qu—Coal Wharf				
No. 1	230m	9.1m	10,000 dwt	Coal and grain.
No. 2	210m	9.7m	10,000 dwt	Grain.
Siergou				
Pier No. 1	236m	—	—	Mostly barges and service vessels.
Dalian Wan				
No. 1	227m	10.0m	30,000 dwt	Grain and general cargo.
No. 2	235m	11.0m	30,000 dwt	Grain and general cargo.
No. 3	270m	9.7m	20,000 dwt	Coal.
Dalian Gulf				
No. 3	150m	7.0m	3,000 dwt	General cargo and fishing vessels.
No. 4	180m	9.4m	10,000 dwt	General cargo.
No. 5	120m	7.0m	5,000 dwt	General cargo.
No. 6	140m	7.0m	5,000 dwt	General cargo.
No. 7	120m	7.0m	5,000 dwt	General cargo.
Heyshang Dao General Cargo Terminal				
Berth A	111m	—	—	Service berth at pier head. Dry cargo.
Nos. 1-2	318m (each berth)	—	—	Coal and dry bulk.
Nos. 3-5	600m (each berth)	—	—	Dry bulk.
Nos. 6-7	216m (each berth)	—	—	Coal and dry bulk.
Berth B	70m	—	—	Service berth at pier head. Dry cargo.
No. 8	216m	—	—	Dry bulk.
Nos. 9-10	390m (each berth)	—	—	Dry bulk.
Nos. 11-13	430m (each berth)	—	—	Dry bulk.
Coal Berth	230m	—	—	Coal.
Heyshang Dao Passenger and Ro-Ro Terminal				
Ro-ro berths	280m	—	—	Passenger ship pier with ro-ro ramp.
Dagushan—Dalian Iron Ore Terminal				
No. 1	460m	23.0m	300,000 dwt	Iron ore discharge.
No. 2	425m	23.0m	—	Iron ore discharge.
Beiliang Grain Terminal				
BG No. 1	230m	15.8m	20,000 dwt	Grain, general cargo, and containers.
BG No. 2	350m	15.8m	80,000 dwt	Grain.
BG No. 3	256m	12.4m	50,000 dwt	Grain.
BG No. 4	280m	12.4m	50,000 dwt	Grain.
BG No. 5	243m	12.4m	50,000 dwt	Grain and general cargo.
BG No. 6	294m	12.4m	—	Grain and general cargo.
BG No. 7	75m	—	50,000 dwt	Tanker berth. Clean products.

Dalian Wan—Berth Information				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
BG No. 8	94m	—	50,000 dwt	Tanker berth. Clean products.
BG No. 9	94m	—	50,000 dwt	Tanker berth. Clean products.
BG No. 10	75m	—	—	Tanker berth. Clean products.
BG Service Berth	47m	—	—	Barges, tugs, and tenders.
Lv Shun Xin Gang				
No. 1	230m	15.8m	20,000 dwt	Grain, general cargo, and containers.
No. 2	350m	15.8m	80,000 dwt	Grain.
No. 3	256m	12.4m	50,000 dwt	Grain.
No. 4	280m	12.4m	50,000 dwt	Grain.
No. 5	243m	12.4m	50,000 dwt	Grain and general cargo.
No. 6	294m	12.4m	—	Grain and general cargo.
Note.—Four new cargo and passenger berths plus four new general cargo berths under construction plus two new tanker berths for refined oil to accommodate tankers as large as 3,000 dwt (2017).				
No. 10	75m	—	—	Tanker berth. Clean products.
No. 11	47m	—	—	Barges, tugs, and tenders.

Heyshang Dao General Cargo Terminal (39°01.4'N., 121°44.5'E.) is a large general cargo terminal located in the N part of Dalian Wan on the E side of Heshang Dao. There is also a ro-ro berths available at the terminal. There is an approach channel to the terminal marked by a light at the beginning in position 38°57'48"N, 121°47'17"E. The channel is approximately 4 miles long and 150m in width, with depths of 13.4m, and allows only one-way navigation.

Dagushan and Beiliang (38°58'N., 121°49'E.) consists of the Dalian Iron Ore Terminal plus several berths for handling general cargo and grains.

See the table titled **Dalian Wan—Berth Information** for details on the berths available in Dalian Wan.

Pilotage.—Pilotage is compulsory and is available 24 hours. Pilots will board in the following locations:

1. Position 38°53'00"N, 121°47'30"E.
2. Position 38°53'00"N, 121°44'30"E for disembarkation
3. Container terminal—Position 38°54'00"N, 121°56'30"E.

The ETA for the port, including the container terminal, should be advised through the ship's agent 72 hours, 48 hours, and 24 hours prior to expected arrival at the appropriate pilot boarding location. Any changes to ETA within 24 hours should be advised as soon as possible.

The ETA message should included the following information:

1. Vessel name, call sign, and nationality.
2. Vessel type.
3. Last port of call and next intended port of call.
4. Draft for both salt water (seagoing) and fresh water.
5. LOA, gt, and nt.
6. ETA.
7. Details of any dangerous cargo being carried, including the following specific items:
   a. IMO code.
   b. Description.
   c. Packaging.
   d. Gross or net tonnage of such cargo.

Vessels should establish contact with the pilots on VHF channel 12 or 16 when within range in order to receive instructions for boarding.

Pilots can be contacted, as follows:

Dalian Contact information	
Dialian Pilots	
Call sign	Dalian Pilot Station (or Dayao Pilot Station for the container terminal)
VHF	VHF channels 12 and 16 or 65A for the container terminal. If vessels bound for the container terminal do not have VHF channel 65A they should use VHF channel 8 through the Dayao Wan VTS
Telephone	86-411-826-22554
Facsimile	86-411-826-22554
E-mail	yhz@portdalian.com
Web site	http://www.pilots.portdalian.com

Regulations.—The Dasanshan Shuidao TSS has been established in the approach to Dalian Wan and may best be seen on the chart. The Dasanshan Shuidao TSS has not been adopted by IMO, but mariners are advised to comply with Rule

10 of the International Regulations for Preventing Collision at Sea (1972) from which the Chinese authorities advise the principles for the use of the routing system have been derived.

Commercial vessels are prohibited from transiting Sanshan Shuidao (38°54'N., 121°50'E.).

Foreign vessels are prohibited from transiting Xiaosanshan Shuidao (38°56'N., 121°50'E.), which lies between Xiaosanshan Dao and the mainland to the NNE.

Vessels should not exceed a speed of 8 knots within the harbor limits of Dalian.

Vessel Traffic Service.—Dalian operates a VTS for the waters S and W of Laotieshan and Dalian Wan, Dalian Xingang, and Dayao Wan, as follows:

1. An arc with radius of 12 miles centered on Dasanshan Dao Light (38°51'50"N., 121°49'29"E.).
2. An arc with radius of 20 miles centered on Laotieshan Light (38°43'37"N., 121°08'02"E.).

The VTS is administered through Dalian VTS Center and Dayao Wan VTS Station. The Dalian VTS Center is the main center with the Dayao VTS Station used only for vessels entering or departing from Dayao Wan. The Dalian VTS Center utilizes the following three radar stations:

1. Dagang (38°55'34"N., 121°39'10"E.).
2. Huangbaizui (38°54'13"N., 121°42'54"E.).
3. Laotieshan (38°43'38"N., 121°08'06"E.).

Participation in the VTS is mandatory for all vessels equipped with the required communication equipment in accordance with the relevant international conventions and/or national rules and regulations, and vessels which the competent authority may require to be governed by the VTS. The working languages of the VTS are Mandarin Chinese and English.

The Dalian VTS Center provides the following services:

1. Radar surveillance system.
2. Ship data processing system.
3. VHF communication system.
4. VHF direction finding system.
5. AIS system.
6. Automatic meteorology observation system.
7. CCTV surveillance system.

The Dayao Wan VTS Station provides the following services:

1. Radar surveillance system.
2. VHF communication system.

Several different types of reports need to be made periodically by vessels within the VS area. Please refer to the table titled **Dalian VTS—Reporting Requirements** for details.

Contact Information.—Dalian VTS can be contacted, as follows:

Dalian Contact information	
Dialian VTS	
Call sign	Dalian VTS
VHF	VHF channels 6, 11, and 16
Telephone	86-411-826-22716 86-411-826-22342 86-411-826-35487 86-411-826-22554
Facsimile	86-411-826-22230
E-mail	vtsdl@lnmsa.gov.cn

Dalian VTS, for vessels in or bound for Laotieshan Channel, can be contacted as follows:

Dalian Contact information	
Laotieshan Channel	
Call sign	Dalian VTS
VHF	VHF channels 9, 10, and 16
Telephone	86-411-826-22716 86-411-826-22342 86-411-826-35487
Facsimile	86-411-826-22230
E-mail	vtsdl@lnmsa.gov.cn

Dalian VTS, for vessels in or bound for Dayao Wan, can be contacted, as follows:

Dalian VTS—Reporting Requirements

Report Type	Report Recipient	Reporting Time	Information Required
Sailing Plan (in writing)	Dalian VTS	**Port Entry—**24 hours prior to arrival or before to departure from previous port if transit time is less than 24 hours.	1. Vessel name and call sign. 2. Vessel nationality and type. 3. LOA, gt, and nt. 4. Maximum draft. 5. Last and next port of call. 6. ETA. 7. Cargo quantity and categories. 8. Number of crew and passengers. 9. Other relevant information.
		Port Departure—4 hours prior to departure or shifting berths.	1. Vessel name. 2. Berth position. 3. Next berth or port of call. 4. ETD.

Dalian VTS—Reporting Requirements			
Report Type	**Report Recipient**	**Reporting Time**	**Information Required**
Entry (via VHF)	Dalian VTS	When entering either Dalian Wan or Dalian Xingang port areas.	1. Vessel name. 2. Any other information requested by the VTS.
	Dayao Wan VTS	When entering Dayao Wan.	
	Dalian VTS	When entering Laotieshan Channel.	1. Vessel name and call sign. 2. Vessel nationality and type. 3. Vessel position. 4. Last and next port of call. 5. Any other information requested by the VTS.
Arrival (via VHF)	Dalian or Dayao Wan VTS	After anchoring or berthing.	1. Vessel name. 2. Time of anchoring or berthing. 3. Anchoring position.
Shift (via VHF)	Dalian or Dayao Wan VTS	Fifteen (15) minutes before shifting berth.	1. Vessel name. 2. Destination.
Passing (via VHF)	Dalian VTS	When passing the following positions: a. 38°54'13"N, 121°46'15"E. b. 38°57'12"N, 121°46'14"E. c. 38°55'57"N, 121°41'04"E. d. 38°57'17"N, 121°38'24"E.	1. Vessel name. 2. Movement.
Departure (via VHF)	Dalian or Dayao Wan VTS	Fifteen (15) minutes before departure.	1. Vessel name. 2. Position. 3. Next port of call.
Final (via VHF)	Dalian or Dayao Wan VTS	Upon departure from VTS area.	1. Vessel name.
Emergency (via VHF)	Dalian or Dayao Wan VTS	Whenever finding or being involved in any traffic accidents, pollution incident, or any emergency situation.	1. Vessel name. 2. Incident location. 3. Emergency type. 4. Any other information requested by the VTS.
Abnormal (via VHF)	Dalian or Dayao Wan VTS	Whenever finding any safety of navigation incidents.	1. Vessel name. 2. Incident location. 3. Details of the problem found. 4. Any other information requested by the VTS.

Dalian Contact information	
Port Authority	
Call sign	Port Authority
VHF	VHF channels 13 and 16
Telephone	86-411-826-27147
Facsimile	86-411-828-07148
Telex	85-86246 DHAB CN

Dalian Contact information	
Dayao Wan	
Call sign	Dalian VTS
VHF	VHF channels 8, 10, and 16

Dalian Contact information	
Telephone	86-411-875-98711
Facsimile	86-411-875-98712

The port authority can be contacted, as follows:

Anchorage.—Three large designated anchorage areas n Dalian Wan, are seen on the chart.

Quarantine Anchorage No. 1 for Cargo Vessels, with depths from 8 to 12m, sand or soft sandy mud, is bounded by lines joining the following positions:

a. 38°57'01"N, 121°46'03"E.
b. 38°55'19"N, 121°46'03"E.
c. 38°55'07"N, 121°45'41"E.
d. 38°56'20"N, 121°41'03"E.
e. 38°57'01"N, 121°41'03"E.

Quarantine Anchorage No. 2 for Cargo Vessels, with depths

from 9 to 12m, mud, provides good shelter from N and E winds and is bounded by lines joining the following positions:

a. 38°59'09"N, 121°46'58"E.
b. 38°57'41"N, 121°46'58"E.
c. 38°57'41"N, 121°42'33"E.
d. 38°57'39"N, 121°42'33"E.

Quarantine Anchorage for Oil Tankers, for tankers in quarantine, waiting, and pilot boarding, has depths from 8 to 9m, mud and provides good shelter from N and E winds and is position 38°58'30"N, 121°46'26"E. A dangerous wreck lies in position 38°58'36"N, 121°42'30"E to the E of the anchorage.

Ships requesting anchorage should contact Dalian Xingang Signal Station 1 hour prior to entering the port and anchor as directed.

4.7 Yuan Dao (Yuan Tao) (38°40'N., 122°10'E.), about 19.5 miles SE of Dasanshan Dao, is a small steep-to isle which, reported radar conspicuous at a distance of 17 miles, constitutes the farthest seaward danger in the approaches to Dalian Wan.

The island, which is marked by a light and radiobeacon, has a rounded 60m high summit and is a yellow earthen color.

Dalian Xingang (38°58'N., 121°54'E.) is located at the end of the peninsula extending SE along the NW side of Dalian Wan.

Dalian Xingang—Berthing Facilities

Berth	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
Xingang Oil Terminal						
No. 1	418m	17.5m	200,000 dwt	324m	32.0m	Crude.
No. 2	410m	16.5m	80,000 dwt	250m	12.5m	Crude and clean products.
No. 3	340m	13.8m	50,000 dwt	220m	12.6m	Crude oil, clean products, and NGL.
No. 4	340m	11.5m	10,000 dwt	250m	10.0m	Crude oil, clean products, chemicals, and NGL
No. 5	158m	7.2m	5,000 dwt	110m	6.5m	Crude oil, clean products, chemicals, and NGL.
No. 6	150m	—	—	100m	4.9m	Crude oil, clean products, chemicals, and NGL.
No. 7	53m	—	—	—	—	Petroleum products.
No. 8	60m	—	—	—	—	Petroleum products.
No. 9	51m	—	—	—	—	Petroleum products.
No. 10	60m	—	—	—	—	Petroleum products.
No. 11	60m	—	—	—	—	Petroleum products.
No. 12	60m	—	—	—	—	Petroleum products.
Dalian LNG						
LNG Berth	435m	—	—	—	—	LNG. Maximum displacement of 260,000m^3.
Xingang Oil VLCC Terminal						
No. 0	520m	25.4m	375,000 dwt	340m	22.4m	Crude oil and clean products.
Crude Oil Berth	430m	—	300,000 dwt	—	—	Crude oil.
Odfjell Terminals						
No. 13	157m	8.6m	5,000 dwt	—	7.6m	Chemicals.
No. 14	150m	8.6m	5,000 dwt	—	7.6m	Chemicals.
No. 15	312m	9.8m	10,000 dwt	—	8.9m	Chemicals.
No. 16	312m	14.8m	50,000 dwt	320m	14.1m	Chemicals.
Shihua Oil Terminal (Ganjingzi)						
No. 1	95m	6.5m	5,000 dwt	—	—	Petroleum products.

Dalian Xingang—Berthing Facilities						
Berth	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 2	18m	—	10,000 dwt	—	—	Chemicals.
No. 3	320m	13.8m	80,000 dwt	250m	11.5m	Crude, clean products, and chemicals.
No. 4	320m	13.5m	50,000 dwt	250m	11.5m	Crude, clean products, and chemicals.
No. 5	18m	—	10,000 dwt	—	—	Chemicals.
No. 6	95m	7.0m	5,000 dwt	—	—	Petroleum products.
Yisheng Dahua Jetties						
No. 4	60m	10.3m	12,500 dwt	130m	9.1m	Chemicals.
Dalian Fujia Dahua Petrochemical Terminal						
No. 1	350m	22.0m	80,000 dwt	250m	—	Petroleum products.
No. 2	71m	12.0m	10,000 dwt	128m	—	Chemicals.
Inner Berth	297m	—	5,000 dwt	—	—	Chemicals.
Outer Berth	297m	—	5,000 dwt	—	—	Chemicals.
Ganjingzi Oil Terminal						
No. 15	309m	10.0m	50,000 dwt	—	—	Clean products.
Shihua LPG Terminal (Ganjingzi)						
No. 7	780m	11.5m	30,000 dwt	232m	9.5m	LPG.
No. 8	780m	8.5m	7,000 dwt	183m	—	LPG.
No. 9	780m	7.2m	5,000 dwt	120m	7.2m	LPG.
No. 10	68m	8.0m	5,000 dwt	100m	7.7m	LPG.
No. 11	68m	9.0m	15,000 dwt	150m	8.7m	LPG.
New Port Product Oil Atlantic						
No. 1	180m	9.5m	32,000 dwt	—	—	Petroleum products.
No. 2	180m	9.5m	10,000 dwt	—	—	Petroleum products.
Dahua Chemical Terminal						
No. 5	150m	5.5m	3,000 dwt	—	—	Liquid sulphur.
Miscellaneous Berths						
Gandali	100m	7.8m	5,000 dwt	—	—	Petroleum.
Gandawai	150m	8.4m	10,000 dwt	—	—	Petroleum.
Ganshun No. 1	232m	8.5m	10,000 dwt	—	—	Petroleum and LPG.
Ganshun No. 2	183m	8.5m	7,000 dwt	—	—	Petroleum.
Ganshun No. 3	165m	7.0m	5,000 dwt	—	—	Petroleum.
Brightoil Terminal (Changxing Island)						
No. 1	430m	—	300,000 dwt	380m	—	Crude oil and clean products.
No. 2	—	—	100,000 dwt	—	—	Clean products. Under construction.
No. 3	—	—	100,000 dwt	—	—	Clean products. Under construction.

Dalian Xingang—Berthing Facilities						
Berth	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 4	—	—	50,000 dwt	—	—	Aviation fuel and clean products. Under construction.
No. 5	—	—	50,000 dwt	—	—	Aviation fuel and clean products. Under construction.
No. 6	—	—	10,000 dwt	—	—	Chemicals and clean products. Under construction.
No. 7	—	—	10,000 dwt	—	—	Chemicals and clean products. Under construction.
Hengli Petrochemical Terminal (Changxing Island)						
West Berth	318m	—	5,000 dwt	—	—	Petroleum products.
East Berth	318m	—	5,000 dwt	—	—	Petroleum products.
Inner Berth	200m	—	5,000 dwt	—	—	Petroleum products.

Depths—Limitations.—Approach to Dalian Xingang from Dalian Wan can be accomplished by passing through Xiaosanshan Shuidao (only for Chinese vessels) or through Sanshan Shuidao for non-commercial vessels (S of Xiaosanshan Dao) in depths from 27 to 32m. Best approach for foreign and commercial vessels would be from the SW, passing at least one mile S and E of Dasanshan Dao in depths of more than 40m.

See the table titled **Dalian Xingang—Berthing Facilities** for details on the berths available in Dalian Wan.

Pilotage.— See paragraph 4.6 for all other pilotage details, including details for advance reporting of ETA.

Vessel Traffic Service.—This area is subject to Vessel Traffic Service requirements established by Dalian VTS. See paragraph 4.6 for details.

Anchorage.—There are seven numbered single vessel anchorages, in depths of 24 to 29m, located approximately 2 miles SE of the Xingangzhen peninsula, all best seen on the chart.

Information on three designated quarantine anchorages, one for oil tankers and two additional ones for cargo vessels, can be found in paragraph 4.6.

Ships requesting anchorage should contact Dalian Xingang Signal Station 1 hour prior to entering the port and anchor as directed.

Also see Anchorage under paragraph 4.6 for boundaries of anchorages within Dalian Wan which could be used for vessels calling at Xingang after Dalian.

4.8 Dayao Wan (39°01'N., 121°53'E.) is a major sub-port contiguous with Dalian Wan.

Depths—Limitations.—The principal alongside berthing facilities lie on the SW side of the bay. and comprise several districts in which dredged basins, reclaimed land and breakwaters improve on natural features.

Dayao Wan is approached from the SE through N and S fairways, both marked by lighted buoys. These fairways pass through a N and S entrance into the harbor, which is protected by breakwaters with a detached breakwater 650m in length between the entrances. The N and S breakwaters extending from shore are marked by lights at their extremities and the detached breakwater is marked by a light at either end. Dayao Wan North Entrance Fairway has a minimum depth of 14.9m and can be navigated at high tide by vessels of up to 150,000 tons. Charted depths through the S fairway show minimum depths of 14.8m.

Dayao Wan is home to several container terminals along the SW shore of the bay and an automotive terminal in the NW part of the bay. See the table titled **Dayao Wan—Berthing Facilities** for details on the berths available in Dayao Wan.

Pilotage.—Pilotage is compulsory. Pilots will board vessels in the Dayao Wan anchorage (see Anchorage paragraph) for vessels bound directly to Dayao Wan. See paragraph 4.6 for all other pilotage details.

Regulations.—See paragraph 4.6 for details of reporting ETA.

Vessel Traffic Service.—This area is subject to Vessel Traffic Service requirements established by Dalian VTS. See paragraph 4.6 for details, including contact details.

Anchorage.—A designated anchorage area, depths of 19 to 26m, best seen on the chart, only for vessels calling at the container terminals or automobile terminal in Dayao Wan, is bounded by lines joining the following positions:

a. 38°59'16"N, 122°00'32"E.
b. 38°59'02"N, 122°02'31"E.
c. 38°57'26"N, 122°02'16"E.
d. 38°58'02"N, 120°00'16"E.

Nanshan Zui to Laotieshandong Jiao

4.9 Nanshan Zui (Nan-shan Tsui) (38°52'N., 121°41'E.) is a low steep-to point lying at the SE extremity of the hilly peninsula sheltering the W side of Dalian Wan. Foul ground, on which there is an islet 14m high and a rock 10m high, extends 0.25 mile SW of the point. The coastline between Nanshan Zui and Laotieshandong Jiao, about 28 miles WSW, forms the S littoral of Kuan-tung Pan-tao (Kwantung Peninsula), the hilly SW extension of Liodong Bandao. The coast is steep-to and largely clear throughout, except for several steep-

sided islets and off-lying rocks lying scattered to the E. Kuan-tung Pan-tao is reported radar conspicuous at a distance of 25 miles.

Yu Yan (Gu Gan) (38°35'N., 121°36'E.), marked by a light and racon, is a low steep-to islet which, appearing as a group of low rocks from the S, lies about 17 miles SSW of Nanshan Zui and constitutes the farthest seaward danger in the approaches to Kuan-tung Pan-tao. A rocky shoal, with a depth of 5m, extends 1 mile NE of Yu Yan. The islet has been reported to lie about 0.5 mile SW of its charted position.

Lushun (Lu-shun) (38°47'N., 121°15'E.) (World Port Index No. 60240) is a minor port having an inner harbor consisting of a small landlocked bay well-sheltered throughout by low-lying hills and an outer harbor consisting of an open roadstead.

The inner harbor, entered through a narrow deepwater channel, is divided into two sections. Hsi Kang (Nishi Ko), the W section, is largely choked by drying mud flats. Tung Chiang, the E section, an artificial basin with quays on all sides, is home to a naval base and normally used by naval vessels.

Winds—Weather.—The basin has general depths of 7.3 to 8.8m which can be reduced by as much as 1.5m during continuous strong N winds.

Dayao Wan—Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Dayao Grain Terminal				
No. 1	290m	14.6m	80,000 dwt	Grain and bulk.
No. 1A	135m	—	—	Dry bulk.
No. 1	240m	12.1m	50,000 dwt	Grain and general cargo.
No. 2	240m	12.1m	50,000 dwt	General cargo.
Dalian Container Terminal (DCT)				
No. 3	237m	11.7m	35,000 dwt	Containers.
No. 4	267m	11.7m	35,000 dwt	Containers.
No. 5	346m	12.1m	35,000 dwt	Containers.
No. 6	324m	14.0m	35,000 dwt	Containers.
No. 7	316m	14.0m	35,000 dwt	Containers.
No. 8	406m	14.0m	—	Dry bulk.
No. 9	260m	14.0m	—	Containers.
No. 10	220m	14.0m	—	Containers.
Dalian Port Container Terminal (DPCM)				
No. 11	290m	16.0m	—	Containers—4,400 teu.
No. 12	360m	16.0m	—	Containers—4,400 teu.
No. 13	340m	16.0m	—	Containers—6,000 teu.
No. 14	310m	16.0m	—	Containers—6,000 teu.
No. 15	325m	17.5m	—	Containers—6,000 teu.
No. 16	333m	17.5m	—	Containers—6,000 teu.
Dayao Wan Container Berths				
No. 17	300m	—	—	Containers.
No. 18	450m	—	—	Containers.
Dallain Automotive Terminal				
DAT 1	640m	11.0m	—	Automotive terminal.
DAT 2	640m	11.0m	—	Automotive terminal.
DAT 3	640m	11.0m	50,000 dwt	Automotive terminal.
DAT 4	250m	—	50,000 dwt	Automobile terminal. Under construction.

Ice.—Ice occurs from January to March.

Depths—Limitations.— Nine vessels can be moored along

the walls of the basin, with depths of 6.4 to 8.8m.

Lushun New Port is being constructed (2014) outside the inner harbor and will be a subport to Dalian.

Aspect—Lu-shun (Ryojun) (Port Arthur) is a populous community lying on both sides of a small river entering the N side of Hsi Chiang.

Pilotage.—Pilotage is compulsory. Pilots board in position 38°48'N, 121°04'E.

Regulations.—The Yantai Maritime Safety Administration (MSA) has announced (2016) a ro-ro ship route has been designated between Lushun Gang and Longkou Gang. This route passes through Changshan Shuidao and Laotieshan Shuidao, with the main turning points at position 37°52'42"N, 120°10'30"E and position 38°41'N, 120°47'E. Vessels are obliged to comply with this regulation in order to prevent collisions.

Signals.—Vessels, intending to transit the entrance channel, are cautioned that natural features often screen vessel movement within the inner and outer harbors and, in consequence, are advised that traffic signals controlling vessel movement are displayed from the signal station atop Lao-hu-wei Shan, a barren rounded hillock backing the W entrance point of the channel.

Anchorage.—Vessels can obtain anchorage 0.5 to 0.75 mile S of the W entrance point to Lushan Gang, in a depth of 10m; however it is exposed and onshore winds can create a heavy sea. Pilotage is compulsory.

Liaodong Wan—Laotieshan Jiao to Ta-ch'ing Ho

4.10 Liaodong Wan (Liao-tung Wan) (40°30'N., 121°30'E.), the smaller constituent part of the extensive inland sea opening out to the W and N of Bo Hai Haixia, is a large body of water lying, by definition, to the N of a line between Laotieshan Jiao and the entrance to Ta-ch'ing Ho. Depths throughout are largely shoal and rarely exceed 29.2m.

Liaodong Bandao Bay is entered between Xizhong Dao and **Xiaolongshan Dao Light** (38°58'N., 120°59'E.) and is continued to the E by the inlet Pulantien Chiang.

Tides—Currents.—The current sets fair through the channel. Off Ch'ang Tao, the flood begins about 1 hour after LW and continues about 7 hours. The ebb begins about 2 hours after HW. Flood and ebb currents each reach maximum velocities of l.25 to 2.75 knots, occurring 3 hours 30 minutes and 4 hours after HW and LW water, respectively.

Aspect.—Dagu Shan Lighthouse (39°52'N., 121°32'E.) is shown from a point of land about 10 miles NNE of Fuzhou Wan.

Pilotage.—Pilots board in the following positions:

a. 40°15'18"N, 121°48'36"E.
b. 40°26'00"N, 121°06'00"E.

Anchorage.—Vessels, seeking shelter from all but W wind, anchor as convenient throughout the bay. Smaller vessels anchor in the lee of the various islands. Vessels enter Liaodong Bandao and anchor, in 6.4 to 9.2m, close NW of Cb'ang Tao and, in 5.5 to 11.m, close W of Po-chi Tao. Vessels enter Liaodong Bandao channel with a draft of 5.5m at HW and 3.7m at LW. Gale force winds can cause a water level fluctuation of as much as 0.6m.

In Fuzhou Wan, vessels anchor, in 8.2m, mud bottom. Small vessels anchor farther to the E. Vessels seeking shelter from all but W winds, anchor as convenient, in less than 14.6m, good holding ground of sand and clay, S of Changxing Dao in Hulushan Wan.

4.11 Changxing Dao Port (39°30'N., 121°17'E.) has been built out from the shores of Hulushan Wan. The port continues to undergo development for the construction of a large facility intended for ship building, ship repairs, and vessel dismantling.

Depths—Limitations.—Changxing Dao Port is entered from the SW, passing between Changxing Dai Light and the NW coast of Xizhong Dao.

A breakwater extends from the shore near a point close S of Majia Zui (39°33'N., 121°13'E) across the N entrance to Huiushan Wan and is described by the line joining the following points:

a. 39°30'54"N, 121°13'24"E. (coast)
b. 39°28'24"N, 121°13'24"E.
c. 39°27'54"N, 121°13'36"E.

A narrow channel leads into the inner harbor and is marked by lighted buoys, becoming a dredged channel close inside the breakwater close to Changxing Dao Lighted Buoy C01, equipped with a racon, and continuing N into the deep-water berths that have been built on reclaimed land on the N side of Hulushan Wan. The dredged portion of the channel inside the inner harbor to the deep-water berths is maintained at a minimum depth of 13m.

Three berths on the W side of the inner harbor have depths of 12 to 13m alongside. Additional berths are presently (2014) being constructed on the E side of the harbor.

Vessels should maintain a listening watch on VHF channel 16 and report to Dalian Traffic Control.

Pilotage.—Pilots board in position 39°27'N, 121°11"E.

Anchorage.—Three outer anchorage areas have been designated and are centered on the following positions:

a. 39°20'36"N, 121°12'00"E, with depths from 20 to 28.1m.
b. 39°22'36"N, 121°12'30"E, with depths from 30 to 35m.
c. 39°24'21"N, 121°12'30"E, with depths from 29.1 to 36m.

Caution.—A wreck lies SW of Majia Zui in depths of 16.2m in position 39°25'30"N, 121°03'06"E.

4.12 Laotieshan Jiao (Lao-t'ieh-shan-hsi Chiao) (38°44'N., 121°08'E.) is a steep-to rounded point lying at the SW extremity of Kuan-tung Pan-tao, the hilly SW extension of the larger peninsula Liodong Bandao. A light is situated on the SW slope of Laotieshanzi Jiao. The coastline between the point and the entrance to the river Ta-ch'ing Ho, about 110 miles WNW, recedes in general to the NE and delimits a coast diverse in character. The SE coast is largely low-lying and consists of a coastal plain which, interrupted by numerous bold headlands, rises to the rounded foothills on the slopes of the mountain range within the interior of Liaodong Bandao. There are numerous shoals in the offshore area. The NE coast is the low, swampy seaward limit of a vast level to undulating plain which, traversed by several large silt-laden streams, extends better than one hundred miles inland. The offshore area is shoal well seaward and has drying coastal mud flats extending as far

Dagu Shan Light

as 12 miles offshore. The NW coast is predominantly low and consists of a well-cultivated coastal plain rising to hills some 5 to 11 miles inland. The offshore area is shoal and has, in its NE part, wide margins of drying coastal mud flats.

Xiamen Dao (40°13'N., 121°57'E.), an island of reclaimed land, lies 8 miles SW of Bayuquan. An oil pier, protected by a breakwater to its S, is marked by lights at its N and S ends. It is reported (2009) that the pier can accommodate tankers of up to 30,000 dwt.

4.13 Xianrendao Gangqu (40°13'N., 121°57'E.), a new developing port (2015) which is a subport of Yingkou, is located on the E side of Liaodong Bay.

Depths—Limitation.—The port is approached through a channel, about 15 miles in length, marked by lighted buoys, starting between Buoy No. 1 and Buoy No. 2 in the vicinity of position 40°09'22"N, 121°38'50"E. The least depth in the channel is 21.6m; the channel is reported to be 300m in width.

A new front range light structure has been completed (2018) within an area bounded by lines joining the following positions:

a. 40°13'01.7"N, 122°00'41.4"E.
b. 40°12'58.4"N, 122°00'36.1"E.
c. 40°12'53.4"N, 122°00'41.5"E.
d. 40°12'56.7"N, 122°00'46.7"E.

Passing vessels should give it a wide berth.

The harbor is protected by South Breakwater, extending approximately 1,300m NNW from shore. There is presently only one berth in the harbor, for crude oil, which can accommodate tankers as large as 300,000 dwt. Depths alongside this berth are 22m.

Pilotage.—Pilots board vessels at the following positions:

a. 40°09'10"N, 121°37'20"E.
b. 40°12'45"N, 121°43'00"E.
c. 40°12'45"N, 121°43'00"E.

4.14 Bayuquan (40°18'N., 122°05'E.) (World Port Index No. 60230), is a subport of, and lies close SE of Yingkou on the E side of Liaodong Bay. The harbor handles cargoes of various ores, steel, containers, and grain.

Tides—Currents.—The average tidal range during flood stage is 2.7m; the minimum range during the ebb tide is 1.8m.

Depths—Limitations.—Bayuquan is approached from the W through a fairway, approximately 12 miles in length, marked by lighted buoys, with a minimum depth of 22m up to between Lighted Buoy No. 35 and Lighted Buoy No. 36. An obstruction, existence doubtful, with a depth of 8.1m, lies on the S side of the fairway between Lighted Buoy No. 35 and Lighted Buoy No. 37. The harbor is protected by breakwaters.

There are four numbered basins from N to S, with a fifth basin located in the northernmost area of the inner harbor called Basin A. All cargo operations are carried out at the berths in these basins plus along the shoreside quay E of the W breakwater in the S part of the inner harbor. Extensive development and land reclamation is taking place in the S part of the inner harbor inside the W breakwater that will increase the cargo-handling capacity substantially over the next few years.

The approaches to Basin A and Basin No. 1 inside the breakwaters are marked by lighted ranges. The approach to Basin A has a least depth of 15.7m at the beginning of the lighted range and then, for the remainder of the range, a least depth of 16.2m. The least depth along the lighted range to Basin No. 1 is 22m.

See table titled **Bayuquan—Berth Information** for details on the berths in the harbor.

Pilotage.—Pilots are provided by the port of Yingkou. See paragraph 4.15 for details.

Regulations.—Bayuquan port area and approaches are part of the area under control of the Yingkou Vessel Traffic Service (VTS). See paragraph 4.15 for details.

Bayuquan—Berth Information

Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	LOA	
Coal Terminal					

Bayuquan—Berth Information					
Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	LOA	
A1 to A4	380m	15.5m	—	—	Coal.
A2	380m	15.5m	—	—	Coal.
A3	380m	15.5m	—	—	Coal.
A4	380m	15.5m	—	—	Coal.
A5	380m	18.0m	—	—	Coal.
A6	340m	18.0m	—	—	Coal.
Chemical Terminal					
No. 11	57m	11.0m	85,000 dwt	300m	Chemicals and clean products.
No. 12	60m	9.5m	45,000 dwt	210m	Chemicals and clean products.
No. 13	75m	9.5m	45,000 dwt	200m	Chemicals and clean products.
Nos. 14-15	—	13.0m	45,000 dwt	296m	Chemicals and clean products.
Iron Ore Terminal					
No. 16	340m	17.5m	150,000 dwt	—	Iron ore.
No. 17	360m	20.0m	200,000 dwt	—	Iron ore.
No. 18	405m	24.0m	300,000 dwt	—	Iron ore.
General Cargo Terminal					
No. 20	290m	12.0m	—	—	General cargo.
Bayuquan Oil Terminal					
No. 21	460m	14.2m	—	—	Oil products.
General Cargo Terminal					
No. 22	289m	10.5m	30,000 dwt	—	General cargo.
No. 23	212m	11.5m	30,000 dwt	—	General cargo.
No. 24	212m	11.5m	30,000 dwt	—	General cargo.
No. 25	251m	13.5m	120,000 dwt	—	General cargo.
No. 26	330m	15.8m	120,000 dwt	—	General cargo.
No. 30	244m	7.5m	5,000 dwt	—	General cargo.
No. 31	193m	11.5m	30,000 dwt	—	General cargo.
No. 32	194m	10.5m	5,000 dwt	—	General cargo.
No. 33	194m	10.5m	15,000 dwt	—	General cargo.
No. 34	155m	10.5m	6,000 dwt	—	General cargo.
No. 35	154m	10.5m	5,000 dwt	—	General cargo.
No. 36	193m	10.5m	15,000 dwt	—	General cargo.
No. 37	194m	10.5m	15,000 dwt	—	General cargo.
No. 38	194m	10.5m	15,000 dwt	—	General cargo.
No. 40	210m	7.5m	6,000 dwt	—	General cargo.
No. 41	240m	14.0m	70,000 dwt	—	General cargo.
No. 46	220m	9.0m	10,000 dwt	—	Grain.
No. 47	258m	12.5m	10,000 dwt	—	Grain.

Bayuquan—Berth Information					
Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	LOA	
Container Terminal					
No. 51	271m	14.0m	50,000 dwt	—	Containers.
No. 52	300m	14.0m	50,000 dwt	—	Containers.
No. 53	280m	14.0m	50,000 dwt	—	Containers.
No. 54	280m	15.5m	100,000 dwt	—	Containers.
No. 55	280m	15.5m	100,000 dwt	—	Containers.
No. 56	280m	15.5m	100,000 dwt	—	Containers.
Steel Products Terminal					
No. 57	280m	15.5m	10,000 dwt	—	Steel.
No. 58	280m	15.5m	10,000 dwt	—	Steel.
No. 59	280m	15.5m	10,000 dwt	—	Steel.
No. 60	280m	15.5m	10,000 dwt	—	Steel.
No. 61	280m	15.5m	10,000 dwt	—	Steel.
No. 62	280m	15.5m	10,000 dwt	—	Steel.
No. 63	280m	15.5m	10,000 dwt	—	Steel.

Anchorage.—A large vessel anchorage, in depths of 12 to 15m, mud and sand, marked by a buoy at its center, lies in position 40°21'43"N, 121°52'57"E. A dangerous wreck, depth 13.9m, lies in the NW part of this anchorage. Other dangerous wrecks lie close W and NW of the northwesternmost corner of the anchorage. An unknown submerged obstruction, depth 13.2m, lies close S of the area.

A small vessel anchorage, also used for quarantine and a pilot boarding area, is centered on position 40°21'07"N, 122°00'05"E, in depths of 6 to 15m, mud. A spoil ground, with least depths of 2.9m and marked by a lighted buoy, is located 800m N of the anchorage.

Angang Bayuquan (40°20'N., 122°08'E.), located about 2 miles NE of the main port of Bayuquan, is a steel-operating area. Angang Bayuquan is approached through Angang Hangdao using an approach channel approximately 6 miles in length. The approach channel passes over a spoil area, with a minimum depth of 15.1m, and two dangerous wrecks and obstructions, with minimum depths of 14.2m. A marginal wharf, about 800m in length, is marked with a light at each end.

4.15 Yingkou (40°41'N., 122°14'E.) (World Port Index No. 60220), about 128 miles NNE of Laotieshan Jiao, is a port lying close inside the entrance to Liao Ho (Ryo Ga), a sluggish river which, originating with the confluence of two rivers some 295 miles to the NNE, traverses the lowlands at the head of Liaodong Wan before reaching the sea through wide margins of drying mud flats. A bar of hard sand obstructs the river entrance about 13 miles downstream from the berthing facilities at Yingkou.

Ice closes the river from about mid-November to mid-April.

River water levels fluctuate seasonally, being highest in the rainy season (July and August) and the period of melting snow (March and April) and then lowest in autumn. Water levels over the bar similarly fluctuate and, during the greater part of the navigation season (i.e. June to November), average 5.5m at HWS and 4.9m at HWN.

Ice.—Floating ice and drift ice may affect vessels in the fairway and at anchor during the ice period. The port of Yingkou, which may be closed in extreme conditions, has icebreakers or ice-breaking resources, as well as rescue and assistance authorities.

Winds—Weather.—Winds from the S raise the water level and from the N decrease it. Depths within the river and over the bar are affected by silting. In general, vessels able to cross the bar can proceed to Yingkou, provided it does not exceed a length of 143m during the months of June to September or exceed a length of 130m during April, May, and October.

Tides—Currents.—Seaward of Liao Ho bar, the flood sets first NNW, then N and NNE. At the bar, the flood sets N and the ebb S with a velocity of 2 to 4 knots. The flood begins when the water level over the bar increases 0.3 to 0.6m and sets upstream 4 to 5 hours. The ebb begins when the water level decreases a similar amount and sets seaward 7 to 8 hours.

Depths—Limitations.—Yingkou Gang has depths of more than 10m within the buoyed channel. There are nine berths in Yingkou harbor. Four wharves with five general cargo berths are available. Three berths are capable of accommodating 3,000-ton class vessels and two berths for small vessels of the 500-ton class. Three new berths have recently been completed, two for 3,000-ton class vessels and one for 1,000-ton class vessels. Larger vessels can be handled at the outer anchorages.

The Liao He Ultra Large Bridge crosses the river close N of Yingkou shipyard (40°41'N., 122°11'E.); the vertical clearance is not known.

Pilotage.—Pilotage is compulsory. Agents will send instruc-

tions to inbound vessels advising them of the time and position for pilot boarding. Vessels are required to confirm receipt of this message in order to avoid delays. Pilots can be contacted on VHF channel 8.

Pilots will board vessels in the following positions:

a. 40°31'03"N, 121°58'27"E—Yingkou Pilot Anchorage.
b. 40°18'25"N, 121°54'04"E—Bayuquan No. 1.
c. 40°12'45"N, 121°43'00"E—Bayuquan No. 2.
d. 40°21'01"N, 122°00'05"E—Bayuquan Quarantine Anchorage.
e. 40°09'10"N, 121°37'21"E—Xianrendao No. 1.
f. 40°04'00"N, 121°30'00"E—Xianrendao No. 2.
g. 40°23'41"N, 122°50'59"E—Rongxing.
h. 40°36'00"N, 121°58'18"E—Rongxing.

Vessel Traffic Service.—Yingkou Vessel Traffic Service (VTS) has been established in Yingkou. The VTS operates in the area extending a radius of 20 miles from Tazi Shan Light (40°18'N., 122°07'E.). The VTS is comprised of Tazi Shan Radar Station and Yingkou VTS Center. Participation in the VTS is mandatory for all foreign vessels and Chinese vessels 200 gt or larger.

Vessels should report to the Yingkou VTS, using English or Mandarin Chinese, on VHF channel 69, as follows:

1. **Position Report—**On entering the VTS area and on arrival at No. 1 Lighted Buoy (40°32'N., 122°01'E.), stating the following information:
   a. Vessel name.
   b. Nationality.
   c. Call sign.
   d. Draft.
   e. Vessel characteristics.
   f. Last port of call.
   g. Cargo on board.
   h. Confirm if pilotage required.
   i. Cargo operations plan.
   j. Navigational intentions.
2. **Anchoring Report—**Vessels should report their position and time of anchoring within the VTS area. This information should also be reported to Yingkou Maritime Department via VHF channel 9.
3. **Plan Report—**Vessels should report any intended action or movement within the area at least 30 minutes prior to commencement, including the following:
   a. Vessel name.
   b. Details of intended action or movement.
4. **Variation Report—**Vessels should report any change to navigation or anchoring plans, including the following:
   a. Vessel name.
   b. Details of variation.
5. **Accident Report—**Emergency situations, vessel traffic incidents, or conditions of pollution must be reported, including the following:
   a. Vessel name.
   b. Time of incident.
   c. Details of incident.
6. **End Report—**Vessels must report completion of action or departure from the VTS area.
   a. Vessel name.
   b. Time of completion for action previously reported or time of departure from the VTS area.

Vessels in port must maintain a continuous listening watch on VHF channel 69.

Yingkou VTS will provide information regarding vessel movement, condition of aids to navigation, hydrology and meteorology, and navigation warnings upon request or when deemed necessary by the VTS Center.

Navigational or emergency assistance may also be rendered upon request by the VTS.

Contact Information.—The port can be contacted, as follows:

Yingkou Contact information	
Yingkou Port	
Call sign	Yingkou Radio
VHF	VHF channels 10 and 16
Telephone	86-417-6260610
Facsimile	86-417-6251523

Yingkou VTS can be contacted, as follows:

Yingkou Contact information	
Yingkou VTS	
Call sign	Yingkou VTS
VHF	VHF channels 65 and 69
Telephone	86-417-6151427
Facsimile	86-417-6269564
E-mail	vtsyk@lnmsa.gov.cn

Anchorage.—The anchorage off Yingkou can accommodate vessels up to about 4,500 tons. Vessels moor in two lines parallel to the bank. The bottom is soft mud and the holding ground is not very good. The preferred holding ground is below the Customs House.

A general anchorage area lies in that part of the river between positions 1 mile below and 1 mile above the Customs House (40°40.7'N., 122°15.5'E.). The explosives and quarantine anchorage is situated 1 mile below this general anchorage.

Vessels carrying mineral oil anchor as directed by the harbormaster.

Directions.—The proximity of shoal water on each side of the approach, and the absence of landmarks, make it advisable to obtain a good landfall to the SSW before making the approach.

Caution.—Entry is prohibited into a restricted area bounded by lines joining the following positions:

a. 40°37'18"N, 122°00'18"E.
b. 40°35'00"N, 122°00'18"E.
c. 40°35'00"N, 121°59'12"E.
d. 40°37'18"N, 121°59'12"E.

4.16 Rongxing (40°41'N., 122°00'E.) is a new subport of Yingkou lying close NW of Yingkou.

Depths—Limitations.—Rongxing is approached through a

channel beginning in position 40°26'24"N, 121°53'34"E. The channel is 12 miles in length, with depths of 10 to 13m, and is marked by lighted buoys. There are two breakwaters which form the harbor and protect it along the western and southern edges. The port presently consists of one basin with berths on three sides and extensive development and land reclamation continuing close N of this basin.

Two pontoon berths are on the SE side of a jetty on the NW side of the basin. The outer berth is 585m in length, with a minimum depth of 12.3m alongside. The inner berth is 452m in length, with a minimum depth of 13.9m alongside.

A quay along the NE and SE sides of the basin has depths alongside of 11.3 to 12.3m.

Pilotage.—Pilotage is compulsory and pilots will be supplied from Yingkou. See paragraph 4.15 for procedures and boarding positions.

Anchorage.—An outer anchorage has been established outside the approach channel, in depths of 12 to 15m, mud and sand, marked by a buoy at its center, and bounded by lines joining the following positions:

a. 40°39'01"N, 121°57'08"E.
b. 40°38'34"N, 121°59'08"E.
c. 40°37'17"N, 121°59'08"E.
d. 40°37'17"N, 121°57'08"E.

A dangerous wreck, depth 13.9m, lies in the NW part of this anchorage. Other dangerous wrecks lie close W and NW of the northwesternmost corner of the anchorage. An unknown submerged obstruction, depth 13.2m, lies close S of the area.

A trans-shipment anchorage has been established farther N, straddling the approach channel between Buoy No. 29 and Buoy No. 32, with depths of 2.2 to 15m. The shallowest depths are on the W side of the channel, with 7.2m to 9m found on the E side. This anchorage is bounded by lines joining the following positions:

a. 40°22'53"N, 121°50'50"E.
b. 40°22'53"N, 121°55'01"E.
c. 40°20'30"N, 121°55'01"E.
d. 40°20'30"N, 121°50'50"E.

Caution.—Three areas with works are in progress, beginning with one crossing the approach channel and the other two located close NW, as follows:

a. 40°40'34"N, 121°58'52"E to 40°40'32"N, 121°59'32"E.
b. 40°42'32"N, 121°57'13"E to 40°41'29"N, 121°57'41"E.
c. 40°44'56"N, 121°56'38"E to 40°44'05"N, 121°56'45"E.

4.17 Huludao Gang (Hu-lu-tao Chiang) (40°42'N., 120°59'E.) (World Port Index No. 60210), about 120 miles N of Laotieshan Jiao, is a small man-made seaport, enclosed by a breakwater, lying on the S side of a hilly finger of land extending several miles seaward and terminating in Huludaogao Jiao (Hu-lu-tao-kao Chiao), a precipitous rock-fringed promontory. Huludao is one of China's main military ports that is being opened up to commercial shipping with construction taking place, including further development at the man-made seaport.

Winds—Weather.—Winds from the S and SW are common during spring and summer, E winds less so. Fresh winds from the E send a heavy swell into the harbor and frequently render alongside berths untenable.

Ice.—The harbor freezes over from December to March.

Depths—Limitations.—The harbor is approached through a buoyed channel entered between Huludao Gang Buoy No. 1 and Huludao Gang Buoy No. 2 (40°37'28"N, 121°02'52"E), then follows a lighted range to a second buoyed channel entered between Huludao Gang Buoy No. 11 and Huludao Gang Buoy No. 12 (40°40'49"N, 120°59'46"E).

Huludao Gang Terminal			
Berth No.	**Length**	**Depth**	**Remarks**
1	40m	10.9m	Clean products. Vessels up to 10,000 dwt.
2	74m	—	Crude oil. Vessels up to 30,000 dwt.

Two bulk cargo berths can accommodate vessels as large as 70,000 dwt at each berth; a petrochemical berth can accommodate vessels up to 10,000 dwt. The Huludao Terminal has two berths as shown in the table titled **Huludao Gang Terminal**.

Aspect.—A light is situated on Huludaogao Jiao. Range lights, aligned 324°, lead into the harbor.

Pilotage.—Pilotage is compulsory and available during daylight hours only. The pilot boards in the following positions:

1. No. 1—Position 40°38'30"N, 121°01'33"E.
2. No. 2—Position 40°32'02"N, 121°05'09"E.

Contact Information.—The port can be contacted, as follows:

Huludao Contact information	
Huludao Port	
VHF	VHF channels 65 and 69
Telephone	86-429-3115573
Facsimile	86-429-3115573

4.18 Jinzhou (40°45'N., 121°06'E.) (World Port Index No. 60215) is a developing port located in the N part of Jinzhou Wan which is close N of Huludao Gang. Jinzhou Gang handles petrochemicals, fertilizers, steel, ore, grain, containers, and many other types of general cargo.

Jinzhou—BerInformation						
rth	**Berth Length**	**Depth Alongside**	**Maximum Vessel**			**Remarks**
			Size	**LOA**	**Beam**	
Jinzhou New Age Container Terminal						
No. 207	259m	15.4m	50,000 dwt	—	—	Containers and reefer.

Jinzhou—BerInformation						
rth	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
No. 208	274m	15.4m	63,253 dwt	284m	32.2m	Containers and reefer.
No. 209B	338m	16.0m	100,000 dwt	294m	40.0m	Containers, bunkers, and reefer.
No. 210B	339m	16.0m	100,00 dwt	294m	40.0m	Containers, bunkers, and reefer.
Jinzhou Port						
No. 101B	110m	14.0m	120,000 dwt	256m	44.0m	Clean products.
No. 102B	97m	11.0m	119,000 dwt	180m	29.0m	Chemicals and dirty products.
No. 103B	—	11.0m	19,996 dwt	160m	23.8m	Chemicals and clean products.
No. 104B	190m	11.0m	6,929 dwt	114m	17.4m	Clean products.
No. 105B	152m	10.7m	150,000 dwt	146m	21.0m	Chemicals and clean products.
No. 106B	230m	12.7m	51,833 dwt	189m	32.2m	Chemicals and clean products.
No. 107B	150m	7.5m	30,000 dwt	—	—	Breakbulk.
No. 201B	262m	12.0m	37,898 dwt	180m	32.0m	Limestone.
No. 202B	280m	14.0m	74,952 dwt	235m	36.0m	Grain.
No. 203B	340m	15.4m	74,952 dwt	235m	36.0m	Bunkers.
No. 204B	242m	15.4m	74,952 dwt	235m	36.0m	Bunkers
No. 205B	311m	16.0m	117,549 dwt	254m	43.0m	Bunkers
No. 206B	365m	16.0m	117,549 dwt	225m	43.0m	Bunkers
No. 301B	50m	19.0m	320,821 dwt	333m	61.0m	Crude.
No. 304	—	16.0m	107,392 dwt	254m	43.0m	Coal and bunkers.
No. 305	—	16.0m	107,392 dwt	254m	43.0m	Coal.
No. 306	—	16.0m	107,392 dwt	254m	43.0m	Coal.
No. 34	155m	10.5m	6,000 dwt	—	—	General cargo.
No. 35	154m	10.5m	5,000 dwt	—	—	General cargo.
No. 36	193m	10.5m	15,000 dwt	—	—	General cargo.
No. 501B	44m	7.72m	5,511 dwt	254m	43.0m	Chemicals and CCP.
No. 502B	77m	12.9m	51,549 dwt	254m	43.0m	Aviation fuel.

Winds—Weather.—Prevailing winds are NE to NW during the winter months and light SW to SE during the summer. Winds exceeding gale strength occur infrequently unless there is a tropical cyclone in the area; this would generally happen during the late summer and autumn months. Fog is also not very prevalent, occurring only on an average of 5 days a year, mostly between spring and summer.

Ice.—The port area is subject to ice coverage averaging 20cm between late November and late February but vessels may still enter and depart with the use of tugs that are equipped to be used as icebreakers.

Tides—Currents.—The port is subject to semi-diurnal tides with the peak at 4.22m and the lowest at 1.22m. Tidal currents set SE at 0.4 to 0.6 knots during ebb tide.

Depths—Limitations.—Jinzhou is approached from the S through a channel, 7,750m in length, marked by lighted buoys and range lights. This channel is 120m wide with a depth of 11m. Vessels as large as 50,000 dwt can use this channel during the appropriate tide height for their draft. Information on tanker, general cargo, and container berths are listed in the table titled **Jinzhou—Berth Information**.

Pilotage.—Pilotage is compulsory for foreign vessels but optional for Chinese vessels and is available only during daylight hours.

Pilots can be contacted on VHF channel 14.

The agent will send instructions to inbound vessels for the time and position of the pilot boarding. The vessel is required to confirm receipt of messages to avoid delays to the vessel.

Pilots board in the following positions:

a. 40°26'00"N, 121°06'00"E.
b. 40°35'00"N, 121°04'30"E.
c. 40°41'30"N, 121°03'30"E.

d. 40°32'01"N, 121°05'01"E.
e. 40°42'24"N, 121°06'30"E.—Quarantine anchorage.

Regulations.—Arrivals and departures are during daylight hours at HW.

Vessels should send their ETA to the agents 72 hours, 48 hours, and 24 hours prior to expected arrival time at the pilot boarding position. The ETA message should include the following information:

1. Time and date of expected arrival at pilot station.
2. Expected fresh and salt water drafts.
3. Details of any dangerous cargo on board, including packaging, IMO Code, and gross/net weight.

If the ETA or any other circumstances regarding the vessel's expected arrival change significantly, the vessel should promptly advise these changes to the agents.

Contact Information.—The port can be contacted, as follows:

Jinzhou Contact information	
Jinzhou Port Authority	
Call sign	Jinzhou Radio
VHF	VHF channels 6, 9, and 16
Telephone	86-716-821-3095
Facsimile	86-716-821-3095
E-mail	info@jzgwt.com

Anchorage.—Three designated anchorage areas are, as follows:

1. Quarantine (No. 1).—40°42'24"N, 121°06'30"E, depth of 9.5m, with good holding ground, mud.
2. Waiting (No. 2).—40°33'00"N, 121°26'18"E, depth of 11m, with good holding ground, mud.
3. Tanker (No. 3).—40°15'00"N, 121°22'00"E, depth of 17m.

Caution.—There are many fishing nets around the harbor area from March through September so special care must be taken with navigation.

4.19 Suizhong Gang (40°04'N., 121°03'E.) (World Port Index No. 60205) is a new port located approximately 20 miles ENE of Qinhuangdao and is continuing to undergo expansion.

Depths—Limitations.—Two channels, both marked by lighted buoys, lead into the harbor. There are two piers in Suizhong Gang, with the main pier being reached by the main channel. The second pier is located in the far W portion of the harbor and is reached by use of the second channel described below.

The main channel leads into the port from a position between Lighted Buoy No. 1 and Lighted Buoy No. 2 and has a least depth of 12.4m. Three berths are located on the main pier; an outer tanker berth for vessels as large as 50,000 dwt and a charted depth of 15m, a center berth for tankers as large as 30,000 dwt and charted depth of 13m, and the inner bulk cargo berth for vessels as large as 2,000 dwt with charted depth between 7 and 8m.

The second channel is entered about 1,000m N of the center tanker berth in the main channel and is used only for proceeding to the westernmost coal wharf, where depths alongside are 6.6m.

Pilotage.—Pilots board between Buoy No. 3 and Buoy No. 4 in position 40°00'36"N, 120°02'42"E.

4.20 Qinhuangdao (Ch'in-huang-tao) (39°56'N., 119°37'E.) (World Port Index No. 60200) is a principal coal-exporting port which lies on a generally featureless coastal plain about 100 miles NW of Laotieshan Jiao.

Ice.—Ice conditions occur from January to mid-February. During this time, NE winds may bring a large amount of drift ice from the head of Liaodong Wan.

Tides—Currents.—The range of tides is 1.1 to 1.5m at springs and 0.7 to 1.1m at neaps. South of the harbor, the flood tide sets W and the ebb tide E, at a maximum velocity of 1 knot.

Depths—Limitations.—Big Pier, the outer breakwater, curves SW from a position 0.25 mile SW of **Nanshan Tou** (39°55'N., 119°37'E.), a bluff on the E side of the harbor. The inner side provides berthing facilities. Small Pier lies 0.15 mile NW of Big Pier.

The Main Channel and Xi Hangdao have a designed depth of 13.5m (2018) and can be used by container vessels up to 70,000 gt and bulk cargo vessels up to 100,000 gt with an underkeel clearance not less than 10% of maximum draft. Dong Hangdao and Coal Channel Stage 3 have a least charted depth of 12.9m and 11.2m, respectively. Shiwandunji Hangdao can be used by vessels of 100,000dwt and has a least charted depth of 15.0m.

The Original Fairway, which leads to these piers, starts 1.75 miles seaward of Big Pier, is 100m wide, 9.4 to 10.4m deep, and is marked by range lights, in line bearing 352.5°.

New Pier, an L-shaped wharf, lies 0.3 mile NW of the head of Big Pier. Range lights, bearing 310°, lead to the New Pier by way of the West Fairway. There are 13 berths for container and cargo vessels of 35,000 dwt.

Alongside depths in the main harbor area are reported to be from 4.9 to 9.7m. The bottom is very soft mud.

The East Fairway, 2 miles long and dredged to 10.7m, is marked by range lights bearing 011°. This channel leads in a NNE direction to the Oil Harbor.

The approach fairway has depths of 12 to 13.5m and is marked by range lights in line bearing 340°.

An oil jetty, extending 1 mile SSE from the shore 2 miles ENE of Nanshan Tou, forms the E side of Oil Harbor. Two piers with berths for tankers extend WSW and SSW from Oil Jetty and there is a berth on the W side of the jetty at its S end. A light is situated from the head of each pier.

Qinhuangdao Taishan Chemical quay has four berths. Berths Nos. 1 and 2 have a combined length of 368m and an alongside depth of 9.5m; vessels of up to 10,000 tons can be accommodated. Berths Nos. 3 and 4 have a total length of 264m and an alongside depth of 9.5m; vessels of up to 5,000 tons can be accommodated.

Berth 105 at Qinhuangdao Gang handles oil products and liquid chemical products. The berth is 200m long, has an alongside depth of 9.8m, and can accommodate vessels of up to 5,000 tons.

The port has a total of 11 coal berths, and 100,000 dwt vessels can be accommodated. Tankers up to 50,000 dwt can be

accommodated.

The shipyard at **Shanhaiguan** (39°59'N., 119°49'E.), about 10.5 miles ENE of Qinhuangdao, is considered part of Qinhuangdao. The facility consists of a concrete quay protected by breakwaters. The concrete quay divides the shipyard into outer and inner harbor areas, with 19 quayside berths along both sides of the concrete quay. These berths can accommodate vessels up to 468m in length, in depths varying from 6 to 9m alongside. The inner harbor area has six graving docks capable of handing vessels as large as 350,000 dwt, 440m in length, and 100m in width. Depths alongside these docks vary from 9.8m to 13.3m.

Works in progress (2013) extend from the shore outwards to close beyond the obstruction in the vicinity of position 39°57'39"N, 119°50'53"E.

Aspect.—Jinshan Zui, a low point about 7 miles SW, contains many large prominent buildings, is surrounded by wooded hills, and is marked by a light. **Damuzhi Shan** (40°07'N., 119°26'E.), 15 miles NNW of the harbor, is 1,350m high and is a good mark from the SE. If the peak is obscured, the bluffs at Jinshan Zui will be the first objects to be identified.

Ch'ang Ch'eng (Great Wall of China) reaches the sea at the village Ninghai, about 9.5 miles ENE, and often shows up well before disappearing from view behind a coastal ridge.

Range beacons, in line bearing 330°, and range lights, in line bearing 041°, lead to the shipyard basin at Shanhaiguan.

Pilotage.—Pilotage is compulsory for all foreign vessels and are available 24 hours. Vessels should request a pilot via their agent 24 hours in advance.

Pilots board, as follows:

1. Position 39°47'40"N, 119°41'30"E.
2. Position 39°45'50"N, 119°46'20"E.
3. Position 39°52'00"N, 119°40'00"E.
4. Position 39°50'30"N, 119°42'40"E.
5. Position 39°52'53"N, 119°47'16"E.—Oil Tanker Quarantine Anchorage.
6. Position 39°50'56"N, 119°47'07"E.—East Quarantine Anchorage.
7. Position 39°47'13"N, 119°37'49"E.—West Quarantine Anchorage.

Vessel Traffic Service.—The Qinhuangdao Vessel Traffic Service operates within an area with a radius of 18 miles centered on Nan Shan Tou Light (39°54.7'N., 119°35.2'E.).

Reporting requirements for the VTS are listed in the table titled **Qinhuangdao VTS—Reporting Requirements**.

Vessels should maintain a continuous listening watch on VHF channels 8 and 16.

Qinhuangdao VTS—Reporting Requirements

Report Type	Reporting Time	Information Required
Entering VTS Area	When 10 miles from Nan Shan Tou Light.	1. Vessel name. 2. Nationality. 3. Intended route.
Anchorage Report	After casting anchor.	1. Vessel name. 2. Nationality. 3. Anchorage time and location. 4. Beam and loa. 5. Next port.
Fairway Port Entry Application	Ten (10) minutes prior to entering port.	1. Vessel name. 2. Position. 3. Berth location.
Fairway Leaving or Shifting Berth Application	Ten (10) minutes prior to leaving or moving berth.	1. Vessel name. 2. Position. 3. Time of movement.
Port Exit Report	Ten (10) minutes prior to leaving port.	1. Vessel name. 2. Position. 3. Departure time.
Operation Application	Ten (10) minutes prior to commencing operations.	1. Operation time. 2. Contents. 3. Navigation routes.
Emergency	Traffic incident, pollution accident, or other emergency.	1. Vessel name. 2. Vessel nationality. 3. Incident location. 4. Reason. 5. Course of events.
Other Reports	Safety of navigation incidents.	1. Vessel name. 2. Incident location. 3. Course of events.

The VTS Center can be contacted, as follows:

1. Call sign: Qinhuangdao VTS
2. VHF: VHF channel 8
3. Telephone: 86-335-3094832
   86-335-3097166
   86-335-3097103
4. Facsimile: 86-335-3411866
   86-335-3412067
5. E-mail: vtsqhd@hebeimsa.gov.cn

Anchorage.—Six designated anchorage areas located outside the harbor are described in the table titled **Qinhuangdao Anchorages**.

Caution.—The tidal current on the falling tide appears to sweep around Qinhuangdao Wan and set across the entrance between New Pier and Big Pier. Care must be taken not to be swept onto the Big Pier.

Qinhuangdao Anchorages

Name/Type	Center Position	Designation	Remarks
Tankers	39°52'42"N, 119°47'54"E	Pilot and quarantine	Depths of 12 to 17m, with a spoil area adjacent to the N boundary with a least depth of 3.2m.
East	39°50'12"N, 119°47'30"E	Pilot and quarantine	Depths of 12 to 17m.
West	39°46'54"N, 119°37'30"E	Pilot and quarantine	Depths of 9 to 13m, with an obstruction lying on the N boundary. A second obstruction lies in the SW corner.
Vessels up to 100,000 dwt	39°43'51"N, 119°51'39"E	General anchorage	Depths of approximately 20m.
Large Vessels	39°34'54"N, 119°51'04"E	General anchorage	Depths of approximately 21m.
Shanhaiguan	39°55'11"N, 119°51'16"E	Shipyard-bound vessels	Depths of approximately 15m.

Bo Hai—Hai He Above Tianjin Xin Gang

4.21 Tangshan (Jingtang) (39°12'N., 119°01'E.) (World Port Index No. 60193), located approximately 55 miles SE of Qinhuangdao, is a port consisting of Tangshan (Jingtang) and Caofeidian, located about 40 miles SE. See paragraph 4.22 for a detailed description of Caofeidian. Tangshan (Jingtang) handles many different types of bulk and general cargo as well as containers plus an offshore LPG terminal.

Winds—Weather.—Prevailing winds are from the S or SW, although on rare occasions during the year the winds may blow from the NE; this direction would result in the strongest winds (Force 6-7) to occur at the port. Rainfall is possible at anytime during the year, with the heaviest amounts and most frequent rainfall during July and August. Periods of light snow are likely between December and February.

Ice.—Firm ice forms along the shoreline during January and February. Safe navigation of vessels is not affected year-round by any ice formations.

Tides—Currents.—There is an irregular diurnal tide in the port area with peak HW of 2.24m and lowest LW at 0.04m. The tidal current floods from the SW and ebbs from the NE at a maximum rate of 0.9 to 1.1 knots.

Depths—Limitations.—Tangshan (Jingtang) is approached from the SE through an entrance channel, 2.7 miles in length, marked by lighted buoys, with a width of 160m and a depth of 12m. This channel is designed for vessels as large as 200,000 dwt, becoming 100,000 dwt once in the inner harbor. The harbor is divided into four basins, with Basins No. 1 through No. 3 located in the inner harbor and Basin No. 4 along the coast NE of the inner harbor. An extension of the vessel fairway, marked by lighted buoys, is designed for vessels as large as 200,000 dwt and leads NW from the approach channel at position 39°11'26"N, 119°01'20"E, for a short distance, then extending NE, fronting the berths in Basin No. 4, ending alongside the two berths on Shougang.

Tangshan (Jingtang)—Cargo Berthing Facilities

Berth	Berth Length	Depth Alongside	Maximum Vessel Size	Remarks
Basin No. 1				
No. 1	235m	12.0m	35,000 dwt	Coal and bulk cement. Coal-loading capacity of 1,200 tons per hour.
No. 2	180m	10.0m	15,000 dwt	Coal. Loading capacity of 1,000 tons per hour.
No. 3	185m	10.0m	15,000 dwt	Coal.
No. 4	202m	10.0m	15,000 dwt	Dangerous general cargo.

Tangshan (Jingtang)—Cargo Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 5	202m	10.0m	15,000 dwt	General cargo.
No. 6	195m	10.0m	15,000 dwt	Coal. Loading capacity of 1,200 tons per hour.
No. 7	183m	10.0m	15,000 dwt	Bulk and general cargo.
No. 8	183m	10.0m	15,000 dwt	Bulk and general cargo.
Basin No. 2				
No. 9	210m	12.5m	35,000 dwt	General cargo and salt. Salt-loading capacity of 800 tons per hour.
No. 10	305m	12.5m	35,000 dwt	General bulk cargo.
No. 11	252m	12.5m	35,000 dwt	Containers.
No. 12	226m	11.3m	20,000 dwt	General cargo.
No. 13	205m	11.0m	30,000 dwt	General cargo.
Nos. 14-15	394m	13.5m	100,000 dwt	Coal and iron ore.
Basin No. 3				
Nos. 16-17	311m	8.5m	30,000 dwt	One 30,000 dwt ro-ro berth and one 5,000 dwt berth.
Nos. 18-19	550m	16.0m	70,000 dwt	Containers.
Nos. 20-21	950m	—	100,000 dwt	General cargo.
No. 23	—	—	100,000 dwt	Sand and bunkers
No. 25	—	—	100,000 dwt	Containers and bunkers.
No. 26	—	15.5m	70,000 dwt	Containers and bunkers.
No. 27	690m	15.5m	70,000 dwt	Containers.
Nos. 301-311	1,270m	7.0m	15,000 dwt	General and bulk cargo.
Basin No. 4				
No. 30	390m	14.0m	50,000 dwt	Bulk cargo.
No. 31	310m	15.5m	70,000 dwt	General and bulk cargo.
No. 36	—	20.0m	200,000 dwt	Coal.
No. 37	—	20.0m	200,000 dwt	Coal.
Nos. 38-40	—	16.0m	100,000 dwt	Coal and bunkers.
Shougang Wharf No. 1 and No. 2	1,200m	21.5m	305,668 dwt	Iron ore and coal. Maximum draft of 19.5m,. Maximum loa of 333m. Maximum beam of 60.0m.
Jingtang Liquid Chemical Terminal				
Chemical Berth	345m	13.0m	40,000 dwt	Chemicals, CCP, and DPP.
LPG Berth				
Tangshan LPG Terminal	262m	12.7m	35,000 dwt	LPG.

The approach channel is protected by breakwaters on both the E and W side, broken into a submerged portion and visible portion. The W submerged breakwater is marked by a light in position 39°09'55"N, 119°02"49"E, extending to the visible breakwater, also marked by a light, near position 39°10'39"N, 119°01'54"E. The E submerged breakwater is marked by a light in position (39°12'N., 119°01'E.), extending to the visible breakwater, also marked by a light, near position 39°10'55"N, 119°02'15"E. The E breakwater then turns NW and then NE to protect the fairway extension that fronts Basin No. 4 and wraps around N of the Shougang Wharf.

The Coal Wharf lies on the W side of Basin No. 1. It consists of about 3,000m of quayage with charted depths between 5.8m and 14.8m.

The General Cargo Wharf lies on the E side of Basin No.1. It consists of about 2,300m of quayage, with charted depths of about 15m, to be further extended to the N. The N berths lie alongside a container terminal.

The Shougang Product Wharf lies on the S half of the E side of Basin No. 1. It consists of about 3.2km of quayage with charted depths of about 13m.

The General Cargo Quay lies in the SE corner of Basin No.1. It consists of about 700m of quayage, with charted depths of about 15m.

The Ore Terminal (38°54'51"N., 118°30"21"E.) lies on the S tip of the island, SE of Basin No. 1 entrance. It consists of three adjacent jetties, providing six berths for iron ore. Vessels up to 300,000 dwt, with a maximum loa od 370m and a maximum draft of 25m can be accommodated.

The Oil Wharf (38°54'57.6"N., 118°31'29.4"E.), T-shaped, is 520m in length, and used by crude oil tankers.

The LNG Pier, E of the Oil Wharf (38°55'9"N., 118°32'55.2"E.), T-shaped, has a charted depth alongside of 15.4m.

Huaneng Tangshan Gang Caofeidian Gangqu Coal Pier, (38°56'48.6"N., 118°26"39.6"E.) is 1,428m in length. Alongside depths are reported to range from 15m to 19.5m.

An LPG berth is located along the SW coast of the approach to Basin No. 3; the QHD32-6 Offshore Oil Terminal is located NE of the entrance to the approach channel. See table titled **Tangshan (Jingtang)—Cargo Berthing Facilities** for details of the harbor berths.

Vessels should request permission from the Tangshan (Jingtang) Vessel Traffic Service (VTS) before using any of the approach channels.

The offshore oil terminal, QHD32-6, located at 39°06'42"N, 119°12'14"E, is comprised of an SPM illuminated by lights and is surrounded by a restricted area, as best seen on the chart.

Aspect.—A light is exhibited from Jingtang Gan, mounted on a white round concrete tower with red bands.

Pilotage.—Pilotage is compulsory for all foreign vessels and any Chinese vessels as required by the local authorities.

Pilots will board at the following positions:

a. 39°02'21"N, 119°12'50"E.
b. 39°05'57"N, 119°06'45"E.
c. 39°07'07"N, 119°08'12"E.
d. 39°08'56"N, 119°03'19"E.
e. 39°09'44"N, 119°04'18"E.

The vessel's ETA to the port should be advised 72 hours, 48 hours, and 24 hours prior to arrival.

Vessel Traffic Service.—The Tangshan (Jingtang) Vessel Traffic Service (VTS) operates within an area with a radius of 18.5 miles centered on Jingtang Light, as best seen on the chart.

Participation in the VTS is mandatory for all vessels. The languages to be used when communicating with the VTS are English or Mandarin Chinese.

The Tangshan (Jingtang) Vessel Traffic Service (VTS) provides the following information:

1. Vessel movement information (only on request).
2. Hydro meteorological information.
3. Navigation warnings or Notices to Mariners.
4. Navigational assistance (only on request).
5. Information for supporting associated activities (only on request).
6. Traffic organization.

Vessels should maintain a continuous listening watch on VHF channels 12 and 16 while in the VTS operational area.

The VTS Center can be contacted, as follows:

Tangsham Contact information	
Tangsham VTS	
Call sign	Jingtang VTS
VHF	VHF channels 12 and 16
Telephone	86-315-2913211
Facsimile	86-315-2914963
Web site	vtstsh@hebeimsa.gov.cn

Reporting requirements for the VTS are listed in the table titled **Tangshan (Jingtang) VTS—Reporting Requirements,** and should be carried out on VHF channel 12.

Contact Information.—The port can be contacted, as follows:

Tangsham Contact information	
Tangsham Port	
VHF	VHF channels 9, 16, 17, and 72
Telephone	86-315-2916888
Facsimile	86-315-2914287
E-mail	jtport@heinfo.net

Anchorage.—Six designated anchorages outside the harbor, good holding ground, can accommodate vessels up to 50,000 dwt. See the table titled **Tangshan (Jingtang)—Anchorages** for details on specifically designated anchorage areas.

Tangshan (Jingtang) VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Entry (into VTS)	Within 2 miles of entering VTS operational area.	1. Vessel name and call sign. 2. Nationality. 3. LOA. 4. Draft. 5. Quantity and type(s) of cargo. 6. Navigational intentions.

Tangshan (Jingtang) VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Anchoring	After anchoring completed.	1. Vessel name and call sign. 2. Nationality. 3. Anchorage time and location.
Movement	1. Ten (10) minutes before entering the entrance channel. 2. After leaving the entrance channel. 3. Upon completion of berthing. 4. Ten (10) minutes before departure from berth. 5. Ten (10) minutes before shifting berth. 6. Ten (10) minutes before heaving up the anchor.	1. Vessel name and call sign. 2. Nationality. 3. Position. 4. Time of movement. 5. Port of destination.
Operation	Ten (10) minutes prior to commencing operations and upon completion of operations.	1. Vessel name. 2. Details of operation and area. 3. Start and completion times.
Final	Upon departure from the VTS operational area.	1. Vessel name. 2. Departure time.
Emergency	Traffic incident, pollution accident, or other emergency.	1. Vessel name. 2. Position and time of incident. 3. Incident details. 4. Any other information as requested by VTS.
Abnormal (event)	Safety of navigation incidents.	1. Vessel name. 2. Time and location of incident. 3. Incident description. 4. Any other information as requested by VTS.

Tangshan (Jingtang)—Anchorages			
Area	**Bounded by Lines Joining the Following Positions**	**Area**	**Bounded by Lines Joining the Following Positions**
No. 1	a. 39°09'40"N, 119°04'45"E b. 39°12'24"N, 119°08'19"E c. 39°08'47"N, 119°12'54"E d. 39°06'03"N, 119°09'20"E	No. 4	a. 38°54'41"N, 119°08'57"E b. 38°56'08"N, 119°14'10"E c. 38°53'05"N, 119°15'33"E d. 38°51'38"N, 119°10'20"E
No. 2	a. 39°07'44"N, 119°02'15"E b. 39°08'41"N, 119°03'28"E c. 39°06'05"N, 119°06'47"E d. 39°05'08"N, 119°05'33"E	No. 5	a. 38°49'38"N, 119°16'53"E b. 38°51'40"N, 119°15'57"E c. 38°52'23"N, 119°18'34"E d. 38°50'21"N, 119°19'29"E
No. 3	a. 39°02'45"N, 119°01'00"E b. 39°02'54"N, 119°10'00"E c. 39°01'02"N, 119°10'02"E d. 38°57'56"N, 119°30'52"E e. 38°57'53"N, 119°30'08"E	No. 6	a. 39°11'21"N, 119°13'20"E b. 39°12'59"N, 119°19'14"E c. 39°10'25"N, 119°22'26"E d. 39°08'48"N, 119°16'32"E

Caution.—A spoil ground, the limits of which are best seen on the chart, is established in position 39°03.6'N, 119°06.0'E. and should be avoided.

A dangerous wreck, marked by a light buoy, lies close S of the anchorage.

An offshore oil field, NB35-2, with two rigs (call signs: WHPB and CEP), as best seen on the chart, is located near position 39°03'N 118°53'E

Several other obstructions and wrecks are located all around the inner and outer harbor area; some marked by lights and lighted buoys, and some are not, are best seen on the chart.

An aquaculture area to be avoided, in the NE approaches to Tangshan (Jingtang) S of Luanhe Kou, is bounded by lines joining the following positions:

a. 39°26'00"N, 119°17'12"E.
b. 39°21'36"N, 119°32'42"E.
c. 39°16'36"N, 119°29'42"E.
d. 39°12'18"N, 119°22'48"E.

e. 39°15'48"N, 119°18'18"E.
f. 39°13'54"N, 119°11'24"E.
g. 39°19'42"N, 119°09'48"E.

4.22 Caofeidian (38°56'N., 118°32'E.), located SW of Tangshan (Jingtang) and about 39 miles E of the entrance to Hai He, is situated on an island of the same name. Caofeidian began work on an extensive port development plan in 2007 and is fully operational with additional expansion expected. Caofeidian has recently become part of the Hebei Port Group which includes the ports of Qinghuangdao and Huangye making that group one of the largest in the area in terms of throughput.

Caofeidian Tan is an extensive area of drying banks, with several small islets, that lies between Caofeidian and the mainland about 14 miles N. It should be approached with caution as it is fringed with irregular steep-to shoal patches and numerous fishing nets.

Tides—Currents.—Tidal currents along the S side of Caofeidian Tan set WNW, at a maximum rate of 4.5 knots, on the flood tide, and SE, at a maximum rate of 3 knots, on the ebb tide. On the W side of the banks the tidal current sets N on the flood tide and at a lesser strength.

Depths—Limitations.—Cargo operations will be carried out inside one of three dredged channels within their respective basins, as follows:

For details of these and future cargo handling facilities see the table titled **Caofeidian—Berth Information**.

Caofeidian— Berth Information

Berth Name	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
Basin No. Coal Terminal Phase 3						
01	—	15.5m	100,000 dwt	—	—	Coal
02	—	15.5m	100,000 dwt	—	—	Coal.
03	—	15.5m	79,955 dwt	225m	32.2m	Coal.
04	—	15.5m	75,169 dwt	225m	32.2m	Coal.
05	—	15.5m	100,000 dwt	—	—	Coal.
Basin 1 General Bulk Cargo Phase 2						
601	—	19.0m	209,756 dwt	300m	50.0m	Coal.
602	—	19.0m	228,990 dwt	324m	52.5m	Coal.
603	—	19.0m	216,461 dwt	306m	52.0m	Coal.
604	—	19.0m	207,987 dwt	300m	50.0m	Coal.
605	—	19.0m	—	—	—	Coal.
Basin No. 1 General Bulk Cargo Phase 3						
606	—	15.0m	179,276 dwt	292m	45.0m	Trans-shipment.
607	—	15.0m	180,253 dwt	288m	40.0m	—
608	—	15.0m	50,000 dwt	—	—	Trans-shipment.
Basin No.1 General Bulk Terminal						
101	—	15.0m	174,398 dwt	289m	45.0m	Iron ore and breakbulk.
102	—	15.0m	114,840 dwt	235m	43.0m	Iron ore and breakbulk.
Basin No. 1 General Terminal						
501	—	15.5m	77,111 dwt	225m	32.0m	Steel products.
502 N	—	15.5m	75,467 dwt	225m	32.0m	Steel products.
502 S	—	15.5m	79,528 dwt	229m	32.0m	Steel products.
503	—	15.5m	100,000 dwt	239m	38.0m	Steel products.
504	—	15.5m	100,000 dwt	229m	38.0m	Steel products.
505	—	15.5m	119,363 dwt	245m	43.0m	Steel products.
506	—	15.5m	118,590 dwt	260m	43.0m	Steel products.
507	—	15.5m	100,000 dwt	225m	32.0m	Steel products.

Caofeidian— Berth Information						
Berth Name	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
508	—	15.5m	100,000 dwt	225m	37.0m	Steel products.
509	—	15.5m	67,052 dwt	294m	37.0m	Containers and reefer.
510	—	15.5m	50,000 dwt	246m	32.0m	Containers and reefer.
Basin No. 2 Caofeidian HBIS Logistics General Terminal						
2-201	—	15.5m	25,487 dwt	159m	22.0m	Fertilizer, limestone, and steel products.
2-202	—	15.5m	45,713 dwt	184m	30.0m	Fertilizer, limestone, and steel products.
2-203	—	15.5m	93,200 dwt	238m	38.0m	Fertilizer, limestone, and steel products.
2-204	—	15.5m	93,200 dwt	238m	38.0m	Fertilizer, limestone, and steel products.
Basin No. 3 Caofeidian Wenfeng Wood Terminal						
3-201	—	—	50,000 dwt	182m	30.0m	Steel products.
3-202	—	—	63,647 dwt	253m	32.0m	Steel products.
3-203	—	—	55,175 dwt	187m	32.0m	Steel products.
3-204	—	—	50,000 dwt	167m	24.0m	Steel products.
Basin No. 3 Comprehensive Bonded Zone						
01	—	—	70,000 dwt	—	—	PCC, containers, and breakbulk.
02	—	—	70,000 dwt	—	—	PCC, containers, and breakbulk.
Basin No. 3 General Cargo Terminal						
3-308	—	—	—	—	—	Steel products.
3-309	—	—	—	—	—	Steel products.
3-310	—	—	—	—	—	Steel products.
3-311	—	—	10,266 dwt	127m	26.0	Steel products.
Caofeidian Shougang Jingtang						
01	—	—	50,000 dwt	—	—	Steel products.
02	—	—	50,000 dwt	—	—	Steel products.
03	—	—	50,000 dwt	—	—	Steel products.
04	—	—	50,000 dwt	—	—	Steel products.
05	—	—	50,000 dwt	—	—	Steel products.
309 A	—	—	50,000 dwt	—	—	Steel products.
309 B	—	—	15,000 dwt	—	—	Steel products.
310	—	—	15,000 dwt	—	—	Steel products.
311	—	—	—	—	—	Steel products.
312 A	—	—	—	—	—	Steel products.
312 B	—	—	—	—	—	Steel products.
313 A	—	—	—	—	—	Steel products.
313 B	—	—	—	—	—	Steel products.

Caofeidian— Berth Information						
Berth Name	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
Note 1.—Berths 01 to 05 have a total continuous berthing length of 1,385m.						
Note 2.—Berths 309 A to 313 B have a total continuous berthing length of 1,700m.						
Huaneng Coal Terminal						
01	—	19.5m	150,000 dwt	—	—	Coal. (Continuous 1,428m pier)
02	—	16.0m	150,000 dwt	—	—	Coal.
03	—	16.0m	150,000 dwt	—	—	Coal.
04	—	16.0m	70,000 dwt	—	—	Coal.
05	—	16.0m	50,000 dwt	—	—	Coal.
Iron Ore Terminal (Shiye Port)						
No. 1	370m	25.0m	250,000 dwt	—	—	Iron ore.
No. 2	370m	25.0m	250,000 dwt	—	—	Iron ore.
No. 3	384m	25.0m	350,000 dwt	—	—	Iron ore.
No. 4	384m	25.0m	350,000 dwt	—	—	Iron ore.
No. 5	360m	25.0m	350,000 dwt	362m	65.0m	Iron ore.
No. 6	360m	25.0m	133,000 dwt	360m	65.0m	Iron ore.
Note.—There are no loa restrictions at Berths No. 1 to No. 4.						
SDIC Caofeidian Port						
202	—	15.5m	69,703 dwt	360m	32.0m	Coal.
203	—	15.5m	79,441dwt	229m	32.0m	Coal.
204	—	15.5m	100,000 dwt	—	—	Coal.
205	—	15.5m	115,496 dwt	254m	43.0m	Coal.
206	295m	15.0m	65,772 dwt	224m	32.0m	Coal.
207	256m	15.0m	76,662 dwt	228m	36.0m	Coal.
208	280m	15.0m	100,000 dwt	250m	43.0m	Coal.
209	340m	19.0m	150,000 dwt	289m	45.0m	Coal.
210	457m	—	79,441 dwt	229m	36.0m	Coal.
SDIC Caofeidian Port Phase No. 2						
801	—	15.5m	115,664 dwt	254m	43.0m	Coal.
802	—	15.5m	115, 664 dwt	254m	43.0m	Coal.
803	—	15.5m	76,426 dwt	225m	33.0m	Coal.
804	—	15.5m	76,426 dwt	225m	32.0m	Coal.
805	—	15.5m	57,173 dwt	189m	32.0m	Coal.
808	—	15.5m	53,167 dwt	199m	32.0m	Coal.
Xigang Port						
2-101 N	—	15.5m	81,309 dwt	229m	36.0m	Cement, containers, and steel.
2-101 S	—	15.5m	81,309 dwt	229m	36.0m	Steel.
2-102 N	—	15.5m	81,309 dwt	229m	36.0m	Cement and steel.
2-102 S	—	15.5m	81,309 dwt	229m	36.0m	Aggregates and steel.

Caofeidian— Berth Information						
Berth Name	Berth Length	Depth Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
2-103 S	—	15.5m	76,611 dwt	225m	33.0m	Steel.
2-104 N	—	15.5m	76,611 dwt	225m	36.0m	Steel.
2-104 S	—	15.5m	76,111 dwt	225m	36.0m	Steel.
2-105 N	—	15.5m	76,632 dwt	225m	36.0m	Steel.
2-105 S	—	15.5m	76,632 dwt	225m	36.0m	Steel.
Tanker Terminals						
Basin No. 3 Liquid Chemical Terminal						
3-1 E	553m	13.5m	50,000 dwt	—	—	CCP and crude.
3-2 W	553m	13.5m	50,000 dwt	—	—	CCP and crude.
Caofeidian Shihua Crude Oil Terminal						
No. 1 Crude Oil Berth	45m	25.0m	322,862 dwt	339m	60.0m	Crude oil.
PetroChina Jing Tang LNG Terminal						
01 LNG Berth	45m	—	300,000 dwt	—	—	LNG. (Length of 395m including dolphins).

Pilotage.—Pilotage is compulsory for foreign vessels and restricted to daylight hours only. Pilots may be contacted on VHF channel 16.

Pilots board, as follows:

1. L1—Centered on position 38°52'30"N, 118°31'00"E.
2. L2—Centered on position 38°54'00"N, 118°27'24"E.
3. D1—Centered on position 38°52'30"N, 118°27'30"E.
4. D2 (anchorage area)—Centered on position 38°53'11"N, 118°36'37"E.
5. D3 (anchorage area)—Centered on position 38°52'34"N, 118°25'44"E.
6. D4—Centered on position 38°50'00"N, 118°43'54"E.
7. L3—Centered on position 38°47'00"N, 118°33'24"E.
8. Anchorage area—Centered on position 38°53'55"N, 118°22'13"E.

Regulations.—Caofeidian is approached from the E or the W through a traffic separation scheme (TSS) that has been established by the local authorities in the area fronting the port development.

The Caofeidian TSS has not been adopted by IMO, but mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collision at Sea (1972).

Vessel Traffic Service.—The Caofeidian Vessel Traffic Service (VTS) operates within an area bounded by the shoreline and 38°43'N, between meridians 118°55'E and 118°15'E, as best seen on the graphic titled **Caofeidian Vessel Traffic Service**.

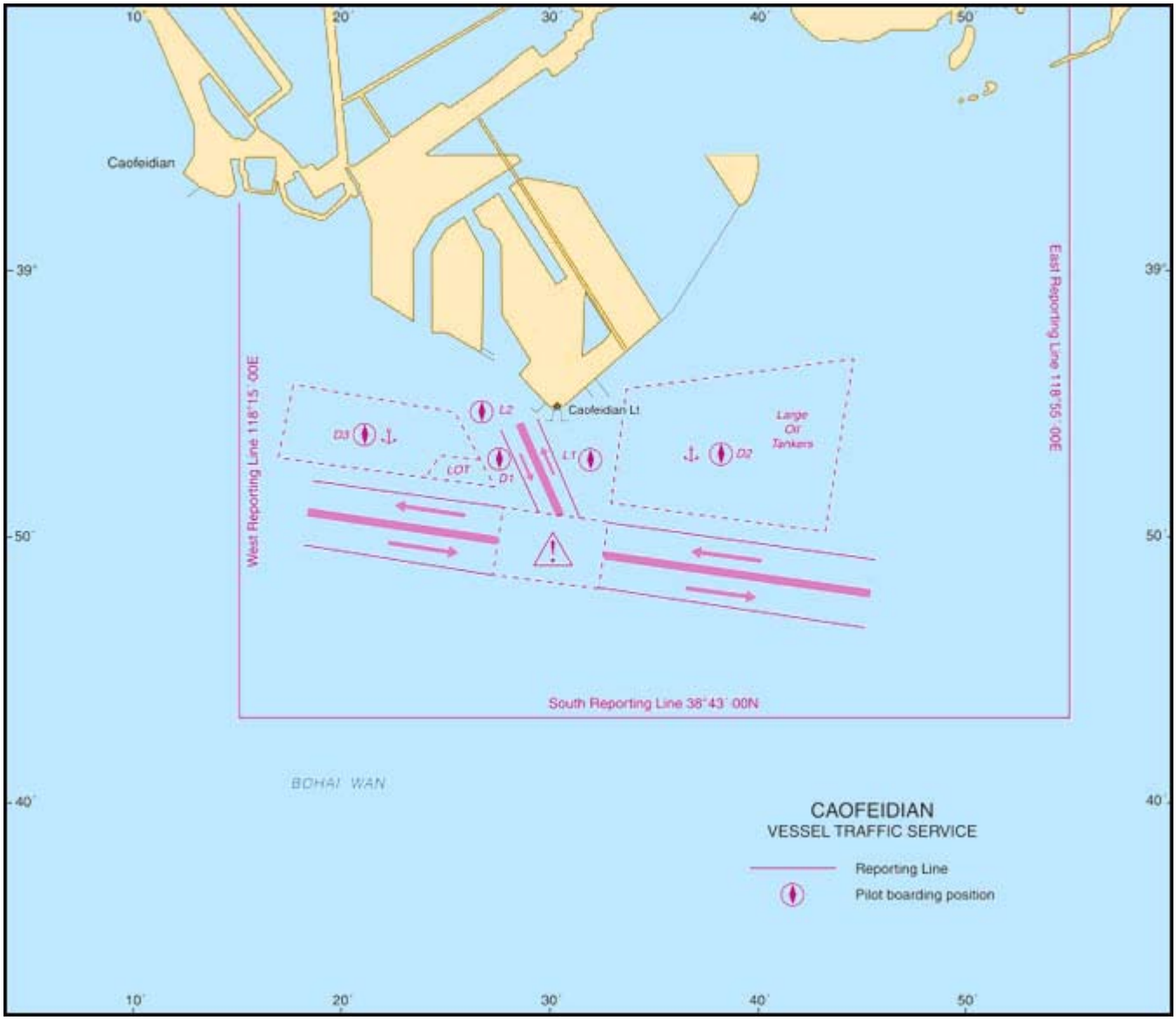
Participation in the VTS is mandatory for the following vessels:

1. Passenger vessels.
2. Vessels carrying dangerous cargo.
3. All vessels 500 dwt and larger.
4. Voluntary for any other vessels.

Vessels should report to Caofeidian VTS, in Chinese or English, on VHF channel 8, as follows:

1. **Inbound vessels when crossing a Reporting Line—**All information contained in the table titled **Caofeidian VTS—Reporting Format**. Any vessel with an operating AIS on board does not need to report items C or D, E, and F as this will be collected automatically.
2. **Outbound vessels when crossing a Reporting Line—**Only the vessel name.
3. **Emergency Situation—**Defined as a traffic incident, pollution accident, or other navigational emergency. Vessels should immediately report the nature of the emergency, time and position of the event, the degree of damage or pollution, whether or not any assistance is required, and any other information required by the VTS.

Caofeidian VTS—Reporting Format	
ID	Information Required
A	Ship name, call sign, and IMO number (if applicable).
C or D	Position (latitude and longitude or relation to a landmark).
E	Course.
F	Speed.
G	Port of departure.
I	Port of destination.
O	Draft.
Q	Defects and limitations
DG	Dangerous cargo on board.



Caofeidian Vessel Traffic Service

Any vessels using the Caofeidian Routing System should not cross the TSS or, if not possible to avoid crossing the TSS, obtain permission from the VTS prior to doing so.

All vessels must maintain a listening watch on VHF channel 8 until departing the VTS area.

Caofeidian Contact information	
Caofeidian VTS Center	
Call sign	Caofeidian VTS
VHF	VHF channel 8
Telephone	86-315-8821881 86-315-8856206
Facsimile	86-315-8821881

The Caofeidian Vessel Traffic Service (VTS) may provide the following information, depending on the specific situation:

1. Vessel traffic situation.
2. Unusual weather information.
3. Information pertaining to the maritime safety of any vessel participating in the VTS.

The VTS Center can be contacted, as follows:

Anchorage.—There are two designated anchorages on either side of the approach to Caofeidian for large oil tankers.

The Eastern Large Tanker Anchorage is centered on position 38°53'N, 118°37'E and has depths of 22 to 32m, There is a dangerous wreck located on the NW boundary of the anchorage.

The Western Large Tanker Anchorage is centered on position 38°52'48"N, 118°25'31"E and has depths of 24 to 28m. A dangerous wreck lies near the center of the anchorage.

Three other anchorages for vessels are available with one adjoining the Western Large Tanker anchorage, another adjoining the Eastern Large Tanker Anchorage (38°53.2'N., 118°38.0'E.), in depths from 22 to 32m. Several obstructions lie within the anchorage. A third anchorage is close S of the TSS centered on position 38°47'16"N, 118°24'46"E.

Caution.—Seine nets are laid out close along the N coast of Basin No. 1 and all vessels are prohibited from entering this area.

Numerous fishing vessels conduct activities in the approaches to Tangshan Gang Caofeidian Gangqu. Passing vessels should exercise caution and keep a good lookout.

4.23 **Rengong Dao** (39°01'N., 118°12'E.) are three man-made islands to serve the Jidong Nanbao Oilfield. The northernmost island is designated 1-1 and about 2.5 miles SW is another island designated 1-2. The third island located about 4.5 miles ESE of Rengong 1-2 is designated Rengong 1-3.

Two landing places are situated on the S side of Rengong Dao 1-1. Both landing areas are 195.24m long and 30.02m wide with depths of 3.86m. This landing areas are able to handle general cargo and ro-ro vessels up to 1,000 tons and ferry boats up to 300 tons in size.

A landing place is situated on the S side of Rengong Dao 1-2 that is 195.24m long with depths of 4m. This landing area is also able to handle general cargo and ro-ro vessels up to 1,000 tons and ferry boats up to 300 tons in size.

A landing place is situated on the N side of Rengong Dao 1-3 that is 225.54m long with depths of 3.9m. This landing area is able to handle general cargo vessels up to 1,000 and ro-ro vessels up to 720 tons and ferry boats up to 300 tons in size.

4.24 Chengtougu Tan is located close N of Tianjin Xin Gang. The bay situated close E of Chengtougu Tan has works in progress (2013) centered on the following positions:

a. 39°10'36"N, 117°53'48"E.
b. 39°06'00"N, 117°48'12"E.

A fish haven in the area is bounded by lines joining the following positions:

a. 39°07'36"N, 117°58'00"E.
b. 39°07'54"N, 117°59'42"E.
c. 39°07'54"N, 118°01'24"E.
d. 39°07'36"N, 118°03'06"E.
e. 39°05'54"N, 118°03'06"E.
f. 39°05'54"N, 117°58'00"E.
g. 39°07'36"N, 117°58'00"E.

Beitang Kou (Jiyunhe Kou) (39°03'N., 117°48'E.) is located close N of the large port complex of Tianjin Xin Gang and is undergoing development with the construction of a breakwater. Beitang Kou leads to the village of Beitang through a buoyed channel that is between drying mud flats. The breakwater, which extends SE from the beginning of the buoyed channel, has a total length of 4,904m, is 4m wide, and is marked by a flashing red and blue light at 500m intervals.

Tianjin Xin Gang (38°58'N., 117°50'E.)

World Port Index No. 60190

4.25 Tianjin Xin Gang (T'ien-ching-hsin Chiang), lying close N of the dam closing the entrance to the river Hai He, is the deep-water harbor for Tianjin. It is the largest man-made port in mainland China and one of the largest in the world and is the main maritime gateway to Beijing.

Winds—Weather

The winds in spring and autumn are usually from the SW. In the summer, SE winds prevail while in the winter, winds from the NW predominate. Wind velocities are stronger in April and May and subside from August to September. Fog sometimes hinders port operations in January.

Ice

Ice conditions occur from early December to March, but usually do not interfere with port operations. Anchorages usually become ice covered during this time but can usually be reached by experienced mariners without any help from icebreakers. Icebreakers are not usually very effective in this area.

Tides—Currents

The tidal range is about 3m at springs and 1m at neaps.

Tidal currents will set in a SE-NW orientation at speeds of 0.6 to 1.9 knots.

When the flats are covered, currents set across the channel, approximately parallel to the coast, setting N during the flood tide and S during the ebb tide, with a maximum rate of 2 knots at springs and 1 knot at neaps.

Depths—Limitations

The port is comprised of two harbors and is approached from the ESE.

The Tianjin Gang harbor area is the main port area and is entered through the Tianjin Gang Main Channel that begins vicinity of Lighted Buoy No. 9 (38°55'N., 118°07'E) and passes through a dredged fairway, marked by lighted ranges, for a distance of 12 miles to the No. 1 Dock. Approximately 4 miles E of No. 1 Dock, the main channel extends 1 mile NW, then NNW. The main channel is dredged to a depth of 19.5m and will accommodate vessels as large as 150,000 dwt, but is limited to a maximum draft of 15.5m.

Auxiliary channels, known as small vessel channels, with a width of 100m, have been established N and S of the Main Channel between Lighted Buoy No. 29 and Lighted Buoy No. 39. Small vessels inbound should use the auxiliary channel N of the Main Channel; outbound vessels will use the channel S of the Main Channel. Use of the small vessel channels is prohibited whenever the winds reach gale force or stronger or if visibility is reduced to 0.5 mile or less. Restrictions will also be placed on these channels during certain ice conditions and it is best to consult with the Port Authority for clarification.

A small vessel for the purpose of using these auxiliary channels is defined as less than 10,000 gt, with a length of less than 146m or a beam of less than 22m. It should be noted that ferries (including ro-ro passenger vessels of any kind) and high speed craft are not considered to be small vessels and must use the Main Channel. Other vessels, regardless of their size, that

must use the Main Channel include tankers with hazardous cargo with a beam over 17.5m, vessels engaged in towing operations, vessels carrying large-sized chemical industry containers, container loading/unloading cranes, oil-drilling platforms, separated vessel hulks, vessel superstructures- and similar very large-sized cargoes.

Minimum underkeel clearance (UKC) has been established for vessels using the small vessel channels as described in the table titled **Minimum UKC by Vessel Size and Position**.

Minimum UKC by Vessel Size and Position	
Vessel Size or Position	**UKC**
50,000 gt to 100,000 gt	2.4m
Less than 50,000 gt	2.0m
East of Lighted Buoy No. 237 for vessels less than 50,000 gt	1.7m
West of Lighted Buoy No. 237 for vessels less than 50,000 gt	0.8m

The port of Tianjin has designated a Precautionary Area to include the Main Channel and associated auxiliary (small vessel) channels from Lighted Buoy No. 39 to the North and West Reporting Lines within the breakwater.

This area is also called the Complexing Channel, with the restrictions and limitations already described above for the auxiliary channels, plus additional rules as will be described below.

The **North Reporting Line** refers to a line joining the N beacon of the East Pier Working Vessels Wharf (38°58'34"N., 117°47'24"E.) and the S end of the Cement Component Yard Wharf in Dongjiang Gangqu (38°58'55"N., 117°47'49"E.).

The **West Reporting Line** refers to a line joining the S lighted beacon of the East Pier Working Vessels Wharf (38°58'24"N., 117°47'18"E.) and the E end of the Nanjiang No. 9 Coal Pier (38°58'03"N., 117°47'08"E.).

Additional rules for vessels using the auxiliary (small vessel) channels are, as follows:

1. Vessel speed should not exceed 13 knots nor should it be slower than 5 knots without special permission from the VTS.
2. Overtaking another vessel is prohibited unless special permission is obtained and then when passing, A vessel should not navigate abreast another vessel for any longer than necessary.
3. Vessel should maintain a distance of six vessel lengths between any other vessel unless overtaking by special permission.

For other restrictions, the VTS should be contacted as these could changes depending on variable weather conditions or traffic conditions.

The Tianjin Gang 300,000-ton channel has been opened (2015) for use by vessels larger than 250,000 tons. This new channel is approximately 19.06 miles in length with a designed depth of 22m, allowing a maximum vessel draft of 21.4m due to silting. The minimum UKC maintained should be no less than 13% of the vessel's draft when vessel speed is greater than 8 knots and no less than 11% of the vessel's draft when vessel speed is less than 8 knots. The centerline of this new deep-water channel runs through the following positions:

a. 38°51'26.3"N, 118°13'25.4"E. (starting point)
b. 38°55'12.9"N, 118°06'57.9"E.
c. 38°56'31.6"N, 117°58'52.4"E.
d. 38°57'31.7"N, 117°51'46.1"E. (ending point)

The main harbor, where all the cargo handling is presently carried out, is divided into four main areas, as follows:

1. The **North Port** area, for containers and general cargo, extends from the extreme N portion of the Northern Harbor Basin (NW/NNW extension of the main channel) along the entire W side of the basin.
2. The **East Port** area, for containers only, is located along the southern E face of the Northern Harbor Basin (NW/NNW extension of the main channel).
3. The **South Port** area, for liquid and dry bulk products, is located along the S side of the main channel W of the NW/NNW extension. Additional development is taking place (2015) along the S side of the main channel E of the NW/NNW extension.
4. The **Haihe Port** area is accessed through a lock situated close W of No. 1 Dock and is for smaller vessels only. Passage through the lock is limited to vessels up to 160m in length, maximum beam of 18m, and an arrival draft at the lock of 5.6m. The Haihe Port area has mostly general cargo or chemical tanker berths available. See paragraph 4.26 for more information.

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
North Port Area (Listing from W to E, then N and NW at East Pier)				
Xingang Shipyard	Located close E of the lock and W of the Tianjin Passenger Terminal. Includes six berths.			
Tianjin Passenger Terminal				
K1, K2, and K3	448m	8.1m	10,000 dwt	Passengers and ro-ro.
Stevedoring Area No. 1				
G1, G2, and G3	600m	10.5m	10,000 dwt	General cargo.
G4	205m	11.5m	38,000 dwt	Sinor Terminal. General cargo.

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
G5	205m	10.0m	15,000 dwt	General cargo.
G6 and G6+	360m	9.0m	20,000 dwt	General cargo.
Stevedoring Area No. 2				
G7 and G8	367m	11.0m	10,000 dwt	Containers.
G9, G10, and G11	510m	9.6m	10,000 dwt	General cargo.
G12	253m	11.8m	30,000 dwt	General cargo, grain, and coke.
G13	250m	11.8m	70,000 dwt	Grain.
G14 and G15	378m	9.0-9.6m	10,000 dwt	Containers.
Stevedoring Area No. 4				
G16 G17 G18	551m	11.5m	30,000 dwt	General and dry bulk cargo. Reconfigured into two berths with continuous length wharf to accommodate two vessels at same time.
G19 G20	366m	12.0m	30,000 dwt	Coke and iron ore.
Tianjin Port Container Terminal (TCT)—West Area				
G21	398m	12.0m	25,000 dwt	Containers.
Stevedoring Area No. 5				
G22 G23	534m	12.7m	60,000 dwt	General and dry bulk cargo.
G24	186m	12.7m	60,000 dwt	
G25 G26	400m	16.0m	150,000 dwt	Iron ore and coal.
Tianjin Port Container Terminal (TCT)—East Area				
G27, G28, and G29	823m	16.0m	50,000 dwt	Containers.
Tianjin Orient Container Terminal (TOCT)				
G30, G31, G32, and G33	319m	14.0m	1000,000 dwt	Containers.
	428m	14.0m	1000,000 dwt	
	203m	14.0m	100,000 dwt	
G34	185m	14.0m	100,000 dwt	Containers.
East Pier Harbor Craft Wharf				
East Pier	365m	—	—	T-shaped jetty for tugs and pilot vessels.
Five Continents International Container Terminal (FICT)				
G35, G36, G37, and G38	1,202m	15.7m	100,000 dwt	Containers.
Tianjin Ro-Ro Terminal				
N1 and N2	471m	14.1m	50,000 dwt (ro-ro) 80,000 dwt (tankers)	Passengers, ro-ro, and oil products.
Alliance International Container Terminal (TACT)				
N3, N4, N5, and N6	1,100m	15.5m	100,000 dwt	Containers.

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
Euroasia International Container Terminal (TECT)				
N7, N8, and N9	1,100m	15.5m	—	Containers. Two berths for 100,000 dwt vessels. One berth for 70,000 dwt vessels.
Shenghua International Container Terminal				
N10, N11, and N12	1,100m	15.5m	100,000 dwt	Containers. Under construction (2013).
TPG Global Ro-Ro Terminal				
N13	565m	11.6m	75,000 dwt	Cars, heavy duty vehicles, and static cargo.
N14			75,000 dwt	
Huicheng General Cargo Terminal				
N33, N34, N35, and N36	1,075m	15.7m	—	General cargo. Located at N end of estuary adjacent to the Longboda Sand Wharf. One berth for 100,000 dwt vessels. Two berths for 40,000 dwt vessels.
East Port Area (Listing from N to S then SE and ESE)				
Pacific International Container Terminal (TPCT)				
D 1	2,300m	16.5m	150,000 dwt	Containers.
D 2				
D 3				
D 4-6				
Tianjin Dongjiang International Cruise Homeport				
L 1-2	312m	11.5m	—	Cruise ships.
L-3-4	205m	11.5m	—	Cruise ships and ro-ro.
Dongjiang Wharf	212m	10.0m	10,000 dwt	Building materials.
Dagukou Port (South Port) Area—Listing from W to E				
General Usage Berths				
Lingang General L1A	200m	11.0m	20,000 dwt	General cargo.
Tianjin Lingang L1B	370m	11.0m	20,000 dwt	General cargo.
Tianjin Lingang L1C				
Tianjin Lingang L2	479m	7.8m	50,000 dwt	General cargo.
Tianjin Lingang L3				
Tianjin Lingang L4	220m	11.0m	20,000 dwt	General cargo.
Stolthaven Terminal				
L5 (Taizhong Berth No. 5) (Taiyuan Heavy Machinery Equipment Base Terminal)	170m	12.0m	10,000 dwt	Bridge crane extends over berth with overhead clearance of 34m and vessels should maintain at least 2m clearance from lowest point for safety.
L6	295m	14.0m	65,000 dwt	Chemicals and chemical gasses. Maximum loa of 360m.
Vopak Terminal				

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
L7	302m	14.0m	65,000 dwt	Chemicals. Maximum beam of 50m. Maximum draft of 12.5m. Maximum loa of 242m.
L8				
Jinneng Petrochemical Terminal				
L9 (Liquid Chemical No. 9)	298m	14.5m	50,000 dwt	Liquid chemicals and oil.
General Berths				
L10 and L11	521m	13.8m	50,000 dwt	General cargo. Future plans to accommodate vessels up to 70,000 dwt.
L12, L13, and L14	744m	13.8m	50,000 dwt	General cargo. Three berths.
L18 (General Purpose No. 18)	261m	12.3m	50,000 dwt	Can accommodate one vessel at 50,000 tons with a length less than 216.5m or two vessels of 10,000 tons or less with total length not to exceed 216m.
Boomesc Oceanic Heavy Industry Construction Base Terminal				
Berth No. 1	250m	—	—	Components transfer and fitting. One berth for 6,000 dwt vessels. One berth for 3,000 dwt vessels.
Berth No. 2	150m	11.5m	30,000 gt	Barge-type vessels. Maximum length of 215m. Maximum width of52m. Maximum draft of 7.5m.
Lingang Shipbuilding and Ship Repair Center				
Wharf No. 1	707m	9,0m	300,000 dwt	Components transfer and fitting.
Materials Wharf	150m		5,000 dwt	
Cofco Jiayue Grains and Oil Terminal				
LY1	310m	16.0m	70,000 dwt	Cereal, grain, and oil products.
LY2	542m	13.5m	70,000 dwt	Cereal, grain, and oil products.
LY3	542m	13.5m	50,000 dwt	Cereal, grain, and oil products.
Taiyuan Heavy Industry (S side of Basin No. 2)				
No. 1	658m (for all four berths)	12.5m	50,000 dwt	Harbor transit.
No. 2			50,000 dwt	
No. 3			50,000 dwt	
No. 4			50,000 dwt	—
Sinovel Windpower				
—	520m	—	5,000 dwt	Equipment. Four berths. Under construction.
Nanjiang Harbor Terminal				
Haigang	209m	8.0m	35,000 dwt (bulk) 25,000 dwt (containers)	Containers and bulk cargo.
Tianjin Petrochemical Terminal				
SW1	231m	—	—	Service wharf.
S1	258m	16.8m	300,000 dwt	Crude oil and aviation fuel.

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
S2	212m	12.5m	30,000 dwt	Chemical gases and aviation fuel. Maximum loa of 180m. Maximum beam of 45m.
S3	219.5m	10.5m	30,000 dwt	Oil products. Turning circle, with a radius of 185m, close off berth.
S4	308m	14.8m	80,000 dwt	Oil products. Turning circle, with a radius of 243m, close off berth.
Tianjin Coke Terminal				
S5 and S6	684m	13.8m	70,000 dwt	Coke and coal.
Huaneng Coal Terminal				
S7 and S8	615m	19.6m	200,000 dwt	Coal.
S9 and S10	455m	—	—	—
Yuanhang Ore Terminal				
S11	445m	20.8m	200,000 dwt	Ore.
Yuanhang Bulk Cargo Terminal				
S12	375m	18.0m	100,000 dwt	Ore.
Shenhua Coal Terminal				
S13, S14, and S15	890m	19.2m	150,000 dwt	Bulk coal.
S16, S17, and S18	890m	19.2m	85,000 dwt	Bulk coal. Under construction.
Tianjin Port Dry Bulk Terminal				
S19, S20, S21, S22, and S23	1,500m	22.5m	—	Under construction.
S24 and S25	830m	22.5m	—	Under construction.
Nanjiang Specialized Ore Terminal				
S26	400m	24.8m	300,000 dwt	Iron ore.
S27	400m	24.8m	300,000 dwt	Under construction.
CNOCC Crude Oil Terminal				
S28	—	—	300,000 dwt	Under construction.
PetroChina Crude Oil Terminal				
S29	484m	22.0m	300,000 dwt	Under construction.
Shihua Crude Oil Terminal				
S30	484m	22.5m	300,000 dwt	Crude oil and clean products.
Sinopec LNG Terminal				
S31	440m	22.5m	300,000 dwt	Under construction.
Chimbusco 2nd Wharf				
S32 and S33 (one berth)	260m	6.5m	5,000 dwt	Bunkering. Located close S of the main harbor area on the N side of the Tianjin Lingang Industrial Area.
Sinochem Petrochemical Terminal				

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
S34 and S35	509m	—	—	Oil. Located close S of the main harbor area on the N side of the Tianjin Lingang Industrial area. One berth for 10,000 dwt vessels. One berth for 5,000 dwt vessels.
Nanjiang China Aviation Oil Company Petroleum and Chemical Wharf				
S36 and S37	560m	12.5m	50,000 dwt	Oil products and some liquefied chemical products.
CAO Petroleum Terminal				
S38	560m	14.5m	50,000 dwt	Aviation fuel. Under construction. Located close S of the main harbor area on the N side of the Tianjin Lingang Industrial area.
Shenghan Petrochemical Terminal				
S39 and S40	680m	—	—	Oil. Located close S of the main harbor area on the N side of the Tianjin Lingang Industrial area. One berth for 50,000 dwt vessels. Two berths for 10,000 dwt vessels.
CNOOC LNG Receiving Terminal				
S52	450m	15.0m	200,000 dwt	Under construction. Located close S of the main harbor area on the N side of the Tianjin Lingang Industrial Area.
S53	140m	7.0m	3,000 dwt	Heavy cargo working vessel.
S54	400m	14.5m	80,000 to 266,000m^3	LNG reception berth to an FSRU.
S55	400m	14.5m	10,000 to 266,000m^3	LNG berth.
Haihe Port Area (Located W of a lock separating it from the main harbor area and listed from E to W)				
Numerous wharves and small berths	—	—	—	Patrol boats, service vessels, and dredges. Located close W of the lock and scattered through the port area.
Jinghai Petrochemical Wharf				
T1 (908-1)	55m	5.5m	5,000 dwt	Chemicals. Maximum loa of 120m. Maximum beam of 16m.
T2 (908-2)	137m	6.0m		
Hebei Marine Transport Terminal				
Shui Xian Wharf	146m	6.0m	3,000 dwt	Bulk liquid and dirty products. Maximum loa of 120m. Maximum beam of 16m.
Dagu Chemical Company Terminal				
No. 1	101m	5.4m	5,000 dwt	Chemicals and chemical gases. Maximum loa of 100m. Maximum beam of 16m.
No. 1A	199.7m	9.5m	50,000 dwt	Multipurpose. Restricted to 40,000 dwt for general cargo vessels.
No. 2	142m	6.0m	5,000 dwt	Chemicals and chemical gases. Maximum loa of 100m. Maximum beam of 16m.

Tianjin—Port Facilities				
Berth	**Berth Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
Tianlong Liquid Chemical Company Terminal				
No. 1	120m	5.0m	3,000 dwt	Chemicals. Maximum loa of 100m.
Binhai Alliance Petrochemical Terminal				
No. 1	142m	3.9m	3,000 dwt	Clean products.
North Sea Oil and Grain Company Terminal				
No. 1	185m	6.0m	3,000 dwt	Liquid bulk.
No. 2	100m			
Huagang Logistics Terminal				
Huagang 1, 2, and 3	384m	5.0m	—	General cargo. Two berths for 5,000 dwt vessels. One berth for 3,500 dwt vessels.
Sinotrans Xinhe Terminal				
Nos. 1, 2, 3, 4, and 5	488m	6.0m	3,000 dwt	General cargo.
Tiande Terminal				
No. 1	126.5m	6.2m	3,000 dwt	General cargo.
No. 2	129m			General cargo.
Xinhe Oil Terminal				
No. 1	123m	6.0m	3,000 dwt	Oil and clean products. Maximum loa of 120m. Maximum beam of 15m.
Great Wall Sinolube Terminal				
No. 1	120m	5.6m	5,000 dwt	Oil and clean products. Maximum loa of 100m.
Shangyuan Terminal				
Shangyuan	97m	4.8m	3,000 dwt	Bulk cargo. Servicing the Chaori Power Plant.
Goods and Materials Cooperation Terminal				
Wuzixiezuo	120m	5.0m	—	Bulk cargo.
Zhengiatai Terminal				
Zhengiatai 1, 2, 3, and 4	404m	5.0m	—	Bulk cargo. One berth for 3,500 dwt vessels. One berth for 3,000 dwt vessels. Two berths for 2.000 dwt vessels.

The second harbor area is the Tianjin Lingang Industrial area, located 1.5 miles S of the main harbor area and is mostly all under new construction with ongoing land reclamation. Four tanker berths are in operation on the N side of the harbor area. This area will be entered through the fairway for the second channel, Dagusha Hangdao, that begins at Lighted Buoy No. 219 (38°51'44"N., 117°59'11'E) and proceeds NW for about 5.5 miles then WNW, becoming a channel dredged to 15m, and widening to 325m within the port area.

More than 200 berths are spread over the four main port areas in the main harbor. For details on the berthing for all but the Haihe port area, see the table titled **Tianjin—Port Facilities**.

Aspect

The land in the vicinity of Tianjin Xin Gang is low, flat, and not readily identifiable.

The harbor consists of an artificial basin dredged out of the extensive margin of drying mud flats fronting the NW shore of Po Hai and the entrance to Hai He. The harbor is sheltered to the N by a mole extending about 2.8 miles seaward. A partially-submerged breakwater continues about 2 miles farther seaward. It is protected to the S by a short training wall and by a partially-submerged breakwater which lies about 6 miles ESE. Drying mud flats fill the area between the training wall and the breakwater.

Pilotage

Pilotage is compulsory for all foreign vessels and for Chinese vessels carrying inflammable liquids Class 3.1 and 3.2. Pilotage is also available, upon request, for any other Chinese vessels. Pilotage is available at any time. The master should forward the vessel's ETA 72 hours, 48 hours, and 24 hours prior to arrival at the pilot boarding station. The pilots may be contacted on VHF channels 10 and 12.

Requests for pilotage should include the vessel's salt water and fresh water drafts. The pilot boarding positions are, as follows (see Anchorage paragraph for bounding coordinates of areas referenced below):

1. Vessels of 100,000 gt and over—in the Pilot and Quarantine anchorage area.
2. Vessels with a draft of less than 10.5m—in the North Dagukou anchorage area.
3. Tankers and bulk carriers with a draft of less than 8m—in the Chemical Bulk anchorage area.
4. Vessels carrying dangerous cargo and having a draft of more than 8m, and other vessels having a draft of greater than 10.5m—in the South Dagukou anchorage.
5. Vessels transiting within the Tianjin Xin Gang main channel board will board and disembark pilots, as follows:
   a. 38°50'51"N, 118°01'14"E.
   b. Boarding Area No. 1—38°55'54"N, 118°06'31"E. The pilot disembarks in position 38°54'42"N, 118°06'18"E.
   c. Boarding Area No. 2—38°56'26"N, 118°02'32"E. The pilot disembarks in position 38°55'28"N, 118°02'14"E.
   d. Boarding Area No. 3—38°57'08"N, 117°57'21"E. The pilot disembarks in position 38°56'16"N, 117°57'10"E.
6. Dagusha Hangdao has a pilot barding place in position 38°47'15"N, 118°06'30"E, in the vicinity of Dagusha Hangdao Lighted Buoy. Pilots also embark and disembark in the following positions:
   a. No. 1—38°50'38.4"N, 118°01'42.0"E. The pilot disembarks in position 38°50'04.2"N, 118°01'13.2"E.
   b. Boarding Area No. 2—38°53'06"N, 117°57'33.6"E. The pilot disembarks in position 38°52'30.6"N, 117°57'06.0"E.
   c. In position 38°54'45.0"N, 117°54'17.4"E between the breakwater heads.

Regulations

Tianjin Gang main channel is available for two-way traffic for vessels up to 10,000 gt. Limitations are routinely imposed for larger vessels, in dangerous conditions, or during bad weather. There is a speed limit of 10 knots for all vessels 80,000 dwt and larger within Tianjin Gang main channel. For all other vessels the speed limit is 12 knots. All vessels must maintain a minimum speed of 4 knots.

The Dagusha Hangdao Channel is restricted to one way traffic during the following situations:

1. Visibility of less than 3,000m.
2. Winds greater than Beaufort Force 6.
3. If there is an ice signal of 2 or higher for the channel.
4. All vessels with hazardous cargo.
5. All vessels with a beam of 25m or wider, or if two vessels would have a combined beam of 32m or greater, when passing each other during two way traffic.

The Dagusha Hangdao Channel is closed to all traffic during the following situations:

1. Visibility of less than 1,000m.
2. When winds are stronger than Beaufort Force 6 for vessels with a beam of 23m or greater.
3. For all vessels when there is an ice signal of 3 or higher for the channel.
4. All vessels when winds are stronger than Beaufort Force 8.
5. All vessels at night.

Vessel Traffic Service

A Vessel Traffic Service (VTS) has been established in Bo Hai and Tianjin Xin Gang. Participation in the VTS is compulsory. The VTS area is within an arc, known as the Gate Line, drawn at a radius of 20 miles from position 38°58'31"N, 117°47'12"E.

Vessels within the VTS area are divided into two groups, as follows:

1. Larger vessels to include the following:
   a. All foreign vessels.
   b. Chinese vessels with an loa of 50m or longer.
   c. Towing vessels with an loa of 50m or longer and with a width of 15m or wider.
   d. Any vessels with special requirements.
2. Smaller vessels to include the following:
   a. Chinese vessels with an loa less than 50m.
   b. Towing vessels with an loa less than 50m and width less than 15m.

The following activities are prohibited within the VTS area:

1. Fishing in any of the anchorages or channels.
2. Propulsion by sail.
3. Navigation trials or speed testing in the fairway unless prior approval has been obtained.
4. Anchoring alongside larger vessels within an anchorage unless prior approval has been obtained.

Upon arrival at the Gate Line, vessels must report to the VTS Center, on VHF channel 9, stating the following information:

1. Vessel name.
2. Nationality.
3. Call sign.
4. Draft.
5. Load condition, including identification of any dangerous cargo with its description, packaging, IMO code, and gross/net weight.
6. Any other information requested by the VTS.

After the initial report, vessels should also report to the VTS Center on VHF channel 9, as follows:

1. Before entering the port.
2. Before leaving the ship lock.
3. After berthing.
4. After passing through the Haimen Bridge.
5. After anchoring.
6. Before turning around in Xingang Fairway.
7. Before preparing to leave the berth.
8. Anchored vessels must advise the VTS 30 minutes

before their departure from the anchorage. Note that departure from the port area is prohibited unless permission has been obtained.

If a vessel is unable to depart the port at the time for which permission was granted, the reason for this delay must be reported to the VTS.

Vessels engaged in any kind of oil transfer operations should report to the VTS at time of operation commencement and time of completion.

The following additional reports must be made to the VTS:

1. Traffic accidents.
2. Pollution incidents.
3. Engine damage or breakdown.
4. Any emergency situation, such as personal injury or malfunction of navigational equipment.
5. Reporting the presence of any obstacles that could impede safe navigation in the VTS area.

All vessels within the VTS area should maintain a continuous watch on VHF channel 9.

The VTS can be contacted, as follows:

Tianjin Contact information	
Tianjin VTS Center	
Call sign	Tianjin VTS Center
VHF	VHF channels 9 and 65
Telephone	86-22-257-00692 86-22-257-00693
Facsimile	86-22-257-00459
E-mail:	vtstj@tjmsa.gov.cn

Contact Information

The port can be contacted, as follows:

Tianjin Contact information	
Tianjin Port	
Call sign	Tianjin VTS Center
VHF	VHF channel 8
Telephone	86-22-257-07550 86-22-257-92985
Facsimile	86-22-257-02080
E-mail:	http://www.ptacn.com

Anchorage

Ten designated anchorages lie outside the harbor; one additional anchorage lies at the W end of the Haihe River. For further details, see the table titled **Tianjin—Designated Anchorage Areas**:

Tianjin—Designated Anchorage Areas

Anchorage	Location Bounded by Lines Joining the Following Positions or Centered At	Depth	Maximum Vessel Size	Remarks
North Dagukou	a. 38°59'25"N, 117°58'21"E. b. 38°58'02"N, 118°07'07"E. c. 38°55'34"N, 118°06'28"E. d. 38°56'59"N, 117°57'43"E.	8.0-13.0m (mud)	50,000 dwt	For drafts of less than 10.5m, except for tankers and chemical bulk carriers.
South Dagukou	a. 38°55'42"N, 118°01'14"E. b. 38°54'54"N, 118°06'15"E. c. 38°52'38"N, 118°05'40"E. d. 38°53'26"N, 118°00'39"E.	12.0-16.0m (mud)	50,000 dwt	Dangerous cargo (oil, chemical tankers and bulk carriers) vessels with drafts greater than 8m and other cargo vessels with drafts greater than 10m but less than 13m.
Chemical Bulk	a. 38°56'18"N, 117°57'29"E. b. 38°55'42"N, 118°01'14"E. c. 38°53'26"N, 118°00'39"E. d. 38°54'02"N, 117°56'54"E.	10.0m (mud)	50,000 dwt	Tankers and bulk chemical carriers with drafts of less than 8m.
Pilotage and Quarantine	a. 38°51'49"N, 118°10'18"E. b. 38°49'44"N, 118°13'53"E. c. 38°48'07"N, 118°12'21"E. d. 38°50'13"N, 118°08'46"E.	18.0m (mud)	100,000 dwt	Vessels 100,000 dwt and larger with drafts deeper than 13m.
Tianjin and Caofeidian Large Vessels	a. 38°53'36"N, 118°24'40"E. b. 38°53'43"N, 118°26'43"E. c. 38°52'06"N, 118°27'28"E. d. 38°52'36"N, 118°23'51"E.	23.0-28.0m (mud)	300,000 dwt	For very large tankers and bulk carriers. Shared between Tianjin and Tangshan Caofeidian.

Tianjin—Designated Anchorage Areas				
Anchorage	**Location Bounded by Lines Joining the Following Positions or Centered At**	**Depth**	**Maximum Vessel Size**	**Remarks**
Tianjin Lingang No. 5	a. 38°42'08"N, 118°13'02"E. b. 38°39'43"N, 118°17'08"E. c. 38°38'07"N, 118°15'35"E. d. 38°40'32"N, 118°11'32"E.	16.0-18.0m (mud)	100,000 dwt	Temporary anchorage area.
Tianjin Lingang No. 6	a. 38°49'34"N, 118°00'29"E. b. 38°48'21"N, 118°02'30"E. c. 38°47'30"N, 118°01'45"E. d. 38°48'45"N, 117°59'43"E.	12.0m (mud)	50,000 dwt	—
Tianjin Nangang Industrial Area	a. 38°44'58"N, 117°56'03"E. b. 38°44'55"N, 118°02'57"E. c. 38°43'17"N, 118°02'55"E. d. 38°43'21"N, 117°56'01"E.	9.0-12.5m (mud)	—	Temporary anchorage area.
Zhengjiatai Lay-By Berthing Area	a. 39°01'04"N, 117°27'35"E. b. 39°01'00"N, 117°27'40"E. c. 39°00'58"N, 117°27'39"E. d. 39°01'01"N, 117°27'33"E.	5.6m (mud)	—	Temporary anchorage area.
LNG No. 1	a. 38°47'48"N, 118°13'54"E. b. 38°49'00"N, 118°15'06"E. c. 38°48'36"N, 118°15'42"E. d. 38°47'48"N, 118°14'54"E.	—	—	—
Emergency LNG No. 1	a. 38°48'03"N, 118°14'06"E. b. 38°49'02"N, 118°15'04"E. c. 38°48'39"N, 118°15'44"E. d. 38°47'51"N, 118°14'57"E. e. 38°47'51"N, 118°14'06"E.	—	—	—
No. 7—North	38°44'00"N, 117°59'30"E.	—	—	Non-hazardous cargo.
No. 7—North	38°42'30"N, 117°59'30"E.			Hazardous cargo.
No. 8—North	38°42'00"N, 118°16'00"E.	—	—	Hazardous cargo.
No. 8—North	38°42'00"N, 118°16'00"E.			Non-hazardous cargo.

Dagukou North Anchorage, which is also a quarantine anchorage, lies 4 miles ENE of Dagu Light in depths of 6 to 14m. Caution must be exercised to avoid an obstruction lying on the mid-section of the S boundary. This anchorage is designated for vessels with drafts of less than 10.5m.

Dagukou South Anchorage lies 4 miles ESE of Dagu Light, in depths of 11 to 16m. Caution is necessary to avoid a dangerous wreck within this area in position 38°53'29"N, 118°02'54"E. The anchorage is designated for dangerous cargo carriers with drafts exceeding 8m and for other vessels with drafts exceeding 10m. A spoil ground lies close N of this anchorage.

Bulk Chemicals Anchorage lies 1.5 miles S of Dagu Light in depths of 8 to 11m. A dangerous wreck, marked by a lighted buoy, lies 0.4 mile S of this anchorage. The anchorage is designated for bulk chemical carriers with drafts of less than 8m.

Vessels exceeding 100,000 gt can anchor 12 miles ESE of Dagu Light, in depths of 19 to 22m.

Each of the above designated anchorages serves as a pilot boarding area for the associated class of vessels.

Anchorage No. 6 lies 9 miles SSE of Dagu Light, in a depth of 12m.

Anchorage within a 1-mile radius of Dagu Light is prohibited.

Anchorage suitable for vessels of more than 150,000 tons, and sheltered from NE gales, may be taken 4 miles SW of Caofeidian Light. See the anchorage description in paragraph 4.22 for more information on this anchorage.

Good holding ground was reported 3.1 miles bearing 098° from the light, but otherwise the holding ground is very poor, and it is advisable to allow at least half a mile clearance of all anchored vessels. Winds are liable to be strong all year round and dragging anchor is quite common. With strong offshore winds, depths at the inshore end of the anchorage may be considerably less than charted; deep draft vessels should not anchor W of Dagu light tower. When the anchorage ices over, vessels may drag anchor from 5 to 10 miles in a day owing to the movement of the ice with the tidal streams. There are numerous submerged wrecks in the anchorage area and these can be a hazard for vessels dragging anchor.

Directions

Vessels intending to enter Tianjin Xin Gang arrive at the seaward entrance of the dredged entrance channel about 2 hours before HW. The best time for crossing the bar is about 1 hour 30 minutes before HW. Crossing the bar itself should always be considered a hazard because of the continuous silting, in spite of the constant dredging, and the poor rudder control experienced.

Buoys marking the channel are in accordance with IALA Maritime Buoyage System (Region A).

Caution

Several wells marked by lights, best seen on the chart, lie SSE of the charted anchorage area. There is a restricted area surrounding these wells.

A dangerous wreck has been reported in position 38°51'47"N, 118°01'37"E within a caution area established 0.8 mile NE of Dagusha Hangdao No. 217 Buoy, The minimum depth within the caution area is 11.3m.

Another dangerous wreck is centered on position 38°50'31"N, 118°14'30"E, in a depth of 13.9m.

Hai He to Penglai Shi (Dengzhou)

4.26 Hai He (38°59'N., 117°43'E.), the small commercially important river emptying into the NW port of Bo Hai, has its origin within the metropolis T'ien-ching where, at a distance of about 27 miles inland, it emerges from the confluence of the waterways Pei-yun Ho and Tzu-ya Ho and where, at a distance of about 1 mile downstream, it receives the major tributary Wei Ho.

Yun Ho (Grand Canal), the world's longest artificial waterway, proceeds N from **Hangzhou** (30°15'N., 120°10'E.), enters Wei Ho about midway along its length, continues to Hai He and Pei-yun Ho where it reaches, at a distance of about 86 miles upstream from T'ien-ching, **Pei-ching** (Beijing) (Peking) (39°56'N., 116°24'E.), the administrative capital of mainland China.

Depths—Limitations.—The entrance to Hai He is closed by a dam. A port area within the river with bulk and general cargo facilities serves smaller vessels as well as small tankers. Ocean-going vessels enter the **Haihe Port** area through a lock situated close W of No. 1 Dock. Passage through the lock is limited to vessels of up to 160m in length, with a maximum beam of 18m and an arrival draft at the lock of 5.6m. For details of the berths in the Haihe Port area see the table titled **Tianjin—Port Facilities** in paragraph 4.25.

Navigation by ocean-going vessels is impracticable on the rivers and numerous tributaries feeding Hai He.

Aspect.—Two bridges in the Hai He River that have strictly regulated times for raising and lowering the center spans that will cause all vessel traffic to cease.

The Hai He Opening Bridge, located over the directly over the entry lock into the river, has a vertical clearance of 39.5m. The Haimen Bridge, located further upriver close E of the Dagu Chemical company, has a vertical clearance of 31m.

The bridges will be opened for vessel traffic at 0515 between April 17 and August 23. During the remainder of the year, the bridges opening will occur at 1330. The total time for raising and lowering the bridge spans should not exceed 1.5 hours. The bridges will not be operated during the Mid-autumn Festival, National Day, New Years Day, and the Spring Festival.

Vessels navigating, anchoring, or operating in the Hai He River should maintain a continuous listening watch on VHF channels 9 and 71.

Anchorage.—There are three designated anchorages within the river for vessels to use while awaiting the bridge opening.

Area No. 1 is bounded by lines joining the following positions:

a. 38°00'04"N, 117°41'36"E.
b. 38°59'58"N, 117°41'57"E.
c. 38°59'50"N, 117°42'10"E.
d. 38°59'48"N, 117°42'08"E.
e. 38°59'56"N, 117°41'56"E.
f. 39°00'01"N, 117°41'35"E.

Area No. 2 is bounded by lines joining the following positions:

a. 38°59'52"N, 117°41'07"E.
b. 38°59'36"N, 117°41'10"E.
c. 38°59'19"N, 117°41'14"E.
d. 38°59'20"N, 117°41'19"E.
e. 38°59'35"N, 117°41'14"E.
f. 38°59'52"N, 117°41'12"E.

Area No. 3 is bounded by lines joining the following positions:

a. 39°01'06"N, 117°36'53"E.
b. 39°00'53"N, 117°36'37"E.
c. 39°00'51"N, 117°36'34"E.
d. 39°00'48"N, 117°36'37"E.
e. 39°00'49"N, 117°36'39"E.
f. 39°01'03"N, 117°36'57"E.

An anchorage area for illegal vessels has been established W of the areas listed above. An illegal vessel is one that is engaged in illegal shipping from the inner waterways. All other vessels are not permitted to navigate or conduct any operation within this anchorage area. This area is bounded by lines joining the following points:

a. 38°59'36"N, 117°42'13"E.
b. 38°59'35"N, 117°42'28"E.
c. 38°59'32"N, 117°42'29"E.
d. 38°59'21"N, 117°42'21"E.

Caution.—Several well heads and obstructions, some unmarked, are located in SW Bo Hai, E and ENE of the entrance to Huang Ho. Vessels are prohibited from approaching within 500m of the drilling rigs.

Numerous oil fields with associated platforms and submarine pipelines connecting them to other platforms and to the shore are scattered all through Bohai Wan extending E to Penglai Shi (Dengzhou), all of which can be best seen on the charts covering this area.

BZ34 Oil Field has a dangerous wreck, with depth unknown, situated close to it in approximate position 38°08'48"N, 119°35'42"E.

A dangerous wreck is located close SE of BZ28-1 Oil Field in position 38°16'48"N., 119°43'12"E, depth 17.6m.

4.27 Dagu Tanggu (38°58'N., 117°40'E.) (World Port Index No. 60180) is a port complex extending about 8 miles up-

stream from the entrance to Hai He. It joins the berthing facilities of the communities Dagu and Tanggu and includes Dagu Reach, Windy Reach, Tanggu Reach (Tanggu Chihtuan), Powder Reach (P'ou-ta Chih-tuan), Sinho Reach (Hsin-ho Chih-tuan) and part of Fa-men Chih-tuan (Farm Reach). Dagu, on the right bank of the river at Windy Reach, is of little commercial importance.

Tanggu, on the left bank upstream from Tanggu Reach, is a rail terminal with connections to Tianjin and Tianjin Xin Gang.

Depths—Limitations.—There are numerous wharves at Dagu and Tanggu, some of which have a berthing length of over 305m. This area includes wharves equipped for handling oil, coal, and salt. Depths alongside depend on the slices at the dam across the river mouth but are estimated to be from 4 to 5.2m. There is accommodation at Tanggu for three 5,000 ton vessels and two 3,000 ton vessels.

Tianjin Binhai (39°01'N., 117°34'E.) is an oil and chemical terminal with two berths having alongside depths of 4.5m. The terminal can accommodate vessels of up to 3,000 tons.

Signals.—Vessels wishing to turn around, proceed to the area of the customhouse in Tang-ku Reach and display, when intending to swing above the custom house, a black ball over the code pennant from the International Code of Signals and, when intending to swing below the customhouse, a black ball under the code pennant.

4.28 Dagang Gangqu (38°43'N., 117°00'E.) is a new port on the W side of Bohai Wan that has been under development on reclaimed land since 2011. It has three berths open for use by chemical tankers.

Depths—Limitations.—Dagang Gangqu is approached through a channel, dredged to 7m, with a navigable width of 280m. It is marked by buoys, entered between Buoy No. 145 and Buoy No. 146 in position 38°45'54"N, 117°38'28"., and ending at the entrance to the basin in position 38°45'32"N, 117°37'03"E. This channel is approximately 1.18 miles in length with a width of 180m and a designed depth of 12.5m.

North and S breakwaters extend E from Dagang Gangqu. Both breakwaters have been extended 1.1 miles, making the total length of the N breakwater about 8.1 miles and the length of the S breakwater about 7.1 miles.

The berths are approached through a buoyed channel, which is entered 1 mile W of the fairway lighted buoy (38°45'40"N, 118°07'59"E).

Berths 1-4 are bulk berths, with a total length of 670m and depths alongside of about 11.5m.

Berths 5-8 are bulk berths, with a total length of 620 m.

Berths No. 10 through Berth No. 12 are open for use and will accommodate liquid chemical tankers up to 20,000 tons with depths alongside of 11.7m. Future plans include the ability to accept tankers as large as 50,000 tons.

Berth No. 13 through Berth No. 16 are also open for use with a combined total length of 868m and depths alongside of 8.8m. Berths No. 13 and Berth No. 14 are each 239.5m in length with the use of a jetty for loading and unloading while Berth No. 15 and Berth No. 16 share a total length of 389m with loading and unloading taking place alongside the wharf.

Sinopec LNG Pier is 402m in length with a depth of 14.9m.

The Working Vessel Wharf, intended for law enforcement vessels, is situated at the W extremity of Dagang Gangqu and W of No. 1 General Purpose Wharf. The wharf is 570m in length and has eight berths available, with depths alongside of 5.8m.

4.29 Huanghua (38°19'N., 117°40'E.) handles coal, cement, and construction materials.

Ice.—Ice forms from early December to March and usually extends approximately 3 miles from shore.

Tides—Currents.—The port is subject to irregular semi-diurnal tides. The maximum tidal range is 4.14m with an average range of 2.3m. The duration of flood stage is 5.5 hours, increasing to 6.4 hours during ebb tide.

Depths—Limitations.—The older part of the port is located to the S, with newer berths having been constructed in the N part. Separate buoyed channels lead to each part of the port, with the channel to the N being approximately 23 miles in length. Both channels are dredged to a least depth of 18.3m in the N channel and 18.3m in the S channel.

Huanghua is a relatively new port still under construction but many berths are open for use as listed in the table titled **Huanghua—Cargo Berthing Facilities**.

Pilotage.—Pilotage is compulsory for foreign vessels and is available 24 hours. Vessels should advise ETA through their agent 72 hours, 48 hours, and 24 hours in advance of expected arrival.

Pilots will board in the following positions:

1. No. 2 Quarantine Anchorage.—38°28'32"N, 118°18'18"E.
2. Pilot boarding position No. 1—38°28'58"N, 118°15'18"E.
3. Pilot boarding position No. 2—38°27'22"N, 118°11'45"E.
4. Pilot boarding position No. 3—38°24'11"N, 118°04'41"E.
5. Pilot boarding position No. 4—38°33'23"N, 118°16'44"E.
6. Pilot boarding position No. 5—38°31'50"N, 118°13'28"E.
7. Pilot boarding position No. 6—38°29'55"N, 118°09'03"E.

Pilots can be contacted, as follows:

1. VHF: VHF channels 13 and 16
2. Telephone: 86-317-538-7679
3. Facsimile: 86-317-576-8257

Huanghua—Cargo Berthing Facilities

Berth	Berth Length	Depth Alongside	Maximum Vessel Size	Remarks
Coal Terminal				
Nos. 1-2	378m	13.0m	15,000 dwt	General cargo.

Huanghua—Cargo Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 100	213m	14.0m	22,271dwt	Coal.
No. 101	268m	14.0m	65,772 dwt	Coal.
No. 102	255m	14.0m	74,074 dwt	Coal. Maximum draft of 13.9m.
No. 103	233m	14.0m	82,238 dwt	Coal. Maximum draft of 12.9m.
No. 200	310m	13.0m	72,270 dwt	Coal.
No. 201	213m	14.0m	58,056 dwt	Coal. Maximum draft of 12.9m.
No. 202	268m	14.0m	76,603 dwt	Coal. Maximum draft of 12.9m.
No. 203	265m	14.0m	115,496 dwt	Coal. Maximum draft of 12.9m.
No. 301	225m	13.0m	58,095 dwt	Coal.
No. 302	338m	18.5m	298,706 dwt	Coal.
No. 303	234m	14.3m	93,272 dwt	Coal.
No. 304	254m	14.3m	115,644 dwt	Coal.
No. 400	310m	—	69,235 dwt	Coal.
No. 401	225m	13.9m	69,235 dwt	Coal.
No. 402	225m	13.9m	65,772 dwt	Coal.
No. 403	234m	13.9m	82,238 dwt	Coal.
No. 404	250m	14.3m	104,945 dwt	Coal.
Cargo E	198m	13.0m	48,893 dwt	Coal and iron ore.
Cargo W	180m	13.0m	48,893 dwt	Coal and iron ore.
Operations Wharf	425m	—	100,000 dwt	Tugs, dredges, and government boats.
Iron Ore Terminal				
No. 1	326m	18.5m	263,166 dwt	Iron ore.
No. 2	338m	18.5m	264,340 dwt	Iron ore.
No. 3	341m	20.0m	200,000 dwt	Iron ore.
No. 4	341m	20.0m	200,000 dwt	Iron ore.
Comprehensive Terminal				
Nos. 1-4	1,017m	14.5m	100,000 dwt	General cargo and breakbulk.
Nos. 5-6	535m	14.5m	100,000 dwt	General cargo.
Nos. 7-8	527m	14.5m	100,000 dwt	Containers.
No. 1 S	252m	14.3m	95,719 dwt	Coal and iron ore.
No. 2 S	250m	14.3m	171,381dwt	Coal and iron ore.
No. 3 S	250m	14.3m	10,000 dwt	Coal and iron ore.
No. 4 S	250m	14.3m	10,000 dwt	Coal and iron ore.
Jin Ji International Container Terminal				
No. 7	294m	14.5m	69,303 dwt	Containers, bunkers, and reefer.
No. 8	220m	14.5m	44.593 dwt	Containers, bunkers, and reefer.
Hekou Harbor				
03	130m	76m	2,616 dwt	Coal and bunkers.

Huanghua—Cargo Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
04	130m	76m	2,616 dwt	Coal and bunkers.
05	237m	76m	2,616 dwt	Coal and bunkers.
06	237m	—	3,000 dwt	Coal and bunkers.
07	140m	6.5m	3,000 dwt	Under construction.
08	140m	6.5m	3,000 dwt	Chemicals. Under construction.
09	140m	6.5m	3,000 dwt	Chemicals. Under construction.
Tanker Berth				
Liquid Chemical Dock	50m	14.2m	75,578 dwt	Chemicals. Maximum loa of 229m.
Huanghua Gata Liquid Chemical Terminal				
01	229m	14.5m	50,000 dwt	Chemicals and CCP.
02	229m	14.5m	50,000 dwt	Chemicals and CCP.
Crude Terminal				
Crude Jetty	45m	22.5m	300,000 dwt	Crude.

Vessel Traffic Service.—Huanghua VTS has been established for the port and surrounding waters and operates 24 hours. the VTS area lies within a circle with a radius of 28 miles centered the South Breakwater Lighted Beacon (38°20'25"N, 117°55'23"E.).

The purpose of the Huanghua VTS is to accomplish the following objectives:

1. Strengthen and standardize vessel traffic control.
2. Ensure vessel safety.
3. Improve vessel traffic efficiency.
4. Protect the marine environment of the port area.

Vessels must maintain a continuous listening watch on VHF channel 8 when within the VTS area. Communication with the control center is also made on VHF channel 8.

The Huanghua VTS provides the following information upon request, broadcasting daily on VHF channel 8 between 1100 and 1105 and between 1600 and 1605:

1. Vessel movement information.
2. Hydro-meteorological information.
3. Navigational aids information.
4. Navigational warnings.
5. Notices to Mariners.

Huanghua VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Pre-arrival through owner or agent.	24 hours prior to ETA or ETD.	1. Vessel name and call sign. 2. Vessel nationality. 3. LOA. 4. Gross tons. 5. Vessel draft. 6. Last ports of call. 7. ETA. 8. Cargo type and quantity. 9. Number of passengers and crew on board.
Pre-arrival to VTS on VHF channel 8	Upon approach (before crossing) the VTS limit line.	1. Vessel name. 2. Vessel nationality. 3. ETA. 4. Navigational intentions.

Huanghua VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Arrival at anchorage	Immediately after dropping anchor.	1. Vessel name and call sign. 2. Vessel nationality. 3. Position of anchoring to include true bearing and distance from South Breakwater Lighted Beacon. 4. LOA and gt. 5. Vessel beam. 6. Vessel draft. 7. Last port of call. 8. Cargo on board. 9. Any other information requested by the VTS.
1. Arrival at berth. 2. Shifting berths or anchorages. 3. Any other operations relating to navigational safety.	No later than 20 minutes prior to commencing any of the operations listed then a final report made upon completion of the evolution.	1. Vessel name. 2. Time of arrival or departure from berth or anchorage. 3. Position. 4. Destination port.
Miscellaneous	1. Immediate report to the VTS for any change in the vessels sailing plans or anchoring position. 2. Vessels carrying passengers must report their sailing plans and number of passengers on board at least 20 minutes prior to departure. 3. Whenever vessel entering or departing the fairway within the VTS operational area, a report to the VTS needs to be made. 4. Vessels engaged in towing, bunkering, supplying water, or transshipping, or any other operations shall apply for permission to do so along with a sailing plan at least 20 minutes before the intended start of the operation. None of these operations can start without permission from the VTS, and if granted, another report needs to be made upon completion of the operation. 5. Vessels involved in a traffic or pollution incident or other urgent situation should make an immediate report to the VTS by VHF or any other available means if VHF is not operational. 6. If anything is observed that would threaten navigational safety in the VTS area, an immediate report to the VTS by VHF or any other available means if VHF is not operational.	

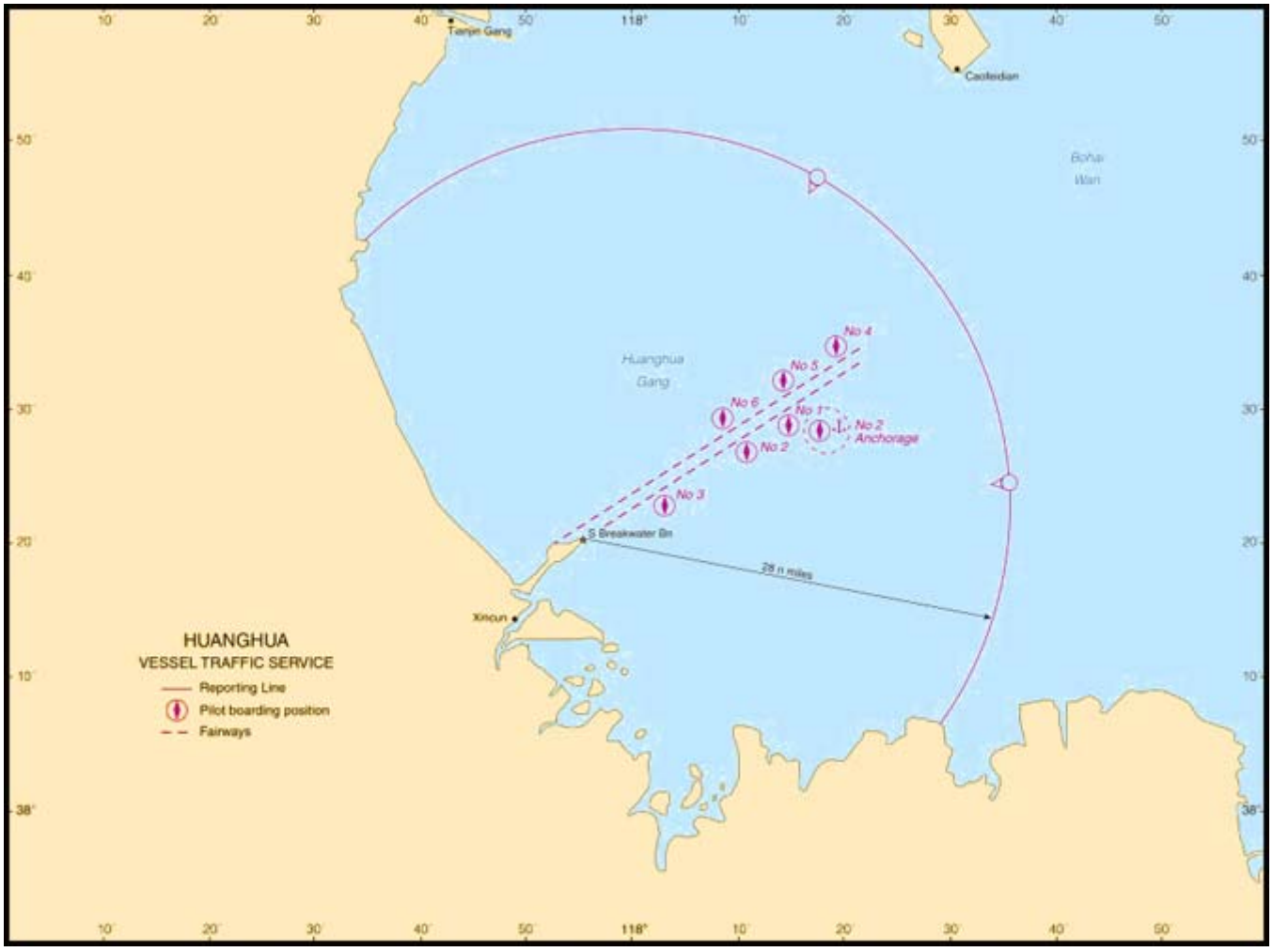
Mandatory reports must be made to the Huanghua VTS at specified times, including the information specified in the table titled **Huanghua VTS—Reporting Requirements**

Contact Information.—The VTS Center can be contacted, as follows:

Huanghua Contact information	
Haunghua VTS Center	
Call sign	Huanghua VTS Center
VHF	VHF channel 8
Telephone	86-317-578-6580 86-317-538-8760
Facsimile	86-317-538-8756
E-mail	vtsthh@hebeimsa.gov.cn

Anchorage.—Six designated anchorages in and around the harbor limit area are described below:

1. Quarantine Anchorage Area No. 1—A circle with a radius of 1 mile centered on position 38°25'46"N, 118°10'44"E. An obstruction has been reported in the E area of the anchorage.
2. Quarantine Anchorage Area No. 2—A circle with a radius of 1 mile centered on position 38°28'32"N. 118°18'18"E.
3. Anchorage Area No. 3—A circle with a radius of 1.5 miles centered on position 38°30'13"N. 118°26'48"E.
4. Anchorage Area No. 4—Area bounded by lines joining the following positions:
   a. 38°32'54"N., 118°09'30"E.
   b. 38°34'11"N., 118°12'33"E.
   c. 38°32'13"N., 118°13'56"E.
   d. 38°30'58"N., 118°10'51"E.
5. Anchorage Area No. 5—Area bounded by lines joining the following positions:
   a. 38°42'06"N., 118°13'06"E.
   b. 38°39'42"N., 118°17'06"E.
   c. 38°38'06"N., 118°15'36"E.
   d. 38°40'30"N., 118°11'30"E.
6. Anchorage Area No. 6—Area bounded by lines joining the following positions:



Huanghua VTS and Pilot Boarding Positions

a. 38°39'35"N., 118°29'10"E.
b. 38°40'51"N., 118°26'13"E.
c. 38°38'33"N., 118°27'55"E.
d. 38°37'58"N., 118°26'43"E.
e. 38°37'07"N., 118°24'10"E.

7. Anchorage Area No. 8—An unrestricted anchorage for vessels loaded with non-hazardous cargo, with a radius of 600m, is centered on position 23°39'30"N, 117°36'27"E.

Caution.—A dangerous wreck, depth unknown, is located close E of Anchorage Area No. 1.

Another dangerous wreck, depth unknown but marked by a lighted buoy to the N, close E of Anchorage Area No. 2.

A spoil ground, with a diameter of 1.6 miles, has been established centered on position 38°30'31"N, 118°06'00"E. An obstruction (38°28'41"N., 118°17'17"E.) lies in the W part of the anchorage. A pipeline, in the vicinity of which anchoring is prohibited, runs close to the W boundary.

Tianjin Zhongxin (39°11'N., 117°52'E.) is a fishing harbor. The channel to the harbor is 120m wide, has a depth of 4m, and is marked by buoys.

4.30 Laizhou Wan (37°20'N., 119°22'E.) is the southernmost bay of Bohai Wan. The bay indents the coast between the mouth of Huanghe river, at its NW point, and continues to Longkou Gang at its NE point.

Laizhou Gangqu Zhuwang Operation Area (37°14'N., 119°52'E.) is a new port area being built up along the coast SSW of Diaolong Zui. A new approach channel has just been completed and is 11.5 miles in length, 1,500m in width, and has depths of 6 to 8m. The following points describe the E limit of this channel that leads into the Operation Area:

a. 37°22'30"N, 119°42'54"E.
b. 37°18'55"N, 119°47'00"E.
c. 37°18'30"N, 119°47'28"E.
d. 37°15'15"N, 119°51'11"E.

Zhuwang Gang (37°15'22"N, 119°51'40"E), is a small port that lies at the head of Taiping Wan, on the SE side of Laizhou Wan.

Depths—Limitations.—Zhuwanggang Hangdao, the buoyed fairway, has a minimum depth of 6.0m. It consists of a single wharf with a 300m long S-facing berth and a 275m long E-facing berth. Depths alongside range between 5.6m and

6.3m.

Anchorage.—Outer anchorages are available. Vessels may anchor in an area centered on position 37°17'48"N, 119°48'30"E, in depths of 4 to 6m, S of Furong Dao. The function and limits of this anchorage are subject to change; consult port authorities for further information.

Directions.—The port is approached from a position in Laizhou Wan about 6 miles NW of Furong Dao (37°18'49"N., 119°48'52"E.) and leads SE for about 6 miles, passing NE of a rock with a depth of 5.0m, then, NE of a 4.9m shoal, and SW of a shoal with a least depth of 3.9m. The track then leads SE for 3.5 miles through a dredged channel, marked by buoys to a position close WSW of the breakwater. The track then leads to the turning circle S of the main berthing area. A lighted buoy (37°15'04"N., 119°51'58"E) is moored on the coastal bank adjacent to the turning circle.

4.31 Laizhou Gang (37°24'N., 119°56'E.) lies on the NW coast of Shandong Bandao. The terminal handles bulk, general, passenger, and ro-ro cargo. A new harbor has been built (2014) approximately 3.5 miles ENE of the main terminal.

Depths—Limitations.—The main harbor is approached from the N by passing through either the NNE channel or the NNW channel, both of which are marked by lighted buoys. The main terminal is formed by breakwaters on the E side, with a pier and berths on the W side.

Controlling depths are 12.4m in the NNE channel and 9.3m in the NNW channel.

The new harbor will be approached from a position in the NNE channel (37°30'01"N, 119°58'44"E) through a new channel, heading S for 1.75 miles, then SE for another 2.5 miles to the new harbor entrance. This new channel is also marked by lighted buoys.

Four general cargo berths, capable of handling vessels up to 10,000 dwt, have depths alongside of 9.8m along with three tanker berths capable of handling tankers as large as 100,000 dwt in the main harbor. The new harbor berthing details are still being worked out.

Pilotage.—Pilotage is compulsory for all foreign vessels arriving and departing the port. Pilots are available 24 hours and may be contacted on VHF channel 16. The pilot boarding positions are, as follows:

1. No. 1 (37°26'13"N., 119°56'08"E.).
2. No. 2 (37°31'30"N., 119°59'27"E.).

Anchorage.—Three anchorage areas lie outside the port area for vessels, as follows:

1. No. 1 Outer Anchorage, centered on position 37°32'22"N, 119°49'44"E, with depths of 10 to 12m, mud and sand, is used by foreign vessels. See Caution paragraph for navigational hazards to be avoided in this area.
2. No. 2 East Anchorage, centered on position 37°25'36"N, 119°57'53"E, with depths in the N of 6 to 8m, shallowing to 6m in the S part of the anchorage.
3. No. 3 West Anchorage, centered on position 37°25'31"N, 119°54'18"E, with depths in the W of 5 to 10m, shallowing closer to the breakwater.
4. An anchorage intended for temporary use by vessels waiting to berth has been established, in a depth 12m, mud, centered on position 37°32'33"N, 119°29'19"E.

Caution.—The outer fairway channel passes W of a reported (2010) shallow water depth area (37°39'N, 120°07'E) and W of a dangerous wreck (37°35'N, 120°02'E), both of which can be seen on the chart.

Anchorage Area No. 1 has the following hazards to be avoided:

1. A dangerous wreck in depths of 10m, located in position 37°32'40"N, 119°48'51"E.
2. A dangerous wreck close to the N limit of the area in position 37°34'35"N, 119°48'17"E.
3. A rock close to the center of the area in position 37°32'08"N, 119°50'01"E.

Numerous marine farms are located within the area S of 37°48'30"N, 120°12'52"E and the N area off the Laizhou Gang outer anchorage, where accidents are likely to occur. Vessels approaching and departing Laizhou Gang and Longkou Gang are advised to contact port authorities in advance of arrival to this area for help in avoiding the marine farm areas.

4.32 Weifang Gang (37°15'N., 119°22'E.) is a small commercial port on the SW side of Laizhou Wan. The harbor is open to foreign trade, and protected by breakwaters which exhibit lights.

Depths—Limitations.—The port is approached from the NE through a channel, marked by lighted buoys, with a controlling depth of 7.1m.

Seven berths for handling general cargo have alongside depths of up to 7m at the jetty extending 5.5 miles N from the shore. Vessels as long as 130m and up to 3,000 dwt can be accommodated.

Pilotage.—Pilots board at the Laizhou pilot boarding area. See paragraph 4.31 for details.

Anchorage.—Vessels may take anchorage, as follows:

1. Anchorage No. 2 is a small anchorage for vessels loaded with explosives and is centered on position 37°24'18"N, 119°15'00"E.
2. Anchorage No. 3 lies N of the approach channel, in depths of about 7m, centered on position 37°22'43"N, 119°16'50"E.

4.33 Longkou Gang (37°38'N., 120°17'E.) (World Port Index No. 60170), about 25 miles SW of Penglai Shi (Dengzhou), lies close within the bay Lung-k'ou Wan and serves as one of the principal seaports for the inland city **Huang Xian** (37°38'N., 120°30'E.). It consists of an inner and outer harbor lying S of a low sandy isthmus which, extending about 5 miles E, terminates in a hilly promontory of which Qimu Jiao (Ch'i-mu Chiao) is the reef-fringed steep-sided rocky seaward extremity.

A partly drying sand bank fringes the S side of Qimu Jiao, and from it a sand spit extends SE across the bay. A dredged channel, nearly 3.5 miles long, gives access to the port area.

The port of **Longkou** (37°39'N., 120°20'E.), which is open to foreign shipping, is situated close SE of a peninsula extending westward from Shandong Bandao, making the port a good place to shelter against strong N and NW winds. Longkou handles imports to include fertilizers, steel, timber, refined oil and other general cargo. Exports include coal, cement, salt, grain, building materials, and mineral products.

Tides—Currents.—The tidal range averages 0.9m. Tidal currents generally set SE on the flood tide and W on the ebb

tide. The maximum rate does not exceed 1 knot.

Depths—Limitations.—The harbor is approached from the NW or from the WSW. Both approaches are through fairways marked by lighted buoys. The main fairway starts at No. 0 lighted buoy (37°38'13"N., 120°09'53'E.) with a length of about 7,315m through depths of 11 to 12.5m until the intersection with the fairway used for the approach from the NW. The approach fairway from the NW is the deeper of the two fairways, beginning at No. 100 lighted buoy and continuing for about 6,000m through depths of 15 to 15.5m until intersecting with the main fairway. After the intersection of the two approach fairways, the main fairway continues for another 4,500m into the harbor through depths of 15 to 15.5m.

CIMC Raffles Offshore Ltd. berths are approached through a channel, 1.8 miles in length, with intended depth of 8m, marked by buoys, and entered from the outer fairways at Zhongji Lighted Buoy (37°38'24"N., 120°16'55"E.).

The CNOOC berths have an adjacent swinging area, with a depth of 8.8m and a radius of 124m. Both the CNOOC berths and associated swinging areas are approached through a channel with a length of 520m and a depth of 8.8m, entered between Buoy Y1 and Buoy K1.

Longkou—Cargo Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
K1	—	—	—	Ferry terminal and supply boats.
K2	—	—	—	Ferry terminal and supply boats.
Bulk Cargo Terminal				
No. 1	180m	10.3m	30,000 dwt	Bulk and general cargo
No. 2	120m	7.5m	5,000 dwt	Bulk cargo.
No. 3	100m	6.72m	3,000 dwt	Bulk cargo.
No. 4	100m	6.7m	3,000 dwt	Bulk cargo.
No. 5	104m	6.8m	3,000 dwt	Bulk cargo.
No. 6	104m	6.8m	3,000 dwt	Bulk cargo.
No. 9	129m	7.5m	5,000 dwt	Bulk salt.
No. 10	129m	7.5m	5,000 dwt	Bulk salt.
No. 11	288m	14.0m	70,000 dwt	Grain.
Nos. 12-13	435m	14.0m	70,000 dwt	Coal and bulk cargo.
Container Terminal				
No. 14	226m	14.1m	50,000 dwt	Containers.
No. 15	184m	13.2m	50,000 dwt	Containers.
Nos. 16-17	420m	10.3m	16,000 dwt	Containers.
Coal Terminal				
No. 18	182m	10.1m	16,000 dwt	Coal.
No. 19	173m	10.1m	16,000 dwt	Coal.
Bingang Petrochemical Terminal				
No. 20A	130m	10.1m	10,000 dwt	Clean products. Maximum loa of 120m. Maximum draft of 9m.
No. 20B	130m	10.1m	10,000 dwt	Clean products. Maximum loa of 120m. Maximum draft of 9m.
No. 21	300m	15.6m	100,000 dwt	Dirty products and crude oil.
No. 22	300m	15.6m	100,000 dwt	Dirty products and crude oil.
General Cargo Terminal				
No. 24	309m	15.6m	100,000 dwt	General cargo.
No. 25	309m	15.6m	100,000 dwt	General cargo.
No. 26	304m	15.6m	100,000 dwt	General cargo.

Longkou—Cargo Berthing Facilities				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 27	359m	16.0m	50,000 dwt	General cargo.
No. 28	222m	16.0m	50,000 dwt	General cargo.
No. 29	310m	16.0m	50,000 dwt	General cargo.
CNOOC Base Logistics Company				
Two unnamed berths	297m	8.6m	5,000 dwt	Bulk and general cargo.

Most of the harbor is protected by a wharf 555m wide and 2,000m long that extends SSE from the coal wharf situated at the N end of the harbor.

For further information, see the table titled **Longkou—Cargo Berthing Facilities**.

Pilotage.—Pilotage is compulsory and available 24 hours. The pilot generally boards in the following positions:

1. No. 1 (37°38'17"N., 120°11'43"E.).
2. No. 2 (37°40'14"N., 120°12'08"E.).
3. No. 3 (37°38'47"N., 120°13'33"E.).
4. No. 4 (37°42'28"N., 120°10'58"E.).

The vessel's ETA should be sent 72 hours, 48 hours, and 24 hours prior to arrival via the agents.

Regulations.—The Yantai Maritime Safety Administration (MSA) has announced (2016) a ro-ro ship route has been designated between Longkou Gang and Lushun Gang. This route passes through Changshan Shuidao and Laotieshan Shuidao with the main turning points at position 37°52'42"N, 120°10'30"E and at position 38°41'N, 120°47'E. Vessels are obliged to comply with this regulation in order to prevent collisions.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) has been established for Longkou and includes the water area bounded by an arc with radius of 12 miles centered on Qimu Dao Light (37°41'08"N, 120°13'32"E). Longkou VTS is managed by the Yantai VTS (see paragraph 4.42).

Participation in the Longkou VTS is mandatory for all vessels operating within the VTS limits for any reason.

All AIS-equipped vessels shall ensure their AIS equipment is turned on and accurately operational.

The working frequency for VTS communications is VHF channel 12; vessels should not use this channel for any other types of communications. A continuous listening watch is to be maintained on VHF channel 12 by all vessels within the VTS area.

The languages to be used when communicating with the VTS shall be standard Chinese or English.

Reporting Lines have been established along the arcs defining both the E and W limits of the VTS area as described above.

Vessels must report the following information via VHF channel 12 when crossing either of the Reporting Lines:

1. Vessel name.
2. Position at time of report.
3. For inbound vessels—reason for entering port.
4. For inbound vessels—advise the type and quantity of any dangerous cargo on board.
5. Any other information requested by the VTS.

Reports to be made by vessels within the limits of the VTS are, as follows:

1. Vessels must report after berthing or anchoring, stating the vessel's name, berth or anchoring position, and finishing time to the VTS.
2. Before leaving berth or weighing anchor, vessels must report their name, position, time of departure, and destination to the VTS.
3. In the event of a traffic incident, pollution incident, or other emergency affecting or discovered by a vessel within the VTS area, that vessel must immediately report to the VTS.
4. Vessels discovering any abnormality affecting navigation marks or navigation aids, obstacles obstructing safe passage, floating material, or other circumstances hindering safe passage should immediately report to the VTS.

Vessels shall make a report to the VTS 30 minutes before commencing and 30 minutes after completing the following operations:

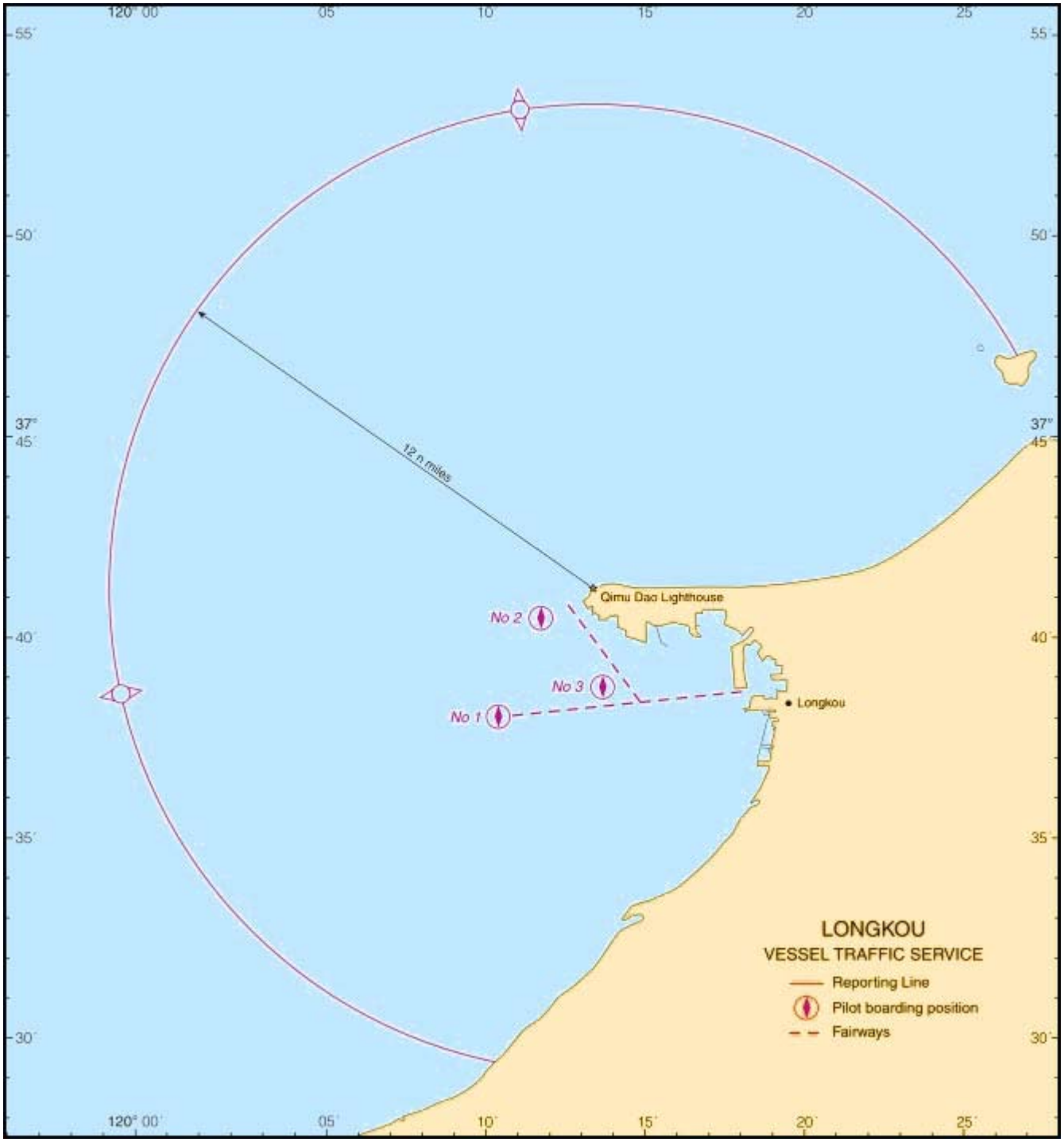
1. Dismantling and repairing boilers, main engines, anchor winches, steering gear, or main navigation equipment.
2. Engine tests or vessel trials.
3. Lowering boats and practicing rescues.
4. Any other operations which could affect traffic safety.

The Longkou VTS can be contacted, as follows:

LongkouContact information	
LongkouVTS Center	
Call sign	Yantai VTS Center VTS Center
VHF	VHF channels 12 and 16
Telephone	86-535-668-7316
E-mail	vtsyt@sdmsa.gov.cn
	vtsthh@hebeimsa.gov.cn

Contact Information.—The port can be contacted, as follows:

LongkouContact information	
Longkou Port	
VHF	VHF channels 6 and 16
Telephone	86-545-884-2001
Facsimile	86-545-884-1137



Longkou Vessel Traffic Service

Anchorage.—The four designated anchorage areas described below should be used for waiting purposes only and are not suitable for sheltering from strong winds.

Anchorage Area No. 1, mud and clay, with depths of 4 to 17m, used for general purpose vessels up to 500gt, is bounded by lines joining the following positions:

a. 37°38'01"N, 120°14'58"E.
b. 37°37'24"N, 120°14'59"E.
c. 37°37'27"N, 120°16'37"E.
d. 37°38'04"N, 120°16'36"E.

Anchorage Area No. 2, mud and clay, with depths of 10.5 to 16m, used for general purpose vessels up to 1,000gt, is bound-

ed by lines joining the following positions:

a. 37°38'00"N, 120°14'24"E.
b. 37°37'13"N, 120°14'25"E.
c. 37°37'13"N, 120°11'43"E.
d. 37°38'00"N, 120°11'41"E.

Anchorage Area No. 3, mud and clay, with depths of 10.5 to 16m, used for awaiting berth assignments for vessels up to 10,000gt, is bounded by lines joining the following positions:

a. 37°37'59"N, 120°11'19"E.
b. 37°37'12"N, 120°11'19"E.
c. 37°37'12"N, 120°09'59"E.
d. 37°37'59"N, 120°09'59"E.

Anchorage Area No. 4, for unrestricted use, lies centered on position 37°39'46"N, 120°10'23"E.

Vessels should report to Yantai VTS on VHF channel 12 one (1) hour before entering any of the anchorages. Vessels should confirm their position through VHF channel 12 once they are anchored and then monitor VHF channels 12 and 16 during their time of anchorage. When departing the anchorage, Yantai VTS will also have to be notified through VHF channel 12.

Caution.—Vessels will need to leave these anchorages when a tropical storm or typhoon approaches or a N wind with strength of a strong breeze or higher is expected.

Numerous marine farms are located within the area S of position 37°48'30"N, 120°12'52"E and the N area off the Laizhou Gang outer anchorage where accidents are likely to occur. Vessels approaching and departing Laizhou Gang and Longkou Gang are advised to contact port authorities in advance of arrival to this area for help in avoiding the marine farm areas.

4.34 Penglai (37°50'N., 120°44'E.), is located close E and W of a reef-fringed steep-sided rocky headland. The port is divided into Penglai Dengzhou, along longitude 120°44'E, and Penglai Donggang, about 4 miles E. Penglai has berths for bulk and general cargo, ro-ro, and other multi-purpose cargo. Penglai also includes the Weiyang Oil Terminal, in Luajiakon, located about 6 miles SW (see paragraph 4.35). Penglai handles imports of timber, coal, iron ore, crude oil, and frozen seafood while exporting cement, sand, plywood, and stone.

Tides—Currents.—Tidal ranges are from 1.17m at MLWS to 2.14m at MHWS.

Depths—Limitations.—Two fairways lead into the Penglai port area. The fairway leading into the E port area (Donggang) is 450m in length and 100m in width, with depths of 8.5m. The fairway leading into the W port area (Dengzhou) is 275m in length and 80m in width, with depths of 4.0m. Most of the cargo handling facilities are located in Penglai Donggang area and there is continuing (2015) development for this port area. A channel, about 1.3 miles in length, 150m in width, and with a depth of 14m is used by vessels up to 50,000 tons for approaching the new enlarged Berth No. 8 at Penglai (Donggang).

Penglai Donggang is protected by two breakwaters, about 1 mile in length, with an opening of 400m at the breakwater heads. The width of the breakwaters is about 12m with height of 2.5m.

See the table titled **Penglai (Donggang)—Berthing Facilities** for details on berthing facilities within the harbor.

Pilotage.—Pilotage is compulsory for all foreign vessels arriving and departing the port. Pilots board at the inner or outer quarantine anchorage areas, as follows:

1. Inner Quarantine Anchorage Area—bounded by lines joining the following positions:
   a. 37°50'53"N, 120°47'38"E.
   b. 37°50'13"N, 120°47'26"E.
   c. 37°50'13"N, 120°48'55"E.
   d. 37°50'53"N, 120°48'55"E.
2. Outer Quarantine Anchorage Area—bounded by lines joining the following positions:
   a. 37°56'27"N, 120°56'50"E.
   b. 37°54'28"N, 120°56'50"E.
   c. 37°52'52"N, 120°53'00"E.
   d. 37°57'00"N, 120°53'00"E.

Penglai (Donggang)—Berthing Facilities

Berth	Length	Depth	Remarks
No. 1	130m	—	General cargo. Vessels up to 2,000 dwt.
No. 2	130m	—	General cargo. Vessels up to 5,000 dwt.
No. 3	195m	—	General cargo. Vessels up to 10,000 dwt.
No. 4	90m	—	Under construction.
No. 5	161m	—	Wood. Vessels up to 5,000 dwt.
No. 6	161m	—	Wood. Vessels up to 10,000 dwt.
No. 7	263m	13.5m	General cargo. Vessels up to 35,000 dwt.
No. 8	306m	15.1m	General cargo. Vessels up to 70,000 dwt.
No. 9	275m	—	General cargo. Vessels up to 100,000 dwt. Under construction.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) has been established for Penglai and Chang Dao, the island due N of Penglai, and includes the water are bounded by an arc with radius of 8 miles centered on Penglai Tou Light (37°49'50"N., 120°44'33"E.) to the E and another arc with a radius of 8 miles centered on Lanjiakou Gang Lighted Beacon (37°47'02"N., 120°37'51"E.) to the W. Penglai-Chang Dao VTS is managed by the Yantai VTS (see paragraph 4.42).

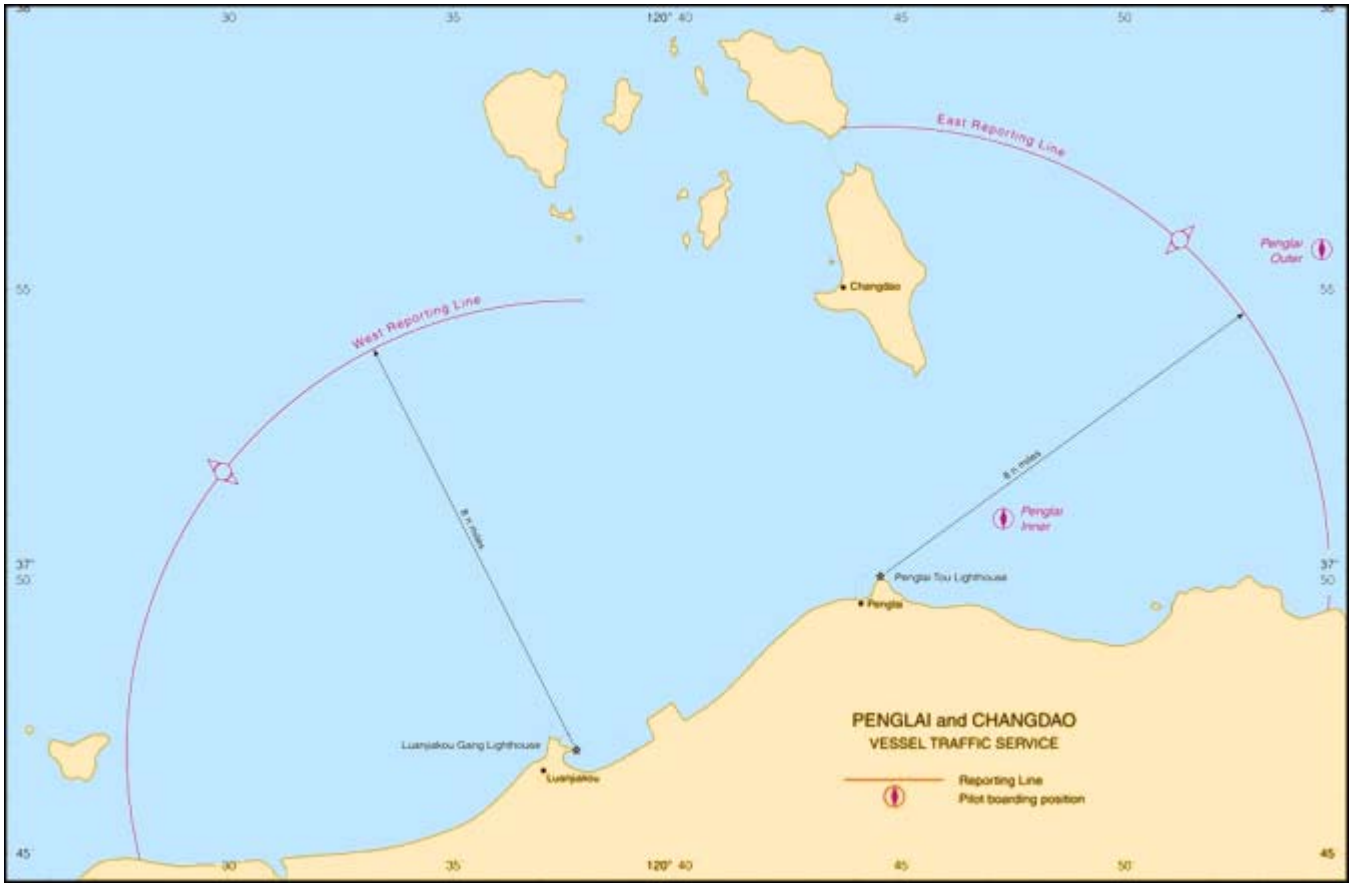
Participation in Penglai-Chang Dao VTS is mandatory for all vessels operating within the VTS limits for any reason.

All AIS-equipped vessels shall ensure their AIS equipment is turned on and accurately operational.

The working frequency for VTS communications is VHF channel 11; vessels should not use this channel for any other types of communications. A continuous listening watch is to be maintained on VHF channel 11 by all vessels within the VTS area.

The languages to be used when communicating with the VTS shall be standard Chinese or English.

Reporting Lines have been established along the arcs defin-



Penglai-Chang Dao Vessel Traffic Service

ing both the E and W limits of the VTS area as described above.

Vessels must report the following information via VHF channel 11 when crossing either of the Reporting Lines:

1. Vessel name.
2. Position at time of report.
3. For inbound vessels—reason for entering port.
4. For inbound vessels—advise the type and quantity of any dangerous cargo on board.
5. Any other information requested by the VTS.

Reports to be made by vessels within the limits of the VTS are, as follows:

1. Vessels must report after berthing or anchoring, stating the vessel's name, berth or anchoring position, and finishing time to the VTS.
2. Before leaving berth or weighing anchor, vessels must report their name, position, time of departure, and destination to the VTS.
3. In the event of a traffic incident, pollution incident, or other emergency affecting or discovered by a vessel within the VTS area, that vessel must immediately report to the VTS.
4. Vessels discovering any abnormality affecting navigation marks or navigation aids, obstacles obstructing safe passage, floating material, or other circumstances hindering safe passage should immediately report to the VTS.

Vessels shall make a report to the VTS 30 minutes before commencing and 30 minutes after completing the following operations:

1. Dismantling and repairing boilers, main engines, anchor winches, steering gear, or main navigation equipment.
2. Engine tests or vessel trials.
3. Lowering boats and practicing rescues.
4. Any other operations which could affect traffic safety.

Contact Information.—Penglai-Chang Dao VTS can be contacted, as follows:

Penglai-Chang Dao Contact information	
Penglai-Chang Dao VTS	
Call sign	Yantai VTS Center VTS Center
VHF	VHF channels 11 and 16
Telephone	86-535-674-2651
Facsimile	86-535-669-6480
E-mail	vtsthh@hebeimsa.gov.cn

The port can be contacted, as follows:

Penglai-Chang Dao Contact information	
Penglai-Chang Dao Port	
Call sign	Yantai VTS Center VTS Center
VHF	VHF channels 13 and 16
Telephone	86-535-597-1423
Facsimile	86-535-597-1306

Anchorage.—Vessels with local knowledge can anchor, in depths of 5.5m to 11m, off the E side of the port, except during times when N winds prevail and generate a breaking sea that will make the anchorage area unsafe. See the Pilotage paragraph above for designated limits of the two quarantine anchorages.

4.35 Luanjiakou (Davenport Point) (37°47'N., 120°37'E.), a subport of Penglai, located about 6 miles SW, is the offshore extremity of a low rocky headland, fronted by shoal water, which projects seaward to form a small bay to the E. A village lies at the head of the bay.

Depths—Limitations.—The Weiyang Oil Terminal, 80m in length, is capable of handling tankers up to 50,000 dwt. Three cargo berths are under construction. Shipyards and ship repair facilities are E of the main pier. Pier No. 4, designated as an oil berth lies W of the main pier. Pier No. 4 is 224.8m in length, with depths of 11.2m alongside. A swinging area, located 1.5 miles N of Pier No. 4, has a diameter of 330m and depths of 10.4m.

Pilotage.—Pilotage is compulsory for all foreign vessels arriving and departing the port. Pilots board at the inner or outer quarantine anchorage areas described in the pilotage paragraph for Penglai (paragraph 4.34). Additionally, for Luanjiakou, pilots will also board in position 37°51'05"N, 120°28'48"E.

Anchorage.—Vessels up to 50,000 dwt can anchor NW of the port in area centered near position 37°51'N, 120°31'E, in 13m, mud.

Penglai Shi (Dengzhou) to Chenshan Jiao

4.36 The coastline between Penglai Shi (Dengzhou) and Chenshan Jiao, a point about 100 miles ESE, is very irregular and much indented by several bights, inlets and lagoons and by numerous small bays and coves. Inland, the terrain is low and consists of a well-cultivated, level to rolling coastal plain which, extending inland as far as 10 miles, is interrupted throughout by barren foothills fronting, on the one hand, the mountain ranges of the interior, and, on the other, trending seaward to form a number of low-lying reef-fringed rocky headlands. Interior mountain range peaks appear as islands from the NW. The offshore area is largely shoal and clear of dangers, save for rocks and islets lying off headlands.

Bo Hai

4.37 Bo Hai (Gulf of Chihli) (38°30'N., 120°00'E.), the larger constituent part of the extensive inland sea opening out to the W and N of Bo Hai Haixia, is an expansive body of water lying, by definition, between Ta-ch'ing Ho, and to the S of a line of Laotieshan Jiao, the NNE limit of Bo Hai Haixia. Depths throughout are largely shoal and rarely exceed 27.4m. Coastal water levels to the W are raised by S to SE winds and lowered by N winds.

The major river Huang Ho empties into the SW side of Bo Hai. The commercially important river Hai He empties into the NW side.

Both mobile drilling and permanent production platforms operate in the SW part of Bo Hai, the positions of which may be seen on the chart. In some instances the platforms have been removed and wellheads marked by a light; others are not marked. Vessels are prohibited from approaching within 500m of the drilling rigs.

QHD 32-6 Terminal (39°07'N., 119°12'E.) consists of FPSO Bohai Shiji. Pilotage is compulsory and provided by Tianjin Xin Gang. Berthing is allowed from 0600 to 1800. Unberthing and loading can be done 24 hours. Pilots monitor VHF channel 67 and board in the anchorage centered approximately in position 39°02'N, 119°15'E.S

Vessels of up to 120,000 dwt can secure to the stern of the FPSO to berth in a maximum depth of 20.2m.

4.38 Dongying Gang (38°05'N., 118°58'E.), a port on the SW side of Bo Hai, is continuing to undergo expansion. The harbor limits include Bo Zhong BZ25-1 Offshore Oil Terminal, described in paragraph 4.39.

Depths—Limitations.—The port is approached from the E or ENE after passing S of numerous platforms that make up the Bo Zhong Oil Field. Some of these platforms are unmarked. The inner harbor is protected by breakwaters; the N breakwater extends 5 miles NE from the shore. There is an entry channel marked by lighted buoys leading to the inner harbor.

There are a total of 14 berths in the port, including two wharves (Berth No. 1 and Berth No. 2) used for discharging oil that will accommodate tankers as large as 30,000 dwt. There are four other berths (No. 3, No. 4, No. 9, and No. 10) that are presently under construction with intended depths alongside of 8.55m.

Pilotage.—Pilots are available for entry into the port and will board and disembark at the following positions:

a. 38°08'40"N, 119°05'20"E.—No. 1.
b. 38°10'00"N, 119°07'30"E.—No. 2.
c. 38°10'50"N, 119°06'30"E.—No. 3 (for vessels with draft of less than 12.8m.
d. 38°11'40"N, 119°07'00"E.—No. 4
e. 38°10'41"N, 119°07'18"E.—for pilot disembarking.

Anchorage.—Three specially designated anchorage areas are centered, as follows:

a. 38°10'54"N, 119°06'09"E—Unrestricted, with a least depth of 15m. A special lighted buoy marks the W corner of this area.

b. 38°'06'16"N, 119°05'36"E—No. 1 anchorage, unrestricted, has a least depth of 12m.

c. 38°07'12"N, 119°07'19"E—No. 2 anchorage is for vessels carrying dangerous cargo, and has a least depth of 13m. An obstruction has been reported at the W edge of the anchorage.

4.39 Bo Zhong BZ25-1 (38°14'N., 119°09'E.) consists of the FPSO Hai Yang Shi You 113. Berthing is allowed from 0600 to 1800. Unberthing and loading can be done 24 hours.

Pilotage is compulsory and provided by Tianjin Xin Gang. Pilots monitor VHF channel 67. The pilot boarding area lies approximately in position 38°20'N, 119°07'E.

Vessels of up to 120,000 dwt can secure to the stern of the FPSO to berth in a maximum depth of 18m.

An anchorage area, with a depth of 21m, lies about 3.5 miles ESE of the pilot boarding area.

Caution.—Vessels should exercise care to avoid a covered well, with a depth of 17.5m, lying approximately 3 miles SE of the anchorage area.

Bohai Haixia

4.40 Bohai Haixia (Po Hai Hai-hsia) (38°24'N., 121°00'E.) is the narrowed body of water lying between Laotieshan Jiao, to the NNE and Penglai Shi (Dengzhou), about 57 miles to the SSW. The many scattered islands and islets of Miaodao Qundao encumber the strait and confine transit to a series of clear, deep water, and largely E-W channels.

Laotieshan Shuidao (38°30'N., 121°00'E.), between the N end of Miaodao Qundao and the mainland 22 miles NE, is the principal channel through Bohai Haixia. The channel is deep. Changshan Shuidao is the principal channel through Miaodao Qundao. An obstruction lies 11 miles S of Laotieshan Xijiao Light. There are wrecks lying approximately 20 miles and 30 miles W of the light and 14 miles SSW of the light; the positions of these wrecks may be seen on the chart.

Pilotage.—Pilots may be boarded in the quarantine anchorage in position 37°55'N, 120° 53'E.

Regulations.—Foreign vessels may use only the following two channels:

1. Changshan Shuidao through Miaodao Qundao.
2. Dengzhou Shuidao, S of Miaodao Qundao, for vessels of less than 200 tons only.

The Harbor Superintendent at Dalian should be informed of the intention to use Laotieshan Jiao at least 8 hours before the ETA at the mid-point of the channel, or immediately on leaving port if the steaming time is less than 8 hours. Voyage and vessel particulars should also be reported. If there is an appreciable change in ETA this should be reported to the Harbor Superintendent as soon as possible.

The following areas, indicated on the chart, are closed to foreign shipping:

1. An area, with a radius of 8 miles, centered on Beihuangchung Dao Light.
2. An area, with a radius of 10 miles, centered on Laotieshan Jiao Light.
3. The area W of a line drawn N from Yu Yan (38°34'N., 121°38'E.) to the coast, and N of a line drawn from Yu Yan tangentially to Area 1.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) is in operation in **Changshan Shuidao (Beichangshan Shuidao)**.

The VTS is in effect at all times and provides the following information to participating vessels when appropriate:

1. Traffic conditions.
2. Abnormal weather conditions.
3. Maritime safety information.

Participation in this VTS is mandatory for the following vessels:

1. Cargo vessels of 300 gross tons and larger.
2. Fishing vessels that are 24m in length or longer.
3. Passenger vessels.

All vessels transiting the channel must navigate within the fairway and may only enter Changshan Shuidao at its E or W entrance. The VTS reporting lines are, as follows:

1. The East Reporting Line lies along an arc with a radius of 4 miles centered on position 37°58'15"N, 121°02'30"E.
2. The West Reporting Line lies along an arc with a radius of 5 miles centered on position 38°05'00"N, 120°25'36"E.

Additional requirements for vessels when operating within the VTS are, as follows:

1. Languages to be used when communicating with the VTS are Mandarin Chinese or English.
2. Participating vessels should maintain a constant listening watch on VHF channels 8 and 16 within the VTS area.
3. Vessels are prohibited from crossing traffic lanes within the VTS area without first gaining permission from the VTS.
4. Any other information requested by the VTS.

Vessels must report the information contained in the table titled **Beichangshan VTS—Reporting Format** whenever crossing either one of the Reporting Lines. However, note that no report is needed when departing the VTS area.

Beichangshan VTS—Reporting Format	
ID	**Information Required**
A	Ship name, call sign, and IMO number (if applicable).
C or D	Position (latitude and longitude or position relative to a landmark).
E	Course.
F	Speed.
G	Port of departure.
I	Port of destination.
Q	Defects and limitations—Towing vessels need to report the tow length and name of object being towed.
U	LOA and gross tonnage.

Any vessels involved with any traffic or pollution incident within the VTS area will need to report the following information to the VTS immediately.

1. Type, time, and location of the incident.
2. Extent of damage or pollution.
3. Confirmation of assistance needed or not.
4. Any other information requested by the VTS.

The VTS can be contacted, as follows:

BeichangshanContact information
Beichangshan

BeichangshanContact information	
Call sign	Beichangshan VTS
VHF	VHF channels 8, 9, and 16
Telephone	86-535-399-4487
Facsimile	86-535-399-4487
E-mail	vtsbcs@sdmsa.gov.cn

Caution.—Anchoring and fishing are prohibited in the E and W approaches to Denzhou Shuidao, Bo Hai Haixia, and Changshan Shuidao.

Three dangerous wrecks are located in and around the limits of the Changshan Shuidao VTS, as follows:

a. 38°01'37"N., 120°05'45"E.—unmarked with depths unknown.

b. 38°02'26"N., 120°36'42"E.—unmarked with depths of 21.6m.

c. 37°59'56"N., 120°49'58"E.—unmarked with depths of 16.7m.

4.41 Miaodao Qundao (Miao-tao Ch'u-tao) (38°10'N., 120°45'E.) is an island group which, consisting of numerous steep-sided hilly islands, many lesser islands and islets and a scattering of isolated above and below-water dangers, encumbers the S part of Bo Hai Haixia for a distance of about 35 miles between Penglai Shi (Dengzhou) and Beichenghuang Dao, the N islet of the group.

Several deep-water channels separate the islands into a N, middle, and S sub-group.

Caution.—The water area around Miadao Qundao has numerous marine farms, submerged cables, and several wrecks (some marked and some not), making it unsuitable for anchoring or sheltering during any periods of NW gales or storm-strength winds from the N. The Yantai Marine Safety Administration provides the following safety information for reference:

1. Northbound vessels should seek shelter in Chengshan Jiao whenever any W or NW gales or storm conditions from the N are expected.

2. Any vessels intending to anchor in this water area should contact the Yantai Traffic Control on VHF channel 11 to obtain navigation information.

Tuoji Dao (T'o-chi Tao) (38°10'N., 120°45'E.), the channel between the N and middle sub-groups, is deep and clear throughout save for Bei Jiao, a dangerous mid-channel rock with a depth of 1.9m, lying about 2.8 miles NE of the N extremity of Tuoji Dao, the largest island within the middle sub-group; a light is shown from the S shore of Tuoji Dao. There is usually a tide rip over Bei Jiao when the sea is smooth, but at slack water or in any sea its presence is not apparent. Tidal currents in this channel attain a maximum E rate of 2.25 knots and a maximum W rate of 2.75 knots.

Passage through the channel is not recommended. Vessels seeking shelter from N and NW winds anchor, in 7.6 to 12.2m, in a position close off the steep-sided S side of Tuoji Dao. Anchoring and fishing is prohibited in an area W of the island group as indicated on the chart.

Houji Dao (Hou-chi Tao) (38°02'N., 120°40'E.), the channel between the middle and southern sub-groups, is deep and clear throughout and is recommended as the best passage through Miaodao Qundao. A light, equipped with a racon, is shown from Houji Dao.

Dengzhou Shuidao (37°52'N., 120°45'E.), the channel between the S sub-group and the mainland, is deep and clear within the fairway.

Nanchangshan Dao (37°56'N., 120°45'E.) is a hilly island with a steep-to coastline with a light shown from the W side of the island. A trade port is located on the island, consisting of one pier marked by a light at the S end of the pier. This pier is also marked by a light on the N end of the pier.

Anchorage.—The Nanchangshan Customary Anchorage is available to the W of the N side of the island and is sheltered from Ne and E winds, in depths of 3.2m.

Caution.—The anchorage area described above off the N end if Nanchangshan Dao has numerous marine farms, submarine cables, and dangerous wrecks, making it unsuitable for sheltering when NW winds reach gale and storm strength. Consequently, the following safety information is provided from the Yantai Maritime Administration:

1. Northbound vessels should seek shelter S of Chengshan Jiao; other vessels should shelter in other available waters during NW gales and storms.

2. Vessels seeking shelter in the Nanchangshan Customary Anchorage should contact Yantai Traffic Center on VHF channel 11 for information.

Beichangshan Dao (37°57'N., 120°44'E.), the largest and S island of Miaodao Qundao, consists of two hilly well-cultivated islands which, joined by a low, single isthmus, is steep-to in the E and fronted to the W by shoal water and numerous hilly islands, islets and sunken dangers.

A signal station stands on the N extremity of Beichangshan Dao, the N island of Ch'ang-shan Tao, and it can challenge vessels transiting Changshan Shuidao.

Yantai (Yen-t'ai) (37°33'N., 121°27'E.)

World Port Index No. 60160

4.42 Yantai (Yen-t'ai) is a multi-purpose cargo port including major drydock facilities. Yantai continues to be an expanding port specializing in imports of iron ore, fertilizers, grain, timber, fishmeal, and steel. Exports include cement, construction materials, coal, cruse oil, corn, and frozen cargo.

Ice

Ice can be experienced from mid-January to mid-February and normally does not hinder navigation.

Tides—Currents

At the SE entrance to the inner harbor the flood current sets W at 0.5 knot while the ebb current sets E at 0.25 knot.

Depths—Limitations

Yantai is separated into Yantai Old Port, Yantai New Port West Harbor, and Yantai Muping. Yantai Old Port area is located in the W end of the bay protected on the N side by Zhifu

Dao.

Yantai Old Port (37°33'N., 121°27'E.) is divided into East Basin, West Basin, No. 1 Basin, and No. 3 Basin. New development is taking place in the N part of the harbor close N of Basin No. 3.

Yantai Old Port area is approached from the NE through a main fairway marked by lighted buoys with depths approximately 17m, beginning close SW of the harbor limit. This fairway will then divide into the N channel continuing SE and a fairway leading WNW in vicinity of Lighted Buoy No. 26. The N channel is approximately 1.5 miles in length, with a designed depth of 13m and a width of 150m, leads to the West Basin and No. 1 Basin, and is dredged to 15m. The fairway leads WNW into No. 3 Basin, with depths of about 17m. The East Basin is approached by heading SSE from the beginning of the main fairway through depths gradually shallowing from 12m to 8.5m at the beginning of the S channel No. 1 lighted buoy that is dredged to 8.5m until arrival in the East Basin.

The new development area located close N of Basin No. 3 is approached through a buoyed channel leading NW from the fairway heading to No. 3 Basin, at Starboard Marker No. 20 and Port Marker No. 19 (37°43'30"N., 121°07'33"E.). A portion of the new development (YCRO Outfitting Berths) has just been completed (2014) in the N part of the bay (37°35'35"N., 121°24'05"E.) and consists of an L-shaped wharf with a wide and narrow jetty including nine berths. The channel leading to these new berths commences in position 37°34'48"N, 121°24'32"E and is 290m wide, with depth a of 17m.

A turning area, with radius of 290m, is located close off Berth No. 27.

Yantai Muping (37°27'N., 121°33'E.) is situated approximately 13.5 miles SE of Yantai Old Port. Yantai Old Port and Muping areas comprises most of the present cargo handling facilities. Yantai Muping is approached from the NNW through a channel commencing SE of Kongtong Dao (37°34'N., 121°31'E.) that is marked by lighted buoys.

Yantai Muping has a main wharf for handling bulk and general cargo with the remainder of the area devoted to handling containers. There is a berth, 120m in length that used to handle chemicals for vessels 150m in length, but that has been closed.

Yantai New Port West Harbor (37°43'N., 121°05'E.) is located approximately 17.3 miles to the NW, close W of Longdong Zui. It is approached through a channel, 19.2 miles in length with depths of 24.5m, designed to accommodate vessels as large as 300,000 tons, commencing in the vicinity of position 37°43'30"., 121°07'23"E. The area includes Yantai Titan Terminal and a main wharf divided into two berths (No. 501 and No. 502) for project cargo and other general cargo. Titan Terminal has a breakwater which protects three tanker berths for crude oil and chemicals. Berth No. 601 is approached through a branch channel, 1.6 miles in length with depths of 23.5m, commencing in the vicinity of position 37°43'29"N, 121°08'46"E.

See the table titled **Yantai—Berth Information** for specific berth details.

Aspect

Yantai comprises a large outer harbor with an artificial inner harbor in its SE part. The outer harbor is partly sheltered from E winds by off-lying islands, but gives little protection from N gales. It has depths of 4 to 13m. The inner harbor is protected by breakwaters.

Yantai—Berth Information

Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
Zhifu Bay Port Area							
East Basin							
No. K1	146m	7.0m	3,000 dwt	—	—	—	International Ferry Terminal. Passengers and general cargo, with ro-ro facilities.
Nos. K2-K3	230m	6.9m	5,000 dwt	—	—	—	
No. K4	141m	6.9m	5,000 dwt	—	—	—	
No. K5	112m	6.9m	3,000 dwt	—	—	—	International Ferry Terminal. Passengers and general cargo.
No. 11	182m	6.3m	—	—	—	—	Bulk and general cargo.
No. 13	180m	6.5m	3,000 dwt	—	—	—	Refrigerated and general cargo.
No. 14	180m	6.9m	3,000 dwt	—	—	—	Refrigerated and general cargo.
No. 16	180m	9.9m	10,000 dwt	—	—	—	Refrigerated and general cargo.
No. 17	180m	9.9m	10,000 dwt	—	—	—	Vehicle carriers and general cargo.
No. 18	125m	7.9m	5,000 dwt	—	—	—	Vehicle carriers and containers.
No. 19	112m	6.9m	3,000 dwt	—	—	—	Containers.
No. 22	195m	11.3m	25,000 dwt	—	—	—	Bulk, general cargo, and timber.

Yantai—Berth Information							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
No. 23	195m	12.0m	25,000 dwt	—	—	—	Refrigerated cargo, general cargo, and timber.
No. 24	210m	11.3m	25,000 dwt	—	—	—	Bulk cargo and chemical fertilizers.
No. 25	170m	10.3m	10,000 dwt	—	—	—	Vehicle carriers, cruise ships, general cargo, and bulk cargo.
No. 26	236m	10.3m	10,000 dwt	—	—	—	Vehicle carriers, cruise ships, refrigerated cargo, and bulk cargo.
No. 27	200m	—	—	—	—	—	Service boats and barges.
No. 28				—	—	—	
No. D1	205m	7.0m	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. D2	205m	7.0m	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. D3	128m	7.0m	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. D4	220m	5.0m	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. D5	—	—	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. D6	—	—	—	—	—	—	Passengers, vehicles, general cargo, and ro-ro facilities.
No. 32	192m	10.5m	15,000 dwt	—	—	—	Ferry—passengers/vehicles. Ro-ro facilities.
No. 33	182m	10.5m	15,000 dwt	—	—	—	Ferry—passengers/vehicles. Ro-ro facilities.
No. 34	183m	10.5m	15,000 dwt	—	—	—	Ferry—passengers/vehicles. Ro-ro facilities.
Nos. 3A, 3B, and 3C	330m	—	—	—	—	—	Barge and transshipment berths.
No. 1 Basin Container Company Yantai Port							
No. 35	194m	14.0m	15,000 dwt	—	—	—	General cargo and containers.
No. 36	194m	14.0m	20,000 dwt	—	—	—	General cargo and containers.
No. 37	194m	14.0m	20,000 dwt	—	—	—	General cargo and containers.
North Wharf	600m	—	—	—	—	—	Bulk cargo.
No. 3 Basin							
South Wharf and Jetty No. 3	1,249m	—	—	—	—	—	Bulk cargo and containers.
Nos. 61-62	350m	14.0m	50,000 dwt	—	—	—	DP World Container Terminal.
Nos. 63-64	209m	16.0m	200,000dwt	—	—	—	Bulk cargo. Yantai Raffles.
Nos. 65-66	304m	20.0m	200,000dwt	—	—	—	—

Yantai—Berth Information							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
North Wharf—End Berth	345m	—	—	—	—	—	Bulk cargo.
Rail Ferry Terminal							
Nos. 71-72	212m	—	—				Large ferries (passengers and vehicles) and ro-ro facilities.
Rail Ferry Pier	212m	—	—				Passengers, general cargo, and ro-ro access to vessels by overhead bridge from road.
YCRO Outfitting Berths							
No. 8	137m	15.0m	—	—	—	—	—
No. 9	138m	18.0m	—	—	—	—	—
No. 10	210m	18.0m	—	—	—	—	—
No. 11	143m	18.0m	—	—	—	—	—
No. 12	144m	18.0m	—	—	—	—	—
No. 13	136m	18.0m	—	—	—	—	—
No. 14	132m	18.0m	—	—	—	—	—
No. 15	132m	17.4m	—	—	—	—	—
No. 16	130m	15.0m	—	—	—	—	—
Yantai Muping							
Bulk and General Cargo Wharf	192m	—	5,000 dwt	—	—	—	Coal, grain, and ore.
New Wharf	120m	—	10,000 dwt	—	—	—	Bulk cargo and general cargo.
Zhifu Bay Port Area—Multipurpose Berths							
No. 12	140m	6.2m	10,000 dwt	150m	50.0m	5.7m	Chemicals, dirty products, and vegetable oils.
No. 15	—	9.2m	30,000 dwt	300m	50.0m	8.7m	Chemicals, dirty products, and vegetable oils.
No. 21	—	10.5m	50,000 dwt	300m	50.0m	10.0m	Chemicals, dirty products, and vegetable oils.
Yantai Rising Dragon International Container Terminals (YRDICT)							
No. 38	364m	—	100,000 dwt	—	—	—	General cargo and containers.
No. 39	364m	—	100,000 dwt	—	—	—	General cargo and containers.
Santui Terminal							
No. 41	280m	14.0m	50,000 dwt	—	—	—	Containers and grain.
No. 42	280m	14.0m	50,000 dwt	—	—	—	Containers and grain.
No. 43	237m	15.2m	35,000 dwt	—	—	—	Containers and dry bulk.
No. 44	237m	15.2m	35,000 dwt	—	—	—	Containers and dry bulk.
No. 45	237m	15.2m	35,000 dwt	—	—	—	Containers and dry bulk.
No. 46	237m	15.2m	35,000 dwt	—	—	—	Containers and dry bulk.

Yantai—Berth Information							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
No. 51	300m	17.0m	20,000 dwt	—	—	—	Containers.
No. 52	300m	17.0m	30,000 dwt	—	—	—	Containers.
No. 53	300m	17.0m	50,000 dwt	—	—	—	Containers.
No. 54	300m	17.0m	70,000 dwt	—	—	—	Containers.
Yantai New Port West Harbor							
No. 501	326m	—	—	—	—	—	Project and general cargo.
No. 502	431m	—	—	—	—	—	Project and general cargo.
No. 601	430m	25.0m	300,000 dwt	—	—	—	Crude oil. Swinging area alongside with a radius of 417.5m and a depth of 23.5m.
Xigangqu Wharf (Berth No. 102)	295m	14.5m	50,000 dwt	—	—	—	Oil products. Turning basin with a diameter of 460m and a depth of 14m.
Titan Terminal							
No. 101	300m	14.0m	50,000 dwt	—	—	—	Clean products, chemicals, and crude oil.
No. 102	300m	14.0m	50,000 dwt	250m	50.0m	13.5m	Clean products, chemicals, and crude oil.
No. 103	335m	15.5m	50,000 dwt	—	—	—	LPG. Swinging area alongside with a radius of 230m and a depth of 14m.
No. 4	225m	14.0m	100,000 dwt	246m	43m	14.9m	Chemicals, clean products, and dirty products.
No. 5	225m	14.0m	100,000 dwt	246m	43m	14.9m	Chemicals, clean products, and dirty products.
No. 6	225m	—	100,000 dwt	246m	43m	14.9m	Chemicals, clean products, and dirty products.
No. 7	225m	—	100,000 dwt	246m	43m	14.9m	Chemicals, clean products, and dirty products.
Yantai West Harbor							
Crude Jetty	45	24.5m	300,000 dwt	334m	60m	22.5m	Crude.

Pilotage

Pilotage is compulsory and is available 24 hours. Pilots board, as follows:

1. No. 1—37°47'00"N, 121°12'30"E.
2. No. 2—37°48'30"N, 121°08'00"E.
3. No. 3—38°04'00"N, 121°17'00"E.
4. Position 37°43'31"N, 121°30'32"E.
5. Position 37°38'31"N, 121°29'04"E.
6. Quarantine Anchorage No. 1.
7. Anchorage Area No. 4.—large bulk cargo
8. Quarantine Anchorage No. 5.—general cargo vessels less than 100,000gt.
9. Quarantine Anchorage No. 6.—dangerous cargo vessels less than 100,000gt.
10. Anchorage Area No. 7.—tankers.

All foreign vessels and Chinese vessels of 500 gt or larger must request pilot 24 hours prior to arrival and reconfirm 4 hours before arrival. These reports need to include the following information:

1. Vessel name.
2. Vessel nationality.
3. Last port of call.
4. LOA and draft.
5. Type and quality of cargo.
6. ETA.

All vessels may pass through the North Channel when entering or departing the port. If vessels are less than 3,000 gt in size

along with a draft of 7m or less, they may also use the East Channel.

Foreign vessels are prohibited from the following activities unless they have a pilot on board:

1. Shifting between anchorages, wharfs, or any loading or discharging stations.
2. Shifting position within the same anchorage area.
3. Moving to within the full length of a vessel when alongside a wharf.

The pilots can be contacted, as follows:

Yantai Contact information	
Yantai	
Call sign	Yantai Pilot Station
VHF	VHF channels 8 and 16
Telephone	86-535-674-2658
Facsimile	86-535-674-3606

Regulations

The following procedures must be observed within the port limits:

1. Vessels underway should monitor VHF channel 6. Vessels at anchor should monitor VHF channel 16.
2. All vessels in any situation should monitor VHF channel 16 when wind speeds are greater than Beaufort Force 7.
3. Vessels must not use any VHF channel for general discussions or extraneous conversations.
4. Vessels are prohibited from using HF or MF radio equipment, flares, or rifles without permission from the port authority unless there is an emergency.

Vessel Traffic Service

A Vessel Traffic Service (VTS) has been established for Yantai and is in operation within the water area bounded by lines joining the following positions:

a. 37°43'00"N, 121°02'00"E.
b. 37°53'00"N, 121°02'00"E.
c. 37°49'10"N, 121°15'00"E.
d. 37°48'12"N, 121°18'20"E.
e. 37°47'43"N, 121°20'00"E.
f. 37°45'04"N, 121°29'00"E.
g. 37°43'53"N, 121°33'00"E.
h. 37°43'00"N, 121°36'00"E.
i. 37°40'00"N, 121°36'00"E.
j. 37°28'00"N, 121°36'00"E.

Yantai VTS provides the following services:

1. Information regarding vessel movements, aids to navigation, hydro meteorological conditions, navigational warnings and notices, and other traffic safety information. This information will be advised on a regular basis as changes dictate or can be specially requested by a vessel in between regular broadcasts.
2. Navigational assistance when in sailing difficulties, severe weather, or if vessel is damaged or has other problems, all upon specific request.
3. Yantai VTS may, at any time, offer unsolicited assistance, advice, or issue warnings to any vessels in the VTS area when necessary.

Participation in the VTS is mandatory for all vessels mooring in the VTS area, as well as all vessels underway for any purpose within the VTS area.

The working channel for Yantai VTS is VHF channel 9; this channel is dedicated to the VTS authority and must not be used for other purposes. Vessels must maintain a listening watch on VHF channel 9 when navigating, moored, or otherwise operating in the VTS area. The languages to be used when communicating with Yantai VTS are standard Chinese and English.

Two Reporting Lines have been established for the Yantai VTS, as follows:

1. **First Reporting Line**.—The line described by all of the positions listed for the VTS limit.
2. **Second Reporting Line,** as follows:
   a. North Fairway, an arc with a radius of 3 mile centered on Xiaoshanzi Light (37°35'38"N., 121°25'56"E.).
   b. East Fairway, an arc with a radius of 2 miles centered on lighted Buoy No. 0 (37°31'27"N., 121°33'48"E.).
   c. A circle with a radius of 3 miles centered on lighted beacon (37°43'29"N., 121°07'22"E.).

When crossing the First Reporting Line, vessels must contact Yantai VTS on VHF channel 9 advising the following information:

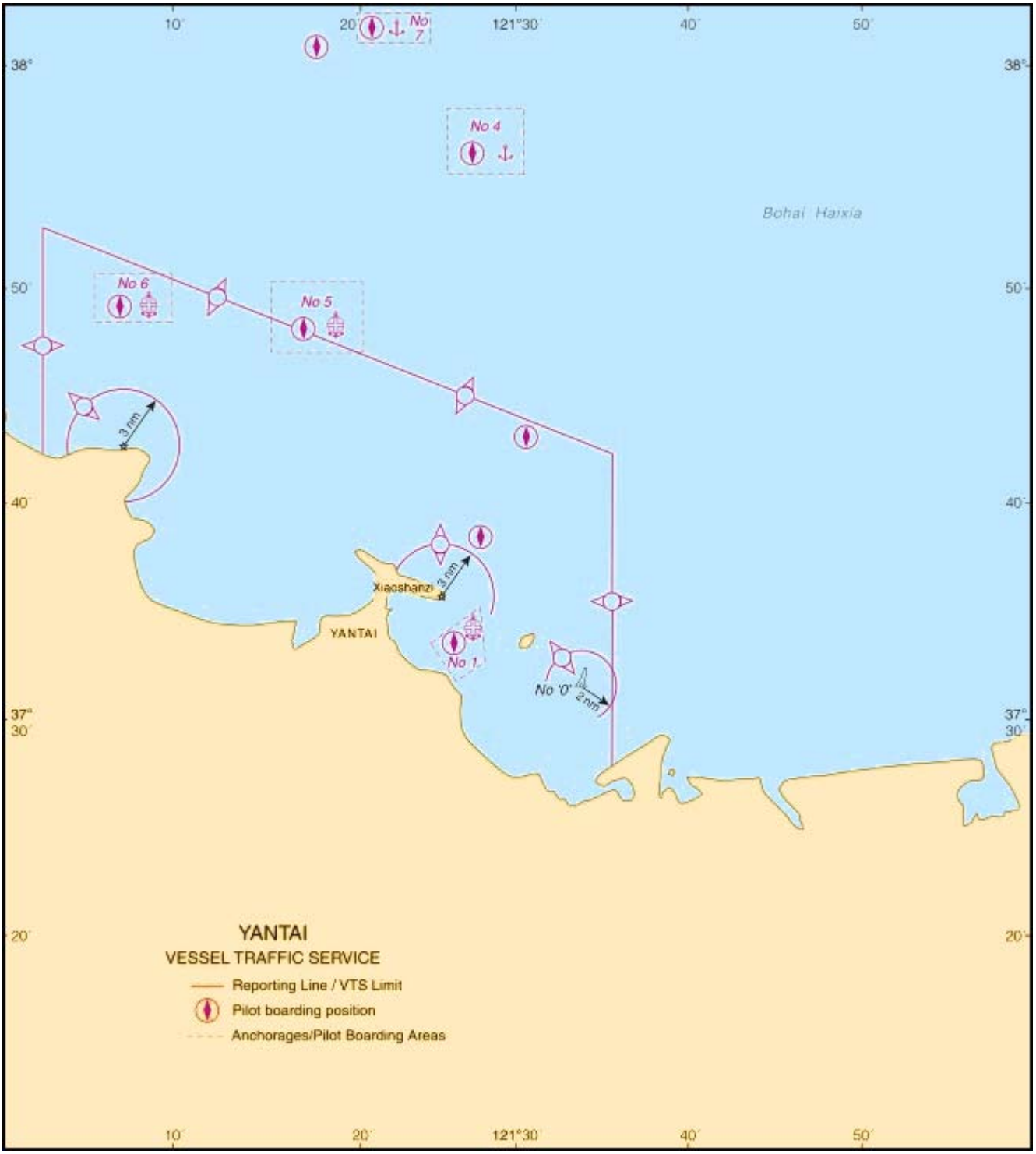
1. Vessel name.
2. Position.
3. Purpose for entering port (inbound only).
4. Type and quantity of dangerous cargo, if any (inbound only).
5. Other information required by the VTS Center.

When crossing the Second Reporting Line, vessels must contact Yantai VTS on VHF channel 9 advising the following information:

1. Vessel name.
2. Position.

Additional reports must be made to the VTS on VHF channel 9 at the following times:

1. Prior to entering an anchorage area, then again after anchoring or berthing, including the identification of the anchorage or berthing place.
2. Prior to departing a berth or anchorage, advising name, position, and destination port.
3. In the event of any traffic or pollution incident, or other emergency discovered by or affecting the vessel.
4. Upon discovery of any observed abnormality affecting navigation marks or navigation aids, obstructions to safe passage, floating material, or other circumstances hindering safe navigation.
5. Thirty (30) minutes prior to commencing and again 30 minutes after completing the following operations:
   a. Dismantling or repairing boilers, main engines, anchor winches, steering gear or primary navigation equipment.
   b. Engine tests or vessel trials.
   c. Lowering boats and rescue drills.
   d. Other operations that could affect vessel safety.



Yantai Vessel Traffic Service

Yantai VTS can be contacted, as follows:

Yantai Contact information
Yantai VTS

Yantai Contact information	
Call sign	Yantai VTS Center
VHF	VHF channel 9

Yantai Contact information	
Telephone	86-535-674-2651
Facsimile	86-535-669-6480
E-mail	vtsbcs@sdmsa.gov.cn

Signals

A signal station on **Yantai Shan** (37°33'N., 121°24'E.) may direct traffic entering and leaving the port.

Vessels wishing to enter the port should either hoist their call sign together with International Code Flag K or call the signal station by light or on VHF. Permission to enter and proceed to the indicated berth number is shown, as follows:

1. Day—Black conical shape, apex upwards, over a numeral pennant.
2. Night—All-round violet light, and number flashed in Morse Code or on VHF.

Contact Information

Yantai port can be contacted, as follows:

Yantai Contact information	
Yantai Port	
Call sign	Yantai VTS Center
VHF	VHF channels 6 and 16
Telephone	86-535-674-2134
Facsimile	86-535-674-2232
E-mail	vtport@yantaiport.com.cn

Anchorage

Eight designated anchorages, best seen on the chart, are described below:

1. Quarantine Anchorage No. 1 (37°33'58"N., 121°25'17"E.), for vessels up to 20,000 dwt, in depths of 7 to 8m, mud and sand.
2. Quarantine Anchorage No. 2 (37°39'48"N., 121°30'33"E.), for vessels with drafts greater than 9m or an loa greater than 180m, in depths of about 18m, mud.
3. Anchorage No. 4 (37°57'30"N., 121°27'30"E.), for large dry cargo vessels, in depths of about 24m, mud.
4. Quarantine Anchorage No. 5 (37°49'30"N., 121°17'30"E.), for general cargo vessels less than 100,000 gt in size.
5. Quarantine Anchorage No. 6 (37°50'15"N., 121°07'36"E.), for vessels with dangerous cargo and less than 100,000 gt in size.
6. Anchorage No. 7 (38°04'45"N., 121°21'30"E.), a waiting area for tankers, in depths of about 30m, mud.
7. Tanker Anchorage (37°38'21"N., 121°24'27"E.), for tankers transferring cargo, in depths of about 18m, mud. Note that a pilot is required for foreign vessels arriving or departing this anchorage.
8. Shelter Anchorage (37°33'00"N., 121°28'48"E.), for vessels less than 10,000 dwt, in depths of about 8m, mud.

Vessels are prohibited from anchoring outside these designated anchorages unless there is an emergency and then the VTS must be immediately notified.

Caution

A stranded wreck lies 2 miles NNE of position (37°40”N., 121°30”E.).

The water is often discolored for some distance in the area of Xiaoshanzi.

There are many seaweed cultivation areas along the coast.

Bo Hai Haixia Yantai to Chengshan Jiao

4.43 **Yangma Dao** (37°28'N., 121°37'E.), an island 4 miles long and connected SE to the mainland by extensive drying flats, lies 15 miles W of Chengsan Jiao. A ridge of hills, rising to 107m at its SW end, runs the length of the island.

Yuanyao Zui (37°34.0'N., 122°03.5'E.) is the extremity of a tongue of land that forms the W side of P'u T'ao-T'an.

4.44 **Weihai** (37°30'N., 122°06'E.) (World Port Index No. 60150), about 28 miles W of Chenshan Jiao, is a well-populated community located on the shores of Wei-hai Mao-ti (Narcissus Bay), a small shoal cove in the NW part of Weihai Gang. Weihai Gang is a largely shoal water bay sheltered inland by three rings of high-rising barren hills. The bay is entered between **Zhaobei Zui** (Chao-pei Tsui) (37°28'N., 122°14'E.), located SE and marked by a light, and Pei-shan Tsui, a point about 5.5 miles NW of Zhaobei Zui. The bay is sheltered by Liugong Dao, a steep-to islet, which divides access to the bay into a N and S entrance. A light is situated on the E point. Anchorage is prohibited in the S entrance.

Tides—Currents.—Tides are of a non-regular semidiurnal type. Springs rise is 2.9m; the neaps rise is 2.1m.

The inner harbor tidal current runs NW during the flood tide, reaching 0.75 to 1.25 knots 4 hours before HW. During the ebb tide, the current sets SE reaching 1 to 1.7 knots 2 hours after HW.

Depths—Limitations.—Entry into the harbor is divided into N and S entrance by Liugong Da. The N entrance is the deepest, with depths of 7 to 28m and is for commercial traffic, while the S entrances between Liugong Dao and Ri Dao, has depths only between 5 to 8m. Navigation and anchoring is not permitted S of Ri Dao.

Weihai—Berth Information				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
North Port (Wharf No. 1)				

Weihai—Berth Information				
Berth	**Berth Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 1	40m	4.0m	500 dwt	Coal, sand, and general cargo.
No. 2	40m	4.0m	500 dwt	Coal, sand, and general cargo.
No. 3	104m	5.0m	1,000 dwt	Coal, sand, and general cargo.
No. 4	117m	7.0m	5,000 dwt	Containers, sand, coal, and timber.
No. 5	117m	7.0m	5,000 dwt	Containers, sand, coal, and timber.
No. 6	200m	11.0m	16,000 dwt	Containers, sand, coal, and timber.
No. 7	159m	7.0m	5,000 dwt	Passengers.
No. 8	65m	4.0m	500 dwt	Bulk cargo and general cargo.
No. 9	96m	6.0m	3,000 dwt	Salt, coal, bulk grain, and general cargo.
South Port (Wharf No. 2)				
No. 10	200m	11.0m	20,000 dwt	Sand, steel, and coal wood.
No. 11	225m	11.8m	30,000 dwt	Containers.
No. 12	200m	11.0m	20,000 dwt	Bulk cargo and general cargo.
No. 16	203m	12.6m	20,000 dwt	—
No. 17	240m	13.7m	50,000 dwt	—
No. 18	240m	13.7m	20,000 dwt	—
No. I	234m	7.0m	—	Grain, salt, and coal.
No. II	96m	6.0m	3,000 dwt	Sand, coal, and timber.

Weihai VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Entry Report	Upon passing the First Reporting Line inbound.	1. Vessel name. 2. Vessel position. 3. Vessel draft. 4. Purpose of entry. 5. Any other information requested by the VTS.
	Upon passing the Second Reporting Line inbound.	1. Vessel name. 2. Vessel position.
Arrival Report	After berthing or anchoring completed.	1. Vessel name. 2. Berth or anchorage position. 3. Time of completion for berthing or anchoring.
Moving Report	Prior to shifting berth or dropping or heaving up the anchor.	1. Vessel name. 2. Intentions. 3. Destination.
Departure Report	Prior to departing berth or heaving up anchor.	1. Vessel name. 2. Departure position. 3. Next port of call.
Final Report	Upon passing the First Reporting Line outbound.	1. Vessel name. 2. Vessel position.

Weihai VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Activities Report	When conducting any of the following activities: 1. Overhauling main machinery, windlass, steering gear, radio equipment or any other important navigational systems. 2. Testing main engines, ship trials, or calibrating magnetic compasses. 3. Launching lifeboats or rafts for drills. 4. Berthing alongside other vessels or cargo transfer operations. 5. Performing surface or sub-surface operations. 6. Any other activities not listed here that would endanger safety of navigation.	1. Vessel name. 2. Any other information as requested by VTS.
Emergency Report	When encountering or involved in the following activities: 1. Traffic accidents. 2. Security events. 3. Pollution incidents. 4. Engine damage. 5. Personal injuries. 6. Any other activities not listed here that would endanger safety of navigation.	1. Vessel name. 2. Vessel position. 3. Any other information as requested by VTS.
Other Report	When observing any of the following events: 1. Abnormality of any navigational aids or leading marks. 2. Obstacles or drifting objects. 3. Any other abnormal circumstances not listed here that would endanger safety of navigation.	1. Vessel name. 2. Vessel position. 3. Details of abnormal circumstances.

A fairway, marked by buoys, leads to the berths located in the N part of the harbor (Wharf No. 1). A channel leading to the S part of the harbor (Wharf No. 2) is dredged to 9m.

The S entrance is further divided into a N and S passage, determined by which side **Ri Dao** (37°28.7'N., 122°11.8'E.) will be passed. Using the N passage, pass midway between Ri Dao and Liugong Da. When clear of Ri Dao alter course as necessary to avoid the shoals extending S from Luigong Dao. The S passage now has a fairway, marked by lighted buoys that can be used, giving the rocks extending S of Ri Dao a berth of 0.25 mile.

A channel for passenger vessels as large as 30,000gt extends off the S passage from between Buoy No. 8 and Buoy No. 9, for 2,500m, with a width of 160m and a depth of 9.1m. The W limit is bounded by lines joining the following positions:

a. 37°27'21"N, 122°10'53"E.
b. 37°27'08"N, 122°10'20"E.
c. 37°26'37"N, 122°10'20"E.
d. 37°26'13"N, 122°10'34"E.

For details on berthing, see the table titled **Weihai—Berth Information**.

The new works of Berths No. 16-18 in Weihai Gang Shidao Ganqu Western Operations Area is complete. Berths No. 16-18 join the W end at position 36°52'27"N., 122°26'35"E and E end at position 36°52'16"N., 122°26'59"E.

Vessels may approach the berths via the 50,000tont channel along the bearing 320°-140° up to the inner side of the breakwater of Shidao Gangqu. The depth in the approach channel is 12.8m, channel width 165m and length 1.6km. The approach channel is widened at the section connecting the basin. The 450m long section perpendicular to the breakwater is widened to 230m, and dredged to a depth of 12.8m.

To note, the Shidao Xingang 50,000t channel is for one-way navigation, vessels using the channel should have local knowledge and observe relevant laws, statues and regulations. Without authorization, vessels may not implede safe navigation.

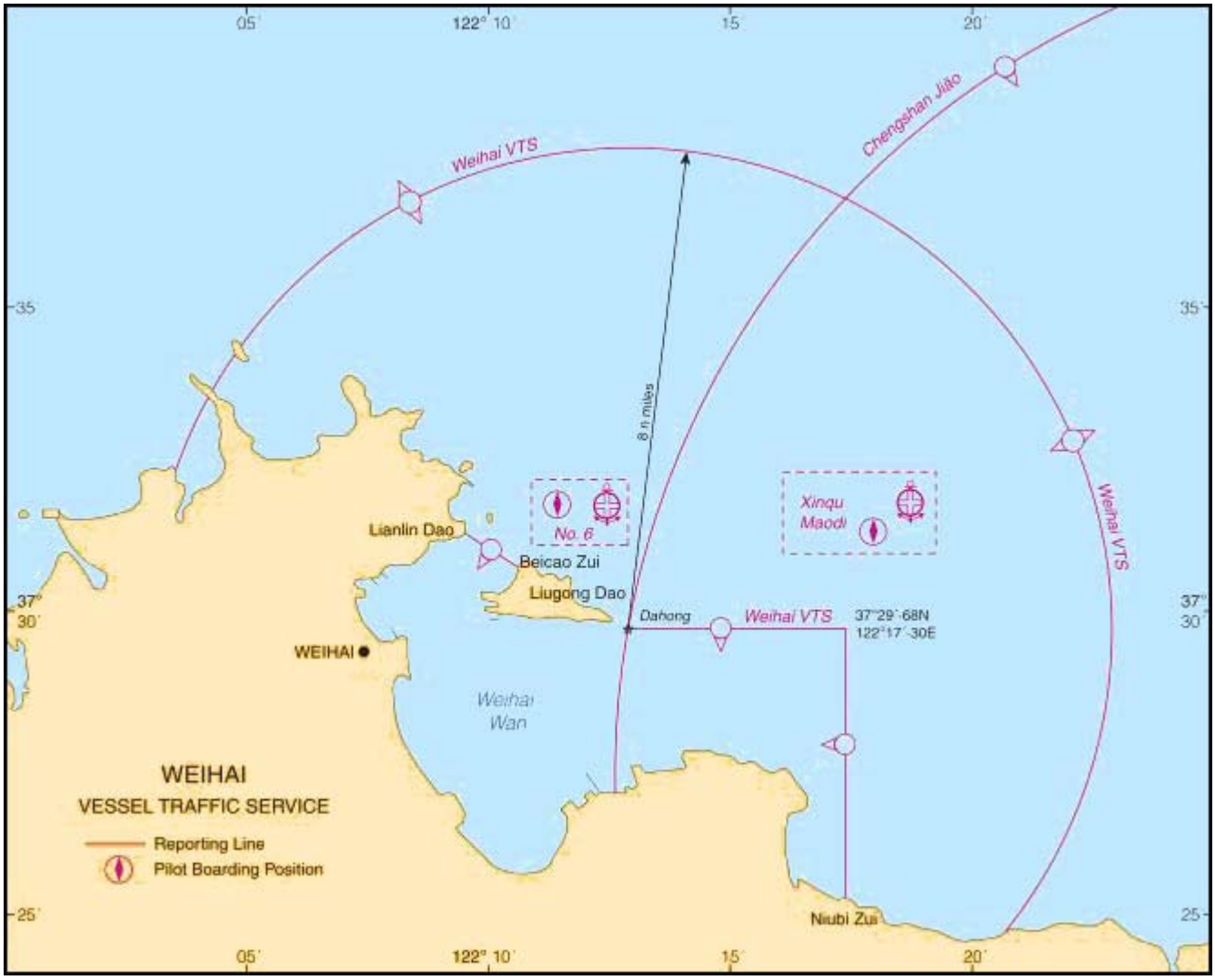
Huaneng Weihai Pier (37°27'N., 122°12'E.) serves the power plant and has an alongside depth of 11m. The channel leading to this pier is dredged to a least depth of 10.5m.

Pilotage.—Pilotage is compulsory for all foreign vessels entering, leaving, or shifting berths within the port. Pilots will board at either of the 2 anchorages; Xinqu Anchorage or Quarantine Anchorage Area No. 6. See Anchorage paragraph for the limits of these anchorages. An additional pilot boarding position is located in position 37°30'00"N, 122°15'42"E.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) has been established for the water areas within 8 miles of Dahong Light. Weihai VTS includes the VTS Center at position 37°26'54"N., 122°08'50"E, the Chengshan Jiao Sub-center at position 37°23'39"N., 122°42'10"E, and five radar stations. Participation in Weihai VTS is mandatory for all vessels sailing within the VTS boundary.

Weihai VTS provides the following services:

1. A radar surveillance system, with an effective range of 24 miles, including tracking and relay functions.
2. A ship data processing system, with the capacity to handle 10,000 vessels.
3. A VHF effective range of 24 miles, including voice



Wehai VTS

recording.

4. An AIS system with a 24-mile range.

5. An automatic meteorological observation system with real time surveying of data.

6. A CCTV surveillance system.

Two Reporting Lines have been established for contacting the Weihai VTS, as follows:

1. **First Reporting Line—**A circle with a radius of 8 miles centered on Dahong Light.

2. **Second Reporting Line—**A line joining the following positions:

   a. 37°31'25"N, 122°09'37"E
   b. 37°30'52"N, 122°10'42"E
   c. 37°29'40"N, 122°12'56"E
   d. 37°29'41"N, 122°17'18"E
   e. 37°25'19"N, 122°17'18"E

All communications with the Weihai VTS must be in English or Mandarin Chinese. Vessels will maintain a continuous listening watch on VHF channel 19 while in the VTS area.

Vessels will make the following reports at the specified times as described in the table titled **Weihai VTS—Reporting Requirements**.

Weihai VTS can be contacted, as follows:

Weihai Contact information	
Weihai VTS	
Call sign	Yantai VTS Center
VHF	VHF channels 8 and 19
Telephone	86-631-520-3320
Facsimile	86-631-523-2467

Contact Information.—The port of Weihai can be

contacted, as follows:

Weihai Contact information	
Weihai Port	
VHF	VHF channel 16
Telephone	86-631-523-6799
Facsimile	86-631-520-8488

Anchorage.—There are 11 designated anchorages, but only two are used for commercial shipping. Anchorages areas No. through No. 8 are used by the Chinese navy and No. 10 and No. 11 are used for kelp cultivation. Anchorage Area Xinqu Maodi is a general anchorage for commercial shipping and Area No. 6 is the Quarantine Anchorage. The boundaries of these two areas are provided below:

Anchorage Area Xinqu Maodi is bounded by lines joining the following positions:

a. 37°31'59"N, 122°16'35"E
b. 37°31'59"N, 122°18'35"E
c. 37°30'59"N, 122°18'35"E
d. 37°30'59"N, 122°16'35"E

Anchorage Area No. 6 is bounded by lines joining the following positions:

a. 37°31'56"N, 122°11'46"E
b. 37°31'56"N, 122°10'59"E
c. 37°31'20"N, 122°11'46"E
d. 37°31'20"N, 122°10'59"E

Directions.—To approach the N entrance steer to pass midway between Pei Chiao, the N extremity of Liugong Dao and the chain of islets and rocks extending SW from Yashi Dao. Then pass 0.2 mile W of Huang Tao, which is connected by a causeway to Liugong Dao. Continue on a S course and when Ri Dao bears 124° and is in line with an old fort close W of Zhaobei Zui, steer for it to enter the anchorage. Deep draft vessels must always use the N entrance.

Caution.—In addition to the charted prohibited areas, navigation and anchoring is prohibited within 500m of the coastline of Liugong Dao and within 500m of the mainland between Hei Dao and Weihai.

A dangerous wreck is situated between Yashi Dao and Anchorage Area No. 6 at position 37°31'46"N, 122°10'50"E, in depths of 15.4m.

There are many seaweed cultivation areas along the coast.

4.45 Zhaobei Zui (37°27.7'N., 122°14.3'E.) is a bluff point which exhibits a light. The coast in the vicinity is cliffy and rugged.

Jiming Dao (Chiming Tao), lying about 11 miles E of Zhaobei Zui, is a flat-topped island, 71m high, and fringed with reefs. Depths in the passage inshore of the island are irregular. A light is situated from a white round concrete tower on Jiming Dao.

Caution.—A prohibited anchorage area, with a radius of 1.1 miles, lies centered on a point about 5 miles NW of Jiming Dao.

A dangerous wreck, depth unknown, lies NE of Jiming Dai in position 37°28'07"N., 122°30'35"E.

4.46 Longyan (37°24'N., 122°38'E.) is the closest port on the Chinese mainland to the Korean peninsula and has container berths. Longyan Gang is surrounded by mountains on all but the N side, with a 59m peak on the E side and a 44m peak to the W. This provides good shelter from all winds except those from the N and some downsloping acceleration experienced with W winds.

Depths—Limitations.—The entrance channel has a controlling depth of 7m; the bay remains free of ice throughout the year.

Six berths, with a total of 800m of berthing space, can accommodate vessels as large as 10,000 dwt. Berth No. 1 is the largest berth, with a length of 150m and depths alongside of 10m.

Pilotage.—Pilotage is compulsory but is only available between 0600 and 1800. The pilot boards at the center of the outer anchorage in position 37°26'24"N, 122°36'42"E.

Anchorage.—An outer anchorage zone centered in position 37°26'24"N, 122°36'42"E has depths as deep as 25m.

Maian Wan (37°25'N., 122°39'E.), about 2.5 miles NW of Chengshan Jiao, is a small shoal water cove approached from the N.

Maian Wan is approached E of a shoal patch, with a depth of 3.5m, and W of a rock, marked by a lighted buoy, then E of a breakwater (37°25'43"N, 122°39'40"E.). Anchorage can be obtained within the bay, in depths of 7 to 8.2m, sticky mud; however caution must be taken during strong N and NW winds which will push a heavy swell into the bay.

Caution.—A shoal patch, with a depth of 4.3m, lies within Maian Wan.

Hai-lu Dao (Hsiao-ch'eng Shan), (37°27'N., 122°40'E.) a precipitous, flat-topped islet lying close N of the cove, is separated from the mainland by a channel in which rips and strong tidal currents make an evening passage unsafe. Hsiao-ch'eng Shan, showing a light to the NW, has submerged and drying rocks extending 0.3 mile NE and S of it.

Chengshan Jiao

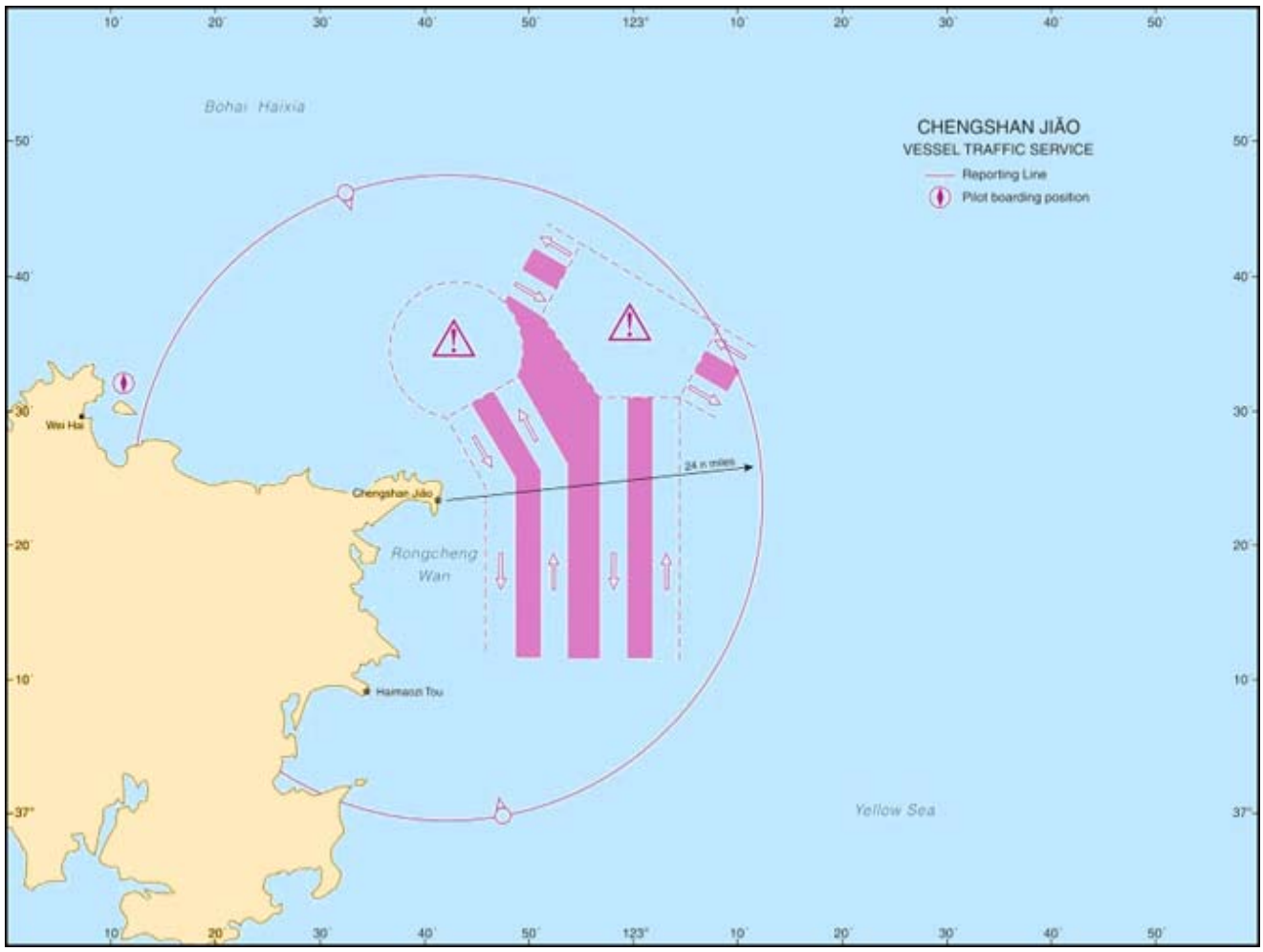
4.47 Chengshan Jiao (37°24'N., 122°42'E.), a rugged precipitous point lying at the E extremity of the Shandong Bandao peninsula, is steep-to and culminates close W in a sharp conical hill with a storm signal station on its summit and a prominent temple on its S slope.

A light is situated and a racon transmits on Chenshan Jiao. Fog is frequent.

Tides—Currents.—Close off the point, tidal rips and eddies are strong. Tidal currents, influenced by the wind, attain a rate of 2.5 knots.

Regulations.—An IMO-adopted Traffic Separation Scheme (TSS) has been established off Chengshan Jiao, with a precautionary area, having a radius of 5 miles, centered in position 37°34.5'N, 122°42.9'E at the N entrance. This is a complex TSS with both an Inner Route and an Outer Route. The following types of vessels are recommended to use the Outer Route of this TSS:

1. All oil tankers 150 gt and larger.
2. All vessels carrying hazardous cargo.
3. Vessels with an loa greater than 200m or with a mean draft deeper than 12m.



Chengshan Jiao Vessel Traffic Service

4. High speed vessels transiting the area off Chengshan Jiao Promontory.

An Inshore Traffic Zone has been established between the TSS and the adjacent coast.

Vessel Traffic Service.—A Vessel Traffic System (VTS) has been established off Chengshan Jiao, in accordance with the Provisions of the Maritime Safety Law of the People's Republic of China. The system is designed to provide information for vessels, to exercise better maritime traffic control, and enhance safety. Weihai Maritime Safety Administration is the competent authority responsible for the safety of maritime traffic and monitors traffic movements within the area of responsibility through Chengshan Jiao VTS.

The VTS encompasses a circle with a radius of 24 miles, centered on Chengshan Jiao Light, including the Traffic Separation Scheme located close off Chengshan Jiao.

Participation in the Chengshan Jiao VTS is mandatory for the following types of vessels:

1. Passenger vessels.
2. Vessels carrying dangerous or polluting cargo and tank vessels of 150 gt and over.
3. Vessels with draft of 12m and deeper or vessels over 200m loa.
4. Vessels engaged in towing or pushing.
5. Vessels are required to report in the following circumstances:
   a. Not under command or at anchor in the TSS.
   b. Restricted in their ability to maneuver.
   c. Have defective navigational aids.

Vessels must maintain a continuous listening watch on the designated VHF working channel when operating within the VTS area. All communications must be in English or Mandarin Chinese.

Vessels must report the following information to Chengshan Jiao VTS Center before entering the VTS area:

1. Vessel name, call sign and IMO number.
2. Position.
3. Course and speed.
4. Departure port.
5. Destination port.
6. Defects and limitations.
7. When towing—state length of tow and what is being

towed.

8. Length overall and gt.

Additional information to be provided by vessels arriving at a port or anchorage within the VTS area is as follows:

1. Vessel name.
2. Position.
3. Arrival time.

Additional information to be provided by vessels departing port or anchorage within the VTS area is as follows:

1. Vessel name.
2. Departure time.
3. Destination port.

Vessels involved in a maritime traffic accident or pollution incident must report at once giving the following information:

1. Vessel name.
2. Accident type.
3. Time and position of occurrence.
4. Extent of damage and any request for assistance.
5. Any other information requested.

Vessels must report unusual circumstances affecting safety to navigation and provide any additional information as requested by Chengshan Jiao VTS Center.

Any vessel may obtain information concerning the weather, vessel movements and safety to navigation by contacting Chengshan Jiao VTS Center.

Mandatory Ship Reporting System.—A mandatory Ship Reporting System has established for the waters off Chengshan Jiao within 24 miles of the VTS center (37°23'39"N., 122°42'07"E). The following vessels are required to participate in this system:

1. All passenger ships.
2. All oil tankers 150 gt and larger.
3. All vessels carrying hazardous cargo.
4. All vessels with an loa of 200m or longer.
5. All vessels with draft more than 12m.
6. Any vessels engaged in towing or pushing another vessel.

The following vessels are required to make reports to the VTS center under the following circumstances:

1. When not under command or anchoring in any TSS.
2. Whenever restricted in their ability to maneuver.
3. If there is defective navigational equipment on board.

Hazardous cargo is defined as follows:

1. All good classified by the IMO as hazardous.
2. All substances classified in chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in bulk (IBC Code) and chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquified Gases in Bulk (IGC Code).
3. Oils as defined in MARPOL Annex I.
4. Noxious liquid substances as defined in MARPOL Annex II.
5. Harmful substances as defined in MARPOL III.
6. Radioactive materials specified in the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Wastes in Flasks on Board Ships (INF Code).

Vessels are required to report the information listed in the table titled **Chengshan Jiao VTS—Reporting Format** when entering the ship reporting area. Reports are not required when departing the area.

Chengshan Jiao VTS—Reporting Format

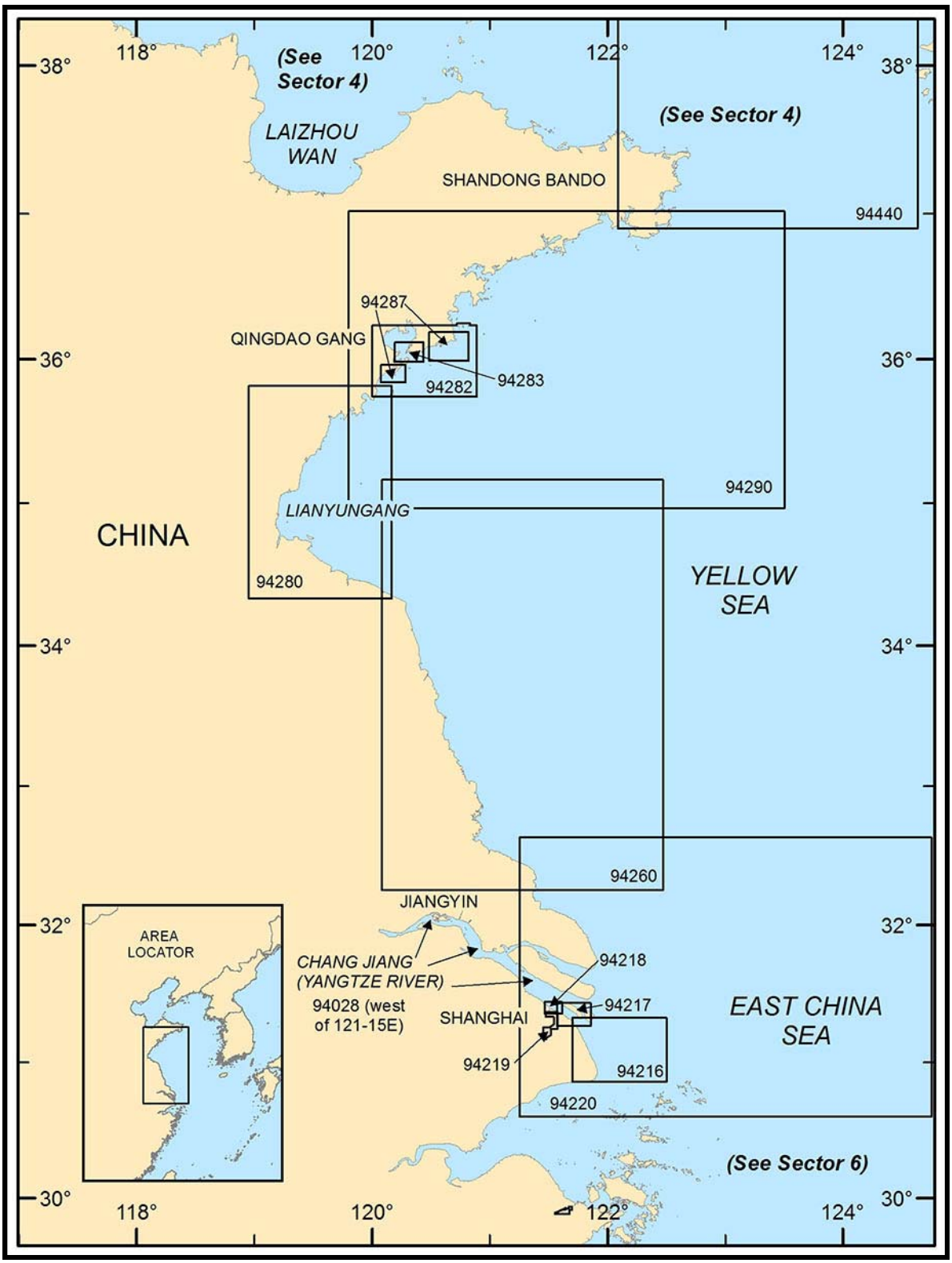
Designator	Meaning
A	Name of ship, call sign, and IMO number (if applicable).
C or D	Position (latitude and longitude or relation to a landmark).
E	Course.
F	Speed.
G	Port of departure.
I	Port of destination (optional).
Q	Defects and limitation (vessels towing are to report length of tow and name of object in tow).
U	Overall length and gross tonnage.

When departing a port located in the reporting area, participating vessels shall report their name, position, departure time, and port of destination.

Upon arriving at a port within the reporting area participating vessels shall report their name, position, and arrival time.

If a traffic incident or a pollution incident occurs within the reporting area the vessel or vessels shall immediately report the type, time of occurrence, location of incident, extent of damage or pollution, and if assistance is needed.

Caution.—A dangerous wreck lies SE of Chengshan Jiao in the central part of the TSS in position 37°19'15"N., 122°47'24"E.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **5** — CHART INFORMATION

SECTOR 5

CHINA—SHANDONG BANDO TO CHANG JIANG

Plan.—This sector describes the E coast of China between Chengshan Jiao, the NE extremity of Shandong Bando, and Nanhuitsui, a point about 393 miles S, and includes the Chang Jiang to the head of navigation. The coastal description is N to S; the riverine description is inland from sea.

General Remarks

5.1 Winds—Weather.—Winds and climate conditions in general are largely determined in consequence of the seasonal fluctuation in barometric pressure occurring within the Siberian winter land. They blow between NE and NW during the winter monsoon (October through March) and SE and SW during the summer monsoon (June through August). They blow as much from one quadrant as from another during the spring transition (April and May) and the autumn transition (September).

During the winter monsoon season, wind velocity averages 17 to 21 knots over the open sea and may freshen to 28 to 33 knots. Storms are frequent in November to March. During the summer monsoon, velocity averages 4 to 10 knots. Storms are largely associated with typhoons. Calms are frequent along the coast when conditions are unsettled.

Typhoons occur between June and September, when about 20 pass close enough to influence coastal weather conditions, and reach a maximum frequency in July and August, when an average of two per year reach the coast. They enter from the SE and S and generally curve to the NE. Heavy rains caused by typhoon activity frequently induce widespread indentation of the alluvial plain bordering the river Chang Jiang.

Sea fog occurs between February and August and reaches a maximum frequency in July when it may occur everyday near the E extremity of Shandong Bando. Coastal areas become foggy with onshore winds.

Dust carried to the sea from the deserts of Mongolia may accompany winter storms and reduce visibility.

Ice.—Sea ice of no great hindrance to navigation occurs off the S side of Shandong Bando between November and April and extends as far S as the entrance to Jiaozhou Wan. Landfast ice occurs in some bays during January and February of most winters.

Tides—Currents.—Tides are mixed and show a marked inequality during maximum lunar declination, which progress from N to S.

Tidal currents are rotary offshore. They are reversing nearer shore and set W on a rising tide and E on a falling tide with a velocity reaching 1.5 knots.

Offshore ocean currents are weak and tend to set S throughout the greater part of the year. During the summer they become confused, or in August set to the N.

Aspect.—The coast of China, between Chengshan Jiao and Nanhuitsui, is distinctive by reason of the marked contrast of its features N and S of the 35th parallel of latitude at Haizhou Wan.

The coastline N of Haizhou Wan is very irregular and largely indented over a greater portion of its length by several extensive embayments, numerous large bays, and a multitude of smaller bays, coves, and inlets. Inland, the terrain consists of well-cultivated lowlands with level to rolling plains extending inland for distances from a few hundred meters to about 10 miles before encountering the slopes of a considerable network of hills and low-rising mountains which, progressing seaward, interrupt the coastline in rocky capes, low-lying headlands, and sandy promontories. Offshore, the 20m curve generally parallels the coast and tends to close salient points at distances precluding ample sea room. The near shore area within salient points, while shoaling regularly and generally offering open-sea anchorage, is much encumbered by rocks, shoals, reefs, scattered islets, kelp beds, fishing nets, fishing stakes, and fish traps. The shores of several embayments and many of the large bays are fronted by a wide margin of drying mud flats which extend well offshore.

Sea ice may be present most winters during January and February.

The coastline S of Haizhou Wan is quite regular and has but few gentle bights interrupting a general trend to the SSE. Inland the terrain is the flat low-lying featureless seaward portion of a vast alluvial plain extending over much of the N part of the hinterland behind the E coast of China. The plain is heavily cultivated and crossed by a plethora of waterways branching from the many rivers which interrupt the coastline throughout its length at regular intervals. Offshore, the 20m curve tends to arc well seaward for a distance of up to 85 miles and to delimit a near shore area which, though predominantly flat or sloping gently shoreward, is largely inadequately surveyed.

Chang Jiang, entered N of Nanhui Zui, is one of the major rivers of the world and the principal riverine waterway of China. Huangpu Jiang is a lesser stream entered from the S side of the estuary to Chang Jiang.

Ocean-going vessels normally proceed to Shanghai, on Huangpu Jiang, and customarily proceed to Hankou, some 575 miles up the Chang Jiang.

Regulations.—An Emission Control Areas (ECA) has been established off the coast of China in the Yangtze River delta to reduce harmful emissions from shipping. Vessels using these areas must use fuel oil with a sulphur content of no more than 0.5% m/m or other equivalent measures to reduce emissions, including gas scrubbing, alternative clean fuels, or shore power. These regulations will be implemented annually through 2019. See China—Pollution in Pub.120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for details and the ports affected.

Some of the smaller harbors and anchorages on the coast of China may not necessarily be open to foreign shipping. If it is not known whether the harbor or anchorage is open, the master should contact the Chinese Harbor Superintendency Administration for permission to enter.

Off-lying Dangers

5.2 Socotra Rock (32°07'N., 125°11'E.), about 185 miles

ENE of Nanhui Zui, is a patch of coral with a depth of no more than 5.5m. It lies atop a volcanic rock which rises abruptly from surrounding depths of 31 to 36m. The sea occasionally breaks and strongly setting tidal currents produce rips and overfalls.

Chengshan Jiao to Ya-Tao Chia

5.3 **Chengshan Jiao** (37°24'N., 122°42'E.), a rugged precipitous point lying at the E extremity of the peninsula Shandong Bando (Shan-tung Pantao), has been previously described in paragraph 4.47.

Information concerning the Traffic Separation Scheme and the Vessel Traffic Service off Chengshan Jiao is given in paragraph 4.47.

A series of sharp conical hills, culminating in Chung Shan about 5 miles W of the point, have the appearance of islands when viewed at a distance from the SE. A light is shown 183m within Chengshan Jiao (Ch'en-shan Jiao).

Caution.—Due to frequent fog and the tidal race close off Chengshan Jiao, wrecks have been numerous and navigation requires particular attention. Fog is frequent and, close off the point, tidal rips and eddies are strong.

5.4 The coastline between Chengshan Jiao and Ya-tao Chia, about 122 miles WSW, is very irregular and much indented by numerous bays and coves which, generally separated one from another by rock-fringed low-lying sand spits and hilly promontories, shoal gradually as they recede inland and become obstructed within their inner reaches by extensive margins of drying mud flats.

Offshore approaches are somewhat encumbered by the steep-to rocky islets. Near shore approaches are, in general, clear as far inshore as the close vicinity of the numerous spits and headlands interrupting the coast.

Fog is frequent offshore during spring and may obscure Ch'ien-li Yen, though completely absent closer inshore.

Rongcheng Wan (Jung-cheng Wan) (37°21'N., 122°38'E.), entered close SE of Chengshan Jiao, is a shoal bight backed to the N by a range of sharp conical hills and to the W by a low-lying sandy plain.

Vessels, seeking shelter from NW storms before proceeding around Chengshan Jiao, enter the bight and anchor in a depth of 18m.

Anchorage.—Some of the smaller harbors and some of the anchorages on the coast of China may not necessarily be open to foreign shipping. If it is not known whether the harbor or the anchorage is open, the master should contact the Chinese Harbor Superintendency Administration for Permission to enter.

An anchorage area has been established and marked by special buoys and beacons as shown on the chart. This area must be entered between the parallels of 37°20.8'N and 37°21.6'N, and meridians of 122°39.2'E, and 125°40.6'E. Mariners are warned not to anchor outside this anchorage area.

Foreign vessels wishing to anchor must report to Yanti Harbor Superintendency Administration (YHSA) 6 hours prior to their arrival with full details of the vessel and must report again upon arrival at the anchorage. In an emergency, the master should report as soon as the vessel intends making for the anchorage.

Smaller vessels, seeking protection from E winds, shelter in Lunghsutao Kou, a cove in the NE part of the bight.

5.5 **Mata Jiao** (Ma-ta Chiao) (37°12'N., 122°37'E.), a flat rocky headland about 9m high, lies about 13 miles SSW of Chengshan Jiao and is joined to the mainland by a narrow neck of land. There is usually a heavy tide race about 0.8 mile NE of Mata Jiao.

Lidao (37°15'N., 122°34'E.), a small town, has a significant amount of coastal shipping trade.

There is a pilot boarding location for Lidao Gang in position 37°16'48"N., 122°41'30"E.

Anchorage.—A designated anchorage area, with depths over 20m, is centered on position 37˝15'36"N, 122°41'24"E.

Waizhe Dao (37°15'N., 122°35'E.), two small islets 39 and 33m high, lie on a reef extending from the coast about 4 miles NNW of Mata Jaio. The N island has some reddish cliffs on its N and E sides and is marked by a light.

Litao Wan, a small cove entered between the N island of Waizhe Dao and a rocky reef about 1 mile further NNW, provides shelter to small vessels seeking anchorage, in a depth of 6.4m, with the S point of the N island of Waizhe Dao bearing 100° at a distance of about 0.3 mile. The bay is open to NE winds.

Ailian Wan (37°11'N., 122°34'E.) is a small bay entered close SW of Mata Jiao. Chung Chiao, a rocky low-lying headland, divides the bay into two shoal water coves.

Small vessels, seeking shelter from NE winds, anchor in the SW cove either W of Chung Chiao or, in a depth of 6.4m, close off the S side of the cove.

5.6 **Sanggou Wan** (37°06'N., 122°31'E.) is entered between Haimaozi Tou, the S entrance point of Ailun Wan, and Chu Dao, about 6 miles further S. It is a commodious shoal water bay sheltered to the N by low precipitous hills and backed elsewhere by low-lying sandy beaches rising to rounded hills. Boge Dao (Falang Shih), a group of large above-water rocks, lies about 4 miles W of Chu Dao.

Sanggou Wan affords shelter to small vessels except with E winds. However, with E winds vessels can obtain anchorage 0.8 mile NW of Chu Dao, in a depth of 7.3m, partly protected by a reef extending N from Chu Dao.

Pilotage.—There is a pilot boarding station at position 37°05'19"N, 122°38'40"E.

Moye Dao (36°55'N., 122°31'E.), 7 miles SSW of Chu Dao, is connected to the mainland N of it by a drying sand flat. The island is low, except for a 30m high bluff at its SW end.

5.7 **Shidao Gang** (36°54'N., 122°28'E.) is a small shoal bay entered close W of Moye Dao. A light is shown from the SW part of Moye Dao. Chaoyang Shan (Sharp Peak), 257m high, is a rugged hill at the head of the bay.

Shidao Gang handles coal, grain, oil, timber, chemical fertilizers, construction materials, agriculture and fish products, and containers.

Depths—Limitations.—The approach channel has a draft limitation of 6.4m but this will probably be deepened within the next year or so due to the construction of new berths to accommodate larger vessels. Berths are presently being constructed to handle vessels as large as 50,000 dwt and are

included in the part of the port called Shidao New Port.

The present port facility descriptions at Shidao are given in the table titled **Shidao Port—Berth Information**.

Pilotage.—Pilotage is compulsory and is available only during daylight hours. Pilots are arranged through the harbormaster and a notice of ETA should be provided at 72 hours, 48 hours, and 24 hours prior to expected arrival.

Pilots board in the following positions:

a. 36°50'41"N, 122°29'21"E.
b. 36°51'09"N, 122°27'33"E.

Anchorage.—A quarantine anchorage is located close in towards the harbor entrance and is bounded by lines joining the following positions:

a. 36°51'24"N, 122°27'03"E.
b. 36°51'24"N, 122°27'51"E.
c. 36°50'54"N, 122°27'51"E.
d. 36°50'54"N, 122°27'03"E.

Small vessels can anchor 0.75 mile NE of the port, in depths of 6.4 to 6.7m, mud. Anchorage can also be obtained 0.3 mile NW of the E entrance point, in depths 6.4 to 6.7m. Good shelter is available within the bay. For larger vessels, good anchorage is available between 1 and 2.5 miles SW of the harbor entrance, in depths of 14.6 to 18.3m.

Caution.—Entry into and out of the port is restricted to daylight hours only.

Care should be taken to avoid three obstructions around the harbor entrance located, as follows:

a. 36°51'54"N, 122°27'04"E.—in depths of 10m.
b. 36°52'47"N, 122°28'03"E.—in depths of 5.9m.
c. 36°52'28"N, 122°29'01"E.—in depths of 11.6m.

An area in which a high frequency of marine accidents with fishing vessels due to heavy traffic is located in the vicinity of the port. Local authorities will promulgate information about the level of traffic in this area and require that mariners keep a vigilant watch and operate with caution to avoid problems within the area bounded by lines joining the following positions:

a. 36°57'00"N, 122°42'42"E.
b. 36°57'00"N, 122°56'36"E.
c. 36°35'00"N, 122°56'36"E.
d. 36°35'00"N, 122°42'42"E.

5.8 Cha Shan (36°51'N., 122°17'E.), about 11 miles SSW of Moye Dao, is a sharp peak, 538m high, surmounted by a small temple. From the peak, a rugged range of mountains extends 3 miles E.

Sushan Dao (36°45'N., 122°15'E.), lying about 6 miles SW of Cha Shan, is marked by a light and rises to about 105m on its SE side. A number of islets and rocks lie close off its W and S sides. Above-water rocks lie up to 3 miles NNW of the island. A 2.5m patch, which breaks heavily, lies about 3 miles NE of the island.

The stretch of coast between Cha Shan and Dingzihe Kou, about 65 miles WSW, is low and sandy with an occasional range of hills. Depths along it are generally less than 11m within 5 miles of the shore.

The flood current off this section of the coast flows W at 1 knot while the ebb current flows E at 1 knot. Both currents are affected by the wind.

Caution.—Two dangerous wrecks, depths unknown, lie about 10 miles SE of Sushan Dao, in position 36°39'30"N, 122°25'42"E and position 36°38'06"N, 122°24'13"E. Both wrecks are marked with lighted buoys.

Shidao Port—Berth Information

Berth	Depth	Maximum Vessel		Remarks
		LOA	Size	
Shidao New Port				
No. 1	12.5m	161m	5,690 dwt	Bunkers.
No. 2	11.0m	161m	13,807 dwt	Breakbulk and bunkers.
No. 3	10.0m	143m	12,998 dwt	Breakbulk and bunkers.
No. 6	10.0m	229m	93,204 dwt	General cargo, coal, fertilizer, and bunkers.
No. 7	10.0m	229m	93,204 dwt	General cargo, coal, fertilize, and bunkers.
No. 8	10.0m	229m	93,204 dwt	General cargo, coal, fertilizer, and bunkers.
No. 12	14.5m	265m	75,351 dwt	Containers, bunkers, and reefer.
No. 13	14.5m	143m	12,697 dwt	Containers, bunkers, and reefer.
No. 14	14.5m	143m	12,697 dwt	Containers, bunkers, and reefer.
No. 15	14.5m	143m	12,697 dwt	Containers, bunkers, and reefer.
No. 16	12.2m	164m	20,000 dwt	Steel and bunkers.
No. 17	12.2m	228m	74,333 dwt	Steel and bunkers.
No. 18	13.7m	228m	74,333 dwt	Sand and ro-ro/lo-lo.
Mos 19-23	—	—	—	Under construction.

Two additional wrecks, depths unknown, lie about 2 and 2.3 miles SE of Sushan Dao; neither wreck is marked.

Another dangerous wreck, depth unknown, is located SW of Sushan Dao in position 36°36'42"N, 122°09'18"E. This wreck is marked by a lighted buoy. Additional unmarked wrecks are located in position 36°39'54"N, 122°12'17"E; position 36°45'29"N, 122°18'33"E; and position 36°44'54"N, 122°19'41"E.

An unmarked dangerous wreck is situated about 6 miles SSW of Sushan Dao in position 36°39'18"N, 122°12'48"E, in a depth of 14m.

5.9 Zhangjiabu (36°54'N., 122°07'E.), a small port lying at the head of Jinghai Wan, handles a variety of cargo including coal, ore, general cargo, and grain.

Tides—Currents.—Tidal currents set around Jinghai Jiao (36°50'29"N, 122°10'26"E), flowing in and out of the bay, attaining a current of 2.5 knots at maximum HW and LW.

Depths—Limitations.—The port is approached through a channel, 400m in width, marked by lighted buoys, with depths varying from 6.4 to 10.1m. This channel leads 4 miles N through an inlet; the entrance is obstructed by a bar consisting of mud and hard sand with a least depth of 1.5m.

Three berths at the port have a combined length of 220m for alongside berthing, with depths alongside up to 4.5m. Vessels up to 1,000 dwt can be accommodated.

Pilotage.—The pilot boards in position 36°48'20"N, 122°10'00"E.

Contact Information.—The port of Zhangjiabu can be contacted, as follows:

Zhangjiabu Contact information	
Port Authority	
Telephone	86-511-852-74892
Facsimile	86-511-852-77837

Anchorage.—A quarantine anchorage has been established outside Jinghai Wan close S of Jinghai Jao and is bounded by lines joining the following positions:

a. 36°45'24"N, 122°08'30"E.
b. 36°48'00"N, 122°08'30"E.
c. 36°48'00"N, 122°11'30"E.
d. 36°45'24"N, 122°11'30"E.

5.10 Gulong Zui (Tau-tsui Head) (36°44'N., 121°38'E.), 31 miles WSW of Cha Shan, is the SE extremity of a bold, hilly peninsula connected to the mainland by a sandy isthmus. This hilly peninsula rises inland from the point and faces the seaward portion of the W side of the bay with a low-lying rock-fringed bluff, before falling away to the sandy beaches fronting the remainder of the bay.

Anchorage.—Small vessels seeking shelter from N and NW winds anchor in a poor holding ground of soft mud in a position close N of Gulong Zui. NE winds send a bad sea into the anchorage.

5.11 Rushan Kou (36°46'N., 121°29'E.) is a small inlet with cargo-handling capability to handle vessels as large as 1,000 dwt. The approach to the inlet has a least depth of 3.3m and tidal currents at the entrance are reported to be quite strong during spring tides.

The port contains five berths with more than 400m of dock space, with depths alongside up to 6m.

Pilotage.—The pilot boards in position 36°43'08"N, 121°28'08"E.

Anchorage.—There are two designated anchorages, as follows:

1. A deep-water anchorage bounded by lines joining the following positions:
   a. 36°43'00"N, 121°39'42"E.
   b. 36°43'00"N, 121°42'00"E.
   c. 36°42'12"N, 121°41'18"E.
   d. 36°42'00"N, 121°41'00"E.
   e. 36°42'00"N, 121°39'00"E.
   f. 36°42'24"N, 121°39'18"E.
2. A quarantine anchorage bounded by lines joining the following positions:
   a. 36°44'01"N, 121°26'49"E.
   b. 36°44'01"N, 121°27'45"E.
   c. 36°43'02"N, 121°27'45"E.
   d. 36°43'02"N, 121°26'49"E.

5.12 Fengcheng (Hai-yang) (36°42'N., 121°14'E.) lies on the W side of Laolong Tou, a small point from which a drying reef and outlying rocks extend nearly 2 miles S, and is marked by a light.

Depths—Limitations.—A channel, with a depth of 7.7m and marked by lighted buoys, leads to Fengcheng. A jetty, which can accommodate vessels of up to 10,000 dwt, extends WSW from Laolong Tou and provides a berth on either side, each with a length of 398m and an alongside depth of 9.5m. Fengcheng Gang Light is shown from the head a pier lying S of the jetty.

Since the old channel leading into Fengcheng cannot handle the new requirements of traffic flow, a new temporary channel had been dredged to the port beginning in vicinity of position 36°40'15"N., 121°13'52"E; it is comprised of a S section and a N section. The S section is approximately 1.38 miles in length and the N section is about 1 mile in length, with depths of 4.5m and a width of 205m wide.

The heavy lift terminal at **Haiyang Gangqu** (36°41'N., 121°14'E.) belonging to Haiyang CIMC Raffles Offshore Engineering Company is comprised of one berth, reconstructed from the former No. 3 berth. This new berth is 135.75m in length, with a designed depth of 6.5m alongside to accommodate vessels up to 25,000 tons.

Pilotage.—Pilots will board vessels in the following positions:

1. No. 1—36°39'00"N, 121°12'36"E.
2. No. 2—36°37'24"N, 121°13'30"E.

Anchorage.—There are two anchorages for Fengcheng. Anchorage No. 1 is centered on position 36°38'49"N, 121°11'22"E, with depths of 4 to 6m. Anchorage No. 2 is centered on position 36°32'36"N, 121°16'00""E, with depths of 13 to 17m.

Caution.—Extensive development is currently underway (2015) in the vicinity of Haiyang Gangku. Two reclaimed islands extend into No. 1 Anchorage W of the main channel. A

number of basins and piers are also being developed along the coast E of Haiyang Ku towards Dongjiazhuang.

5.13 Dongjiazhuang (36°43'N., 121°23'E.) is a new (2015) port development with extensive expansion work presently ongoing towards Haiyang Gangqu.

Depths—Limitations.—The approach to the port is made through a buoyed channel passing SW of Rushan Kou.

A single pier, which is the only facility now open, is 100m in length and extends NNE from shore, with depths alongside of less than 2m.

A large basin S of the port, protected by breakwaters to the S and E, is being constructed. Two additional piers are also currently under construction to the W of the port.

Anchorage.—A quarantine anchorage is located in the vicinity of Buoy No. 5 in position 36°43'31"N, 121°24'15"E.

Chanshan Tou (Cape Adkins) (36°23'N., 120°53'E.), 12 miles SW of Dingzihe Kou, is the cliffy SE extremity of a promontory and rises to a hill, 73m high. An above-water rock, 2m high, lies 1 mile S of the extremity.

5.14 Laoshan Wan (Lo Shan Bay) (36°20'N., 120°50'E.) is a large shoal-water embankment entered between Chanshan Tou, a hilly precipitous point about 43 miles WSW of Gulong Zui, and Laoshan Tao, a point about 17 miles SW. The coastline is very irregular and much indented by several bays, of which the largest and northernmost is Bei Wan (Great Bay). An extensive margin of drying mud flats front the shore of Bei Wan and the coves close to the S, before disappearing with the steep-to near shore area extending about 7 miles N from Laoshan Tou.

Laoshan Wan is much encumbered by many off-lying steep-sided islets and by numerous sunken, drying, and above-water rocks. Nu Dao (Mau Tau) is a 72m high grass-covered islet about 1 mile WSW of Chanshan Tou. It is joined to the E entrance point of Bei Wan by a stony ridge. Star Reef, about 1 mile WNW of Nu Dao, is a group of above-water rocks. Dong Jiao (East Reef), about 1 mile SW of Star Reef, is a sunken rock generally marked by breakers.

Vessels seeking shelter from NE winds anchor, in 9.4m, rocky bottom, in a position with the S extremity of Nu Dao bearing 086°, distant 1 mile. Small vessels can obtain shelter in a depth of 4m, about 0.3 mile NNW of Star Reef, which offers protection at LW but little shelter at HW.

Caution.—During the summer it is imprudent to anchor off the coast of Laoshan Wan as winds from ENE to SE are frequent and at times blow hard, though rarely lasting more than 12 hours.

Laoshan Tou to Dazhushan Zui

5.15 Laoshan Tou (Ya-tao Chia) (36°08'N., 120°43'E.), marked by a light and a racon, is a rugged, precipitous, point lying at the E extremity of a mountainous promontory which, steep-sided on its S face, rises inland to Laoshan, a conspicuous 1,130m summit about 5 miles to the WNW.

The coastline between Laoshan Tou and Dazhushan Zui, about 43 miles SW, is irregular throughout and largely backed by desolate, rugged hills and low-lying mountains which reach the sea in bold headlands separated by sandy beaches and intervening areas of flat land. In the near shore area, depths of 9.2m and more are common off the principal salient points and seaward of a line joining them. Offshore, depths are irregular. Numerous steep-sided islets lie scattered well to sea.

Chaolian Dao (Chao-lien Tao) (35°54'N., 120°52'E.), a desolate treeless rocky island of a yellow earthen color, rises to a summit 53m high and lies about 16 miles SSE of Laoshan Tou.

The island constitutes the farthest seaward danger in the approaches to Qingdao. A light is shown on the summit of Chaolian Dao.

A shoal patch, with a depth of 14.7m, lies 9 miles E of Chaolian Dao Light, close S of the E-W defined route entrance. Vessels with deep draft are advised to exercise care when making a landfall in this area.

Dense fog, though absent nearer inshore, occurs about the island in spring and early summer. Tidal currents are particularly strong during spring tides and require caution when approaching the island.

Xiaogong Dao (Hsiao-kung Tao) (36°00'N., 120°35'E.) is a flat-topped rocky islet, 35m high, lying about 10 miles SW of Laoshan Tou.

Dagong Dao (Ta-kung Tao) (35°58'N., 120°29'E.) is a readily-identifiable conical-shaped island, 118m high, lying about 5 miles WSW of Xiaogong Dao. A light, equipped with a racon, is shown from the summit of the island.

Xaio Yu, a 43m high islet, lies about 0.4 mile WNW of Dagong Dao. A drying reef lies 1 mile W of Dagong Dao. The passage between Dagong Dao and Xaio Yu is usually obstructed by fishing stakes and nets.

Qingdao Gang (36°02'N., 120°16'E.)

World Port Index No. 60140

5.16 Qingdao Gang (Chingtao) (Tsingtao), the harbor for the large city of Qingdao and one of China's principal ports of international trade, has undergone a major amount of development, increasing the port facilities considerably since 2010 and is now comprised of three separate port areas covering a portion of the SE and the S side of Jiaozhou Wan and the NE and SW sides of Qingdao Gang. Jiaozhou Wan is a broad inlet extending about 12 miles inland and fed by a number of rivers.

Qingdao Gang is large port handling both foreign and domestic passenger vessels plus a wide variety of cargo, including an oil and container terminal.

Winds—Weather

During the summer, S and SE winds are prevalent while N and NW winds occur during the winter. The port is occasionally affected by typhoons from July until September.

Fog occurs during the months of April to July, being thicker and most frequent in July.

Ice

From the end of January to the middle of February, ice is occasionally experienced in the harbor, but does not affect navigation or port activities.

Tides—Currents

Tidal currents setting in Jiaozhou Wan on the flood tide and running out on the ebb tide are reported to generally attain a rate of between 2 to 3 knots, but in the entrance rates of 3 to 4 knots have been reported. MHWS is 3.85m while MLWS is 1.08m.

Tide rips occur off Tuandao Zui, the SW point of Tuan Dao and also the N entrance point to the Jiaozhou bay, where a light is shown.

Depths—Limitations

The port has an inner and outer harbor with all of the cargo-handling facilities located in the inner harbor portion. The boundary line separating the inner and the outer harbors runs from Tuandao Zui (36°02'39"N, 120°16'55"E) and the Kuiong Shan promontory (36°00'58"N, 120°17'11"E). The inner harbor lies W of this line.

The main approach channel is 22.5 miles in length, passing through the outer harbor with depths not less than 15.7m.

Six major channels within the inner harbor going to the various areas of designated cargo handling allow vessels up to 50,000 gt to enter the port. Some of the most significant of these channels are, as follows:

1. Qianwan New Port Channel, in the SW part of Qingdao Gang, has depths of 17m.
2. Ore Wharf Channel, in the outer part of the Qianwan New Port Area, has depths of 18.6m.
3. Huangdao Oil Wharf Channel, located 2 miles W of Tuandao Zui, has depths greater than 20m.
4. Middle Basin Branch Channel, which breaks off from the main channel in Dongjiakou Gangqu between position 35°30'41"N, 119°47'28"E and position 35°30'08"N, 119°47'38"E, has depths of 15.7m. This channel can accommodate tankers up to 120,000 tons and LNG tankers up to 266,000m^3 for one-way navigation. Other tankers as large as 30,000 tons are for two-way navigation.

The cargo-handling facilities within the inner port are divided into three main areas, as follows:

1. Qingdao Da Gang Port—The old port area, located along the W side of Qingdao city (SE side of Jiaozhou Wan). This area includes three adjoining harbor basins locally known as Da Gang (Large Harbor), Zhong Gang (Middle Harbor), and Xiao Gang (Small Harbor). Zhong Gang and Xiao Gang are used only by coasters and local craft. Zhong Gang is also protected by a floating breakwater plus another breakwater that forms Wharf No. 6 of the Da Gang port area. The NW side of Da Gang is reserved for use by naval vessels.
2. Qianwan New Port—Located SW of the old port area across Qingdao Gang in Huangdao Qianwan. Most of this area is still under construction, including land reclamation and new facilities construction. The Qingdao Qianwan New Container Terminals and China Merchants International Container Terminal are located here.
3. Huangdao (Oil) Terminal—Located N of the new port area and W of Tuandao Zui. There are ULCC berths located here plus smaller tanker berths and chemical berths under construction.

Qingdao—Berth Information

Berth	Pier Length	Depths Alongside	Maximum Vessel Size	Remarks
Qingdao Da Gang Port				
Wharf 1				
No. 1	146m	7.2-7.6m	20,000 dwt	General cargo, steel, and containers.
No. 2	180m	8.1-8.3m	20,000 dwt	General cargo, ore, and containers.
No. 3	200m	9.0m	—	General cargo, grain, and steel.
No. 4	220m	12.0m	20,000 dwt	General cargo, grain, and steel.
No. 5	312m	14.0m	60,000 dwt	Grain.
No. 6	157m	7.8m	7,000 dwt	General cargo and steel.
Wharf 2				
No. 11	168m	9.0m	10,000 dwt	General cargo, steel, and refrigerated cargo.
No. 13	162m	9.0m	10,000 dwt	General cargo, steel, and refrigerated cargo.
No. 14	160m	8.3m	8,000 dwt	General cargo, steel, and refrigerated cargo.
No. 15	120m	7.9-8.0m	7,000 dwt	General cargo, steel, and refrigerated cargo.
No. 16	112m	5.0m	—	General cargo.
Wharf 3				
Note.—For use only by survey and government vessels.				
Wharf 4				

Qingdao—Berth Information				
Berth	**Pier Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
No. 25	160m	7.2-7.8m	5,000 dwt	Chemicals. Tankers with a maximum loa of 130m and a maximum draft of 7.0m can be accommodated.
No. 57	570m	—	—	General cargo.
No. 58	570m	—	—	General cargo.
Wharf 5				
No. 53	120m	—	—	Containers.
Wharf 6				
No. 35	146m	7.9m	8,000 dwt	General, bulk cargo, and sand.
No. 36	150m	7.9-8.0m	8,000 dwt	General cargo and steel.
No. 40	180m	5.9-6.5m	3,000 dwt	General cargo.
No. 41	120m	6.0-6.8m	5,000 dwt	General cargo and passengers.
No. 42	162m	7.0-7.4m	8,000 dwt	General cargo and passengers.
—	490m	12.5m	150,000 gt	Passenger terminal located off the end of Wharf 6. A swinging area, with a radius of 340m, is located NW of the berth.
Wharf 7				
No. 43	120m	6.5m	5,000 dwt	Liquid chemicals.
No. 44	230m	8.8m	10,000 dwt	General cargo.
Wharf 8				
No. 45	210m	12.8m	60,000 dwt	Containers and ore.
No. 46	210m	12.8m	60,000 dwt	Containers and ore.
No. 47	250m	12.4m	50,000 dwt	Containers.
No. 48	225m	11.4m	50,000 dwt	Containers, general cargo, and grain.
No. 49	280m	11.8-12.0m	35,000 dwt	General, bulk cargo, and fertilizer.
No. 50	198m	10.3m	20,000 dwt	General and bulk cargo.
No. 51	218m	10.3m	50,000 dwt	General, bulk cargo, and fertilizer.
No. 52	260m	10.3m	50,000 dwt	Containers.
Qianwan New Port				
Qiangang Bulk Terminal				
Coal Pier	560m	14.1m	100,000 dwt	Coal and bulk cargo. Two berths.
Ore Wharf	415m	21.0m	300,000 dwt	Ore. Maximum beam of 40m.
North Quay	660m	14.1m	50,000-100,000 dwt	Ore transshipment.
South Quay	900m	14.1m	50,000-100,000 dwt	Ore transshipment.
Qingdao Qianwan New Container Terminal				
Four berths	1,300m	15.0 to 20.0m	—	Containers. Maximum vessel size of 12,000 to 15,000 teu can be accommodated.
Six berths	2,120m	—	—	Containers. Under construction.
China Merchants International Container Terminal				
Two berths	780m	17.0m	100,000 dwt	Containers.

Qingdao—Berth Information				
Berth	**Pier Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
Three berths	1,000m	17.0m	—	Containers and bulk cargo.
Multipur-pose berth	425m	17.0m	—	Bulk cargo.
Qingdao Qianwan Container Terminal				
Eleven berths	3,400m	17.5m	—	Containers. Divided in half by the Qianwan Ore and Coal Terminal Berth Nos. 72-74.
Qianwan Ore and Coal Terminal				
Nos. 72-74	570m	17.5m	—	Ore, coal, general cargo, bulk cargo, and refrigerated cargo.
Haiye Mercuria General Wharf (located along the Jetty No. 1)				
North side	242m	17.2m	70,000 dwt	A swinging area fronting the wharf has a diameter of 624m and a designed depth of 17.5m.
South side	357m	19.2m	100,000 dwt	
Huangdao (Oil) Terminal				
Qianwan Ore and Coal Terminal				
No. 60	314m	10.5m	30,000 dwt	Crude oil.
No. 61	314m	14.0m	65,000 dwt	Crude oil. Maximum loa of 239m. Maximum draft of 12.5m.
No. 62	498m	22.0m	320,000 dwt	Crude oil. ULCCs with a maximum draft of 20.5m.
No. 84	320m	—	100,000 dwt	Chemicals and clean products. Maximum loa of 239m. Maximum draft of 12.5m.
No. 89	400m	16.9m	150,000 dwt	Aviation fuel. Maximum loa of 388m. Maximum draft of 16.0m.
No. 90	500m	24.0m	450,000 dwt	Crude oil. ULCCs with a maximum draft of 20.5m.
No. 91	216m	11.1m	10,000 dwt	LPG and crude oil. Maximum loa of 210m.
No. 92	216m	11.1m	10,000 dwt	LPG and crude oil. Maximum loa of 210m.
Lixing Chemical Terminal				
No. 1	238m	9.0m	10,000 dwt	Chemicals and clean products. Maximum loa of 130m. Maximum beam of 20m. Maximum draft of 8.3m.
No. 2	362m	14.9m	85,000 dwt	Chemicals and clean products. Maximum loa of 228m. Maximum beam of 43m. Maximum draft of 14.0m.
Haiye Oil Terminal				
Oil Berth	480m	21.5m	250,000 dwt	Crude oil and dirty products.
Hongxing Logistics Chemical Terminal				
No. 1	187m	—	10,000 dwt	LPG, chemicals, and clean products.
No. 2	280m	—	50,000 dwt	LPG, clean products, crude oil, and chemical gases.
Qingdao Haiwan Liquid Chemical Port Company (Liquid Chemical Wharf)				
—	280m	12.5m	30,000 dwt	Liquid chemicals. A swinging area fronting the wharf has a radius of 429m and a depth of 13.3m.
—			20,000 dwt	

The Bei Hai Shipyard with two drydocks capable of handling vessels up to 25,000 dwt plus a floating drydock 230m in length, is located in Haixi Wan (36°00'N., 120°16'E.).

The Haixi Heavy Machine Terminal, in the N part of Haixi Wan, is comprised of a breakwater extending 314m W from the shore at position 36°00'23"N, 120°16'24"E. The S side of the breakwater has three berths for vessels of 600 tons, 1,000 tons, and 1,500 tons.

A shipyard and a ferry terminal, plus more land reclamation taking place in Xuejadao Wan, are located in the SW part of

Haixi Wan.

Xuejiadao Wan lies S of Haixi Wan. The Xuejiadao Passenger Terminal, located in the SW portion of Xuejiadao Wan, has depths of 7m along its sides and 4m at its outer end. Along the E side is a terminal for trans-shipping large diesel engines. This terminal consists of two jetties, 84m in length, in depths of 7m.

See the table titled **Qingdao—Berthing Facilities** for berth details.

Aspect

Signal Hill (36°04'N., 120°20'E.) is 121m high and lies about 2 miles NE of Tuandao Zui. Lights, which show green above red, are shown from the signal station on its summit.

A church, with two spires about 90m high, lies about 0.5 mile WNW of Guanhai Shan. Radio masts lie about 0.8 mile NNE of Tuandao Zui.

Taiping Shan (36°04'N., 120°21'E.), close S of the S entrance to Jiaozhou Wan, is 148m high with a large radar aerial on its summit.

Pilotage

Pilotage is compulsory and available 24 hours. The pilots board, as follows:

1. Vessels with a draft of less than 15m—Within Precautionary Area No. 2 bounded by lines joining the following positions:
   a. 36°01'47"N, 120°19'19"E.
   b. 36°01'08"N, 120°19'09"E.
   c. 36°00'54"N, 120°20'20"E.
   d. 36°01'35"N, 120°20'32"E.
2. Vessels with a draft of 15m or more—Abeam Xiaogong Dao (36°00'N., 120°35'E.).
3. An additional pilot boarding station with no conditions is located at position 35°52'30"N, 120°17'00"E.
4. Lingshan Wan:
   a. No. 1 (35°50'01"N., 120°16'02"E.).
   b. No. 2 (35°48'30"N., 120°16'02"E.).
   c. No. 3 (35°47'59"N., 120°15'02"E.).

Vessels should send their ETA 72 hours, 48 hours, and 24 hours prior to arriving at the pilot boarding position. The message should include the details of any dangerous cargo on board, including the IMO code, description, packaging, and grt/nrt. Any changes in ETA should be advised as soon as possible.

In addition to the scheduled ETA messages required at 72-hour, 48-hour, and 24-hour intervals, vessels must also contact pilots on VHF channel 73 when passing Chaolian Dao (35°53'36"N, 120°52'24"E) with their confirmed ETA. The vessel's agent will send instructions giving time and position of pilot boarding. Receipt of this message should be made in order to avoid delays.

Qingdao Gang pilots can be contacted, as follows:

Qingdao Gang Contact information	
Qingdao Gang pilots	
Call sign	Qingdao Pilot Station
VHF	VHF channel 73
Port Authority	
Telephone	86-532-829-84619 (Office) 86-532-829-82389 (Control)
Facsimile	86-532-829-85926
E-mail	yhz@qdpilot.com
Web site	http://www.qdpilot.com

Regulations

Qingdao Gang Traffic Separation Scheme (TSS) is in effect in the E approaches to Qingdao Gang from position 35°59'N., 120°31'E. to the Inner Harbor limit. The TSS consists of three sections, with three precautionary areas, and is best seen on the chart. The Qingdao Gang TSS has not been adopted by the IMO; however mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

The channels are divided into the inner harbor channel and the outer harbor channels; the latter is the main channel, with a Defined Route passage of up to 40 miles to seaward. Transit by means of the Defined Routes is compulsory for vessels exceeding 500 dwt.

Foreign vessels are only permitted to join the Defined Route by either of the following approaches:

1. Route 2—entered at position 35°56.2'N, 121°04.8'E and oriented E-W
2. Route 3—entered at position 35°43.2'N, 120°53.0'E and oriented ESE-WNW

The maximum allowable vessel speed in No. 1 Section is 12 knots. Overtaking is prohibited in this section.

Separation zones of the TSS must not be crossed without obtaining prior permission from the authorities. Inshore traffic lanes lie N and S of No. 1 Section.

Vessel Traffic Service

A Vessel Traffic Service (VTS) is in operation 24 hours for Qingdao Gang within a 20-mile radius of the Fenghuang Radar Station (36°00'36"N., 120°17'46"E.).

Qingdao Gang—Required IMO SRS Format		
Item	**Type**	**Description**
A	Ship	Vessel name, call sign, and IMO number.

Qingdao Gang—Required IMO SRS Format		
Item	**Type**	**Description**
C	Position	A 4-digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5-digit group giving longitude in degrees and minutes suffixed with E (east) or W (west).
D		True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark).
E	True course	A 3-digit group.
F	Vessel speed in knots and tenths of knots	A 3-digit group.
Q	Defects, damage, deficiencies, and limitations.	Defects and constraints (for towing vessels, the length and name of the towed object should be reported)

Participation in the VTS is mandatory for the following vessels:

1. All passenger vessels.
2. All vessels carrying dangerous or hazardous cargo.
3. All other vessels 300 gt or more.

Vessels smaller than 300 gt may participate in the VTS voluntarily.

The Qingdao VTS provides information on vessel traffic, abnormal weather conditions, and maritime safety, but only for vessels participating in the VTS.

The VTS Center can be contacted, using Mandarin Chinese or English, as follows:

Qingdao Gang Contact information	
Qingdao Gang VTS	
Call sign	Qingdao VTS
VHF	VHF channel 8
Telephone	86-532-828-26589 86-532-829-86532
Facsimile	86-532-826-80919
E-mail	vtsqd@sdmsa.gov.cn

Vessels should maintain a constant listening watch on VHF channel 8 while participating in the VTS.

Vessels are required to report all the information described in the table titled **Qingdao Gang—Required IMO SRS Format** when crossing any one of the following five Reporting Lines:

1. When passing abeam of Changmen Yan (36°10'48"N., 120°56'48"E.).
2. When passing abeam of Chaolian Dao (35°53'41"N., 120°52'33"E.).
3. When passing abeam of Lingshan Dao (35°45'24"N., 120°10'00"E.).
4. When crossing the line joining Dagong Dao (35°57'38"N., 120°29'30"E.).
5. When crossing the line extending E and W from Xiaoshi Dao Light (35°56'31"N., 120°19'36"E.).

Vessels should also report the following information when approaching or departing the port:

1. Inbound vessels:
   a. Vessel nationality.
   b. Vessel type.
   c. LOA.
   d. Gross tons.
   e. Original departure port.
   f. Draft.
   g. Description of any dangerous cargo onboard.
2. Outbound vessels:
   a. Vessel name.
   b. Vessel position.
   c. Time of report.
   d. Destination port.

In addition to the inbound and outbound reports described above, vessels must also report their name and time when performing the following operation:

1. Prior to departure from the berth.
2. After berthing.
3. Prior to weighing anchor.
4. After anchoring.
5. When abeam Tuan Dao Light (36°02'N., 120°17'E.).

Vessels should report any traffic accidents or pollution incidents withn the reporting area, stating the following:

1. Type of accident or incident.
2. Time of occurrence.
3. Location of accident or occurrence.
4. Extent of damage or pollution.
5. If any assistance is required.

Signals

Vessels subject to quarantine inspection before berthing display the signals listed in the table titled **Qingdao Gang—Signals** upon entering the harbor and then anchor in the quarantine anchorage.

Qingdao Gang—Signals		
By Day	**By Night**	**Meaning**
Flag Q	Three red lights, vertically disposed	Arriving from an infected port, normal health on board.

Qingdao Gang—Signals		
By Day	**By Night**	**Meaning**
Flags QQ	Four lights (red, red, white, red) vertically disposed	Suspicion of infection on board.
Flags QL	Four lights (red, white, red, white) vertically disposed	If death has occurred during voyage or there is a corpse on board.

Contact Information

The port can be contacted, as follows:

Qingdao Gang Contact information	
Qingdao Port	
Call sign	Qingdao VTS
VHF	VHF channels 9, 11, 13, and 16
Telephone	86-532-829-82011 86-532-829-82070
Facsimile	86-532-828-22878
E-mail	president@qdport.com

Anchorage

A temporary anchorage area is located outside the harbor entrance, 2 to 3 miles E of **Xiang Zui** (36°01'N., 120°18'E.). This anchorage has reported depths of 27 to 40m, mud.

In addition to the temporary anchorage, there are five designated anchorages in the outer harbor and one inner harbor anchorage in the S part of Jiaozhou Wan, as follows:

1. Outer Anchorage No. 1—Centered on position 36°02'48"N, 120°19'48"E, with depths of 7 to 13m. An ammunition dumping area lies on the W boundary of this area.
2. Outer Anchorage No. 2—Centered on position 36°02'42"N, 120°18'36"E, with depths of 15 to 18m.
3. Outer Anchorage No. 6—Centered on position 36°05'00"N, 121°13'00"E.
4. Outer Anchorage No. 7—Centered on position 36°16'00"N, 121°09'30"E.
5. Qianhai Anchorage No. 1 (Quarantine)—Centered on position 36°00'24"N, 120°21'21"E, with depths of 31 to 36m, mud. A hazardous substance area is located about 300m SE of this area. Smaller vessels with shallower drafts should use the E part of the anchorage.
6. Qianhai Anchorage No. 2—Centered on position 35°58'24"N, 120°22'24"E, with depths of 13 to 20m, mud and sand. Anchoring and fishing are prohibited on the SE border of this area.
7. Oil Tanker Anchorage—Centered on position 36°15'10"N, 120°13'10"E, with depths of 6 to 35m. A special yellow marker buoy marks the NW corner of this area.
8. Inner Anchorage—In depths of 4 to 35m, marked by buoys and bounded by lines joining the following positions:
   a. 36°07'22"N, 120°16'26"E.
   b. 36°07'22"N, 120°16'43"E.
   c. 36°04'33"N, 120°14'27"E.
   d. 36°04'17"N, 120°16'21"E.

Caution

Buoys may be moved or removed completely due to ice between December and February.

Lesser depths than charted have been reported in Da Gang and its immediate approaches.

A prohibited area, best seen on the chart, surrounds Dagong Dao and lies parallel to the traffic separation scheme.

Seaplanes are active in an area about 0.8 mile W of Tuandao Zui (36°02.7'N., 120°16.9'E.).

Vessels using TSS No. 1 should keep the virtual AIS located about 0.8 mile SSW of Tuandao Zui in Precautionary Area No. 1 to port.

A dangerous wreck is reported in the eastbound lane of the TSS, in a depth of 20.2m, at position 35°58'45"N, 120°30'07"E.

Dangerous wrecks have been reported in the N part of Precautionary Area No. 1, in a depth of 28.3m, and 600m further N, in a depth of 27.3m.

Xiang Zui to Cape Nelson

5.17 **Xiang Zui** (36°01'N., 120°18'E.) is the S entrance point to Qingdao Gang.

Daqaio Dao (Ta-chiao Tao), a small islet marked by a light, lies about 1 mile SE of Xiang Zui. Xiaoqiao Dao is a reef that dries about 3m, about 1 mile SW of Daqaio Dao.

Zhucha Dao (35°57'N., 120°19'E.) is an island about 35m high with a flat summit, and marked by a light on its SW side. Islets and rocks extend 0.5 mile E, while a 2m shoal lies 1 mile WNW of the island.

Haixi Bandao (35°57'N., 120°14'E.) is a peninsula extending SW from Xiang Zui to **Kaiser Point** (35°54'N., 120°10'E.), the NE entrance point to Lingshan Wan. The two extremities of the peninsula are hilly, while the middle part is low with sandy beaches separated by rocky points.

Lingshan Wan (35°50'N., 120°05'E.) is an open bay lying between Kaiser Point and an unnamed point 9 miles SW. An inlet in the NE corner of the bay provides anchorage to small vessels with local knowledge and a draft of less than 4m. It is sheltered from all but S winds.

Dazhushan Zui (35°44'N., 120°00'E.) is a high steep-sided headland rising to a 510m summit about 5 miles to the NNW. The coastline between the point and Cape Nelson, about 260 miles SSE, first describes an indentation of considerable extent then continues regular for the remainder of its length with but few gentle bights interrupting a general trend to the SSE.

Inland, a terrain of hills and low-lying mountains declines and merges with a vast, flat, featureless plain that extends over much of the N part of the hinterland lying behind the E coast of China. The entrances to numerous shallow rivers interrupt the coastline.

Offshore, the 20m curve leaves the coast close aboard Ta-chu-shan Tsui and tends to arc well seaward for a distance of about 85 miles before closing the coast once more off the entrance to Chang Jiang. Several off-lying islands lie in the approaches to the N coastal indentation. Numerous shoals lie scattered throughout the offshore area.

Caution.—Caution is recommended when navigating a partially surveyed area which, strewn with many shoal patches of sand and hard mud, extends about 140 miles NNW of the entrance to Chang Jiang and continues offshore for a distance of about 50 miles.

5.18 Lingshan Dao (35°45'N., 120°10'E.) lies about 7 miles ENE of Dazhushan Zui. The S end of the island rises precipitously to a height of 511m, then slopes to its N extremity. A light is shown from the SW side of the island. Vessels with local knowledge can obtain anchorage on the W sides of the island.

Ligen Wan (35°42'N., 119°57'E.), about 6 miles wide, is a small bay lying between Dazhushan Zui and the N point of Zhaitang Dao, a 26m high island lying close off the mainland. A 3.7m patch, marked by a lighted buoy, lies in the approach to Ligan Wan, about 5 miles E of Zhaitang Dao.

5.19 Dongjiakou (35°34'N., 119°48'E.) is a new port being constructed on the E side of the Dongjiakou peninsula on reclaimed land approximately 46 miles SW of Qingdao. The port is expected to handle large bulk cargo, liquid-based chemicals, general cargo, coal, and ores. Future plans also include a dedicated container terminal and an LNG import terminal.

Depths—Limitations.—The port is approached from the SE through a new buoyed channel, nearly 7.7 miles in length and 390m wide, being dredged to a depth of 23.2m.

A new channel, LNG Channel, has been dredged off the main channel and is approximately 0.74 mile in length and 345m wide, with a designed depth of 14.7m. The LNG channel passes through the following positions:

a. 35°33'12"N, 119°45'21"E.
b. 35°33'16"N, 119°45'34"E.
c. 35°33'58"N, 119°45'17"E.
d. 35°33'52"N, 119°45'05"E.

A breakwater, with total length of 1.05 miles, has been built out from Dongjiakou Zui beginning at position 35°34'56.8"N, 119°45'46.2"E; extending S to position 35°34'26.4"N, 119°45'46.3"E; and then extending SSW to position 35°33'57.7"N, 119°45'40.3"E.

Although there are plans for the development of 112 berths the port presently (2014) has a few operating berths and one LNG terminal. The berths are comprised of an ore-import berth, on the E side of the pier, which is 520m in length with depths of 25m alongside, that can handle vessels as large as 400,000 dwt. Another ore berth capable of handling the same type of vessels is planned for the other side of the pier. The other operating berth is a multipurpose berth, 372m in length with depths of 19.2m alongside, capable of handling vessels as large as 50,000 dwt,

The LNG terminal (Berth No. 1) is located on the inner side of the E part of the breakwater. This berth is connected to the mainland by a bridge 852m in length. The berthing area of in front of No. 1 berth is 485m in length and 110m wide, with a designed depth of 14.7m. LNG vessels of 210,000m^3 or larger cannot use this berth under current conditions until more construction has been completed.

Pilotage.—Pilots will board vessels in the following positions:

1. No. 1—35°18'56"N, 119°59'53"E.
2. No. 2—35°25'56"N, 119°52'28"E.
3. No. 3—35°29'44"N, 119°48'35"E.

Anchorage.—Anchorage, in depths of 20 to 21m, can be obtained in an area SE of the port bounded by lines joining the following position:

a. 35°28'54"N, 119°50'30"E.
b. 35°28'54"N, 119°51'44"E.
c. 35°26'24"N, 119°49'05"E.

Huangjiatang Wan (35°33'N., 119°40'E.), entered between Dongjia Kou Zui (Dongjiakou Zui) and a bluff point about 8 miles SW, is comparatively shallow. Its inner part is filled with drying mud and sand flats.

Anchorage, suitable for small craft during N and NW winds, can be obtained about 1 mile SW of Dongjia Kou Zui, in depths of 6 to 8m, mud.

A prohibited area extends offshore from a position 7 miles SSE of Dongjiakou Zui, to the shoal area of Qingshi Lan, then to the SW extremity of Haixi Bandao.

5.20 Rizhao (Shijiusuo) (35°23'N., 119°33'E.), marked by a light, is situated about 15 miles SW of Dongjia Kou Zui and 35 miles N of Langyungang. Rizhao is known for its coal terminals but also handles iron ores, containers, grain, liquid chemicals, oil products, and LNG.

Tides—Currents.—Tides are semidiurnal, rising 4.5m at springs and 3.5m at neaps. Mean tidal range is 3m with the maximum observed of 4.9m.

Depths—Limitations.—Rizhao is divided into two main areas. The first area is an outer harbor, with the coal wharf at the end of a jetty about 1,140m in length, extending about 1,140m SE from the shore. The coal wharf itself extends about 470m SW from the end of the jetty, proving a berth on either side.

The second area, an inner harbor area, is comprised of North Port Harbor Area, East Port Harbor Area, and West Port Harbor Area, along with the Rizhao Jurong Port Terminals, which are situated between the West Port Harbor Area and North Port Harbor Area. The inner harbor is protected by two breakwaters with an opening of about 1,000m between them.

The coal wharf and the inner harbor area are approached through a channel that commences at the Pilot Boarding Area No. 1 and travels 4,300m NW, where it splits into two dredged channels, with one leading NNW to the coal wharf and the other one leading NW to a turning circle, with a radius of 260m, inside the breakwaters. The channel leading to the coal wharf is dredged to a depth of 15m while the channel leading to the inner harbor is dredged to 15m for a length of 2,400m from the breakwaters to the turning circle, which also has a depth of 15m. The entire length of these channels can accommodate vessels as large as 50,000 dwt at anytime and up to 100,000 dwt only at HW.

Extensive reclamation is ongoing SW of the main harbor areas, with a new breakwater, approximately 1,400m in length, having been built southward from position 35°18'22"N, 119°31'47"E. A new channel has been dredged between the following N and S sets of points given below:

1. North boundary of channel—a line joining the following positions:

a. 35°16'21"N, 119°33'03"E.
b. 35°17'30"N, 119°31'10"E.
c. 35°17'41"N, 119°30'56"E.

d. 35°17'54"N, 119°30'48"E.
e. 35°18'12"N, 119°30'48"E.

2. South boundary of channel—a line joining the following positions:

a. 35°16'15"N, 119°32'58"E.
b. 35°17'42"N, 119°30'36"E.
c. 35°18'23"N, 119°30'36"E.

Rizhao—Port Facilities				
Berth	**Pier Length**	**Depths Alongside**	**Maximum Vessel Size**	**Remarks**
Coal Wharf				
01	452m	15.0m	100,000 dwt	Coal. Maximum length of 291m.
02	452m	15.0m	200,000 dwt	Coal. Maximum length of 280m.
East Port				
E01	239m	7.6m	5,000 dwt	Bulk cargo.
E02	238m	8.5m	10,000 dwt	Petroleum and bulk cargo.
E03	180m	9.5m	30,000 dwt	Bulk cement only.
E04	216m	10.3m	50,000 dwt	Bulk cargo.
E05	892m	10.4m	15,000 dwt	Coal.
E06		13.6m		Iron ore.
E07		13.7m		Iron ore.
E08		13.7m		Iron ore.
E09	260m	13.7m	15,000 dwt	Iron ore.
E10	370m	20.5m	200,000 dwt	Iron ore.
E11	391m	20.5m	300,000 dwt	Iron ore.
North Port				
N01	185m	6.0m	5,000 dwt	General cargo.
N02	247m	12.0m	27,500 dwt	Vegetable oils and petroleum chemicals. Maximum draft of 8.6m.
N03	34m	12.0m	3,000 dwt	Petroleum and chemicals. Maximum draft of 12.0m.
Rizhao Jurong Port Terminals				
W01	120m	8.4m	10,000 dwt	Ferry terminal.
W02	180m	10.2m	40,000 dwt	General cargo.
W03	261m	10.8m	40,000 dwt	Wood chips.
W04	295m	11.2m	40,000 dwt	Grain.
W05	560m	14.7m	70,000 dwt	Grain in bulk.
Woodchip 01		12.2m	40,000 dwt	Wood chips.
Woodchip 02	320m	—	40,000 dwt	Wood chips.
West Port				
W06	—	14.8m	30,000 dwt	Containers.
W07	—	—	30,000 dwt	Containers.
W08	—	—	50,000 dwt	General cargo.
W09	—	—	70,000 dwt	General cargo.
W10	—	—	50,000 dwt	General cargo.
W11	—	—	50,000 dwt	General cargo.

Rizhao—Port Facilities				
Berth	Pier Length	Depths Alongside	Maximum Vessel Size	Remarks
W12	—	—	50,000 dwt	General cargo.
W13	—	—	50,000 dwt	General cargo.
W14	—	—	35,000 dwt	General cargo.
W15	—	—	35,000 dwt	General cargo.
W16	—	—	35,000 dwt	General cargo.
W17	—	—	—	General cargo.
W18	—	—	—	General cargo.

For details on alongside berthing details, see the table titled **Rizhao—Port Facilities**.

Pilotage.—Pilotage is compulsory for all foreign vessels and all vessels proceeding to and departing from the coal wharf and is available 24 hours. The vessel's agent will send instructions giving time and position of pilot boarding. Masters should acknowledge receipt to avoid delays.

Pilots will board vessels in the following positions:

1. No. 1—35°18'16"N, 119°38'29"E.
2. No. 2—35°17'50"N, 119°40'49"E.
3. No. 3—35°16'29"N, 119°46'41"E.
4. No. 4—35°15'30"N, 119°35'00"E.

Rizhao Pilots can be contacted, as follows:

Rizhao Contact information	
Rizhao Pilots	
VHF	VHF channels 1, 10, 16, 23, and 26
Telephone	86-633-8381257
Facsimile	86-633-8381257
E-mail	manage@rzgh.cn

Regulations.—The vessel's ETA should be sent via the agent 72 hours, 48 hours, and 24 hours prior to arriving at the pilot boarding position. The message should include the following information:

1. ETA
2. Salt water draft
3. Fresh water draft
4. Any details about dangerous cargo being carried, including the IMO code, description, packaging, and gt of any such cargo.

Any changes to the ETA should be advised whenever confirmed.

Rizhao Maritime Safety Administration (MSA) has designated three heavy traffic areas within the Rizhao Gang Gangqu approaches and within the area itself. In order to preserve safety at sea all fishing or anchoring is prohibited within these areas, as follows:

1. Area No. 1—Bounded by lines joining the following positions:
   a. 35°19'51"N, 119°37'27"E.
   b. 35°18'57"N, 119°36'57"E.
   c. 34°19'51"N, 119°34'51"E.
   d. 34°21'39"N, 119°34'15"E.

Area No. 2—Bounded by lines joining the following positions:

a. 35°18'42"N, 119°36'51"E.
b. 35°17'09"N, 119°37'45"E.
c. 35°12'33"N, 119°49'12"E.
d. 35°14'30"N, 119°50'18"E.
e. 35°19'51"N, 119°37'27"E.
f. 35°18'57"N, 119°36'57"E.

Area No. 3—Bounded by lines joining the following positions:

a. 35°16'12"N, 119°32'57"E.
b. 35°15'42"N, 119°32'21"E.
c. 35°09'18"N, 119°47'24"E.
d. 35°10'27"N, 119°48'03"E.
e. 35°15'12"N, 119°36'30"E.
f. 35°16'24"N, 119°33'06"E.

Vessel Traffic Service.—Rizhao VTS is in operation at all times within a line joining the following points:

a. 35°25'20"N, 119°34'00"E.
b. 35°19'00"N, 119°49'00"E.
c. 34°59'45"N, 119°36'42"E.
d. 34°59'00"N, 119°26'00"E.
e. 35°05'10"N, 119°18'00"E.

The VTS area is divided into Area A, lying N, and Area B, lying S, of a line drawn between position 35°16'N, 119°24'E and position 35°10'N, 119°43'E. Area A services the Rizhao port area. Area B services the Lanshan port area. See the graphic titled **Rizhao VTS—Reporting Boundary Limits**.

The Rizhao VTS provides the following information:

1. Traffic information (only on request).
2. Weather information (only on request).
3. Navigational warnings or advice.
4. Navigational assistance (only on request).
5. Vessel traffic organization.
6. VTS activities (only on request).

Participation in the VTS is compulsory for the following vessels:

1. All foreign vessels.
2. Chinese vessels larger that 300 gt.
3. All passenger vessels greater than 50m in length.
4. All vessels carrying dangerous cargo.

5. Vessels engaged in towing operations.

Rizhao VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Entry Report	Upon arrival at the VTS operational area (Reporting Line).	1. Vessel name. 2. Position. 3. Draft. 4. Reason for entering VTS area. 5. Any other information as requested by VTS.
Arrival Report	After berthing or anchoring completed.	1. Vessel name. 2. Berth or anchorage position. 3. Time berthing or anchoring completed.
Moving Report	Before shifting anchorage or berth positions.	1. Vessel name. 2. Intentions. 3. Destination.
Departure Report	Before departure from a berth or anchorage with the intention of leaving the port.	1. Vessel name. 2. Departure position. 3. Next port of call.
Final Report	Upon departure from the VTS operational area when crossing the Reporting Line outbound.	1. Vessel name. 2. Position.
Activities Report	At least 1 hour before the start and 1 hour after the end of operation. Operations for this report include surface or subsurface procedures, cargo transfers, main engine or any other shipboard system repairs, launching any small boats for drills, tank or hold fumigation, or ballast discharge.	1. Vessel name. 2. Position. 3. Details of activities. 4. Any other information as requested by VTS.
Emergency Report	Traffic incident, pollution accident, or other emergency.	1. Vessel name. 2. Position. 3. Incident details. 4. Any other information as requested by VTS.
Abnormal Report	Safety of navigation incidents.	1. Vessel name. 2. Position. 3. Incident description. 4. Any other information as requested by VTS.

Rizhao—Designated Anchorages			
Anchorage	**Center Position**	**Depths**	**Remarks**
No. 1	35°20'21"N, 119°39'09"E.	19.0m	Good holding ground. A lighted buoy marks the NW corner of area.
No. 2	35°19'32"N, 119°41'33"E.	19.0m	A lighted buoy marks the NE corner of area.
No. 3	35°15'43"N, 119°38'22"E.	18.0m	A lighted buoy marks the SW corner of area.
No. 4	35°14'36"N, 119°40'42"E.	19.0m	Hazardous cargo, including tankers.
No. 5	35°16'10"N, 119°49'07"E.	22.0m	For vessels greater than 100,000 dwt, with a draft of more than 16m. A lighted buoy marks the E corner of area.
General Anchorage	35°28'00"N, 119°53'00"E.	20.8m	General anchorage located NE of port.

Rizhao—Designated Anchorages			
Anchorage	**Center Position**	**Depths**	**Remarks**
Fumigating and Tank Cleaning	35°13'43"N, 119°43'05"E.	19.0m	A lighted buoy marks the SW corner of area.
Tankers	35°08'42"N, 119°49'34"E.	—	Lighted buoys marks the NW and NE corners of area.

Rizhao Light

Languages to be used are either Mandarin Chinese or English and communications are to be carried out over the appropriate VHF channel for the area of the VTS the vessel is sailing in.

The Rizhao VTS can be contacted, as follows:

Rizhao Contact information	
Rizhao VTS	
Call sign	Rizhao VTS
VHF	VHF channel 9 (Area B) VHF channel 14 (Area A)

Rizhao Contact information	
Telephone	86-633-8385429 86-633-12395 (Emergency)
Facsimile	86-633-8387838
E-mail	rizhaovts@163.com

Vessels should avoid transiting the anchorages unless proceeding to or departing from the port.

Vessels anchoring or departing an anchorage outside the VTS boundary limits should still report arrival and departure details to the Rizhao VTS.

Contact Information.—The port can be contacted, as follows:

Rizhao Contact information
Rizhao Port

Rizhao Contact information	
Call sign	Shijiu Radio
VHF	VHF channels 1, 10, 16, 23, and 2
Telephone	86-633-8383668
Facsimile	86-633-8382282

Anchorage.—Designated anchorage berths, with depths 18 to 22m, mud, have been established, as detailed in the table titled **Rizhao—Designated Anchorages**.

A general LNG anchorage centered on position 35°24'28"N, 120°00'13"E has depths of 23 to 32m. An emergency anchorage for LNG vessels centered on position 35°24'42"N, 119°51'28"E has depths of 21 to 25m.

Caution.—A dangerous wreck, depth 12.8m, is located in the approach channel in position 35°18'34"N., 119°38'40"E.

5.21 Lanshan (35°05'N., 119°21'E.) (World Port Index No. 60125) is a developing port on the N side of Haizhou Wan, nearly equidistant from Rizhao to the NNE and Lianyungang SE.

Depths—Limitations.—Two buoyed channels lead into the port. The Rizhaogang Lanshan Gangqu Deep Water Channel is 330m wide, with least depth of 16.3m and marked by lighted buoys, begins upon passing Lighted Buoy No. 301 (35°07'28"N, 119°42'28"E) and leads WSW for approximately 10 miles to a turning circle close SE of a new breakwater. This channel leads to the new (2014) Lanshan Crude Oil Terminal. This terminal a a T-shaped berth situated at the end of the harbor's center breakwater (36°05'40"N, 119°24'14"E).

Another fairway leading to an area of new wharves and other new works in progress S of the oil terminal is also marked by lighted buoys. It begins upon passing between Buoy No. 101 and Buoy No. 102 and leads W, then NW, passing through the NE corner of Lanshan Anchorage Area No. 1 (see Anchorage paragraph for position).

See the table titled **Lanshan—Berth Information** for latest details regarding the berthing in port.

Lanshan—Berth Informations							
Berth	Pier Length	Depths Alongside	Maximum Vessel				Remarks
			Sixe	Draft	LOA	Beam	
Cargo and Coal Quay							
No. 3	178m	7.5m	7.000 dwt	—	—	—	General cargo.
No. 4	210m	10.2m	25,000 dwt	—	—	—	General cargo and chemicals.
No. 5	130m	7.5m	6,000 dwt	—	—	—	General cargo and asphalt.
No. 6	180m	8.5m	13,000 dwt	—	—	—	General cargo.
No. 8	200m	9.0m	25,000 dwt	—	—	—	Chemicals.
No. 9	240m	13.0m	50,000 dwt	—	—	—	General and bulk cargo.
No. 10	255m	13.6m	—	—	—	—	Coal. Under construction.
No. 11			—		—	—	
Lanshan Terminal							
No. 1	330m	—	65,000 dwt	13.4m	300m	60m	Chemicals.
No. 2	200m	—	12,500 dwt	13.4m	189m	60m	Chemicals.
No. 3	—	—	8,000 dwt	7.5m	155m	—	—
No. 5	—	—	8,000 dwt	7.5m	155m	—	—
No. 8	289m	13.0m	50,000 dwt	—	260m	60m	Chemicals.
No. 12	230m	9.0m	10,000 dwt	—	200m	40m	Chemicals.
Lanshan Crude Oil Terminal							
No. 1 and No. 2	890m	25.3m	300,000 dwt	—	—	—	Crude oil.
Rizbao (Asphalt) Terminal							
Caltex	—	—	20,000 dwt	12.0m	200m	—	Asphalt.
Gatex							
Shandong							
Landbridge Terminal							

Lanshan—Berth Informations							
Berth	Pier Length	Depths Alongside	Maximum Vessel				Remarks
			Sixe	Draft	LOA	Beam	
No. 1	72m	10.4m	18,500 dwt	9.9m	200m	40m	Crude oil.
No. 2	96m	13.3m	47,500 dwt	12.8m	220m	45m	Crude oil.
Rizhao Port Oil Terminal							
No. 1	350m	15.0m	105,000 dwt	14.4m	200m	40m	Crude oil.
No. 2	203m	—	20,000 dwt	—	—	—	Clean products. Under construction.
No. 3	172m	—	5,000 dwt	—	—	—	Clean products. Under construction.
Rizbao Shihua Crude Oil Terminal							
No. 6	492m	24.0m	375,000 dwt	—	486m	100m	Crude oil.

Lanshan Gangqu—Designated Anchorages			
Anchorage	Center Position	Depths	Bottom Characteristics
No. 1	35°04'22"N, 119°43'49"E.	19.9-20.7m	Mud, sand, and shells.
No. 2	35°01'10"N, 119°36'10"E.	16.0-22.0m	Mud and sand.
No. 3	35°04'35"N, 119°37'47"E.	17.7-21.0m	Mud and sand.
No. 4	35°04'37"N, 119°30'56"E.	—	Mud.
Un-numbered	35°01'24"N, 119°25'54"E.	—	Mud.
Emergency	35°08'51"N, 119°38'22"E.	—	—

Pilotage.—Pilotage is compulsory and is available 24 hours except, as follows:

1. Large vessels—Pilotage is available during daylight hours only.
2. Pilotage is suspended if wind reaches force 4-5.

Vessels should report the details of any dangerous cargo carried including IMO Code, description, packaging and gross and net tonnage.

Pilots are stationed at Rizhao and board in any of the following anchorage areas below:

a. 35°02'15"N, 119°30°00"E.—Area No. 1
b. 35°02'48"N, 119°37°46"E.—Area No. 2
c. 35°04'30"N, 120°02°30"E.—Area No. 1
d. 35°07'30"N, 119°46°00"E.—Area No. 2
e. 35°06'00"N, 119°34°00"E.—Area No. 3

The vessel's agent will send instructions giving time and position of pilot boarding. Masters should acknowledge receipt to avoid delays. Any changes to the ETA or other circumstances prior to arrival should be immediately advised.

Vessels should send their ETA via the agent 72 hours, 48 hours, and 24 hours prior to arriving at the pilot boarding position. The message should include the following information:

1. Time and date of arrival.
2. Salt water draft.
3. Fresh water draft.
4. If dangerous cargo is being carried then vessel will need to advise the details of such cargo, including IMO code description, packaging for the cargo, and gt or nrt.

Vessels will then need to advise final confirmation of ETA 3 hours prior to arrival at the pilot boarding station.

The pilots can be contacted through VHF channels 16 and 17.

Vessel Traffic Service.—The port of Lanshan and vicinity is a subport area of Rizhao VTS and is assigned to Area B of that VTS. See paragraph 5.20 for the limits and applicable coordinates of this area plus reporting requirements.

Contact Information.—The port can be contacted, as follows:

Lanshan Contact information	
Lanshan Port	
VHF	VHF channels 1, 10, 16, 23, and 2
Telephone	VHF channels 13 and 16
Facsimile	86-633-738-3000

Anchorage.—Six designated anchorages are located within the harbor limits and are described in the table titled **Lanshan Gangqu—Designated Anchorages**.

Anchorage is prohibited in an area centered on position 35°04'N, 119°55'E due to unexploded ordnance on the sea bed; this area, which is best seen on the chart, lies approximately 15 miles E of the entrance to Lanshan Gang approach channel.

Caution.—Large areas of works in progress are all around the port area so care must be taken to stay clear of dredgers,

work boats, and all other kinds of construction craft.

Cultivation areas exist in the vicinity of Lanshan Gang. Vessels should not approach the port without local knowledge.

5.22 **Haizhou Wan** (34°55'N., 119°20'E.) is a shallow bay indenting the mainland coast between Lanshan Tou, about 19 miles SSW of Shijiu Zui, and Lianyungang, about 20 miles further S.

Qinshan Dao (34°52'N., 119°17'E.), a 55m high islet, lies close seaward of the extensive drying mud flats at the head of the bay.

Anchorage is available for small vessels with the summit of the island bearing 310°, distant 1 mile, in a depth of 3.7m, mud.

Lianyungang (Lianyun Gang) (Lien Yun Chiang) (34°44'N., 119°27'E.)

World Port Index No. 60130

5.23 Lianyungang is one of China's main coastal ports, a key port in international trade. The port is the E terminus of the Long-Hai Cross-China Railway. It has the capacity to handle general bulk and containerized cargo. It is located on the mainland shore opposite Dongxilian Dao, a bare rocky island which, having a prominent sharp summit and a conspicuous light on its E extremity, lies close off the S side of Haizhou Wan.

Winds—Weather.—In winter and spring the prevailing winds are from the NW, while in summer and autumn, the prevailing winds are from the SE. Fog occurs in the morning from March until May.

Tides—Currents.—Tides are semidiurnal, rising 5m at springs and 4m at neaps.

Tidal currents at the harbor entrance are rotary in a counterclockwise direction. The flood current sets successively NW, W, and SW at a maximum rate of 1.25 knot, while the ebb current sets successively SE, E, and NNE at a maximum rate of 0.75 knot.

Within Lianyungang, the tidal currents are reported to be reversing, setting W through the passing on the flood tide and E on the ebb tide. During the flood tide, there are rough seas and swells at the harbor entrance.

Depths—Limitations.—Lianyungang should be approached from a position 10 miles ESE of Cheniushan Dao (34°59'42"N, 119°49'23"E), then proceed through a dredged channel, Zhuhangdao Jiaduan. This channel is 230m wide and has a controlling depth of 11.5m but allows a maximum draft of 13.5m with an underkeel clearance of 1m at HW. This will allow container vessels as large as 70,000 and 100,000 dwt to enter the port according to tide. Dredging has commenced to improve the approach channel for accommodation of vessels up to 150,000 dwt and to a depth of between 16 and 16.5m. The approach channel is subject to silting so depths within the channel can change frequently.

A new channel, Lianyungang Gang Xuwei Gangqu, has opened (2015) for use by vessels up to 100,000 dwt. This channel is maintained at a depth of 13.3m and extends from close SE of Anchorage Area No. 1 through the following points:

a. 34°47'59"N, 119°39'25"E.
b. 34°40'08"N, 119°36'44"E.
c. 34°39'37"N, 119°36'34"E.
d. 34°37'32"N, 119°35'51"E.
e. 34°36'25"N, 119°35'28"E.
f. 34°36'40"N, 119°33'44"E.

The Ganyu Gangqu Channel, a one-way channel for vessels up to 50,000 tons and open since 2013, is in the S portion of Lanshan Gang. This channel has been placed under the responsibility of the Lianyungang VTC. The total length of this channel is 17.6 miles and is divided into three segments with varying widths and depths. Dredging is required only for the westernmost 4.4 miles of Segment C. Another channel for one-way traffic for vessels up to 100,000 tons has been put in use in 2015. This channel is about 8.8 miles long, divided into two segments, and has a width of 255m. See the table titled **Ganyu Gangqu Channel** for details.

All cargo-handling facilities are arranged along the coastline for about 5.2 miles from E to W, starting with the Xin Su Iron Terminal fronting Lianyungang to the Cosco Shipyard in the Xugou Port Area, with the exception of the Kangyun Oil Wharf, which is located on the SE part of the island of Dongxi Liandao.

See the table titled **Lianyungang—Port Facilities** for details on the various piers and berths.

A 6,700m long breakwater connects the mainland at **Beiying Zui** (34°46'N., 119°22.1'E.) with **Jiangjia Zui** (34°41'N., 119°26.'E.), on the W side of Dongxilian Dao, forming an artificial bay. Extensive reclamation is taking place on the S side of this breakwater for building a new large container terminal.

Ganyu Gangqu Channel

Segment	Position	Width	Depth
For vessels up to 50,000 tons			
A	Start—34°57'22"N, 119°37'26"E	420m	Variable from 11.0 to 18.3m
	End—34°57'20"N, 119°29'05"E		
B	Start—34°57'20"N, 119°29'05"E	170m	11.0m
	End—35°00'46"N, 119°17'26"E		
C	Start—35°00'46"N, 119°17'26"E	170m	11.0m
	End—35°01'10"N, 119°17'11"E		
For vessels up to 100,000 tons			

Ganyu Gangqu Channel			
Segment	**Position**	**Width**	**Depth**
A	Start—35°01'19"N, 119°17'09"E	1,168m	13.6m
	End—35°00'44"N, 119°14'25"E		
B	Start—35°00'44"N, 119°14'25"E	15.18km	13.6m
	End—34°57'58"N, 119°26'51"E		

Notes:
Vessels must request permission to enter channel from the Lianyungang VTC using VHF channel 69 at least 1 hour before entering channel. Vessel should not enter channel unless permission is granted.
Vessels will need to keep the UKC (under keel clearance) more than 10 percent of the maximum draft.
After permission is requested to enter the channel, vessels need to keep a continuous watch on VHF channels 16 and 69 until the channel is departed.
Vessels are prohibited from overtaking other vessels or from engaging in any kind of anchoring maneuver.
Vessels must advise the actual time when entering and departing the channel to the Lianyungang VTC.
The use of the channel is prohibited when visibility is less than 1 mile or winds are stronger than gale strength.

Lianyungang—Berthm Information					
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel**		**Remarks**
			Size	**LOA**	
Xin Su Iron Ore Terminal					
Nos. 1-3	756m	—	—	—	Iron ore. Pier length is total continuous length able to accommodate up to three vessels at one time.
Wharf 1					
—	730m	—	—	—	Bulk carriers and product tankers. Pier length is total continuous length able to accommodate a variable number of vessels at one time depending on type and size.
No. 1	153m	9.1m	10,000 dwt	153m	General, bulk cargo, and chemicals.
No. 2	156m	6.1m	7,500 dwt	112m	General and bulk cargo.
Wharf 2					
No. 3	142m	6.0m	10,000 dwt	225m	General, bulk cargo, and alumina.
No. 4	180m	8.1m	10,000 dwt	225m	General, bulk cargo, and alumina.
No. 5	188m	9.0m	75,000 dwt	—	Iron ore, steel slab, and bitumen.
No. 6	190m	6.5m	75,000 dwt	—	Iron ore, steel slab, and bitumen.
No. 7	178m	—	—	—	Dry cargo. Presently closed and not in use.
Wharf 3					
No. 8	180m	7.7m	75,000 dwt	225m	General cargo, fertilizer, alumina, and sulphur.
No. 9	215m	11.6m	75,000 dwt	254m	General cargo, fertilizer, alumina, and sulphur.
No. 10	200m	11.0m	25,000 dwt	—	General and bulk cargo.
No. 11	215m	10.5m	75,000 dwt	—	General cargo, aluminum, and sulphur.
No. 12	180m	9.7m	75,000 dwt	225m	General cargo, aluminum, and liquid sulphur.
Wharf 4					
No. 14	162m	7.1m	12,500 dwt	160m	Pitch and rock phosphate.
Mayao (Donglian) Berth					

Lianyungang—Berthm Information					
Berth	Pier Length	Depth Alongside	Maximum Vessel		Remarks
			Size	LOA	
No. 16	248m	9.2m	22,500 dwt	182m	LPG and chemicals. Maximum beam of 35m.
Miaoling Container Terminal (located 1 mile W of Lianyungang)					
No. 24	330m	16.5m	70,000 dwt	—	Containers and bulk cargo.
No. 25	330m	16.5m	70,000 dwt	—	Containers and bulk cargo.
No. 26	330m	16.5m	70,000 dwt	—	Containers and bulk cargo.
No. 27	410m	16.5m	100,000 dwt	—	Containers and bulk cargo.
No. 28	300m	16.5m	20,000 dwt	—	Containers and bulk cargo. See Note 4.
Wharf 6					
No. 29	340m	13.5m	—	—	Containers, general, and heavy lift cargo. Limited to vessels carrying up to 5,600 teu.
No. 30	345m	13.4m	—	—	Containers, general, and heavy lift cargo. Limited to vessels carrying up to 5,600 teu.
No. 31	250m	10.0m	75,000 dwt	225m	Containers, general, and heavy lift cargo.
No. 32	290m	10.0m	75,000 dwt	225m	Containers, general, and heavy lift cargo.
Wharf 7					
No. 33	280m	12.0m	75,000 dwt	240m	Grains, soybeans, and rapeseed.
No. 34	345m	17.0m	180,000 dwt	290m	Coal and iron ore.
No. 35	235m	12.0m	80,000 dwt	254m	Coal, iron ore, timber, and metal concentrate.
No. 36	230m	10.7m	80,000 dwt	254m	Coal, iron ore, timber, and metal concentrate.
Wharf 8					
No. 38	236m	10.1m	50,000 dwt	235m	Coal.
No. 39	240m	11.2m	75,000 dwt	240m	Coal.
Bulk Cargo Wharf					
No. 55	—	15.5m	150,000 dwt	—	General purpose. Has a turning circle with a radius 250m and a designed depth of 16m located N of these berths.
No. 56	—	15.5m	150,000 dwt	—	
No. 57	—	15.5m	100,000 dwt	—	
No. 58	300m	15.0m	70,000 dwt	—	Coal and iron ore. Has a swinging area with radius of 230m and a depth of 11m.
No. 59	290m	15.0m	70,000 dwt	290m	Iron ore and some coal. Has a swinging area with radius of 230m and a depth 11m.
Xugou Gangqu Coke Berth	275m	15.0m	70,000 dwt	290m	Coke. Located along E side of berth No. 59. Has a swinging area with radius of 230m and a depth 11m.
Ro-ro	175m	—	—	—	Passenger and ferry vessels.
Wharf 15					

Lianyungang—Berthm Information					
Berth	Pier Length	Depth Alongside	Maximum Vessel		Remarks
			Size	LOA	
Former No. 61 to No. 66—Berth 1	1,100m	13.2m	50,000 dwt	—	General cargo, tapioca, coal, sodium sulphate, plywood, iron ore, liquid sulphur, palm oil, sodium sulphate, chrome concentrate, and asphalt. These were formerly six berths but have been reconstructed to four berths after storm damage (2015).
Berth 2		13.2m	50,000 dwt		
Berth 3		13.2m	50,000 dwt		
Berth 4		13.2m	50,000 dwt		
Cosco Lianyungang Shipyard					
No. 67	222m	—	50,000 dwt	—	Project cargo. Maximum draft of 10m.
No. 68	219m	12.0m	30,000 dwt	—	Bulk cargo. Swinging area with radius of 181m and a depth of 8m.
No. 69	219m	12.0m	30,000 dwt	—	
Chimbusco (Kangyun Oil Wharf)—Dongxi Liandao island					
Oil Berth	220m	7.0m	7,500 dwt	—	LPG and fuel oils. Maximum draft of 7.5m.
Qitai Operations Area (Alumina and Bulk Fertilizer Terminal)					
No. 2	327m	14.0m	50,000 dwt	—	Liquid cargo. A swinging area with radius of 229m and a depth of14m fronts the berths.
No. 3	327m	14.0m	50,000 dwt	—	
No. 81	453m	16.3m	100,000 dwt	—	Alumina.
No. 82	310m	16.3m	100,000 dwt	—	Bulk fertilizer.

Notes:
1. Other turning areas located close off Wharf 3, Wharf 6, and Wharf 7 and the Kangyun Oil Wharf.
2. Permission must be obtained from the harbormaster before any bunkering or welding can commence and then all the work must be performed under the supervision of the harbormaster.
3. There must be a duty officer assigned and available to coordinate with shore personnel in case of any loading or discharging problems that may arise.
4. There is a turning area located in front of this pier, with a diameter of 694m and depth of 16.5m.

The East China Sea Rescue Bureau Terminal, 200m long, with alongside depths of 6.5m, is situated on the S side of Lianyungang in position 34°45'N, 119°28'E.

Aspect.—On the S side of Lianyungang, there is an artificial harbor protected by two low stone breakwaters, which are either awash or just below water. A fishing harbor, protected by a breakwater, is situated close SE of the root of the E breakwater of the artificial harbor. A LANBY is moored close E of the harbor limit in position 34°56'N, 119°58'E.

A conspicuous white tower, 35m high, stands near the root of the E breakwater.

Lianyungang VTS—Reporting Requirements		
Report Type	When Report is Required to be Submitted	Information Required
Position Report	When crossing the VTS boundary limit line into or out of the VTS area. See the diagram displaying the VTS boundary limits or the specific position listing of the VTS boundary limits.	1. Vessel name and call sign. 2. Nationality. 3. Port of registry (for Chinese vessels only). 4. LOA. 5. Gross tons. 6. Draft. 7. Carriage condition (confirm if laden or in ballast). 8. Departure or last port of call plus next intended port of call. 9. Other information requested by the VTS center (see Note 1).

Lianyungang VTS—Reporting Requirements		
Report Type	**When Report is Required to be Submitted**	**Information Required**
Movement Report	When crossing regulated position checkpoint.	1. Vessel name. 2. Position. 3. Course. 4. Other information requested by the VTS center.
Movement Report—Arrival or departure at a berth	Prior to berthing or mooring.	1. Vessel name. 2. Berth/buoy name.
	Prior to departing berth.	1. Vessel name. 2. Berth/buoy name. 3. Course.
Movement Report—Anchoring	Prior to anchoring.	1. Vessel name. 2. Position. 3. Course.
	After dropping anchor.	1. Vessel name. 2. Anchorage (identity).
Special Report—Movement Report	Prior to and following the time when vessel transits one-way restricted channels.	1. Vessel name. 2. Position.
Special Report—Deviation Report	Whenever the pilot or master deviates from navigation regulations in case of emergency endangering lives and property or environment.	1. Vessel name. 2. Position. 3. Reason for deviation.
Special Report—Distress Report	Traffic incident, pollution accident, loss of propulsion, or other emergency including the observation of any other people in distress.	1. Vessel name. 2. Position. 3. Description of event.
Special Report—Abnormal Station Report	Observation of safety of navigation incidents	1. Vessel name. 2. Incident description.
Notes: 1. Vessels equipped with an operating AIS only need to report vessel name and nationality. 2. Permission must be obtained from the harbormaster before any bunkering or welding can commence and then all the work must be performed under the supervision of the harbormaster. 3. There must be a duty officer assigned and available to coordinate with shore personnel in case of any loading or discharging problems that may arise.		

Pilotage.—Pilotage, which is compulsory for all foreign vessels entering and leaving the harbor, is available 24 hours. Pilots board at the following positions:

a. 34°48'27"N, 119°37'33"E.
b. 34°46'27"N, 119°38'48"E.

Pilots will board in the following locations:

1. Within Anchorage Area No. 1.
2. Position No. 1—34°46'28"N, 119°33'54"E.
3. Position No. 2—34°47'44"N, 119°37'20"E.
4. Position No. 3—34°49'35"N, 119°41'43"E.
5. Position No. 4—34°51'46"N, 119°46'56"E.
6. Position No. 5—34°48'23"N, 119°42'05"E.
7. Position No. 6—34°51'14"N, 119°49'46"E.

The pilots can be contacted, as follows:

Lanshan Contact information	
Lanshan Pilots	
VHF	VHF channel 27

Lanshan Contact information	
Telephone	86-518-86467005
Facsimile	86-518-86467007

Regulations.—Vessels should send their ETA 72 hours prior to expected arrival, advising the following information:

1. Time and date of expected arrival.
2. Destination port.
3. Expected arrival draft.
4. Number of hatches and tonnage.
5. Quantity of fuel required (if any).

The ETA needs to be reconfirmed when 24 hours away from arrival, advising the following information:

1. Vessel name.
2. Exact expected arrival time.
3. Destination harbor.

Vessel Traffic Service.—Lianyungang VTS is a sub-center of Jiangsu VTS. Jiangsu is the eastern coastal province author-

ity that covers this port area. Lianyun Gang VTS operates 24 hours in the harbor limits between the shoreline and a line joining Oita Zui and Yangwo Tou on the E side and a line joining Beiying Zui and Xiaogui Tou on the W side; plus the area outside the harbor limits bounded by lines joining the following positions:

a. 34°45'21"N, 119°29'37"E—Yangwo Tou.
b. 34°48'21"N, 119°29'37"E—N of Yangwo Tou.
c. 34°59'45"N, 119°49'17"E—Cheniushan Dao Light.
d. 35°00'30"N, 119°53'26"E—Dashan Dao Light.
e. 34°50'28"N, 120°01'57"E.
f. 34°40'36"N, 119°45'00"E.
g. 34°40'36"N, 119°27'10"E.

Participation in the VTS is compulsory for all foreign vessels and Chinese vessels greater than 300 gt. See the table titled **Lianyungang VTS—Reporting Requirements** for reporting requirements. Languages to be used are either Mandarin Chinese or English. Vessels must maintain a continuous listening watch on VHF channels 16 and 69 when within the limits of the VTS area.

Lianyungang VTS can be contacted, as follows:

1. Call sign: Lianyun Gang VTS
2. VHF: VHF channels 16 and 69
3. Telephone: 86-518-82231894
   86-518-82231904
4. Facsimile: 86-518-82310309
5. E-mail: lgvts@js-msa.gov.cn

The port can be contacted, as follows:

1. Call sign: Lianyun Gang Harbour Radio
2. VHF: VHF channels 9, 16, 25, and 27
3. Telephone: 86-518-85077642

Anchorage.—Eight designated anchorages are located NE of Yangwo Tou. Six of these anchorages are numbered 1 through 6, along with an unnumbered Dangerous Goods anchorage and an anchorage designed for tankers. These anchorages are exposed and dragging may occur in winds over force 7. None of these anchorages are suitable in a typhoon and more sheltered anchorage should be sought on Qingdao Gang, 90 miles NNE. The following is a list of the designated anchorages:

1. Anchorage No. 1—Centered on position 34°49'00"N, 119°37'18"E, with depths of 10 to 14m. A dangerous wreck lies off the NE corner with other obstructions S and SW.
2. Anchorage No. 2—Centered on position 34°51'30"N, 119°42'30"E, with depths of 14 to 16m. A dangerous wreck was reported (2006) on the NW corner.
3. Anchorage No. 3—Centered on position 34°53'24"N, 119°46'48"E, with depths of 18m.
4. Anchorage No. 4—Centered on position 34°54'42"N, 119°50'00"E, with depths of 19m.
5. Anchorage No. 5—Centered on position 34°53'42"N, 119°57'48"E, with depths of 20 to 22m.
6. Anchorage No. 6—Centered on position 34°54'53"N, 120°00'47"E, with depths of 22 to 26m.
7. Dangerous Goods Anchorage—Centered on position 34°49'12"N, 119°47'00"E, with depths of 16 to 18m, mud and sand.
8. Oil Tanker Anchorage—Centered on position 34°58'48"N, 119°51'36"E, with depths of 19 to 21m. An area of rocks extends NE into this anchorage.

Lianyungang VTS Reporting Boundary Limits

Caution.—A dangerous wreck lies within the harbor limits, 14 miles SW of Dashan Dao.

A dangerous wreck lies at the NE corner of Anchorage Area No. 1 and the NW corner of Anchorage Area No. 2 and may be best seen on the chart.

A spoil ground lies close SW of the outer approach fairway and is bounded by lines joining the following positions:

1. 34°50'19"N, 119°50'52"E.
2. 34°50'44"N, 119°51'44"E.
3. 34°49'58"N, 119°52'11"E.
4. 34°49'36"N, 119°51'18"E.

The Haizhouwan Fishing Ground has been established within 700 to 800m W of the W extremity of Dongxi Liandao (Xia-

oxishan) along the parallel of 34°46'N. Unauthorized vessels are not permitted to enter the fishing ground area. Vessels passing through the area are obliged to follow the instructions of the relevant authorities.

5.24 Xuwei Gang (34°37'N., 119°33'E.) is a newly-developed deep-water harbor for bulk cargo built on reclaimed land. Land reclamation and construction of new berths is taking place in the vicinity of Xuwei Gang.

Depths—Limitations.—Lianyungang Gang Xuwei Gangqu, is used by vessels up to 100,000 dwt. This channel is maintained at a depth of 13m and extends from close SE of Anchorage Area No. 1 through the following points:

a. 34°47'59"N, 119°39'25"E.
b. 34°40'08"N, 119°36'44"E.
c. 34°39'37"N, 119°36'34"E.
d. 34°37'32"N, 119°35'51"E.
e. 34°36'25"N, 119°35'28"E.
f. 34°36'40"N, 119°33'44"E.

Three liquid bulk berths available for use. Berth No. 131 with a length of 318m; Berth No. 132, with a length of 302m; and Berth No. 133, with a length of 180m, all have depths alongside of 13.8m, with plans for dredging to a depth alongside of 15.8m. Berths No. 131 and Berth No. 132 will accommodate vessels up to 50,000 tons; Berth No. 133 will accommodate vessels up to 10,000 tons.

A turning basin W of the liquid bulk berthing area has a radius 229m and a designed depth of 11m.

A general purpose berth (No. 1) is open for use and located NW of the liquid cargo berths. This berth is 340m in length with a berthing front at the head of the berth of 90m, with a depth of 15.6m. Berth No. 103 (34°36'37.2"N., 119°33'19.2"E) is 315m in length, with a depth 15.6m.

Regulations.—Vessels should maintain a listening watch on VHF channels 16 and 69 when approaching the harbor and alongside.

Lianyungang (Lianyun Gang) to Chang Jiang

5.25 From Lianyungang, the flat featureless coast extends 220 miles SSE to the vicinity of Cape Nelson (Changjiangkou Beijiao) and is intersected by numerous streams. For the last 110 miles it is fronted by an unsurveyed area of changing shoals and flats which extend as much as 50 miles offshore.

Guanhe Kou (34°29'N., 119°48'E.) channel lies about 20 miles SE of Lianyungang. The channel has a dredged depth of 6.1m for a distance of 15 miles inland; vessels of less than 10,000 dwt having drafts of up to 8m can transit the channel. Vessels should obtain permission to enter the channel from Lianyungang Traffic Control Center; the center can be contacted on VHF channel 69.

Anchorage.—Anchorage Area No. 1 has been established NE of Sheyanghe Kou and is bounded by lines joining the following position:

a. 33°55'36"N, 120°46'06"E.
b. 33°55'36"N, 120°49'24"E.
c. 33°54'00"N, 120°49'24"E.
d. 33°54'00"N, 120°46'06"E.

The anchorage is marked by lighted buoys at each corner with the buoy on the NW corner being equipped with a racon.

Caution.—A dangerous wreck is reported (2014) to be located in position 34°37'44"N, 119°19'09"E, depth unknown. Works in progress are also reported (2014) to be ongoing close to this wreck in position 34°37'44"N, 119°38'36"E.

A wreck, position approximate, is located ENE of Linhuai in position 34°18'24"N., 120°21'24"E.

Sheyanghe Kou (33°49'N., 120°29'E.), located approximately 30 miles S of Guanhe Kou, has two dangerous wrecks situated in the mouth of the river, as well as another wreck with superstructure showing located close NE.

Two breakwaters are being built (2016) to extend E from the N and S banks of the river mouth. The S breakwater starts at position 33°48'40.7"N, 120°28'43.8'E and extends ENE for about 4.2 miles to position 33°50'25.1"N, 120°33'21.8'E. The N breakwater starts at position 33°48'58.4"N, 120°28'33.0'E; extends NE to position 33°49'35.1"N, 120°29'17.5"E; and then ENE to position 33°50'51.9"N, 120°33'07.9'E, for a total distance of about 4.25 miles. This will leave an opening of approximately 900m between the N and S breakwaters for entry into Sheyanghe Kou.

5.26 Yangkou (32°32'N., 121°25'E.) is a newly-developed port with a natural depth of 17m. The ongoing (2014) development includes shore reclamation for an industrial area and a 7-mile long causeway connecting to Sun Island where most of the cargo operations will take place. Sun Island has a completed coal terminal capable of accommodating vessels as large as 100,000 dwt; there are plans to build two additional berths, also capable of handling vessels of the same size. The Jiangsu LNG Terminal is located on the NE side of Sun Island and is 428m in length with depths of 17m. The LNG terminal can accommodate tankers as large as 179,159 tons displacement with a beam of 55m, and an loa of 345m. There are also a series of smaller berths at the terminal as well.

Pilotage.—Pilots board in the following positions:

a. 32°31'00"N, 121°52'12"E.
b. 32°26'00"N, 121°43'00"E.

Contact Information.—The port authority can be contacted, as follows:

Yanghou Contact information	
Yanghou Port Authority	
Telephone	86-513-8451-0555
Facsimile	86-515-8452-0308
E-mail	ygk@yangkouport.com
Web site	http://www.yangkouport.com

5.27 Lusi (32°05'N., 121°45'E.), a new (2016) port located approximately 30 miles S of Yangkou, is presently under construction on reclaimed land with plans to have more than 100 berths capable of handling vessels between 10,000 and 100,000 dwt. There is presently one operating berth, 470m in length, able to handle coal imports. This berth is located on a pier that is 3,300m long. Pilots will board in position 31˝54'N, 122°07'E.

5.28 Dafeng (Dafeng Gang) (31°13'N., 120°47'E.) is a

newly-developed port intended as a trans-shipment facility for Lianyungang and Shanghai but will also become a medium-size independent port in its own right. the main cargo handled at Dafeng is coal but there will also be capability for bulk and general cargo. Containers are also handled; the intention is for the port to become a major container handling facility by 2020.

Depths—Limitations.—Three main terminals have been constructed within the port and are described, as follows:

1. **Grain Terminal.—**This is a T-shaped jetty at the end of a pier that extends 2.5 miles from the coast. The terminal has one bulk grain berth and one general purpose berth, both capable of accommodating vessels as large as 50,000 gt. The grain berth is 250m in length, and the general purpose berth 280m long. Depths alongside both berths is 14.1 m. The berths are identified as Berth No. 1 and Berth No. 2 from N to S. There is an elliptically shaped turning area, with length of 750m and width of 625m, and designed depth 11m located close off the terminal.

2. **General Purpose Terminal.—**This terminal is linked to the shore by a pier that is 1.65 miles long. There are five berths. The outer berths from N to S are General Purpose Berth No. 1 and Berth No. 2 with depths alongside of 14.1m, and the inner berths from N to S are Berth No. 3, Berth No. 4 and Berth No. 5, all with depths alongside 7.8m.

An elliptically-shaped turning area, with length of 670m and width of 558m, and designed depth 14.1m is located adjacent to the general purpose outside berths. Another elliptically-shaped turning area, with length of 372m and width of 248m, with designed depth of 7.8m, is located adjacent to the inner berths.

3. **Petrochemical Terminal.—**This terminal is linked to the shore by a pier that is 2 miles long. There are three berths, two outside and one inside. The two outside berths are named Berth No. 1 and Berth No. 2 from N to S; and each is 304m in length, with depths alongside of 13.9m. Both of these berths can accommodate hazardous chemical vessels up to 50,000 gt at each berth simultaneously. The inside berth No. 3, with length of 144m and depths alongside of 7.8m can accommodate one oil or chemical product vessel as large as 5,000 gt.

An elliptically-shaped turning area with length 549m and width of 457m, and designed depth 12.2m is located adjacent to the petrochemical outside berths. Another elliptically-shaped turning area with length of 342m and width of 285m, with designed depth 8.4m is located adjacent to the inner berth.

No. 2 Pier, sandwiched between the General Purpose Terminal and the Petrochemical Terminals, is 1.6 miles long. Depths alongside this pier are 14.3m.

Pilotage.—Pilotage is compulsory and pilots can be contacted on VHF channel 16. Pilots will board at one of the following positions:

1. Area No. 1—Centered on position 33°34'30"N., 120°47'00"E.
2. Area No. 2—Centered on position 33°20'42"N., 120°50'42"E.
3. Area No. 3—Centered on position 33°16'42"N., 120°52'12"E.

Contact Information.—The port can be contacted, as follows:

Defang Contact information	
Defang Port Authority	
VHF	VHF channel 16
Telephone	86-515-8355-5198
Facsimile	86-515-8355-5198
E-mail	dfg@zgdfg.com

Anchorage.—Four designated anchorages are located ENE of the port. For further details, see the table titled **Dafeng—Anchorage Areas**.

Dafeng—Anchorage Areas

Area	Bounded by Lines Joining the Following Positions	Minimum Depth
No. 1	a. 33°22'08"N, 120°51'15"E b. 33°22'28"N, 120°52'22"E. c. 33°20'32"N, 120°53'05"E. d. 33°20'14"N, 120°51'57"E.	8.4m
No. 2	a. 33°19'26"N, 120°51'22"E. b. 33°19'47"N, 120°52'44"E. c. 33°18'15"N, 120°53'21"E. d. 33°17'53"N, 120°51'56"E.	10.7m
No. 3	a. 33°17'51"N, 120°51'56"E. b. 33°18'13"N, 120°53'21"E. c. 33°16'40"N, 120°53'55"E. d. 33°16'18"N, 120°52'30"E.	11.9m
No. 4	a. 33°15'23"N, 120°53'02"E. b. 33°15'42"N, 120°54'16"E. c. 33°13'38"N, 120°55'01"E. d. 33°13'19"N, 120°53'47"E.	13.8m

Caution.—Large areas of works in progress are all around the port area so care must be taken to stay clear of dredges, work boats, and all other kinds of construction craft. An obstruction has been reported (2017) to lie in the S part of the anchorage.

Chang Jiang Approaches

5.29 Changjiang Kou Beijiao (Cape Nelson) (31°40'N., 121°51'E.), the N entrance point of the estuary to Chang Jiang, is low. Nanhui Zui, the S entrance point, lies about 49 miles to the S. The intervening water area is largely choked by numerous low-lying highly cultivated well-populated islands and by a substantial series of shoals and drying flats of sand and mud which, resulting from the continued deposit of downstream, river-borne sediment, are subject to constant change in character, position, and depth. Several channels lead through the estuary. The N lane of the estuary has a least depth of 7m. The S channel has three shoal areas with a least depth of 6m. The Huangpu River Channel has a depth of 10m up to Zhanghuabang, 8m up to Longhua, and 7m up to Minhang.

Nancao Shuidao (South Channel), the principal navigable

channel through the entrance to Chang Jiang, leads between the drying mud flats fronting the coastline NNW of Nanhui Zui and the numerous islets, shoals, and drying mud flats extending upstream from T'ung-sha Ch'ien-t'an (Tungsha Banks), the most extensive danger in the seaward approaches to the river.

Changjiang Kou Light Vessel (31°06'N., 122°32'E.) equipped with an automatic identification system (AIS), and racon, is located 9 miles SE of Jigu Jiao.

Nanzhi Lanby (30°58'N., 122°11'E.), equipped with an AIS, is moored in the S approach to Chang Jiang, 16 miles ENE of Nanhui Zui.

Three channels are used by shipping entering Changjiangkou. These are Nanzhi Hangdao, close to the S shore of Nancao Shuidao; Nancao Hangdao, N of Nanzhi Hangdao, in the deeper part of Nancao Shuidao; and Beicao Hangdao, which passes between Jiuduan Sha and Tongsha Qiantan, two extensive drying banks, and then through Bei Cao to merge with Nancao Hangdao.

Nanzhi Hangdao is entered at Nanzhi Lanby. It is used by inbound and outbound shallow draft vessels.

Nancao Hangdao is entered at Changjiangkou Light Vessel and provides a deep water route for two-way traffic. The channel through Nancao Hangdao, Nancao Shuidao, is buoyed. The inbound channel lies N of the centerline, and has a least charted depth of 4.8m; the outbound channel has a least charted depth of 5m and lies S of it. Each channel is 500m wide. Located at the NW end of the passage is **Jiuduan Light Float** (31°07'N., 121°57'E). This marks the intersection with Nanzhi Hangdao. A dredging program is in progress (2011) to deepen the Changjiang Kou Deep Water Channel to a depth of 12.5m from position 31°06.1'N, 122°29.7E, in the vicinity of Changjiang Kou Light Vessel, to position 31°22.5'N, 121°36.4E, abreast Changxing Dao.

Nancao Light Float (31°03'N., 122°16'E.) is moored in the S approach to Chang Jiang 10 miles SSW of Jigu Jiao.

Beicao Hangdao is also entered at the Changjiang Kou Light Vessel. It is a deep water channel for vessels which cannot use the channels through Nancao Shuidao because of their draft.

Yawosha Hangcao is a narrow part of the deep water channel that is dredged to a depth of 7.3m.

Tides—Currents.—Tidal currents in the seaward approach to Chang Jiang are rotary and turn in a clockwise direction. Rates vary from 1 knot at neaps to 4 knots at springs.

At the entrance to **Nancao Shuidao** (31°02'N., 122°11'E.), the tidal currents are rotary and turn in a clockwise direction. Rates vary from 1 knot at neaps and 2 to 3 knots at springs. There is a dangerous set on to the S bank of the river from about 5 to 7 hours after HW. During strong N winds, this set persists well within Nancao Shuidao.

In this same area, with fresh S winds, the tidal currents after HW set N of E much longer than in calm weather; with a fresh N wind the reverse is the case. During NE winds, the tidal currents set NW for a longer period and the water level is higher than usual; during SW winds the reverse is the case.

Within Nancao Shuidao, the tidal currents become mainly reversing with only a brief period of slack water. At strength, they follow the direction of the channel.

In the narrow part of the channel (31°07'N., 122°00'E,.) the flood current attains a maximum rate of 2 knots at neaps and 3 knots at springs, while the ebb current attains a maximum rate of 3 knots at neaps and 6 knots at springs.

Between the narrow part of the channel and the entrance to Huangpu Jiang, the rates of the tidal currents tend to be less, attaining a maximum rate of about 3 knots on the flood current and about 5 knots on the ebb current.

Depths—Limitations.—The least depth in Nancao Shuidao was reported to be 4.6m. Deep draft vessels have reported touching bottom in the vicinity of position 31°12'N., 121°52'E.

Vessels with a draft of 8.9m ordinarily transit Nancao Shuidao at HW. Vessels with a draft of 9.4m are able to transit the channel during the HW of spring tides. A vessel was reported to have transited Nancao Shuidao and to have berthed at Huangpu Jiang with a draft of 9.6m.

Vessels with a draft of less than 4.9m enter Nancao Shuidao at about LW, having regard for a current set to the S and SW. Vessels with a draft greater than 4.9m arrive at the entrance 2 to 3 hours before HW so as to take advantage of a current setting to the W and NW.

Pilotage.—Pilotage is compulsory for vessels both entering and leaving the river delta and is available 24 hours. Pilotage should be requested 72 hours prior to arrival.

The Chang Jiang Pilot Center may be contacted, as follows:

Chang Jiang Contact information	
Chang Jiang Pilots	
VHF	VHF channels 6, 8, 9, 15, 16, and 69.
Telephone	86-510-868-48808
Facsimile	86-510-868-24246
Web site	http://www.cj-pilot.com.cn

The North Channel pilots for deep-draft vessels approaching Beicao Hangdao board, as follows:

1. No. 1N—31°07'18"N, 122°25'30"E.
2. No. 1S—31°05'00"N, 122°25'30"E.
3. No. 2N—31°07'48"N, 122°36'36"E.
4. No. 2S—31°04'36"N, 122°36'36"E.
5. Inbound (bad weather)—31°10'48"N, 122°10'43"E.
6. Outbound (bad weather)—31°10'40"N, 122°10'37"E.

The South Channel pilots for vessels bound for Nancao Hangdao board, as follows:

1. No. 3N—31°03'24"N, 122°12'12"E.
2. No. 3S—31°02'29"N, 122°10'12"E.
3. Inbound (bad weather)—31°04'49"N, 122°03'20"E.
4. Outbound (bad weather)—31°04'19"N, 122°03'09"E.

The river pilots to all ports on the Chang Jiang board S of Baoshan anchorage in position 31°26.3'N, 121°29.2'E.

Vessels outbound from Chang Jiang exchange pilots in position 31°26.2'N, 121°28.8'E.

Harbor pilots will relieve the river pilots to dock the vessel in some ports on the Chang Jiang.

Additional pilot boarding positions are located within the five designated anchorage areas located close S of the buoyed channel to Nancao Hangdao and are described in the table titled **Shanghai—Outer Anchorages** (**Changjiang—Pilot Boarding Positions within Anchorage Areas**) in paragraph 5.30.

Regulations.—The Shanghai Maritime Safety Administration

(MSA) has determined that the following VHF channels are to be monitored and used when reporting and to receive information concerning safety of navigation throughout the Chang Jiang Shanghai, Beigang, and Beizhi water areas:

1. VHF channel 6 W of 121°51'E.
2. VHF channel 16 E of 121°51'E.

This requirement from the Shanghai MSA is in addition to all other requirements set forth by various VTS requirements for both the river area and Shanghai port.

Signals.—Inbound vessels using Beicao Hangdao should exhibit a black cylinder by day or two all round violet lights in a vertical line by night until reaching Lighted Buoy No. 270. Outbound vessels should exhibit the same signals between Lighted Buoy H46 and Lighted Buoy No. 261.

When arriving at the quarantine anchorage at night, a vessel seeking immediate clearance shall display three vertical red lights. When clearance is not required until morning, the vessel will display a red light over a white light.

Anchorage.—Three designated anchorages are located close E of the approaches to Chang Jiang Kou with their boundaries, as follows:

1. Changjiang Kou No. 1—Bounded by a line joining the following positions:
   a. 31°13'10"N, 122°34'32"E.
   b. 31°13'10"N, 122°40'00"E.
   c. 31°00'07"N, 122°40'00"E.
   d. 31°00'07"N, 122°34'32"E.

   Six additional anchorage areas designated within the E part of Changjiang Kou No. 1 are centered on the positions listed below:
   a. 31°12'44"N, 122°39'34"E.—No. 1.
   b. 31°12'44"N, 122°38'39"E.—No. 2.
   c. 31°11'56"N, 122°39'34"E.—No. 3.
   d. 31°11'56"N, 122°38'39"E.—No. 4.
   e. 31°11'08"N, 122°39'34"E.—No. 5.
   f. 31°11'08"N, 122°38'39"E.—No. 6.
2. Changjiang Kou No. 2—Bounded by a line joining the following positions:
   a. 31°04'10"N, 122°34'33"E.
   b. 31°04'10"N, 122°40'00"E.
   c. 31°00'17"N, 122°40'00"E.
   d. 31°00'17"N, 122°34'33"E.
3. Changjiang Kou No. 1 (Maodi)—Bounded by a line joining the following positions:
   a. 31°16'00"N, 122°25'00"E.
   b. 31°16'00"N, 122°30'00"E.
   c. 31°11'00"N, 122°30'00"E.
   d. 31°11'00"N, 122°25'00"E.

See paragraph 5.30 for details about many additional anchorages located throughout the river area.

Changjiang Kou No. 1 (31°10.65'N, 122°37.30'E), for vessels using Main Channel through Beicao Shuidao, has depths of 19 to 32m. An obstruction lies in the E part of the anchorage.

Vessels are cautioned to exercise particular care when navigating within the sea anchorages off the entrance to Chang Jiang in so far as tidal currents are rotary and imperfectly predictable and sunken wrecks or other obstructions are numerous and dangerous.

A dangerous wreck is located near the center of Chang Jiang Kou Anchorage No. 2 in position 31°02'42"N, 122°36'51"E, in depths of 15.2m.

Caution.—Vessels are cautioned that the prevailing winds and weather modify to a great extent the regularity of both the times of high and LW, and the duration, direction, and rate of the tidal currents.

A dangerous wreck lies in the vicinity of the intersection of Nanzhi Hangdao and Nancao Hangdao, in 13m of water.

A dangerous wreck lies 0.8 mile ENE of Nanzhi Lanby.

Several wrecks with depths unknown are situated 20 to 23 miles E and ESE of Changjiang Kou Beijiao.

Vessels are cautioned that, during periods of fog or thick weather, navigation within the estuarine approaches to Chang Jiang is accompanied with great danger in consequence of the constant shifting of shoals, the continual change in channel limits and the frequent displacement of aids to navigation.

A power cable, with a vertical clearance of 40m, crosses Hengsha Tongdao in position 31°21'N, 121°48'E.

Jigu Jiao (Chi-ku Chiao) (Amherst Rocks) (31°10'N., 122°23'E.), a group of dark-colored above-water rocks which are reported radar conspicuous at 9 miles, lie about 31 miles NE of Nanhui Zui and constitute the most seaward danger in the immediate approaches to Chang Jiang. The largest rock is 12m high and is marked by a light shown from a white square concrete structure on the rocks; a racon transmits from the light structure.

Vessels are recommended to give the rocks a wide berth during nighttime and periods of poor visibility.

Newly-built wind farm platforms have been constructed in the S part of the Yellow Sea on the N approaches to Shanghai and should be avoided. The platforms are of a yellow multipile base, with the upper part of columns consisting of concrete with rubber fenders around the base. They are located in position 33°00’57.0"N, 121°20’58.8"E and position 33°02’44.4"N, 121°27’25.2"E and at high water they stand 8.75m above the water surface, with warning lights atop flashing between 20 to 60 times per minute.

Shanghai (31°13'N., 121°30'E.)

World Port Index No. 59970

5.30 Shanghai, the largest and most important port in China, lies on the banks of the river Huangpu Jiang at a distance of about 12 miles from the juncture of Huangpu Jiang with the S side of the estuary to Chang Jiang. The port has a vast hinterland to the W that covers the nation’s central area from E to W, and the highly-developed Yangtze River Delta and coastal area. The average sea level elevation of the alluvial plain of this river delta is 4m.

Yangshan, a new deep-water container terminal with an LNG terminal and oil jetties, is located on Shenijiawan, a small island close E of Yangshan Island, about 43 miles S of the Yangtze River Delta. Yangshan is a sub-port of Shanghai. See paragraph 5.31 for details.

Shanghai Home Page
http://www.shanghaiport.gov.cn/English

Winds—Weather

In the summer, winds from the SE are frequent. In the winter, winds are usually from between NW and NE. Gales from the NE, with a wind strength averaging 20 knots or more, sometimes last as long as a week during the winter. The winters are damp and temperatures sometimes fall below freezing.

During spring or autumn, sudden changes of temperature occur, often as much as 16.7°C, in a relatively short period of time. Summers are hot, especially between the middle of July and the middle of September. Typhoons can occur occasionally from July through September, although work in the harbor is rarely affected due to the shelter provided by the tall buildings of the city.

Fog occurs from October through May. It is the most frequent in December and is generally dispersed by 1000.

Ice

The port is ice-free year round.

Tides—Currents

Tides are semidiurnal, with a range of 2.5 to 4m. In the anchorage close within the entrance to Huangpu Jiang, the flood current begins from 20 to 40 minutes after LW at springs and from 1 to 1.5 hours after LW at neaps. The ebb current begins from 1 to 2 hours after HW at springs and from 1 to 2 hours after HW at neaps. The tidal currents start on both banks before they commence at mid-channel.

At Shanghai, under normal weather conditions, there is practically no slack water between the end of the ebb current and the start of the flood current at spring tides. Both currents attain a rate of 3 to 4 knots at springs.

At Shanghai, the flood current runs from about 2 hours after LW until about 3 hours after HW at the entrance to Huangpu Jiang. The ebb current runs the remainder of the tidal period. After heavy rains, the flood current runs from about 3 hours after LW until about 3 hours after HW at the entrance to Huangpu Jiang, and may attain a rate of 4 knots.

Depths—Limitations

The port has undergone considerable development and modernization in recent years and expansion is continuing.

The outer port is entered through channels marked by buoys in the Chang Jiang estuary. The inner port is entered through Huangpu Jiang. Specific limits and depths of the channels are best seen on the chart.

The channels leading into the outer port consists of a South Channel and North Channel. The South Channel is about 53 miles long, 500m wide, mud and sand bottom. Three shoal areas are located within this channel; Tongsha and Jiangyu with depths 6m and Yawosha with depth 7m. However, this channel is not maintained on a regular basis anymore and can only reliably accommodate vessels under 10,000 dwt. The North Channel is 17.5 miles in length, 250m wide with depth of 7.5m, enabling use by vessels as large as 20,000 dwt at HW.

Traffic control for the port of Shanghai is carried out through Main Channel, Auxiliary Channel, and Small Vessel Channel. Vessels less than 1,600 gt are restricted to using Small Vessel Channel and Auxiliary Channel but all other vessels may use any one of the channels.

The Main Channel comprises Beicao Shuidao including Beicao Hangdao and the Changjiang Kou Deep Water channel, leading to Waigaoqiao Hangdao through Nangang Shuidao. Inbound passage through this channel should be commenced between 3 and 2 hours before HW at Hengsha Dao. Outbound vessels should commence passage between 2 and 1 hour(s) before HW at Hengsha Dao.

The Auxiliary Channel comprises the downstream and upstream channels of Nancao Shuidao until joining Main Chabbek through Nangang Shuidao.

Shanghai port is presently divided into five major working zones, as follows:

1. The Chang Jiang (Yangtze) River Estuary.
2. The mouth of the Huangpu River at Wusongkou.
3. The Waigqoqiao coastline.
4. The Pudong coastline.
5. Yangshan—Reclaimed land reached by a road bridge (Donghai Bridge) nearly 20 miles long located SSE of Shanghao. See paragraph 5.31 for a detailed discussion of this area.

For detailed descriptions of the cargo-handling facilities see tables titled **Shanghai Berth Information—Dry Cargo Berths** and **Shanghai Berth Information—Tanker Berths**.

Aspect

Huangpu Jiang (Whangpoo River) is an important tidal stream which is entered through an extensive and periodically submerged training wall at Wusong Kou. This river wanders through the soft mud of a low, adjacent alluvial plain for a distance of about 74 miles to a juncture with Yun Ho, a lengthy inland waterway. The W or left bank is often referred to as the Shanghai side, while the E or right bank is referred to as the Pudong side.

Wusong Kou (31°23'N., 121°31'E.), the entrance to Huangpu Jiang, lies between training walls 0.4 mile apart. On the S side, the area backing the training wall has been reclaimed. On the N side, the training wall is backed by a drying flat. A conspicuous tower stands near the N entrance point of the river. Range lights in line, bearing 250°, and leading through the entrance channel, are shown from the W bank of the river, about 0.7 mile SW of the head of the N training wall.

Shanghai Berth Information—Dry Cargo Berths				
Berth	Pier Length	Depth Alongside	Maximum Vessel Size	Remarks
Minsheng				

Shanghai Berth Information—Dry Cargo Berths				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 1	200m	10.0m	10,000 dwt	Assorted dry cargo. Reported closed.
No. 2	191m	10.0m		
No. 3	171m	9.5m		
No. 4	213m	9.5m		
Yangjing				
Yangjing	231m	10.0m	10,000 dwt	Containers.Reported closed.
Huangpu Wharf				
Nos. 1 and 2	149m	8.5m	—	Passenger vessels.
Zhujiamen				
Coal Berth	302m	9.5m	25,000 dwt	Shanghai Port Zhujiamen Coal Terminal.
Passenger Berth	1,197m	10.0m	70,000 dwt	Shanghai International Cruise Terminal. Cruise vessels.
Waihong-qiao	117m	10.0m	5,000 dwt	Shanghai International Cruise Terminal. Passengers.
Xinhau				
No. 1	176m	11.0m	25,000 dwt	Ore.
No. 2	176m	11.0m	25,000 dwt	Ore.
No. 3	176m	10.3m	25,000 dwt	Ore.
No. 4	176m	11.0m	25,000 dwt	Steel and general cargo.
No. 5	176m	10.8m	25,000 dwt	Steel and general cargo.
No. 6	176m	10.9m	25,000 dwt	Steel and general cargo.
No. 7	149m	11.4m	25,000 dwt	Chemical fertilizer.
No. 8E	201m	11.0m	25,000 dwt	Steel and general cargo.
No. 9E	179m	10.8m	25,000 dwt	Steel and general cargo.
No. 10W	174m	7.0m	1,000 dwt	Grain and general cargo.
Gongqing				
No. 1	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 2	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 3	100m	3.0m	3,000 dwt	Coal and general cargo.
No. 4	100m	3.0m	3,000 dwt	Coal and general cargo.
No. 5	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 6	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 7	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 8	100m	4.0m	3,000 dwt	Coal and general cargo.
No. 9	100m	4.0m	3,000 dwt	Sand and general cargo.
Longwu				
No. 1	167m	8.5m	10,000 dwt	Steel and general cargo.
No. 2	167m	8.5m	10,000 dwt	Steel and general cargo.
No. 3	167m	8.5m	10,000 dwt	General cargo.
No. 4	167m	8.5m	10,000 dwt	General cargo.

Shanghai Berth Information—Dry Cargo Berths				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 5	167m	8.5m	10,000 dwt	General cargo.
No. 6	167m	8.5m	10,000 dwt	Steel and general cargo.
No. 7	180m	8.5m	10,000 dwt	General cargo.
No. 8	180m	8.5m	10,000 dwt	General cargo.
Waigaoqiao New Container Terminal				
No. 1	200m	10.5m	25,000 dwt	Containers.
No. 2	180m	10.5m	25,000 dwt	General cargo.
No. 3	180m	10.5m	25,000 dwt	General cargo.
No. 4	180m	10.5m	25,000 dwt	Containers.
SCT (Shanghai Container Terminals) Jungonglu Terminal				
Nos. 1-4	857m	9.7m	—	Containers.
Jungonglu Cargo Wharf				
No. 6	227m	7.9m	10,000 dwt	Steel and general cargo.
No. 7	172m	8.0m	10,000 dwt	Steel and general cargo.
No. 8	172m	8.1m	10,000 dwt	Ore and general cargo.
No. 9	172m	8.3m	10,000 dwt	Ore and general cargo.
SCT (Shanghai Container Terminals) Baoshan Terminal				
Nos. 1-3	640m	9.4m	10,000 dwt	Containers.
Baoshan Basin Wharves				
No. B1	150m	9.4m	10,000 dwt	Timber and general cargo.
No. B5	180m	9.4m	10,000 dwt	General cargo.
No. B6	180m	9.4m	10,000 dwt	General cargo.
No. B7	90m	4.0m	1,000 dwt	General cargo.
No. B8	90m	4.0m	1,000 dwt	General cargo.
Baoshan Ro-Ro Berths				
Ro-ro Pier	315m	—	—	Vehicle/passenger ferries and ro-ro freight vessels. T-shaped pier with two outer berths and two inner berths.
Inner Wharf	37m	—	—	Vehicle/passenger and ro-ro ferries.
Ferry Jetty	60m	—	—	Vehicle and passenger ferries.
SIPG Zhendong Container Terminal—Zhendong (Pudong New Area)				
Sanhai Berth	—	13.7m	—	Containers.
Nos. 1-5	1,565m	12.0m	—	Containers.
Shanghai Pudong International Container Terminals Ltd.—Waigaqaio Pudong (New Area)				
Nos. 1-3	900m	10.7m	—	Containers.
SIPG East Container Terminals (SECT)				
Nos. 1-4	1,250m	11.3m	—	Containers. Automobile terminal at the westernmost berth
Barge berths	187m	—	—	Transshipment for containers with two barge cranes.

Shanghai Berth Information—Dry Cargo Berths				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Shanghai Mingdong Container Terminal (SMCT)				
Nos. 1-6	2,068m	12.8m	—	Containers.
Barge berths	190m	4.5m	3,000 dwt	Transshipment for containers.
SIPG Haitong International Automobile Terminal ZhouhaiRoad Terminal				
No. 1	219m	13.2m	—	PCC (pure car carrier) for new vehicles.
SIPG Haitong International Automobile Terminal Gangjian Road Terminal				
Nos. 02-03	278m	—	—	PCC (pure car carrier) for new vehicles.
Waigaoiqiao Power Station				
Coal berth	500m	12.8m	—	Coal.
Waigaoiqiao Power Station No. 2				
Coal berth	230m	—	—	Coal.
Waigaoiqiao Power Station No. 3				
Coal berth	280m	—	—	Coal.
Shanghai Zhenua Heavy Industries Company, Ltd.—ZMPC Terminal (Changxing Dao)				
ZMPC	3,500m	—	—	Multiple berths for discharge of raw materials and loading of container-handling equipment.
Luojing General Cargo Terminal				
Nos. 1-6	1,225m	—	—	Steel products.
Nos. 7-9	440m	—	—	Steel products.
No. 11	410m	—	—	Used for transshipment of steel products.
Luojing Ore Terminal				
Nos. 1-2	740m	—	200,000 dwt	Iron ore.
Luojing Coal Terminal				
Nos. 1-3	720m	—	120,000 dwt	Steel products.
Nos. 4-5	212m	—	10,000 dwt	Steel products.
Nos. 6-8	360m	—	10,000 dwt	Used for transshipment of steel products.
Nos 9-11	360m	—	5,000 dwt	Steel products.
Shidongkou Ferry Terminal				
Ferry jetty	136m	—	—	Ferries and ro-ro.
Huaneng Shanghai Shidongkou Second Power Plant				
Coal jetty	145m	—	30,000 dwt	Coal.
Baosteel All-weather Finished Product Terminal				
Outer jetty	420m	—	50,000 dwt	Steel products.
All-weather wharf	293m	—	5,000 dwt	Steel products.
Baosteel Raw Materials Terminal				
Nos. 1-2	644m	12.5m	200,000 dwt	Iron ore.
Nos 8-9	621m	12.5m	200,000 dwt	Iron ore.
No. 10	360m	12.5m	200,000 dwt	Iron ore.

Shanghai Berth Information—Dry Cargo Berths				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Inshore Arm berths	377m	9.0m	—	Iron ore.
Baosteel Integrated Terminal				
Nos. 1-4	600m	—	50,000 dwt	Steel products.
Baosteel Finished Product Wharf				
Nos. 3-5	520m	—	—	General cargo.
Shanghai Wusongkou International Cruise Terminal				
Nos. 1-2	744m	11.0m	220,000 dwt	Passengers/cruise vessels.
Nos. 3-4	—	—	—	Under construction/cruise terminal.
SCT (Shanghai Container Terminals) Zhanghuabang Terminal				
SCTZ Nos. 1-4	784m	10.5m	10,000 dwt	Containers.
Zhanghuabang Cargo Wharf				
Z05	180m	11.0m	10,000 dwt	Steel products and bulk cargo.
Z06	180m	11.0m	10,000 dwt	Coal, iron ore, and bulk cargo.
Z07	180m	11.0m	10,000 dwt	Coal, iron ore, and bulk cargo.
Gongqing Terminal				
Cargo berth	800m	4.0m	—	General cargo and containers.
Shanghai Cement Pipe Manufacturing Plant				
Cement berth	86m	—	—	Cement.
Shanghai Waigaoqiao Liangyou Terminal				
No. 1	350m	13.0m	50,000 dwt	Grain and vegetable oil.
Inner berth	206m	—	5,000 dwt	Grain and vegetable oil.

For the first 7 miles within the entrance to Huangpu Jiang, a good deal of reclamation has taken place. This is particularly so on the W bank opposite the entrance to **Gaoqiao Gang** (31°20'N., 121°33'E.), where the river along that stretch is narrowed to 0.3 mile in places. There is a conspicuous chimney on the E bank about 1 mile above Gaoqiao Gang.

A coal storage dock is situated at the Gaoqiao power plant has two jetties and one berth. See the table titled **Shanghai Berth Information—Dry Cargo Berths** for details.

Shanghai Berth Information—Tanker Berths							
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel**				**Remarks**
			Size	**LOA**	**Beam**	**Draft**	
SINOPEC Shanghai Gaoqiao Terminal							
Gaoqiao	220m	11.0m	50,000 dwt	185m	—	9.5m	LPG, clean products, chemicals, and aviation fuel.
Baosteel							
Baosteel Berth	230m	—	—	128m	—	8.5m	Clean products.
Chlor-Alkali Terminal							
Chemical Berth	—	—	—	—	—	—	Chemicals.
Qingingshi Tank Terminal							

Shanghai Berth Information—Tanker Berths							
Berth	Pier Length	Depth Alongside	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
Product Jetty	90m	9.5m	24,000 dwt	180m	32m	9.5m	Aviation fuel.
Eastern Tankstore Shanghai							
No. 1	—	—	35,000 dwt	250m	—	9.0m	Clean products and chemicals.
No. 2	—	—	35,000 dwt	244.6m	42m	9.0m	Chemicals.
No. 3	205m	—	3,000 dwt	100m	—	6.0m	Chemicals.
Haibin Tanker							
Petroleum Berth	220m	11.0m	50,000 dwt	220m	—	9.5m	Petroleum products.
Shanghai Puhang Petrochemical Terminal							
Petrochemical Jetty (2 berths)	375m	9.5m	50,000 dwt	350m	—	10.0m	Aviation fuel and clean products.
Orientank Terminal							
Petroleum Jetty	261m	14.0m	50,000 dwt	220m	32m	—	Petroleum products, chemicals, and vegetable oils.
Shidongkou Gas Terminal (SGT)							
Gas Berth	89m	—	1,000 dwt	120m	—	8.0m	Chemical gases (only for domestic trade).
Tanker jetty	290m	—	30,000 dwt	—	—	—	Tankers.
Huarongda Petrochemical Storage Terminal							
No. 1	55m	5.8m	3,000 dwt	120m	20m	—	—
Shanghai Wuhaogou LNG Terminal							
LNG Berth	300m	—	—	—	—	—	—
SINOPEC Shanghai Gaoqiao Company							
No. 1	133m	—	—	—	—	—	Crude oil.
No. w1	210m	—	—	—	—	—	Crude oil.

Donggou Gang (31°17'N., 121°34'E.) is a creek on the E bank, 2 miles above Gaoqiao Gang. The wharves of oil installations and the entrance to a dry dock are situated along the bank between 1 and 2 miles above Donggou Gang.

Lujiazui (31°14'N., 121°29'E.) is a point on the E bank around which the river turns sharply SE. In this vicinity and in parts of the river above this point, the width of the navigation channel is 0.3 mile or less.

The Bund is on the W bank 0.3 mile SW of Lujiazui. Along it are many fine buildings, including the Customs House, with its high clock tower.

Pilotage

Pilotage is compulsory. Pilots should be requested and the vessel ETA reported through ships agents 72 hours before arrival then updated daily, including vessel draft, between the hours of 0900 and 1000.

Vessels may contact the North or South Pilot Station via VHF channel 69 after receiving instructions and advise them of vessel ETA at the pilot boarding station, including the vessel's loa and draft. If vessels are anchored at the Wusong or Baoshan anchorages, pilots can be contacted on VHF channel 15.

Pilots will board, as follows:

1. North Channel (Beicao Hangdao):
   a. 31°07'18"N, 122°25'30"E.—No. 1(N).
   b. 31°05'00"N, 122°25'30"E.—No. 1(S).
   c. 31°07'48"N, 122°36'36"E.—No. 2(N).
   d. 31°04'36"N, 122°36'36"E.—No. 2(S).
   e. 31°10'48"N, 122°10'43"E.—Inbound during bad weather.
   f. 31°10'40"N, 122°10'37"E.—Outbound during bad weather.
2. South Channel (Nancao Hangdao):
   a. 31°03'24"N, 122°12'12"E.—No. 3(N).
   b. 31°02'29"N, 122°10'12"E.—No. 3(S).
   c. 31°04'49"N, 122°03'20"E.—Inbound during bad weather.

d. 31°04'19"N, 122°03'09"E.—Outbound during bad weather.

The pilots can be contacted, as follows:

Shanghai Contact information	
Shanghai Pilots	
Call sign	North Pilot Station (North Channel)
	South Pilot Station (South Channel)
VHF	VHF channels 6, 9, 15, 16, and 69
Telephone	86-21-6595-9287
	86-21-6595-9175
	86-21-6595-2863
	86-1-5026800002—North Pilot Station mobile
	86-1-5026800003—South Pilot Station mobile
Facsimile	86-510-868-24246
Web site	pilots.sh@gmail.com
E-mail	pilots@public4.sta.net.cn

Regulations

Traffic Separation Schemes (TSS) have been established in almost all of the approaches to the various port areas of Shanghai, including Beicao Shuidao (area N of Jiuduan Sha), Nancao Shuidao (area between Jiangyanan Sha and the mainland), extending into the deepwater channel S of Changxing Dao, also including approaches from the N. A TSS also has been established within the Huangpu Jiang. All of these areas are best seen on the charts. None of these TSS areas have been adopted by the IMO, but they have been established upon the authority of the Government of the Peoples' Republic of China in the interest of safe navigation. Mariners are advised to assume Rule 10 of the International Regulations for Preventing Collisions at Sea (1972) applies.

Navigation is prohibited within 500m of the Changjiang Light Float.

Speed must be regulated so that no damage is done to the wharves, banks, any kind of structure, or other vessels, and reduced to a minimum when in the vicinity of vessels berthing, discharging, or loading dangerous cargo, salvaging, or dredging.

Vessels traveling against the tidal current must give way to those traveling with the current.

Vessels are prohibited to overtake another vessel in Huangpu Jiang. Meeting situations in the bends of the river should be avoided.

Vessels undergo quarantine inspections at the quarantine anchorage at the entrance to Huangpu Jiang. This inspection is not required if arriving from another Chinese port.

In very bad weather, the inspection may be postponed until the vessel has berthed, in which case the quarantine flag is flown while the vessel is proceeding in an upriver direction.

The Shanghai Maritime Safety Administration (MSA) has determined the following VHF channels are to be monitored and used when reporting and to receive information concerning safety of navigation throughout the Chang Jiang Shanghai, Beigang, and Beizhi water areas:

1. VHF channel 6—W of 121°51'E.
2. VHF channel 16—E of 121°51'E.

This requirement from the Shanghai MSA is in addition to all other requirements set forth by various VTS requirements for both the river area and Shanghai port.

Vessel Traffic Service

A Vessel Traffic Service (VTS) is in operation at all times for the Shanghai Port Area and is comprised of six areas, including the Shanghai Reporting System and the Wusong VTS. The combination of the Shanghai Reporting System and the Wusong VTS is also referred to as the Shanghai VTS.

Participation in the Shanghai Reporting System is mandatory for the following:

1. All passenger vessels.
2. All non-passenger vessels 300 gt and larger.

Note that any vessels less than 300 gt in size may participate in the VTS voluntarily.

The language to be used when communicating with the VTS is to be either English or Mandarin Chinese.

The Shanghai Reporting System includes the area bounded by a line joining the following points:

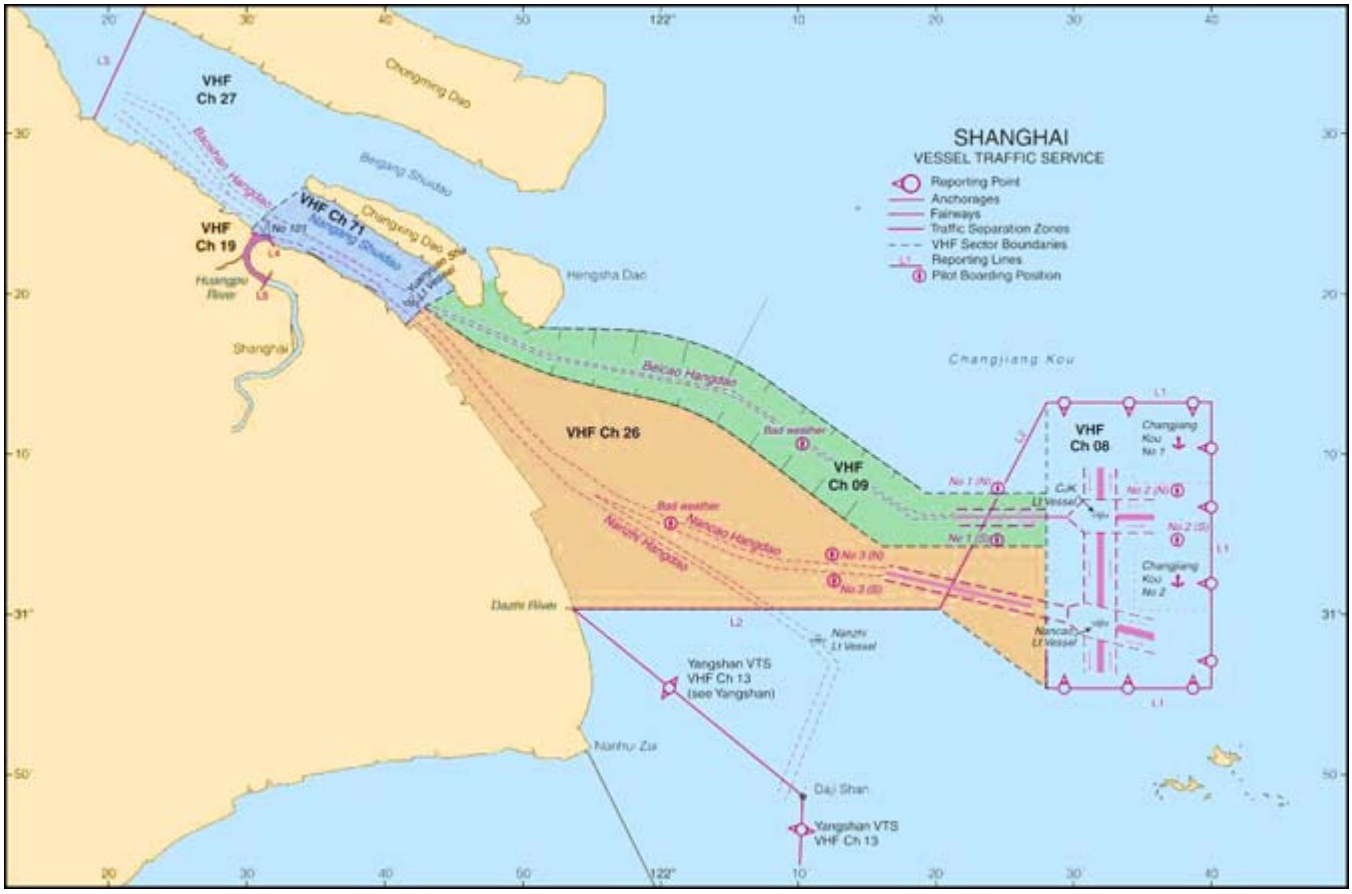
a. 31°13'10"N, 122°40'00"E.
b. 30°55'28"N, 122°40'00"E.
c. 30°55'28"N, 122°28'00"E.
d. 31°13'10"N, 122°28'00"E.

The Wusong VTS provides the following information:

1. Local navigation warnings (broadcast only).
2. Hydrometeorological information (broadcast only).
3. Vessel traffic organization.
4. Information service (only on request).

The Wusong VTS is divided into six areas, each with its own designated communication VHF frequency as, follows:

1. **VHF channel 8** (backup—VHF channel 65) covers entire Shanghai Reporting System area as defined earlier.
2. **VHF channel 9** covers the following area:
   a. East of a line from Yuanyuan Light vessel (31°18'58"N, 121°42'49"E.) to Lighted Buoy D45, extending to Changxing Dao.
   b. West of longitude 122°08'00"E.
   c. South of the line from the N bank of the Changjiang Kou Deep Water channel and position 31°07'49"N, 122°28'00"E.
   d. North of the line connecting Yuanyuan Sha Light vessel; Qiandi Lighted Buoy 16A; the S bank of the Changjiang Kou Deep Water channel at position 31°04'04"N, 122°16'24"E; and position 31°04'04"N, 122°28'00"E.
3. **VHF channel 26** covers the following area:
   a. East of a line from Yuanyuan Light vessel to Lighted Buoy D54.
   b. West of longitude 122°08'00"E.
   c. South of the line connecting Yuanyuan Sha Light vessel; Qiandi Lighted Buoy 16A; the S bank of the Changjiang Kou Deep Water channel in position



Shanghai (Wusong) Vessel Traffic Service

31°04'04"N, 122°16'24"E; and position 31°04'04"N, 122°28'00"E.

4. **VHF channel 71** (backup—VHF channel 61) covers the following area:

a. East of a line connecting Lighted Buoy Q10; Lighted Buoy No. 65; Lighted Buoy No. 66; Lighted Buoy A72; position 31°24'26"N, 121°30'48"E; and Wusong Kou Hetang Light (31°23'47"N, 121°31'08"E.).

b. West of a line connecting Lighted Buoy D45 and Lighted Buoy A54, then extending to the coastline.

c. North of the line connecting Wusong Kou Hetang Light, Lighted Buoy No. 101, Lighted Buoy 102, and position 31°23'11"N, 121°31'51"E.

5. **VHF channel 27** covers the following area:

a. East of Shanghai harbor limit line at Liuhe Kou.

b. West of the line connecting Lighted Buoy No. 65; Lighted Buoy No. 66; Lighted Buoy A72; position 31°24'26"N, 121°30'48"E;and Wusong Kou Hetang Light.

c. South of the line connecting Lighted Buoy No. 65 and the northbound limit line of Baoshan Hangdao.

d. Baoshan North channel.

e. Liuhekou Precautionary Area.

f. The fairway between Shanghai and Chonhming.

6. **VHF channel 19** covers Huangpu Jiang between Caoling and the line connecting Wusong Kou Hetang Lighted Buoy No. 101, Lighted Buoy No. 102, and position 31°23'11"N, 121°31'51"E.

This can also be seen on the graphic titled **Shanghai (Wusong) Vessel Traffic Service**.

The Wusong VTS has established five Reporting Lines, as follows:

1. **Reporting Line L1**—Lines describing the boundary of the Shanghai Reporting System Area joining the following positions:

a. 31°13'10"N, 122°40'00"E.

b. 30°55'28"N, 122°40'00"E.

c. 30°55'28"N, 122°28'00"E.

d. 31°13'10"N, 122°28'00"E.

2. **Reporting Line L2**—A line joining the following positions:

a. 31°00'00"N, 121°56'00"E.—entrance to the DaZhi River

b. 31°00'00"N, 122°20'00"E.

c. 31°13'10"N, 122°28'00"E.

3. **Reporting Line L3**—The Shanghai Harbor Limit line at Liuhe Kou.

4. **Reporting Line L4**—A line connecting Wusong Kou Hetang Light, Lighted Buoy No. 102, and position 31°23'11"N, 121°31'51"E.

5. **Reporting Line L5**—Huangpu Jiang at Caoling.

See the table titled **Shanghai (Wusong) VTS—Reporting Requirements** for reporting requirements.

Shanghai (Wusong) VTS can be contacted, as follows:

Shanghai Contact information	
Shanghai (Wusong) VTS	
Call sign	Wusong VTS
VHF	VHF channels 8, 9, 19, 26, 27, 61, 65, and 71
Telephone	86-21-5667-1249
Facsimile	86-21-5667-4045
E-mail	vts-ws@shmsa.gov.cn

Signals

Signals are displayed, as follows:

1. **Tidal Signals.—**Tidal signals are displayed from a dial standing near the training wall extending from the N entrance point of Huangpu Jiang. A radial arm pointing to Arabic numerals arranged from 0 to 6 indicates the tidal rise in meters. A neon indicator shows whether a falling or rising tide.

2. **Traffic Signals.—**A large red flag hoisted at the Wusong Kou signal station indicates that a large number of small craft are maneuvering within the entrance to Huangpu Jiang. This signal should be taken to mean navigate with extreme caution.

3. **Dredge Signals.—**Dredges operating in the center of the river display a red flag over a black triangle during the day and three red lights, forming a triangle, at night. Pump vessels operating along the bank of the river display a red flag over a black triangle during the day, and three white lights, forming a triangle, at night.

Dredges operating on the Pudong side of the river display a red flag over a black ball during the day. At night, three lights, forming a triangle, with the apex being a white light and the base being red lights, are shown.

Dredges operating on the Shanghai side of the river display a red flag over two black balls by day. At night, three lights, forming a triangle, with the apex being a red light and the base being white lights, are shown.

4. **Salvage Vessel Signals**.—By day, salvage vessels display a square green flag. When working, they also display appropriate signals from the International Code of Signals and, when a diver is working below the surface, a square red flag.

At night, salvage vessels when working display a green light over a white light or, when a diver is working below the surface, two green lights displayed vertically.

5. **Quarantine Signals**.—A vessel arriving at the quarantine anchorage at night seeking immediate clearance will display three red lights in a vertical line. If the vessel is not seeking clearance until the morning, a red light over a white light is displayed.

Shanghai (Wusong) VTS—Reporting Requirements	
Reporting Time	**Information Required**
Whenever vessel crosses one of the Reporting Lines.	1. Vessel name. 2. Call sign. 3. Maximum draft. 4. Destination.
Before anchoring.	1. Vessel name. 2. Location of anchoring or unberthing. 3. Time.
After anchoring.	
Before departing berth.	
Any time a vessel observes or is involved in any of the following incidents:. 1. Traffic accidents. 2. Pollution incidents. 3. Engine damage. 4. Personal injury. 5. Any other emergency.	1. Vessel name. 2. Nationality. 3. Location of accident or event. 4. Category of accident or event. 5. Engine damage details. 6. Personal injury details. 7. Confirm if assistance needed.
Note.—Vessels equipped with AIS or if they are departing the Shanghai Reporting System area do not need to make reports.	

Shanghai—Port Signals	
Signal	**Meaning**
Flag B	Dangerous or inflammable cargo on board. At night, a red light is to be hoisted.
Flag D	Vessels entering or leaving a dockyard. At night, three lights, white, red, red, vertically disposed, are to be hoisted.

Shanghai—Port Signals	
Signal	**Meaning**
Flag G	Pilot required.
Flag H	Pilot on board.
Flag I	Fumigation officer required.
Flag L	Customs officer required.
Flag N	Harbor officers required.
Flag P	To sail soon.
Flag U	Tug required.
Flag R	Water boat required.
Flag W	Medical officer required. In case of emergency a black ball should be hoisted under the flag. At night, three lights, white, red, white, vertically disposed, should be hoisted, and one short and two long blasts on the siren or whistle should be sounded.
Flag Y	Mail on board.
Second substitute	Ship's surveyors required.
Flags DV	Leakage on board, pumping boat required. At night, three lights, red, green, green, vertically disposed, should be hoisted.
Flags DW	Mooring sampan required. Two long blasts on the siren or whistle may also be used.
Flags FS	Ash boat required.
Flags NQ	Fire tender required. At night, three lights, green, white, red, vertically disposed, should be hoisted; also continuous whistling.
Flags ST	Police officers required. At night, three lights, red, white, red, vertically disposed, should be hoisted.
Flags HG	Pilot ferry boat required.
Flags TE	Vessels passing are requested to reduce speed.
Flag F below answering pennant	Ferry boat required by vessel lying outside Wusong Kou. At night, two red lights, horizontally disposed.

Anchorage

Four anchorages are located outside the pilot boarding areas. Although these anchorages are exposed, the holding ground is good.

These areas are shown on the chart with details given in the table titled **Shanghai—Outer Anchorages (Changjiang—Pilot Boarding Positions within Anchorage Areas).**

Shanghai—Outer Anchorages (Changjiang—Pilot Boarding Positions within Anchorage Areas)			
Anchorage Area	**Boarding Position**	**Depths**	**Remarks**
Chang Jiang Kou No. 1	31°10'39"N, 122°37'18"E.	20.0-32.0m	For vessels using Main Channel through Beicao Shuidao. There are 6 specially designated anchorages for vessels loaded with explosives located in the NE corner of this area, all between position 31°11'N, 122°38"E and position 31°13"N 122°40"E.
Chang Jiang Kou No. 2	31°02'16"N, 122°37'16"E.	15.0-19.0m	For vessels using Auxiliary Channel through Nancao Shuidao.
Chang Jiang No. 3	31°13'29"N, 122°27'29"E.	—	Temporary.
Dangerous Goods A and B	30°58'30"N, 122°26'30"E.	9.0-11.0m	Anchorage area A located in W part and Area B located in E part of anchorage which is marked by special lighted buoys.

Shanghai—Outer Anchorages (Changjiang—Pilot Boarding Positions within Anchorage Areas)			
Anchorage Area	**Boarding Position**	**Depths**	**Remarks**
Nancao Temporary No. 1 and No. 2	30°59'30"N, 122°20'42"E.	7.0-8.0m	For vessels using Auxiliary Channel through Nancao Shuidao. Area No. 1 is located in the W part of the anchorage; Area No. 2 is located in the E part of anchorage. Marked by special lighted buoys. **Caution.—**A wreck lies close S of the No. 2 anchorage.

Shanghai—River Anchorages—Beicao Shuidao			
Name	**Center Position**	**Depth**	**Remarks**
Beicao	31°14'52"N, 122°02'33"E.	6.0-12.0m	For vessels waiting for improvement in the weather or the tide.
Hengsha East	31°17'48"N, 121°48'48"E.	5.0-11.0m	For large vessels waiting for improvement in the weather or the tide or that need berthing instructions.
Hengsha	31°17'00"N, 121°51'00"E.	8.0-10.0m	For tankers and vessels laden with dangerous cargo. Maximum time allowed at anchorage is 72 hours.
Hengsha West	31°18'24"N, 121°46'36"E.	8.0-15.0m	For large vessels waiting for improvement in the weather or the tide or that need berthing instructions.
Yuanyuansha Large Vessel Emergency Anchorage	31°18'18"N, 121°44'00"E.	11.0-13.0m	Bounded by Lighted Buoy D42, Lighted Buoy Q35, Lighted Buoy A51, and Lighted Buoy A53.

Shanghai—River Anchorages—Nangang Shuidao			
Name	**Center Position**	**Depth**	**Remarks**
No. 1	31°21'13"N, 121°41'00"E.	2.6-11.0m	—
No. 2	31°21'36"N, 121°40'12"E.	7.0-11.0m	—
No. 3	31°22'00"N, 121°39'24"E.	8.0-11.0m	—
No. 4	31°22'24"N, 121°38'30"E.	7.3-12.0m	Caution must be taken to avoid an obstruction lying in the SW corner of this area at a depth of 9.2m.
No. 5	31°22'54"N, 121°37'36"E.	8.4-12.0m	—
No. 6	31°23'18"N, 121°36'42"E.	7.0-13.0m	—
No. 7	31°23'42"N, 121°35'48"E.	6.7-14.0m	—
No. 8	31°24'00"N, 121°35'00"E.	6.5-13.6m	Anchorage restricted to international shipping only for a maximum stay of 72 hours.
No. 9	31°24'18"N, 121°34'00"E.	2.2-13.0m	Anchorage restricted to international shipping only for a maximum stay of 72 hours.
No. 10	31°24'42"N, 121°33'00"E.	2.5-14.0m	—
No. 11	31°25'12"N, 121°31'42"E.	2.0-13.0m	—

Shanghai—River Anchorages—Nancao Shuidao		
Name	**Center Position**	**Depth**
Jiuduansha Small Vessel Anchorage Area No. 1	31°11'30"N, 121°48'48"E	6.5-7.9m

Shanghai—River Anchorages—Nancao Shuidao		
Name	**Center Position**	**Depth**
Jiuduansha Small Vessel Anchorage Area No. 2	31°12'42"N, 121°47'42"E	7.2-8.8m
Jiangyanan Sha Temporary Dangerous Cargo Anchorage	31°15'48"N, 121°46'36"E	5.7-9.0m
Jiangyanan Sha Temporary Anchorage	31°17'18"N, 121°45'00"E	12.0-14.0m

Shanghai—River Anchorages—Hengsha Tongdao		
Name	**Center Position**	**Depth**
No. 1	31°20'00"N, 121°47'30"E	6.0-13.0m
No. 2	31°21'24"N, 121°47'30"E	5.5-9.5m
No. 3	31°22'33"N, 121°47'00"E	5.2-9.0m

Shanghai—River Anchorages—Chuansha		
Name	**Center Position**	**Remarks**
Baoshan Beimaodi	31°36'36"N, 121°23'24"E	Unrestricted use
Baoshan Beimaodi	31°32'18"N, 121°22'06"E	Emergency use
Baoshan Beimaodi	31°30'42"N, 121°22'54"E	Unrestricted use

Shanghai—River Anchorages—Baoshan Hangdao (within)		
Name	**Center Position**	**Remarks**
Taicang	31°33'52"N, 121°19'52"E	Dangerous cargo
Liuhe	31°35'37"N, 121°19'03"E	General purpose
Ticang Gang	31°38'54"N, 121°14'43"E	General purpose
Baimaosha Nanshuidao	31°42'54"N, 121°08'37"E	General purpose
Changshu Gang	31°46'48"N, 121°02'48"E	General purpose
Haimen Maodi	31°46'00"N, 121°09'12"E	Unrestricted use

Many anchorages are designated between the pilot boarding area and the berths, in the channels and the entrance to Huangpu Jiang. For details on the river anchorages that have been designated N (Beicao Shuidao) and S (Nangang Shuidao) of Changxing Dao in the main channel and other places in the river, see the tables titled, as follows:

1. Shanghai—River Anchorages—Beicao Shuidao
2. Shanghai—River Anchorages—Nangang Shuidao
3. Shanghai—River Anchorages—Nancao Shuidao
4. Shanghai—River Anchorages—Hengsha Tongdao
5. Shanghai—River Anchorages—Chuansha

Directions

The tide indicator at Wusong should be consulted to obtain the height of tide at the time of entering the river.

From the entrance at Wusong Kou, the track within the river lies about 130m off the W bank, until abreast the Harbor Superintendent's Office (31°21.4'N., 121°29.9'E.), passing W of the lighted buoys marking the shoal water fringing the E bank. The fairway at Wusong is E of any vessel moored there, and it is advisable not to enter the river while such vessels are swung across the channel. About 1 mile upstream of the Harbor Superintendent's Office, the track is N of the lighted buoys marking the shoal bank on the SW side of the river. Then the greatest depths in the fairway lie towards the E and SE side of the river until within 1 mile of Lujiazui. Rounding Lujiazui on the flood current, especially at spring tides, requires great attention to steering.

Pilots have found that the handling of deep draft ships is facilitated by taking them up with the flood current, turning, and berthing them bows down river.

At the top of spring tides, however, it is prudent to time entry to avoid turning on the full strength of the flood current. As soon as HW has made, the strength of the stream decreases and turning can be affected with navigational safety.

A vessel, 213m in length, was reported to have turned in the harbor.

When leaving the harbor, deep draft vessels should sail at the very commencement of the flood stream, even if this entails anchoring outside Huangpu Jiang to await the next flood tide before making the passage through Nancao Shuidao.

With expert local knowledge it is possible, except at neaps, to leave berths below Lujiazui on the last of the ebb current and

Yangshan Vessel Traffic Service

make the passage through Nancao Shuidao on the one tide.

Caution

Submarine cables are laid across the harbor in several places. Their shore ends are usually marked by illuminated notice boards. A number of submarine cables are landed on the south side of the entrance of the Huangpu Jiang. Three submarine cables cross the river in the vicinity of the Harbormaster's Office. A submarine cable crosses the river, about 1 mile southward of Gaoquio Gang entrance. A pipeline crosses the river about 1 mile NW of the entrance of Gaoquio Gang.

The harbor is crowded with all types of native craft, from large junks to sampans. Cross-river ferry traffic may be encountered about 1.4 miles upriver of Yang-ching Chiang.

Yangshan

5.31 Yangshan (30°37'N., 122°03'E.) is a deep-water container port built on reclaimed land reached by a road bridge (Donghai Bridge) nearly 20 miles long located SSE of Shanghai. It is part of the port of Shanghai and is the largest container complex in the world, built to alleviate container traffic from the Yangtse Kiang ports. Reclamation works and further development is scheduled for completion in 2020.

In addition to container handling, Yangshan also has several

tanker berths, including an LNG terminal.

Depths—Limitations.—The port is usually approached from the ESE through the islands of Zhoushan Qundao. The channel along this route is dredged to a depth of 16.5m and the Yangshan Gang main channel has depths of at least 16m. A channel leading to the LNG terminal has been dredged to 15m.

The Yangshan Container Terminal is comprised of three port areas (also called phases of development) located on the SW side of Jianggongzhu Island. This is the island that the Donghai Bridge attaches to on the NW side. The Shanghai LNG Terminal and Yangshan Oil Terminal are located on the SSW side of Shenjiawan Island, located close SE of Jianggongzhu Island.

These two islands are connected by a bridge but there is no navigation possible between them. Navigation is allowed underneath the Donghai Bridge through a channel marked by buoys about 6 miles NE of Jianggongzhu Island, but is restricted to vessels up to 5,000 tons. The bridge height at this position is 45m.

Yangshan—Berth Information

Berth	Pier Length	Depths Alongside	Maximum Vessel			Remarks
			Size	LOA	Beam	
Dry Cargo Berths						
Yangshan Container Terminal—alongside berthing at a continous length wharf						
Port Area 1	1,600m	15.0m	—	—	—	Containers. Five berths.
Port Area 2	1,400m	15.0m	—	—	—	Containers. Four berths.
Port Area 3	2,600m	15.0m	—	—	—	Containers. Seven berths.
Tanker Berths						
Yangshan Shen Gang Oil Terminal						
No. 1	360m	17.0m	125,000 dwt	265m	42.0m	Clean products and dirty products. Maximum draft of 16.0m.
No. 1A	—	17.0m	7,500 dwt	125m	19.5m	Clean products and dirty products.
No. 1B	—	17.0m	7,500 dwt	125m	19.5m	Clean products and dirty products.
No. 2	64m	17.0m	7,500 dwt	115m	19.5m	Clean products and dirty products.
No. 3	62m	8.0m	7,500 dwt	115m	19.5m	Clean products and dirty products.
No. 4	40m	8.0m	5,000 dwt	115m	17.5m	Clean products and dirty products.
No. 5	45m	8.0m	5,000 dwt	115m	17.5m	Clean products and dirty products.
Shangdong Container Terminal						
—	2,350m	15.0m	—	—	—	Automated container handling equipment serving seven berths.
Haitong Yangshan Automotic Terminal						
—	320m	14.0m	—	—	—	Ro-ro berth.
Shanghai Shendong International Terminal						
—	—	16.0m	—	—	—	Nine berths available with an overall length of 3,000m.
Yangshan FerryTerminal						
—	200m	—	1,000 dwt	—	—	—
Yangshan LNG Berth						
—	135m	17.6m	125,000 dwt	323m	50.0m	Maximum draft of 12.0m.
Shanghai Guandong International Container Terminal						
—	—	15.0m	15,000 dwt	—	42.0m	Seven berths available with an overall length of 2,600m.
LNG						
Shanghai Terminal	420m	17.6m	30,000 dwt	323m	50.0m	LNG. Maximum draft of 12.0m.

See the table titled **Yangshan—Berth Information** for details on specific berthing facilities.

Pilotage.—Pilotage is compulsory. Pilots should be contacted on VHF channels 13, 63, or 69 when approaching Lighted Buoy Y1 (30°32'37"N, 122°19'50"E.) or Lighted Buoy Y2 (30°41'52"N, 122°15'14"E.). Vessels should maintain a listening watch on VHF channels 13, 63, and 69 upon arrival in the Yangshan area.

Pilot will board in the following positions:

1. 30°29'00"N, 122°29'18"E.—Quarantine Anchorage No. 1.
2. 30°33'24"N, 122°27'24"E.
3. 30°33'00"N, 122°21'58"E.—Area No. 2.
4. 30°33'12"N, 122°16'30"E.—Area No. 3.

The pilots can be contacted, as follows:

1. VHF: VHF channels 13, 63, and 69
2. Telephone: 86-21-3828-9833
3. Facsimile: 86-21-3828-9831

Vessel Traffic Service—The Yangshan Vessel Traffic Service (VTS) is in effect for the water area bounded by lines joining the following positions:

a. 31°56'N, 121°56'E.
b. 30°48'35"N, 122°27"E.—Daji Shan Light
c. 30°35'08"N, 122°09'49"E.—Huxiaoshe Dao
d. 30°34'00"N, 122°08'25"E.—Ximaan Dao Light
e. 30°35'46"N, 121°58'04"E.—Tangnao Shan Light
f. 30°35'46"N, 121°40'00"E.
g. then proceeding N from point (f) until the coast.

The boundary may also be seen on the graphic titled **Yangshan Vessel Traffic Service.**

Participation in the VTS is mandatory. Vessels should report to Yangshan VTS on VHF channel 13, as follows:

1. Upon approach to Huangzeyang Light vessel (30°30'17"N, 122°32'50"E.).
2. Upon entering or departing the VTS area.
3. At time of weighing anchor.

A precautionary area has been established within a 2-mile radius of position 30°33'33"N, 122°11'30'E. Vessels intending to enter this precautionary area need to report their position to the Yangshan VTS 30 minutes prior to arrival at the area boundary on VHF channel 13.

Anchorage.—Designated anchorages are listed in the table titled **Yangshan—Anchorages**

Yangshan—Anchorages	
Name	**Center Position**
No. 1	30°25'N, 122°45'E.
No. 1 Quarantine	30°29'N, 122°29'E.
Small/Medium Vessels	30°29'N, 122°02'E.
No. 2 Quarantine	Bounded by lines joining the following positions: a. 30°48'59"N, 121°47'13"E. b. 30°49'00"N, 121°49'43"E. c. 30°48'16"N, 121°49'44"E. d. 30°48'14"N, 121°47'13"E. e. 30°48'59"N, 121°47'13"E.

Caution.—A precautionary area is bounded by a circle with a radius of 2 miles centered on position 30°33'32"N, 122°11'30"E. Vessels intending to enter this area will need to report their position to the Yangshan VTS 30 minutes prior to entering this area on VHF channel 13. Vessels will then need to constantly monitor VHF channel 13 until they have departed the area.

Chang Jiang (Yangtze River)

5.32 Chang Jiang (Yangtze River) (31°48'N., 121°10'E.), meaning the Great River, is the largest river in China and the world's third longest river after the Amazon and the Nile. It extends 3,828 miles, providing abundant water sand favorable navigation systems along with the rich soil and plentiful growth of its river valleys that sustains 250 million inhabitants.

The Yangpu Bridge spans Huangpu Jiang at position 31°15'N, 121°32'E and has a vertical clearance of 44m above MHWS.

It constitutes a major commercial waterway for approximately one-half its total length. The river can be navigated with local knowledge and charts. The Jiangyin pilot station regulates Yangtze River traffic, and particularly restricts night navigation between 2200 and 0600.

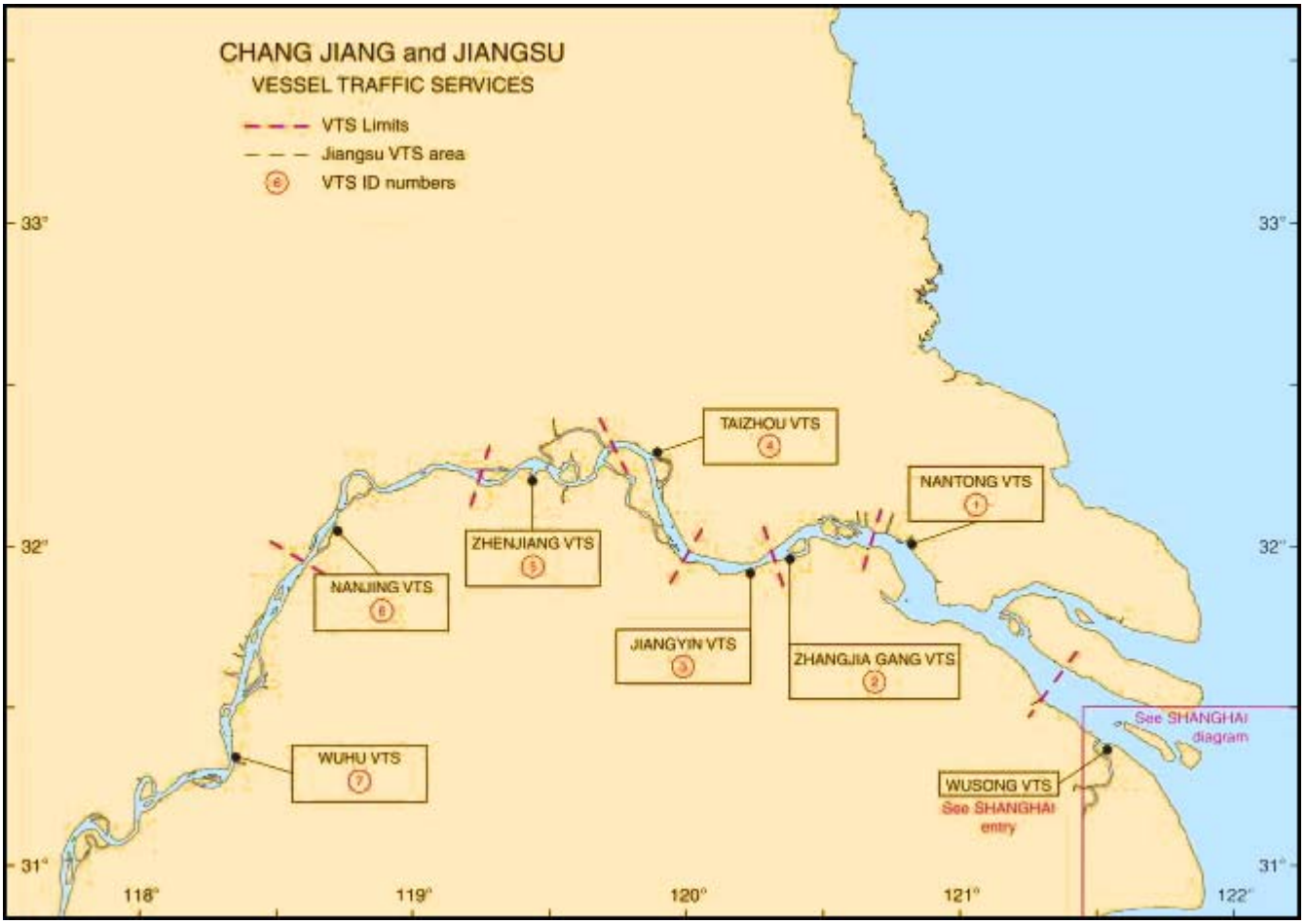
The port of Qihai, harboring 11 berths, is an industrial waterfront established at the mouth of the Yangtze and extending N to the Chongming delta. The port is a multi-functional and secondary port to Nantong.

Pilotage.—Pilotage for Chang Jiang is compulsory for all foreign vessels but is usually only available during daylight hours only.

Chang Jiang Pilot Center
http://www.cj-pilot.com.cn

Chang Jiang pilots serve the following ports:

1. Anqing.
2. Changsha.
3. Changshu (Jiangsu).
4. Changzhou.
5. Chenglingji.
6. Chizhou.
7. Chongqing.
8. Hankou.
9. Huangshi.
10. Jiangyin.
11. Jingzhou.
12. Jiujiang.
13. Ma'anshan.
14. Nanjing.
15. Nantong.
16. Shanghai.
17. Taicang.
18. Taizhou.
19. Wanzhou.
20. Wuhan.
21. Wuhu.
22. Yangzhou.
23. Yichang.



Chang Jiang Upriver VTS

24. Yueyang.
25. Zhangjia Gang.
26. Zhenjiang.

Pilots board, as follows:

1. Sea Pilots board at the Chang Jiang Kou Pilot Anchorages and generally disembark at Baoshan Anchorage. Pilot exchanges at Baoshan Anchorage are conducted in the following positions:
   a. 31°26'19"N, 121°29'11"E.—inbound.
   b. 31°26'12"N, 121°28'48"E.—outbound.
2. River Pilots to all river ports board at Baoshan Anchorage.
3. Harbor Pilots will relieve the river pilots to dock the vessel at certain ports.

Regulations.—The Shanghai Maritime Safety Administration (MSA) has determined that the following VHF channels are to be monitored and used when reporting and to receive information concerning safety of navigation throughout the Chang Jiang Shanghai, Beigang, and Beizhi water areas:

1. VHF channel 6—W of 121°51'E.
2. VHF channel 16—E of 121°51'E.

This requirement from the Shanghai MSA is in addition to all other requirements set forth by various VTS requirements for both the river area and Shanghai port.

Vessel Traffic Service.—Vessels proceeding upriver must report to the appropriate Vessel Traffic Service (VTS), as follows:

1. **Nantong VTS**—On VHF channels 10, 11, or 69 upon passing the line joining Liuhei Wan (31°31'00"N., 121°19'00"E.) and Shiqiao Estuary (31°37'30"N., 121°22'30"E.).
2. **Zhangjia Gang VTS**—On VHF channel 10 or 69 upon arrival at the reporting line between Shiyixu Estuary and Xiaoligang Estuary.
3. **Jiangyin VTS**—On VHF channel 9 or 69 upon arrival at the reporting line between Pangqigang (31°59'10"N., 120°19'13"E.) and Dahe Gang (31°57'18"N., 120°19'58"E.).
4. **Taizhou VTS**—On VHF channels10 or 69 upon arrival at the reporting line between the Taohuagang and the Jie Estuary.
5. **Zhenjiang VTS**—On VHF channel 9, 10, or 69 upon arrival at the reporting line between Simashu lighted beacon (32°19'40"E., 119°44'41"E.) and the opposite bank at (32°18'07"E., 119°45'40"E.).
6. **Nanjing VTS**—On VHF channel 10, 11, or 69 upon arrival at the reporting line between Shi'er Wei Estuary

(32°14'11"N., 119°14'23"E.) and Xinhekou lighted beacon (32°12'46"N., 119°13'47"E.).

7. **Wuhu VTS**—On VHF channel 10 upon arrival at the reporting line joining Pengxingzhou Beacon (Jiangxinzhou Shuidao) and Pengxing No. 173 black buoy.

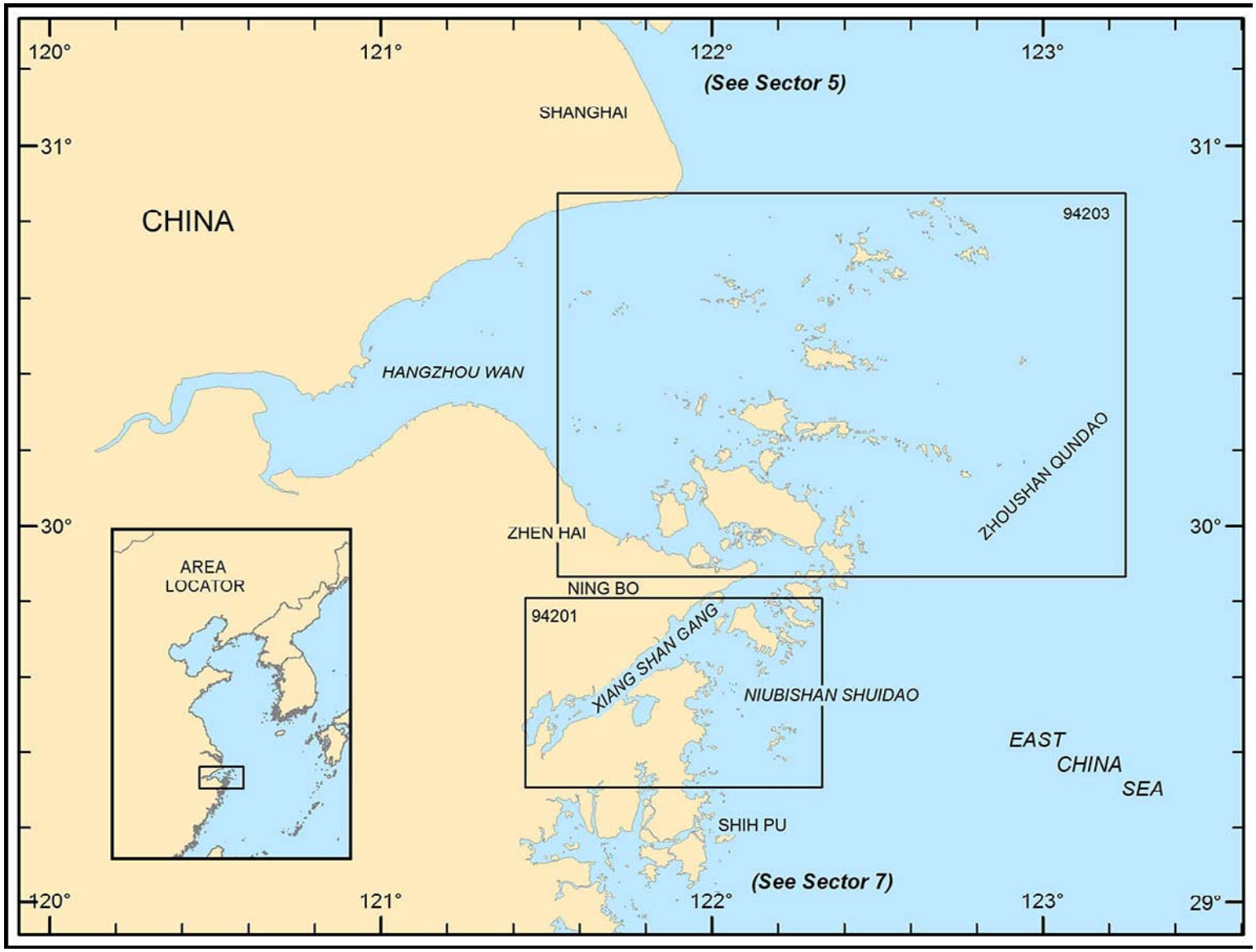
For further information, see diagram titled **Chang Jiang Up-river VTS**.

Anchorage.—Two anchorage areas are located NW and W of Luocheng Zhou (32°18'N., 119°44'E.), as follows:

1. Dangerous Cargo Anchorage—Bounded by lines joining the following positions:
   a. 32°18'19"N, 119°43'19"E.
   b. 32°18'10"N, 119°43'33"E.
   c. 32°17'21"N, 119°42'46"E.
   d. 32°17'29"N, 119°42'32"E.
2. Quarantine Anchorage—Bounded by lines joining the following positions:
   a. 32°17'06"N, 119°42'17"E.
   b. 32°16'57"N, 119°42'46"E.
   c. 32°15'56"N, 119°42'09"E.
   d. 32°16'03"N, 119°41'52"E.

Caution.—Traffic routes, buoys, and anchorages in the Chang Jiang are adapted according to the constantly changing banks and channels of the river. Timber rafts and concentrations of river craft may be encountered.

A works in progress area is marked by buoys SW of Luocheng Zhou and NE of the Quarantine Anchorage.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR 6

CHINA—HANGZHOU WAN AND APPROACHES

Plan.—This sector describes the E coast of China between Nanhui Zui, the N entrance point of Hangzhou Wan, and T'ung-t'ou Shan, an islet about 98 miles to the S, and includes off-lying islands and Hsiang-shan Chiang. The description is N to S.

General Remarks

6.1 Winds—Weather.—Monsoon conditions prevail. The Northeast Monsoon season (September-March) has winds that blow as moderate breezes from NW through N to NE about 70 per cent of the time. The Southwest Monsoon season (June-July) has irregular winds blowing from S to SW. September is the wettest month with July being the driest.

Tides—Currents.—Ocean currents come largely under the influence of monsoon winds. September through April, currents set to the S. From about May through August they set N. Currents in Hangzhou Wan generally set seaward.

Hangzhou Wan (Hangchow Bay) (30°25'N., 121°00'E.) is a large shoal bay whose shores are fronted by an extensive margin of drying mud flats. The N shore is low and flat and lies on the S limit of a vast, cultivated plain which extends well inland from the N part of the E coast of China.

The S shore continues low and flat for a short distance inland, then rises to hills and mountains which, trending NE in parallel ridges, reach the coast at the S entrance point of the bay in an elongated, bold promontory and then continue seaward to form an archipelago of characteristically scattered off-lying islands.

The near shore is level and has extensive areas of drying mud flats. The numerous off-lying islands rise steeply from surrounding shoal water which extends well offshore.

Ports of interest to shipping are Dinghai (30°00'N., 122°06'E.), Zhenhai (29°57'N., 121°42'E.), and Ningbo (29°53'N., 121°53'E.), located in the general area around the S entrance point of Hangzhou Wan. There has also been new port developments in Jinshan and Zhapu, described in paragraph 6.3 and paragraph 6.4, respectively.

An inside passage for moderate-size vessels of suitable draft leads between the mainland and off-lying islands. Vessels, having arrived W of Fodu Dao enter Fo-to-kang-tao, and proceeding through Luotou Shuidao and Cezi Shuidao transit either E or W of Cezi Shan.

A vessel then passes W of Wushi, then steers through the channel E of Yuxing Nao.

Hangzhou Wan—North Side

6.2 Nanhui Zui (30°53'N., 121°53'E.), the N entrance point of Hangzhou Wan, is low and reported extending seaward. A low embankment extends irregularly to the W.

Daji Shan Dao (Ta-ch'i Shan) (30°49'N., 122°10'E.), about 16 miles ESE of Nanhui Zui, is an isolated islet rising to a height of about 79m from surrounding shoal water and adjacent rocks. The island is covered with vegetation and appears cone-shaped from the NE. Rocks extend 0.2 mile from its W, S, and E sides; those on the E side end in a prominent 3m high black rock. A signal station can be contacted by means of the International Code of Signals. Vessels anchor, in 11m, about 0.4 mile off the W side of the islet, and clear of the many submarine cables in the area, with a lighthouse bearing 064°, and just open S of a white hut on the SW side of the islet. A light is shown on the summit of Daji Shan; an automatic identification system (AIS) is situated at this light.

Donghai Bridge, with a vertical clearance of 40m, connects Nanhui Zui with QiQu Qundao, 15 miles SSE.

Nanhui (30°41'N., 121°17'E.) is part of the port of Shanghai and is comprised of the harbor areas of Zhoupu, Hangtou, Xinchang, Huinan, Datuan, and Luchao (Luchogang). There are numerous berths in all of these harbor areas but only small craft can be accommodated as listed below:

1. Zhoupu—Main channels can accommodate vessels as large as 60 dwt.
2. Hangtou—Has five berths that can accommodate vessels as large as 300 dwt; the remaining berths can handle vessels up to 60 dwt.
3. Xinchang—Has 32 berths that can accommodate vessels up to 300 dwt.
4. Huinan—Has 65 berths that can accommodate vessels up to 100 dwt.
5. Datuan—Has 34 berths that can accommodate vessels up to 60 dwt.
6. Luchao (Luchaogang)—described below.

Nanhui port itself has Inner Berth and Outer Berth accommodations. The Outer Berth, 760m in length with depths alongside of 11.3m, can handle ro-ro vessels as large as 50,000 dwt and other vessels as large as 30,000 dwt. Cargo worked at this berth include general cargo, vehicles, and heavy lift-project cargo. The Inner Berth, 705m in length with depths of alongside of 8.3m, can handle vessels as large as 5,000 dwt working general cargo.

Luchaogang (30°51'N., 121°51'E.) is a terminal for passenger vessels with service lines to Ningbo, Zhoushan, and Putoushan. There is also a fishing port within the harbor; on the W side of the approach there is a pier that extends 500m S of the shoreline with the pier head marked by a light standing on a tower, 11m in height.

Caution.—Numerous dangerous wrecks, best seen on the chart, lie from N through SW of Daji Shan.

Numerous oil and gas pipelines and submerged cables extend SSE from the Nanhui harbor area and the coastline close E of the harbor area.

6.3 The coastline between Nanhui Zui and the metropolis of Hangzhou (Hangchow), about 97 miles WSW, is fronted by drying mud flats and several islets, and backed by low-lying land interrupted by hilly promontories of Ch'eng Shan and Chin Shan, about 43 miles and 55 miles, respectively, WSW of

Nanhui Zui. Cha-p'u, a community close W of Ch'eng Shan, is the former seaport of Hangzhou. Chiu-wang-wei Shan, a small islet close E of Chin Shan, is the head of navigation for ocean vessels.

Caojing Xihangdao (30°42'N., 121°35'E.) is an interconnecting channel marked by lighted buoys between the approach channels; the port areas have a least charted depth of 6.9m near the intersection with Caojing Donghangdao.

Caojing Donghangdao (30°37'N., 121°55'E.), another interconnecting channel, is marked by lighted buoys leading about 28 miles WNW and passing between numerous islands and several dangerous wrecks, all best seen on the chart. Fishing stakes are present all in and around the islands. Duikou Shan is the largest island in the group and is marked by a light on a round white concrete tower, 5m in height.

Jinshan (30°41'N., 121°17'E.) is not a commercial port, but rather a terminal that has been constructed for the transportation of new raw materials necessary for the production of the Shanghai Petrochemical Company, Ltd.

Depths—Limitations.—The port is approached through the network of channels, marked by buoys, that lead from the E part of Hangzhou Wan and can best be seen on the chart. The least depth known in the channels is 7.5m with the exception of a wreck situated on the S side of the channel, marked by a lighted buoy, that can also be best seen on the chart.

There is one coal berth (Berth No. 6) that is dedicated solely to the Shanghai Cao Jing Power Plant and five tanker berths as described in the tables titled **Jinshan—Terminal Facilities—Dry Cargo Berths** and **Jinshan—Terminal Facilities—Tanker Berths**.

Pilotage.—Deep sea pilotage in Hangzhou Wan is optional but recommended. If deep sea pilotage desired, it must be requested 48 hours in advance. Pilotage in the harbor is compulsory and should be ordered 24 hours in advance of arrival.

See Pilotage in paragraph 5.29 for details regarding pilot boarding areas for Deep Sea Pilots.

Pilot boarding areas for the harbor are, as follows:

a. 30°37'08"N, 121°21'05"E.—inside the Quarantine Anchorage.
b. 30°34'36"N, 121°14'00"E.
c. 30°37'17"N, 121°14'22"E.
d. 30°40'55"N, 121°35'33"E.
e. 30°39'17"N, 121°19'12"E—No. 1.
f. 30°39'24"N, 121°25'00"E—No. 2.
g. 30°43'20"N, 121°31'30"E—No. 3.

Pilots are also provided for the SCA HUA Sheng Terminal (coal berth for the Shanghai Cao Jing Power Plant); pilots for vessels bound for that terminal will board at 30°43'20"N, 121°31'30"E.

Anchorage.—Three designated anchorages are located around the approach channels to the harbor with approximate center positions listed below:

1. Dangerous Cargo—30°42'21"N, 121°26'12"E.
2. Dangerous Cargo—30°40'00"N, 121°19'32"E.
3. Quarantine—30°37'05"N, 121°21'09"E.

6.4 Zhapu (30°35'N., 121°05'E.), located about 15 miles SW of Jinshan is the former port of Hangzhou. Zhapu has undergone a major change with construction of deep-water offshore berths for handling coal, oil, timber, steel, cement, grain, and general cargo.

Depths—Limitations.—Zhapu is approached through a Southern Channel or a Northern Channel. The Southern Channel is approximately 75 miles in length with a controlling depth of 7.7m, however, the tidal range of 4.6m gives it a depth of 12.3m at HW. The Northern Channel has a controlling depth of 8m.

Qiantang Jiang (Ch'ien-t'ang Chiang), a narrow estuary largely dry at low water, winds WSW from Chin-wang-wei Shan for a distance of about 42 miles to Hangzhou.

Small vessels, with a draft not greater than 0.9m, can proceed through Qiantang Jiang to Hangzhou.

Jinshan—Berth Information

Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
No. 1	30m	9.0m	5,000 dwt	115m	Chemicals, crude oil, and LPG.
No. 2	30m	11.0m	10,000 dwt	149m	Chemicals, crude oil, and LPG.
No. 3	74m	7.0m	3,000 dwt	100m	Chemicals, crude oil, and LPG.
No. 4	58m	11.0m	10,000 dwt	212m	Chemicals, crude oil, and LPG.
No. 5	165m	13.0m	50,000 dwt	212m	Chemicals, crude oil, and LPG.
No. 6	215m	11.2m	35,000 dwt	190m	Coal.
Tanker Terminals					
Huachen Energy Terminal					
Center	51m	—	2,000 dwt	123m	Chemicals. Under construction.
East	60m	—	3,000 dwt	128m	LPG.
No. 1	86m	13.0m	50,000 dwt	300m	Chemicals and LPG.
No. 2	38m	9.0m	2,000 dwt	135m	Chemicals.
West	50m	—	2,000 dwt	120m	Chemicals. Under construction.

Zhapu—Berth Information					
Berth	Berth Length	Depth	Maximum Vessel		Remarks
			Size	LOA	
Zapu Port					
D01	N/A	12.0m	19,806 dwt	145m	CCP
D02	N/A	12.0m	13,898dwt	142.6m	CCP.
DO3	390m	12.0m	35,000 dwt	180m	Container.
DO4	N/A	11.0m	41,180dwt	207m	Container
D05	N/A	12.0m	63,523dwt	215m	Container.
D06	252m	12.0m	63,252dwt	215m	Container.
D07	N/A	12.0m	63,523dwt	215m	Containers.
D08	N/A	12.0m	63,308dwt	199m	Containers..
D10	179m	N/A	36,872dwt	179m	Containers
D11	160m	12.0m	23,631dwt	159m	Coal and breakbulk.

Zhapu—Berth Information—Tanker Berths							
Berth	Berth Length	Depth	Maximum Vessel				Remarks
			Size	LOA	Beam	Draft	
SPC Chenshan Terminal							
No. 7	23m	14.0m	80,000 dwt	224m	—	—	Crude oil and clean products.
No. 8	37m	14.0m	80,000 dwt	224m	—	—	Crude oil and clean products.
No. 9	67m	14.0m	17,991dwt	163m	—	—	LPG and clean products.
No. 10	27m	15.0m	150,000 dwt	235m	—	—	LPG and crude oils.
Huachen Energy Terminal							
Center Berth	51m	—	5,395dwt	110m	18.0m	—	Chemicals, crude oil, and clean products.
East Berth	60m		5,395dwt	110m	18.0m	—	Chemicals
No. 1	86m	13.0m	64,220dwt	230m	37.2m	—	Chemicals
No.2	38m	9.0m	2.000dwt	230m		—	Chemicals
West Berth	50m		5,359dwt	110m	18.0m	—	Chemicals
Zhapu Terminal							
No. 1	232m	11.3m	—	230m	—	10.5m	Vegetable oils, clean and dirty products, and chemical gases.
Tadee Terminal							
No. 1	205m	—	20,000 dwt	—	—	—	—
Jiaxing Port							
No. 1	320m	—	—	—	—	13.0m	—
No. 2	320m	—	—	—	—	13.0m	—
No. 3	219m	—	—	—	—	13.0m	—
No. 4	350m	—	—	—	—	13.0m	—

Due to the large tidal rise and extensive shallow area offshore from Zhapu all the berths are considered offshore berths and are joined to the shore by a pier 1,134m in length. See the table titled **Zhapu—Terminal Facilities—Dry Cargo Berths** and **Zhapu—Terminal Facilities— Tanker Berths** for details of the main berths. There are 24 additional berths of various types not included in this table.

Pilotage.—Pilotage is compulsory but is available only during daylight hours. Pilots will board in one of the following positions:

a. 30°34'12"N, 121°12'00"E.
b. 30°34'11"N, 121°09'51"E.
c. 30°34'37"N, 121°05'07"E.

Anchorage.—A designated anchorage for vessels awaiting a berth is marked by lighted buoys and bounded by lines joining the following positions:

a. 30°34'10"N, 121°04'50"E.
b. 30°34'10"N, 121°05'27"E.
c. 30°32'22"N, 121°05'27"E.
d. 30°32'22"N, 121°04'50"E.

Additional anchorages available for use are, as follows:

1. Dushan Anchorage Area—Bounded by lines joining the following positions;
   a. 30°37'31.9"N, 121°12'11.5"E.
   b. 30°38'29.0"N, 121°14'18.4"E.
   c. 30°36'34.3"N, 121°15'28.9"E.
   d. 30°36'05.1"N, 121°14'22.3"E
   The controlling depth is 10m with a clay bottom.
2. Caiqishan Anchorage Area—Bounded by lines joining the following positions:
   a. 30°34'23.3"N, 121° 08'32.9"E
   b. 30°33'50.8"N, 121° 08'34.8"E
   c. 30°33'57.4"N, 121° 11'04.7"E
   d. 30°11'04.7"N, 121° 11' 02.8"E
   The controlling depths 9 to 12m with a sandy silt and much clay bottom. It is designated dangerous cargo vessels anchorage.
3. Baitashan Anchorage Area—Bounded by lines joining the following positions:
   a. 30°31'47.0"N, 120°59'41.7"E
   b. 30°32'35.0"N, 121°00'42.8"E
   c. 30°32'23.0"N, 121°00'55.4"E
   d. 30°31'35.0"N, 120°59'54.4"E
   The controlling depth is 4.6-6.5m with a silt clay bottom.
4. Tangshan Anchorage (formally called Zhapu Anchorage Area)—Bounded by lines joining the following positions:
   a. 30°34'11.4"N, 121°04'54.7"E
   b. 30°34'31.6"N, 121°05'55.8"E
   c. 30°32'21.4"N, 121°07'13.8"E
   d. 30°32'25.6"N, 120°08'49.5"E
   e. 30°31'12.9"N, 120°08'14.6"E
   f. 30°31'08.3"N, 120°06'44.4"E
   The controlling depth is 8 to 13m, with a sandy silt and silt clay bottom.

Vessels within 2 miles of the Hangzhouwan Sea-Cross Bridge should have their engines on stand-by. A restricted area, marked by lighted buoys, exists 1,300 yards on either side of the bridge. The fairway under the bridge is not included in the restricted area. Vessels must report to relevant authorities before arriving at the anchorage. Within the area of Jiaxing Gang the tidal current is strong and the tidal range is great. The holding ground is chiefly mud and clay and may not offer excellent holding. Mariners are advised to keep a good lookout for anchor drag.

Caution.—A tidal bore exists in Qiantang Jiang. It begins near the time of low water about 12 miles WSW of Chiu-wang-wei Shan and advances as far as Hangzhou at a rate of 12 to 15 knots. A Hai-ning, a community about 23 miles upstream from Chiu-wang-wei Shan, the bore appears as a wall of water a mile wide and may reach a height of 0.6m at neaps and 3.4m at springs. All navigation between Hai-ning and Hangzhou begins after the bore has passed and ends 2 hours after high water, a period of 2 to 4 hours.

The extreme tidal range reaches about 8.5m in Hangzhou Wan. At Hai-ning, the mean range is 4.7m and the spring range is 5.8m.

Hangzhou Wan—North Approach—Off-lying Islands and Deep Water Channels

6.5 The islands in the N approaches to Hangzhou Wan are grouped N and S of Huang-tse Yang, an intervening deep water channel. The N islands consist of three groups: Ma-an Liedao, Sijiao Shan and its adjacent islands, and Qiqu Qundao (Ch'i-ch'u Lieh-to). The S group consists of Daqu Shan and adjacent islets.

Hai Jiao (Tung Tao) (Barren Islands) (30°44'N., 123°09'E.), about 66 miles E of Nanhui Zui, consists of a group of several islets and rocks which constitute the farthest seaward danger in the N approaches to the bay. The W and highest islet is reported radar conspicuous at 16 miles. A light is shown from the W islet of Hai Jiao, and a racon transmits from it.

Foul ground extends 0.6 mile SE of the E islet, with a drying 3m high rock, on which the sea breaks heavily, on the extremity of the foul ground. An obstruction, with a depth of 8.6m, lies 1 mile N of Hai Jiao.

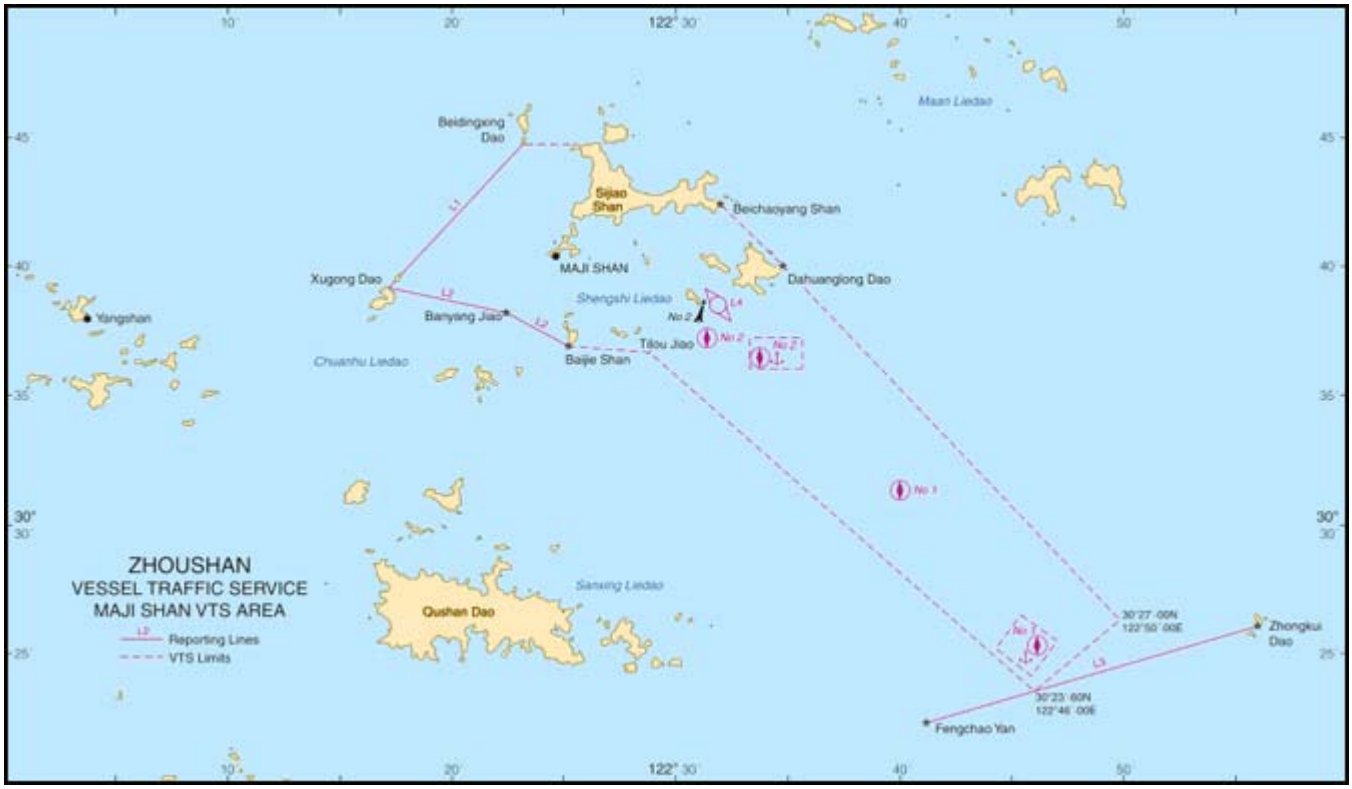
Caution.—An explosives dumping area, 2 miles square, is centered 3 miles WNW of Hai Jiao.

6.6 **Ma-an Liedao** (30°44'N., 122°45'E.), the E group of islands N of Huang-tse Yang, extends about 15 miles NW-SE and consists of several larger islands with numerous islets, isolated rocks, and smaller islands scattered among them. The larger islands are inhabited.

Huaniao Shan (30°51'N., 122°41'E.), the N of the larger islands, is grass-covered and characteristically steep-sided, bold, and rugged. It rises to a saddle shaped summit, 236m high, and is reported to be radar conspicuous at 20 miles. A light is shown on the N extremity of Huaniao Shan. Tide rips form on the E side of the island.

Anchorage.—Vessels usually anchor in moderate depths in a bay on the N side of the island, but must clear for sea with short notice during spring and late fall, when N winds set in without much advance warning. Anchorage in a bay on the SE side of the island is subject to a heavy swell when winds blow from S through E to NNE. Tidal currents are strong.

6.7 **Luhuashan** (30°49'N., 122°38'E.), about 2 miles SW



Maji Shan VTS Area

of Huaniao Shan, consists of Dongluhuashan and Xiluhuashan, two rugged precipitous islands joined together by a rocky ledge.

Pilotage.—Pilotage is compulsory for all foreign vessels. The pilots can be contacted on VHF channel 16. See paragraph 6.27 for pilot boarding positions.

Anchorage.—Luhuashan Maodi is a designated anchorage, 2 miles wide and extends between 1 mile and 4 miles S of Xiluhua Dao. It is used for lightening vessels before proceeding up Chang Jiang. The anchorage has thick mud sea bed with good holding ground.

The anchorage is sheltered from all winds except S and can be used for shelter on the approach of a typhoon. In strong S winds it is advisable to anchor to the N of Xiluhuashan. A clear approach to the anchorage can be made from the NE. The anchorage is under the jurisdiction of the Fagang Harbormaster. Areas of the anchorage are subject to strong tidal currents, particularly the center, with the strongest being during the ebb. The anchorage is also used for the trans-shipment of LPG. LPG vessels are not permitted to anchor within 1.1 miles of the transshipment bulk carrier.

Caution.—Care must be taken to avoid the submarine cable lying 2 miles N and NW of Huaniao Shan.

A dangerous wreck, depth unknown, is situated NNW of Ma-an Liedao in position 31°15'54"N, 122°30'12"E.

Another wreck is located close W of the anchorage, in a depth of 31m, in approximate position 30°47'13"N, 122°35'25"E.

6.8 Yemaodong (30°48'N., 122°47'E.), lying about 6 miles SE of Huaniao Shan, has a saddle shaped summit, 158m high. A chain of islets and rocks extends 2 miles NW and 1 mile SE of the island. In strong winds, there are heavy tide rips off the end of the SE chain.

Anchorage.—Anchorage can be taken in 7.4 to 11m, mud, sheltered from winds between E and NW, in the bay on the S side of Yemaodong.

Caution.—Unexploded ordnance has been reported (2008) to lie in position 30°44'06"N, 122°49'05"E.

Chengian Shan (30°44'N., 122°49'E.), about 3 miles SSE of Yemaodong, is the SE island of Ma'an Liedao. The coast is rocky and precipitous, and its highest peak, 211m high, lies in the middle of the island. Gouqi Shan, close W, has a double summit, 197m high, in its N part that is considerably higher than the rest of the island.

Tides—Currents.—Tidal currents reach a velocity of 3 knots at springs, but their effect is lessened the farther within the anchorage. During spring tides, the current is strong enough to swing a vessel against a moderate breeze.

Anchorage.—Between the SW side of Chengian Shan and the SE side of Gouqi Shan, anchorage, sheltered from winds E through N to W, can be obtained. The approach to the anchorage is made from the SW by keeping the center of a prominent beach in range, bearing 032°, with a prominent boulder at an elevation of 206m about 0.4 mile from the highest peak on Chengian Shan. Vessels anchor, in 12.8 to 18.2m, stiff mud, in the E part of the anchorage where the bottom is free of known dangers and shelves gradually shoreward.

6.9 Sijiao Shan (Shengsi Liedao) (30°42'N., 122°30'E.), the middle group of islands N of Huang-tse Yang, consists of a larger island with smaller islands and clustered islets scattered in a general SW direction for a distance of about 10 miles.

Sijiao Shan, the largest island in the group, is rugged, steep-sided, and has a very irregular shoreline which for the greater part rises precipitously from the surrounding shoal water; the island has many peaks, the highest of which, 217m high, stands at its SW end. A sandy beach within a bay on the E side of the island is conspicuous and one of the few features visible during periods of misty weather.

Anchorage.—Anchorage can be obtained all around the island, except on the S side.

Caution.—Tide rips form off the NE point of the island and also off the S side of an islet lying 1 mile further NW.

A submarine cable extends from the S coast of Sijao Shan to the N coast of Qushan Dao (30°26'N., 122°22'E.) running through the following points:

a. 30°41'45"N, 122°27'38"E. (coast)
b. 30°41'06"N, 122°28'46"E.
c. 30°39'50"N, 122°29'06"E.
d. 30°37'26"N, 122°28'55"E.
e. 30°29'09"N, 122°22'59"E.
f. 30°28'37"N, 122°22'08"E. (coast)

6.10 Baijie Shan (30°37'N., 122°25'E.), about 5 miles S of the SW extremity of Sijiao Shan, is a rugged precipitous island surrounded by islets and shoal water. Vessels anchor, in 11 to 16.4m, sheltered from NW winds, off the S extremity of the island and in similar depths, sheltered from N and NE winds, off the W side, with the light on the S extremity of the island bearing 132°, 0.2 to 0.4 mile distant. Tidal eddies are troublesome.

Chuanhu Liedao (30°36'N., 122°20'E.), close SW of Baijie Shan, is a group of steep-sided smaller islands and islets largely joined by an area of shoal water. Vessels anchor, in 18.2m, sheltered from typhoon winds, with the summit of Shangchuan Shan, the W island of the group, bearing 357°, and Bitou Jiao, an isolated precipitous rock W of the group, bearing 275°. Care must be taken to avoid Webb Rock (Weipei Shih), a pinnacle rock with a depth of 2.1m lying on the W side of the anchorage. There is no indication of this rock except when tide rips occur during calm weather. Currents are troublesome but no swell is felt.

Baijie Xia (30°36'N., 122°25'E.), the 2-mile wide channel between Biajie Shan and the several islets NE of Chuanhu Liedao, is the passage most commonly used by vessels bound to and from the entrance to the river Chang Jiang. Vessels steer through the channel on a track defined by the light on Banyangshan, a black rocky islet lying 2 miles WNW of Baijie Shan, in line bearing 315°, with the light on Daji Shan. Tidal currents are strong and require a timely course change to N so as to pass at least 0.5 mile E of Banyangshan and the area close around the islet in which ship handling often becomes quite unmanageable.

Caution.—An anchorage and fishing prohibited area NNW of Baijie Shan can be best seen on chart.

A dangerous wreck, with a swept depth of 15.7m, is located E of Chuanhu Liedao in position 30°34'50"N, 122°25'26"E.

6.11 Qiqu Qundao (Ch'i-ch'u Lieh-tao) (30°36'N., 122°05'E.), the W group of islands N of Huang-tse Yang, extends about 10 miles NW-SE and consists of some 30 islets clustered around and generally N of **Dayangshan** (30°35'N., 122°04'E.), the largest and highest islet of the group. Vessels anchor, in 7.3 to 11m, sand and mud, about 0.75 mile SE of the head of a bay on the SE side of Dayangshan. Huini Jiao, a pinnacle rock with a depth of 0.6m, lies in the SW approaches to the anchorage. It is safely cleared to port by approaching the anchorage from the SSE with the highest peak on Xiaoyang Shan, an island about 2 miles NNW, bearing 337° and just open E of the S entrance point of the bay.

Caution.—A wind farm has been established approximately 2.5 miles N of Xiaoyang Shan, and is marked by yellow lights. There are also numerous underwater cables running from the turbines to a platform in position 30°42.4'N, 122°40.6'E. Anchoring or trawling in the vicinity of this area is not advised, and navigate with caution.

6.12 Maji Shan (Majishan) (30°40'N., 122°25'E.), a subport to Zhoushan (30°01'N., 122°06'E.), consists of an ore-transfer terminal.

Depths—Limitations.—The E channel is navigable for vessels having a maximum draft of 18.5m. Vessels of up to 350,000 dwt can be accommodated at the berths.

Maji Shan Ore Terminal has five berths operated by Baosteel. See the table titled **Maji Shan—Ore Terminal** for details.

Pilotage.—Pilotage is compulsory for all foreign vessels. Notice of ETA should be sent 72 hours, 48 hours, and 24 hours prior to arrival. Pilots can be contacted on VHF channel 16. Pilots will board in Anchorage Area No. 1, Anchorage Area No. 2, or either of the two positions listed below:

1. No. 1—30°31'18"N, 122°40'00"E.
2. No. 2—30°37'00"N, 122°31'24"E.

Vessel Traffic Service.—Zhoushan Vessel Traffic Service (Maji Shan Service Area) is in effect for Shengshi Liedao and its approaches.

The Maji Shan VTS Service Area includes the following:

1. Maji Shan Channel for international ore carriers.
2. Maji Shan Channel for national transfer vessels.
3. Maji Shan harbor area including Anchorage Area No. 1 and Anchorage Area No. 2.
4. An area bounded by the Sijiao Shan coast and lines joining the following positions:
   a. 30°44'40"N, 122°25'23"E—Lizhu Shan.
   b. 30°44'37"N, 122°23'13"E—Beidingxing Dao.
   c. 30°39'10"N, 122°17'18"E—Xugong Dao.
   d. 30°38'14"N, 122°22'30"E—Banyang Jiao Light.
   e. 30°36'56"N, 122°25'15"E—Baijie Shan Light.
   f. 30°36'42"N, 122°28'51"E—Tilou Jiao.
   g. 30°23'18"N, 122°46'00"E.
   h. 30°27'00"N, 122°50'00"E.
   i. 30°40'00"N, 122°34'42"E—Dahuanglong Dao Light.
   j. 30°43'23"N, 122°31'53"E—Beichaoyang Shan Light.

Participation in the Maji Shan VTS is mandatory for the following vessels:

1. All foreign vessels.
2. All passenger vessels.

3. All Chinese vessels exceeding 300 gt.
4. Vessels carrying dangerous cargo.
5. Vessels restricted in maneuverability.

Vessels must communicate with the VTS using English or Mandarin Chinese and maintain a continuous listening watch on VHF channel 16 when in port.

Several **Reporting Lines** have been established for contact with the VTS and are listed, as follows:

1. **Reporting Line L1**—A line joining Beidingxing Dao and Xugong Dao.
2. **Reporting Line L2**—A line joining Xugong Dao, Banyang Jiao Light, and Baijie Shan Light.
3. **Reporting Line L3**—A line joining Zhongkui Dao Light and Fengchao Yan Light.
4. **Reporting Line L4**—Abeam Maji Shan Lighted Buoy No. 2.

Maji Shan VTS can be contacted, as follows:

1. Call sign: Zhoushan VTS Center
2. VHF: VHF channels 12 and16

See paragraph 6.31 for more information about Zhoushan VTS as well as the table titled **Zhoushan VTS—Reporting Requirements** detailing when reports need to be made to the VTS.

Anchorage.—Anchorage can be taken in one of the designated areas as described below and best seen on the chart:

1. **Anchorage Area No. 1**—Bounded by lines joining the following positions:
   a. 30°26'31"N, 122°45'27"E.
   b. 30°25'33"N, 122°46'58"E.
   c. 30°24'15"N, 122°45'50"E.
   d. 30°25'13"N, 122°44'20"E.
2. **Anchorage Area No. 2**—Bounded by lines joining the following positions:
   a. 30°37'12"N, 122°33'14"E.
   b. 30°37'12"N, 122°36'33"E.
   c. 30°36'06"N, 122°35'33"E.
   d. 30°36'06"N, 122°33'14"E.
3. **Anchorage Area No. 3**—Centered on position 30°38'20"N, 122°23'30"E.
4. **Anchorage Area for Waiting Vessels**—Centered on position 30°09'07"N, 122°15'24"E.

Caution.—A dangerous wreck, with a swept depth of 20.6m, lies W of Maji Shan in position 30°45'45"N, 122°22'47"E.

6.13 Tangnao Shan (30°36'N., 121°58'E.), lying 4 miles W of Dayangshan and marked by a light on its summit, is the W island in this group. **Daqu Shan** (Ch'u Shan) (30°27'N., 122°20'E.) is the principal island among the several islands and islets scattered along the S side of Huang-tse Yang. It is hilly, rugged, and has a characteristically irregular coastline much indented by mud-filled bay, inlets, and small coves. A bay on the S side of the island has been reclaimed and given over to cultivation by a considerable population inhabiting the W and N parts of the island. Vessels anchor in convenient depths, mud and sand, W of the conspicuous peninsula extending N from the central part of the N coast.

Anchorage.—Anchorage is sheltered by off-lying islands and is a safe refuge during typhoons. Anchorage off the SW extremity of the island is troubled by tidal currents which attain a velocity of 5 to 6 knots at springs.

Sanxing Liedao (30°26'N., 122°31'E.) is a group of islands and islets extending 5 miles E of Daqu Shan. Good anchorage, sheltered from E through N to NW, can be obtained, in depths of 9.1 to 12.8m, with the W extremity of Shulanghu, the W and largest island of the group, bearing 334°, distant 0.75 mile. Anchorage can also be obtained SE of Xiaoshulang, in depths of 9.1 to 11m. A light is shown from the summit of Xiao-shulang.

Qushan Dao (30°26'N., 122°22'E.) is a rather large island with a large population but there are no port facilities available. Numerous villages are located mostly in the N part of the island, with the coastal areas indented with many bays and drying mud flats. Anchorage can be found in moderate depths anywhere offshore from the entire island; however it is not recommended to anchor off the SW part of the island due to strong tidal currents exceeding 5 knots at springs. Lights are shown from extremities of the island.

Caution.—See paragraph 6.9 for details of a submarine cable extending NE from the N side of the island passing E of Shanghai Shan. Other submarine cables extend N from the island vicinity of 122°20'E and southwestward from the SW part of the island.

Langgang Shan (30°26'N., 122°55'E.), a small group of three barren rocks, lie about 26 miles E of the E side of Daqu Shan and constitute the farthest seaward danger on the S side of Huang-tse Yang. They are reported radar conspicuous at 12 miles. The group is marked by a light.

Fengchao Yen (Wu Chiao) (30°22'N., 122°41'E.), 15 miles WSW of Langgang Shan and marked by a light, is a black rugged rock 14m high; a flat-topped rock, which dries 2m, lies 0.15 mile SE. A pinnacle rock, with a depth of 2.7m, lies 0.4 mile NNW.

Maji Shan—Ore Terminal

Berth	Berth Length	Depth Alongside	Maximum Vessel		Remarks
			Size	Beam	
No. 1	456m	26.0m	365,000 dwt	37.0m	Unloading.
No. 2	431m	26.0m	365,000 dwt	37.0m	Unloading.
No. 3	315m	13.5m	—	—	Loading.
No. 4	267m	14.5m	—	—	Loading.
No. 5	267m	14.5m	—	—	Loading.

Hangzhou Wan—Central Approach—Off-lying Islands and Deep Water Channels

6.14 The islands in the central approaches to Hangzhou Wan are separated from those in the N approaches by the clear channel Ch'u Chiang and are grouped N and S of Huang-ta Yang, an intervening deep water channel somewhat restricted in its W part before it gains access to the bay under the name of Huipieh Yang.

The N islands consist of Zhongjieshan Qundao, Changtushan, and Dai Shan, as well as numerous intervening and adjacent islands, scattered islets and isolated rocks. The S group consists of the N and NE coasts of Zhoushan Dao and the off-lying islands N of **Cambria Point** (Ta-peng Chiao) (29°50'N., 122°25'E.).

Zhoushan Qundao, an angle-shaped archipelago consisting of a multitude of islands, islets, and scattered dangers to navigation, lies off the S entrance point of Hangzhou Wan, between the parallels 30°20'N and 29°38'N and the meridians 122°46'E and 121°50'E. The islands on the N side of Huangta Yang constitute the N part of the archipelago. The islands on the S side of the channel lie in the S part of the archipelago.

Zhongjieshan Qundao (30°11'N., 122°40'E.), the E main group of islands N of Huang-ta Yang, consists of four hilly islands and there are numerous adjacent islets and rocks.

Anchorage.—Anchorage for one vessel can be obtained in a depth of 18.3m, mud, with the summit of Xifu Shan, the SE island of the group, bearing 147°, distant 0.5 mile. Vessels also anchor, in 11 to 12.8m, mud, in the entrance to a bay on the SW side of Miaozihu Dao, the central island of the group. A rock, drying 3.7m and steep-to, lies in the middle of the bay; other rocks extend N from it to the shore.

Caution.—A dangerous wreck reported (2000), lies 3 miles WNW of Waimati Jiao.

6.15 **Dongfu Shan** (30°08'N., 122°46'E.), about 3 miles SE of Xifu Shan, is a high steep-sided island, reported radar conspicuous at 21 miles, is an excellent landmark from the S. A dome-shaped white patch on the N side of the island is a good mark. Vessels approach the anchorage on the SW side of the island by steering for the island's summit on a heading of 057° and come to anchor, in 23.7 to 31m, sheltered from N and E winds, when the summit of **Qingbin Dao** (30°12'N., 122°42'E.) bears 327°.

Liangxiongdi Dao (30°10'N., 122°57'E.), consisting of two islets, 25m high, lies about 9 miles ENE of Dongfu Shan, and is the farthest seaward danger on the N side of Huang-ta Yang.

Sizimei Dao (30°10'N., 122°52'E.), 3 miles W of Liangxiongdi Dao, consists of a group of four islets 24m high; a rock, with a depth of 4.3m, lies 0.8 mile S of them. Other dangers may best be seen on the chart.

Hsiao-pan Men (Xiaoban Men) (30°12'N., 122°36'E.), the deep and clear body of water between Huangxing Dao and two islets about 2 miles to the W, is the passage most commonly used by deep-draft vessels seeking to transit the many scattered islets between Zhongjieshan Qundao and Daxizhai Dao. The passages W of Daxizhai Dao are not recommended because of numerous dangers and strong tidal currents.

Daxizhai Dao (30°14'N., 122°29'E.) is a 185m high saddle-shaped island lying about 8 miles W of Zhongjieshan Qundao.

Anchorage.—Anchorage sheltered from N and E winds, can be obtained 0.5 mile off the SE side of the island, in a depth of 18.3m, soft mud. Vessels also anchor, in 18 to 26m, mud, seaward of a small inlet on the N side of the island.

6.16 **Changtushan** (30°15'N., 122°20'E.), the middle main group of islands N of Huang-ta Yang, consists of two rugged and largely mountainous islands whose coastline is indented by numerous bays, coves, and inlets the greater number of which are fronted by drying mud flats. Xiachangtu Shan, the W island, and Dachangtu Shan, the E island, are separated by Changtu Gang, a narrow landlocked channel which provides a good anchorage and typhoon refuge. There is room for several medium size vessels, in depths of 9.1 to 23.8m.

Under ordinary conditions, little swell sets into **Changtu Gang** (30°15'N., 122°17'E.), but during typhoons a swell from the E rounds the SW extremity of Dachangtu Shan and breaks on a drying mud flat on the S side of the W entrance to the channel. Tidal currents set in the axis of the channel and reach a velocity of 5 knots in the W entrance. Small vessels drawing 4.9m enter the channel from either entrance at any stage of the tide.

Larger vessels, over 61m long and drawing not more than 7.3m, use the W entrance at slack water, in preference to the E entrance where a sharp turn and strong currents make ship handling difficult. Vessels anchor in the middle part of the channel where the drying mud flats extending offshore are steep-to. Vessels sheltering from a typhoon keep one anchor upstream and one downstream and ride with 75 to 90m of chain on each anchor as the currents may cause single anchors to foul.

Chu-hsu Chiang (30°14'N., 122°14'E.), the narrow body of water W of Xiaochangtu Shan, is a deep water channel between Huang-ta Yang and Ch'u Chiang, and is navigable with caution by deep-draft vessels. The sides of the channel are fronted by large areas of steep-to, drying mud flats which extend offshore from adjacent islands. The N and S entrances are encumbered by scattered islets, shoal water, and several dangerous underwater rocks.

Directions.—Approaching Chu-Hsu Chiang from the S, steer to pass about 1 mile N of **Jiaobeishan** (30°11.0'N., 122°18.5'E.) and then midway between the islet **Wen-ch'ung Sham** (30°12.0'N., 122°14.8'E.) and a 4.9m patch lying 1 mile NNE of it. When the W extremity of **Dazhuxu** (30°17.3'N., 122°14.8'E.) is in line with a 6m high rock (30°14.4'N., 122°15.0'E.) close of SW point of Xiaochangtu Shan, bearing 353°, alter course NNW to pass W of **Bayliss Rock** (30°14.3'N., 122°14.8'E.). The summit of **Ta-yuan Shan** (30°13.7'N., 122°16.1'E.) must be kept open S of a 2m high rock lying NW of it until the E extremity of a 36m high islet (30°17.1'N., 122°15.4'E.) is open on the W side of Xiaochangtu Shan. After passing Bayliss Rock, steer to bring the E extremity of Dai Shan to bear 000° and just open W of the W extremity of Dazhuxu. When the summit of the 36m high islet bears 030° steer for it on that bearing until the W extremity of Wen-ch'ung Shan is just open W of the W extremity of Xiaochangtu Shan, bearing 184° then steer 062°. When the N sides of Dazhuxu and the 36m high islet are in line bearing 292°, alter course NNE and keep the NW extremity of Xiao-changtu Shan bearing 214° astern.

Vessels approaching the channel from the N follow these di-

rections in the reverse order.

For the W entrance of Changtu Gang, enter the channel W of Dachangtu Shan as previously directed. When the 2m high rock (30°14.0'N., 122°15.3'E.) is abeam to the starboard, alter course ENE for the harbor entrance and pass 91 to 183m N of the rock. The navigable channel abreast this rock is only 0.15 mile wide. After passing the rock, bring it to bear 226°, astern, so as to pass 137m off a rocky point on the N shore, 0.75 mile NE. Then keep to the N shore, which is mud and steep-to, until clear of a rock, which dries 3m, lying close within the SE entrance point. Thereafter, a mid-channel course can be steered to the anchorage.

The E entrance to Changtu Gang lies close W of the bluff NW point of Dachangtu Shan and is difficult to identify. The entrance is about 0.3 mile wide with a least depth of 5.8m in the fairway. If approaching from the E, care must be taken that the N extremity of Duozi Shan does not bear less than 090° until W of the Hornets. To enter, keep close to the bluff NW point Dachangtu Shan and then maintain a mid-channel course to the harbor.

Great care and attention is required when negotiating the sharp bend around the SE corner of Xiaochangtu Shan, where the channel is only about 0.2 mile wide. Numerous fishing boats and nets will be encountered before reaching the anchorage.

6.17 Jiaobei Shan (30°11'N., 122°18'E.), 3 miles S of the W part of Dachangtu Shan, is a double rock 23m high, covered with grass on top. Tidal currents around the rocks are strong and variable and vessels should give it a berth of at least 0.5 mile. Hsiao-chiao-pei, 8m high, lies 0.5 mile WNW of Jiaobeishan. It has a gap in the middle which is prominent when seen from SE or NW.

A steep-to pinnacle rock, lying 1 mile NNE of Jiaobeishan, has a depth of 3.7m; another pinnacle rock, with a depth of 6.4m, lies 2 miles W of Jiaobeishan. Neither rock gives any visible indication of their existence.

Dai Shan (30°17'N., 122°10'E.), largest of the main group of islands on the N side of Huang-ta Yang, consists of two rugged and hilly islands which, rising from large surrounding areas of drying mud flats, have been joined together by heavily cultivated fields of reclaimed land to form a single island with an irregular, indented coastline.

Numerous islets and rocks lie scattered in all approaches. Yanwo Dao (Castle Rock), the outermost of several islets and rocks extending NNW from the N point of the island, is a high conspicuous rock. Tidal currents in the vicinity of this rock attain a rate of 4 to 6 knots at springs, causing whirlpools and eddies. It is advisable to give the rock a berth of at least 0.5 mile.

Dajiao Shan (30°13'N., 122°08'E.), lying centrally in the channels S of Dai Shan, consists of two hills, 72m and 105m high, connected by a low, narrow isthmus. Kuan Shan, 1 mile E, has a prominent dome shaped summit 182m high.

6.18 Kuanshan Chiang (30°13'N., 122°12'E.), a deep water navigable channel between Kuan Shan and **Xiu Shan** (30°10'N., 122°10'E.), is the preferred passage among several in the W access to Huang-ta Yang and is used by full-powered vessels as the most direct route to Chu-hsu Chiang. Several above and below-water dangers on the S side of the channel as well as strong currents and eddies that require caution in transiting. Kao-t'ing Chiang, a deep water, navigable channel W of Kuan Shan, is an encumbered passage leading to Daishan (Kao-t'ing-chen), a small community on the SE extremity of Tai Shan. Tidal currents in both Kao-t'ing Chiang and Kuanshan Chiang reach a maximum rate of 5 knots at neaps and 8 knots at springs.

Anchorage may be taken approximately 6 miles ESE of Xiushan Dao, in depths of 12.4 to 19.2m.

Huoshan Liedao (30°20'N., 121°55'E.), a group of islets W of Dai Shan, constituting the W extremity of the islands and groups of islands N of Huang-ta Yang, consists of two larger islets joined by an extensive drying mud flat, and numerous smaller islets, isolated rocks, and underwater dangers.

Dayu Shan (30°19'N., 121°58'E.), the E island of the group, rises to a ridge with several well-defined peaks of similar height; the highest peak, 121m high, is at its N end. Xiaoyu Shan, 1 mile W of Dayu Shan, has a 123m high hill in its center; a chain of islets and rocks extends 2 miles NW to Dachen Shan, 57m high.

Yuxingnao (30°21'N., 121°52'E.), a black rock, 19m high, split in two and marked by a light, lies on the W end of the scattered dangers in the W part of Huoshan Liedao. Other dangers may best be seen on the chart.

Caution.—Fishing stakes may be encountered within 4 miles ENE of the N end of Dayu Shan and within 5 miles S of Yuxingnao.

Two dangerous wrecks are located about 3.3 miles WNW of Yuxingnao in depths of 10.9m and 9.3m. Another dangerous wreck is located about 5.3 miles WNW of Yuxingnao in a depth of 8.8m. An obstruction in a depth of 11m and another wreck, depth unknown, are 2.8 and 4 miles NW of Yuxingnao, respectively. All of these can be best seen on the chart.

6.19 Zhoushan Dao (30°05'N., 122°06'E.), the principal island in Chou-shan Ch'un-tao and the largest island of the several islands and numerous islets S of Huang-ta Yang, has a largely mountainous surface alternating with several well-cultivated coastal plains and an irregular much-indented coastline of which the N and NE sections are fronted by extensive areas of drying mud flats, large areas of shoal water, and numerous smaller islands, islets, and scattered offshore rocks.

Depths—Limitations.—Zhoushan Dao is a new offshore harbor area in SE China. Several berths have been constructed at various locations around the island. Xiushandao Ferry Quay (30°12'N., 122°10'E.) has a dredged depth of 6.5m alongside. For further berthing formation refer to the table titled **Zhoushan Dao—Berth Information**.

Caution.—A submarine cable extends from the NW extremity of Zhoushan Dao, passing W of Gualian Shan, then N and NE to the small island of Shuanghe Shan (connected by a bridge to the larger island of Daishan Dao) through the following points:

a. 30°10'49"N, 121°56'55"E. (coast)
b. 30°11'32"N, 121°28'58"E.
c. 30°12'55"N, 121°29'59"E.
d. 30°17'19"N, 121°22'25"E.

e. 30°18'20"N, 121°22'59"E. (coast)

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
Daishan Ferry Terminal					
Gaoting No. 1	36m	4.0m	5,000 dwt	—	Fast ferries.
Gaoting No. 2	36m	4.0m	5,000 dwt	—	Fast ferries.
Gaoting No. 3	36m	4.0m	5,000 dwt	—	Fast ferries.
Gaoting No. 4	50m	4.5m	1,000 dwt	—	Fast ferries.
Gaoting No. 5	50m	4.5m	1,000 dwt	—	Fast ferries.
Gaoting Ro-Ro	45m	5.0m	1,000 dwt	84m	Fast ferries.
Dingai					
Power Plant	110m	6.2m	3,000 dwt	—	Coal
Huibang Construction					
Cement Jetty	65m	—	5,000 dwt	99m	Cement.
Langxi Power Station					
Coal Dock	208mm	15.0m	10,000 dwt	159m	Coal.
Laotangshan					
200k East	255m	21.3m	200,000 dwt	299m	Iron ore.
200k West	255m	21.3m	200,000 dwt	300m	Iron ore.
Phase 5 Inner No. 1	222m	13.6m	35,000 dwt	199m	Iron ore.
Phase 5 Inner No. 2	222m	13.6m	35,000 dwt	199m	Iron ore.
Phase 5 Outer Berth	287m	19.5m	120,000 dwt	295m	Iron ore.
Terminal 1	250m	10.5m	15,000 dwt	—	Coal.
Terminal 2N Coal Berth	137m	11.5m	7,000 dwt	—	Coal.
Terminal 2S Coal Berth	186m	11.5m	25,000 dwt	199m	Coal.
Terminal 3	302m	15.0m	80,000 dwt	134m	Grain and multi purpose.
Terminal 4 Inner Barge N	92m	—	—	238m	Grain.
Terminal 4 Inner Barge S	92m	—	—	84,6m	Grain.
Terminal 4 Outer Berth N	244m	—	—	—	Grain. Length of 488m including dolphins.
Liuheng Desalination Plant					
Phaze I/II Berth	161m	—	—	—	Sand, project cargo, and steel.
Liuheng Power Plant Berth	155m	—	—	—	Coal
Maijishan Ore Terminal					

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
No. 1	456m	26.0m	365,000 dwt	—	Iron ore.
No. 2	431m	26.0m	365,000 dwt	—	Iron ore.
No. 3	315m	13.5m	35,000 dwt	—	Iron ore.
No. 4	267m	14.5m	50,000 dwt	—	Iron ore.
No. 5	267m	14.5m	50,000 dwt	—	Iron ore.
Pu Cold Field					
Terminal	72m	9.0m	3,000 dwt	—	Coal.
Puto Shan Passenger Transport Port					
Passengers	100m	7.0m	5,000 dwt	—	Fast ferries.
Passengers/ Cruise vessels	180m	14.0m	10,000 dwt	—	Cruise vessels.
Quashan Ferry Terminal					
Ro-ro Berth North	—	—	—	—	Ro-ro and passengers.
Ro-ro Berth South	—	—	—	—	Ro-ro and passengers.
Shuaghe Ferry Terminal					
Ferry Berth	100m	—	—	—	Fast ferries.
Ro-ro Berth	79m	—	1,000 dwt	—	Ro-ro and passengers.
Shulanghu Ore Terminal					
1	479m	24.8m	403,800 dwt	362m	Iron ore.
2	356m	—	403,880 dwt	362m	Iron ore.
3	378m	15.5m	88,151 dwt	234m	Iron ore.
4	246m	14.0m	88,815 dwt	234m	Iron ore.
Xishan Ferry Terminal					
Ferry Berth	60m	5.0m	5,000 dwt	—	Fast ferries.
Ro-ro Berth	59m	6.7m	1,000 dwt	—	Ro-ro and passengers.
Xishan Lanshan Ferry Terminal					
Ro-ro Berth	—	—	—	—	Ro-ro and passengers.
Zhejiang Petroleum & Chemical Dry Cargo Terminal					
No. 1	—	—	50,000 dwt	199m	Coal.
No. 2	—	—	50,000 dwt	199m	Coal.
No. 3	—	—	50,000 dwt	199m	Coal.
No. 4	320m	—	10,200 dwt	131.1m	Other.
No. 5	220m	—	3,000 dwt	—	Other.
Zhejiang Petroleum & Chemical General Cargo Terminal					
No. 1	—	—	50,000 dwt	—	Containers, project cargo, and steel.
No. 2	—	—	50,000 dwt	—	Containers, project cargo, and break-bulk.

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
No. 3	—	—	50,000 dwt	—	Containers, project cargo, and break-bulk.
No. 4	—	—	50,000 dwt	—	Containers, project cargo, and break-bulk.
Zhejiang Zheneng Zhongmel Zhousan Coal Power Station					
No. 6	116m	5.5m	3,000 dwt	—	—
Loading No. 1	—	14.0m	35,000 dwt	—	Coal.
Loading No. 2	—	14.0m	20,000 dwt	—	Coal.
Loading No. 3	—	23.0m	5,000 dwt	—	Coal.
Unloading No. 1	—	23.0m	150,000 dwt	—	Coal.
Unloading No. 2	—	23.0m	50,000 dwt	—	Coal.
Zheijang Zhoushan Wugang Terminal					
Import Berth	385m	27.0m	250,000 dwt	—	Iron ore.
Transhipment Berth	585m	12.0m	50,000 dwt	—	Iron ore.
Zhondong Port					
No. 1	219m	12.0m	10,000 dwt	—	Sand.
Zhongdong (Zhoushan) Port					
No. 1	219m	12.0m	10,000 dwt	—	Aggregates and sand.
Zhousan Haozhou Terminal					
Haozhou berth	200m	—	3,000 dwt	—	Cement.
Zhoushan Port Free Trade Zone					
East Berth	—	—	50,000 dwt	—	Bulk cargo.
West Berth	—	—	50,000 dwt	—	Bulk cargo.
Zhoushan Yongzhou Container Terminals.					
No. 1	—	18.0m	162,867 dwt	368m	Containers and bunkers.
No. 2	—	18.0m	153,745 dwt	368m	Containers and bunkers.
No. 3	340m	18.0m	115,297 dwt	337m	Containers and bunkers.
No. 4	—	18.0m	70,000 dwt	—	Under construction.
No. 5	—	18.0m	70,000 dwt	—	Under construction.
CNOOC Zhoushan Petrochemical					
No. 2	86m	—	100,000 dwt	228m	LPG and clean products.
No. 3	40m	—	—	—	Chemicals.
No. 4	42m	—	—	—	LPG.
No. 5	42m	—	—	—	CCP.
No. 6	140m	—	50,000 dwt	—	Coal.
Enn Zhoushan LNG Import and Bunkering Terminal					
No. 1	55m	13.9m	—	345m	LNG and bunkers.
No. 2	55m	10.9m	—	216m	LNG and bunkers.

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
Ro-Ro Jetty	96m	5.9m	—	125m	Ro-ro/lo-lo and project cargo.
Zhoushan Good Ocean Grain & Oil Co. Ltd					
Grain & Oil	313m	—	150,000 dwt	—	Vegetable oils and grains.
Tanker Terminals					
Banshengdong Terminal					
Petroleum Storage No. 2	69m	11.7m	40,000 dwt	—	CCP.
Brightoil Terminal (Waidiao Island)					
No. 1 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 2 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 3 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 4 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 5 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 6 E	67m	—	3,000 dwt	—	DPP and CPP. Under construction.
No. 1 S	70m	—	20,000dwt	—	DPP and CPP. Under construction.
No. 2 S	234m	—	50,000 dwt	—	DPP and CPP. Under construction.
No. 3 S	217m	—	100,000 dwt	—	DPP and CPP. Under construction.
No. 1 W	82m	—	300,000 dwt	—	DPP and CPP. Under construction.
CNCP Luijazhi					
Oil	67m	6.0m	3,000 dwt	—	CCP.
Saishan Oil Terminal					
Crude Oil berth	76m	13.0m	20,000 dwt	—	Crude.
Guangsha Zhoushan Terminal (Haungzeshan Island)					
No. 1	51m	—	30,000 dwt	—	Crude.
No. 2	50m	—	80,000 dwt	—	Crude.
No. 3	50m	—	10,000 dwt	—	Crude.
No. 4	50m	—	10,000 dwt	—	Crude.

Jimrun Petrochemical Terminal					
No. 1	59m	24.0m	30,000 dwt	—	CCP and bunkers.
No. 2	91m	10.0m	3,000 dwt	—	CCP and bunkers.
Jintai Petrochemical Terminal					
Oil berth	52m	12.0m	10,000 dwt	—	DPP.
Sinochen Xingzhou Oil Staging					
No. 6	75m	—	5,000 dwt	—	DPP.
Aoshan Oil (Achan) No. 2	32m	14.0m	100,000 dwt	250m	CPP.
Aoshan Oil (Achan) No. 3	120m	9.5m	10,000 dwt	160m	CPP.

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
Aoshan Oil (Achan) No. 4	42m	6.8m	5,000 dwt	110m	CPP.
Aoshan Oil (Achan) No. 5	43m	23.8m	375,000 dwt	334m	Crude.
Aoshan Oil (Achan) No. 1 (VLCC berth)	49m	21.4m	320,000 dwt	330m	Crude.
Wanxiang Pertoleum Terminal					
No. 1	95m	12.8m	100,000 dwt	229m	CPP and DPP.
No. 2	27m	5.0m	100,000 dwt	70m	CPP.
No. 3	40m	6.2m	3,000 dwt	98m	CPP.
No. 4	52m	7.1m	—	113m	CPP.
50k Tanker Bertk	300m	12.8m	50,000 dwt	229m	CPP.
East Jetty	300m	141m	10,000 dwt	141m	CPP.
West Jetty	300m	8.3m	10,000 dwt	141m	CPP.
Zhejiang Jiangiao Energy Terminal					
Xixeshi Jianqiao 50k berth	—	17.0m	50,000 dwt	—	DPP.
Xixeshi Jianqiao 5k berth	53m	10.5m	5,000 dwt	—	DPP.
Xixeshi Tanker berth	100m	13.0m	35,000 dwt	—	DPP.
Zhejang Offshore Petrochemical (ZOPC)					
No. 1	167m	12.0m	30,000 dwt	—	CPP and DPP.
Zhejang Petrochemical Oil Terminal					
No. 1	112m	—	50,000 dwt	—	CPP.
No. 2	—	—	72,777 dwt	220m	CPP.
No. 3	—	—	72,777 dwt	220m	CPP.
No. 4	—	—	50,000 dwt	184m	CPP.
No. 5	—	—	12,710 dwt	142.5m	LPG.
No. 6	—	—	50,000 dwt	220m	LPG.
No. 7	—	—	50,000 dwt	—	LPG.
Zheijang Tyloo Energy					
Oil Jetty	104m	12.0m	50,000 dwt	—	CPP.
Zhong Ao Energy					
North berth	66m	—	50,000 dwt	—	Chemicals, CPP, and DPP.
South berth	36m	—	80,000 dwt	—	Chemicals, CPP, and DPP.
Zhoushan Centry Pacific Chemical Terminal					
No. 1	65m	13.4m	110,000 dwt	250m	Aviation fuel, chemicals, and CPP.

Zhoushan Dao—Berth Information					
Berth	Length	Maximum Vessel			Remarks
		Draft	Size	LOA	
No. 2	75m	14.5m	30,000 dwt	288m	Aviation fuel, chemicals, and CPP.
No. 3	75m	13.9m	10,000 dwt	186m	Aviation fuel, chemicals, and CPP.
Zhoushan Jinneng Petrochemical					
No. 1	98m	12.8m	2,000 dwt	—	DPP.
Zhoushan Mingyang Petrochemical					
No. 1	59m	—	10,000 dwt	147m	CPP.
No. 2	—	—	10,000 dwt	147m	CPP.
Zhoushan Ruixin Petrochemical					
Tanker Berth	48m	8.6m	30,000 dwt	—	DPP.
Zhoushan Shihua Cezidao Crude Oil Terminal					
Pipeline Berth No. 1	45m	25.0m	300,000 dwt	334m	Crude.
Zhoushan Shihua Crude Oil Terminal					
Crude Jetty	47m	28.8m	450,000 dwt	490m	Crude.
Zhoushan Sinobunker					
Bunker Jetty	58m	—	3,000 dwt	—	CPP and DPP.
Bunker Jetty N	26m	—	—	—	CPP and DPP.
Bunker Jetty S	40m	—	—	—	CPP and DPP.

Several areas, dangerous due to unexploded ordnance, lie approximately 13 to 18 miles SSE of Dongting Shan. Through traffic should stay seaward of these areas.

6.20 Daishan Dao (30°17'N., 122°10'E.) is a rather large island located N of Zhoushan Dao, rising to an elevation of 254m in the SE part. Daishan (Gaoting Gang), the only port on the island, is located on the island's SE side and is one of the main fishing ports in the Zhoushan area. Daishan has numerous berths with some capable of accommodating vessels as large as 3,000 dwt.

Qushan Dao (30°27'N., 122°20'E.) is a smaller island located NW of Daishan Dao, with the highest peak, Guanyin Shan, at an elevation of 317m in the SW part. Qushan Dao is populated with the highest concentration of villages in the N and W parts of the island. Numerous bays and inlets characterized by drying mud flats can be found all around the island.

Anchorage.—Anchorage is available in moderate depths offshore from any part of Qushan Dao making sheltering from any wind direction available. However, anchorage near the SW part of the island is not recommended as the tidal currents in that area reach a velocity of 5 to 6 knots during springs.

Caution.—A submarine power cable runs from SW part of Qushan Dao to the N coast of Daishan Dao through the following positions:

a. 30°25'30"N, 122°16'47"E. (coast)
b. 30°25'35"N, 122°16'27"E.
c. 30°24'29"N, 122°13'15"E.
d. 30°24'10"N, 122°12'54"E.
e. 30°22'32"N, 122°12'56"E.
f. 30°19'46"N, 122°11'37"E. (coast)

6.21 Dongting Shan (Waiyang'an Dao) (29°52'N., 122°35'E.) is a bare, rocky islet which, reported radar conspicuous at 22 miles, constitutes the farthest seaward natural danger in the approach to the S side of Huang-ta Yang. The islet, 49m high, is cleft in two from N to S and is bare and rocky except for some cultivated plots. A light is shown from the summit of the islet.

Zhujiajian Dao (29°56'N., 122°23'E.), a mountainous island with large areas of drying mud flats and extensive areas of well-cultivated reclaimed land on its W sides, lies almost joined to the SE extremity of Zhoushan Dao. It is separated N from Putuo Shan, a smaller mountainous islet, by the deep water channel Lien-hua Yang. The coastline on the E side of the island is indented by many shoal bays fronted by several scattered islets and off-lying rocks.

Anchorage.—Small vessels obtain anchorage, during the Northeast Monsoon, within the entrance to Wolf Bay (Nan-sha Wan), the largest bay on the SE side of Zhujiajian Dao.

Vessels anchor, in 21.9 to 25.6m, good holding ground, close off the S extremity of Putuo Shan, where the maximum rate of the tidal current is reported to be 3 knots at neaps.

6.22 Hulu Dao (30°02'N., 122°26'E.), 88m high, lies off the NE end of Putuo Shan, from which it is separated by a deep channel.

Huaping Shan (30°04'N., 122°29'E.) is a scattered group of

four prominent and five smaller above water rocks surrounded by foul ground lying 2 miles ENE of Hula Dao. These rocks are steep-to and soundings give no warning of their proximity.

Wai-huo Hsu (30°04'N., 122°27'E.), a grass covered islet with a well-defined 46m summit, lies 1 mile WNW of Huaping Shan.

Lihuo Yu (30°06'N., 122°22'E.), 35m high, lies 6 miles WNW of Huaping Shan. A light is shown from the summit.

Vessels bound N for Chu-hsu Chiang pass close W of Wai-huo Hsu to clear the scattered underwater dangers fronting Putuo Shan, and usually pass NE of Lihuo Yu, although the passage SW is safe for vessels of any draft.

The channels among the several islets and rocks W of Lihuo Yo are not recommended.

The S side of the W access to Huang-ta Yang is obstructed by several islands having surrounding margins of drying mud flats. It is dotted by numerous islets and scattered underwater dangers which, lying close offshore, are separated from the N coast of Zhoushan Dao by a tortuous, intricate channel, not recommended without local knowledge of the many dangers and strong tidal currents.

Hangzhou Wan—Southeast Approach

6.23 The SE approaches to Hangzhou Wan are fronted by the larger island Chou-shan Tao and the remaining smaller off-lying islands of the S portion of Chou-shan Ch'un-tao. The approaches are traversed by several deep water access channels which, leading from sea, pass through the smaller off-lying islands and, once inside, unite to form a broad channel trending W from the S entrance point of Hangzhou Wan, as well as branching N to pass W of Zhoushan Dao. The principal ports in the area are Dinghai and Zhenhai.

Chuanshan Bandao (29°53'N., 122°08'E.), the S entrance point of Hangzhou Wan, is the SE extremity of a long, mountainous promontory which terminates to the E, the generally low and flat S side of Hangzhou Wan.

Hangzhou Wan—Southeast Approach—Off-lying Islands and Deep Water Access Channels

6.24 The off-lying islands in the SE approaches to Hangzhou Wan extend about 20 miles NE-SW between Zhujiajian Dao and Liuheng Dao, and consist of several large mountainous islands and a multitude of lesser islands, clustered islets, and scattered above and below-water dangers. Most of the islands rise from surrounding shoal water and have irregular, indented coastlines, extensive portions of which are fronted by large areas of drying mud flats and backed by well-cultivated areas of lowland. The water area forming the channels among the larger islands is deep.

Wu-sha Men (29°49'N., 122°22'E.), the N access channel, lies between Zhujiajian Dao and Taohua Dao and trends NW before branching N into **Chu-chia Kang** (Fremantle Channel) (29°54'N., 122°24'E.) or WNW into **Che'ng-tzu Man** (Rambler Channel) (29°51'N., 122°17'E.). The latter channel is partially blocked at its E entrance by **Hsuan-po-ku Shan** (29°50'N., 122°19'E.) and several adjacent islets. At times, it is entirely obstructed by fishing nets. Stonecutters Bridge, with a vertical clearance of 63m, spans the S end of Rambler Channel. The passage between Hsuan-po-ku Shan and Taohua Dao is not recommended because of strong tidal currents.

Vessels enter Wu-sha Men either N or W of the steep-sided islet Wuzhu Shan, the farthest seaward danger in the entrance, and passing NE of the drying rock **Pan-ch'ao Yen** (29°48.4'N., 122°21.3'E.), shape a course so as to pass between Shou-hsien Yu, a small island close SW of Zhujiajian Dao, and the low-lying Channel Rocks (Tung-chien Shih), located about 0.5 mile W. Then they enter Chu-chia Kang and steer a mid-channel course until reaching Tung-shan Tao, an islet N of the island Dengbu Dao. They clear the drying mud flats on the N side of the channel by keeping **Lujiazhi** (29°55'N., 122°18'E.), about 2.5 miles NW of Tung-shan Tao, on a heading of not less than 295°.

Tidal currents at the S entrance to the channel have a maximum rate of 3 knots.

Small vessels, seeking shelter from typhoon winds, can obtain anchorage, in 10.1m, in the channel N of Lujiazhi, however, the depths approaching the anchorage may be less than charted. Larger vessels can anchor about 1.3 miles SW of **Xiaogan Shan** (29°57'N., 122°14'E.). The holding ground is good, but the anchorage is unsheltered. Tidal currents are sufficiently strong enough to prevent the ship swinging to the wind.

6.25 **Xiazhi Men** (Shih-peng Chiang) (Vernon Channel) (29°46'N., 122°15'E.), the middle channel, lies between T'ao-hua Dao and Xiaqi Dao and trends NW from the clear E entrance for about 8 miles to the several islands and many scattered rocks obstructing the W entrance. The E entrance is reported radar conspicuous at 22 miles.

Tidal currents within the channel reach a maximum velocity of 5 knots at neaps and springs. Vessels can obtain anchorage, in 7.3m, in a large shoal bay on the NE side of Xiaqi Dao and also in 12.8m close S of Ta-shuang Shan, the highest of the several islands in the W entrance to the channel.

Touyang Gang (Tiaozhou Men) (29°43'N., 122°16'E.), the SW access channel, formerly known as Beak Head Channel, lies between Xiaqi Dao and Liuheng Dao. Vessels transit the channel in deep water throughout by passing between Zoumatang Dao and Liangtan Dao, two smaller islands among a group of dangers about 4 miles inside the E entrance.

There are three power transmission lines with overhead clearances of 19m, 26m, and 36m present in Touyang Gang.

Anchorage.—Vessels anchor, in 18.2m, NW of Jinbomeng (Jinboyu Dao), an island surrounded by shoal water located about 2 miles NW of Zoumatang Dao, or proceed to the W entrance. A NW current tends to set onto Hsi-ho-tsui (Ta-men Shan), the outermost danger on the E side of the entrance.

Directions.—The Zhejiang Maritime Safety Administration (MSA) has established a recommended track and branch track for safety in the outer approaches to Touyang Gang (Tiaozhou Men). The recommended track connects position 29°41'02"N, 122°20'48"E and position 29°41'19.5'N, 122°19'05.8"E, bearing 270° inbound and 090° outbound. The branch track, intended for ultra-large vessels only, connects position 29°44'01.9"N, 122°20'48"E and position 29°42'06.4"N, 122°17'18"E bearing 238° inbound and 058° outbound.

Caution.—A submarine power cable (35KV) has been placed between Liangtan Dao and Zoumatang Dao and passes through the following positions:

a. 29°45'52"N, 122°13'10"E.
b. 29°45'44"N, 122°12'59"E.
c. 29°45'28"N, 122°12'47"E.
d. 29°44'22"N, 122°12'07"E.
e. 29°44'04"N, 122°12'01"E.
f. 29°44'51"N, 122°12'06"E.

Vessels that transit Hobart Channel (Hsia-ma Men), the passage NE of Zoumatang Dao leading to Xiazhi Men, is not recommended without local knowledge. Vessels also anchor in appropriate depths, mud and sand, in Port Rouse (Mo-t'ou Kan), an anchorage off the SE coast of Liu-heng Tao convenient for awaiting tidal conditions in T'iao-chou Men.

Hangzhou Wan—Southeast Approach—Inside Channels and Harbors

6.26 Fodu Shuidao (Ch'i-t'ou Yang) (29°48'N., 122°04'E.) is the body of water lying between Liuheng Dao and Meishan Dao, a large, rather low and well-cultivated island which, rising from surrounding areas of drying mud flats, lies to the NW and separated from the mainland by a narrow, unnavigable channel.

Vessels anchor, in 23.7m, mud, midway between the entrance points of a bight formed on the N side of Liuhend Dao and in convenient depths, clear of fishing stakes, on the NW side of Fo-to-kang-tao, between Meishan Dao and **Ch'i-t'ou Chiao** (29°53'N., 122°08'E.), the W extremity of Chuanshan Bandao.

Caution.—There is ongoing reclamation work proceeding off the NW coast of Liuheng Dao with two recently created islets located close offshore W and NW of Xiangshui Jiao.

Luotou Shuidao (Pai-ya Yang) (29°55'N., 122°03'E.), the continuation W of the NE reaches of Fo-to-kang-tou, is largely encumbered N by the numerous islands and dangers fronting the S coast of Zhoushan Dao and narrowed to a deep, clear channel about 1 mile wide in its W part by the outermost island fronting Zhoushan Dao and by the islands and dangers lying off the mainland coast.

A wind farm construction S of Liuheng Dao is bounded by lines joining the following positions:

a. 29°34'59"N, 122°08'59"E.
b. 29°36'06"N, 122°14'44"E.
c. 29°36'07"N, 122°15'41"E.
d. 29°34'58"N, 122°15'41"E.
e. 29°34'58"N, 122°17'24"E.
f. 29°33'54"N, 122°16'52"E.
g. 29°34'06"N, 122°14'51"E.
h. 29°33'04"N, 122°09'29"E .

6.27 Hsiao-yang-mo-Yu (Roundabout Island) (29°54'N., 122°09'E.), 1 mile E of the extremity of Chuanshan Bandao, is steep, rocky, and has a grass covered round summit, marked by a light, 37m high. The passage inshore of the island is deep, but has heavy tide rips and strong eddies. It should not be attempted by vessels unable to maintain a speed of 10 knots against the spring tidal current. Tidal currents near the island vary from 2 to 6 knots.

Cezi Shuidao (T'se-tzu Shu-tao) (Bell Channel) (30°00'N., 121°57'E.), the continuation N of Luotuo Shuidao, lies between the drying mud flats fronting the SW coast of Zhoushan Dao and the largely mountainous off-lying island of Chin-t'ang Shan, and trends N as far as the island of **Cezi Shan** (30°06'N., 121°56'E.), where it divides into an E and W branch. The E branch, is free of tide rips and has its better passage E of the mid-lying islet Ku-tz'u Shan, the W passage being recommended with local knowledge only. Xihou (Hsi-hou) Men, the W branch, is wide and generally deep but has a rocky, uneven bottom.

Vessels proceed through Cezi Shuidao on a track passing midway between Jintang Shan and **Banyang Jiao** (Pan-yang Chino) (30°01'N., 121°58'E.), a steep-to islet lying near the center of the S entrance.

The Zhoushan Haiqu Taoyaomen Bridge, with a vertical clearance of 32m, crosses the channel between Cezi Dao and Fuchi Dao (30°06'N., 121°58'E.).

Pilotage.—Pilotage through Cezi Shuidao is mandatory for all foreign vessels. Pilotage is available 24 hours. Notice of ETA should be sent 72 hours, 48 hours, and 24 hours prior to arrival. Pilots will board in position 30°12'50"N., 121°51'00"E. Pilots can be contacted on VHF channel 16.

Vessel Traffic Service.—Zhoushan Vessel Traffic Service (Cezi Service Area) is in effect for Cezi Shuidao and the approaches N of Jintang Dao.

The Cezi VTS Service Area includes the following:

1. Cezi entrance channel.
2. Cezi harbor and Yeyashan anchorage.
3. The Xihoumen Bridge.
4. Lines connecting the Zhoushan Dao and Jintang Dao coastlines and the following positions:
   a. Dapeng Shan Light (30°05"01"N., 121°49'18"E.).
   b. Donghuo Shan (30°15'00"N., 121°43'06"E.).
   c. Dayu Shan S (30°17'30"N., 121°57'12"E.).
   d. Zhoushan Dao (30°10'00"N., 121°56'00"E.).
   e. Luotou (30°00'00"N., 122°01'24"E.).
   f. Damao Dao W (29°57'12"N., 122°01'24"E..)
   g. Luotou Jiao Light (29°56'58"N., 122°02'01"E.).
   h. Daxiao Huanggan Light (30°0'00"N., 121°56'48"E.).
   i. Jintang Dao N (30°05'12"N., 121°52'24"E.).
   j. Dapeng Shan Light.

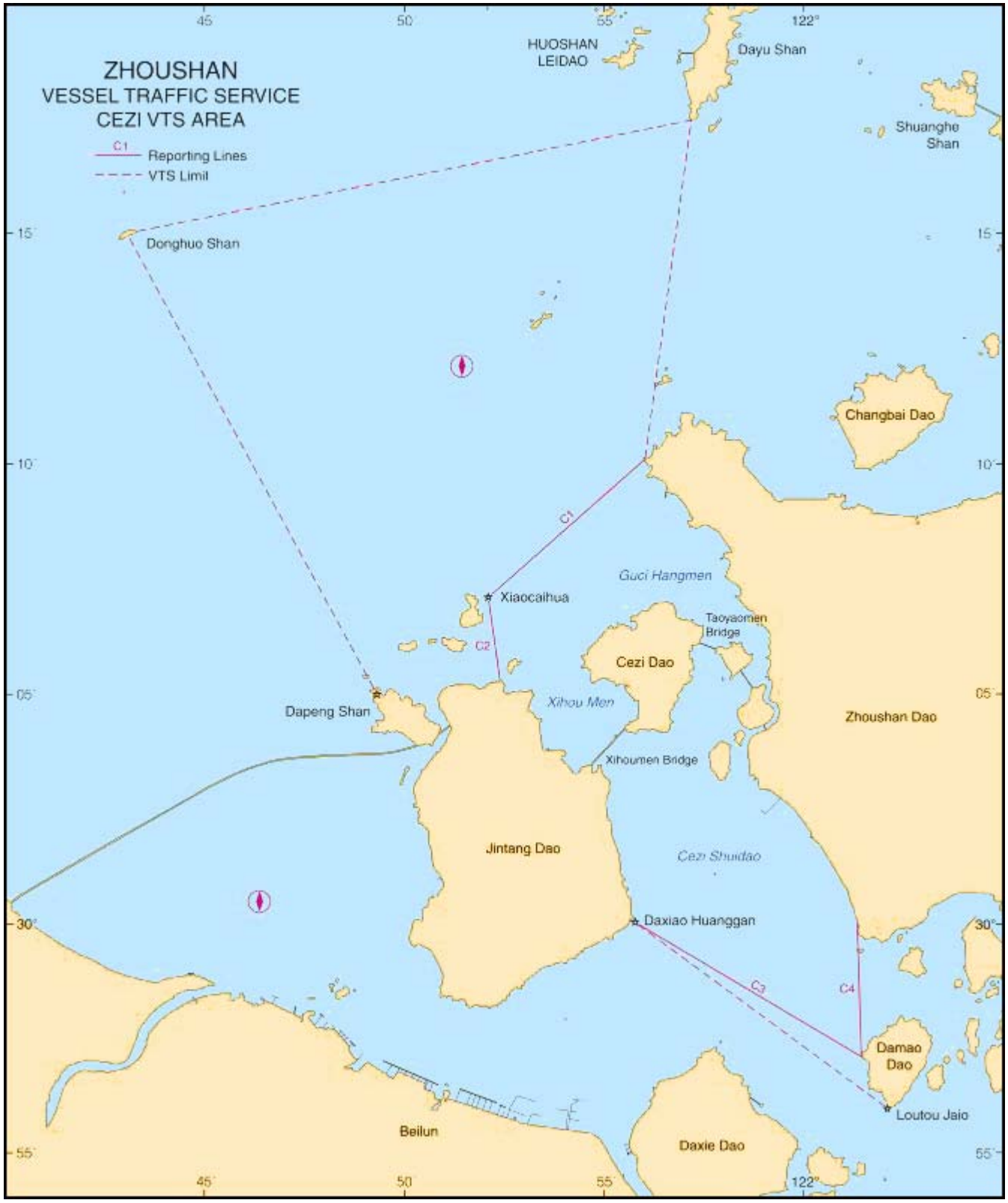
Participation in the Cezi VTS is mandatory for the following vessels:

1. All foreign vessels.
2. All passenger vessels.
3. All Chinese vessels exceeding 300 gt.
4. Vessels carrying dangerous cargo.
5. Vessels restricted in maneuverability.

Vessels must communicate with the VTS using English or Mandarin Chinese and maintain a continuous listening watch on VHF channel 16 when in port.

Several **Reporting Lines** have been established for contact with the VTS and are listed, as follows:

1. **Reporting Line C1**—The line joining Xiaocaihua Light and the W end of Zhoushan Dao.
2. **Reporting Line C2**—The line joining Xiaocaihua Light and the N end of Jintang Dao.
3. **Reporting Line C3**—The line joining Gong Shan Light (Jintang Dao) and the W end of Damao Dao.



Cezi Vessel Traffic Service

4. **Reporting Line C4**—The line joining the W end of Damao Dao and Luotou.

Cezi VTS can be contacted, as follows:

1. Call sign: Zhoushan VTS Center
2. VHF: VHF channels 11 and 16

See paragraph 6.31 for more information about Zhoushan VTS as well as the table titled **Zhoushan VTS—Reporting Requirements** detailing when reports need to be made to the VTS.

Anchorage.—Vessels anchor on the E side of Cezi Shuidao in convenient depths and out of strong tidal currents anywhere within 1 mile of the mud flats extending off Zhoushan Dao, and on the W side of the channel, in 14.6 to 18m, in a position sheltered from currents with the W extremity of Cezi Shan not yet open E of the NW extremity of Jingtang Shan.

Yehashan Inspection Anchorage, located in Hengshui Yang off the SW end of Zhoushan Dao, in depths of 20 to 30m, can be used by vessels approaching Cezi Dao. This area is bounded by lines joining the following positions:

a. 30°01'17"N, 121°59'46"E.
b. 30°00'36"N, 122°00'25"E.
c. 30°00'02"N, 121°59'44"E.
d. 30°00'15"N, 121°58'46"E.
e. 30°01'17"N, 121°59'46"E.

6.28 Jintang Shuidao (29°57'N., 121°52'E.) is entered between the SE point of Jintang Shan, and the N point marked by a light, of Daxie Dao, about 3 miles SE. The passage is the westward continuation of Luotou Shuidao and has a least charted depth of 15.1m along its centerline. It lies between the S shore of Jintang Shan and the drying mud flats fronting the mainland coast, and leads W into the approaches to the river Yung Chiang and N into the deep water area along the W side of Jintang Shan. It is deep and, in general, clear except for **Huangniu Jiao** (29°58'N., 121°54'E.), a black steep-to above-water rock lying near the middle of the E entrance, and **Dahuangmang** (29°59'N., 121°48'E.), a steep-sided islet with several adjacent dangers lying on the S side of the W entrance. Both islets are marked by lights.

Caution.—A spoil ground lies close off the S coast of Jintang Shan and is bounded by lines joining the following positions:

a. 29°57'54"N, 121°52'00"E.
b. 29°58'25"N, 121°53'24"E.
c. 29°57'53"N, 121°53'24"E.
d. 29°57'30"N, 121°52'00"E.

6.29 Beilun Ore Terminal (29°56'N., 121°53'E.), situated on the S side of Jintang Shuidao, has been built for deep-draft vessels to partially unload before proceeding to Chang Jiang estuary. An F-shaped pier provides at its head berths 351m and 500m long, with depths of 18m and 12m, to accommodate one 100,000 ton and two 25,000 ton ore carriers.

Beilun Oil Terminal (29°57'N., 121°49'E.), situated 4 miles W of Beilun Ore Terminal, has a T-shaped pier, with a berth 612m long at its head and a depth alongside of 11m.

The terminal can accommodate one 150,000 dwt and two 25,000 dwt tankers. The VLCC Beilum is anchored about 1 mile off the terminal, and is used for storing crude oil and other products delivered by smaller tankers from onshore oilfields.

Beilum Port, the new harbor area of Ningbo, is undergoing development as a major deep water port for handling bulk oil, ore, timber, container, and general cargo.

Coal container and multi-purpose berths can accommodate vessels of 50,000 dwt; general cargo berths can accommodate vessels up to 25,000 dwt. New berths have been constructed to handle timber, bulk ore, and general cargo.

6.30 Daxie Dao (29°55'N., 121°58'E.) is a large hilly island with cultivated plains protected by reclamation walls. Its SE part rises to a double peak, 333m and 329m high. A narrow passage separates the island from the mainland to the S. The E part is encumbered with islets, rocks, and fishing nets and should not be attempted.

Dixie (29°55'N., 121°59'E.), a sub-port to Ningbo, is situated on the W coast of Daxie Dao and consists of an LPG terminal and a crude-oil trans-shipment terminal.

The LPG terminal contains two berths, with a combined length of 260m and a depth alongside of 13m. Vessels of up to 50,000 dwt can be accommodated.

The crude oil transshipment terminal has a length of 490m, with an alongside depth of 21m, and can accommodate vessels of up to 300,000 dwt.

Along the SW coast between Daxie Dao and Chuanbi Dao there is an overhead power cable, with a vertical clearance of 43m, crossing the channel.

Between Dapeng Shan (30°04'N., 121°55'E.) and Jantang Shan (Chin-t'ang) lies a narrow channel convenient for typhoon refuge. Small vessels, with a draft not greater than 4.9m, moor in convenient depths where they may experience a surge due to strong eddies created during spring tides.

6.31 Zhoushan (Dinghai) (Ting-hai) (30°00'N., 122°06'E.) (World Port Index No. 59960), about 8 miles NNW of the S entrance point of Hangzhou Wan, has recently merged with the port of Ningbo and is now controlled by the Ningbo-Zhoushan Port Authority. Zhoushan is mainly engaged in transshipments of dry bulk and oil cargo to include coal, ore, cement, timber, and containers.

Tides—Currents.—At MHWS the tidal range is 0.65m and at MLWS it is 0.67m. At Dinghai the spring range is approximately 3m while the neap range is 1.3m.

Depth—Limitations.—There are ten entrance channels ranging from all directions of the compass that are free of ice and silt. The main approach channels are listed in the table titled **Zhoushan—Approach Channels**:

There are many dry cargo and tanker berths located in and around the Zhoushan vicinity and they are detailed in the table

titled **Zhoushan—Berth Information**.

Zhoushan—Approach Channels				
Channel Name	**Length**	**Depth**	**Width**	**Bottom Type**
Xiashimen	13,880m	22m	929m	Sand and mud
Shuangshimen	7,400m	37m	—	Mud and stone
Jintang	14,800m	20m	11,200m	Mud
Xihuomen	520m	20m	1,296m	Stone

Zhoushan—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Dry Cargo Berths				
Laotangshan				
Terminal 1	250m	10.5m	15,000 dwt	Breakbulk.
Terminal 2-S	186m	11.5m	25,000 dwt	Coal.
Terminal 2-N	137m	11.5m	7,000 dwt	Coal.
Terminal 3	302m	15.0m	80,000 dwt	Multi-purpose.
Terminal 4 Inner-N	92m	—	—	Grain barge.
Terminal 4 Inner-S	92m	—	—	Grain barge.
Terminal 4 Outer-N	244m	—	—	Grain transfer.
Terminal 4 Outer-S	244m	—	—	Grain transfer.
Jintangshan				
Dapukou 1 and 2	490m	—	—	Containers and bulk cargo.
Shenjiamen				
Longshan Shipyard Outfitting Wharf	145m	8.0m	30,000 dwt	General cargo.
Wharf 4 (Duntou)	97m	6.0m	3,000 dwt	General cargo.
Pingyang-pu	130m	7.5m	5,000 dwt	General cargo.
Changshi Wharf	134m	12.5m	10,000 dwt	General cargo.
Shenjiamen Pier 4	92m	6.0m	3,000 dwt	General cargo.
Putuo Shan Cruise Ship Berth	180m	14.0m	10,000 dwt	International cruise vessels.
Putuo Shan Passenger Wharf	100m	7.0m	500 dwt	Local ferries.
Dinghai				
Shunchang Logistics Pier 1	100m	7.7m	3,000 dwt	Dangerous cargo.
Duck Hill Cargo Pier	78m	8.0m	3,000 dwt	Dangerous cargo.
Qingfeng Wharf 5	105m	7.0m	3,000 dwt	Breakbulk.
Wayao Bay Wharf	104m	6.0m	5,000 dwt	General cargo.
Economic Development Zone 1	98m	7.6m	3,000 dwt	Breakbulk.
Pu Field Terminal	72m	9.0m	3,000 dwt	Coal.
Langxi Power Dock	208m	15.0m	10,000 dwt	Coal.
Dinghai Power Plant	110m	6.2m	3,000 dwt	Coal.

Zhoushan—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Zhoushan Building Materials Company Terminal	156m	10.0m	3,000 dwt	General cargo.
Harbor Ferry Terminal 1 and 2	60m	6.0m	3,000 dwt	Passengers.
Harbor Ferry Terminal 3	60m	6.0m	1,000 dwt	Passengers.
Harbor Ferry Terminal 4-7	30m	4.0m	500 dwt	Passengers.
Tongda	50m	6.0m	3,000 dwt	Vehicle ferry.
Jintang Ligang Ferry Terminal	50m	4.3m	2,000 dwt	Vehicle ferry.
Zhoushan Harbor Link Berths 1-3	36m	9.0m	500 dwt	Tugs and barges.
Gaoting Daishan				
Dai Qu Hong Kong General Terminal	157m	13.0m	10,000 dwt	General cargo.
Daishan Electricity	102m	8.0m	3,000 dwt	Coal.
Daishan and Langjizhou Power Terminal	50m	8.0m	3,000 dwt	Coal.
	36m	8.0m	3,000 dwt	Coal.
Langjizhi Cargo	103m	6.0m	3,000 dwt	Breakbulk.
Tingzhen Passenger 1-3	36m	4.0m	500 dwt	Passengers.
Tingzhen Passenger 4-5	50m	4.5m	1,000 dwt	Passengers.
High Pavilion Ferry Terminal	45m	5.0m	1,000 dwt	Vehicle ferry.
Long Tu Ferry Terminal	36m	5.0m	500 dwt	Passengers.
Mt Xiushan Ferry Terminal	41m	5.0m	500 dwt	Passengers.
Sijiao				
Li Zhu Shan North Transport Terminal	65m	4.0m	1,000 dwt	Passengers.
Li Zhu Shan Transport Terminal	101m	4.0m	1,000 dwt	Passengers.
Tong Transport Terminal	40m	5.0m	500 dwt	Passengers.
Shengshan Transport Terminal	42m	5.0m	500 dwt	Passengers.
Ocean Town Transport Terminal	40m	5.0m	500 dwt	Passengers.
Shandong Ferry Wharf	62m	4.0m	1,000 dwt	Vehicle ferry.
Rural Transport Terminal	35m	4.0m	1,000 dwt	Passengers.
Qushan				
Qushan Terminal 1-2	76m	3.8m	1,000 dwt	Passengers.
Qushan Terminal	24m	4.1m	1,000 dwt	Vehicle ferry.
Qushan Town, Daozha Granite Terminal	20m	4.0m	500 dwt	Stone cargo.
Zhoushan Wugan Port (Liangtan Island)				
Wisco Import	385m	27.0m	250,000 dwt	Iron ore discharging.
Transhipment Berths	585m	15.0m	50,000 dwt	Iron ore. Two berths for vessels up to 10,000 dwt.
Tanker Berths				
Nanfen Terminal Crude Oil Wharf	76m	11.5m	20,000 dwt	Oil products.

Zhoushan—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Petrochina Cezidao Terminal Pipeline 1	510m	25.0m	300,000 dwt	Oil products. Maximum loa of 520m. Maximum draft of 20.5m.
Sijiao				
SinopecWolfberry Dock	61m	8.5m	3,000 dwt	Oil products.
China Petroleum and Si-Xia Lycium Terminal	66m	5.4m	3,000 dwt	Oil products.
Aoshan Oil Terminal 1	538m	21.4m	320,000 dwt	Crude oil. Maximum loa of 333m.
Aoshan 2	340m	14.0m	100,000 dwt	Crude oil, clean products, and aviation fuel. Maximum loa of 250m.
Aoshan Oil Terminal 3	230m	9.5m	10,000 dwt	Oil products. Maximum loa of 160m.
Aoshan Oil Terminal 4	148m	6.8m	5,000 dwt	Oil products. Maximum loa of 110m.
Aoshan Oil Terminal 5	470m	23.8m	37,500 dwt	Oil products. Maximum loa of 334m.
CNPC Lujiazhi Terminal	67m	6.0m	3,000 dwt	Oil products.
Zhoushan Shihua (Hebang Chemical) Terminal 3	86m	7.0m	100,000 dwt	LPG.
Wanxiang Terminal				
No. 1	—	—	100,000 dwt	Under construction.
No. 2	—	—	10,000 dwt	Under construction.
No. 3	—	—	3,000 dwt	Under construction.
No. 4	—	—	1,000 dwt	Under construction.
Zhejiang Jianqiao Energy Terminal				
Fuxin Xixieshi Island	100m	12.0m	18,000 dwt	Oil products.
Banshengdon Terminal				
No. 2	69m	11.7m	40,000 dwt	Oil products.
Zhejiang Century Pacific Chemical Terminal				
No. 1	65m	17.2m	110,000 dwt	Aviation fuel, chemicals, clean products, and crude oil. Maximum loa of 250m. Maximum draft of 13.4m.
No. 2	288m	—	30,000 dwt	Aviation fuel, chemicals, clean products, and crude oil.
No. 3	75m	—	10,000 dwt	Aviation fuel, chemicals, clean products, and crude oil.
Other Berths				
Changshan	130m	7.5m	10,000 dwt	Products.
Oil Depot	84m	9.5m	5,000 dwt	Oil products.
Mazhi Wharf	173m	6.8m	3,000 dwt	Oil products.
Gangkou-pu	110m	8.0m	5,000 dwt	Products.
Langshen Oil	100m	7.5m	3,000 dwt	Oil products.
CNPC Shuangyang	60m	7.6m	3,000 dwt	Oil products.
PetroChina Shuangyang Oil Wharf	132m	7.6m	3,000 dwt	Oil products.
Zhoushan Sea Naval Depot Terminal	50m	5.0m	1,000 dwt	Oil products.

Zhoushan—Berth Information				
Berth	Pier Length	Depth Alongside	Maximum Vessel Size	Remarks
Port Pool 1	86m	7.0m	5,000 dwt	Oil products.
Port Pool 2	72m	7.0m	3,000 dwt	Oil products.
Fishery Diesal Terminal	36m	15.0m	3,500 dwt	Oil products.
Offshore Oil Chemical Terminal	91m	12.0m	3,000 dwt	Oil products.
Shunchang Logistics Pier 1	100m	7.7m	3,000 dwt	Dangerous cargo.
Duck Hill Cargo Pier	78m	7.0m	3,000 dwt	Dangerous cargo.

Pilotage.—The vessel should send its ETA at the pilot boarding position 72 hours, 48 hours, and 24 hours prior to arrival pilot station. Pilots can be contacted through VHF channel 16.

Pilots board vessels bound for Zhoushan, as follows:

1. Minerals Anchorage (29°44'36"N., 122°34'15"E.).
2. Tanker Anchorage (29°42'42"N., 122°34'15"E.).
3. Xiazhi Men Northern Anchorage (29°45'30"N., 122°21'30"E.).
4. Xiazhi Men Southern Anchorage (29°42'17"N., 122°21'11"E.).
5. In position 29°45'18"N, 122°18"57"E.
6. Ao Shan Quarantine Anchorage (29°51'35"N., 122°12'57"E.).
7. Mazhi No. 1 Anchorage (29°54'49"N., 122°15'02"E.).

Pilots board vessels bound for Daishan, as follows:

1. No. 1—30°16'42"N, 122°55'12"E.
2. No. 2—30°19'30"N, 122°17'30"E.
3. Position 30°09'05"N, 122°15'24"E.
4. Position 30°07'32"N, 122°17'41"E.

For vessels going to Maji Shan, see paragraph 6.12.

For vessels goint to Cezi, see paragraph 6.27.

Pilots board vessels bound for Luhuashan, as follows:

1. No. 1—30°45'24"N, 122°35'30"E.
2. No. 2—30°46'45"N, 122°37'16"E.

Vessel Traffic Service.—Zhoushan Vessel Traffic Service (VTS) has been established and is divided into two separate service areas covering the Maji Shan port area (see paragraph 6.12 for details) and the Cezi port area (see paragraph 6.27 for details).

Zhoushan VTS—Reporting Requirements		
Report Type	Reporting Time	Information Required
Initial	Upon passing a Reporting Line.	1. Vessel name and nationality. 2. Vessel draft. 3. Maximum height above the water. 4. Destination. 5. Any other information requested by the VTS.
Arrival	Thirty (30) minutes prior to dropping anchor and after berthing or anchoring completed.	1. Vessel name. 2. Name of berth or anchorage.
Departure	Twenty (20) minutes prior to departing berth or heaving up the anchor.	1. Vessel name. 2. Name of berth or anchorage.
Pilotage	Upon commencement and completion of pilotage.	1. Vessel movements. 2. Times of commencing and ending pilotage. 3. Pilot name and code.
Emergency	When encountering or directly involved in the following mishaps: 1. Traffic accidents. 2. Pollution. 3. Personal injury. 4. Breakdown of vessel or equipment.	1. Vessel name and nationality. 2. Time and position. 3. Reason for emergency. 4. Vessel course if underway. 5. Breakdown situation.

Zhoushan VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Other	When observing any of the following events: 1. Any navigational aids that have shifted, are missing or damaged, or otherwise causing a problem for safety of navigation. 2. Any floating objects or obstructions to the safety of navigation. 3. Any other event that could threaten safety of navigation.	1. Vessel name. 2. Vessel position. 3. Details of event being reported.

Zhoushan VTS provides navigational warnings and traffic organization. Upon specific request from a vessel the VTS will also provide the following:

1. Traffic information (different from organization as it would describe specific vessels).
2. Weather information.
3. Navigational information other than warnings.
4. Information to support joint activities.

Several Reporting Lines have been established in both the Maji Shan and Cezi VTS service areas and reports need to be made when crossing these lines, as well as other times. Details of when these reports need to be made and how often are detailed in the table titled **Zhoushan VTS—Reporting Requirements**.

The Zhoushan VTS Center can be contacted, as follows:

Zhoushan Contact information	
Zhoushan VTS	
Telephone	86-580-206-7183
Facsimile	86-580-206-3781
E-mail	zsvts@163.com

Anchorage.—There are many anchorages with good holding ground that are able to accommodate vessels of all different sizes. See the pilot boarding areas listed in the Pilotage paragraph. There are three other main anchorage areas, as follows:

1. Luhuashan—Bounded by lines joining the following positions:
   a. 30°45'00"N, 122°38'12"E.
   b. 30°46'18"N, 122°38'12"E.
   c. 30°47'24"N, 122°38'48"E.
   d. 30°48'24"N, 122°38'42"E.
   e. 30°48'24"N, 122°36'18"E.
   f. 30°48'06"N, 122°35'54"E.
   g. 30°45'00"N, 122°35'54"E.
2. Luhua—Bounded by lines joining the following positions:
   a. 30°49'12"N, 122°36'30"E.
   b. 30°49'12"N, 122°37'00"E.
   c. 30°49'12"N, 122°37'12"E.
   d. 30°49'12"N, 122°36'30"E.
3. Huangxing—Bounded by lines joining the following positions:
   a. 30°12'00"N, 122°38'00"E.
   b. 30°12'00"N, 122°38'12"E.
   c. 30°11'30"N, 122°38'12"E.
   d. 30°11'30"N, 122°38'00"E.

Anchorage for large vessels may be obtained NW of a rock (29°59'13"N., 122°06'42"E) marked by a buoy, in depths of 16 to 18m.

Yehashan has an Inspection Anchorage located in Hengshui Yang off the SW end of Zhoushan Dao, in depths of 20 to 30m. the area is bounded by lines joining the following positions:

a. 30°01'17"N, 121°59'46"E.
b. 30°00'36"N, 122°00'25"E.
c. 30°00'02"N, 121°59'44"E.
d. 30°00'15"N, 121°58'46"E.
e. 30°01'17"N, 121°59'46"E.

Xiazhimen Anchorage is located NNE of Damao Dao, in depths of 20 to 30m, mud, where tidal currents are not very strong and set more regularly than they do in the middle of the channel.

Six designated anchorages for Mazhi, lying near Shenjiamen Nangangqu (29°54'48"N, 122°16'30"E), are approached from the S via Zhitou Yang, from the E via Fulimen Shuidao, or from the W via Luotou Shuidao. These anchorages are listed below with distances from Diadeng Shan Light given for reference:

1. Mazhi No. 1—2 miles NNW, depth of 13m.
2. Mazhi No. 2—0.8 mile WNW, depths of 13 to 36m, but with a wreck, depth 35m, lying on the S boundary of area.
3. Mazhi Inspection—2.5 miles NNE, depths of 10 to 14m, but with a wreck, with a depth of 9m, lying E of the area center.
4. Dangerous Goods—3.75 miles NNE, depth of 12m, marked on the N edge by two lighted buoys.
5. Dangerous Goods—2.5 miles NE, depth of about 10m.
6. Inspection and pilotage—1.25 miles SW, depths of 25 to 61m, mud and sand.

A new anchorage area has been established S of Wukui Shan and is bounded by lines joining the following positions:

a. 29°59'36"N, 122°05'39"E.
b. 29°59'36"N, 122°05'28"E.
c. 29°59'13"N, 122°06'28"E.
d. 29°59'13"N, 122°05'52"E.

Directions.—Enter Melville Channel midway between Zhairuo Shan and Pi-chia Shan, 1 mile E, and steer to pass close E of Yen Tao. Then bring the E side of Yen Tao into line with Trunk Point, the E extremity of Zhairuo Shan, bearing

184° astern. This alignment leads between Black Rock, 0.6m high, and a drying ledge to the E and between Melville Rock, with a depth of 2.7m and Dundas Rock, with a depth of 1.8m to the E. When clear of the two islands NE of Dundas Rock, course can be set for the inner or outer anchorage at Dinghai as required.

When using Ta-chu Shui-tao, which branches NE from Melville Channel, favor the E shore to avoid Melville Rock and the mud flat fringing the two islands NNE of it.

There is no range mark for clearing **Elliot Patch** (29°58.9'N., 122°06.3'E.), which has a least depth of 5.4m, but the channel SE is wider and deeper than that NW.

Yeh-chu Chiao, a drying rock, can be passed on either side but caution must be used to avoid a 2.7m patch that lies 183m further NE.

Tidal currents in the middle of Melville Channel attain a rate of 3 to 5 knots. It is preferable to enter this channel with a N tidal current.

The channel leading SW past Cap Rock should not be used, as there are dangers at each end and the tidal currents in it attain a rate of 3 to 5 knots.

Ma-Ma-ch'in Shui-tao the safest and best route for large, deep draft vessels passes between Damao Shan and Hsieh Hsu 0.75 mile N. This deep, clear route leads to the outer anchorage. Local vessels enter by using Lo-tou Meng, NW of Hsieh Hsu, but this passage should not be attempted without local knowledge as a vessel may be set onto dangers by strong tidal eddies.

Tidal currents in Ma-Ma-ch'in Shui-tao attain a maximum rate of 2 to 3 knots. While those in Lo-tou meng attain a rate of 2 to 5 knots.

Caution.—A dangerous wreck has been reported (2012) in the W part of the Mazhi No. 2 Anchorage at approximate position of 29°59'56"N, 122°12'37"E, depth unknown.

6.32 **Zhenhai** (Chen-hai) (29°57'N., 121°42'E.) (World Port Index No. 59950), about 22 miles WNW of the S entrance point of Hangzhou Wan, is a small river port located, principally, on the W side of the entrance to the river Yong Jiang. Several off-lying steep-sided islets, with adjacent dangerous underwater rocks, lie in the approaches while extensive areas of drying mud flats flank the entrance to the river and the mud bars which obstruct it.

Depths are subject to constant change. The W entrance point of the river is a precipitous hillock surmounted by two large temples. The E side of the river entrance is largely low land alternately with hilly ridges.

Tides—Currents.—Tidal currents in the river off Zhenhai attain rates of 1 knot at neaps and 3 knots at springs. After heavy rains inland, the ebb current often runs for 12 hours, and vessels do not swing to the flood current at all.

Strong winds between N and NE usually raise the water level about 0.5m above normal. From December to March, the water level is usually about 0.5m lower than in the months of August and September.

Depths—Limitations.—There are five berths for 10,000 ton bulk carriers/general cargo, one berth for 10,000 ton tankers, and one berth for liquid chemical tankers. An overhead power cable, with a minimum vertical clearance of 44m, is between Zhaebeo Shan and Jingi Shan.

A breakwater extends 0.275 mile E from Dayoushan, with a light shown on its head.

Xialaotaipo Jiao, drying 1.2m, lies 0.175 mile ENE of Dayoushan.

Pilotage.—Vessels upon prior arrangements with the harbor master at Ningbo, usually board pilots NE of **Dayoushan** (Wai-yu Shan) (29°59'N., 121°45'E.), two precipitous islets on the E margin of a drying mud flat lying about 1 mile ENE of the W entrance point of the river. They cross the bar and enter the river with a maximum draft of 6.1m at high water springs and 5.6m at high water neaps.

Anchorage.—Anchorage can be obtained, in a depth of 9.1m, at the NE end of a deep water pool SE of Zhenhai, but it is necessary to moor. The quarantine anchorage, also used by vessels with dangerous cargo, is situated on the N side of the channel, about 1 mile further upriver.

Directions.—The N part of this route passes through an area that has a number of stranded wrecks and shoal soundings which can best be seen on the chart.

To avoid the shallower to the W, pass about 0.4 mile W of Dapeng Shan and Kan-ch'ih, a small islet NW of it. Steer a course S until the SE side of Waiyoushan comes into line with two large temples on Zhaebeo Shan 1.5 miles further SW. Then steer SW for the pilotage-quarantine anchorage.

To use the E approach, pass 0.5 mile S of **Huangniu Jiao** (29°58'N., 121°54'E.) and the same distance S of a beacon close S of the S extremity of Ganchi Shan. Then pass 0.5 mile N of E Jiao and steer W for the pilotage-quarantine anchorage.

Ningbo (29°53'N., 121°33'E.)

World Port Index No. 59940

6.33 Ningbo (Ning-po), about 30 miles W of the S entrance point of Hangzhou Wan, is a large metropolis situated about 12 miles up Yong Chiang and stands in the E part of Chekiang Province. The port handles crude oil, coal, bulk cargo, and containers. Ningbo is comprised of the five following port areas:

1. Beilun Harbor.
2. Zhenhai Harbor.
3. Meishan Harbor.
4. Daxie Harbor.
5. Chuanshan Container Terminal.

Port of Ningbo Home Page
http://www.ningbo.gov.cn

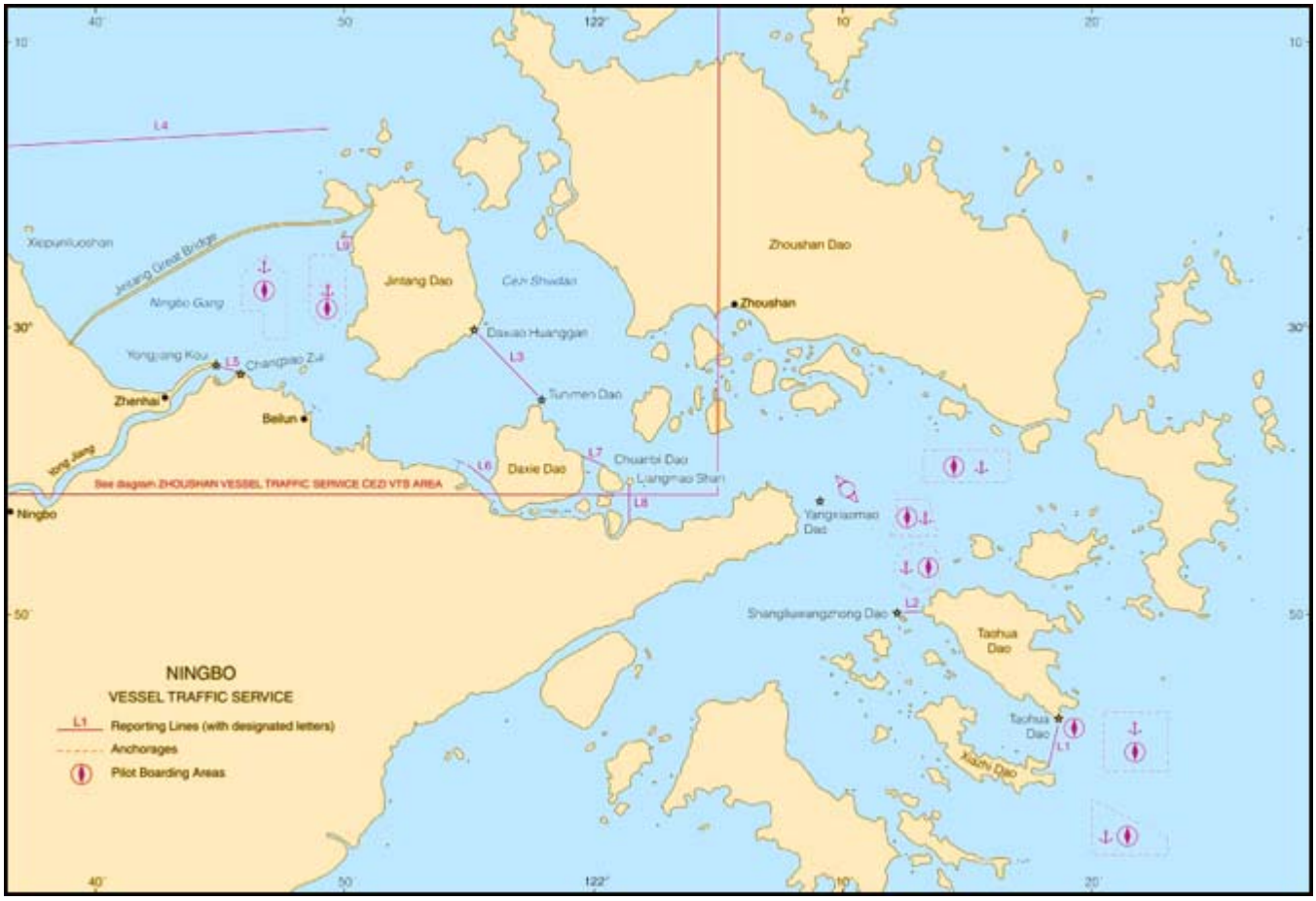
Tides—Currents

The tidal currents at Ningbo have a maximum rate of 2 knots on the flood current and 2 to 3 knots on the ebb current.

During the flood and ebb currents, there is a strong set on to concave banks in the winding areas of the channel. Vessels should not pass too close to the banks.

Depths—Limitations

Xiazhimen Kou outer deep water channel is dredged to a



Ningbo VTS

depth of 22.1m. Another deep water channel, between Liuheng island and XiaZhi island is planned; the channel will be 22 miles long and available to vessels of up to 150,000 dwt.

Beilun Harbor handles iron ore, coal, bulk, oil, containerized, chemical and LPG cargo. The crude oil berth has a length of 346m and a depth alongside of 25m. There are three coal piers, one for 30,000 dwt vessels and two for 10,000 dwt vessels. Two additional 10,000 dwt coal piers are under construction and so are facilities for 100,000 dwt, 50,000 dwt, and 10,000 dwt ships.

Zhenhai Harbor has a chemical berth 350m long with an alongside depth of 13m. There is a general cargo berth with an alongside depth of 9m.

Ningbo Harbor handles general cargo and has alongside depths of 9m.

Daxie Harbor contains the following facilities:

1. A crude oil terminal with a berthing length of 400m and alongside depths of 25m; vessels of up to 300,00 dwt can be accommodated.
2. A container terminal with 400m of berthing space and alongside depths of 17.5m.
3. An LPG terminal with 232m of berthing space and alongside depths of 13m.
4. A general cargo terminal with 220m of berthing space and alongside depths of 17.5m.

Chuanshan Container Terminal has 400m of berthing space with alongside depths of 17m. There are eight berths which can accommodate vessels of 3,000 dwt. These facilities extend along the W bank of Yong Jiang for about 1 mile downstream from the city, with a total berthing length of 1,194m and alongside depths of 3.7 to 7.3m. The longest berth has a length of 108m.

CNOOC Zhejiang LNG Terminal (29°53.9'N, 122°05.4'E), on the N of the Chuanshan Peninsula, consists of a pier with ten dolphins linked by bridges. It can accept vessels with a an loa from 239 to 345m, a maximum beam 55m, a maximum draft of 12.5m, and an underkeel clearance of 2.0m.

Pilotage

Pilotage is compulsory for vessels entering and leaving the port and is available at any time except at the Xin Qi anchorage where it is available only during daylight hours.

Pilots need to be ordered 24 hours prior to arrival or upon departure from previous port if time of transit is less than 24 hours.

Vessels should contact the pilots on VHF channel 16 one hour prior to arrival at the pilot boarding position (detailed be-

low) then maintain a continuous listening watch on VHF channel 16 until pilot boards.

Foreign vessels making an initial call at Ningbo and vessels greater than 1,000 dwt must have a pilot to pass under the Jintang Great Bridge. Vessels that have previously called at Ningbo and are less than 10,000 dwt may transit the river under the bridge without a pilot.

Pilots board, as follows:

1. Qili Zhi Anchorage (30°00'39"N., 121°46'43"E.).
2. Jintang Maodi Anchorage (30°00'48"N., 121°49'24"E.).
3. Minerals Anchorage (29°44'36"N., 122°34'15"E.).
4. Tanker Anchorage (29°42'42"N., 122°34'15"E.).
5. Xiazhi Men Northern Anchorage (29°45'30"N., 122°21'30"E.).
6. Xiazhi Men Southern Anchorage (29°42'17"N., 122°21'11"E.).
7. Ao Shan Quarantine Anchorage (29°51'35"N., 122°12'57"E.).
8. Mazhi No. 1 Anchorage (29°54'49"N., 122°15'02"E.).
9. Mazhi No. 2 Anchorage (29°53'00"N., 122°12'53"E.).
10. Position No. 1 (29°45'54"N., 122°18'08"E.).
11. Position No. 2 (29°46'09"N., 122°16'45"E.).
12. Position No. 3 (30°00'48"N., 121°48'24"E.).
13. Position No. 4 (30°06'00"N., 121°48'12"E.).

The pilots for Zhe Jiang LNG Terminal can be contacted on VHF channels 9 and 15. Vessels must send a pilot boarding card and intended passage plan from the pilot station to the berth by facsimile or e-mail to their agent at least 24 hours prior to arrival with a request to forward to the pilot station. The agent should forward the pilot/ship exchange card to the vessel prior to arrival.

Regulations

Vessels should forward their ETA 72 hours, 48 hours, and 24 hours prior to arrival. The message should communicate the vessel's date and time of arrival, freshwater and saltwater drafts, and cargo particulars.

A Traffic Separation Scheme (TSS) is established for the deep-water route to the ports of Ningbo and Zhoushan. The scheme is not IMO-adopted; however, the authorities advise that vessels comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Vessels traveling downstream must not exceed a speed of 16 knots. High-speed passenger vessels traveling downstream are restricted to a maximum speed of 22 knots.

Vessels traveling upstream must not exceed a speed of 14 knots. High-speed passenger vessels traveling upstream are restricted to a maximum speed of 20 knots.

For the CNOOC Zhe Jiang LNG terminal, when leaving the loading port, ships should send the following information to the terminal and the agents by e-mail or facsimile:

1. Vessel's name.
2. Flag state.
3. Type of LNG vessel and full load draft.
4. Tanker Anchorage (29°42'42"N., 122°34'15"E.).
5. ETA.
6. Arrival draft.
7. Last port.
8. LNG loaded quantity in m^3 and metric tons.
9. LNG stowage and LNG quantity of expected discharge and heel out.
10. Details of vessel's maximum cargo-handling rate.
11. LNG caloric value.
12. Cargo density.
13. Cargo temperature.
14. Cargo composition.
15. Manifold details including type and size.
16. Report any possible repair work that would delay LNG discharging operations.
17. Crew list.
18. Material Safety Data Sheets.
19. Consignor's name and address.
20. Emergency response plan for the vessel's stay alongside.
21. Simultaneous cargo/ballast procedure.

Vessels must provide a notice of ETA and the indicated information to the terminal and vessel's agents at the following times:

1. Seventy-two (72) hours prior to ETA—The vessel's name, ETA, and any known deficiencies affecting LNG terminal performance and operation.
2. Forty-eight (48) hours prior to ETA—Vessel's name, ETA, any known deficiencies affecting LNG terminal performance and operation, and possession of clean bill of health.
3. Twenty-four (24) hours prior to ETA—Vessel's name, ETA, cargo quantity to be unloaded, maximum unloading rate, and any known deficiencies affecting LNG terminal performance and operation.
4. If the ETA changes by more than 1 hour after sending the 24-hour message, the terminal must be advised of the revised ETA.
5. Twelve (12) hours prior to ETA—Vessel's name, ETA, pressure and temperature in cargo tank, any known deficiencies affecting LNG terminal performance and operation, and possession of clean bill of health.
6. Vessels are required to call the terminal 2 hours prior to arrival on VHF channel 15 and when 7 miles from the terminal.

Vessel Traffic Service

A Vessel Traffic Service (VTS) has been established for the Deepwater Route in Xiazhimen, Zhitouyang, Luotou, Jintang, Hengshuiyang, Cezi, and Xihoumen.

Ningbo Vessel Traffic Service
http://www.nbmsa.gov.cn

Participation in Ningbo VTS is mandatory for the following vessels:

1. All foreign vessels.
2. Passenger vessels.
3. Vessels carrying dangerous cargo.
4. Vessels restricted in their ability to maneuver.
5. Chinese vessels of 300 gross tons or more.

Ningbo VTS provides the following information:

1. Vessel movement reports.

2. Status of aids to navigation
3. Weather information.
4. Navigational warnings.
5. Other information pertinent to safety.

Nine Reporting Lines have been established within this area and communications to the VTS are divided into two Reporting Zones. Vessels are required to make reports to the VTS whenever crossing any one of these Reporting Lines including the information described in the table titled **Ningbo VTS—Reporting Format**.

Languages to be used when communicating with the VTS are English or Mandarin Chinese.

Ningbo VTS—Reporting Format	
ID	**Information Required**
A	Ship name, call sign, ship type, nationality, and IMO number (if applicable).
C or D	Position (latitude and longitude or relation to a landmark).
E	Course.
F	Speed.
G	Last port of call.
I	Destination port.
O	Draft.
Q	Defects and limitations (towing vessels must also report the length of tow and the name of object being towed).
U	LOA and gross tonnage.
Note.—Vessels equipped with AIS need only to report the following items as amended below:	
A	Ship name and call sign.
G	Last port of call.
I	Destination port.
O	Draft.
P	Defects and limitations.
DG	Dangerous goods on board.

The Ningbo VTS Reporting Lines have been established as follows:

1. **Reporting Line L1**—A line joining Taohua Dao light (29°46'22"N, 122°18'32"E) and Dongtao Zui on Xiazhi Dao (29°44'46"N, 122°18'15"E).
2. **Reporting Line L2**—A line joining Shangliuwang Chong Dao light (29°50'02"N, 122°12'18"E) and the NW point of Taohua Dao.
3. **Reporting Line L3**—A line joining Daxiao Huanggan Light on Jintang Dao (30°00'00"N, 121°55'46"E) and Tuni Zui light (29°57'26"N, 121°57'54"E).
4. **Reporting Line L4**—A line joining position 30°05'12″N, 121°35'54″E and position 30°07'03″N, 121°49'15″E.
5. **Reporting Line L5**—A line joining Yongjiang Kou breakwater light (29°58'40"N, 121°45'22"E) and Changtao Zui light (29°58'28"N, 121°45'54"E).
6. **Reporting Line L6**—A line joining Daxie Dao No. 1 lighted buoy (29°55'52"N, 121°59'52"E) and Xiehe No. 1 lighted beacon (29°56'08"N, 122°00'08"E).
7. **Reporting Line L7**—A line joining Daxie Dao lighted beacon (29°55'10"N, 121°59'59"E) and Chuanbi Dao lighted buoy (29°55'08"N, 122°00'08"E).
8. **Reporting Line L8**—Along the meridian 122°01'27″E, S of Liangmao Shan.
9. **Reporting Line L9**—A line from Daochu Shan Light (30°03'00"N, 121°49'54"E) drawn E along the parallel of 30°03'00"N, to Jintang Dao.

For Reporting Lines L1, L2, L7, and L8 vessels should communicate with the VTS through VHF channel 8.

For Reporting Lines L3, L4, L5, L6, and L9 vessels should communicate with the VTS through VHF channel 6.

Additional Reporting Requirements.—Vessels should report their name, course, and speed when abeam Yangxiaomao Dao (29°53'54"N., 122°09'02"E.).

Vessels intending to pass under the main or W spans of the Jintang Great Bridge, which connects the NW coastline of Jintang Dao and Zhenai, should report the following information to Ningbo VTS on VHF channel 6:

1. Vessel course and speed.
2. Maximum height above the waterline.
3. Name of the bridge span vessel intends to pass under.

Vessels intending to pass under the E span of the Jintang Great Bridge, the Xihoumen Bridge or the Taoyaomen Bridge should report the following information to Zhoushan VTS on VHF channel 11:

1. Vessel course and speed.
2. Maximum height above the waterline.
3. Name of the bridge span vessel intends to pass under.

Vessels involved in a traffic incident or pollution incident within the VTS area should immediately report the type, time, and location of the incident, including the estimated extent of damage or pollution and confirm if any assistance needed.

Reporting Requirements for VLCCs and VLOCs—Vessels of these types planning on approaching Ningbo through the deep-water channel must report to Ningbo VTS, as follows:

1. Contact the Ningbo VTS 72 hours prior to arrival.
2. If proceeding to an anchorage, then report prior to anchoring.
3. If intending to enter the channel, then report 30 minutes prior to entry.

Only one vessel is permitted to transit the deep-water channel at a time.

Vessels within 2 miles either side of the deep-water channel are required to monitor Ningbo VTS on VHF channel 8 and 16.

Anchorage

See the Pilotage paragraph and list of anchorages where pilots board for full list of designated anchorages.

Caution

An obstruction lies close W of this anchorage (29°45.5'N., 122°20.0'E.). An area, marked by lighted buoys, exists under

the Jintang Great Bridge outside the TSS and extends about 1,600 yards N and 1,700 yards S of the bridge. Anchoring and fishing are prohibited in a number of charted corridors.

Qilizhi Shan (30°00.0'N., 121°45.6'E.) is marked by a light equipped with AIS. A tanker anchorage, with depths of 14.4 to 21.5m, mud, lies approximately 3 miles ENE of Qilizhi Shan.

Vessels up to 98m long moor, in 6.4 to 9.2m, in one of four mid-channel berths spaced within the lower harbor limits. With a swinging room of only 182m available in the berths, vessels ride with four shots of chain on the upriver anchor and with three shots of chain on the down river anchor. Vessels longer than 92m must use their engines when swinging to the tide.

Hangzhou Wan—South Approach—Ch'i-t'ou Chiao to T'ung-t'ou Shan

6.34 The coastline between Ch'i-t'ou Chiao and T'ung-t'ou Shan, about 39 miles SSW, is extremely irregular and indented by coves and bays, which throughout are largely fronted by extensive areas of drying mud flats. Inland, mountains predominate and reach the shore in bluff headlands with cultivated marginal plains intervening.

Close offshore, numerous islands and islets lie scattered in water which, often discolored by mud, contains many hidden sunken dangers. Farther offshore, the many islands and islets lie grouped, in general, to the E of the seaway channel Niubishan Shuidao where they shelter the approaches to the SW entrance to Fu-to-kang-tao and the extensive inlet Xiangshan Gang.

Niubishan Shuidao (29°37'N., 122°06'E.) is a broad open-sea fairway which leads N to the inside passage W of the islands fronting Hangzhou Wan and W to the entrance to Xiangshan Gang. During the winter months when N winds predominate and typhoons seldom occur, vessels with a draft not greater than 6.1m transit the deeper parts of the fairway. When typhoons occur in the offing, an E swell sets in which occasionally rises about 2.4m above mean sea level. At such times, vessels with a draft greater than 4.9m are not recommended to transit the fairway.

Caution.—Zhoushan Putuo No. 6 Wind Farm is being constructed in an area with a diameter of 16m centered on position 29°33'42.5"N, 122°10'29.2"E. Vessels are prohibited from approaching this area.

Jiushan Liedao (Chiu-shan Lieh-tao) (29°26'N., 122°12'E.), consisting of a group of high steep-sided islands and islets, constitutes the principal danger on the E side of Nuibishan Shuidao. Nanjiu Shan, the largest island of the group has it's highest summit located on the SW part of the island.

Anchorage.—Anchorage, sheltered from SW winds, lies off the E side of **Shuang Shan** (29°27'N., 122°12'E.), in depths of 10 to 16m, mud and sand.

Shelter from W to N winds can be obtained in depths of 7 to 10m, mud, S of the E part of Nanjiu Shan. Off the E side of **Wenchong Shan** (29°24'N., 122°10'E.), shelter from N winds can be obtained in depths of 8 to 10m, mud.

Anchorage sheltered from NE and SW winds can be obtained about 1 mile SW of **Guanchuanao** (29°27'N., 122°11'E.), in depths of 6 to 9m, mud.

Vessels are cautioned that depths of 1.9m less than those charted are reported to exist in an area between limits extending 3 miles NE and NW from **Tung-hsu Shan** (29°37'N., 122°02'E.).

6.35 The entrance to **Fo-to-kang-tao** (29°48'N., 122°04'E.), lying between Liuheng Dao and Meishan Dao, about 2 miles NW, has several channels leading through the many islands and scattered rocks that encumber free access. Compass adjustment ranges are established on the NE shore of Qinglong Shan (29°48'N., 122°02'E.), an island located close E of Meishan Dao.

Fodu Dao (Fo-tu Shan) (29°44'N., 122°01'E.), a hilly irregularly-shaped island rising from a surrounding margin of drying mud flats, lies separated from Liuheng Dao to the E by Shuangyu Men, the E and widest but most encumbered channel leading to Fo-to-kang-tao. Fodu Dao is separated from Meishan Dao to the W by Tingzi Shan. Tingzi Shan (29°45'15"N, 121°59'52"E) is a large islet with several smaller islets and rocks extending about 0.6 mile NE. Tingzi Men (Roberts Pass) lies between Meishan Dao and Tingzi Shan but is a narrow and deep passage and is not recommended for use because the drying mud flats rising steep-to off Meishan Dao offer little indication of their presence, especially when covered during high water. Qinglong Men (Gough Pass) is a deep and clear passage between Tingzi Shan and Fodu Dao and is the recommended channel leading to Fo-to-kang-tao. Tidal currents reach a maximum velocity of 3 knots at neaps and 5 knots at springs. A power transmission line between Meishan Dao and Fodu Dao passes across the N end of Ting-tzu Shan, with an overhead clearance of 69m across the center of Qinglong Man (Gough Pass) and an overhead clearance of 42m across Tingzi Men (Roberts Pass).

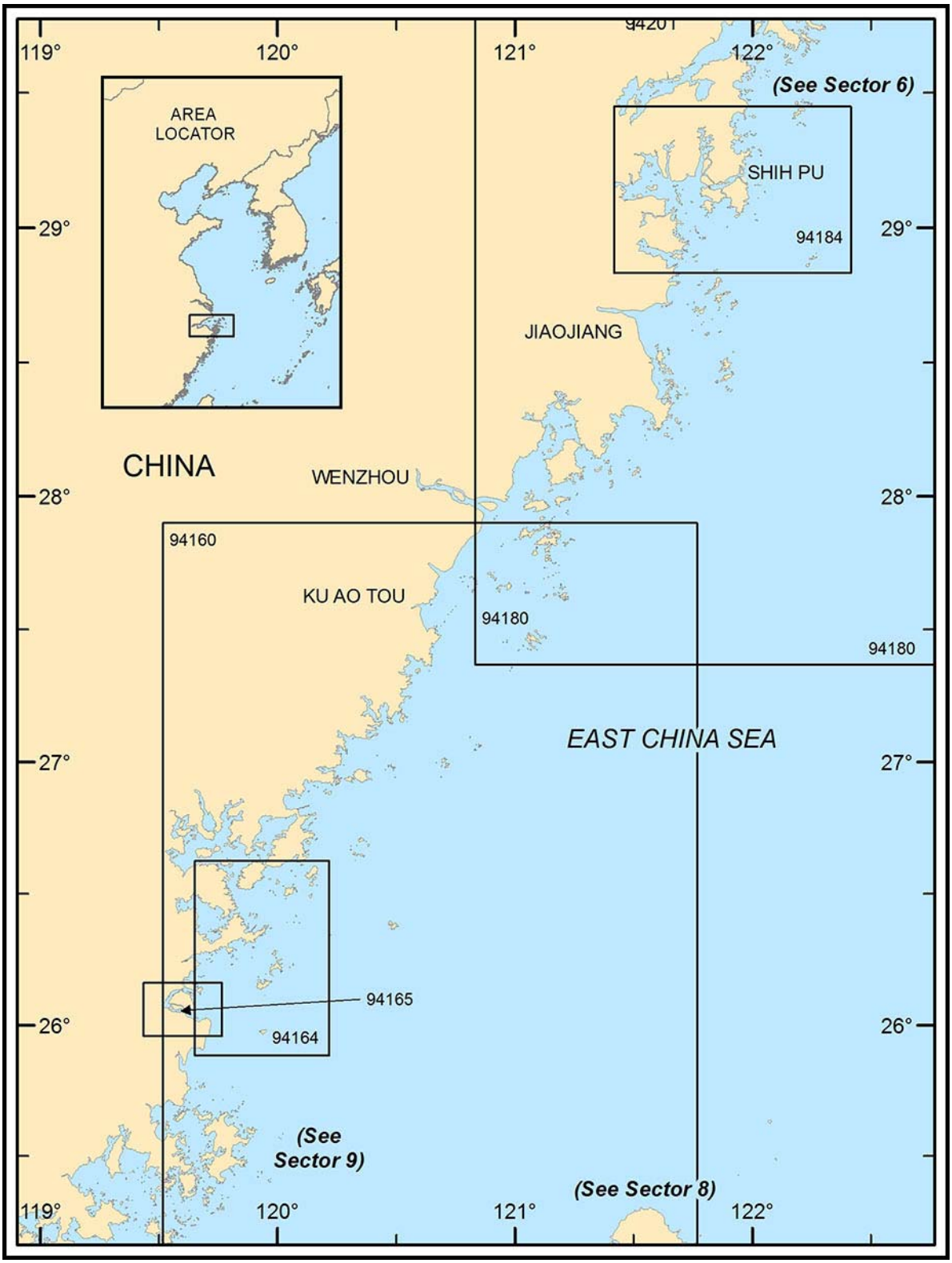
6.36 **Xiangshan Gang** (Hsiang-shan Chiang) (29°38'N., 121°48'E.) is an extensive inlet entered between **Chi Chiao** (Pearl Rock) (29°39.7'N., 121°54.3'E.) and **Huang-nui Chiao** (Sail Rock) (29°42'N., 121°52'E.), an above-water rock standing about 4 miles NW and near the outer edge of a drying mud flat extending seaward from the shore. The sound extends about 25 miles SW and has a very irregular shoreline much indented by inlets and large bays, the greater portion of which are filled with drying mud flats. The seaward half is deep and largely clear. The inner half is much encumbered by off-lying islets and extensive areas of drying mud flats. The sound offers well-sheltered anchorage during the typhoon season.

Tides—Currents.—The tidal currents in Xiangshan Gang have a maximum rate at springs of 3 knots in the entrance and 4 knots in the inner part of the inlet.

Anchorage.—Anchorage can be obtained near the entrance to Xiangshan Gang in a position 2 miles WSW of Pearl Rock, in depths of 6.4 to 8.2m.

Well-sheltered typhoon anchorage can be obtained about 1 mile WSW of the S point of **Entrance Island** (29°32'N., 121°40'E.), in a depth of 9.1m. There is also good holding ground about 1 mile S of the W extremity of **Harlequin Island** (29°32'N., 121°34'E.), in depths of 8.2 to 11.9m.

Small vessels with local knowledge can obtain good anchorage, in a depth of about 9.1m, out of the strength of the tidal currents, between the **Pa Za Islets** (29°30'N., 121°36'E.) and the S shore of Xiangshan Gang.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **7** — CHART INFORMATION

SECTOR 7

CHINA—SAN-MEN WAN TO MIN JIANG

Plan.—This sector describes the SE coast of China between Banzhao Liedao (T'ung-t'ou Shan), an islet NE of Sanmen Wan, and Shafeng Jiao, a point about 193 miles to the S. The description is N to S.

General Remarks

7.1 Winds—Weather.—Winds are seasonal and blow largely NE and SW in consequence of the influences which create the characteristic monsoons of the SE coast of China. From September through May winds from the NE predominate and commonly exceed 22 knots. During October, November, and January, winds will likely exceed 34 knots. In August winds are transitional and blow with equal frequency from the SW and NE.

Typhoons, created well to the SE by forces other than those giving rise to monsoon winds, may occur at anytime of the year. From November to April, they seldom if ever occur. In May, the frequency of occurrence increases until during June and July at least one typhoon occurs each year while in August at least two typhoons annually occur. During September and October, though frequent well to sea, they seldom reach the mainland coast.

Tides—Currents.—Offshore ocean currents are seasonal in set and velocity. From October to March the set is SW and parallels the coast. In April the set becomes confused or counterclockwise. From May to August the set is NE and parallels the coast. In September, current flow once more becomes irregular and sets SW as far as Ou Chiang where it becomes confused or counterclockwise. The SW current reaches a maximum of 1.7 knots in January. The NE current reaches a maximum of 2 knots in August.

Tidal currents in general flood S on a rising tide and ebb N on a falling tide. Tidal rise is everywhere considerable and reaches extremes in excess of 6.1m near the entrances to the rivers Ou Jiang and Min Jiang.

Aspect.—The coastline of China, between Banzhao Liedao (T'ung-t'ou Shan) and Shafeng Jiao, is extremely irregular and indented by numerous bights, large bays, and lengthy inlets. The inshore area is generally shoal and flat, and provides large portions of the coastline with extensive areas of drying mud flats which, in places, extend well to sea. The offshore area contains many large islands and a multitude of smaller islands, clustered islets, and scattered dangers, most of which rise abruptly from surrounding shoal water and afford good landmarks for coastal navigation. The 40m curve, in general, parallels the coast at a distance of 10 to 22 miles. Inland, the coastline is backed throughout by mountainous terrain which, characteristically for the SE coast of China, reaches the sea in isolated rock-fringed promontories with intervening coastal plains extending 20 miles inland.

Caution.—Fish stakes and fishing nets encumber the approaches and entrances to many of the bays indenting this portion of the Chinese coast. Weather observation buoys may also be encountered and adrift in the waters described in this sector.

Off-lying Islands

7.2 The many offshore islands lie within the 40m line. Several islands and isolated islets lie outside the curve and rise abruptly from the sea floor at a distance as far as about 30 miles offshore where they present a danger to vessels standing off the coast for destinations N or S. The outermost of these dangers are described below.

Yu-shan Lieh-tao (Yushan Liedao) (28°52'N., 122°15'E.) consists of a group of several islets and three steep-sided inhabited islands offering little shelter. Yu-san Chiao, the N islet, is mushroom-shaped. Pei-yu Shan, a large island in the middle of the group, is precipitous on its SE side, which is marked by a light. Wuhu Jiao, 0.5 mile E of Pei-yu Shan, consists of a group of rocks like saw teeth that are easy to identify. Nan-yu Shan, the southernmost island of the group, is saddle-shaped and reported radar conspicuous at 25 miles.

Caution.—A rock, awash, lies 0.25 mile N of Yu-san Chiao; another rock, with a depth of 2.1m, lies 2 miles NE of the same islet. Other dangers may best be seen on the chart.

Numerous dangerous wrecks lie SW of these islands.

7.3 Ta-ch'en Tao (Taizhou Liedao) (28°30'N., 121°53'E.) is a group of islands consisting of two large inhabited and mountainous islands and several islets and adjacent above and below-water dangers. Shang Hsu (Xia Yu), the 113m high S islet with a prominent yellow streak on its SW side, is reported radar conspicuous at 23 miles. Finger Rock, a remarkable stack 52m high, stands close off the S point of Shang Hsu. Dachen Shuidao, a channel between the N and S islands in the island group, is used by vessels waiting to enter Haimen Gang.

Tides—Currents.—Tidal currents in the center part of Dachen Shuidao set SW at 1.75 knots on the flood and NE at 1.5 knots on the ebb. In the SW part of Dachen Shuidao, tidal currents set NW at 2 knots on the flood and SE at 1.5 knots on the ebb.

Xiadanchen Shan (28°26'N., 121°53'E.), about 2.3 miles NNW of Shang Hsu, is 225m high and inhabited.

Zhu Yu (Chu Hsu), a 53m high islet, lies 0.4 mile W of the SW end of Xiadanchen Shan; the passage between is dangerous. Other islets lie close S and SW of Zhu Yu; foul ground extends 0.15 mile E and 0.25 mile N of the E end of the islet. A light is shown on the N side of the islet.

Anchorage.—There are designated anchorages, mud, in Dachen Maodi as listed below. These anchorages are sheltered from winds blowing from the NW to NE, and from the SW and SE. Swells will push into the area from SE winds.

1. **Anchorage No. 2—**The westernmost anchorages with the S part centered on position 28°27'23"N, 121°52'31"E, with depths of 10 to 19m. This is the quarantine anchorage as well as having the pilot boarding area contained within.

2. **Anchorage No. 3—**For shallow draft vessels. Situated in a bay on the SW side of Shangdachen Dao.
3. **Anchorage No. 4—**Situated in the central part of Dachen Shuidao, with depths of 22 to 25m.
4. **Anchorage No. 5—**Situated in a bay at the NE end of Xiadachen Dao.

Caution.—Fishing stakes may be encountered when approaching from the W.

7.4 **Xiaojiaotou** (28°28'N., 121°55'E.) is the N islet of a group of three islets that extend nearly 1 mile N from the E end of Xiadachen Shan; a light is shown from the islet.

Dachen Middle Anchorage, 0.75 mile W of the light, affords anchorage, in depths of 10 to 26m, mud, sheltered from winds between NW and NE, and between SW and SE. Tidal currents flow SW at 1.75 knots on the flood and NE at 1.5 knots on the ebb.

Shangdachen Shan (28°30'N., 121°53'E.), 203m high, is separated to the N from Xiadachen Shan by a 0.75 mile wide channel; foul ground extends 0.2 mile from the NW, N, and E sides of the island.

A light is shown from a small islet 0.15 mile SW of the SW end of Shangdachen Shan.

Sheshan Dao (Ch'ing Hsu) (28°33'N., 121°55'E.), the N island of Ta-ch'en Tao, is 62m high with two rocky islets close S of it, and lies 2 miles NE of the NE end of Shangdachen Shan. The channel between the two islands is reported to be deep.

Caution.—Several islets lie within 0.5 mile S and SW of the Shangdachen Shan; a reef, with a depth of 3.8m, lies 1.25 miles SW of the SW extremity of the islet.

Several dangerous wrecks, both reported and confirmed, with confirmed positions and approximate positions, are located W of a line from Ta-ch'en Tao (Taizhou Liedao) SW to Luo Yu Light, and continuing SW, mostly all inside the 10m depth curve.

7.5 **Tung-yin Tao** (26°23'N., 120°30'E.), a high precipitous inhabited island reported radar conspicuous at 27 miles, is a weather station with two white buildings standing on the slope rising behind the lighthouse on the E extremity of the island. Small vessels, seeking shelter during the Northeast Monsoon, can obtain anchorage, in 7.3 to 11m, in Bertha Cove, a small body of water formed SW by Tung-yin Tao and an islet lying close NW. Vessels best approach the anchorage from the S and clear of off-lying fish stakes during daylight hours only.

Tung-sha Tao (26°10'N., 120°24'E.), about 13 miles SSW of Tung-yin Tao, is a barren rock which, rising abruptly from the sea floor, is reported radar conspicuous at 15 miles.

T'ung-t'ou Shan to Zhaitou Jiao

7.6 **T'ung-t'ou Shan** (29°14'N., 122°00'E.) is a 171m high steep-sided islet lying off the coast and on the N side of a tortuous channel leading inland. The coastline between the islet and Zhaitou Jiao, about 74 miles SSW, continues extremely irregular and much indented by shoal bays and several lengthy inlets which throughout are fronted by extensive areas of drying mud flats. Inland, the coastline is backed by mountains which reach the shore in a multitude of long narrow rugged peninsulas or promontories, except in the middle part where the land is low and in places swampy. Offshore, the coastline is fronted by numerous clustered islands and many scattered islets, rocks, and isolated underwater dangers.

Tung-yin Tao Light

Tantou Shan (29°10'N., 122°02'E.), lying about 3.3 miles SE of T'ung-t'ou Shan, is an irregular-shaped island that is wooded and almost divided into two parts by a low isthmus. Wu Jiao (Niao Chiao), about 0.8 mile NE of the E point of the island and marked by a light, and Jilong Jiao (Chilong Chiao), 38m high and lying 1 mile NE of the N point of the island, are the outermost islets marking the dangers extending from the NE side of Tantou Shan.

A shallow bank, on which there are a number of fishing stakes and other dangers, extends 3 miles W from Tantou Shan to two islands lying in the entrance to the channel between the N side of Niutou Shan and the mainland. Deep, but narrow and intricate, passages lead N and S of these latter two islands to **Shih-p'u** (29°13'N., 121°57'E.) (World Port Index No. 59935), a coastal trading center; there are least depths of 4.9m in the approach to the N channel and 7m in the approach to the S channel.

Niluo Yu (Ni-lo Chiao) (29°08'N., 122°03'E.), about 3.3 miles S of Tantou Shan, appears as two islets, of which the N part is 48m high. There are fishing stakes in the area between 5 miles E and 5 miles S of the islet. A depth of 6.4m lies 6 miles ESE of Niluo Yu.

Niutou Shan (Niu-T-ou) (29°07'N., 121°56'E.), a large island 387m high, is separated from Tantou Shan by a 1.75 mile wide passage. Nanshan, 154m high and wooded, lies close off the S point of Niutou Shan.

Nuying (Chiao) Jiao, 3 miles SE of Nanshan, dries 1m. Youcaihuazhi (Tsai-hua-chi), 46m high, lies 1.75 miles NE of Nuy-

ing Jiao; foul ground extends 0.5 mile W from it to another islet. Mituo Dao, 42m high, lies 1.2 miles NNW of Youcaihuazhi.

Anchorage.—Indifferent anchorage can be obtained, in depths of 6.4 to 10.1m, mud, between the SW side of Tantou Shan and the E side of Niutou Shan, but the tidal currents may attain a rate of 2.5 knots and there is usually a heavy swell. Anchorage can also be obtained in the sheltered waters N of Niutou Shan, in depths of 5.5 to 40.2m, mud.

7.7 Sanmen Wan (29°00'N., 121°45'E.) is a large inlet entered between Nanshan and **Niushan Zui** (29°01'N., 121°43'E.), a point lying about 12 miles further SW. The coastline is extremely irregular and recedes about 20 miles inland to form several arms which throughout are almost completely filled by extensive areas of drying mud flats. It is generally backed by low-lying land within the inlet and by rugged mountains without. Several large, mountainous islands lie on the N side of the entrance while elsewhere numerous islets and dangers largely encumber clear access through the approaches from sea.

The principal fairway into Sanmen Wan passes between **Ts'ao-hsieh-pa Yu** (29°00'N., 121°54'E.), a steep-sided islet divided into three parts, and Sanmen Tao, a 53m high island about 5.5 miles further SW; rocks, islands, and other dangers extend 3.5 miles NW from Sanmen Tao. The fairway, in general, trends NW. It enters the inner part of the inlet by passing through the channel **Man-t'ou Kang-tou** (29°05'N., 121°40'E.) and rounding the steep-to point **Mao-t'ou-shan Tsui** (29°06'N., 121°39'E.).

The coast between Niushan Zui and **Ketangshan** (28°54'N., 121°41'E.), an islet rising to a height of 212m, and lying 6.5 miles S, is very broken and is composed of a number of bays filled with drying flats. A number of islets and dangers, which are best seen on the chart, lie within 2 miles NE and 3.5 miles ESE of Ketangshan.

The coast between Ketangshan and Baishashan, the N entrance point of T'ai-chou Wan, about 10 miles S, is fringed by a drying flat extending up to 4 miles offshore, with a shallow coastal bank extending seaward to the off-lying islands.

Jiantiao Gang (29°01'N., 121°43'E) is a subsidiary port of Haimen Gang and is approached through an inlet on the W side of Sanmen Wan.

Depths—Limitations.—A number of lighted beacons are situated on the N shore of the inlet. The town of Jiantiao is located approximately 3.5 miles above the entrance to the bay; numerous jetties are located in this area. Local knowledge is required to navigate as far as the town.

Zhejiang Zheneng Taizhou Power Plant No. 2 Coal Terminal (29°01'N., 121°43'E.) is a new terminal located close to Niushan Zui., just outside the port. A new approach channel has been opened for use by vessels up to 35,000 tons with depths between 5.9 and 7.4m but subject to shoaling. The channel bottom is mud and designed UKC is 1m. The approach channel commences in position 29°01'02"N, 121°46'05"E and runs to termination at the position of the terminal given above.

The coal-unloading terminal and general purpose terminal are now (2015) open for use. The coal terminal can accommodate vessels up to 35,000 tins with a berthing length of 65m and depths of 15.3m. The general purpose terminal is designed for vessels up to 3,000 tins and has a berthing length of 32m with depths of 9.7m.

Regulations.—All vessels berthing at or departing from either terminal should maintain a listening watch on VHF channel 16.

Anchorage.—Jiantiao Gang provides the best shelter from adverse weather within Sanmen Wan. Several mooring buoys are available but numerous marine farms are located along the banks within the anchorage area.

Three designated anchorage areas, with depths of 3 to 7m, are located as follows:

1. No. 1—centered on position 29°02'29"N, 121°36'42"E
2. No. 2—centered on position 29°02'56"N, 121°34'41"E.
3. No. 3—centered on position 29°03'08"N, 121°33'30"E.

Caution.—A bridge with an unknown vertical clearance spans the channel close to the entrance to the inlet. An overhead cable close W of the bridge has a vertical clearance of 19m. Three additional overhead cables spanning the channel further W have vertical clearance of 29m, 23m and 17m, respectively.

7.8 T'ai-chou Wan (28°40'N., 121°37'E.) is a shoal bay entered between Baishashan, 76m high and **Langjishan** (28°32'N., 121°37'E.), a 243m high island lying 10 miles further S. The shoreline is low, regular, and fronted throughout by an extensive margin of drying mud flats except for the area in the entrance to the river Jiao Jiang. Numerous rugged islands, clustered islets, and isolated above and below-water rocks lie in the offshore approaches.

Toumen Shan (28°41'N., 121°47'E.), inhabited and rising to a sharp cone 202m high, rises from surrounding shoal water about 15 miles E of the entrance to Jiao Jiang (Chiao Chiang). Good anchorage can be obtained between the S point of Toumen Shan and a 19m high islet lying 0.5 mile S of the point. Islands and other dangers, which may best be seen on the chart, extend from 7.5 miles NE to 6 miles ESE of Toumen Shan.

Navigation within the area N of the island is not recommended.

Baijiashan (28°37'N., 121°52'E.), 6 miles SE of Touman Shan, is 75m high and cliffy, with a reef at its E end. Yijiangshan, 2 miles W of Baijiashan, consists of two islands, very close together, of which the N island is 127m high.

Caution.—Navigation within the area N of the island is not recommended.

A new bridge is being built (2013) to extend from the NW tip of Toushan Dao across Dazhu Shan to the mainland through the following positions:

a. 28°42'24"N, 121°45'42"E.—shoreline Toushan Dao
b. 28°42'48"N, 121°44'30"E.
c. 28°43'00"N, 121°43'42"E.—shoreline Dazhu Shan
d. 28°43'24"N, 121°40'24"E.
e. 28°43'36"N, 121°39'48"E.—mainland shoreline

Numerous yellow lighted buoys mark the track of this bridge construction.

Fishing stakes exist in the area around Yijiangshan, Baijiashan, Touman Shan, and the islands E of Touman Shan.

7.9 Haimen Gang (28°41'N., 121°27'E.) (World Port Index No. 59930), a coastal trading center of some importance, with piers on both the N and S coasts of the river. Haimen is capable of handling vessels of 3,000 to 5,000 dwt. The main cargoes handled in the port are timber, coal, chemical fertilizers, cement, iron, steel, grain, petroleum, and containers.

Tides—Currents.—Haimen Gang is subject ti an irregular semi-diurnal tide with a highest level recorded of 6.9m and a lowest level recorded of 0.91m. The average tidal range is 4m; the mean spring range is about 4.8m, with the mean neap range of 2.2m.

Depths—Limitations.—Haimen Gang is approached from Taizhou Wan through the Haimen Channel leading due W, with draft limitations of 7m for vessels as large as 10,000 dwt. A berth for 10,000 dwt ships is now in operation. Vessels with a draft not exceeding 6.8m can be led through the channel to the berths. Haimen Gang No. 1 Lighted Buoy is equipped with a racon.

An approach channel to Taizhou Wan with charted depths of 7.8 to 9.5m is nearly 11 miles long and 290m in width. This channel is designed for general cargo vessels as large as 30,000 gt with a draft in laden condition of up to 11m. Laden vessels will have to use the channel during high tide. For further information refer to the table titled **Haimen—Berth Information**. The centerline of the channel passes through the following positions:

a. 28°38'40"N, 121°56'25"E.
b. 28°38'40"N, 121°49'25"E.
c. 28°40'00"N, 121°46'51"E.
d. 28°40'00"N, 121°46'11"E.
e. 28°41'00"N, 121°44'46"E.

Pilotage.—Pilotage is compulsory for foreign vessels and is available 24 hours. The pilot boards and disembarks in the following positions:

a. 28°27'24"N, 121°52'30"E. (Quarantine Anchorage No. 2)
b. 28°39'12"N, 121°44'42"E. (Quarantine Anchorage No. 1)
c. 28°39'48"N, 121°40'48"E.
d. 28°02'33"N, 121°11'58"E. (Quarantine Anchorage)
e. 28°00'36"N, 121°14'00"E. (Disembarkation)

Vessel Traffic Service (VTS).—A vessel traffic service has been established for the approaches to Haimen through Taizhou Wan and further S for the approaches to Yueqing Wan.

Haimen—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Zhejiang Taizhouwan Port				
Cargo berth	370m	7.0m	5,000 dwt	General cargo.
Taizhou Conch Terminal				
No. 1	215m	6.0m	5,000 dwt	Coal.
No. 2	140m	—	—	Coal.
No. 3	260m	—	—	Coal.
Huaneng Yuhuan Power Plant				
Coal	534m	—	10,000 dwt	Coal.
Cargo	130m	—	50,000 dwt	General cargo.
Yuhuan Ro-Ro Terminal				
Ro-Ro	50m	—	3,000 dwt	Ro-ro.
Damaiyu Port				
No. 1	615m	10.0m	50,000 dwt	Containers.
No. 2	615m	10.0m	50,000 dwt	Containers.
Cargo	280m	—	30,000 dwt	Containers and general cargo.
ZOJE Huanzhou Terminal				
No. 1	217m	—	30,000 dwt	Containers and general cargo.
Taizhou Second Power Station				
Coal Jetty	292m	15.3m	50,000 dwt	Coal.
General cargo	138m	9.7m	3,000 dwt	General cargo.
Sanmen Nuclear Power Station				
Cargo Jetty	120m	3.9m	5,000 dwt	Heavy equipment.

Haimen—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Toumen Port				
Cargo	210m	8.0m	20,000 dwt	General cargo and bulk cargo.
Jiaotiao Terminal				
No. 3	63m	5.0m	1,000 dwt	Bulk cargo.
Yada Terminal				
Cargo Berth	110m	5.0m	1,000 dwt	General cargo.
Puxi Terminal				
Cargo Jetty	28m	3.8m	300 dwt	General cargo.
Yanchi Terminal				
Cargo Jetty	33m	3.8m	300 dwt	General cargo and bulk cargo.
QiguoTerminal				
Cargo	92m	3.8m	1,000 dwt	General cargo and bulk cargo.
Meibiao Cement Terminal				
Cement Berth	90m	3.2m	1,000 dwt	Cement.
Ruquan Terminal				
Cargo Berth	72m	3.2m	1,000 dwt	General cargo and bulk cargo.
Yangfu Terminal				
Cargo Berth	65m	3.2m	1,000 dwt	General cargo and bulk cargo.
Hongfa Terminal				
Cargo Berth	85m	3.2m	1,000 dwt	General cargo and bulk cargo.
Jiaojiang Sanshan Cun Terminal				
Cargo Berth	60m	3.2m	5,000 dwt	General cargo and bulk cargo.
Dahua Terminal				
Cargo Berth	52m	3.0m	500 dwt	General cargo and bulk cargo.
Zaidong Terminal				
Cargo Berth	132m	3.5m	1,000 dwt	General cargo and bulk cargo.
Tiantian Logistic				
Cargo Berth	130m	3.5m	1,000 dwt	General cargo and bulk cargo.
Haimen Port				
No. 1	110m	6.5m	5,000 dwt	General cargo and bulk cargo.
No. 3	165m	6.5m	3,000 dwt	General cargo and bulk cargo.
No. 4	110m	6.0m	3,000 dwt	General cargo and bulk cargo.
Wuzhi Terminal				
Cargo Berth	70m	6.0m	3,000 dwt	General cargo and bulk cargo.
Grain Terminal				
Grain Jetty	66m	6.0m	3,000 dwt	Grain.
Qianshuo Xiaoyuanshan Terminal				
Cargo Berth	86m	3.0m	1,000 dwt	General cargo and bulk cargo.

Haimen—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Lucun Cement Terminal				
Cement Berth	140m	4.5m	1,000 dwt	Cement.
Shijian Cement Terminal				
Cement Jetty	52m	2.5m	5,000 dwt	Cement.
Matoushan Terminal				
Cargo Berth	65m	3.1m	1,000 dwt	Coal and breakbulk.
Zhongxin Terminal				
North Berth	52m	2.0m	500 dwt	Concrete.
South Berth	62m	—	—	Coal and breakbulk.
Jiani Material				
Cargo Berth	440m	—	—	
Zhengte Terminal				
Cargo Berth	80m	3.5m	500 dwt	General cargo.
Damaiyu Cargo Terminal				
Ferry Jetty	100m	8.0m	3,000 dwt	Ferry and general cargo
No. 2	200m	9.4m	20,000 dwt	Chemicals, crude, LPG, and multipurpose.
No. 3	220m	9.4m	30,000 dwt	Chemicals, crude, LPG, and multipurpose.
No. 4	270m	14.0m	50,000 dwt	Chemicals, crude, LPG, and multipurpose.
Tanker Terminals				
Oil Terminal				
Oil Company	120m	—	—	Domestic trade only.
Damaiyu Petrochemival Terminal				
No. 1	330m	14.0m	100,000 dwt	Petrochemicals.
Jiantiao Terminal				
Tanker Berth	28m	8.0m	3,000 dwt	Tankers.
Taiyou Terminal				
Petroleum Jetty	106m	7.0m	3,000 dwt	Clean products.
Huyuan Terminal				
Petroleum Jetty	80m	5.0m	3,000 dwt	Clean products.
Gaoxiang Chemical Terminal				
Chemical Jetty	41m	2.5m	500 dwt	Chemicals.
Waihuangmen Terminal				
Tanker Berth	63m	6.5m	1,000 dwt	Tankers.
Sinopec Taizhou Linhai Oil Terminal				
East Berth	53m	—	3,000 dwt	Clean products.
West Berth	53m	—	3,000 dwt	Clean products.

Haimen VTS—Reporting Requirements		
Report Type	**Reporting Time and Method**	**Information Required**
Sailing Plan	A written report via e-mail or facsimile 24 hours in advance of arrival or upon departure from previous port if less than 24 hours away.	1. Vessel name and call sign. 2. Vessel type. 3. Maximum draft. 4. Air draft. 5. Last port of call. 6. Next port of call or name of anchorage. 7. LOA, gt, and beam. 8. ETA. 9. Cargo type and weight. 10. Any other information that needs to be declared.
Entry	When crossing Reporting Lines inbound to the VTS area via VHF.	1. Vessel name. 2. Position. 3. Course.
Arrival	After arrival at wharf, mooring buoy or anchorage destination via VHF.	1. Vessel name. 2. Position (berth or anchorage). 3. Arrival time.
Bridge Passing	Fifteen (15) minutes prior to arrival at Jiao Jiang Bridge via VHF.	1. Vessel name. 2. Position. 3. Maximum draft and dwt. 4. Maximum air draft.
Movement	Fifteen (15) minutes prior to shifting berth, anchoring/heaving up anchor or berthing/departure via VHF.	1. Vessel name. 2. Berth or anchorage position. 3. Destination.
Departure	Fifteen (15) minutes prior to sailing via VHF.	1. Vessel name. 2. Position. 3. Next port of call.
Final	When departing from the VTS area via VHF.	1. Vessel name. 2. Position. 3. Course.
Surface Operation	Immediately before and after operation via VHF.	1. Vessel name. 2. Cargo type. 3. Estimated start and end time of operation. 4. Draft. 5. Sailing plan during operation.
Operation	When entering or leaving operation area via VHF.	1. Vessel name. 2. Entry and exit time. 3. Position.
Emergency	When any traffic accident, pollution incident or other emergency occurs via VHF or any appropriate means.	1. Vessel name. 2. Position. 3. Type of emergency. 4. Any other information required by the VTS operator.
Abnormal	Upon finding abnormalities of navigational aids, floating objects, obstacles, or other abnormal circumstances impeding the safety of navigation via VHF or any appropriate means.	1. Vessel name. 2. Position. 3. Description of abnormal circumstances. 4. Any other information required by the VTS operator.

The Haimen VTS Service Area comprises the water area W of the L1 Reporting Line and E of the Jiao Jiang Bridge. The Damaiyu VTS Service Area (for approaching Yueqing Wan) comprises the water area bounded by lines joining he following positions:

a. 28°08'31"N, 121°07'58"E. (Caokun Lighted Beacon)
b. 28°09'11"N, 121°07'22"E. (W of Xiaowu Island)
c. 28°06'15"N, 121°05'30"E.
d. 28°01'00"N, 121°06'00"E.
e. 28°01'00"N, 121°14'36"E.
f. 28°02'58"N, 121°15'07"E. (Huangmen Mountain)

Participation in the Haimen VTS for both service areas is mandatory for the following types of vessels:

1. All foreign vessels.
2. Chinese vessels of 300 gt and over.
3. Passengers vessels.
4. Vessels carrying dangerous cargo.
5. Vessels engaged in towing.

The VTS center provides the following information:

1. Traffic organization.
2. Navigational warnings and Notices to Mariners.
3. Traffic information, upon request only.
4. Weather information, upon request only.
5. Navigational assistance, upon request only.
6. Information for supporting allied activities, upon request only.

Three Reporting Lines have established; vessels must send an Entry Report to the VTS using the appropriate VHS channel for that particular service when crossed. These Reporting Lines are, as follows:

1. **Reporting Line L1**—Located on the meridian passing through Haimen Gang Lighted Buoy No. 1 (28°39'48"N, 121°39'39"E.).
2. **Reporting Line Y1**—Extends from Huangmen Mountain (28°02'58"N, 121°15'07"E to Caokon Lighted Beacon (28°08'31"N, 121°07'58"E.).
3. **Reporting Line Y2**—Extends from Caokon Lighted Beacon to Wuxin Lighted Beacon (28°08'31"N, 121°07'58"E.).

Several different types of reports need to be made to the Haimen VTS Service Area or the Damaiyu VTS Service Area VTS by vessels approaching, entering, and sailing through the VTS area. These reports should be sent to the appropriate VTS service area using the method described in the table and specified in the Contact Information for each service area.

Refer to the table titled **Haimen VTS—Reporting Requirements** for details.

Contact Information.—Haimen VTS Service Area can be contacted, as follows:

1. Call sign: Taizhou VTS
2. VHF: VHF channels 10 and 16
3. Telephone: 86-576-883-12756
4. Facsimile: 86-576-883-12757
5. E-mail: tzvts@sina.com

Damaiyo VTS Service Area can be contacted, as follows:

1. Call sign: Taizhou VTS
2. VHF: VHF channels 16 and 73
3. Telephone: 86-576-883-12756
4. Facsimile: 86-576-883-12757
5. E-mail: tzvts@sina.com

Anchorage—Good anchorage for small vessels can be obtained off the N and S sides of Toumen Dao, with local knowledge required. Anchorage can also be obtained off the W side of Dongji Dao during the winter (NE) monsoon but there is usually a heavy swell associated. Another anchorage, in depths of 6 to 7m, mud, can be obtained in Laji Gang (28°46'30"N, 121°52'00"E). Other designated anchorages are available as described below:

1. **Anchorage No. 1—**The waiting and quarantine anchorage centered on position 28°39'09"N, 121°44'38"E, in a depth of 8m, mud, good holding ground.
2. **Anchorage No. 2—**The westernmost anchorage in Taizhou Liedao, with the S part centered on position 28°27'23"N, 121°52'31"E, with depths of 10 to 19m. This is the quarantine anchorage as well as having the pilot boarding area contained within.
3. **Lightering Anchorage—**Established N of Touman Dao and centered on position 28°43'18"N, 121°47'45"E, with a radius of 1,000m, and depths of 7.1 to 13m, mud.
4. **Waiting Anchorage—**Centered on position 28°41'19"N, 122°04'48"E., mud, approximately 1 mile square.

A second waiting anchorage, situated close N of Anchorage No. 1, lies entered on position 28°40'34"N, 121°44'10"E, with a depth of about 6m.

5. **Dangerous Cargo Anchorage—**Close S of Anchorage No. 1 centered on position 28°37'48"N, 121°43'47"E, in a depth of about 5m.

Caution.—A power transmission line extends N across the water from close W of the grain wharf (28°41'01"N., 121°27'22"E.).

The Jiao Jiang Bridge, with a vertical clearance of 21m, crosses Haimen Gang between position 28°41'22"N, 121°23'42"E on the S shore to position 28°42'13"N., 121°23'48"E on the N shore. A shoal bank lies midway across the river (approximately along 28°41'45"N), with very shallow water and a sand bank close W of the bridge N of this shoal area, making the area S of the shoal bank to the S shore the only navigable passage through Haimen Gang. This S portion of Jiao Jiang Bridge is marked by lights.

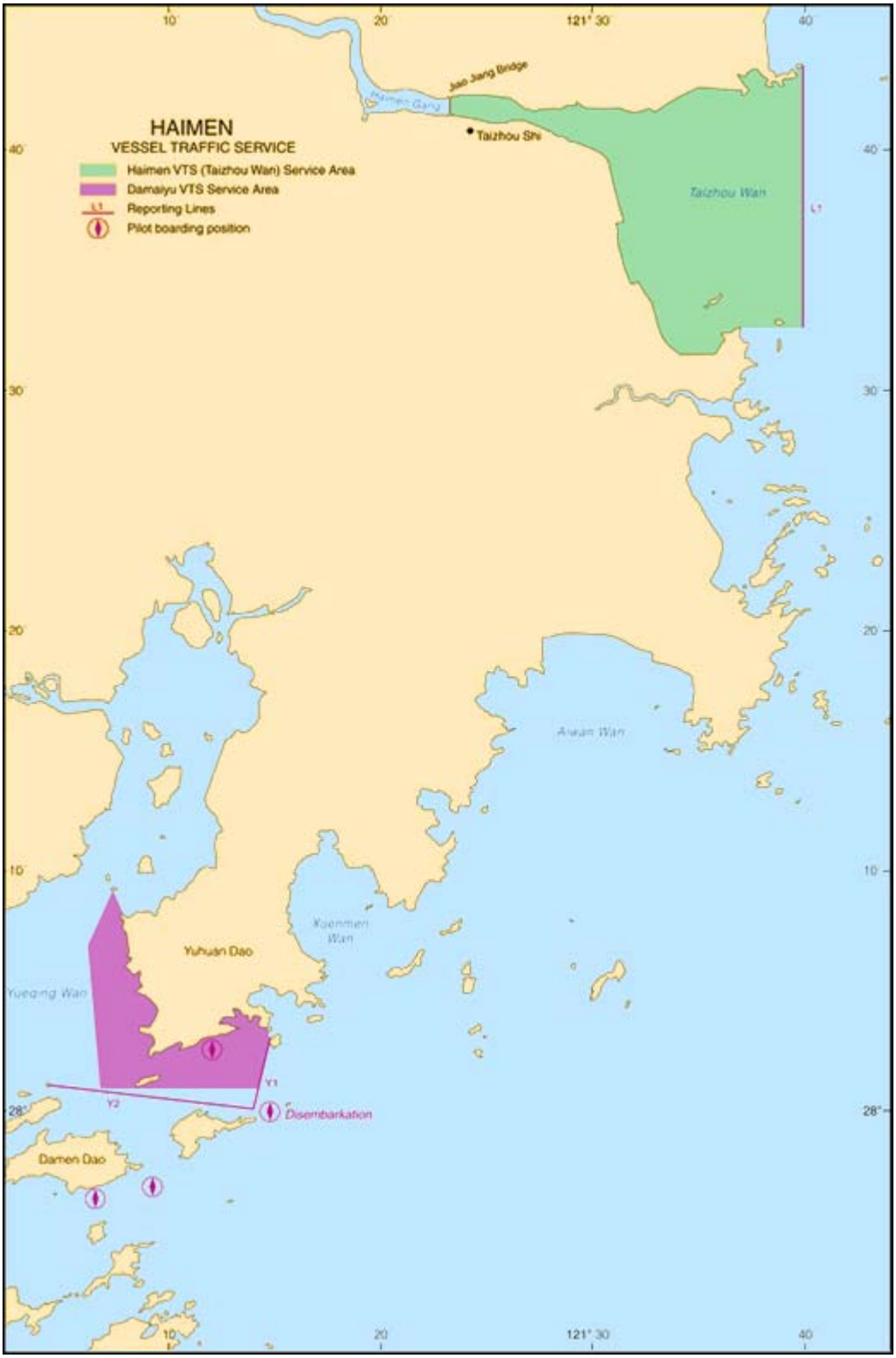
A second bridge (Jiao Jiang Second Bridge) spans the Haimen Channel close E of the berths, with the central axis of the bridge connecting from the N shore at position 28°41'40"N, 121°28'27"E to position 28°40'40"N., 121°28'11"E, on the S shore. The safe vertical clearance is 40m, with a navigable opening of 405m.

A third outer bridge is presently (2016) under construction across the mouth of the river.

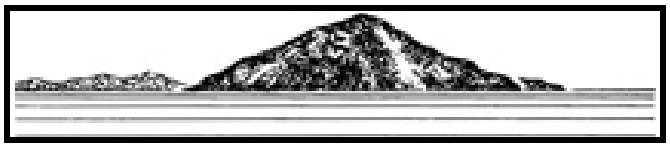
7.10 The coast between Langjishan and **Heshang Tou** (28°21'N., 121°40'E.), about 14 miles SSE, is fringed by a shallow and partly drying bank extending up to 6 miles offshore and on which there are a considerable number of islets and rocks, with heights up to 243m, of which only the outer dangers are described.

Jigushan (Chiku Shan) (28°23'N., 121°43'E.), the southeasternmost of these dangers, lies 3 miles NE of Heshang Tou. It is cone-shaped and 228m high, with a broad yellow stripe on its SE side, which is an excellent landmark.

Luo Yu (Lo Hsu) (28°16'N., 121°44'E.) is an islet lying



Haimen Vessel Traffic Service



Jigushan from SE, distant 2 miles

about 5.5 miles SE of Heshang Tou; a light is shown from a 4m high white square brick structure located at an elevation of 76m. Niu Shan, 162m high, lies 2 miles WNW of Luo Yu.

The coast between Heshang Tou and **Liudou Zui** (Litou Zui) (28°16'N., 121°25'E.), the E entrance point of Aiwan Wan, about 7.5 miles further SW, is composed of many shallow bays. Islets and other dangers extending off this coast may best be seen on the chart.

Yisuan Shan (28°13'N., 121°40'E.), marked by a light, lies 4.5 miles SE of Liudou Zui; a reef lies 0.2 mile NE of the islet. Daqi Jiao and Xiaoqi Jiao, also known as The Stragglers, are two groups of above and below water rocks lying between 2.5 and 3 miles NE of Yisuan Shan. Sansuanshan, 111m high, lies 1.25 miles NW of Yisuan Shan; a 100m high islet lies between these two islands.

An unmarked dangerous wreck lies at approximately 1 mile SW of Sansuanshan.

7.11 Aiwan Wan (28°16'N., 121°30'E.) is entered between Liudou Zui and Maocaoshan, 9 miles WSW; the bay is generally shallow with a drying flat extending about 2.5 miles offshore.

Tidal currents in Aiwan Wan set NW on the flood current and SE on the ebb current, at a rate of 1.5 knots.

Wailongyan (28°13'N., 121°33'E.), a flat rock, about 5m high, and marked by a light equipped with a racon, lies in the approach to Aiwan Wan, about 3 miles SW of Liudou Zui. Neilongyan, 10m high, lies about 1 mile NNW of Wailongyan.

Anchorage.—Anchorage sheltered from NW to NE winds, can be obtained in Aiwan Wan, in depths of 4 to 5m, mud, NW of Neilongyan.

Maocaoshan (28°12'N., 121°25'E.), 81m high, is the W entrance point of Aiwan Wan, and is the outermost of a group of islets lying close offshore. The coast continues SW for 5 miles to Zhaitou Jiao (Hebe Head).

Caution.—Fishing nets and stakes may be encountered in the area extending 5.5 miles NE of Wailongyan. A dangerous wreck lies about 3.5 miles ENE of Wailongyan.

Zhaitou Jiao to Shi Jiao

7.12 Zhaitou Jiao (Hebe Head) (28°08'N., 121°21'E.) is the S extremity of a rugged mountainous headland. The coast line between the headland and Shi Jiao, about 112 miles SW, continues rather irregular and is indented by many inlets and the estuaries of several large rivers. It is backed throughout by mountainous terrain which reaches the sea everywhere in bold promontories and headlands, except in the N central part where the land is low and well-cultivated. The inshore area as far S as P'ing-yang Tsui fronts the coastline with an extensive margin of drying mud flats, while the offshore area contains numerous islands and islets well-scattered throughout.

Xialangtan (28°04'N., 121°31'E.), a small islet marked by a light, with another islet close NW, lies 9.5 miles SE of Zhaitou Jiao. Pi Shan, 1.25 miles NW of Xialangtan, is 174m high and has several rocks and islets within 0.5 mile of its shores. Two other small islets lie 1 mile WNW and 2.5 miles NW, respectively, of Pi Shan.

Qian Shan (28°03'N., 121°24'E.), 86m high and marked by a light on its W end, is the N of a group of three islets, close together, lying 4.5 miles WSW of Pi Shan. Other islands, rocks, and dangers, best be seen on the chart, lie between Qian Shan and Zhaitou Jiao.

The coast between Zhaitou Jiao and Wenzhou Jiao, about 23 miles WSW, recedes N to form a large bay whose very irregular shoreline is fronted by extensive margins of drying mud flats and whose offshore area is considerably blocked by the large mountainous island **Yuhuan Dao** (28°08'N., 121°12'E.) and numerous smaller islands and lesser islets. The river **Ou Chiang** (28°01'N., 120°44'E.), with the port of Wenzhou, has its entrance about 23 miles SW of Zhentou Jiao.

Anchorage.—Vessels, seeking shelter from typhoon winds, anchor in 9.1 to 14.6m about 1.25 miles off the salient point on the SW side of Yuhuan Dao. This anchorage, in the deeper part of the bay Leqing Wan (Lo-ch'ing Wan), is at times obstructed by fishing stakes.

7.13 Yueqing Wan (28°06'N., 121°07'E.), also known as Leqing Wan, is a bay between the W coast of Yuhuan Dao and the mainland, in which plans are underway to have 15 berths capable of handling vessels between 10,000 and 100,000 dwt. This area is considered to be a part of the port of Wenzhou. In addition to the developing cargo-handling facilities, Yueqing Wan offers the best anchorages available in the area for sheltering from typhoon conditions.

Tides—Currents.—Tidal currents will reach a velocity of 2 knots setting across the approach fairway in vicinity of the Dayan Tou Light. Diurnal tidal currents at the mouth of Yueqing Wan will set W on th flood tide, and set E on the ebb tide at rates of 1 to 1.5 knots.

Depths—Limitations.—Yueqing Wan is entered between Dayan Tou, the SW tip of Yuhuan Dao, and Hengzhi Shan, then through a buoyed channel extending approximately 6.5 miles NNW and then 1 mile due N. Berthing areas are all located along the W coast of Yuhuan Dao and are concentrated among three separate areas, as follows:

1. **Damai Yu** (28°07'00"N., 121°07'20"E.)—This area has an L-shaped jetty extending out from shore for 1,200m, with berths on either side of the jetty head having lengths of 500m. These berths can accommodate vessels up to 100,000 dwt and have depths alongside of approximately 12m. A smaller L-shaped jetty is located inside the main jetty; several more jetties and larger terminals can be found as far as 4 miles S.
2. **Yuedian** (28°09'54"N., 121°06'30"E.)—An L-shaped jetty extends out 1,250m from shore and is marked by three lights, 10m in height. Berths located on the jetty head, are about 470m in length, and have depths alongside of 10m on the outer side. Additional L-shaped jetties are located N, with a large bulk terminal lying S.
3. **Caokun Yu** (28°08'19"N., 121°07'37"E.)—An L-shaped ro-ro jetty with charted depths of 2 to 7m alongside.

light.

Pilotage.—Pilots board in the fairway and in the Pilot and Quarantine Anchorage area outside the harbor.

Regulations.—A Traffic Separation Scheme (TSS) has been established by the government of China for the approaches to Yueqing Wan starting between Lighted Buoy Y6 and Lighted Buoy Y7. Although this TSS has not been adopted by the IMO, mariners are advised to comply with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972).

Vessel Traffic Service (VTS).—A vessel traffic service has been established for the approaches to Yueqing Wan. See paragraph 7.9 for details and a graphic describing the boundaries of the Haimen VTS.

Anchorage.—Two designated anchorages outside the bay are located, as follows:

1. Waiting Anchorage—Centered on position 27°50'48"N, 121°27'59"E.
2. Pilot and Quarantine Anchorage—Centered on position 28°02'38"N, 121°12'23"E, with a restricted area located close E in which fishing and anchoring are prohibited.

Six designated anchorages within Yueqing Wan (Leqing Wan) provide a safe have from typhoon conditions; however there are numerous marine farms lying close to most of the anchorages. These areas are located, as follows:

1. Anchorage No. 1—Centered on position 28°13'30"N, 121°08'06"E, with depths as shallow as 10m, mud.
2. Anchorage No. 2—Centered on position 28°11'11"N, 121°07'00"E, with depths of 6 to 11m, mud.
3. Anchorage No. 3—Centered on position 28°09'06"N, 121°08'21"E, with depths of 5m, mud.
4. Anchorage No. 4—Centered on position 28°06'17"N, 119°06'09"E, with depths of 3 to 17m, mud. There are fish stakes found in this area.
5. Anchorage No. 5—Centered on position 28°02'42"N, 121°06'42"E, with depths of 4 to 11m, mud.
6. Shelter Anchorage—Centered on position 28°15'07"N, 121°08'37"E, with depths of 2 to 6.4m.

Caution.—Yueqing Wan (Leqing Wan) has numerous fishing nets and stakes all throughout, as well as in the entrance.

An overhead cable, with a vertical clearance of 52m, spans the side channel leading to Anchorage No. 3 between Xiaowu Dao and the mainland S.

A bridge is under construction (2016) spanning the N part of the harbor across Maoyan Dao (28°14'N, 121°10'E.) and crossing between Anchorage No. 1 and the Shelter Anchorage.

7.14 Wenzhou Wan (27°55'N., 121°15'E.) is an extensive open roadstead lying SE of Yuhuan Dao and E of the numerous large, mountainous islands which, rising abruptly from surrounding areas of shoal water and westward trending margins of drying mud flats, lie in the E and SE approaches to Ou Chiang. A DGPS station is situated on the N coast of Lingkun Dao (27°59'N., 120°54'E.).

Dongtou Shan (27°50'N., 121°08'E.) is a large irregularly-shaped island about 223m high; there are a number of dangers within 0.75 mile of the E end of the island. Dazhu Shan, about 2 miles E of the SE point of Dongtou Shan, is 75m high; islets and rocks extend 0.5 mile S from this islet. Another small group of islets and rocks lies 0.4 mile NW of Dazhu Shan.

Hutou Yu (Hu-tou Hsu) (27°50'N., 121°15'E.) is 99m high, with several islets extending almost 0.8 mile NW from it; a light is exhibited from the summit of Hutou Yu.

Caution.—This group of islets resembles Dazhu Shan and its surrounding islets, about 1.5 miles SW; these two groups of islets may be confused in thick weather.

7.15 Chongshan Shuidao (27°54'N., 121°04'E.) is the channel between the N side of Zhuangyuanao and Niyu Shan, and the S side of Qingshan Dao and Chongshan Shazui, a drying bank extending 3 miles W from Qingshan Dao. There are depths of as little as 2.2m in the W part of this channel.

Shatou Shuidao (28°01'N., 121°02'E.) leads SW between two groups of islets lying close NW of Xiaomen Dao and the drying mud flats fronting the mainland. There is a least charted depth of 2.6m in the channel.

Huangdao Shuidao (27°56'N., 121°07'E.) is the only channel available to shipping entering Ou Jiang. The channel leads W between Qingshan Dao and Chongshan Shazui to the S and the coast of Damen Island to the N; the channel then continues N of Zhong Sha, an extensive bank which dries in places and lies between 0.6 mile and 2 miles S of the SW end of Damen Island. The channel then continues NW, passing between the extensive drying bank of **Wenzhou Qiantan** (27°56'N., 120°57'E.) to the SW and Sanjiao Sha to the NE.

Aspect.—The S coast of Damen Island between Dong Tou, its E extremity, and **Rock Point** (27°56'N., 121°05'E.), about 3 miles WSW, is bold and cliffy. From Rock Point to Huangda Zui, the SW point of Damen Island, about 1.5 mile E, the coast consists of a bay which dries completely.

Qingling Yu, a small islet about 0.6 mile W of Rock Point, has a 43m high summit and is marked by a light. Lights are also exhibited on Huangdu Zui and Dong Tou.

7.16 Qingshan Dao (27°55'N., 121°07'E.) is 224m high and remarkable in appearance. From its E, N, and W sides it rises gradually in long spurs until nearly halfway to the summit, where its rocky sides then rise abruptly.

Tides—Currents.—The flood current near Qingling Yu has a maximum rate of 2 knots; the ebb current has a rate of 2.5 knots.

Off the S end of Damen Island, the tidal current is rotary and changes from flood to ebb gradually through N, and from ebb to flood gradually through S.

Anchorage.—The Wenzhau Pilotage and Quarantine Anchorage is designated within the area enclosed by lines bounded by the following positions:

a. 27°56'04"N, 121°06'06"E.
b. 27°55'50"N, 121°06'06"E.
c. 27°55'50"N, 121°07'05"E.
d. 27°56'41"N, 121°07'15"E.

The anchorage has depths of 7 to 10m, mud and sand bottom. It is protected from winds and heavy swell except from E and S winds and swell.

Vessels anchor with little shelter, in 7.4 to 21.9m, hard mud, anywhere in Wenzhou Wan according to draft. Vessels seeking refuge from typhoon winds anchor, in 5.5 to 12.8m in **Heiniu Wan** (27°48'N., 121°07'E.), sheltered by Dongtou Shan to the N, but open to S and SW winds which send heavy swells into the anchorage.

Vessels seeking shelter from the predominating winds of the

Southwest Monsoon season anchor, in 7.4 to 9.2m, in a position N of Dasanpan Shan, an island close N of Dongtou Shan. The anchorage is approached from the E. The approach from the W through Dongtou Xia (Tung-t'ou Hsia) (Tungtow Strait) is obstructed by a bar and is not recommended without local knowledge. Vessels also anchor, in 11 to 36.5m, clear of fish stakes, in a position close S of Qingshan Dao, a lofty islet lying S of Damen Island. The anchorage lies in a deep pool in Chong-shan Shuidao, a secondary access channel to Ou Chiang used only by junks.

Above Qingling Yu, the water changes from clear and salty to muddy and brackish.

Caution.—A dangerous wreck, in a depth of 7.8m, is located in position 27°50'56"N, 121°19'26"E; another dangerous wreck, in a depth of 8.5m, lies in position 27°56'11"N, 121°14'55"E. Other dangerous wrecks, best seen on the chart, lie in the approaches to Wen-zhou Wan.

Wenzhou (28°01'N., 120°39'E.)

World Port Index No. 59910

7.17 Wenzhou, a large metropolis and important coastal trade center, lies on the S bank of Ou Chiang at about 17 miles upstream from Wenzhou Jiao, the hilly N entrance point of the river.

Tides—Currents.—At the river entrance, flood duration is 5 hours 30 minutes and the ebb is 7 hours 30 minutes. Currents reach 5 knots and continue to run about 25 minutes after the time of H and LW.

At Wenzhou, flood duration is 4 hours 45 minutes; ebb, 7 hours 30 minutes. Currents continue to run about 38 minutes after the time of HW and LW. From April to June, freshets occur which may cause ebb currents to persist throughout the day at a maximum velocity of 6 knots, but may reach 7 knots for short periods.

Depths—Limitations.—The harbor is divided into two sections, Shuo Men and An Lan. There is 540m of wharf space, with an alongside depth of 6m, capable of taking vessels of 500 to 1,500 dwt. A new floating wharf is now in operation. Two berths for 10,000 dwt ships have been completed in the Longhai area. Five new coal-handling berths are to be constructed.

The navigable channel from the quarantine anchorage is marked by buoys and beacons; these are altered as necessary to conform with the constant changes which take place in the river bed.

Vessels can ordinarily reach Wenzhou with a draft of 4.6m during neap tides and with 5.5m during springs. It was reported that an ocean-going vessel, with a draft of 5.1m, entered Ou Chiang and proceeded to the port of Wenzhou.

Wenzhou

At **Panshi** (27°59.3'N., 120°49.6'E.), there are mooring buoys for vessels of 10,000 and 20,000 dwt for berthing; at **Longwan** (27°58.3'N., 120°48.2'E.), there are general cargo berths for vessels of 10,000 dwt. The main channel leading to these berths has depths of between 2 to 10m; vessels enter the port area with a favorable tide.

The Wenzhou Great Bridge, with a vertical clearance of 30m, crosses Oujiang Channel on the N side of Qidu island.For further berthing information see the table titled **Wenzhou—Berth Information.**

Aspect.—The river banks are generally low and maintained for considerable lengths by dikes. The N bank is backed by rugged hills while the S bank, within the river entrance, is largely flat and well-cultivated. Several low, diked, and cultivated islands, as well as extensive areas of drying mud flats and shifting sand banks encumber the river between the entrance and alongside berthing facilities at Wenzhou. River depths and the navigable channel change constantly and require local knowledge to ensure safe navigation.

Wenzhou—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Zhejiang Zheneng Yueqing Power Plant				
South Jetty	240m	—	35,000 dwt	Coal.
North Jetty	249m	—	35,000 dwt	Coal.
Cargo Berth	180m	—	—	General cargo.
Jinyang Container Terminal				
No. 1	876m	11.0m	15,000 dwt	Coal.
No. 2	876m	11.0m	15,000 dwt	General cargo.
No. 3	876m	11.0m	25,000 dwt	Ro-ro.
No. 4	876m	12.0m	25,000 dwt	Containers.

Wenzhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
No. 5	300m	12.0m	25,000 dwt	Containers and general cargo.
Zhangyanao Terminal				
No. 5	312m	—	50,000 dwt	Containers.
No. 6	312m	15.3m	50,000 dwt	Containers.
No. 7	345m	9.7m	50,000 dwt	Containers.
No. 7	345m	3.9m	50,000 dwt	Containers.
No. 8	320m	15.0m	50,000 dwt	Containers.
No. 9	320m	15.0m	50,000 dwt	Containers.
Zhonggang ConcreteTerminal				
No.1	50m	—	—	General cargo
No. 2	125m	—	—	General cargo.
Longwain Terminal				
No. 1	785m	9.0m	—	—
No. 2	785m	9.0m	10,000 dwt	General cargo.
No. 3	785m	9.0m	10,000 dwt	General cargo.
No. 4	785m	9.0m	10,000 dwt	General cargo.
Zhejang Zheneng Wenzhou power Station.				
East Jetty	185m	—	35,000 dwt	Coal
West Jetty	185m	—	35,000dwt	Coal.
Hongfa Terminal				
No. 1	145m	—	500 dwt	General cargo.
No. 2	50m	—	500 dwt	General cargo.
Tianxiang Terminal				
No. 1	121m	—	500 dwt	General cargo.
Wenzhou Haiyun Terminal				
Cargo Berth	195m	—	10,000 dwt	Cement.
Xi Ou Terminal				
No. 1	82m	—	—	General cargo.
Jingxin Ferry Terminal				
Ferry Berth	160m	—	—	Passengers.
Anian Ferry Terminal				
Ferry Berth	150m	4.6m	—	Passengers.
Longqiao Ferry Terminal				
Ferry Berth	58m	—	—	Passengers.
Oubei Ferry Terminal				
Ferry Berth	117m	—	—	Passengers.
Yangpushan Puxi Cruise Terminal				
Cruise Berth	245m	—	—	Cruise vessels.

Wenzhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Lingkun Coal Terminal				
Coal Berth	287m	—	—	Coal.
Yueqinqwan Terminal				
No. 1	338m	—	10,000 dwt	Bulk cargo.
No. 2	338m	—	10,000 dwt	Bulk cargo.
Nanyue Ro-Ro Terminal				
Ro-Ro Berth	60m	—	—	Ro-ro.
Jinhe Material				
Cement Berth	150m	—	50,000 dwt	Cement.
Wuxiantou Ferry Terminal				
Ferry Berth	70m	—	—	Passenger
Sanpan Port				
Cargo Berth	125m	—	3,000 dwt	General cargo.
Zhongrui Concrete				
No. 1	85m	—	30,000 dwt	Chemicals, crude, LPG, and multipurpose.
No. 2	75m	—	50,000 dwt	Chemicals, crude, LPG, and multipurpose.
Aoijang Ferry Terminal				
Ferry Berth	85m	—	—	Passenger.
Anxin Concrete				
No. 1	100m	—	—	General cargo.
No. 2	120m	—	—	General cargo.
No. 3	135m	—	—	General cargo.
CR Power (Wenzhu)				
Coal Berth	260m	—	50,000 dwt	Coal.
Cargo Berth	113m	—	—	General cargo.
Wenzhou Xinkun Shiye Cement				
Cement Jetty	141m	—	—	Cement.
Xingxing Building Material				
Cargo Jetty	42m	—	—	Cement.
Yeuqing CONCH Cement Grinding Station				
Cement	350m	12.8m	50,000 dwt	Cement. Maximum beam of 32.3m.
Donghai Jetty				
Donghai Jetty	82m	—	—	General cargo and bulk cargo.
Jingang Jetty	62m	—	—	General cargo and bulk cargo.
Wangdong Jetty	80m	—	—	General cargo and bulk cargo.
Daxin Terminal				
Coal Jetty	65m	—	—	Coal.

Wenzhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Huafeng Logistics				
Cargo 01	70m	—	—	Coal
Cargo 02	82m	—	—	Coal
Huadong Cement				
Cement Jetty	45m	—	—	Cement.
Tanker Terminals				
Xiaomen island Terminal				
No. 1	350m	12.0m	55,000 dwt	Clean products, dirty products, LPG, and chemicals.Maximum beam of 40m. Maximum draft of 11.5m.
No. 2	148m	—	1,500 dwt	Chemicals.
No. 3	127m	—	1,500 dwt	Chemicals.
No. 4	93m	—	1,000 dwt	Chemicals.
Longwan Petrochemical Terminal.				
No. 1	140m	6.0m	3,000 dwt	Chemicals and LPG.
No. 2	140m	6.0m	—	Chemicals.
No. 3	140m	6.0m	—	Chemicals.
Wenzhou Oil Terminal				
No. 1	141m	—	3,000 dwt	Clean products
Dafeng Chemical				
No. 1	50m	—	—	Chemicals.
Tongli Chemical				
No. 1	40m	—	2,000 dwt	Nitric acid.
Chengxu Chemical				
No. 1	40m	—	1,000 dwt	Chemicals.
Tian Yuan Lubricants				
No. 1	86m	—	3,000 dwt	Lubricants.
Wenzhou Zhongran Energy				
LPG Berth	60m	—	1,500 dwt	Clean products.
Zhuangyuanao Chemical Terminal				
Chemical Jetty	195m	—	50,000 dwt	Chemicals.
Ruian Oil Terminal				
Oil Jetty	65m	—	3,000 dwt	Refined oil.
SINOPEC Ruian Terminal				
01	67m	—	1,000 dwt	Clean products.
02	58m	—	—	Clean products.

Pilotage.—Pilotage is compulsory for foreign vessels and is available during daylight hours only. Pilots board in the following positions:

a. 27°55'42"N, 121°11'27"E.
b. 27°57'42"N, 121°09'48"E.
c. 27°56'41"N, 121°09'48"E—Yuan Yu Anchorage.

d. 27°56'00"N, 121°07'00"E—Qinglingyu Quarantine Anchorage.
e. 27°56'25"N, 121°04'10"E.

Caution.—There is a precautionary area for Feiyundu-Nanan passenger boats where they cross the main channel into Wenzhou. Passenger boats are expected to yield the right-of-way to vessels using the main channel; however, vessels in the main channel are prohibited from anchoring within this area except in the case of an emergency. Vessels using the main channel should also reduce speed while transiting through the precautionary area. The precautionary area falls within an area bounded by lines joining the following positions:

a. 27°47'06"N, 120°37'07"E.
b. 27°46'55"N, 120°37'10"E.
c. 27°46'27"N, 120°36'59"E.
d. 27°46'35"N, 120°36'54"E.

A rock, with a depth, of 2.1m lies close NW of the fairway from Panshi to Long-wan-Tou. Laohu Yan Dike projects 0.6 mile S from the shore 0.5 mile NW of Qidu Zui. Two lights are shown from near the dike.

7.18 Ku-ao-t'ou (27°36'N., 120°33'E.), about 32 miles SW of the N entrance point of Ou Chiang, is a community on the N bank of the river Ao Chiang which, lying about 2 miles within the river entrance, is reached by small vessels with a draft of 3m.

Beijshan Liedao (27°38'N., 121°12'E.), consisting of several rugged islands and islets, lies about 34 miles E of the entrance to Ao Chiang and constitutes the farthest seaward danger in the approaches to Ku-ao-t'ou. Beiji Shan, 120m high and the largest of these islands, has several islets lying close together about 1 mile SE. Numerous other mountainous islands and lofty islets lie scattered to the W and reach the coast off the entrance to **Feiyun Jiang** (27°42'N., 120°40'E.), a river which small vessels with a draft of 3.7m are able to ascend at HW for a distance of about 5 miles to the community of Ruian. The Feiyun Jiang Bridge, which has a vertical clearance of 17.5m at MHW, spans the river in position 27°47'N, 120°36'E.

Nanjishan Liedao (27°27'N., 121°04'E.), about 12 miles SW of Beijshan Liedao, consists of the large mountainous island Nanji Shan and the several islets and the many underwater dangers which surround it. Small vessels anchor, in 14.6 to 16.4m, in Nan-chi Chiang, a small inlet on the S side of Nanji Shan. A swell sets into the anchorage with winds occurring during the Northeast Monsoon season and with winds from the SE.

Shacheng Gang Approaches

7.19 Pingyang Zui (27°28'N., 120°40'E.), about 9 miles SE of the entrance to Ao Chiang, is a point at the NE extremity of a bold headland. The coastline between the point and Shi Jiao, about 57 miles SSW, is very irregular and indented by numerous bays and a multitude of small coves. It is everywhere backed by high hills and mountains which, in general, rise abruptly from a foreshore largely clear of the characteristic margins of drying mud flats.

Qixing Dao (27°03'N., 120°51'E.), about 26 miles SSE of Pingyang Zui, is a group of small high-rising rocks lying at the seaward extremity of a string of islands and islets stretching WSW to the mainland. The SW and largest islet is 61m high and split in two. The above-water rocks at the N end of the group are low and have a number of rocks awash within 0.5 mile E and 1 mile W of them; it is recommended that this group be given a wide berth. **Lie Yan** (Cleft Rock) (27°06'N., 120°49'E.), 15m high, lies 3 miles NW of Qixing Dao.

Caution.—Discolored water has been reported to the SE of Qixing Dao.

7.20 Taishan Liedao (27°00'N., 120°42'E.), marked by a light and a racon, consists of two islets and a number of rocks. Dongtai Shan, the SE islet, has a table top summit 165m high. Above and below-water rocks extend 2.5 miles W of Xitai Shan, the NW island. A reef, awash, lies about 4.5 miles NW of the same island.

Caution.—A submarine cable has been placed between Taishan Liedao and Shi Jiao bounded by the following points:

a. 27°00'12"N, 120°41'36"E. (coast)
b. 26°59'24"N, 120°40'12"E.
c. 26°41'42"N, 120°21'48"E.
d. 26°41'06"N, 120°09'24"E.
e. 26°39'48"N, 120°06'24"E. (coast)

Nan Yu (Strawstack Island) (26°56'N., 120°21'E.), about 3.3 miles SSW of Xitai Shan, is 86m high. A rock, awash, whose position is doubtful, lies 4.5 miles W of the islet; a depth of 11.6m lies about 2.5 SW of Nan Yu.

Xingdao Dao (26°59'N., 120°28'E.) and Dongxing Dao, together with their off-lying rocks, form a small group of islands sometimes known as Ying-ko-ku Lieh-tao, lying about 20 miles WSW of Qixing Dao. Small vessels, seeking shelter from the Northeast Monsoon, can obtain anchorage, in a depth of 11m, mud, 0.2 mile off the SW side of Xixing Dao, with two white masts in line, bearing 058°. Vessels also anchor, in 12.8m, off the NW side of the islet in a position at the juncture of two ranges indicated by beacons standing E and W of the disused lighthouse at the W end of the islet. Vessels transiting the passage between Yin-ko-ku Lieh-tao and Taishan Leidao, a group of high steep-sided islands about 11 miles to the E, are recommended to favor the W side of the passage.

Riyue Yu (Solitary Rock) (27°02'N., 120°25'E.), 81m high with a reef extending 0.2 mile E of it, lies 3.5 miles NW of Xixing Dao.

Three dangerous wrecks lie within 2.5 miles NE and NW of the rock.

7.21 Shacheng Gang (27°10'N., 120°24'E.), about 22 miles SSW of Pingyang Zui, is a narrow deep fjord-like inlet which, winding through sheltering mountainous terrain, recedes irregularly inland for a distance of about 17 miles. The inlet has not been thoroughly examined above Kin-sho, an islet lying about 5 miles inland from Fu-chien T'ou, the hilly steep-to S entrance point of the inlet. Depths in the fairway through the entrance are generally deep but irregular; shoal depths of 9.1 to 12.8m have been reported.

Vessels seeking shelter during the Northeast Monsoon season and having a draft no greater than 4.6m can obtain anchorage between **Beiguan Dao** (27°10'N., 120°31'E.) and Nankuan Shan, 1.25 miles W, but local knowledge is required. They also anchor, in 12.8 to 18.2m, clear of fishing nets, off the W side of Nankuan Shan.

Vessels of all classes seeking refuge from typhoon winds enter Shacheng Gang between Fu-chien T'ou and Nankuan Shan and anchor, in 11 to 25.6m in a position in the fairway, clear of bamboo moorings, NW of Lung-mu Yen (Bate Island), a small islet on the N side of the channel about 1.5 miles W of Fu-chien T'ou. A drying reef extends about 0.3 mile NW from the islet. Small vessels anchor, in 5.9 to 9.2m, mud, in a position on the shore bank SE of Tree Islet, an islet lying in the middle of the fairway about 1.8 miles NW of Lung-mu Yen. The channel on the E side of the islet is foul. The tidal range in Shacheng Gang is extreme.

Pilotage.—Pilotage is available; the pilot boarding position is located in position 27°08'27"N, 120°26'51"E. Local knowledge is required.

Caution.—A dangerous wreck lies approximately 2 miles SW of the entrance to Sacheng Gang, in 11m of water.

7.22 Dayu Shan (Fu-yao Shan) (26°57'N., 120°21'E.), about 6 miles WSW of Ying-ko-ku Lieh-tao, is a large mountainous island lying at the seaward end of a number of lesser islands and scattered islets extending E from the N entrance point of the partially examined bay Funing Wan. Transit of the several narrow rocky passages between Dayu Shan and the mainland is not recommended without local knowledge.

Anchorage.—Good anchorage, in a depth of 11m, sand, is reported about 1 mile W of Dayu Shan. Good anchorage is also reported, in 11m, 1 mile N of the E point of Dayu Shan.

Caution.—Less water than charted has been reported in an area 2 miles N of Dayu Shan.

Funing Wan (26°51'N., 120°07'E.) is shoal and has a number of islets and rocks in it. **Beiao Dao** (26°53'N., 120°13'E.), 136m high, is the largest of a group of islands lying within 2.25 miles S of the N entrance point of the bay. The village of **Sansha** (26°55'N., 120°13'E.) situated close W of the N entrance point.

Good anchorage has been obtained off Sansha, in a depth of 8.2m, with the N entrance point of the bay bearing 043° at 0.35 mile. The anchorage is approached, after passing 0.5 mile N of Beiao Dao on a W course, on a course of 003° with a ruined castle, standing on one of the islets fronting the village, a little on the port bow.

Many of the inshore areas along this portion of coast have been partially surveyed. Vessels must use caution.

Dajin Jiao (26°43'N., 120°09'E.) lies about 4.5 miles S of the E end of Changbiao Dao, the S entrance point of Funing Wan; the bay between these two points contains a number of islets and dangers.

Several islets, one of which is marked by a light, lie up to 1 mile SSE of Dajin Jiao.

Caution.—Fishing stakes may be encountered up to 2.5 miles SE of Dajin Jiao.

Shi Jiao to Beijiao Zui

7.23 Shi Jiao (26°39'N., 120°07'E.), lying about 4.5 miles SSW of Dajin Jiao, is a steep-sided headland which, backed by high-rising hills and mountains, rises abruptly from a sea floor lying in depths in excess of 18.2m. The coastline between the headland and Beijiao Zui, about 19 miles SSW, is irregular and considerably indented by Sansha Wan and Loyuan Wan, two extensive inlets whose several arms are largely filled with wide areas of drying mud flats. It is backed by mountainous terrain which reaches the shore in bold headlands with a multitude of intervening coves. The offshore area is relatively deep and encumbered by several large islands and many lesser islands and scattered underwater dangers.

Sishuang Liedao (26°40'N., 120°21'E.) is a group of islets and rocks lying 9 to 14 miles E of Shi Jiao; the S danger of the group is Nanquan (Bare Rock) (26°37.5'N., 120°19.5'E.). Nanshuang Dao, 1.75 miles NE of Nanquan is 182m high; Dongshuang Dao, 2 miles farther NE, is 101m high and has a reef marked by breakers extending 0.5 mile E from it. Beishuang Dao, 139m high and the largest in the group, lies 4 miles NNE of Nanquan. Other islets and dangers may best be seen on the chart.

Caution.—Fishing stakes may be encountered between Nanshuang Dao and Dongshuang Dao, and on the N side of Beishuang Dao.

Hsi-yin Tao (Lang Tao) (26°20'N., 120°12'E.), about 19 miles SSE of Shi Jiao, is a lofty islet which, with underwater rocks lying close NE and SW, constitutes the farthest seaward danger in the immediate approaches to the considerable inlets indenting this area of the coast. **Tung-yin Tao** (26°23'N., 120°30'E.) and **Tung-sha Tao** (26°10'N., 120°24'E.) are both described in paragraph 7.5.

7.24 Sansha Wan (26°25'N., 120°00'E.) is an extensive island-filled bay located between Shi Jiao and Beijiao Zui, about 19 miles SW. Sandu Ao, located in the W part of Sansha Wan, is described in paragraph 7.25.

Pilotage is available for Sansha Wan and is detailed in paragraph 7.25. The use of Ningde VTS is compulsory for most vessels in Sansha Wan and its approaches.

Fuying Dao (26°35'N., 120°08'E.) is a large mountainous steep-sided island lying close S of Shi Jiao; the island has two remarkable peaks near its NE end, the higher being 363m high. Maci Dao is an island, 255m high, lying 0.75 mile S of the SW end of Fuying Dao.

Another island lies close off the SE side of Fuying Dao, to which it is joined by a shallow ridge. An isolated rock, 18m high, lies 0.75 mile NW of the W end of Fuying Dao.

In the Northeast Monsoon, good anchorage can be obtained, in a depth of 12.8m, mud, SW of Fuying Dao, sheltered from the E swell by Maci Dao and the island N of it.

Kuishan Dao (26°30'N., 120°08'E.), rising to a cone 236m high, is the outer island of a group of islands lying on the N side of the approach to Sandu Ao. A light is shown from the S point of the island. A rock, with a depth of less than 1.8m, lies 1 mile SE of Kuishan Dao; a reef, awash, lies about 3.8 miles further SE. A dangerous wreck lies 3 miles ESE of the S end of the island.

Xiyang Dao (26°30'N., 120°03'E.), lies 3.5 miles WNW of Kuishan Dao; fishing stakes may be encountered S of the island. Other islets, rocks, and dangers extending W and NW from Xiyang Dao may best be seen on the chart.

Anchorage.—Anchorage can be taken in the W part of Sansha Wan at the following designated areas:

a. 26°36'02"N, 119°47'00"E.—For vessels waiting instructions.

b. 26°39'17"N, 119°48'25"E.—For sheltering.

c. 26°35'44"N, 119°48'09"E.—For pilotage and quarantine.
d. 26°41'30"N, 119°45'00"E.—For cargo transshipment.

7.25 **Sandu Ao** (San-tu Ao) (26°35'N., 119°50'E.) is an extensive inlet entered between **Mouth Point** (26°27'N., 119°50'E.) and the extremity of a rugged and steep-to peninsula about 4.5 miles NE. The inlet provides anchorage in a typhoon with good holding ground. Within its entrance the inlet divides into several arms and is encumbered with a number of islands and islets; the land around the inlet is well cultivated and the hills are terraced.

Tidal currents in Sandu Ao turn at the times of HW and LW; the currents follow the directions of the channels, dividing where there are islands and running at a greater rate past their salient points. In the entrance channel rates of 4 to 7 knots may be obtained, and heavy tide rips occur during the ebb current. The mean spring tidal range in Sandu Ao is 6.6m.

The W sides of the entrance channel, between the entrance to Luoyuan Wan and **Town Point** (26°33'N., 119°48'E.), the extremity of a steep-to peninsula about 7 miles NNW, is rugged and indented with several bays mostly filled with drying mud flats. The peninsula rises NW to become part of the rugged mountain range which backs this coast.

The E side of the entrance channel is also rugged and indented with bays filled with drying mud flats. **Castle Point** (26°32'N., 119°50'E.), jutting out close within the entrance of the channel, is steep-to and marked by a light. Channel Rock, lying near mid-channel about 0.6 mile WSW of Castle Point, dries 4.3m.

Ningde (26°39'48"N., 119°31'12"E.) is a small walled town located at the W end of Sandu Ao and directly approachable only by small vessels through two creeks around numerous mudflats at certain stages of the tides. However, Ningde is the port name referred to when proceeding to the berths and slipways available in Sandu Ao that are usable by coastal vessels.

Pilotage.—Pilotage is available and pilots will board in the following locations:
a. 26°35'43"N, 119°48'09"E.—Sansha Wan Anchorage.
b. 26°37'55"N, 119°44'14"E.—Sansha Wan.
c. 26°40'10"N, 119°46'53"E.—Sansha Wan.
d. 26°47'45"N, 119°42'18"E.—Baima Gang.

Contact Information.—The port authority (Ningde Harbour Group Co., Ltd.) can be contacted, as follows:
1. Telephone: 86-593-297-9824
2. Facsimile: 86-593-297-9825
3. E-mail: info@ndgw.net
4. Web site: http://www.ndgw.net

Chi-chiao Shan (26°34'N., 119°48'E.) lies near mid-channel at the N end of the entrance. Rocks, some awash and some as much as 18m high, extend 0.4 mile SSE of the island. The passage W of the island is reported deep and clear, but during spring tides, the tidal currents may attain a rate of 6 to 7 knots; tide rips and swirls may form off Hail Point, the W extremity of the island.

Qingshan Dao (Yen Tao) (26°37'N., 119°47'E.), the second largest island in Sandu Ao, lies 2 miles NNW of the inner end of the entrance channel. The island has several peaks of similar elevation, the highest rising to 390m high in its W part.

Waterwitch Channel (26°36'N., 119°46'E.) leads NW between the SW side of Qingshan Dao and the mainland; the latter is much indented with small bays filled by mud flats. The E part of the channel is free of dangers except for a rock, with a depth of 0.2m, lying 0.25 mile SE of the S point of Qingshan Dao; at the W end of the channel foul ground extends 0.3 mile from the SW side of Qingshan Dao.

Caution.—Tidal currents in the fairway between the dangers are strong; there are tide rips and swirls. The ebb current sets towards the S side of the channel.

7.26 **Sandu Dao** (26°39'N., 119°41'E.) is the largest island in Sandu Ao. It has several summits, with Mount MacAllum, 457m high and situated in its W part, being the highest. Mount Stevens, 1.5 miles SE, is 367m high.

Customs Point (26°38'N., 119°40'E.), at the SW end of Sandu Dao, has a Customhouse, stone jetty, and pier; storm signals are displayed from a flagstaff nearby. The town of **Sandu** (26°38'N., 119°40'E.) (World Port Index No. 59880) stands on the W side of a mud filled bay, 0.5 mile NE of Customs Point; it is a port of call for coastal shipping.

Vessels anchor, in 14.6 to 18.2m, 0.5 mile SE of Customs Point with King Point, lying 0.5 mile W of Customs Point, bearing 293° and open N of Lay Rocks (Pai Chiao) and with Mount Stevens, about 1.3 miles ENE of Customs Point, bearing 043°.

Kaiser Rock (26°37'N., 119°44'E.), awash and steep-to, lies about 1 mile W of the W end of Qingshan Dao. The tidal currents swirl around this rock at a great rate.

Between **Ridge Point** (26°35'N., 119°51'E.) and Pu-lo-wu Chiao, 4 miles NE, the SE shore of the inlet is slightly indented and has a number of wooded spurs descending steeply to the shore from the mountain range close inland. The best position to anchor to ride out a typhoon is in **Algerine Roads** (26°37'N., 119°53'E.), about 0.8 mile W of Pu-lo-wu Chiao, in a depth of about 22m.

7.27 **Luoyuan Wan** (26°25'N., 119°43'E.), entered close S of the entrance to Sandu Ao, is an irregularly shaped bay which, reached through a narrow deep islet-obstructed entrance channel, Kemen Shuidao, about 4 miles long, has extensive margins of drying mud flats and areas of deep water in which large vessels find an excellent refuge from typhoon winds. Luoyuan Wan is undergoing an expansion of port facilities and is part of the port of Fuzhou.

Tides—Currents.—Tidal rise in the bay is extreme, while tidal currents in the entrance channel reach a velocity of 1.75 knots and form rips.

Depths—Limitations.—The port is approached through the Luoyuan Wan deep water channel from the pilot boarding position about 3 miles off the entrance to Kemen Shuidao, then leading SW for about 0.5 mile to a split marked by a light mounted on a white six-sided concrete structure.

The split is needed to pass N and S of Xiadan Yu and Dan Yu, with the main channel passing NW of these islands, then becoming North Channel leading to the berths along the E shore of the inlet. The South Channel passes SE of the islands and continues SW to the berths located on the S shore of the inlet. There are several berths and drydocks on all sides of the inlet except the W shore.

Four jetties are located along the S shore, with the eastern-

most jetty still under construction (2016). Berth No. 4 and No. Berth No. 5 are alongside the Fujian Kemengang Logistics Jetty, with a total length of 650m,and depths alongside of 14 to 23m.

There is 2,000m of quayage, with depths alongside of 5 to 11m, along the E shore of the inlet which are shared by the China Huaneng Luoyuan Wharf and the Fujian Huadong Shipyard. The Fujian Huadong Shipyard also contains three drydocks.

Pilotage.—Three pilot boarding stations are located around the entrance to Kemen Shuidao, as follows:

1. No. 1 (26°26'36.0"N., 119°52'28.2"E.), about 3 miles off the entrance to Kemen Shuidao.
2. No 2 (26°25'52.8"N., 119°49'01.2"E.), in the entrance, SE of Dahuang Jiao Beacon .
3. No. 3 (26°25'52.8"N., 119°34'01.2"E.)

Vessel Traffic Service.—The use of the Fuzhou Vessel Traffic Service (VTS) is compulsory for most vessels proceeding to Luoyuan Wan. See paragraph 7.36 for details.

Anchorage.—An outer anchorage, designated Kemenkou South Anchorage, lies centered on position 26°25'51"N, 119°51'33"E, with depths of 46m, mud.

Kemenkou South Anchorage (26°25.7'N, 119°51.7'E) is 700 yards in radius.

Kemenkou Outer Anchorage No. 1 (26°24.7'N, 119°56.9'E) is 850 yards in radius.

Kemenkou South Anchorage (26°27.4N, 119°51.2'E) is 600 yards in radius. Multiple fishing stakes are within anchorage area.

The pilot and quarantine anchorage (26°28.7'N, 119°50.0'E) is 1,000 yards in radius. Multiple fishing stakes lie within the anchorage area.

A second anchorage (26°23.2'N, 119°44.9'E) lies 1 mile SSW of Gang Yu in a depth of 11m, mud.

Anchorage can also be obtained in the Luoyuan Anchorage, located off the S shore of the inlet (26°23'08"N, 119°44'52"E.). in depths of 11m, mud.

Gangyu Nanmaodi Anchorage (26°23.6'N, 119°45.6'E), with a radius of 450 yards, lies 1,200 yards SSE of Gang Yu (26°24'07.8"N 119°45'16.8"E), from which a light is exhibited from a white six-sided concrete tower, 10m in height). The anchorage has depths from 12 to 28m, stone and mud. An anchorage for 5,000-ton chemical vessels lies centered on position 26°23'20.4"N 119°45'05.4"E, about 1,600 yards SSW of Gang Yu, in a depth of 12m, mud. An anchorage for 3,000-ton chemical vessels lies centered on position 26°23'07.2"N, 119°44'44.4"E, about 1 mile SSW of Gang Yu, in a depth of 9m, mud.

Caution.—Numerous fish farms are present along the areas W of the access channels mostly W of the inlet.

Overfalls lie off the prominent headland on the S side of the entrance channel.

Dongluo Dao (26°25'N., 119°55'E.), the larger islets of a group of three, lie 4 miles and 2.75 miles E of the S entrance point to Loyuan Wan; other islets and below-water rocks lie in the bay to the S and W of them. A drying rock lies 0.75 mile N of Dongluo Dao. Tidal currents in the vicinity of these islets sometimes attain a rate of 3 knots.

Caution.—Fishing stakes extend up to 2.75 miles NE of Dongluo Don.

Beijiao Zui to Shafeng Jiao

7.28 Beijiao Zui (26°23'N., 119°57'E.) is the seaward extremity of a mountainous finger of land extending about 15 miles NE from the mainland. Pei Hsu is a small islet about 0.3 mile ESE of Beijiao Zui; heavy tide rips and seas form off the islet during the Northeast Monsoon.

The coastline between Beijiao Zui and Shafeng Jiao, about 25 miles SSW, recedes irregularly inland and forms a large bay in the S portion of which lies the estuary to the river Min Jiang. The coastline is everywhere backed by mountainous terrain, except in the area of Shafeng Jiao, where the land is low, sandy, and light in color. The area close offshore in shoal and has extensive margins of drying mud flats. A number of rugged islands, surrounded by drying mud flats, lie in the estuary and create several tortuous channels leading to the river entrance. Farther offshore, several groups of high and generally conspicuous islands with numerous lesser islands and scattered above and below-water dangers extend S from Beijiao Zui as far as Shafeng Jiao.

Mazu Liedao (Ma-tsu Liehtao)

7.29 Gaodeng Dao (Kao-teng Tao) (26°17'N., 119°59'E.), the N island of Ma-tsu Liehtao, is 173m high. There are rocks within 0.75 mile E and W of Kao-teng Tao; another rock, about 11m high, lies 1.5 miles NE of the island.

Hsiao-ch'iu (26°15'N., 120°01'E.), 79m high and Ta-ch'iu, close SW and 93m high, lie about 1.3 miles SE of Kao-teng Tao; the channel between is encumbered with above and below water rocks.

Beigantang Dao (Pei-kan-t'ang Tao) (26°13'N., 119°59'E.) rises in the NE to two prominent peaks; Bi Shan, the NE and higher peak, is 293m high. Islets and rocks extend 0.75 mile SE from the S point of the island to Yan Shi, which has a depth of 0.9m. Anchorage, providing good shelter from NE winds, can be taken in the NE part of Ma-pi Wan, in a depth of 8.2m, mud, with the summit of **Pang Shan** (26°13'N., 120°01'E.) bearing 126°, distant 1 mile.

San-lien Yu (26°14'N., 120°03'E.), widely spaced and up to 31m high, lie between 1.75 and 2.5 miles E of Pei-kan-t'ang Tao.

Mazu Haixia (Mazu Strait) (26°11'N., 119°57'E.), separating Pei-kan-t'ang Tao from Mazu Dao, has a navigable width of nearly 1 mile. Tung Shih (Dong Shi), a pinnacle rock with a depth of 6.4m, lies in the central part of the strait.

Mazu Dao (26°09'N., 119°56'E.), a large hilly and cultivated island, rises in its SW part to the prominent summit of Yuantai Shan, 246m high. Hou Ao, a bay on the N side of Mazu Tao, affords shelter with winds from E through S to WNW, in a depth of 9m, but is a bad anchorage due to its rocky bottom.

Caution.—Fishing stakes may be encountered off the S and SW side of the island.

Two explosive dumping grounds lie approximately 10 miles ESE and SE, respectively, of Mazu Haixia. A spoil ground lies close E of the explosive dumping ground lying ESE of the strait.

7.30 **Tai Shih** (Dai Shi) (26°08'N., 119°58'E.), about 1 mile SE of Mazu Dao, is a group of rocky heads with depths of 1.5 to 5.4m; a 3m high rock lies about 0.5 mile N of Tai Shih.

Pei-chuan Chiao (Beiquan Jiao) (26°07'N., 119°58'E.), 1.5 miles SSE of Hsieh Chiao, is a prominent black rock 6m high; other dangers surrounding this rock may best be seen on the chart.

Yin-shui Chiao (Pilot Rock) (26°07'N., 120°02'E.), 3 miles E of Pei-chuan Chiao, is a pinnacle rock with a depth of 0.3m. The sea breaks over this rock, except at LW. A prohibited area and an explosives dumping ground lie 2 and 7 miles E, respectively, of Yin-shui Chiao. Other prohibited areas lie up to 7 miles ENE of Yin-shui Chiao.

Liu-ch'uan Chiao (Liuquan Jiao) (26°05'N., 119°58'E.), 2 miles SSW of Pei-chuan Chiao, is a precipitous black rock about 50m high; dangers extend 0.4 mile N from it to Kau-chiu Chiao, a 7m high rock.

Hsi-pi Shih (Xipi Shi) (26°04'N., 119°57'E.), about 1.5 miles SSW of Liu-ch'uan Chiao, is a group of pinnacle rocks with a least depth of 3m. The sea rarely breaks on them, even with strong NE winds, nor is there any surface disturbance to indicate their presence.

Chu-Kuang Lieh-Tao

7.31 **Baiquan Liedao** (Pai-ch'uan Lieh-tao) (25°58'N., 119°55'E.), lying about 11 miles S of Mazu Liedao, consists of two islands and several islets and rocks.

Dongquan Dao (Tung-chu Tao) (25°58'N., 119°58'E.), the E island of the group, is 114m high and precipitous; islets and dangers lie within 0.75 mile NW and 1 mile NE of the island.

A light is shown from a round tower on the NE end of the island and a signal operates from the tower.

Xiquan Dao (Hsi-chu Tao) (25°59'N., 119°56'E.), the W island of the group, is 191m high. Its summit consists of three rounded hummocks, on the center and highest of which is a boulder; the SW slopes of the ridge are strewn with sand and show white in misty weather when little else of the island is visible. P'o-lang Shih, 16m high, lies at the outer end of a rocky ridge which extends 0.5 mile SW from the W point of the island; this rock and a 13m high rock on the ridge are prominent. Sand banks, with charted depths of 5.4 to 10m, extend up to 4 miles SW of Hsi-chu Tao.

Caution.—A prohibited area, which may be fouled by fishing stakes, lies about 4 miles SE of Tung-chu Tao.

Two submarine cables extend between Xiquan Dao NNE to a point passing E of Liuquanjiao Dao,; over to the vicinity of 26°07'N; continuing NE to approximate position 26°17'N., 120°11'E; and ENE until intersecting the S coast of **Dongyin Dao** (26°22'N., 120°29'E.). Dongyin Dao is the larger of the two islands in this group. with steep cliffs and a village on the W side. A light is shown from a white round tower on E side of the island.

Min Jiang

7.32 The estuary to Min Jiang, lying between Shafeng Jiao and a point of land about 11 miles NNW, is obstructed by a number of mountainous islands, extensive areas of drying mud flats, and many shifting bars of mud and sand. The several channels leading through these obstructions are tortuous and, at times, subject to displacement in consequence of the shifting banks which border them. Muddy water, discharged from Min Jiang, flows well seaward and tends to obscure sunken dangers unless these are marked by breakers when the seas are high.

The buoyage system conforms to IALA Maritime Buoyage System (Region A).

Wu-chu Chiang (26°10'N., 119°36'E.), the northernmost entrance channel to Min Jiang, is an impassable stone-blocked channel leading N of Culu Dao, a large mountainous island, 229m high, lying in the N part of the estuary.

Wei-tou Shui-tao (25°31'N., 119°38'E.), a passage used by small craft, leads between the E side of Culu Dao and Chuan-shi Dao, a small rugged island rising to a prominent 183m high peak, lying close E of Culu Dao.

Mei-hua Chiang (26°03'N., 119°37'E.), the southernmost entrance channel, is the partially examined and little used passage S of Langqi Dao, the largest island in the estuary.

The main entrance channel passes about 2.5 miles NW of **Qixing Jiao** (26°05'N., 119°50'E.), a group of pinnacle rocks which, covered at HW, lie about 8 miles ENE of Shafeng Jiao. A light is exhibited on Qixing Jiao. The channel then continues WSW about 6 miles, passing over **Wai Langjiangsha** (26°07'N., 119°46'E.), the outer bar, and between the drying mud flats Yaozi Sha and Tieban Sha on the N and the drying mud flats of Foshua Sha on the S. Range lights, situated on the E side of Langqi Dao, in line bearing 265.5°, lead over the outer bar and into the estuary. It continues WNW over the inner bar **Nei Langjiangsha** (26°07'N., 119°41'E.) and, passing between Culu Dao and the low islets close off the N side of Langqi Dao, enters Jinpai Men, the deep, narrow channel between the N extremity of this latter island and the mainland.

7.33 **Dieshidui Lighted Buoy** (26°08.0'N., 119°37.2'E.), close W of the pilotage-quarantine anchorage, marks the extremity of a stone barrier extending from the S shore of the channel. Mazuyin Lighted Buoy marks a similar area of foul ground extending from the N shore. The channel between these two lighted buoys is only 0.15 mile wide.

Shoal depths of 1.3m and 3.9m exist close NE and 0.15 mile WNW from Dieshidui Lighted Buoy.

Tides—Currents.—The tide is mainly semi-diurnal, with a spring rise of 6.2m and a neap rise of 5m. These levels are affected by the wind; the water level is relatively high during the Northeast Monsoon and low during the Southwest Monsoon. Tidal currents seaward of the outer bar are quite weak. Tidal currents at the entrance to Min Jiang set W from 1 hour 30 minutes after LW to 1 hour 30 minutes after HW. They set E from 1 hour 30 minutes after HW to 1 hour 30 minutes after LW.

During the rainy season (April to June), freshets cause the W current to run for a shorter period of time, while the E current begins earlier and runs longer. Rates are from 1 to 4 knots. During heavy freshets vessels do not swing to the W current.

In **Jinpai Men** (26°08'N., 119°35.5'E.), 0.2 mile wide, the tidal currents are strong and set W through the channel on the flood current, with a branch setting SW at the W end of the narrows; the ebb current sets in the reverse direction. During spring tides, or during a freshet period, the ebb current usually exceeds a rate of 7 knots; a similar rate is experienced in **Min'an Men**

(29°03'N., 119°30.5'E.), a 3 mile long and 0.2 mile wide narrow channel beginning about 6 miles SSW of Jinpai Men.

Depths—Limitations.—Depths over the bars in the main entrance channel to Min Jiang, while subject to change, are generally greatest during the Northeast Monsoon season and least during the Southwest Monsoon season. During gale winds, a heavy swell, which quickly subsides, may set across the bars. The least depth over the outer bar was 3.7m while the least depth over the inner bar was about 3m. The deepest reported draft of vessels transiting the bars and entering Min Jiang during the same year was 7.6m.

Vessels with a draft of more than 3m should enter on the flood tide. Tide rips and cross sets should be guarded against.

An overhead power cable, with a vertical clearance of 55m, spans the W end of Jinpai Men. Anchoring is prohibited in this area.

Pilotage.—Pilotage is compulsory above the pilotage-quarantine anchorage. The vessel's ETA and request for a pilot should be signaled 48 hours in advance, through radio station Fuzhou. Vessels, awaiting quarantine inspection, display the flag "Q" from the International Code of Signals by day and three red lights, disposed vertically, at night.

Anchorage.—Vessels anchor, in 6.4 to 9.2m, in a position within the deep water pool lying between the outer and inner bars of the main entrance channel. The anchorage reportedly offers no shelter during HW.

The pilotage-quarantine anchorage is located 0.75 mile E and 1 mile NW of the light on **Hujiang Dao** (26°07.4'N., 119°38.5'E.) and has depths from 2 to 17m.

Caution.—Underwater obstructions extending from either bank restrict the channel width to less than 183m close W of the pilotage-quarantine anchorage. A shoal depth of 1.1m exists in the SE corner of the anchorage close to the entrance channel. Vessels transiting Jinpai Men are further cautioned that, because of strong currents and eddies, the most favorable time for transit is slack water. At other times, they should avoid meeting in the passage. Vessels proceeding with the current have precedence over those proceeding against it.

The continuation of the main entrance channel inland from Jin-pai Men to Lo-hsing-t'a Mao-ti, about 12 miles SSW, consists of a 1 mile-wide body of water extending about 6 miles along the W side of Langqi Dao and the 6 mile long seaward reach of Min Jiang proper. The channel favors the mainland coast as far as Min Jiang, when it lies fair between each shore for about 3 miles before tending to favor the E mainland shore.

Three power transmission lines cross the channel close S of Songmen. The first power transmission line has a vertical clearance of 54m in position 26°41'01"N, 119°29'53"E. The other two lines are about 300m S, with vertical clearances of 66m. The Qingzhou Bridge, with a vertical clearance of 43m, crosses the channel in position 25°59'29″N, 119°28'01″E; this section of the channel is navigable by vessels of up to 20,000 tons. To facilitate the construction of the Hongkong-Zhuhai-Macao Bridge and guarantee the safety of navigation the Qingzhou temporary channel has been created. The former Qingzhou Temporary Channel 3 (between pier 56 and 57) has been widened, the positions of 8 lighted buoys designated Q1 through Q8 have been adjusted, and new lights Q9 and Q10 hav been established. The new channel provides 42m vertical clearance, 318m horizontal clearance, and is dredged to a controlling depth of 5.1m-6.1m. Vessels of 3,000 tons may transit (two-way traffic) with the tide between Pier 56 (22°16'59.1"N., 113°44'02"E.) and Pier 57 (22°16'59.0"N., 113°43'46"E.).

Vessels navigating through the Qingzhou Temporary Channel should comply with relevant regulations, keep a good lookout for small vessels and cross-traffic, and proceed at a safe speed along the starboard side of the channel. They must avoid overtaking or take any action that may impede navigational safety. Vessels must monitor VHF channel 9 and 16.

Two bridges, with unknown vertical clearances, are being constructed between the mainland and Langqi Dao island, one to the N (26°08'11.7"N., 119°35'34.8"E.) and the other directly S (26°02'57.7"N., 119°35'19"E.).

7.34 Lo-hsing-t'a Mao-ti (25°59'N., 119°27'E.) is a general anchorage in Min Jiang close downstream from a position where the large island Nan-t'ai Tao causes the river to branch N and continue as Pei Chiang and S as Wu-lung Chiang. It lies in deep water on the E side of the river and under high hills which extend NE from Hai-kuan Chiao (Customs Point), a point about 0.8 mile SE of the village Lo-hsing-t'a which marks the N entrance point of Pei Chiang. The W side of the anchorage is shoal and encumbered by large areas of drying mud flats extending from the W shore of the river. Hsiao-ma Chiao, a rock that covers at HW, lies about midway between Customs Point and Lo-hsing-t'a. Vessels that cross the outer bar can reach the anchorage.

Vessels board licensed pilots from a motor sampan, painted yellow, which is on station either in the vicinity of Qixing Jiao or in the deep water pool between the outer and inner bars across the main entrance channel. Vessels should arrive at the outer bar at HW so as to have slack water all the way to Lo-hsing-t'a Mao-ti.

Fujian Vessel Traffic Service Sectors	
Sector—VHF	**Boundaries**
1—Fuzhou—VHF channel 23 (see paragraph 7.36)	A line joining the following positions: a. 26°30'00"N, 120°03'18"E. b. 26°30'00"N, 120°21'00"E. c. 25°21'18"N, 120°15'00"E. d. 25°12'00"N, 120°03'24"E. e. 25°12'00"N, 119°18'00"E.

Fujian Vessel Traffic Service Sectors	
Sector—VHF	**Boundaries**
2—Quanzhou—VHF channel 63 (see paragraph 9.14)	A line joining the following positions: a. 25°12'00"N, 119°18'00"E. b. 25°12'00"N, 120°03'24"E. c. 24°30'48"N, 119°11'48"E. d. 24°30'48"N, 118°34'18"E.
3—Xiamen—VHF channel 27 (see paragraph 9.21)	A line joining the following positions: a. 24°30'48"N, 118°34'18"E. b. 24°30'48"N, 119°11'48"E. c. 23°30'00"N, 117°55'18"E. d. 23°30'00"N, 117°14'00"E. e. 23°36'12"N, 117°14'00"E.

Vessels anchor off the N bank of the river between Hsiao-ma Chiao and Ta-ma Chiao, in depths of 3 to 10m, mud. There is insufficient room for large vessels, which should seek shelter E of Hsiao-ma Chiao. Ma-wei Mao-ti, situated SE of Lo-hsing-t'a, close off the SE bank of the river between Kiang-hsi Chiao and Hai-kuan Chiao, has depths of 8 to 15m, mud and sand.

Both anchorages provide shelter from all strong winds, but holding ground is poor and dragging can occur during freshets. Tidal rise in the anchorage is 4.8m at MHWS and 4m at MHWN. Tidal currents reach a velocity of 3 to 4 knots, but during freshets the ebb current can reach 5 knots and sometimes overcomes the flood current altogether.

Fujian Coastal Vessel Traffic Service (VTS)

7.35 The province of Fujian has established a coastal vessel traffic service that extends S from 26°30'N to 23°30'N and is divided into the three sectors, as described in the table titled Fujian Vessel Traffic Service Sectors.

The Fujian VTS provides the following information service through all three sectors:

1. Vessel traffic information—only on request.
2. Meteorological information—only on request.
3. Joint operations information—only on request.
4. Vessel traffic flow organization.
5. Navigational warning notices.

All vessels within any of the three sectors of the Fujian VTS should maintain a listening watch on VHF channel 16.

All communications within the VTS will be in English or Mandarin Chinese.

All vessels participating in any sector of the Fujian VTS should report the following information to each sector VTS upon crossing any of the Reporting Lines into that sector:

1. Vessel name and call sign.
2. Vessel position.
3. Vessel type, gt, and loa.
4. Last port of call and destination.
5. Type and weight of any dangerous cargo.
6. Defects and limitations of any tow.

See the graphic titled **Fujian Coastal Vessel Traffic Service (VTS)** for identification of the Reporting Lines.

Participation in the Fujian VTS is mandatory for the following types of vessels, with voluntary participation encouraged for all others:

1. All passenger vessels.
2. Vessels carrying dangerous cargo.
3. Vessels engaged in towing.
4. Vessels 3,000 gt or larger.

Fuzhou (26°05'N., 119°18'E.)

World Port Index No. 59860

7.36 Fuzhou is a large port area comprised of the three main coastal port districts of JiangYin, Song Xia, and Luoyuan Bay, along with some port facilities on Pingtan Island. With the exception of Pingtan Island located to the E, the Fuzhou port area is mostly all coastal river berths along the banks of the Minjiang River, extending approximately 12.5 miles upriver from the entrance, passing N of Langqi Dao.

Depths—Limitations.—All the port districts along the Minjiang River to the main port district of Mawei (25°59'N., 119°27'E) are approached through a deep-water channel, nearly 16 miles in length, with depths to 12m and a least depth of 10.2m vicinity 119°35'E and width of 180m W of Langqi Dao. Vessels of up to 100,000 tons can navigate the channel at high tide.

The final approach to the main port district of Mawei is through another channel, accommodating vessels as large as 20,000 dwt, beginning in position 25°59'37"N, 119°28'38"E; it is 1.9 miles in length with a width of 125m. Depths maintained in this channel are 6.9m and, with a tidal height of 3.9m, a navigable depth of 10.8m can be attained.

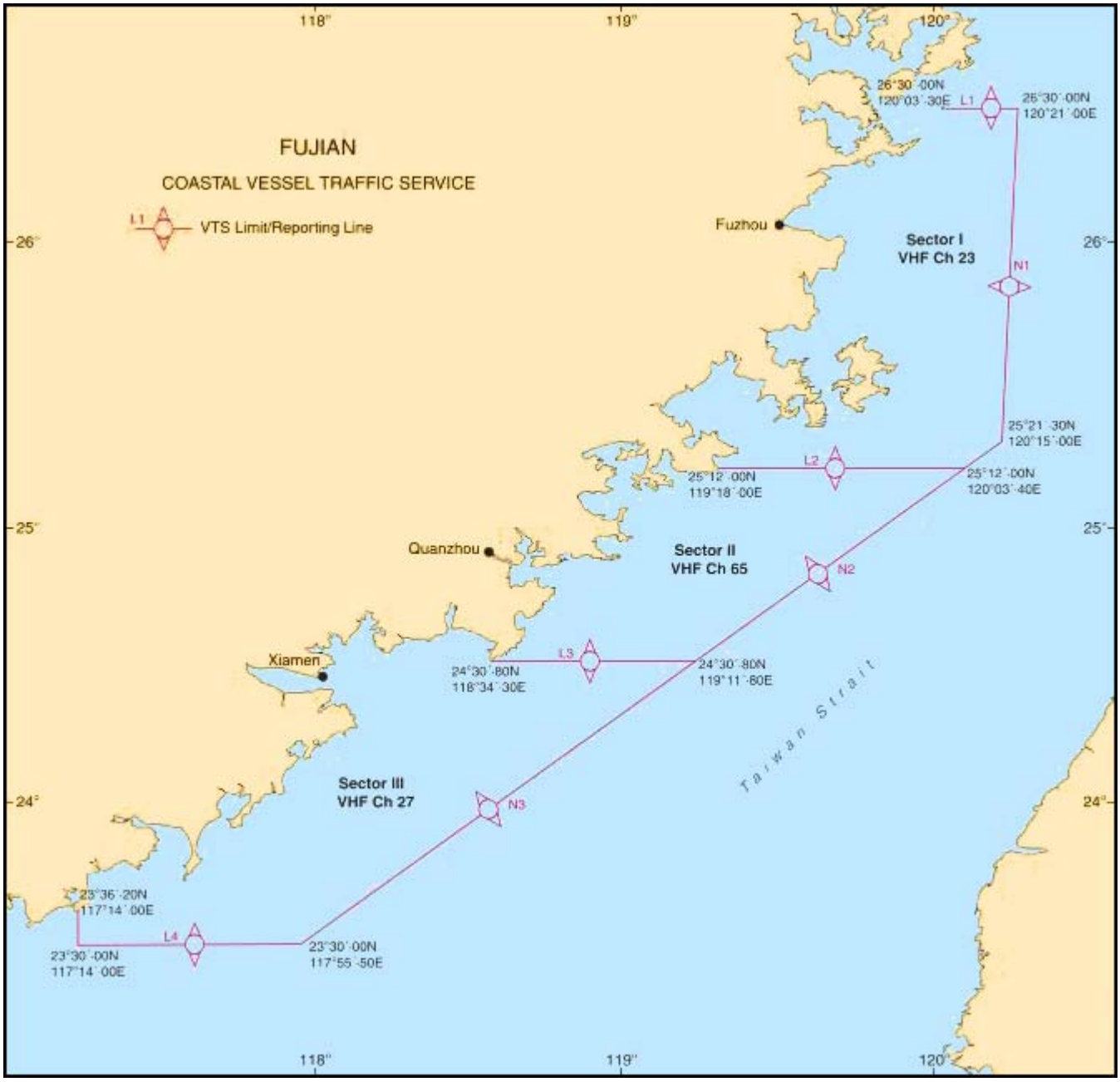
The seven main port districts along the Minjiang River are listed in the table titled **Minjiang River Port Districts**.

See the table titled **Fuzhou—Port Facilities** for details on berthing, grouped by port areas and districts.

Several overhead cables span the Minjiang River W of Jinpai Men and S of Minan Men with a safe vertical clearance of 54m as far as Mawei. An overhead cable crosses the river at the W end of the Taijiang port area with a safe vertical clearance of 35m.

Several bridges cross the river at or above the Taijiang port area. Some of the more significant bridges below the Taijiang port area are listed below:

1. An unnamed road bridge spanning the river at position 26°05'58"N, 119°32'11"E with a safe vertical clearance of 55m.



Fujian Coastal Vessel Traffic Service

2. The Qinzhou Bridge, a road bridge, spanning the river at latitude 25°59'18"N, with a safe vertical clearance of 43m.

3. The Fuzhou-Quanzhou Bridge, spanning the river at 25°57'42"N., 119°25'25"E., plus a second bridge 0.7 mile upriver, both with safe vertical clearances of 8m.

Pilotage.—Pilotage is compulsory for all foreign vessels. Vessels should advise their ETA 48 hours prior to expected arrival and contact the pilots to confirm request for pilotage.

Pilots board vessels of less than 20,000 dwt in position 26°04'52"N, 119°48'06"E., (in the vicinity of the D1 Lighted Buoy that marks the entrance of the Minjiang Kou South Channel).

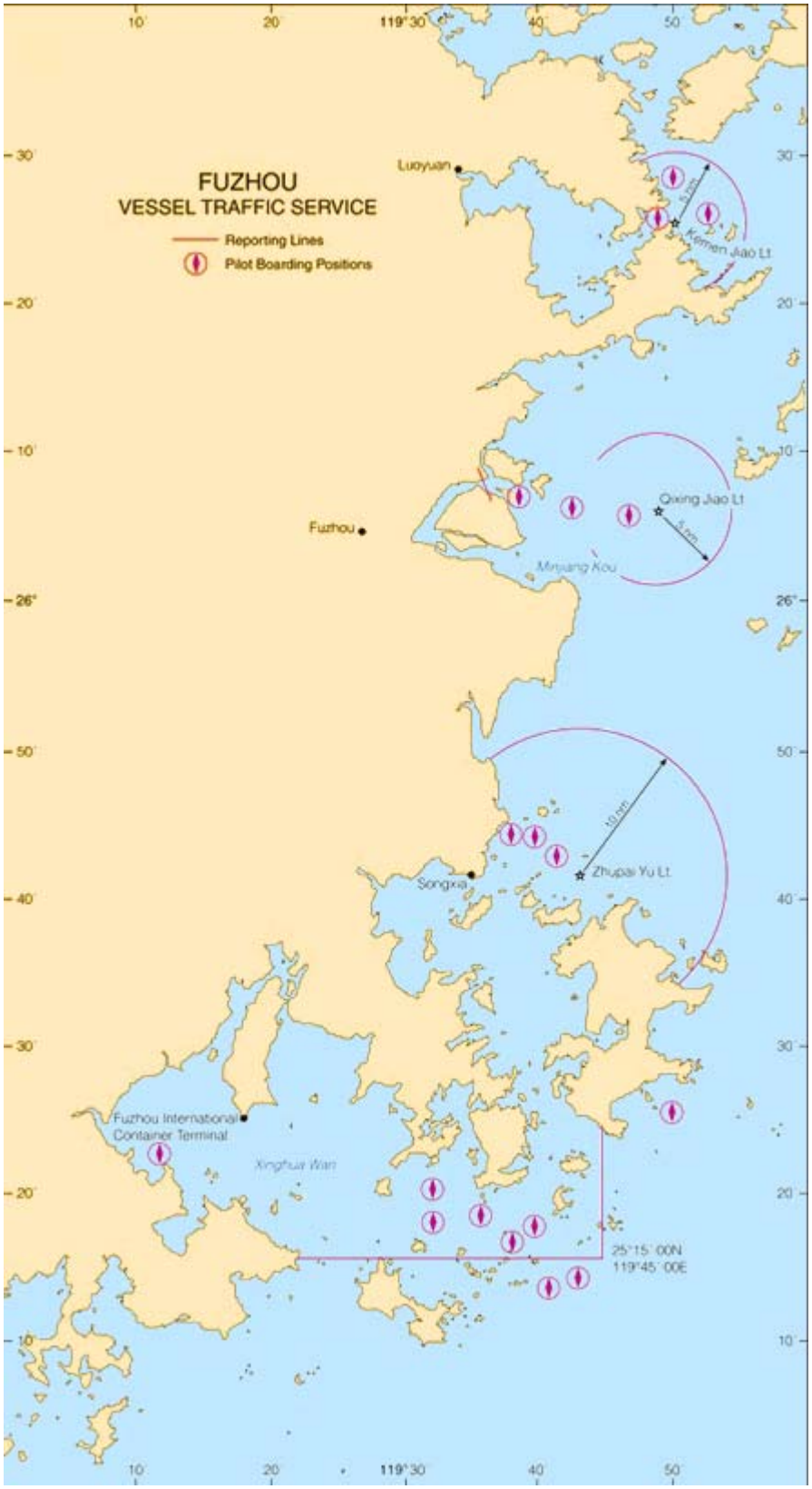
For vessels 20,000 dwt and larger, pilots will board in the vicinity of D7 Buoy in position 26°05'26"N, 119°43'24"E upon request from the vessel.

For vessels proceeding to the Song Xia district, see paragraph 9.2 for positions.

For vessels proceeding to the International Container Terminal, Jiangyin, pilots will board at the following locations:

1. Quarantine Anchorage—25°13'37"N, 119°41'20"E.

2. Reserved Quarantine Anchorage—25°19'53"N, 119°32'21"E.



Fuzhou-Songxia Vessel Traffic Service Area

3. Unrestricted Reserve Anchorage—25°17'08"N, 119°39'42"E.
4. Reserved—25°18'47"N, 119°32'11"E.
5. No. 1—25°13'48"N, 119°43'00"E.
6. No. 2—25°16'42"N, 119°38'40"E.
7. No. 3—25°17'46"N, 119°35'31"E.

The pilots can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 86-591-839-84991
3. Facsimile: 86-591-839-84990

Vessel Traffic Service.—Fuzhou Vessel Traffic Service (VTS) is an integrated part of the Fujian Coastal VTS and comprises Sector 1 of that VTS. See paragraph 7.35 for details that apply to all vessels participating in any part of the Fujian VTS.

Reporting Lines for participation in the Fuzhou VTS have been established for the following areas:

1. Luoyuan Wan Harbor—an arc with a radius of 5 miles, bearing 330-150°, centered on Kemen Jiao Light (26°25'43"N., 119°50'07"E.).
2. Minjiang Kou Inner Harbor:
   a. First Reporting Line—defined as an arc with radius of 5 miles, bearing 300°-240°, with center on Qixing Jiao Light (26°04'52"N, 119°49'40"E.).
   b. Second Reporting Line—defined as a line joining Beigui Dao (26°08'12"N, 119°35'51"E.) and Nangui Dao Light (26°07'58"N, 119°36'02"E.). This line is for Class A river trade cargo vessels and small coasters between 300 and 500 dwt. Reports may be made up to 1 mile upstream or downstream of this line.
3. Songxia Harbor, Jiangyin Harbor, and Haitan Strait:
   a. North Reporting Line—defined as an arc with a radius of 10 miles, bearing 310°-150°, centered on Zhupai Yu Light (25°42'52"N., 119°43'23"E.).
   b. South Reporting Line—defined as lines commencing at position 25°15'N, 119°45'E and extending due W to the W shore of the Nanri Channel and due N to Haitan Dao.

Participation in the local Fuzhou VTS is compulsory for the following vessels:

1. Foreign vessels, including those registered in Hong Kong, Macau, or Taiwan.
2. Vessels carrying dangerous cargo.
3. Passenger vessels, with the exception of ferries.
4. Vessels of limited maneuverability.
5. Chinese vessels of 300 dwt or greater.

Vessels willing to participate in the VTS, though not required to do so by the criteria listed above, may contact the Fuzhou Maritime Bureau Control Center regarding voluntary participation and will need to follow all the regulations described here.

Fuzhou—Berth Information

Berth	Pier Length	Depth Alongside	Maximum Vessel Size	Remarks
Mawei Port Area				
Mawei Terminal				
New Port No. 1	160m	9.5m	10,000 dwt	General cargo and bulk cargo.
New Port No. 2	160m	9.5m	10,000 dwt	General cargo and bulk cargo.
New Port No. 3	136m	7.5m	5,000 dwt	General cargo and bulk cargo.
New Port No. 4	136m	7.5m	5,000 dwt	General cargo and bulk cargo.
Ferry Terminal	140m	—	—	Passengers and vehicles.
Fuzhou Qingzhou Container Terminal				
No. 0	117m	11.5m	15,000 dwt	Containers.
No. 1	212m	11.5m	15,000 dwt	Containers.
No. 2	190m	11.5m	15,000 dwt	Containers.
No. 3	190m	11.5m	10,000 dwt	General cargo.
No. 4	180m	11.5m	10,000 dwt	General cargo.
No. 5	170m	11.5m	7,500 dwt	Passengers and bulk cargo.
No. 6	200m	11.5m	20,000 dwt	Passengers and bulk cargo.
No. 6 (floating dock)	60m	11.0m	8,000 dwt	Passengers and ro-ro cargo.
Tiangjiang Port Area				
Taijiang Kuiqi No. 1	264m	2.0m	—	General cargo.
Taijiang Kuiqi No. 2	258m	3.0m	—	General cargo.
Aobanzhou	303m	3.7m	—	General cargo.

Fuzhou—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
Aobanzhou	32m	3.1m	—	General cargo.
Jiang Yin Port Area				
Jiang Yin No. 24	280m	—	100,000 dwt	Coal.
Fuzhou International Container Terminal (FICT)				
No. 1	320m	16.0m	50,000 dwt	Containers.
No. 2	331m	16.0m	50,000 dwt	Containers.
No. 3	332m	16.0m	50,000 dwt	Containers.
No. 4 and No. 5	667m	17.5m	50,000 dwt	Containers and general cargo.
Dolphin berth	215m	—	—	General cargo and service berth.
Song Xia Port District				
Niutou Wan Terminal (Song Xia Wharf Operation Area)				
No. 1	300m	—	72,000 dwt	Iron ore imports, coal, domestic grains, wheat, edible oils, and minerals.
No. 2	335m	—	70,000 dwt	Iron ore imports, coal, domestic grains, wheat, edible oils, and minerals.
No. 3	280m	—	150,000 dwt	Iron ore imports, coal, domestic grains, wheat, edible oils, and minerals.
Yuanhong Terminal (Song Xia Gang)				
No. 1	515m	—	20,000 dwt	Steel and bulk cargo. Continuous berth.
No. 2	515m	—	20,000 dwt	Steel and bulk cargo. Continuous berth.
Fungang Pintan Port				
No. 2	220m	11.4m	20,000 dwt	Ro-ro/lo-lo, containers, and steel products.
No. 3	384m	15.0m	50,000 dwt	Ro-ro/lo-lo, containers, and steel products.
Fujian Fuqing Nuclear Power Plant (Service berth)				
Cargo Berth	95m	—	—	Power plant services.
BO Ao Terminal				
No. 14	256m	—	3,000 dwt	Gravel.
No. 15	256m	—	3,000 dwt	Gravel.
Luoyuan Bay Port District				
Shiqi Terminal				
No. 1	230m	—	—	Bulk cargo, ore, and coal.
No. 2	210m	—	—	Bulk cargo, ore, and coal.
No. 3	230m	—	—	Bulk cargo, ore, and coal.
No. 4	215m	—	—	Port construction materials and steel products.
Luoyuan Bili				
No. 1	377m	—	20,000 dwt	General cargo and project material.
No. 2	377m	—	20,000 dwt	Under construction (2019).
No. 3	230m	14.0m	30,000 dwt	Coal, iron ore, and breakbulk.
No. 4	215m	14.0m	50,000 dwt	Coal, iron ore, and breakbulk.

Fuzhou—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
No. 5	230m	14.0m	50,000 dwt	Coal, iron ore, and breakbulk.
No. 6	210m	14.0m	50,000 dwt	Project berth.
No. 7	335m	—	20,000 dwt	Under construction (2019).
Jitou Terminal				
No. 1	107m	—	—	General cargo and bulk cargo.
No. 2	102m	—	—	General cargo and bulk cargo.
No. 3	70m	—	—	General cargo, bulk cargo, and ro-ro berth.
Fujian Huadian Kemen Terminal				
No. 10	372m	19.6m	225,000 dwt	Dry bulk.
No. 11	226m	14.1m	50,0000 dwt	Dry bulk.
No. 12	166m	—	50,000 dwt	Coal.
No. 13	275m	—	50,000 dwt	Coal.
No. 14	250m	—	50,000 dwt	Coal. Under construction (2019).
Luoyuan Bay Kemen Terminal				
No. 1	134m	—	50,000 dwt	Dry bulk. Maximum draft of 5.8m. Maximum loa of 96m. Maximum beam of 16.6m.
No. 2	134m	—	3,000 dwt	Dry bulk. Maximum draft of 5.8m. Maximum loa of 96m. Maximum beam of 16.6m.
No. 2	134m	6.9m	3,000 dwt	Dry bulk. Maximum draft of 6.0m. Maximum loa of 99m. Maximum beam of 16.6m.
No. 4	134m	7.1m	3,000 dwt	Dry bulk. Maximum draft of 6.0m. Maximum loa of 99m. Maximum beam of 14.6m.
Songmen Coal Terminal				
No. 1	171m	12.0m	20,000 dwt	Bulk grain.
No. 2	162m	12.0m	5,000 dwt	Bulk grain.
Songmen Jiancai Terminal				
Wharf	154m	—	3,000 dwt	Dry bulk.
Pingtan Jingjing Conch Terminal				
Cement Wharf	125m	—	—	Cement.
North Wharf	40m	—	—	Cement.
Mandy Fishery Port				
Mandy Berth	116m	—	3,000 dwt	Seafood products.
Xintong Wharf				
No. 3	206m	11.5m	20,000 dwt	Iron ore, coal, steel, textiles, steel scrap, waste stainless steel, waste paper, and waste hardware.
No. 4	186m	11.5m	20,000 dwt	General cargo.
Huaneng Fuzhou Power Plant				
Coal Berth N	370m	—	20,000 dwt	Coal.
Coal Berth S	225m	—	—	Coal

Fuzhou—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
China Steel				
No. 1	250m	—	150,000 dwt	Steel.
No. 2	250m	11.5m	3,000 dwt	Steel.
Fast Ferry				
Ferry Berth	140m	—	—	Fast Ferry
Fuzhou Zhongyin Port				
Container Berth	220m	12.0m	20,000 dwt	Containers.
TCC Fuzhou Yangyu Port				
Cement Berth	220m	—	20,000 dwt	Cement.
Shashi Terminal				
Shashi Pier	120m	—	20,000 dwt	Sand and stone.
Changtong Wharf				
No. 2	140m	12.0m	5,000 dwt	Coal and steel.
East Wharf	260m	11.0m	—	Steel products.
Rongtong Wharf				
No. 1	86m	6.5m	3,000 dwt	General cargo.
Guantou Terminal				
No. 1	121m	8.6m	7,000 dwt	General cargo.
Guanhai Terminal				
No. 1	139m	7.5m	3,000 dwt	Steel and sand.
No. 2	129m	7.5m	3,000 dwt	Steel and sand.
Kuiqi Container Terminal				
Container berth	240m	—	5,000 dwt	Containers.
Tanker Berths				
Hong Shan Terminal				
No. 1	74m	9.6m	3,000 dwt	Clean products.
No. 2	86m	—	5,000 dwt	Clean products.
BP Fujian				
Jetty	33m	12.0m	10,000 dwt	LPG. Maximum loa of 150m. Maximum beam of 20m. Maximum draft of 6.0m.
Fujian Gushan Terminal				
Jetty	160m	8.1m	5,000 dwt	Clean products.
Ting Jiang Terminal				
Jetty	60m	—	3,000 dwt	Clean products.
Unitex Fuel Terminal				
Ji An Jetty	200m	12.0m	12,500 dwt	Chemicals, clean products, and dirty products.
Xing Yu Terminal				
Jetty 42	42m	8.1m	3,000 dwt	LNG.

Fuzhou—Berth Information				
Berth	**Pier Length**	**Depth Alongside**	**Maximum Vessel Size**	**Remarks**
SINOPEC Fujian Storage Terminal				
Jetty	116m	—	10,000 dwt	Clean products.
CPC Fuzhou Oil Terminal				
Jetty	167m	8.1m	5,000 dwt	Clean products.
Guantou Menbian Refined Oil Terminal				
No. 1	65m	—	3,000 dwt	—
Changle Houan Oil Terminal				
Houan Berth	42m	—	3,000 dwt	—
Minhai Petrochemical				
No. 11	210m	—	50,000 dwt	Chemicals.
No. 11-1	—	—	3,000 dwt	Clean products.
No. 11-2	—	—	3,000 dwt	Clean products.
No. 11-3	40m	—	3,000 dwt	Clean products.
No. 11-4	40m	—	3,000 dwt	Clean products.
Fuzhou Jiangyin Jianto Petrochemical Terminal				
No. 10	220m	—	50,000 dwt	Chemicals.
No. 10-1	158m	—	3,000 dwt	Chemicals.
Tianhui Petrochemical				
No. 12	205m	—	50,000 dwt	LPG.
No. 12-1	44m	—	30,000 dwt	LPG.
No. 12-2	45m	—	3,000 dwt	LPG.
No. 12-3	—	—	3,000 dwt	LPG.
No. 12-4	—	—	3,000 dwt	LPG.

Fuzhou VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Arrival Forecast	Agents, owners, or operators are required to report 24 hours before arrival in Fuzhou Gang or prior to departure from a previous report when transit time would be less than 24 hours. See Special Note below for additional information.	1. Vessel name and call sign. 2. Vessel nationality and type. 3. Port of registration. 4. LOA, dwt, beam, and maximum height. 5. Quantity and type(s) of cargo. 6. Maximum draft for arrival. 7. ETA. 8. Purpose of entry into VTS. 9. Previous port. 10. Other information requested by the VTS.
Arrival Report	Upon passing the Reporting Lines.	1. Vessel name and call sign. 2. Present position. 3. Purpose of entry into VTS. 4. Other information requested by the VTS.

Fuzhou VTS—Reporting Requirements		
Report Type	**Reporting Time**	**Information Required**
Berthing or anchoring	Made after vessel berthed or anchored.	1. Vessel name and call sign. 2. Berth or anchoring position.
Departure Report Type 1	For vessels prior to leaving berth or anchorage.	1. Vessel name and call sign. 2. Present position. 3. Application to depart.
Departure Report Type 2	For outbound vessels passing the Reporting Lines.	1. Vessel name and call sign. 2. Present position. 3. Next port.
Special Reports	For vessels engaged in towing or undertaking operations which may affect the safety of the vessel or port.	1. Vessel name and call sign. 2. Present position. 3. Incident details. 4. Any other information as requested by the VTS.
Emergency or non-emergency problem at sea	Upon involvement in or discovery of a incident that would cause pollution, machinery damage, or failure. Also for discovery of an abnormal navigation mark or an obstruction.	1. Vessel name and call sign. 2. Present position. 3. Nature of emergency or abnormal circumstances. 4. Any other information as requested by VTS.
Security Problem	Upon involvement in or discovery of a security incident.	1. Vessel name and call sign. 2. Vessel type and nationality. 3. Present position. 4. Condition of personnel and cargo on board. 5. Identification and description of the threat.

Special Note.—The following vessels should report the Arrival Forecast information in writing to the Fuzhou Maritime Bureau Control Center, via agents or shipping company, 7 days in advance of arrival in port or prior to departure from a previous report when transit time would be less than 24 hours:

1. Vessels of 20,000 tons or larger or with net heights exceeding 50m and proceeding downstream of the Qingzhou Bridge into the Minjiang Kou inner harbor.
2. Vessels of 10,000 tons or larger or with net heights exceeding 40m and proceeding to the area between the Qingzhou Bridge/Minjiang Kou inner harbor and Dama Jiao (25°59'04"N, 119°26'34"E.
3. Vessels of 3,000 tons or larger or with net heights exceeding 7m and proceeding to the area above Dama Jiao.
4. Vessels of 30,000 tons or larger entering Luoyuan Harbor.
5. Vessels of 50,000 tons or larger entering Jiangyin Harbor.
6. Vessels of 30,000 tons or larger entering Songxia Harbor.
7. All vessels and facilities for special waterborne operations and entering Fuzhou Gang.
8. Any other vessels and facilities required by regulations to report in advance.

Minjiang River Port Districts	
Name	**Location**
Guantou	25°08'00"N, 119°33'30"E.
Tingjiang	25°04'30"N, 119°30'42"E.
Songmen	25°02'30"N, 119°30'06"E.
Qinzhou	26°00'30"N, 119°28'42"E.
Choudong	25°59'30"N, 119°29'00"E.
Mawei	25°59'00"N, 119°27'00"E.
Taijang	26°03'06"N, 119°20'30"E.

Reporting requirements for the VTS are listed in the table titled **Fuzhou VTS—Reporting Requirements** and should be carried out on VHF channel 12. Vessels should also maintain a listening watch on this same channel while in the VTS limits.

The VTS (Fuzhou Maritime Bureau Control Center) can be contacted, as follows:

1. Call sign: Fuzhou Marine Command Center
2. VHF: VHF channels 12 and 23
3. Telephone: 86-591-836-84018
4. Facsimile: 86-591-839-85000

Contact Information.—The port can be contacted, as follows:

1. Call sign: Fuzhou Port Radio

2. VHF: VHF channels 10, 13, and 16
3. Telephone: 86-591-836-82232
4. Facsimile: 86-591-836-83227
5. E-mail: fzsqwj@fpa.gov.cn

Anchorage.—Two anchorages in the river off Guantou are designated Anchorage Area No. 1 and Anchorage Area No. 2. Anchorage Area No. 2 is a circular area with a radius of 200m located about 1.5 miles SW of the town near position 26°07'58"N, 119°32'55"E. Anchorage Area No. 1 is located NE, fronting the town, and is bounded by lines joining the following positions.

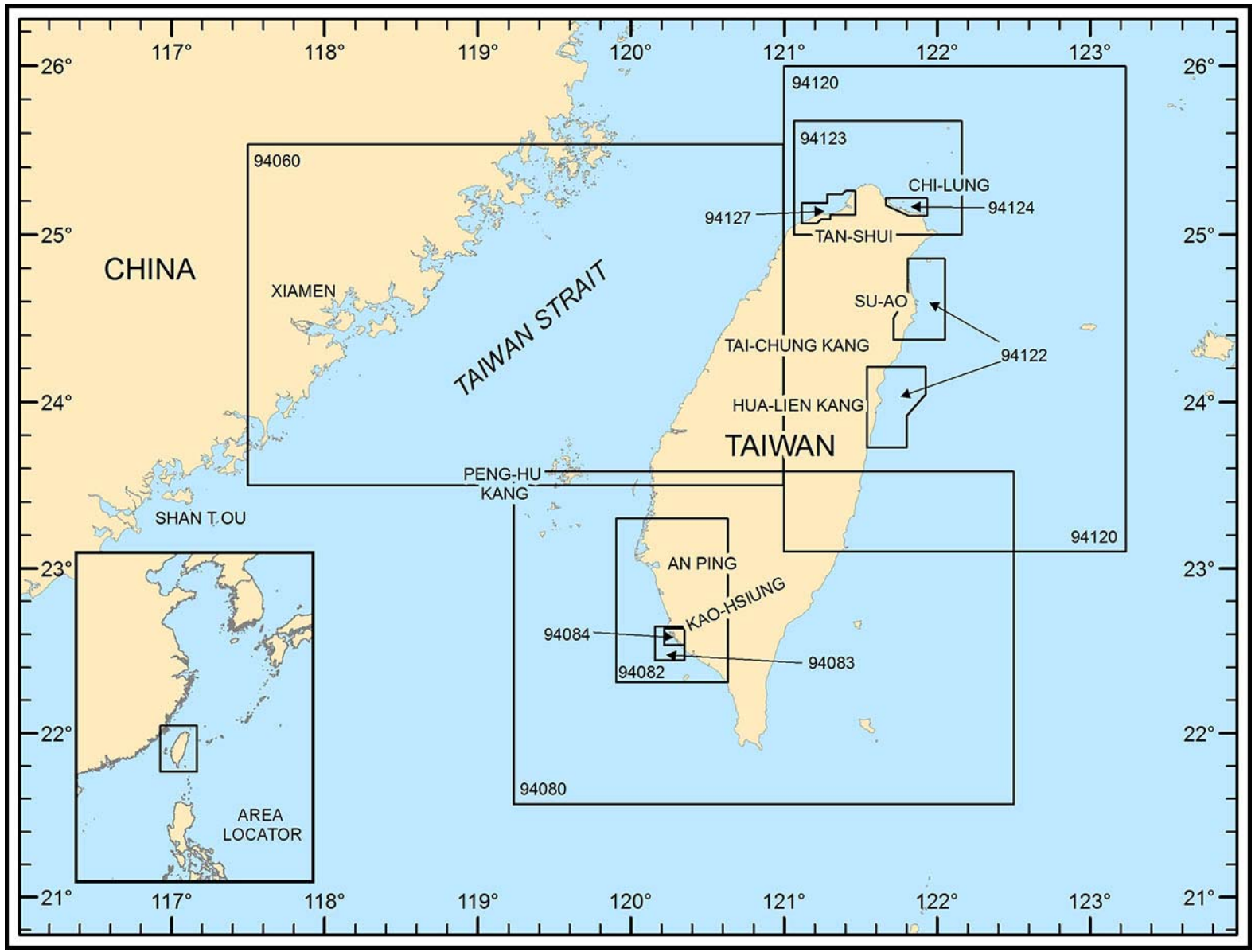
a. 26°08'00"N, 119°34'24"E.
b. 26°07'47"N, 119°34'24"E.
c. 26°07'32"N, 119°33'39"E.
d. 26°07'13"N, 119°33'19"E.
e. 26°07'19"N, 119°33'12"E.
f. 26°07'46"N, 119°33'39"E.

There is a reserved anchorage for vessels proceeding to the International Container Terminal. For the remainder of the port area there is a Bajiowei Quarantine Anchorage area and the Dongluo Anchorage area. See the Pilotage paragraph for the positions of these anchorage areas.

An unrestricted anchorage, Liyu Beimaodi, is centered at position 25°46'57"N, 119°49'15"E., with depths of 21m.

Caution.—An isolated danger, marked by a lighted buoy, lies close S of the anchorage area and is centered in position 25°22'15"N, 119°23'00"E.

Fuzhou Maritime Safety Administration (MSA) has advised that vessels carrying hazardous chemical cargo or intending to load or discharge hazardous chemical cargo are prohibited from transiting or using the terminals between the Minjiang Kou Shuikou Power Station and the Mawei Qingzhou Bridge. The same restrictions also apply to vessels carrying poisonous hazardous chemical cargo or intending to load or discharge poisonous hazardous chemical cargo between the Mawei Qingzhou Bridge and the Xiangyu Terminal, Houdao, Changle.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **8** — CHART INFORMATION

SECTOR 8

TAIWAN AND TAIWAN STRAIT

Plan.—This sector describes in order Taiwan, Taiwan Strait, P'eng-hu Ch'un-tao, and adjacent islands. The description is N to S and, for Taiwan, from the E coast to the W coast.

General Remarks

8.1 Taiwan (Formosa), located off the SE coast of China, is a large sub-tropical island about 210 miles long by 80 miles wide. A central range of mountains, with peaks rising to 3,944m, extends the length of the island. Volcanic peaks dot the N part of the island. A coastal range rises abruptly from the middle portion of the E coast. The W coast is mostly considered to be low and sandy and has a few isolated hills. It is fronted by a coastal bank which is reported to have large areas of tidal flats.

The E coast is rocky and steep-to and has few indentations, save along the N part where there are some small bays with offlying islets and rocks. In places, cliffs rise abruptly to a height of 457m. The principal harbors are Chi-lung Kang, on the N coast of the island, and Kao-hsiung Kang, on the SW coast.

Taiwan Strait (Formosa Strait)—is the body of water lying between the W coast of Taiwan and the mainland coast. It has a least width of about 70 miles.

The strait is navigable by all classes of vessels, but strong currents require careful attention and prudent seamanship.

Direct Cross-Strait Shipping Links, best seen on the chart, have been established in the Taiwan Strait and also in the N section of the E coast of Taiwan. Vessels bound for Taiwan should enter the fairways at the appropriate points and transit the lanes as prescribed.

A submarine cable placed between mainland China and northern Taiwan runs through the positions listed below:

a. 25°48'54"N, 119°36'36"E. (coast)
b. 25°48'30"N, 119°42'42"E.
c. 25°48'36"N, 119°58'12"E.
d. 25°48'00"N, 120°10'18"E.
e. 25°45'00"N, 120°22'06"E.
f. 25°42'36"N, 120°41'30"E.
g. 25°39'12"N, 120°51'54"E.
h. 25°34'42"N, 121°00'42"E.
i. 25°13'54"N, 121°20'54"E. (coast)

The strait has not been fully surveyed; a number of isolated shoals and dangerous wrecks, with depths of less than 20m, can best be seen on the chart.

P'eng-hu Ch'un-tao (Pescadores Islands), described in paragraph 8.28, is an extensive archipelago of rocks and low-lying islands lying off the W central coast of Taiwan. The islands are irregular, fronted by reefs, and difficult to make out in poor visibility.

Limited shelter is available at P'eng-hu Kang and at Makung Kang.

There are numerous fishing harbors along the coast of Taiwan, most of which are marked by minor navigation lights.

Winds—Weather.—Winds and weather for Taiwan are strongly under the influence of the seasonal monsoon winds which alternately circulate clockwise out of the area of high barometric pressure in Siberia and from the high in the North Pacific Ocean. The Northwest Monsoon season (October to March) has cool, moist NE to E winds which, blowing at an average rate of 10 to 15 knots, produce clouds, rain and low visibility on the N and E coasts of the island and, because of the barrier imposed by the central mountain range, clear, dry, and warmer weather on the W and SW coasts. The Southwest Monsoon season (June to August) has warm moist S to SW winds which blowing at an average of 6 knots, produce clouds and characteristically heavy intermittent showers on the W and SW coast of the island and, once over the central range, clear, dry and hot weather on the E coast. Winds of the Southwest Monsoon season are never as strong or as constant as those of the NE and often become subordinate to local land and sea breezes.

During the transitional months of April, May and September, the prevailing weather is a combination of that produced during the Northwest Monsoon and Southwest Monsoon seasons.

From October to April the sea and swell is high, especially in Taiwan Strait and is predominantly from the NE. From April to September it is low to calm, except when acted upon by typhoons.

Storms with winds in excess of 25 knots occur most frequently during the winter months, with the greatest frequency occurring in December. Few storms, other than those associated with typhoons occur during the summer. Typhoons may occur at any time of the year, though few if any, pass near enough in January and February to produce an adverse effect. They are most frequent from June to September, with August being the peak month when on the average more than two every year reach the E coast.

Low ceiling and poor visibility occur chiefly during the heavy showers of the Southwest Monsoon season and during the Northwest Monsoon season when moisture-laden air moves up the E slopes of the central mountain range. Haze extending to considerable heights often reduces visibility from October to December.

In the N part of the island, fog occurs 5 per cent of the time from January to April and less than 1 per cent from May to December. Fog does not occur in the S part of the island.

Tides—Currents.—The clockwise circulation of the N equatorial current flowing N and NE, reaches the E coast of Taiwan as the dark Kuroshio or Japan Current. The main axis of the current flows N, 12 to 20 miles off the S part of the island and trends generally parallel to the coast until off the N part of the island where it swings NE. Current velocity and set remain the same throughout the year, though the velocity in the summer is somewhat greater than in winter due probably to the retarding effect of the Northwest Monsoon. The rate varies between one knot to over 3 knots. Nearer the coast currents are variable and greatly influenced by the wind. Vessels can expect abrupt changes in velocity and set when rounding San-tiao

Chiao.

Tidal currents are weak and irregular. Along the S part of the E coast they are uncertain. Along the N part, they set N on a rising tide and S on a falling tide, with a maximum velocity of less than 1.5 knots.

Caution.—Submarine cables have been laid (2015) across Taiwan Strait extending from the NW side of Taiwan to mainland China and from the south-central W coast of Taiwan through the Pescadores Islands then continuing to mainland China. The northernmost submarine cable originates near position 25°04'23"N, 121°07'31"E, close N of Pai-Shia Chia and runs NW to Mazu Do (26°09'N., 119°56'E.). The southernmost submarine cable originates from an island close offshore at position 23°16'55"N, 120°05'50"E and continues through Peng-hu Ch'un-Tao (Pescadores Islands) between 23°33'N and 23°35'N, then continuing to Jinmen Dao (24°27'N., 118°23'E.), an island off the Chinese coast.

Taiwan East Coast—Fu-kuei Chiao to San-tiao Chiao

8.2 **Fu-kuei Chiao** (25°18'N., 121°32'E.), the N extremity of Taiwan, is a steep-to rock-fringed low-lying point which rises gradually to a 1,103m summit about 5 miles to the SSE. The lighthouse standing on the point is reported difficult to distinguish against the dark mountains rising behind it.

Fu-kuei Chiao should be given a wide berth as N and NE winds cause strong tide races and heavy seas off the point.

The coastline between Fu-kuei Chiao and San-tiao Chiao, about 31 miles ESE, is irregular and consists of several large bights indented by a number of small bays and lesser coves. Inland, the coastline is backed by rugged hills which, forming the foreslopes of the mountainous ridge of the interior, reach the sea in a series of bold rock-fringed steep-to promontories. Offshore, the 20m curve parallels the coastline at a distance of approximately one mile.

The bold and rugged N coast of Taiwan, reported radar conspicuous at 28 miles, contains several anchorages for small vessels and the major seaport Chi-lung Kang. It is fronted by a number of extending islands well offshore.

Caution.—A dangerous wreck lies approximately 1.8 miles ENE of Fu-kuei Chiao Light.

A stranded wreck, marked by a light, lies in position 25°18'07.3"N, 121°34'37.3"E.

P'eng-chia Yu (25°38'N., 122°04'E.), about 36 miles NE of Fu-kuei Chiao, with two rounded peaks, is a grassy steep-sided island which rises steep-to on its E side and elsewhere shelves gradually to depths greater than 20m at a distance of about 0.3 mile. The island is reported radar conspicuous at about 16 miles.

A light is situated on the summit of P'eng-chia Yu. A rocky shoal, with a depth of 16m, lies 1.75 miles S of P'eng-chia Yu. A depth of 23m was reported to lie about 25 miles E of P'eng-chia Yu.

Caution.—Mariners are advised to avoid the oil exploration area in the vicinity of position 25°36'N, 121°53'E. Volcanic activity, along with tide rips and discolored water, has been reported about 40 miles NNE of P'eng-chia Yu.

8.3 **Mien-hua Yu** (25°29'N., 122°06'E.), about 8 miles SSE of P'eng-chia Yu, is an islet with three rounded summits and there is an area of foul ground that fronts Mien-hua Yu's N side.

Hua-p'ing Yu (25°25'N., 121°57'E.), a 47m high rock with black perpendicular sides, is the tallest of a group of rocks on a steep-to reef lying about 14 miles SSW of P'eng-chia Yu.

Caution.—An unmarked islet lies WNW of Hua'p-ing Yu. There is also an obstruction which lies 2.25 miles SSW of Hua'p-ing Yu.

Shih-tzu-t'ou Pi (25°14'N., 121°39'E.), about 7 miles ESE of Fu-kuei Chiao, is a precipitous point distinguished close S by a conspicuous round-topped low hill. A drying rocky reef lies about 1 mile E of the point. A high prominent rock stands on the reef.

Small vessels with local knowledge anchor with limited shelter close SE of Shih-tzu-t'ou Pi.

Chi-lung Kang (Keelung) (25°09'N., 121°46'E.)

World Port Index No. 57890

8.4 Chi-lung Kang (Keelung) consists of a small landlocked inlet divided into an outer and an inner harbor. The outer harbor is sheltered seaward by breakwaters and a group of three islets. There is berthing for deep-draft vessels in the SW part of the outer harbor. The inner harbor continues the outer harbor to the SW and has extensive alongside berthing facilities for deep-draft ocean-going vessels.

Chi-lung, lying at the head of Chi-lung Kang, is the shipping center for the N part of Taiwan and the N terminus of the railroad connecting with T'aipei, the administrative capital of the island.

Keelung Harbor Bureau
http://www.klhb.gov.tw/english/E00/E0001.aspx

Winds—Weather.—In the winter, from October to March, the winds are strong from the NE, usually causing a constant heavy sea and swell in the outer harbor. In the summer, the winds are lighter and are from the W and SW. The typhoon threat lasts from June until late in the year. The heaviest rainfall occurs from November to January.

Fog, which can last all day, sometimes occurs from March until May. The rest of the year, a morning fog and haze, which can reduce visibility in the port to less than 1 mile, and which usually burns off 1 to 2 hours after sunrise, is common.

Tides—Currents.—The tidal range is irregular; the maximum range is 1.9m. The tidal currents outside the harbor entrance have a maximum rate of 2 to 3 knots, with the E current stronger in the winter and the W current stronger in the summer.

At the harbor entrance the flood current sets SW and the ebb current sets NE, at a maximum rate of 1.75 knots. In the winter, the ebb current is stronger than the flood current, while during the summer the reverse is true. The tidal current velocities usually reach their peak about 1 to 2 hours after high or LW.

Tidal currents are negligible inside the breakwater.

Depths—Limitations.—The harbor is entered through a 0.2-mile wide channel between two breakwaters. The berthing

area is divided into an outer harbor area and inner harbor area, with the approximate dividing line between a small breakwater extending from the W end of Berth No. 22 and the N end of Berth No. 19, on the W side of the harbor.

The main channel through the outer harbor is dredged to 15.5m; a turning basin with radius of 325m is located in the center of the outer harbor. The channel through the inner harbor is dredged to 12m, except for the depths off the berths along Container Terminal No. 2, on the E side, and along Container No. 3, on the W side.

For details about the berths in the harbor see the table titled **Chi-lung Kang (Keelung)—Berth Information**. Berths are numbered from the inner harbor area out through the outer harbor area.

Hsin Lai (25°12'N., 121°44'E.), a rocky shoal with a depth of 18m, lies 2 miles N of the harbor entrance.

Aspect.—Chi-lung Tao (25°12'N., 121°47'E.) is a precipitous black rocky island, 182m high, and is an excellent mark for making Chi-lung Kang. Hsiao-chi, a 30m high islet, lies close off its NW side. A spit of sand and gravel, on which there are strong tide races and which should not be crossed, extends 1 mile SW of Chi-lung Tao.

Chi-lung Kang (Keelung)—Berth Information

Berth	Length	Width	Depth	Remarks
West Harbor Area				
No. W1	149.1m	11.4m	8.0m	Customs. Fronts the Customs House.
No. W1B	90.9m	10.9m	9.0m	Military use.
No. W2	204.0m	12.4m	9.0m	Passenger terminal.
No. W3	183.0m	12.4m	9.0m	General cargo.
No. W4	183.0m	12.4m	8.7-10.3m	General cargo.
No. W5	54.5m	12.8m	9.0m	Military use.
No. W6	131.0m	14.3m	9.0m	Military use.
No. W7	183.0m	12.9m	8.2-9.4m	General cargo.
No. W8	183.0m	12.9m	8.2-9.4m	General cargo.
Nos. W9-W10	136.4m	12.9m	8.0m	Military use.
No. W11	167.8m	17.6m	5.5-6.5m	Military use.
No. W12	170.0m	17.6m	6.5m	Service craft.
No. W12B	251.0m	17.6m	Least charted depth of 9.4m	Bulk cargo. A 4.4m shoal patch at the NW extremity.
No. W14	170.0m	14.8m	8.1m	General cargo.
No. W15	170.0m	14.8m	8.1m	General cargo.
No. W16	403.0m	34.0m	9.2-16.1m	West Container Terminal (South Zone).
No. W17	403.0m	34.0m	9.2-16.1m	West Container Terminal (South Zone).
No. W18	403.0m	20.0m	9.2-16.1m	West Container Terminal (South Zone).
No. W19	403.0m	37.4m	14.5m	West Container Terminal (South Zone).
No. W20	403.0m	120.0m	10.5m	West Container Terminal (South Zone).
No. W21	237m	120.0m	10.0m	West Container Terminal (North Zone).
No. W22	300.0m	120.0m	9.8-14.0m	West Container Terminal (North Zone).
No. W23	300.0m	120.0m	9.8-14.0m	West Container Terminal (North Zone).
No. W24	300.0m	120.0m	9.8-14.0m	West Container Terminal (North Zone).
No. W25	300.0m	120.0m	9.8-14.0m	West Container Terminal (North Zone).
No. W26	300.0m	120.0m	9.8-14.0m	West Container Terminal (North Zone).
No. W27	150.0m	13.0m	7.0m	Sand and gravel.
No. W28A	82.4m	65.4m	5.0m	Ship repair.
No. W28B	53.0m	15.4m	3.5m	Ship repair.

Chi-lung Kang (Keelung)—Berth Information				
Berth	**Length**	**Width**	**Depth**	**Remarks**
No. W29	178.0m	11.0m	6.2-12.7m	General cargo, grain, and bulk cargo.
No. W30	178.0m	11.0m	6.2-12.7m	General cargo, grain, and bulk cargo.
No. W31	178.0m	15.0m	6.2-12.7m	General cargo, grain, and bulk cargo.
No. W32	178.0m	15.0m	6.2-12.7m	General cargo, grain, and bulk cargo.
No. W33	178.0m	14.8m	6.2-12.7m	General cargo, grain, and bulk cargo.
No. W33B	95.8m	11.9m	6.5m	Oil and clean products. Maximum tanker loa of 90m.
East Harbor Area				
No. E1	96.2m	4.9m	4.5m	Service craft.
No. E2	200.0m	10.0m	9.0m	Ro-ro, general cargo, and passengers.
No. E3	170.0m	10.0m	9.0-10.0m	General cargo.
No. E4	185.0m	10.0m	9.0-10.0m	General cargo.
No. E5	180.0m	10.5m	7.3-10.9m	General cargo.
No. E6	210.0m	15.0m	9.0m	General cargo.
No. E7	240.0m	27.0m	12.0m	General cargo.
No. E8	240.0m	47.0m	12.0m	East Container Terminal. Containers.
No. E9	220.0m	76.0m	12.0m	East Container Terminal. Containers. Container Terminal No. 2.
No. E10	200.0m	76.0m	12.0m	East Container Terminal. Containers. Container Terminal No. 2.
No. E11	210.0m	76.0m	13.0m	East Container Terminal. Containers. Container Terminal No. 2.
No. E12	50.0m	56.0m	5.0m	Service craft.
No. E14	112.7m	20.0m	5.0m	Service craft.
No. E15	208.7m	21.0m	3.0m	Service craft.
No. E16	125.0m	8.0m	3.0m	Coast Guard Administration use.
No. E17	223.0m	3.0m	3.9-8.8m	General cargo, bulk cargo, and coastal ships.
No. E19	220.0m	30.0m	9.0m	General cargo, bulk cargo, and coastal ships.
No. E20	120.0m	30.0m	6.0m	General cargo.
Nos. E21-E22	112.0m	20.0m	9.0m	Bulk cargo.

Wan-jen-tui Pi (25°10'N., 121°44'E.) is the W entrance point to the harbor. On the seaward side of the point are several patches of perpendicular stratified cliffs.

A conspicuous white statue stands on the hillside 1 mile S of Wan-jen-tui Pi, in position 25°08'N, 121°45'E.

Ho-p'ing Tao (25°09'N., 121°46'E.), the largest island at the harbor entrance, is joined to the NE shore of the harbor by a bridge.

Inner Harbor is entered between a short breakwater extending from No. 2 Pier, and An Lan breakwater, 0.2 mile ENE. Niu-chou Kang, the basin which extends 0.3 mile from the NW side of the Inner Harbor, is fronted entirely by wharves.

Other berths shown on the chart but not listed here are non-operational and used variously by the military, customs, coast-guard, or harbor service craft.

Three conspicuous power station chimneys, marked by obstruction lights are reported to be situated W of the harbor entrance. A large white building stands close in the vicinity.

Pilotage.—Pilotage is compulsory for foreign vessels greater than 500 gt and Taiwanese vessels greater than 1,000 gt.

Pilots should be contacted on VHF channel 12 when 10 miles from the pilot boarding station for arriving vessels and 2 hours prior to departure. In adverse conditions pilots will be boarded inside the breakwaters and should be contacted on VHF channel 12 prior to port entry.

Pilots board vessels for the Chi-lung inner or outer harbor 1.5 miles NNW of the outer breakwater. Vessels with dangerous cargo board the pilot 2 miles NNW of the outer breakwater.

Contact Information.—The pilots can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 886-2-242-28223
3. Facsimile: 886-2-242-72326

The port can be contacted, as follows:

1. Telephone: 886-2-242-0626
2. Facsimile: 886-2-242-06597

Regulations.—At the harbor entrance, the traffic separation scheme shown on the chart, is not approved by the International Maritime Organization (IMO). Rule 10 of 72 COLREGS is to be followed.

Stopping or anchoring in the fairway is prohibited. Entry without a pilot after dark or in poor visibility is not recommended.

Vessel Traffic Service.—A VTS is in operation for safe navigation of vessels within 20 miles of Chi-lung Kang (Keelung). Participation in this VTS is mandatory for the following vessels:

1. Power driven vessels 500 gt and greater.
2. Power driven vessels 50m in length or greater.
3. All passenger vessels.
4. All vessels, towing or pushing, with combined total length of 50m or longer and/or 500 gt and over.

Vessels should report the following to Keelung VTS on VHF channel 14 when entering the VTS area:

1. Vessel name and call sign.
2. Time and position, including course and speed, when passing inside the 20-mile VTS limit.
3. General description of dangerous cargo, if carried.
4. Vessel's ETA at pilot boarding area.

When vessels are within 5 miles of the outer breakwater, a subsequent report should be made to the VTS, including the following information:

1. Vessel name and call sign.
2. Time and position when passing 5-mile radius.
3. Confirm readiness to enter the port with specific berth identified or anchorage.

For vessels proceeding to anchorage, the following additional reports must be made to the VTS:

1. A 1-hour noticed before entering anchorage.
2. Confirmation of dropping anchor within 10 minutes after it has been done.
3. Confirmation of getting underway within 10 minutes after heaving up the anchor.

Vessels should keep a continuous watch on VHF channel 14 within the VTS area.

The VTS can be contacted, as follows:

1. Call sign: Keelung Port Radio
2. VHF: VHF channels 12, 14, and 16
3. Telephone: 886-2-246-27031
   886-2-246-25247
4. Facsimile: 886-2-246-27131

Signals.—Traffic signals for control of vessel traffic in the entrance are displayed from a signal station at the root of the outer E breakwater.

Vessels proceeding into Nui-ch'ou Kang must sound one long blast on entering the Inner Harbor. Those vessels leaving the basin should make a similar signal not more than 1 minute after getting underway.

Anchorage.—It has been reported that anchorage with good holding ground can be obtained SE of **Yeh-liu Pan-tao** (25°13'N., 121°42'E.) and W of longitude 121°43'E.

Vessels anchored here are hardly affected by tidal currents and lie head to wind.

The quarantine anchorage lies on the E side of the Outer Harbor, clear of the fairway, in depths of about 7.3 to 13.1m. It is usually congested and precautions are necessary to prevent swinging on to other vessels on a change of wind direction. Anchorage is prohibited in the central and W parts of the fairway in the Outer Harbor.

Directions.—In the approaches to Chi-Lung Kang, the 700m wide entrance fairway leads on heading 170° towards the entrance through position 25°12.6'N, 121°44.0'E. The exit fairway leads outward on heading 012° from the entrance over position 25°12.2'N, 121°45.3'E.

Vessels are prohibited to anchor or stop in the fairways. The national authorities also advise that Rule 10 of 72 COLREGS be followed in the fairways.

Caution.—Depths less than charted exist in the E and W approaches to Chi-Lung.

Ships leaving the harbor, irrespective of the existing weather conditions, may encounter heavy swells.

A stranded wreck lies about 0.5 mile SW of Chi-lung Tao. A dangerous wreck lies about 5 miles ENE of the light on Chi-lung Tao.

Chi-lung Kang

8.5 Shen-ao Wan (25°08'N., 121°49'E.) is a small bay about 4 miles S of Chi-lung Kang; the intervening coast is fringed with rocks and reefs.

Depths—Limitations.—The Shen-ao Oil Terminal is located in the bay and will handle LPG and petroleum products. Two berths offer alongside berthing at a wharf and at the head of a T-shaped jetty with a berth length of 127m along the flat side of the T head. The wharf has depths of 6.9m alongside and can accommodate small tankers up to 3,000 dwt. The jetty will handle tankers up to 36,000 dwt, with a maximum length of 224m and a maximum draft of 10.8m.

Pilotage.—Pilotage is compulsory and is provided from Chi-lung Kang. The pilot boards 1 mile outside Shen-ao Wan. Pilots can be contacted on VHF channel 12. See paragraph 8.4 for details regarding ETA reporting and the VTS operating in the Chi-lung Kang area.

Aspect.—The coast from Shen-ao Wan to San-tiao Chiao, 12 miles SE, is mostly mountainous. A conspicuous round-topped high hill rises abruptly from the coastline about 1 mile to the E. The lights of a mine near the summit of a 750m peak, about 3 miles SE of the bay, are visible on clear nights for a distance of about 30 miles. A light is situated from the head of the reclaimed land on the SE side of the entrance. Range lights at the head of the bay lead into it on a SW course.

Vessels, seeking shelter from all but NE winds, enter Shen-ao Wan and anchor, in depths of 11 to 13m.

Pi-t'ou Chiao (25°08'N., 121°55'E.), situated 5 miles E of Shen-ao Wan and marked by a light, is a steep cliffy headland about 121m high; from a distance the point appears to be an island.

Taiwan—East Coast—San-Tiao Chiao to Sanxiantai Yu

8.6 **San-tiao Chiao** (25°01'N., 122°00'E.), the NE extremity of Taiwan, is a bold steep-to promontory topped by a plateau. Several prominent summits, rising close inland, are good landmarks for identifying the promontory from a distance. Submerged rocks extend up to 0.5 mile offshore. A light is situated on San-tiao Chiao.

An oceanographic observation platform is situated 6.8 miles NNE of **San-tiao Chiao** (25°07'N., 122°02'E.) The platform shows two white flashing warning lights. All vessels are to keep clear.

Caution.—A tidal race extends 0.15 mile offshore; the cape should be given a wide berth.

The coastline between San-tiao Chiao and Sanxiantai Yu, about 118 miles SSW, is regular with but few indentations interrupting the general trend to the S. Bold, rugged hills rise abruptly from the shore and throughout, with rare exception, continue inland to the mile-high peaks of the central mountain range.

Areas of low land lie only at the entrances to rivers which, mostly enter the sea through gorges and steep-sided valleys.

Large alluvial plains lie adjacent to two major rivers which reach the sea 20 and 63 miles SSW of San-tiao Chiao. Offshore, depths are considerable. The 20m curve parallels the coastline at a distance of about one mile while the 200m curve lies throughout at a distance of about 4 miles, with the exception in the N part where depths tend to shoal.

From San-tiao Chiao to **T'ou-ch'eng Ch'uan** (24°51'N., 121°49'E.), an estuary about 14 miles to the SW, the mountains approach the coast which is steep and rocky with foul ground extending 0.3 mile off it in places. A submarine cable extends from T'ou-ch'eng to a submerged seismometer moored approximately 24 miles SE of the coastline.

Kuei-shan Tao (24°51'N., 121°57'E.), about 10 miles SSW of San-tiao Chiao, is a steep-to precipitous volcanic island having a group of sunken pinnacle rocks about 2 miles to the SW. White vapor rises from the S shore. Sulfur, rising from the ocean floor, discolors the water to the S of the W extremity of the island.

From N and S the island resembles a tortoise with the pointed summit at its E point resembling the head and a pebble bank extending W from the W end of the island resembling the tail. A light is shown from the W side of the island.

Vessels anchor, in depths of less than 20m, sand, in a position about 0.3 mile off a small village at the head of a small bay on the NW side of the island. A prohibited anchorage, best seen on the chart, surrounds Kuei-shan Tao.

Kuei-luan Yen (24°49'N., 121°56'E.), 2.5 miles S of the W end of Kuei-shan Tao, is a group of rocks 9m high. Another isolated rock, 1m high, lies 1.5 miles ENE of Kuei-luan Yen.

The coast from Tou-ch'eng Ch'uan to **Pei Chiao** (24°36'N., 121°53'E.), the N entrance point to Su-ao Kang, about 15 miles S, consists of a sandy beach with sand dunes 6m high; behind the dunes there is a broad fertile plain irrigated by numerous rivers.

Su-Ao Kang (24°36'N., 121°52'E.)

World Port Index No. 57900

8.7 Su-ao Kang is the only natural harbor on the E coast of Taiwan with sheltered anchorage for large vessels during the season of the Northwest Monsoon.

A group of rocks lies about one mile E of the head of the N promontory. The body of water between the rocks and the foul ground extending about 0.5 mile ENE from the promontory head is deep, but passage is not recommended.

Winds—Weather.—NE winds predominate in winter. SE winds in summer send in a dangerous sea.

Tides—Currents.—Tidal currents along the coast in the vicinity of Su-ao Kang have a maximum rate of less than 1 knot; they set N on the flood tide and S on the ebb tide. A weak tidal current sets into Su-ao Kang along its N shore on the flood tide.

When approaching N of the E coast of Taiwan, abrupt changes can be experienced in the rate and direction of tidal currents after passing San-tiao Chiao.

Depths—Limitations.—The approach channel has a minimum depth of 15.4m. Pier facilities are described in the accompanying table titled **Su-Ao Kang—Berth Information**.

Su-Ao Kang—Berth Information

Pier	Length	Maximum Vessel Length	Depth	Remarks
1	210m	150m	7.0m	Coastal vessels
2	175m	140m	10.5m	Chemicals
3	215m	170m	10.5m	Cement
4	300m	190m	11.1m	Cement
5	200m	180m	10.0m	Breakbulk
6	290m	240m	15.1m	Containers
7	240m	200m	12.5m	Containers
8	125m	110m	7.0m	Logs
9	125m	110m	7.0m	Logs
10	175m	150m	8.5m	General cargo
11	175m	150m	8.0m	General cargo

Su-Ao Kang—Berth Information				
Pier	Length	Maximum Vessel Length	Depth	Remarks
12	175m	150m	7.5m	Breakbulk
13	200m	150m	8.5m	Breakbulk

Aspect.—Su-ao Kang is entered between South Breakwater, extending ENE then NE for about 0.7 mile, and North Breakwater, which is 183m long and detached. Another breakwater extends 0.25 miles SW from the E entrance point of **Pei-fang Wan** (24°36'N., 121°53'E.).

Lights are situated from the heads of North Breakwater and South Breakwater. A directional light, the white sector of which indicates the harbor approach, is situated at the head; the light is equipped with a racon.

Sanxiantai (24°36'N., 121°54'E.), 0.8 mile E of Pei Chiao, is a group of above water rocks, of which the W and largest is 29m high. Mi Tao, another group of above water rocks, lies 0.2 mile NE of Sanxiantai; the two largest rocks in this group are 11 and 20m high.

Pilotage.—Pilotage is compulsory. The pilot boards, in daylight only, about 1.5 miles ESE of the head of the S outer breakwater. Communication is by VHF channel 16. Vessels must forward their ETA to Chi-lung 24 hours prior to arrival. Pilots and immigration officials are dispatched from Chi-lung. Permission to enter must be granted by the naval station.

Anchorage.—The quarantine anchorage lies in the outer harbor, clear of the fairway, in depths of 19 to 21m, sand. Ships may anchor, in 21m, sand, with Hou-hou Pi, the head of the S promontory, bearing 178°, and the 9.5m rock on Chung-hsin-t'ou bearing 278°. Small craft anchor in the lee of Chung-hsin-t'ou or enter the fishing harbor where there is shelter from all winds.

Ho-p'ing Kang (24°18'N., 121°45'E.) is an artificial harbor situated S of the entrance to Ho-p'ing Hsi. Range lights, aligned 010°, lead into the harbor.

Caution.—A 4.6m shoal lies close S of the S breakwater head (24°17.7'N, 121°45.0'E.) to Ho-p'ing Kang. This shoal lies in an otherwise clear channel having a least charted depth of 11.7m.

A wreck is located in the approaches to Su-ao in position 24°36'55"N, 121°55'12"E.

8.8 **Nan-shan-chiao Pi** (24°16'N., 121°44'E.), is a rocky point. Close W of the point there is an isolated peak, 1,383m high, which is easily identified as it is seldom obscured by clouds.

A harbor is situated 38 miles SSW along the coast between Su-ao Kang and Hua-lien Kang. The coast is steep-to and backed for the first 28 miles by a coastal range rising to elevations of 1,220 and 2,440m; the remaining 10 miles consists of widening coastal plains. Prominent red cliffs are visible at intervals along this stretch of coast.

Hua-lien Kang (24°00'N., 121°38'E.)

World Port Index No. 57910

8.9 Hua-lien Kang, about 64 miles SSW of San-tiao Chiao, is the principal port on the E coast of Taiwan. It consists of an open roadstead off the town of Hua-lien and an artificial harbor, sheltered E by a breakwater, lying about 2 miles NE of the town.

Hua-lien Home Page
http://www.hlhb.gov.tw/english/about.htm

Winds—Weather.—West winds predominate from April to June and raise little sea inshore. However, during the winter monsoon, generally from October through March, strong onshore winds will frequently accompany each storm system and push a swell into the roadstead. Periods of even stronger winds and high seas for durations of 2 to 3 days will be caused by tropical storms and typhoons as well, with the predominant season for these types of storms between June and November. The artificial harbor is sheltered from all weather, but typhoons frequently damage the breakwater.

Tides—Currents.—The maximum tidal range is 2.55m. Tidal currents set N on the flood tide and S on the ebb tide; they are weak in the roadstead.

Depths—Limitations.—The artificial harbor is divided into an Outer and Inner Harbor area. The entire harbor area is protected on the E side by a long breakwater running parallel to the coast for a length of about 1.6 miles and marked at the S end by a light. A W breakwater extends 330m ESE from the coast, then narrowing into a narrow spit, about 100m in length, and marked by a light at the end.

The opening between the W breakwater spit and the S end of the E breakwater measures 425m, narrowing to 275m upon entry into the Outer Harbor. The navigational channel running through the Outer Harbor and into the Inner Harbor is about 2,500m in long and 275m wide and is dredged to a depth of 16m; it narrows to a width of 100m over a length of 520m between the two harbors.

The maximum permissible draft in the navigational channel is 14.5m. Depths in the Inner Harbor are 6.5 to 10.5m. Nine berths available in the Outer Harbor; 16 berths are available in the Inner Harbor. See the table titled **Hua-lien Kang—Berth Information** for details on these berths.

Aspect.—Mei-lun Shan, an isolated, 106m high hill, stands close inland of the town and is a prominent landmark. Lights are situated at the head of the W breakwater and close NE of the head of the E breakwater. Range lights are positioned at the inner end of the breakwater 0.3 mile apart; these lights in line lead through the entrance channel. A number of fixed lights are positioned on both sides of the entrance channel.

Pilotage.—Pilotage is compulsory for Taiwanese vessels grater than 1,000 gt and foreign vessels greater than 500 gt. Vessels are berthed only from 0700 to 2400 but may depart at any time.

The pilot boards in either of the following two positions:

1. 23°57'11"N., 121°37'41"E.
2. 23°57'40"N., 121°37'11"E.—the anchorage area about

1 mile S of the W breakwater.

In bad weather, the pilot boards within the harbor breakwaters.

The pilots can be contacted, as follows:

1. Telephone: 886-38-223813
   886-38-222837
2. Facsimile: 886-38-233651

Regulations.—The vessel's ETA should be sent 24 hours prior to expected arrival via ships agents, then reconfirmed to the Hualien Port Signal Station on VHF channel 14 when 10 miles from port, advising the following information:

1. Vessel name, call sign, and nationality.
2. The ETA outside the harbor.

The harbor is closed to all vessels from 0000 until 0500. Large vessels are not allowed to enter after sunset.

Permission must be obtained via VHF channel 14 from the Hua-lien Port Signal Station Navigation Control Division before any vessel proceeds to or departs from a berth. This restriction also applies to any intended berth shifting.

Contact Information.—Port Control can be contacted, as follows:

1. Call sign: Hua-lien Port Control
2. VHF: VHF channels 12, 13, 14, and 16

The Port Authority can be contacted, as follows:

1. Telephone: 886-38-325131
   886-38-325132
2. Facsimile: 886-38-333757

Hua-lien Kang—Berth Information

Berth	Length	Depth	Maximum Vessel		Remarks
			Draft	Size	
Inner Harbor Area					
No. 1	130m	7.5m	7.0m	6,000 dwt	General cargo
No. 2	130m	7.5m	7.0m	6,000 dwt	General cargo
No. 3	150m	7.5m	7.0m	6,000 dwt	General cargo
No. 4	160m	8.5m	8.0m	10,000 dwt	Oil, clean products, and general cargo
No. 5	160m	8.5m	8.0m	10,000 dwt	Gravel and sand
No. 6	150m	8.5m	8.0m	10,000 dwt	Gravel and sand
No. 7	120m	6.5m	6.0m	4,000 dwt	General cargo and gravel
No. 8	220m	9.5m	9.1m	15,000 dwt	Cement
No. 9	103m	9.5m	9.1m	5,000 dwt	Ship construction
No. 10	182m	9.5m	9.1m	12,000 dwt	Cement
No. 11	185m	9.5m	9.1m	12,000 dwt	Limestone
No. 12	150m	7.5m	7.0m	6,000 dwt	Ship construction
No. 13	185m	9.5m	9.1m	12,000 dwt	Cement
No. 14	200m	9.5m	9.1m	12,000 dwt	General cargo
No. 15	86m	8.5m	8.0m	6,000 dwt	Passenger transport wharf
No. 16	144m	7.5m	7.0m	6,000 dwt	Passenger transport wharf
Outer Harbor Area					
No. 17	200m	12.0m	11.0m	30,000 dwt	Gravel and sand
No. 18	200m	12.0m	11.0m	30,000 dwt	Cement
No. 19	310m	14.0m	13.0m	60,000 dwt	Oil, clean products, and general cargo
No. 20	302m	14.0m	13.0m	60,000 dwt	Gravel and sand
No. 21	200m	14.0m	13.0m	60,000 dwt	Gravel and sand
No. 22	200m	14.0m	13.0m	60,000 dwt	Gravel and sand
No. 23	272m	14.0m	13.0m	60,000 dwt	Clean oil products and general cargo
No. 24	271m	14.0m	13.0m	60,000 dwt	General and bulk cargo
No. 25	332m	16.5m	15.5m	60,000 dwt	Bulk cargo

Signals.—A signal station on the W side of the entrance to the artificial harbor controls entry and departure by means of the International Code of Signals. Storm signals are displayed from a signal mast standing atop a low hill on the E side of Hua-lien.

Anchorage.—The quarantine anchorage and four designated anchorage areas are about 1 mile SW of the E breakwater light. The size and limits of these anchorages can best be seen on the chart and are assigned, as follows:

1. A-1—For vessels as large as 5,000 gt, in depths of 12 to 14m, sand.
2. A-2—For vessels as large as 20,000 gt, in depths of 16 to 26m, sand.
3. A-3—For vessels as large as 30,000 gt, in depths of 16 to 49m, sand.
4. A-4—For vessels as large as 45,000 gt, in depths of 29 to 65m, sand.

Since the water area of these anchorages is limited, the anchoring positions needs to be reported to the Signal Station before and after anchoring for control of each vessel's position to keep a safe distance between vessels.

Anchorage is prohibited within 183m of the range line between the quarantine anchorage and the entrance to Hua-lien.

Caution.—Several rocks, with a depth of 12.5m, lies 0.25 mile E of the E breakwater elbow.

Several rocks, some drying and some submerged, are close W of the fairway in the approach to the Outer Harbor.

Taiwan—East Coast—Hua-lien Kang to O-luan Pi

8.10 Between Hua-lien Kang and Sanxiantai, 53 miles SSW, the coast is relatively straight and backed by a coastal range which is broken only in the vicinity of Hua-lien Kang; in places it is very steep-to.

Sanxiantai Yu (23°08'N., 121°24'E.) is a small rock-fringed islet which, lying close offshore, rises to three summits, of which the central and highest rises to 74m. A light is situated on the islet.

The coastline between Sanxiantai Yu and O-luan Pi, about 80 miles SSW, continues regular with but few indentations interrupting a general trend to the S. Inland, the terrain is everywhere mountainous save for a large alluvial plain adjacent to rivers reaching the sea about 27 miles SW of Sanxiantai Yu. Offshore, depths are considerable and increase rapidly seaward of the 20m curve which parallels the coastline at a distance of less than one mile.

Cheng-kung Po-ti (23°06'N., 121°22'E.) is an open roadstead within a small bay about 3 miles SW of Sanxiantai Yu. Small vessels seeking shelter from NE winds can obtain anchorage, in 12.8m, sand, in a position about 0.2 mile W of an above-water rock standing on a reef extending S from the N entrance point of the bay. Larger vessels anchor farther offshore. A light is situated on Mao-hai Pi, close N of the anchorage. **Tu-lan Wan** (22°50'N., 121°12'E.), a bay entered about 20 miles SSW of Sanxiantai Yu, has depths too great for convenient anchorage except on its SW side where, with an offshore wind, small vessels anchor, in 10.9 to 18.2m, sand, clear of rocks extending about 0.5 mile offshore.

Hou-tzu Pi (22°48'N., 121°12'E.) is a rocky point extending 0.5 mile from the coast. Hou-tzu Shan stands 126m high on this headland.

T'ai-tung Kang (22°45'N., 121°09'E.), about 27 miles SSW of Sanxiantai Yu, is an open roadstead fronting the N part of an extensive alluvial plain and the large community of T'ai-tung. Li-yu Shan, a high hill close W of T'ai-tung, is a conspicuous landmark visible 15 miles seaward.

Vessels anchor, in 12.8m, on a narrow coastal bank, with the summit of Li-yu Shan bearing 297°, distant about 1 mile.

Pa-yao Wan (22°08'N., 120°53'E.), about 66 miles SSW of Sanxiantai Yu, is a small bay backed by a sandy beach and rugged hills. Small vessels, with offshore wind, anchor, in 12.8 to 18.2m, sand.

Kang-k'ou Wan (21°59'N., 120°51'E.), about 75 miles SSW of Sanxiantai Yu, is a wide bay backed by high, wooded hills rising everywhere steeply from the shore except in the mouth of a river which enters the NW part of the bay. Vessels, seeking shelter from SW winds, anchor, in 12.8 to 36.5m, sand, anywhere within the bay clear of dangers off the entrance to the river and in the S part of the bay.

O-luan Pi (21°54'N., 120°51'E.), the S extremity of a high steep-faced scrub-covered promontory extending well seaward, is the southernmost point of Taiwan. A light is situated on the SW side of O-luan Pi. It can be identified from the offing by Ta-chien-shih Shan, a high finger-shaped peak about 5.3 miles NW, and by a conspicuous black-domed structure standing about 2 miles NNW of the seaward extremity of the headland.

Caution.—There are tide rips in the area SE of the point.

8.11 **Nan-liao** (Lu Tao) (22°40'N., 121°29'E.) is a steep-to volcanic islet with two peaks, 277 and 274m high; the higher peak is named Huo-shao Shan. The islet is grass covered with only a few trees. Chung-liao (Pi-t'ou Chiao), the NW extremity of the islet, is marked by a light. Nan-liao Wan and Chung-liao Wan are two small bays lying close S and E, respectively, of Chung-liao. Small vessels, seeking shelter from NE winds, anchor in Nan-liao Wan, in 23.7m, sand and rock. a good holding ground, with the highest summit of the island bearing 117°, and a conspicuous building, standing in a village on the N side of the bay, bearing 356°. Vessels should enter the anchorage from NW, with the peak bearing 117°, and avoiding the dangerous wreck that lies about 1 mile S of the NW entrance point.

Tidal currents set N in the bay and can attain a maximum rate of 4 knots. Small vessels also anchor in Chung-liao Wan, in 31m, sand and rock, clear of dangers extending about 0.5 mile off each entrance point of the bay.

An ammunition dumping ground lies off the N coast of Nan-liao.

Lan Yu (22°04'N., 121°32'E.), a mountainous, steep-to, and densely-wooded island, lies about 33 miles S of Nan-liao. It is often shrouded by low-lying mist and, in winter, obscured by continuous rain. A light, with a radiobeacon, is situated on the NW point of the island. Vessels anchor in Pa-tai Wan, a small bight indenting the SW side of the island, in a depth of 18.2m, fine sand and good holding ground, with an above-water rock close off the NW entrance point of the bight bearing 270°, and a conspicuous white building, about 0.5 mile E of the same point, bearing 027°. Small vessels seeking shelter from all but E winds anchor in Tung-ch'ing Wan, a small bay on the E side of the island, in a depth of 20.1m, sand, in a position 0.3 mile offshore

Photo courtesy of Sophia McHarney

O-Luan Pi Light

and midway between two villages at the head of the bay.

Hsiao-lan Yu is a high largely rock-fringed island lying about 3 miles SSE of Lan Yu. Vessels transit the deep water fairway between the two islands by keeping in mid-channel and taking into account the existence of tide rips.

Caution.—Lan Yu is frequently shrouded by low-lying mist; in winter it is sometimes obscured by rain. Caution is required in approaching it, especially at night.

8.12 **Kao-t'ai Shih** (Gadd Rock) (21°44'N., 121°37'E.), about 91m in diameter, steep-to, and with a least known depth of 2.7m, lies about 12 miles SSE of Hsiao-lan Yu. At low water, the sea probably breaks on this reef; the vicinity is generally marked by violent tide rips and whirls, which extend most of the way to Chi-hsing Yen, about 45 miles WNW. As these indications are not always present, Kao-t'ai Shih should be given a wide berth. A dangerous wreck lies close N of the shoal.

A bank, marked by heavy overfalls and sometimes by discolored water, and with several shoal depths, lies between 8 miles SW and 12 miles S of Kao-t'ai Shih.

Ch'i-hsing Yen (21°46'N., 120°49'E.) consists of a group of steep-to, above and below-water rocks lying about 8 miles S of O-luan Pi. The sea breaks heavily over them during periods of bad weather. The channel N of the rocks is clear of all dangers to navigation except for tide rips S of O-luan Pi.

Taiwan—West Coast—Fu-kuei Chiao to Tai-Chung

8.13 The W coast of Taiwan between Fu-kuei Chiao, the N extremity of the island, and Kao-hsiung Kang, about 175 miles SSW, is uniformly low and flat, except in the N part where mountains and high hills reach the sea and alternate with low-lying land between Fu-kuei Chiao and **Lu-chiang** (Rokko) (24°03'N., 120°25'E.), a populated coastal trading center about 98 miles SW. Numerous shallow rivers cross the coastal plain and enter the sea over bars passable only by small boats. A drying flat fronts the greater part of the coastal plain and extends as far as 8 miles offshore at **Wai-san-ting Chou** (23°31'N., 120°02'E.), a low sand cay about 40 miles SSW of Lu-chiang. Coastal shipping may anchor in exposed, open roadsteads off several of the commercially unimportant towns along the coast.

The principal shipping centers are Tan-shui Kang, in the N, and An-p'ings Kang, and Tso-ying Kang, in the S.

There is a wreck, dangerous to navigation, lying 2.5 miles W of Tan-Shui Kang Light and 0.5 mile S of the entrance channel.

Caution.—Vessels should approach the low-lying W coast of Taiwan with caution since marginal mud flats continue to develop seaward, landmarks are few, and currents set strongly onshore.

An explosives dumping ground, the limits of which are best seen on the chart, lies centered approximately 6 miles NW of the entrance to Tan-shui Ho.

8.14 **Tan-shui Kang** (T'aipei) (25°09'N., 121°23'E.) (World Port Index No. 57935) is situated 34 miles W of Keelung and is being constructed as an overflow port for Keelung. The city of T'aipei lies approximately 8 miles upriver of Tan-shui Kang. T'aipei presently handles petrochemicals,

containers, and bulk cargo.

Port of T'aipei
http://www.tpport.gov.tw

Depths—Limitations.—The port is under extensive development with an inner harbor being constructed to be enclosed by a N breakwater extending outwards from the mainland, then a N outer breakwater extending SE from the N breakwater and a S breakwater, about 0.7 mile in length, extending outwards from position 25°08"15"N., 121°22'04"E. These breakwaters have formed a well protected inner harbor, entered between the S breakwater and the N outer breakwater. There are 15 berths on the W shore of Pali for handling petrochemical, bulk and general cargo. Across from this area, along the inside of both N breakwaters, will be nine berths for container cargo, many of which are still under construction. See the table titled **T'aipei—Berth Information** for details on the berths that are presently being used.

Aspect.—The Tan-shui Kang river delta lies in the entrance to the river Tan-shui Ho which extends upstream about 1.5 miles to the community of Tan-shui. The channel over the bar shifts, but trends generally along the N bank of the river until, once inside the bar, it turns S at Tan-shui and favors the W bank.

Pilotage.—Pilotage is compulsory for all foreign vessels larger than 500 gt and Taiwanese vessels larger than 1,000 gt. The following types of Taiwanese vessels are exempt from the pilotage requirement:

1. Warships and other government vessels.
2. Pilot vessels.
3. Ferries and yachts.
4. Coasters or working vessels which have obtained permission for exemption.

Inbound vessels should call the pilots on VHF channel 11 when 6 miles away from the pilot boarding position. Outbound vessels should contact the pilots 2 hours prior to departure.

Pilots board WNW of the N breakwater light in position 25°09'56"N., 121°20'02"E.

The pilots can be contacted, as follows:

1. VHF: VHF channels 11 and 16
2. Telephone: 886-2-261-96291 (office hours)
3. Facsimile: 886-2-863-01719

Regulations.—Vessels must report their ETA 7 days, 5 days, 3 days, and 2 days prior to arrival and confirm their ETA 24 hours and 12 hours in advance. These reports need to include vessel's draft, a summary of cargo being carried, and any other requests from the port that are needed.

A traffic separation scheme (TSS) is in effect in the approaches to the port. The scheme is not IMO-adopted, however compliance with Rule 10 of the International Regulations for Preventing Collisions at Sea (1972) is advised.

T'aipei—Berth Information

Berth	Length	Depth	Remarks
E- 1	170m	9.0m	Bulk cargo.
E-2	170m	9.0m	Bulk cargo.
E-3	227m	11.0m	Chemicals, DPP and breakbulk.
E-4	150m	13.0m	Oil and general cargo.
E-5	150m	9.0-13.0m	Oil and general cargo.
E-6	157m	6.5m	PCC and breakbulk.
E-7	250m	6.5m	General cargo and break bulk.
E-8	125m	6.5m	General cargo
E-9	200m	6.5m	—
E-10	200m	6.5m	Breakbulk.
E-11	245m	14.5m	Breakbulk.
E-12	200m	12.0m	Cement.
E-13	200m	12.0-14.0m	General cargo and bulk cargo.
E-14	300m	14.0m	Bulk cargo.
E- 15	250m	14.0m	Oil and general cargo.
E-16	480m	14.0m	General cargo.
E-17	150m	9.0m	Breakbulk.
E-18	250m	7.0m	Under construction.
E-19	200m	5.0m	Under construction.
E-20	188m	5.0m	Under construction.

T'aipei—Berth Information			
Berth	**Length**	**Depth**	**Remarks**
Ro-Ro	195m	—	General cargo.
N-1	—	—	Containers.
N-2	200m	9.0m	General cargo.
N-3	365m	19.0m	General cargo.
N-4	330m	16.0m	General cargo.
N7-N-9	—	16.0m	Containers

IMO Standard Ship Reporting System (SRS) Format		
Item	**Type**	**Description**
A	Ship	Vessel name, call sign, and IMO number.
B	Date and time of event	A 6-digit group giving day of month (first two digits), hours and minutes (last 4 digits) all in UTC. Any other time zone except UTC must be specified.
D	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark).
O	Maximum present static draft in meters	A 4-digit group in meters and centimeters.

Vessel Traffic Service.—T'aipei VTS operates within a 20-mile radius of T'aipei Port Control. All vessels operating within the VTS area are required to maintain a listening watch on VHF channel 68 at all times. If the vessel wishes to change their listening frequency or stop listening, prior permission must be obtained from T'aipei Port Control.

Vessels area required to make reports to the VTS at the following times:

1. Upon entering and departing the VTS area.
2. When anchoring or heaving up the anchor.
3. When departing from or arriving at a berth, including items A, B, D, and O from the IMO Ship Reporting System (SRS).
4. When encountering any incidents or accidents affecting safety or the environment.

The VTS provides the following information or services:

1. Information concerning the safe passage of vessels through the VTS area.
2. General information concerning fairway and traffic conditions including casualties, dredging, and navigational warnings.
3. Incidental assistance with navigation.
4. Ordering fire fighting services, pilotage, or ambulance.

T'aipei VTS can be contacted, as follows:

1. Call sign: T'aipei Port Control
2. VHF: VHF channel 68
3. Telephone: 886-2-261-96010
   886-2-261-96057
4. Facsimile: 886-2-863-01939

Contact Information.—The port authority can be contacted, as follows:

1. Telephone: 886-2-261-96010
2. Facsimile: 886-2-863-01939
3. E-mail: dttpdw02@klhb.gov.tw

Anchorage.—Anchorage is prohibited inside the harbor formed by the breakwaters. A designated anchorage, with depths of 14 to 24m, is centered in position 25°10'26"N, 121°21'30"E, mainly sand, with poor holding ground during periods of adverse weather.

All vessels over 500 gt need to obtain permission from T'aipei Port Control before anchoring.

The anchorage outside the bar to Tan-shui Ho lies exposed to winds and strong currents which may require vessels to clear for sea at short notice. The anchorage inside the bar may become unsafe during the period when the river is at flood stage because of eddies and churned-up sand and mud.

Caution.—A foul ground dangerous to navigation lies 3 miles WSW of the Second Entrance breakwater. An obstruction has been reported at the NW edge of berth E15.

Fish havens lie WSW and NE of Tan-shui Kang, the limits of which can best be seen on the chart.

An explosives dumping ground, the limits of which are best seen on the chart, lies centered across the traffic separation scheme in the approach to T'aipei Kang.

8.15 Sha Lung Oil Terminal (25°09'N., 121°11'E.) consists of two single point mooring buoys, numbered SBM No. 1 and SBM No. 2. Both of these mooring buoys are connected to the shore by the seaward end of submarine pipelines extending 2.5 miles NW and NNW from a point on the NW coast. The terminal supplies the T'ao-yuan Refinery 10 miles SSE.

SBM No. 1 and SBM No. 2 are in depths of 35m and can accommodate tankers as large as 320,000 dwt, with a maximum draft of 25m at HW.

The vessel's ETA is requested 24 hours in advance on VHF

channel 16. Pilotage is obtained from Chi-lung Kang (see paragraph 8.4). The pilot boards 1 mile off the SBMs.

Anchorage is prohibited within the operational areas of the offshore oil terminals and the submarine cables connecting them to the shore.

Pai-sha Chia (25°03'N., 121°04'E.), about 9 miles WSW from Sha Lung Oil Terminal, is the NW point of Taiwan. The coast is almost straight, and the point does not project. A light is situated on the point.

Yen-shui Kang (24°45'N., 120°54'E.) is a small harbor formed by the entrance to a small river. In the vicinity of Hsiang-shan, a small village 0.5 mile N of Yen-shui Kang, there are several offshore oil platforms, well heads, and buoys.

8.16 CBK Oil Field (24°48'N., 120°40'E.) consists of several offshore oil structures, well heads, and buoys, the positions of which may best be seen on the chart. A light (24°33'N., 120°44'E.), reported to be an excellent navigational aid, is situated on a hill approximately 30 miles SW of Pai-sha Chia. A seawater pipeline, 3 miles WNW of this light, is marked at its outer end by a lighted buoy.

Caution.—A submarine oil pipeline extends W from Hsiang-shan to a position 15 miles offshore.

Fish havens, in 20 to 30m, are located 3 miles WNW of Hsiang-shan and 1 mile N of the submarine oil pipeline.

A wreck lies 9 miles W of Hsiang-shan. Another wreck, depth unknown, is situated in position 24°40'N, 120°47'E.

Tai-Chung (24°17'N., 120°30'E.)

World Port Index No. 57955

8.17 Tai-Chung is a port which lies on the central W coast of Taiwan about 110 miles S of Chi-lung Kang (Keelung). Tai-chung is a very busy port and is still undergoing expansion, with numerous areas of land reclamation and new construction off the W shore S of the seawall and within the harbor area.

Tai-Chung Home Page
http://www.tchb.gov.tw/en/about01.aspx

Winds—Weather.—The weather is generally good from April to September except during passage of a typhoon. However, SW gales occur occasionally. During the winter, the prevailing winds are from N to NNE direction, usually about force 4, but sometimes reaching, or even exceeding force 8.

Rainfall is minimal

Tides—Currents.—The mean spring tidal range is 4.3m; the mean neap range is 2.4m. During the Southwest Monsoon, from May to September, the main current is from the S at 1 to 2 knots. During the winter months, the current is from the N and can reach 4 to 5 knots.

Depths—Limitations.—The harbor is protected by a man-made seawall and is entered through an opening with a width of 350m between two breakwaters on the range light line of 114°15', in a dredged depth of 16m. The N breakwater is 2,818m in length; the S breakwater is 1,397m in length and is marked at the seaward end by a light equipped with a racon.

Unpredictable sets and strong winds can make handling difficult when approaching the breakwaters.

The harbor is divided into a N area and S area with a turning basin located at the beginning of each area. The N harbor turning basin is located immediately inside the harbor entrance and has a radius of 500m with a depth of 16m. The S harbor turning basin is located WSW of the South Pier and has a radius of 550m with a depth of 16m.

Pier facilities are described in the accompanying table titled **Tai-Chung—Berth Information.**

Aspect.—A light is shown from a white structure on top of a silo. Range lights on the E side of the harbor, aligned 065°, lead through the entrance channel.The harbor entrance lights are situated on the outer and inner breakwater heads. A light is shown from the head of a groin about 1.5 miles NE of the harbor entrance. Also, a lighted buoy is moored 1 mile N of this light.

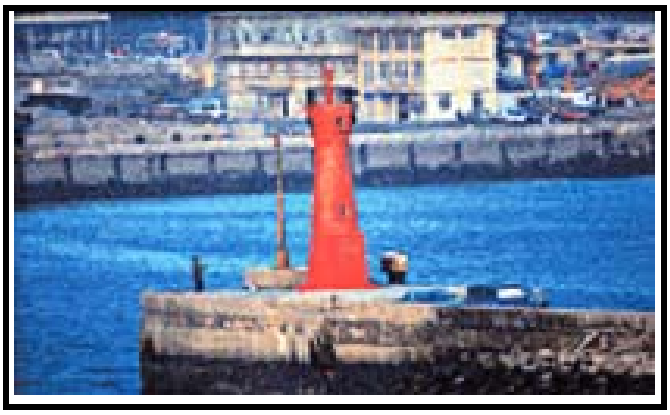
Tai-Chung

Tai-Chung Light

Pilotage.—Pilotage is compulsory for foreign vessels over 500 gt and Taiwanese vessels over than 1,000 gt and is available 24 hours. The pilot boards in position 24°17'28"N, 120°29'20"E.

The pilots can be contacted, as follows:

1. VHF: VHF channel 12
2. Telephone: 886-4-265-77251



Tai-Chung Inner Breakwater South Light

3. Facsimile: 886-4-265-66344

Regulations.—The ETA should be sent to the vessel's agent 24 hours and 12 hours in advance.

The ETA must also be sent via VHF when 20 miles from the port or 2 hours prior to arrival at the pilot boarding position and should include the following information:

1. Vessel name and call sign.
2. Position.
3. ETA at pilot boarding position.
4. Any problems or limitations being experienced.

When 5 miles from the S breakwater a message must be sent via VHF to confirm pilotage arrangements and should include the following information:

1. Vessel name.
2. Bearing and distance from the S breakwater.
3. ETA at pilot boarding position.

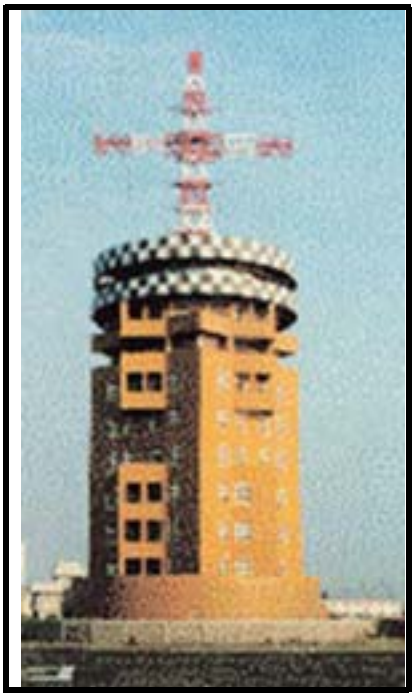
Contact Information.—Tai-Chung Port Control can be contacted, as follows:

1. Call sign: T'ai-chung Port Control
2. VHF: VHF channels 12, 14, and 16
3. Telephone: 886-4-265-62611
4. Facsimile: 886-4-265-65702
5. E-mail: tchb@mail.tchb.gov.tw

Taichung—Berth Information					
Berth	**Length**	**Depth**	**LOA**	**Draft**	**Remarks**
North Terminal					
No. 1	250m	13.0m	225m	12.5m	Grain.
No. 2	250m	13.0m	200m	12.5m	General and bulk cargo.
No. 3	250m	13.0m	225m	12.5m	Grain.
No. 4A	180m	9.0m	160m	8.5m	Cement.
North Pier					
No-5	200m	11.0m	180m	10.5m	General cargo.
No-5A	220m	11.0m	200m	10.5m	General cargo.
No-6	200m	11.0m	180m	10.5m	General cargo.
No-7	125m	11.0m	180m	10.5m	General cargo.
No-8	200m	11.0m	180m	10.5m	General cargo.
No-8A	260m	11.0m	230m	10.5m	General cargo.
China Container Terminal Taichung					
No. 9	245m	14.5m	—	—	Breakbulk.
No. 10	200m	12.0m	—	—	Cement.
No. 11	200m	12.0-14.0m	—	—	General cargo and bulk cargo.
Central Terminal					
No. 12	300m	14.0m	—	—	Bulk cargo.
No. 13	250m	14.0m	—	—	Oil and general cargo.
No. 14	480m	14.0m	—	—	General cargo.
No. 15	150m	9.0m	—	—	Breakbulk.
No. 19A	250m	7.0m	—	—	Under construction.
South Terminal					
No. 20	180m	9.0m	160m	8.5m	Passenger and general cargo.

Taichung—Berth Information					
Berth	**Length**	**Depth**	**LOA**	**Draft**	**Remarks**
No. 21	180m	11.0m	160m	10.5m	General cargo.
No. 22	180m	11.0m	160m	10.5m	General cargo.
No. 23	180m	10.0m	160m	9.5m	General cargo.
No. 24	180m	10.0m	160m	9.5m	General cargo.
No. 25	200m	11.0m	180m	10.5m	General cargo.
No. 26	200m	11.0m	180m	10.5m	General cargo.
No. 27	200m	11.0m	180m	10.5m	General cargo.
No. 28	145m	11.0m	—	10.5m	General cargo.
No. 29	250m	14.0m	225m	13.5m	General cargo.
No. 30	320m	14.0m	250m	13.5m	General cargo.
No. 43	250m	14.0m	225m	13.5m	General cargo.
No. 44	230m	12.0m	—	—	General cargo.
No. 45	230m	12.0m	—	—	General cargo.
China Container Terminal Taichung (Location 31)					
No. 31	320m	14.0m	300m	13.5m	Containers.
Evergreen Container Terminal Taichung					
No. 32	320m	14.0m	300m	13.5m	Containers.
No. 33	250m	14.0m	225m	13.5m	Containers.
Wan Hai Container Terminal Taichung					
No. 34	250m	14.0m	225m	13.5m	Containers.
No. 35	340m	14.0m	300m	13.5m	Containers.
Eastern of South Terminal					
No. 96	290m	16.0m	260m	14.5m	Bulk cargo.
No. 97	357m	16.0m	257m	14.5m	Bulk cargo.
No. 98	393m	16.0m	289m	14.5m	Bulk cargo.
No. 99	250m	12.0m	225m	11.4m	Scrap iron.
Western South Terminal					
No. 101	340m	18.0m	289m	14.5m	Coal.
No. 102	340m	18.0m	289m	14.5m	Coal.
No. 103	290m	14.5m	289m	14.0m	Coal.
No. 104	270m	14.0m	240m	13.5m	General cargo.
No. 105	330m	16.0m	—	14.5m	General cargo.
Tankers					
North Terminal					
No. 04	200m	11.0m	180m	10.5m	Chemicals and vegetable oils.
West Terminal					
W 01	250m	13.0m	225m	12.0m	Chemicals.
W 02	250m	14.0m	225m	13.0m	Chemicals.
W 03	250m	14.0m	225m	13.0m	DPP.

Taichung—Berth Information					
Berth	**Length**	**Depth**	**LOA**	**Draft**	**Remarks**
W 04	250m	14.0m	—	12.0m	DPP.
W 05	250m	14.0m	225m	13.0m	CPP.
W 06	250m	14.0m	225m	13.0m	Chemicals.
W 07	250m	14.0m	190m	13.0m	CPP.
W 08	250m	14.0m	250m	13.0m	LPG and chemicals.
W 09	250m	14.0m	250m	13.0m	Chemicals.
W 13	412m	13.0m	300m	12.0m	LNG.



Tai-Chung Signal Station

The harbormaster can be contacted, as follows:

1. Telephone: 886-4-265-63767
2. Facsimile: 886-4-265-2300
3. E-mail: hbrmaster@mail.tchb.gov.tw

Anchorage.—The general anchorage area is located between 1 and 4 miles SW of the S breakwater, in depths of 16-20m, sand; the limits can best be seen on the chart. Care must be taken during the winter monsoon because of dragging that often occurs during Force 7 and stronger NE winds.

Inbound vessels awaiting berthing can anchor in a special standby area centered on position 24°17'N, 120°26'30"E as best seen on the chart.

Vessels that have not been granted pratique should anchor at the Quarantine Anchorage for inspection, located just inside the harbor entrance at the N turning basin, as directed by the pilot.

All vessels must report the time and position of anchoring to the Tai-Chung Port Control on VHF channel 14 or 16.

Vessels at anchor should maintain a listening watch on VHF channels 14 and 16 and be ready to move at all times.

Anchorage is prohibited in an area which extends NW from a position about 0.5 mile N of the harbor entrance.

Caution.—Caution must be exercised when approaching the breakwater, as unpredictable sets and strong winds make handling difficult. The pilot vessel may be unable to leave the shelter of the breakwaters in strong winds.

Caution must also be exercised around the harbor entrance due to frequent periods of dredging work taking place.

An Ocean Data Acquisition System (ODAS) buoy lies about 22 miles SW of Tai-chung and 13 miles NNE of Mai-liao Kung-yeh-kang in position 24°01'13"N, 120°14'00"E. This buoy is expected to drift within 85m of this position.

An observation tower, with red and white stripes and a triangular cone topmark, has been erected in position 24°00'3.4"N, 120°16'22.5"E, with a height above the water of 92.37m.

8.18 Mai-liao (23°47'N., 120°10'E.) (World Port Index No. 57953), a port established on reclaimed land, lies on the W coast of Taiwan at the mouth of the Hsin-hu-wei river.

Tides—Currents.—The tidal range in port is between 4 and 5m. Strong tidal currents are present in the harbor approaches.

Depths—Limitations.—The main harbor is formed by two breakwaters; the W breakwater extends about 2,500m SE from a spit of land extending from the mainland to the N while the S breakwater extends about 1,100m N from the South Port Area (presently under development). This leaves an opening of about 450m between the two breakwaters into the harbor area. Each breakwater is marked by a light at its seaward extremity. There is a turning basin within the harbor with least depths of 21m and radius 450m.

The entrance channel is dredged to a least depth of 22.5m. The port can handle VLCCs up to 260,000 dwt, with a maximum loa of 330m and a 19.7m draft at HW. Dry bulk vessels up to 150,000 dwt can also be accommodated at the port. An Emergency Escape Channel with minimum depth of 23.5m is located N of the main channel outside the harbor. Specialized docks are the berths presently being used. The NW docks are used mainly for bulk liquids while the E docks are for bulk solids or liquids. Public docks are presently being constructed in the S port area with plans for an additional 10 berths. See the table titled **Mai-liao—Berth Information** for berthing details.

Aspect.—Several chimneys exist in the port complex; many of them are lighted.

Pilotage.—Pilotage is compulsory and is available 24 hours. The pilot boards in position 23°45'35"N, 120°07'17"E for all

vessels except for VLCCs. The pilot will board VLCCs in position 23°43'42"N, 120°02'12"E. Pilots can be contacted via VHF channel 13.

Regulations.—The vessel's ETA should be sent to the ship's agent 24 hours prior to arrival, then confirmed to Mai-liao Radio 2 hours before arrival at the pilot boarding position or when approaching within 20 miles from the breakwater. The initial ETA message should include the following information:

1. Vessel name.
2. Vessel nationality.
3. Draft.
4. Cargo description.
5. Number of passengers.
6. Identify of any Chinese passengers on board.
7. Identify size of vessel manifold.

Vessels should maintain a continuous listening watch on VHF channel 13.

Entry and departure from the port along with berthing is allowed only during daylight hours.

There is a Vessel Traffic Management System (VTMS) in use at Mai-liao.

Anchorage.—Anchorage is available in either of the following two designated areas.

1. Quarantine No. 1—Centered on position 23°46'36"N, 120°06'36"E, with depths 18.5 to 27m.
2. Quarantine No. 2—Centered on position 23°44'48"N, 120°08'06"E, with depths 12.2 to 18.4m.

Mai-liao—Berth Information

Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
East Wharf							
E1	230m	14.2m	—	12.9m	—	30,000 dwt	Container and multipurpose.
E2	320m	17.2m	—	15.6m	—	100,000 dwt	Coal and steel products.
E3	375m	19.2m	—	17.5m	—	180,000 dwt	Coal.
E4	375m	19.2m	—	17.5m	—	180,000 dwt	Coal.
E5	375m	19.2m	—	—	—	180,000 dwt	Containers, chemicals, and oil.
E6	200m	17.2m	—	—	—	45,000 dwt	Containers, chemicals, and oil.
South Wharf							
Will consist of ten public docks with designated use to be decided in the future.							
Tanker Berths							
E10-North	259m	12.6m	190m	12.0m	30.0m	30,000 dwt	Chemicals, LPG, clean products, dirty products, and aviation fuel.
E10-South	259m	11.4m	190m	10.9m	30.0m	30,000 dwt	LPG, clean products, and dirty products.
E7	440m	19.0m	300m	15.6m	50.0m	100,000 dwt	Chemicals and crude products.
E8	320m	17.5m	240m	15.5m	50.0m	100,000 dwt	Chemicals, LPG, clean products, dirty products, and aviation fuel.
E9 (N1)	259m	13.7m	190m	10.5m	30.0m	30,000 dwt	Chemicals, clean products, dirty products, and aviation fuel.
E9 (N3)	259m	15.5m	240m	15.5m	30.0m	30,000 dwt	Chemicals, clean products, dirty products, and chemical gases.
E9 (S4)	259m	12.5m	190m	10.5m	35.0m	30,000 dwt	Chemicals and crude products
N1	280m	14.2m	220m	12.9m	50.0m	40,000 dwt	Chemicals, clean products, and dirty products.
N2	40m	14.2m	220m	12.9m	50.0m	40,000 dwt	Chemicals, clean products, dirty products, LPG, and chemical gases.
N5	115m	7.7m	85m	7.0m	30.0m	5,000 dwt	Chemicals, clean products, dirty products, LPG, and chemical gases.

Mai-liao—Berth Information							
Berth	Length	Depth	Maximum Vessel				Remarks
			LOA	Draft	Beam	Size	
N6	130m	7.7m	100m	7.0m	30.0m	5,000 dwt	Chemical gases, clean products, dirty products, and LPG.
N7	115m	7.7m	85m	7.0m	30.0m	5,000 dwt	Chemicals and LPG.
W1	270m	14.7m	210m	13.4m	50.0m	50,000 dwt	Clean products, dirty products, and aviation fuel.
W2	410m	21.2m	340m	20.3m	60.0m	300,000 dwt	Clean products, LPG, crude oil, and aviation fuel.
W3	410m	22.0m	340m	20.3m	60.0m	300,000 dwt	LPG, clean products, dirty products, and crude oil.

Both of these areas have a bottom of sand, making the holding poor in strong winds.

Caution.—It has been reported that many fishing boats and nets are in the area around the anchorages and near the approach channel.

Wai-sheng Chiao to Kao-Hsiung Kang

8.19 Wai-sheng Chiao (23°42'N., 120°10'E.), about 40 miles SW of Tai-chung, is a mud point. The coast for 7 miles S of Wai-sheng Chiao consists of sand hills. A light is situated on the end of a drying spit 5 miles SW of Wai-sheng Chiao. A shoal, with a depth of 1.8m, exists 1.8 miles WSW of the light.

Tung Shih Kang, about 15 miles SSW of Wai-sheng Chiao, is a small town frequented by junks. A light is situated 7 miles W of the town. Ts'eng-wen Hsi enters the sea about 25 miles SSW of Tung Shih Kang; the mouth of the river lies between sand dunes. A light is situated off a cay 3.5 miles NNW of the mouth of the river.

Caution.—The NCKU Research and Development Foundation has placed a yellow observation lighted buoy in vicinity of Kuo-sheng Kang in position 23°04'28"N, 119°57'42"E. This buoy is also equipped with radar reflectors. Mariners are advised to navigate with carefully in this area.

An-p'ing Kang (23°00'N., 120°09'E.), about 7.5 miles SSE of the entrance to Ts'eng-wen Hsi, is the roadstead off the entrance to a small boat canal that leads first to the community of An-p'ing and then inland about 2.5 miles to T'ai-nan, the third highest populated city on the island. The roadstead is sheltered from the prevailing winds of the Northwest Monsoon season, but exposed to SW winds which predominate from March to December. Black chimneys in Anp'ing, radio towers in T'ai-nan, and a large white house about 5 miles SE of An-p'ing are conspicuous landmarks in distinguishing the roadstead from surrounding low land, salt pans, and lagoons.

Vessels anchor, in 9.1m, mud and sand, in a position about 1.3 miles W of the entrance to the canal. Cargo is transferred by lighter. Lights are situated from the heads of the breakwaters protecting the entrance to the canal. Tidal currents in the anchorage are weak, setting S on the flood tide and N on the ebb tide.

Caution.—Several submarine cables exist near the entrance to An-p'ing Kang.

8.20 An-p'ing New Harbor (22°58'N., 120°09'E.), the entrance to the inner harbor, situated 1 mile SE of the old entrance and has a depth of 7.5m for vessels up to 6,000 dwt. It is entered between the N and S breakwaters where lights are shown from the heads.

There is a deep water wharf, 480m long and a shallow water wharf, 320m long. Three lighted beacons are situated from the S wharf, and also from the N wharf.

Fish havens lie in 20 to 25m, 3 miles and 4 miles SW, respectively, of An-p'ing New Harbor.

The coast from An-p'ing to Tso-ying, 19 miles SSE, consists of a straight sandy beach, along which some small shallow rivers discharge. Close within, some beach areas, the marshes and lagoons are separated from the sea by narrow sand bars, covered with shrubs and grass in places. These sand bars, populated by fishermen with rows of rafts hauled on the beach, forms a characteristic feature of the coast.

Between An-p'ing New Harbor and Kao-Hsiung, there are numerous fish havens which are best shown on the chart.

A tanker mooring buoy lies 3.3 miles WNW of the entrance to Tso-ying Kang, and a pipeline is laid ENE from the buoy to the shore. Three conical lighted buoys are situated close to the mooring buoy.

Anchoring in the vicinity of the pipeline is reported prohibited.

8.21 Yun-An LNG Terminal (22°48.8'N., 120°10.6'E.) is situated on a reclaimed land 7.8 miles NNW of Tso-ying Kang. A breakwater extending 0.4 mile WSW then 0.8 mile NNW from the shore provides protection to the unloading platform lying between it and the terminal.

A light is shown from the terminal tug berth. A light is shown from the breakwater head. A light is shown from the unloading platform control room. Dolphins stand 220m N and 280m S; each shows a light.

A lighted buoy is moored 1 mile NNW of the breakwater head. Fish havens lie in 20 to 35m depths, within a radius of 500m, 2.6 miles SSW and 4.5 miles NNW of the breakwater head. A wave recorder lies 0.5 mile SW of the breakwater head to which it is connected by submarine cable.

Three dangerous wrecks lie 3.7 miles S of the breakwater head.

8.22 **Tso-ying Kang** (22°42'N., 120°15'E.), a small naval harbor entered about 4 miles N of Kao-hsiung Kang, is entered between two breakwaters.

A net gate is between the breakwaters. A light is situated from the head of each breakwater. Another light is situated from the head of the net gate. Range lights lead into the harbor on a bearing of 103°.

The entrance channel, with a minimum depth of 7.9m, accommodates vessels 154m long and drawing 7.3m. A signal station stands on the S entrance point of the harbor. Pilotage is compulsory.

Tidal range is about 0.8m. Tidal currents set N on a rising tide and S on a falling tide at a rate of less than one knot.

Vessels anchor, in 9.1 to 14.6m, sand, in an area between 0.5 and 1.3 miles W of the harbor entrance. They board pilots from a tug on station in the anchorage area. This anchorage is not recommended except in offshore winds.

Kao-Hsiung Kang (Kaohsiung) (22°37'N., 120°15'E.)

World Port Index No. 57920

8.23 Kao-Hsiung Kang, the harbor for Kao-hsiung, is one of the largest seaports in Taiwan, with 67 deep water wharves and 27 mooring buoys with the capacity to accommodate 102 ships at the same time.

Kao-Hsiung, lying adjacent to the confluence of a small river and the N side of the inner harbor, is the largest industrial center of the island and the second highest populated city.

Port of Kao-Hsiung
http://www.khb.gov.tw

Winds—Weather

Winds from W to NW predominate between October and March, while winds from S to SW predominate the remainder of the year. Typhoons occur without much warning from June to October and can create waves in the harbor entrance reaching a height of 8.9m. The outer harbor may become untenable during storms and periods of the Southwest Monsoon seasons. The inner harbor is safe in all weathers.

Fog occurs most frequently from November to April. The rainy season occurs during the summer when on the average, rain falls 18 days a month. Heaviest rainfalls occur in August.

Tides—Currents

The tides have a large diurnal inequality and often, though a marked seiche exists, only one tide a day occurs. Tidal rise averages usually less than about 1m.

Off the coast, tidal currents set S on a rising tide and N on a falling tide. At the entrance to the outer harbor, they set SE toward the S breakwater on a rising tide and NW on a falling tide. At the entrance to the inner harbor, they set in the axis of the channel. Current velocity generally ranges between 1 and 1.5 knots, but under certain conditions, it reaches 3 knots.

Depths—Limitations

The harbor is divided into two entrances, as follows:

1. **First Entrance** (22°37'N., 120°15'E.) lies between the heads of two breakwaters. The N breakwater extends 500m SW from shore while the S breakwater extends 800m NW from shore, leaving an opening about 300m wide for access to the main channel and the Branch Channel. The fairway, which is dredged to 11.3m from the breakwaters to the Qianzhen River estuary, narrows to a width of 122m about 0.5 mile within the breakwaters. Vessels are advised to navigate as closely as possible to the centerline of the traffic separation lanes due to the effects of typhoons, tide, and swell in this entrance.
2. **Second Entrance** (22°33'N., 120°18'E.), situated about 5 miles SE of First Entrance, lies between the heads of two breakwaters. The N breakwater extends 950m SW from shore while the S breakwater, about 1,750m in length, starts out extending W from the shore, curving gradually more to the NW, leaving an opening about 400m wide for access to the main channel. A jetty extends 500m WNW from shore at the base of the S breakwater. A channel, dredged to 15.5m, extends from the breakwaters to the turning circle inside the main channel. The turning circle has a radius of 250m. Extensive land reclamation and works in progress are taking place offshore S of the Second Entrance, as well as inside the S breakwater around the jetty until the harbor entrance.

Kao-Hsiung—Berth Information				
Berth	**Length**	**Depth**	**Width**	**Remarks**
Inner Harbor (entered through either the N Entrance or the S Entrance)				
Xin Bin No. 1	139m	9.0m	12.6m	Dedicated use.
Xin Bin No. 2	139m	9.0m	12.6m	Dedicated use.
Peng Lai Commercial Harbor				
No. 1	250m	9.0m	9.7m	Passengers.
No. 2	137m	9.0m	9.7m	Passengers.
No. 3	150m	9.0m	10.7m	Passengers.

Kao-Hsiung—Berth Information				
Berth	**Length**	**Depth**	**Width**	**Remarks**
Nos. 4-6	150m	9.0m	10.7m	General cargo. Length, depth, and width limitations apply to each berth.
No. 7	150m	9.0m	11.0m	General cargo.
Nos. 8-9	150m	10.5m	9.0m	General cargo. Length, depth, and width limitations apply to each berth.
No. 10	150m	10.5m	11.7m	General cargo.
Yi Zhuang	123m	6.5m	30.0m	Ship repairs.
Yencheng Commercial Wharf				
Qian Shui 1	177m	4.5-9.0m	23.8m	General Coast Patrol Agency.
Qian Shui 2	375m	6.5m	23.8m	General cargo.
Qian Shui 3	378m	4.5m	23.8m	Passengers and tour boats.
Nos. 11-12	161m	9.0m	3.6-4.0m	General cargo. Length, depth, and width limitations apply to each berth.
Deng 1	95m	5.0m	25.0m	Government work boats.
Deng 2	90m	5.0m	25.0m	Government work boats.
Ling Ya Commercial Wharf				
No. 13	156m	9.0m	10.5m	Special use.
Nos. 14-15	150m	9.0m	10.5m	General cargo. Length, depth, and width limitations apply to each berth.
No. 16	180m	9.0m	10.5m	General cargo.
No. 17	151m	10.5m	25.0m	General cargo.
No. 18	150m	10.5m	25.0m	General cargo.
Nos. 19-20	151m	10.5m	25.0m	General cargo. Length, depth, and width limitations apply to each berth.
No. 21	125m	5.0-10.5m	25.0m	General cargo.
No. 22	120m	10.5m	14.0m	Various.
No. 25	250m	10.5m	23.5m	Fertilizer and chemicals. Maximum vessel size of 30,000 dwt.
Chungtag Commercial Harbor				
No. 27	195m	10.0m	10.0m	Chemicals. Maximum vessel size of 30,000 dwt.
No. 28	210m	10.5m	8.5m	Liquid bulk cargo.
No. 29	220m	10.5m	18.0m	Plastics.
No. 30	298m	10.5m	48.0m	Chemicals. Maximum vessel size of 30,000 dwt.
No. 31	196m	10.5m	20.0m	General cargo.
No. 32	200m	10.5m	20.0m	General cargo.
No. 33	200m	10.5m	20.0m	General cargo.
No. 34	200m	10.5m	20.0m	General cargo.
No. 35	215m	10.5m	20.0m	General cargo.
No. 36	199m	10.5m	20.0m	General cargo.
No. 37	199m	10.5m	20.0m	General cargo.
No. 38	198m	10.5m	20.0m	General cargo.

Kao-Hsiung—Berth Information				
Berth	**Length**	**Depth**	**Width**	**Remarks**
No. 39	199m	10.5m	20.0m	General cargo.
No. 40	214m	10.5m	30.0m	Containers.
No. 41	205m	10.5m	30.0m	Containers.
No. 42	230m	10.5m	30.0m	Containers.
No. 43	190m	10.5m	20.0m	Containers.
No. 44	199m	10.5m	20.0m	Cement.
No. 45	200m	10.5m	20.0m	Cement.
No. 46	200m	11.5m	20.0m	General cargo and sugar.
No. 47	200m	11.5m	20.0m	Grains.
Nos. 48-53	260m	10.5m	15.0m	Bulk cargo. Length, depth, and width limitations apply to each berth.
Nos. 54-56	200m	10.5m	18.0m	Bulk cargo. Length, depth, and width limitations apply to each berth.
No. 57	184m	10.5m	18.0m	Chemicals. Maximum size of 30,000 dwt
No. 58	306m	10.5m	18.0m	Chemicals. Maximum loa of 210m. Maximum size of 30,000 dwt
No. 59	270m	6.5m	20.0m	Various.
Chien-Chen Commercial Harbor				
No. 60	151m	6.5m	25.0m	Chemicals, LPG, and crude oil. Maximum loa of 120m. Maximum size 30,000 dwt
Nos. 61-62	230m	10.5m	20.0m	Chemicals, LPG, and petroleum products. Length, depth, and width limitations apply to each berth. Maximum size of 30,000 dwt.
No. 63	275m	14.0m	30.0m	Containers.
No. 64	250m	14.0m	30.0m	Containers.
No. 65	250m	14.5m	30.0m	Containers.
No. 66	440m	14.5m	30.0m	Containers. Includes extension which used to be old Berth No. 67.
Hsiao-Kong Commercial Harbor				
No. 68	320m	14.0m	30.0m	Containers.
Nos. 69-70	320m	14.0m	50.0m	Containers. Length, depth, and width limitations apply to each berth.
No. 71	330m	14.0m	19.0m	Grain.
No. 72	300m	14.0m	19.0m	Grain.
No. 73	320m	14.0m	24.15m	Bulk cargo.
Ta-Lin Commercial Harbor				
No. 74	314m	13.0m	22.0m	General cargo.
Nos. 75-76	320m	14.0m	33.0m	Containers. Length, depth, and width limitations apply to each berth.
No. 77	355m	15.0m	39.0m	Containers.
No. 78	320m	15.0m	38.1m	Containers.
No. 79	355m	15.0m	38.46m	Containers.

Kao-Hsiung—Berth Information				
Berth	**Length**	**Depth**	**Width**	**Remarks**
No. 80	340m	14.0m	32.0m	Containers.
No. 81	120m	14.0m	32.0m	Containers.
Nos. 85-86	225m	9.0m	20.0m	Various. Length, depth, and width limitations apply to each berth.
No. 87	300m	10.5m	20.0m	Various.
Nos. 88-89	224m	10.5m	20.0m	Various. Length, depth, and width limitations apply to each berth.
No. 90	250m	10.5m	18.5m	Drydock.
No. 91	101m	4.0-10.5m	18.5m	Drydock.
Nos. 94-96	170m	10.5m	30.0m	General cargo. Length, depth, and width limitations apply to each berth. Maximum draft of 10.3m
No. 97	380m	16.5m	28.0m	Bulk cargo and coal.
No. 98	360m	16.5m	28.0m	Bulk cargo and coal.
No. 99	150m	7.5-12.0m	28.0m	Bulk cargo.
No. 101	384m	16.5m	20.0m	Bulk cargo and coal.
No. 102	177m	11.8m	42.0m	Bulk cargo. Maximum size of 30,000 dwt.
No. 103	273m	11.8m	16.0m	Oil tankers.
No. 104	252m	16.0m	20.0m	Oil tankers.
No. 105	300m	16.0m	20.0m	Oil tankers.
No. 107	365m	16.5m	—	Bulk cargo.
Nos. 108-109	375m	17.6m	16.5m	Containers. Length, depth, and width limitations apply to each berth.
No. 111	264m	16.5m	35.0m	Public use.
No. 112	246m	8.5m	23.0m	Public use.
No. 141	240m	5.0m	12.0m	Various.
No. 142	167m	11.0m	12.0m	Various.
Nos. 143-145	118m	7.0m	12.0m	Various. Length, depth, and width limitations apply to each berth.
Chung-Hsing Commercial Harbor				
No. 115	277m	14.0m	30.0m	Containers.
Nos. 116-121	320m	14.0m	30.0m	Containers. Length, depth, and width limitations apply to each berth.
No. 122	336m	14.0m	30.0m	Containers.
Outer Harbor (new development S of the S entrance)				
S01-S05	470m	18.0m	—	Containers and reefer.
Magong Harbor				
No. 1	127m	6.0m	—	Passengers.
No. 2	140m	5.8m	—	Passengers.
No. 3	137m	5.0-8.0m	—	Bulk cargo.
No. 4	128m	3.5-8.0m	—	Bulk cargo.
No. 5	60m	3.5m	—	Bulk cargo.

Kao-Hsiung—Berth Information				
Berth	**Length**	**Depth**	**Width**	**Remarks**
No. 6	103m	7.5m	—	Bulk cargo.
No. 7	56m	7.5m	—	Bulk cargo.
No. 8	140m	7.5m	—	Bulk cargo.
No. 9	65m	2.5-3.5m	—	Bulk cargo.
Budai Harbor				
Nos. E1-E3	—	7.5m	—	Containers. Length, depth, and width limitations apply to each berth. Continuous berth length of 420m.
No. N1	—	7.5m	—	Containers. Length, depth, and width limitations apply to each berth. Continuous berth length of 420m.
No. N2	—	7.5m	—	Containers. Continuous berth length of 420m.
Offshore Tanker Berths				
Yung An LNG Terminal				
East Berth (A)	416m	13m	50.0m	Tankers. Maximum size of 110,000 dwt. Maximum draft of 11m.
West Berth (B)	416m	—	—	—
North Berth (C)	370m	13m	50.0m	Tankers. Maximum size of 110,000 dwt. Maximum draft of 11m.
Ta-Lin-Pu Offshore Oil Terminal				
SBM No. 1	—	21m	—	Crude oil tankers. Maximum size of 100,000 dwt. Maximum draft of 17m.
SBM No. 2	—	30m	—	Crude oil tankers. Maximum size of 300,000 dwt. Maximum draft of 24m.
SBM No. 3	—	38m	—	Crude oil tankers. Maximum size of 300,000 dwt.
SBM No. 4	—	28m	—	Crude oil tankers. Maximum size of 100,000 dwt. Maximum draft of 22m.

For details of berthing available alongside for both the Inner Harbor and the new Outer Harbor facilities and the offshore tanker berths, see the table titled **Kaohsiung—Berth Information**. The alongside berths are listed from N to S, then returning N along the SW side of the main channel.

Significant development is planned, particularly to S of Second Entrance South Breakwater, with the construction of Third Harbor. Ongoing development of First Harbor and Second Harbor will continue in phases. Construction of an outer breakwater, centered on position 22°33'8"N. 120°16'25"E and extending into the outbound lane of Kao-hsiung Kang Second (South) Entrance TSS, is in progress (2017). Mariners are advised to navigate with caution in this area.

Aspect

Wan-shou Shan (Shou Shan) (22°39'N., 120°15'E.), about 1 mile N of the First Entrance, is 358m high and is the best landmark in the area. It is composed of coral with a crater-like summit. On N bearings it appears like a truncated cone; there is a large white patch on its seaward side. In clear weather it can be seen from a distance of 35 miles, when it appears like an island. The peak is reported to be radar conspicuous at a distance of 21 miles.

Ch'i-hou Shan (22°37'N., 120°15'E.) is a flat-topped cliffy ridge on the S side of the narrowest part of the First Entrance.

A light is shown at an elevation of 58m from a white octagonal brick tower on the N and highest part of this ridge; a radio tower and a white round tower stand nearby. A tall lattice tower stands near the lighthouse; a similar tower stands on the N side of the entrance. Lights are shown from the breakwaters at First Entrance. Range lights lead through the Second Entrance.

Pilotage

Pilotage is compulsory and is available 24 hours. The pilots board in the following positions:

1. No. 1 Pilot Station (First Entrance)—Position 22°37'22"N, 120°13'17"E.
2. No. 2 Pilot Station (Second Entrance)—Position 22°32'22"N, 120°15'53"E.
3. Intercontinental Terminal — Position 22°32'11"N, 120°15'05"E.

Vessels should contact Kaohsiung Port Radio 1 hour before arriving in the roads. Vessels should then contact the pilots on VHF channel 13 and maintain a continuous listening watch until

the pilot boards.

The port and port authority can be contacted, as follows:

Contact Information

1. Call sign: Kao-hsiung Port Radio
2. VHF: VHF channels 14 and 16
3. Telephone: 886-7-561-2311
4. Facsimile: 886-7-561-1694
5. E-mail: admin@mail.khb.gov.tw

Regulations

Upon completion of making arrangements for berthing and off-loading, the pilot, customs and immigration authorities, and the ship's agent will board. The quarantine flag should be flown until clearance is granted, at which time the pilot will notify the signal tower (by walkie-talkie) of that fact and request permission to enter port. The ship should again hoist the international call sign. Permission to enter is granted by radio and also visually by the signal tower.

Vessels must keep an underkeel clearance of not less than 0.5m.

Vessels are prohibited from overtaking another vessel in the two-way traffic lane. In other traffic lanes, overtaking may be done only with the concurrence of the overtaken vessel.

Vessels carrying dangerous cargo must be in possession of effective documents for examination (IMO, SOLAS) to enter and sail from the port at night except in circumstances where there is fog and hazardous weather and then, under no conditions will a vessel carrying dangerous cargo enter or sail from Kao-hsiung.

Photo courtesy of Sophia McHarney

Ch'i-Hou Shan

Container vessels may enter port at any time while all others except those carrying dangerous cargo may enter only up until midnight. Vessels carrying dangerous cargo may enter port only during daylight hours.

When visibility is less than1 mile, bulk carriers of 70,000 gt or more are not permitted to enter or leave the port. When visibility is less than 500m, all vessels are prohibited from entering or leaving the harbor, with the exception of public service vessels and vessels having special permission.

Vessel Traffic Service

Kao-Hsiung Kang Vessel Traffic Center (VTC) is the executive administrator of Kaohsiung Port Control, which operates within an area within 20 miles of the port centered on position 22°35'N, 120°17'E. Mandarin Chinese and English are the two languages spoken.

The traffic area consists of the First Entrance (North Sector) and the Second Entrance (South Sector). the dividing line between to two entrances is the Chung-Chow sewage sea pipeline (to seaward) and the Ch'ien-Chen River (inside the port).

Reports to the VTS are compulsory for the following:

1. Power-driven vessels 500 gt or greater.
2. Power-driven vessels 50m in length or greater.
3. All passenger vessels fitted with VHF.
4. Vessels with tows combining for 500 gt and over or 50m in length or greater.
5. Any vessel, equipped with VHF, less than 50m in length or 500 gt navigating the fairway and having an emergency.

The following information should be forwarded at least 24 hours in advance to the VTS:

1. Name of vessel, call sign or IMO identification number, and vessel type.
2. Vessel time and position when passing reporting points.
3. Vessel course and speed.
4. Vessel destination.
5. Description of any dangerous cargo being carried.

The VTS can be contacted, as follows:

1. Call sign: Kao-hsiung Port Control
2. VHF: VHF channel 12—North Sector
   VHF channel 14—South Sector
   VHF channel 11—remainder of VTS area

The reporting points for Kao-Hsiung Port Control are, as follows:

1. Upon approach to within 20 miles of the port.
2. Upon approach to within 12 miles of the port.
3. Upon crossing the N termination of the separation zone (22°35'36"N., 120°09'52"E.).
4. Upon crossing the S termination of the separation zone (22°34'24"N., 120°12'37"E.).
5. At No. 1 Pilot Station.
6. At No. 2 Pilot Station.
7. Before or after a vessel drops or raises anchor.
8. Upon passing the mouth of the Ch'ien Chen river.
9. Upon an approach or departure from a wharf, including pontoons.
10. Prior to entering the First Entrance two-way traffic lane, or when departing and dropping off the outbound pilot.
11. Prior to entering the Second Entrance two-way traffic lane, or when departing and dropping off the outbound pilot.
12. In cases of emergency.

Subsequent reports to the VTC should include the vessel's name and time when passing the reporting points.

Vessels must report any involvement in a traffic accident, pollution incident, or emergency event occurring in the Port of

Kaohsiung VTS. Vessels must immediately report any obstructions encountered, including sand bars, reefs, or flotsam that may endanger safety of navigation in the Kaohsiung VTS area. Deviation from the guidelines and instructions of the VTS, when made to prevent risk to life, property or pollution, must be immediately reported.

Signals

Signal stations are situated on the N shore of the narrows at the First Entrance (22°37'N., 120°16'E.) and on the N shore of the Second Entrance (22°33'N., 120°19'E.). A storm signal station is located 0.2 mile N of the narrows at the First Entrance.

Anchorage

Vessels in the VTS area must anchor in designated anchorage areas. See the table titled **Kao-Hsiung Designated Anchorages** for a detailed description of these anchorage areas.

Both the First Entrance and Second Entrance have separate quarantine anchorages. The limits of these anchorages are best shown on the chart.

The area between the First Entrance Quarantine Anchorage and the Second Entrance Quarantine Anchorages(22°35.3'N., 120°16.7'E.) is a prohibited area where a submerged pipeline extends 1 mile SW of the shore at Ta-shan-t'ou. Anchoring is prohibited within 200m on either side of the pipeline. Six lighted buoys are moored around the head of the pipeline.

Anchoring is also prohibited in the area 50m on either side of the center line of the Cross Harbor Tunnel between Berth No. 68 and Berth No. 117.

Directions

To obtain the deepest water, approach the First Entrance from a position about 1 mile WNW, steering to pass midway between the breakwater heads; then follow a mid-channel course through the entrance to the Inner Harbor.

The best time to enter is reported to be at the end of the flood current.

Signal stations stand at the First and Second Entrance points.

Caution

Unexploded ordnance lies NW of Kao-hsiung Kang First Entrance in position 22°40.2'N, 120°10.9'E.

Small fishing vessels often lie just seaward of the entrance to Kao-hsiung Kang. There is a dangerous wreck lying close NW of the breakwater.

A dangerous wreck lies 2.5 miles SW of the First Entrance S breakwater.

A dangerous wreck lies 0.8 mile SW of the light at the head of the S breakwater of Kao-Hsiung Kang Second Entrance.

A fishing vessel has sunk in the middle of Anchorage Area No. 4 in position 22°31'26"N 120°16'39"E, depth unknown.

A S tidal current, augmented by a strong N wind, tends to set entering vessels onto shoals near the S breakwater. Several groundings have been attributed to this set.

A submarine net, supported by several buoys painted gray, extends between the N and S breakwater heads at the seaward entrance to the outer harbor. During periods when current velocity is strong, vessels will require careful attention and prudent seamanship to clear the net and buoys with safety.

There is a foul ground dangerous to navigation 3 miles WSW of the Second Entrance breakwater.

A dumping ground has been established 7 miles WSW of the Second Entrance breakwater. Limits can be best seen on the chart.

Dredging work is being performed at least until July 2018 in an area bounded by lines joining the following positions:

a. 22°31'09"N, 120°17'40"E.
b. 22°31'09"N, 120°19'30"E.
c. 22°32'37"N, 120°19'30"E.
d. 22°32'37"N, 120°17'40"E.

Taiwan—West Coast—Kao-hsiung Kang to O-luan Pi

8.24 The coast between Kao-hsiung Kang and O-luan Pi, about 55 miles SE, continues in general low-lying for a distance of about 27 miles then, as far as the S extremity of Taiwan, it becomes progressively more mountainous and bold.

The off-lying island Liu-ch'iu Hsu, an offshore oil terminal, and several exposed anchorages for small vessels are of principal interest to navigation along this stretch of coast.

Kao-Hsiung Designated Anchorages

Area	Center Position	Depth	Remarks
No. 1	22°38'22"N, 120°14'35"E	7m	Small and medium size tankers.
No. 2	22°37'02"N, 120°15'04"E	10-34m	Medium-sized general cargo vessels. (See Note 1)
No. 3	22°34'11"N, 120°15'28"E	10-34m	Bulk carriers and large container vessels.
No. 4	22°32'31"N, 120°17'34"E	11-50m	Large-sized tankers. (See Note 2)
Dangerous Cargo	22°34'32"N, 120°12'32"E	12-41m	Vessels loaded with dangerous or hazardous cargo.

Notes:

1. A dangerous wreck lies 200m E of the middle part of the E boundary of this anchorage area; an obstruction lies in the SW corner of this area.
2. Two dangerous submerged wrecks are located in position 22°31'54"N, 120°17'30"E and position 22°31'26'N, 120°16'39"E.

Ta-lin-pu Offshore Oil Terminal (22°30'N., 120°17'E.) consists of four SBM berths that lie between 2 and 4 miles off the SW coast of **Ta-lin-pu** (22°32'N., 120°20'E.). All SBMs are connected by submarine pipelines leading NE to the shore at Ta-lin-pu at marked shore landing points. See the table titled **Kao-Hsiung—Harbor Facilities** in paragraph 8.23 for details of these moorings.

Pilots board by arrangement in the vicinity of the SBMs. Vessels awaiting a pilot and arrival clearance, anchor 1.5 miles W of the terminal. If for some reason a vessel is unable to enter a berth directly, it anchors off Kao-hsiung Kang, in a position about 2 miles W of the light on Ch'i-hou Shan.

Anchoring is prohibited within 1.5 miles of the SBMs.

Caution.—A wreck, with a depth of 5m, lies about 0.8 mile NE of SBM Lighted Buoy No. 1.

Berthing may not be possible during periods of bad weather; moreover, when wind speeds reach 35 knots the berths must be vacated. Passage is prohibited within 1,200m of these moorings and within 100m of the pipelines.

8.25 Liu-ch'iu Yu (22°21'N., 120°22'E.), about 17 miles SSE of Kao-hsiung Kang, is a small partially reef-fringed island which, rising to low flat-topped summits in the NE and SW portions, has a sandy beach on the SE side and cliffs on the NW.

A small breakwater-sheltered fishing harbor lies on the NE side.

A light is situated on the hill at the SE end of the island. The island is reported radar conspicuous at 28 miles.

Vessels anchor, in 36.5m, sand, about 0.4 mile off the sandy beach on the SE side of the island. Anchorage is prohibited between the NE end of the island and the land about 7 miles NE.

A submarine cable and a pipeline are laid NW from Liu-ch'iu Yu to the mainland. The cable is laid midway along the SE side of the island and the pipeline at the NE extremity. The cable locations on both island and mainland are marked by beacons. Anchoring is prohibited in the vicinity of both cable and pipeline.

Tung-Kang Po-ti (22°27'N., 120°26'E.) is the roadstead off Tung-Kang, a small community lying on the S side of the confluence of Tung-chiang Ch'i and Hsia-tan-shui Ch'i, two shallow rivers which, accessible to small boats, reach the sea about 13 miles SE of Kao-hsiung Kang.

Vessels, seeking shelter from NE winds, anchor, in 17.3m with a dark clump of trees about 1.8 miles SSE of Tung-Kang, bearing 090°, distant about 1.5 miles.

Fang-liao Kang (22°22'N., 120°35'E.), an open roadstead off Fang-liao, a small community about 24 miles SE of Kao-hsiung Kang, is the best offshore shelter, even in winter, on the W coast of Taiwan.

Vessels anchor, in 12.8m about 1.5 miles NW of a conspicuous white bridge which crosses a stream about 1 mile SSE of Fang-liao.

An experimental fishing area, marked by four lighted buoys, lies within 1 mile of position 22°13.1'N., 120°38.2'E.

Fish havens, in depths of 60 to 80m, lie between 1 to 2 miles W of **Ch'e-ch'eng Chiao** (22°05'N., 120°42'E.).

A floating fish farm, with a radius of 800m, marked by two flashing white lights with radar reflectors, is located in position 22°07.7'N., 120°31.6'E.

8.26 Hai-k'ou Wan (22°06'N., 120°42'E.), a small reef-fringed bay with a breakwater-sheltered fishing harbor on the SE side, is located about 40 miles SE of Kao-hsiung Kang. Li-lung Shan, about 4 miles NNE, is a high, wooded, and cone-shaped summit which, during clear weather, is a conspicuous landmark in approaching the bay.

Small vessels anchor, in 8.2m, sand, in a position about 0.3 mile WNW of the entrance to the fishing harbor and with Chien Shan, a high, sugarloaf hill near the N entrance point of the bay, bearing 018°. The best approach to the anchorage is on a bearing of 112° and heading for the S breakwater head.

Ta-pan-lieh Mao-ti (21°57'N., 120°45'E.), a reef-fringed inlet at the head of Nan Wan, a broad bay extending about 7 miles WNW from O-luan Pi, is the safest anchorage on the S coast of Taiwan and is sheltered from all but S winds.

Vessels anchor, in 12.8 to 36.5m, sand, about 0.5 mile off Ta-pan-lieh, a small whaling community at the head of the inlet. There is an auxiliary port to Kao-hsiung Kang at **Tapeng** (21°57.5'N., 120°45.4'E.). It is reported that breakwaters exist and a berth with 5m depths is in use.

O-luan Pi (21°54'N., 120°51'E.), the S point of Taiwan, is described in paragraph 8.10.

Caution.—There are strong tidal races off Mao-pi T'ou, the W entrance point of Nan Wan.

8.27 Taiwan Strait (Formosa Strait) (24°00'N., 119°00'E.), the body of water between Taiwan and the mainland, may be defined as lying between the W coast of Taiwan and a stretch of the mainland coast between the entrance to the river **Min Jiang** (26°05'N., 119°32'E.), in the N, and the vicinity of **Lien-hua-feng Chiao** (22°56'N., 116°29'E.), in the S. It has a least width of 70 miles between Pai-sha Chia, the NW extremity of Taiwan, and **Hai-t'an Tao** (25°33'N., 119°48'E.), an island off the mainland coast. The principal underwater danger is **Taiwan Banks** (23°00'N., 118°35'E.), an extensive shoal area lying in the S reaches of the strait.

The least known depth is 8.2m, but turbulent surface agitation would seem to indicate that lesser depths may exist. Elsewhere, the strait is deep and clear, save for the islands of P'eng-hu Lieh-tao, reported dangers lying N of the islands, and the off-lying dangers fronting the mainland coast.

Regulations.—Taiwan/China Mainland Direct Cross-Strait Shipping Links.—Vessels engaged in trade between mainland China and Taiwan are required to transit designated channels and pass points. Vessels bound for ports in Taiwan should use the charted fairways. The fairways should be entered at the appropriate pass point. The limits of the links and pass points are best seen on the chart. For additional information on the Cross-Strait Shipping Links, vessels should consult with the Taiwanese authorities.

Caution.—New shoals are reported to emerge continually off the W coast of Taiwan, especially rising between 23°N and 24°20'N, and often with an onshore set. Mariners should give this portion of the coast a wide berth.

The charted depths in the vicinity of position 23°15'N, 117°45'E are derived solely from ships reports which indicate sand waves. In addition, unreported shoals may exist. The presence of sand waves was also reported in the vicinity of position 24°20'N, 119°30'E.

Numerous oil installations, exploratory rigs, and oil service

traffic exist in an area bounded by latitudes 24°47'N and 24°51'N and longitudes 120°36'E and 120°45'E.

Peng-Hu Ch'un-Tao (Pescadores Islands)

8.28 Peng-Hu Ch'un-Tao (Pescadores Islands) (23°23'N., 119°30'E.) is a scattering of islands divided into a N group and a S group by Wang-An Kang-Tao, a clear deep water channel with a least width of about 5 miles. The islands are flat, barren, and similar in appearance. The highest elevation is about 79m and, as they are all similar in appearance, it is very difficult to identify any of them in bad weather.

The N group of islands consists of three closely juxtaposed larger islands and several adjacent smaller islands. P'eng-hu Kang, with Ma-kung Kang, is the harbor formed by the larger islands. The S group consists of numerous scattered islets, reddish in color. Radar returns are unreliable.

P'eng-hu Kang-tao (Pescadores Channel) is the body of water lying between P'eng-hu Tao and the W coast of Taiwan. It has a least width of about 17 miles between Wai-san-ting Chou, off the Taiwan coast, and Ch'a-mu Yu, two small islets lying about 2 miles SE of the largest island in the N group of P'eng-hu Ch'un-tao. The fairway is deep in mid-channel.

Directions.—Vessels approaching from the W and S should proceed to a position about 2 miles S of Ch'ih-tzu Wei then steer ENE through the SW approach channel with the two lights N of Ma-Kung in range 063.75°, keeping clear if the submerged obstruction extending S from the S side of Hsi Yu and the shoal spit extending NW from T'ung-p'an Yu.

Vessels approaching from the E should clear Liu-ch'ih Shih and proceed to a position about 1 mile E of Hu-ching Yu, then steer WNW through the SE approach channel with the light on Ch'ih-tzu Wei on a heading of 308°, keeping S of the shoal patches in the middle of the channel. When Fou-wen, a drying rock lying W of the W extremity of P'eng-hu Tao, falls abaft the starboard beam vessels haul gradually to starboard and join the lighted range for the SW approach channel on a heading of 063°.

Caution.—Close attention should be paid to the several underwater dangers lying in the approaches to P'eng-hu Kang and to tidal currents which set athwart the axis of the SW approach channel and parallel to the axis of the SE approach channel at a velocity greater than 5 knots on the flood and 3 knots on the ebb.

Depths, sand banks, and cays within an area from 23°20'N to 23°45'N and up to 10 miles off the coast are subject to continual change. Vessels should navigate with caution.

The Penghu Southern Four Islets National Park, established by the government of Taiwan, covers the S group of islands in Peng-Hu Ch'un-Tao (Pescadores Islands) area. Vessels must navigate with extreme caution when sailing through this area as it is a environmentally sensitive area with prohibitions against any overboard discharge. See the web site (http://marine.cpami.gov.tw) for more details. This area is bounded by lines joining the following positions:

a. 23°19'28"N, 119°27'54"E.
b. 23°19'28"N, 119°43'04"E.
c. 23°12'05"N, 119°43'04"E.
d. 23°12'05"N, 119°27'51"E.

Hsiao-men Yu Light

8.29 P'eng-hu Tao (23°34'N., 119°37'E.) and Pai-sha Tao, on the E, and Hsi Yu, on the W, are the three main islands of the group. The two islands to the E are joined by extensive areas of drying flats which continue intermittently N for a distance of about 8 miles. Hsiao-men Yu lies close off the N end of Hsi Yu and is connected to it by a causeway.

Numerous above and below-water dangers lie scattered off the E side of the group. The farthest seaward dangers are Wai-ch'ien Shih, with a depth of 1.2m, and Liu-ch'ih Shih, with 0.9m, which lie 4 miles NE and 5 miles SE, respectively, of the SE extremity of P'eng-hu Tao. Liu-ch'ih Shih is marked by rips; Wai-ch'ien Shih is marked by strong whirlpools.

Small vessels, seeking shelter from NE winds, anchor, in 8.2 to 11m in either of two bays indenting the W side of Hsi Yu, the hilly reef-fringed W island of the group. Chi-lung Yu, located close off the SW extremity of P'eng-hu Tao, is marked by a light equipped with a racon at position 23°32'20"N, 119°31'29"E.

8.30 P'eng-hu Kang (23°36'N., 119°32'E.) (World Port Index No. 57950), the principal anchorage for P'eng-hu Ch'un-tao, lies sheltered from the prevailing winds of the Northwest Monsoon season. It is entered between the SE extremity of Yu-weng Tao and the dangers lying off Feng-kuei-wei Chiao, a point near the W extremity of P'eng-hu Tao. The S approaches are in deep water, but partially blocked by the islets. Hu-ching Yu and T'ung-p'an Yu and the shoal spit extending NW from the latter. Anchorage is prohibited in an area where submarine cables are laid. The area is best shown on the latest chart, and it

begins between pecked lines drawn across the harbor entrance. A SE approach channel, swept clear to a depth of 8.9m, lies between Hu-ching Yu and P'eng-hu Tao. The SW approach and principal channel lies between Hsi Yu and the spit NW of T'ung-p'an Yu.

8.31 Ma-kung (23°34'N., 119°33'E.) has a quay wall, 655m long, with depths of 3.7 to 5.5m alongside, which can handle cargo and passenger ships up to 5,000 dwt. There is a basin for fishing craft, with depths of 1.5 to 3.7m.

Ma-kung Kang, an inlet continuing P'eng-hu Kang to the SE from Feng-kuei-wei Chiao, lies sheltered from most all weather conditions. The community of P'eng-hu lies near the N entrance point of the inlet. Vessels anchor clear of charted dangers, in 9.2 to 25.6m, sand and mud, in a position about 2 miles NNW of the S entrance point of Makung Kang. Vessels usually moor to buoys in Makung Kang. Small vessels also berth along facilities at P'eng-hu and the S side of T'se-t'ien Tao.

T'se-t'ien Tao, an island close inside the entrance, is the site of a naval station and repair facilities for small vessels.

Traffic signals are displayed from the N entrance point of the inlet. Berthing signals are displayed from a mast standing in the SW part of T'se-t'ien Tao.

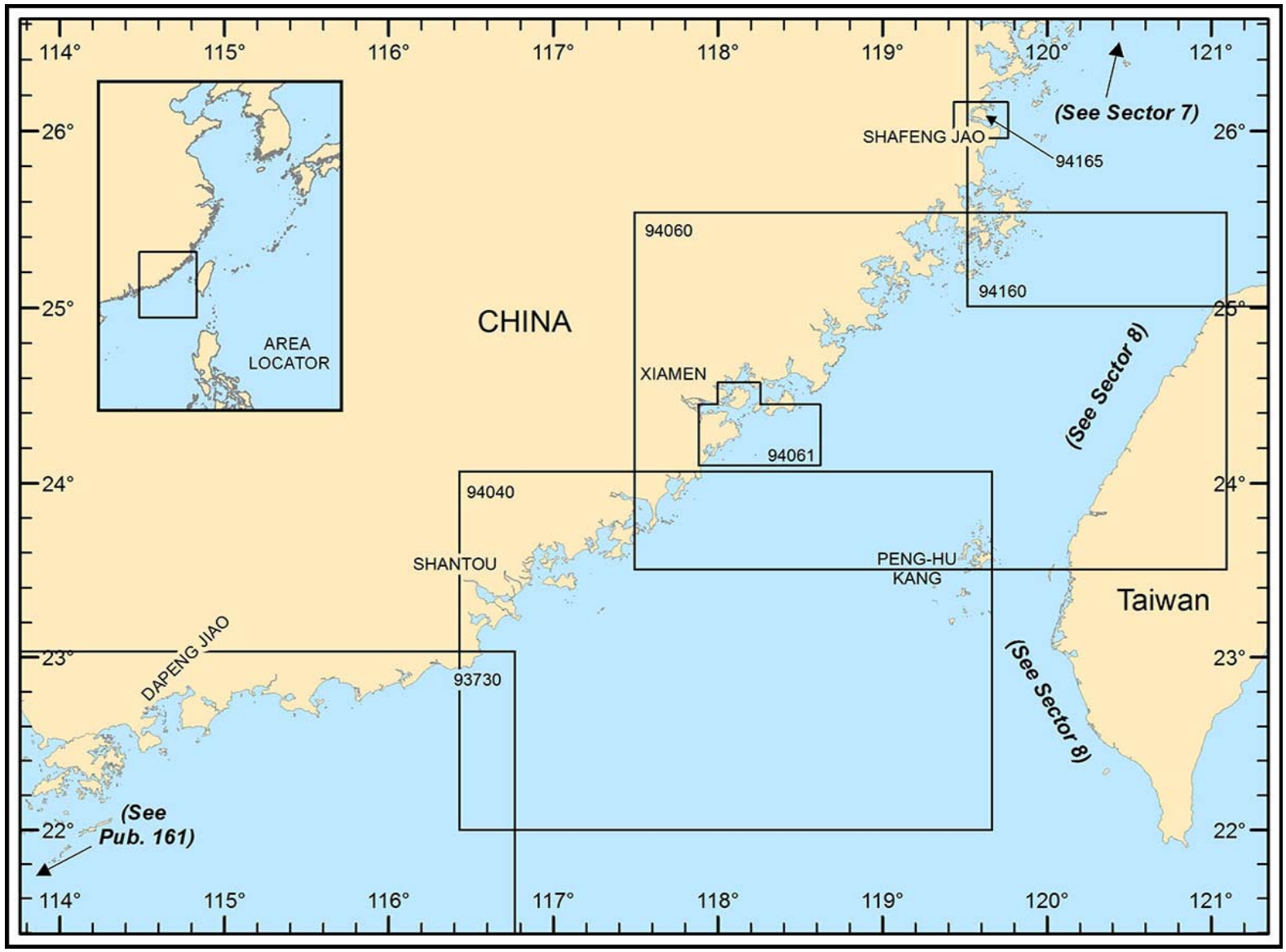
Vessels anchor clear of charted dangers, in 9.2 to 25.6m, sand and mud, in a position about 2.5 NNW of the S entrance point of Makung Kang. Vessels usually moor to buoys in Makung Kang.

Only small vessels berth along facilities at P'eng-hu and the S side of T'se-t'ien Tao.

P'eng-hu Ch'un-tao S Group consists of two main islands, Wang-an Tao and Ch'i-mei Yu, and numerous scattered islets and underwater dangers lying E and W.

Anchorage.—Vessels seeking a NE lee anchor, in 11 to 14.6m, sand and shell, in a position clear of dangers fronting a small cove in the N part of the W side of Wang-an Tao. Vessels seeking a SW lee anchor, in 16.4 to 18.2m, in a position about 0.3 mile S of an above-water rock lying on the outer part of a reef extending NE from the NE extremity of the same island.

Small vessels seeking shelter during the summer months have been reported to anchor off the N side of Ch'i-mei Yu.



Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **9** — CHART INFORMATION

SECTOR 9

CHINA—MIN JIANG TO DAPENG JIAO

Plan.—This sector describes the SE coast of China between Shafeng Jiao, the S entrance point of the river Min Jiang, and Dapeng Jiao (Mir Point), a point about 365 miles SW. The description is N to S.

General Remarks

9.1 Winds—Weather.—Winds are seasonal and blow largely NE and SW in consequence of the influence which create the characteristic monsoons of the SE coast of China. From September through May, winds from the NE predominate and commonly exceed a velocity of 22 knots. During October, November and December, wind velocity is likely to exceed 34 knots, with December having the greatest likelihood of strong winds. April has the greatest percentage of calms. In June, winds are transitional and blow with equal frequency from the SW and NE. In the months of July and August, winds blow from the SW predominate and seldom exceed a velocity of 21 knots. August has the greater percentage of calms. The transition from the summer, Southwest Monsoon season to the winter, Northeast Monsoon season is abrupt and may occur within a week's time.

Typhoons created well to the SE by forces other than those giving rise to monsoon winds, may occur at any time of the year. From October through April, they seldom if ever occur. In May and June, they increase in frequency until in July and August they occur at a rate better than twice a year. In September, they commence their decline in frequency and tend to concentrate on the S portions of the mainland coast.

Tides—Currents.—Ocean currents are seasonal in set and velocity. From September to March, the set is SW and parallels the coast. In April, the set becomes confused or counterclockwise. From May through August, the set is NE and parallels the coast. The SW current reaches a maximum velocity of 1.5 knots in January and February. In July the NE current reaches a maximum of 2 knots.

Tidal current characteristics occur in consequence of the interaction between tidal wave propagation emanating from a position near Shibeishan Jiao with tidal wave propagation progressing around either extremity of Taiwan and culminating in about 24°30'N. Thus, between Shibeishan Jiao and Hong Kong the flood sets W and ebbs E. While N of 24°30'N, the flood sets S and ebbs N. An onshore set accompanies a N current. Tidal rise is similarly largely a function of interaction between opposing tidal wave progression. Thus, tidal rise increases progressively from less than 1m at Shibeishan Jiao to about 6.1m at Shafeng Jiao.

The coastline of China between Shafeng Jiao and Dapeng Jiao is extremely irregular and much indented by numerous large bays, smaller coves, lesser inlets and extensive estuaries. It is immediately backed by a level to rolling coastal plain which, extending inland in places as far as 20 miles, rises gradually to a NE trending range of mountains that reaches the sea in the N and S portions of the coastline as bold, rocky headlands. Elsewhere, steep hill and mountain spurs enter the coastal plain and, continuing seaward in several isolated ridges, generally terminate only a short distance from the shore. Offshore, the approaches are predominantly clear and several large off-lying islands are, in general, found to lie within a line joining the principal salient points extending forth from the shore. The large island, Haitan Dao (25°30'N., 119°36'E.), in the N part of the coastline, is a notable exception. Several isolated off-lying islets lie well scattered throughout the area. Closer inshore, the sea floor is level and has the gradual slope, without the extensive coastal margins of drying mud flats, characteristic of the SE coast of China. Above and below-water dangers are widely scattered. The principal ports are Xiamen and Shantou.

Caution.—During each monsoon season, an inshore set of considerable strength has been experienced along the coast, especially in the vicinity of the entrance to Xiamen Gang (Hsiamen Chiang) and in the area around Nanpeng Liedao. Vessels have stranded at various times on the off-lying islands between Chin-men Tao and Fu-chi Chiao. Many lighthouses on these islands are of considerable elevation and often the upper parts are obscured by fog while the lower part is clear. When a light is not seen, although within range of visibility, soundings should be taken and the vessel hauled out to deeper water until the position is ascertained.

Several small islands lie W and NW of Haitan Dao and the mainland, with the largest of these being Dalian Dao, with an elevation of 238m on the SW side. Numerous rocks and submerged obstructions are found between these islands; local knowledge is needed for safe navigation through this area. One recent wreck is located NW of Xiaolian Dao in approximate position 25°41'28"N, 119°38'43"E, in depths of 6m; another is located NE of Ren Yu, with its superstructure showing, in approximate position 25°42'55"N, 119°38'09"E.

9.2 Song Xia (25°41'N., 119°35'E.) is a subport of Fuzhou and handles iron ore from Australia, coal, domestic grains, and wheat.

Depths—Limitations.—The two main terminal areas are Yuanhong Terminal (Song Xia Gang) and Niutou Wan (Song Xia Wharf Operation Area). The Yuanhong Terminal is located approximately 5.5 miles NNE of the main Niutou Terminal fronting the city of Song Xia.

The port area is approached from the ENE through a 14-mile long channel marked by lighted buoys, splitting in the vicinity of position 25°43'46"N, 119°40'31"E, with one portion leading NW to the Yuanhong Terminal and the other longer portion continuing through a series of course adjustments along a general SE heading to Song Xia Gang before turning W into the Niutou Wan port area. Mid-channel depths in the channel leading to Yuanhong Terminal are charted at 11.8m. The least charted depths border the N side of the buoyed entrance channel, with two patches with depths of 4.5m and 4.7m about 700m SE of Ren Yu Island (25°42'09"N., 119°37'27"E.).

An extensive new development with works in progress

(Songxia Wharf Operation Area) is located approximately 5 miles N of Songxia Gang. with a breakwater having been constructed to extend E from the shore near position 25°45'45"N, 119°37"44"E to position 25°45'45"N, 119°38'01"E. This breakwater is being extended (2015) to continue through position 25°45'45"N, 119°38'14"E then SE to Xilou Dao at position 25°45'25"N, 119°38'57"E. A new channel is being dredged from the main channel, in the vicinity of position 25°43'44"N, 119°40'36"E) to Songxia to extend NW towards the new wharf development.

Pilotage.—See Fuzhou (paragraph 7.36) for pilotage requirements. Pilots will board at the following locations:

1. No. 1—25°44'05"N, 119°42'26"E.
2. Quarantine Anchorage—25°44'23"N, 119°41'13"E.
3. No. 2—25°44'47"N, 119°03'01"E.

Vessel Traffic Service.—See Fuzhou (paragraph 7.36) for Vessel Traffic Service requirements.

Anchorage.—A designated anchorage area is located close off the entrance to the approach channel to port, in depths of 21m, and is bounded by lines joining the following positions:

a. 25°47'13"N, 119°48'58"E.
b. 25°47'13"N, 119°49'34"E.
c. 25°46'41"N, 119°49'34"E.
d. 25°46'41"N, 119°48'58"E.

Another anchorage (Dongluo), with depths of 12 to 14m, mud and sand, designated for quarantine and used for pilot boarding, is bounded by lines joining the following positions:

a. 25°44'01"N, 119°40'42"E.
b. 25°44'28"N, 119°39'52"E.
c. 25°44'44"N, 119°42'01"E.
d. 25°44'13"N, 119°42'22"E.

Off-lying Islets

9.3 The several widely scattered off-lying islets lie, in general, within the 40m curve and within a distance of about 20 miles from the coast. They rise abruptly from the sea floor and constitute a danger to vessels standing off the coast for destinations N or S. These dangers are described below.

Niuashan Dao (Niu-shan Tao) (25°26'N., 119°56'E.) is described in paragraph 9.4.

Wuqiu Yu (Wu-ch'iu Hsu) (25°00'N., 119°27'E.) is a small, steep-to, inhabited island rising to a rounded summit surmounted by a lighthouse. Xia Yu (Hsai Hsu), close SE, is a smaller, rather low, inhabited island having sandy hummocks. The two islands are reported radar conspicuous at a distance of 19 miles. Vessels, when proceeding NE in clear weather during the Northeast Monsoon season, usually pass about 2 miles NW of Wuqiu Yu. Heavy fogs occur in April and May.

In a position about 8 miles S of Wuqiu Yu, the monsoon current (July to September) sets to the NE at a rate varying with tidal effect. The monsoon current predominates except when spring tide sets SW and counterbalances its affect. From September to July the tidal current becomes dominant; however, it is largely affected by the wind.

Xiongdi Yu (Hsiung-ti Yu) (23°32'N., 117°40'E.) consists of two small rather low-lying islets separated by a channel reported clear and 1 mile wide. Dagan Shan, the SE islet, has a bluff on its S side and a reef extending about 0.3 mile W from the side. Xiaogan Shan, the NW islet, has a prominent square summit. The two islets are reported radar conspicuous at a distance of about 16 miles. A light is exhibited from Dagan Shan.

Nanpeng Liedao (23°16'N., 117°17'E.) is an islet group consisting of two larger islets prolonged NE and SW by several smaller islets and a number of underwater rocks. Nanpeng Dao, one of the larger islets lying near the center of the group and reported radar conspicuous at a distance of about 25 miles, is partially covered by vegetation and is marked by a light on its summit. Vessels reportedly anchor, in depths of less than 18m, in a position about 0.5 mile W of the islet.

Tidal currents in the vicinity of the islets set NE on the flood and SW on the ebb; maximum rates are less than 1 knot.

Zhenyan Tou (Pedro Blanco) (Chen Yen-t'ou) (22°19'N., 115°06'E.) consists of two rocks with a passage between them 2m in width and 4.5m in depth. The passage can be viewed from N or S of the rocks. The E and larger rock appears conical on some bearings. The W rock has a shelf extending NW with a rock drying 1.5m at its seaward extremity; other than this shelf, both rocks are steep-to.

Shafeng Jiao to P'ing-hai Chiao

9.4 **Shafeng Jiao** (26°01'N., 119°42'E.) is a low-lying sandy point backed by a hilly ridge extending about 2 miles SW and fronted by a drying spit that extends several miles to the E.

Qi Shan (Chin Feng) (26°00'N., 119°41'E.), the summit of a hilly ridge, has sandy E slopes which show brilliantly in misty weather when little else in the vicinity is visible.

The coastline between Shafeng Jiao and P'ing-hai Chiao, about 56 miles SSW, is very irregular and lies divided by a considerable peninsula into two large embankments whose shoreline is similarly irregular and indented by numerous inlets and a multitude of small bays and lesser coves which, throughout, are fronted by wide and extensive margins of drying mud flats. The land inland is generally low or rises to low-lying hills.

Offshore, the large island Haitan Dao, along with several lesser islands, numerous islets, and a vast multitude of above- and below-water dangers, lies within the 40m curve which roughly parallels the salient points of the mainland coast at a distance of about 14 miles. The larger islands are cultivated and generally low or rise to low hills.

Haitan Haixia is the channel between Haitan Dao and the mainland. Xinghua Shuidao and Nanri Shuidao are the two main channels leading through off-lying islands fronting the bay Xinghau Wan.

Haitan Dao (25°33'N., 119°48'E.) is a large island lying close off the mainland coast in a position with its N extremity about 22 miles S of Shafeng Jiao. The shoreline is very irregular and indented by numerous bays which, receding well inland between bluff promontories, are generally deep on the E side of the island and filled with drying mud flats on the W side.

An approach channel to Aoqian (25°28'N., 119°50'E.) has been recently (2015) completed. Aoqian is a small village located on the S coast of Haitan Dao in the NE part of Tannan Wan. The approach channel is divided into three segments, with a total length of 5,845m, and is swept to a depth of 8m. The centerline of the channel passes through the following positions:

a. 25°25'08"N, 119°50'32"E.

b. 25°26'26"N, 119°49'22"E.
c. 25°27'47"N, 119°49'24"E.
d. 25°27'51"N, 119°49'31"E.

Niushan Dao (Niu-shan Tao) (25°26'N., 119°56'E.) is a barren steep-sided islet which, surrounded by above and below-water dangers on all sides except the E, rises abruptly to a 66m high summit surmounted by a lighthouse. The islet, which is the most seaward islet on this part of the coast, should be cleared at a distance of not less than 0.75 mile and is reported radar conspicuous at a distance of 22 miles.

Vessels, seeking shelter during winds of the Northeast Monsoon season, can obtain anchorage within **Guanyin Ao** (25°28'N., 119°50'E.), in a depth of 9.4m, sand, about 0.2 mile W of the E entrance point to Guanyin Ao, with the light on Niushan Dao bearing 105° and just open S of that point. The holding ground is good, but a heavy swell sets in during the Northeast Monsoon.

Caution.—A dangerous wreck located in the entrance to Guanyin Ao in position 25°26'52"N, 119°50'14"E is marked by a virtual AIS beacon. Another dangerous wreck, always visible, is located in position 25°27'36"N, 119°49'54"E.

Several dangerous wrecks, most with depths unknown, are situated close seaward of the 10m depth curve contour and can be best seen on the chart.

9.5 Haitan Haixia (25°27'N., 119°38'E.), the narrow channel between Haitan Dao and the mainland, is considerably encumbered in its N and S entrances by numerous, largely steep-sided islands while, within the entrances, it has several fairways that are further encumbered by many islets and extensive shoal banks of sand. The principal channel, of the several deep-water channels, leading through the islands lying in the N entrance passes NW of the steep-to **Haitan Shi** (Norton Rock) (25°46'N., 119°48'E.), the most seaward danger in the approaches. The channel trends SW between the islet group Dongluo Liedao (Ta-lao Shan) and the reef-fringed Zhu Pai (Red Rock), and then enters the inner fairway between the islands Ku Hsu and Tangyu Dao.

Dongnan Kou (25°23'N., 119°44'E.), the SE entrance, is entered between the S extremity of Haitan Dao, and the steep-sided island Cao Yu (Ts'ao Hsu).

Nankou Shuidao (25°20'N., 119°40'E.), the SW entrance, branches N from Xinghua Shuidao and continues NNE between the island Tang Yu (Chung-lou Shan) and the mainland to the W.

Vessels, seeking refuge from typhoon winds, enter the S part of Haitan Haixia and anchor, in 7.3m, sand, in a position with Ting Tao (Station Islet), about 3 miles WNW of the S extremity of Haitan Dao, bearing 072° and with the W side of Junksail Islet (Chuang-tan Yu) bearing 328°. They also anchor, in 11m, mud and sand, in a position about mile NNW of Low Islet (Oi Yu) with the W sides of Low Islet and Junksail Islet in rang bearing 155°.

Pingtan Gangqu Jinjing Operations Area is located in Haitan Haixia close SE of Da Yu (25°27'N, 119°40'E.) and is presently undergoing development. A new approach channel, designed for 50,000 gt container vessels, has been completed. This new channel will also accommodate container vessels as large as 100,000 gt and international cruise ships as large as 150,000 gt for one-way passage. The channel is approximately 6 miles in length, 300m wide, has depths of 15.4m, and runs through the following points from sea:

a. 25°22'38.0"N, 119°45'03.4"E.
b. 25°23'44.9"N, 119°41'41.7"E.
c. 25°26'17.9"N, 119°40'17.9"E.

Anchorage.—Two designated anchorages are located in the Nankou Shuidao entrance, as follows:

1. Shipai Anchorage—Centered on position 25˝23'07"N, 119°45'15"E, with a radius of 500m, depths of about 30m, and intended for vessels up to 20,000 tons.
2. Caoyu Anchorage—Centered on position 25°21'52"N, 119°45'31"E, with a radius of 600m, depths of about 23m, and intended for vessels up to 100,000 tons.

A dangerous wreck, in a depth of 21.2m, lies in Nankou Shuidao in position 25°22'26"N., 119°40'40"E.

China's first cross-sea railroad bridge, about 8.8 miles in length, is being constructed (2015) across Haitan Haixia between the mainland near Xiaoshan Dong (25°28'N, 119°38'28"E.) and Haitan Dao near Nianggang (25°28'28"N, 119°40'30"E.). A collision-preventing device has been constructed 200m N of the bridge construction closest to Haitan Dao in an area bounded by lines joining the following positions:

a. 25°28'38.3"N, 119°39'50.1"E.
b. 25°28'44.8"N, 119°39'58.4"E.
c. 25°28'34.6"N, 119°39'53.6"E.
d. 25°28'41.2"N, 119°40'01.9"E.

Caution.—Vessels are cautioned that the middle part of Haitan Haixia is obstructed by shoals and a bar which is subject to displacement in consequence of strong tidal currents acting on a bottom of sand and mud N of Da Yu. Vessels with a draft greater than 6.7m run the risk of grounding should they incur delay while seeking to take advantage of the extreme tidal rise customary to the channel.

9.6 Xinghua Wan (25°20'N., 119°20'E.) is an extensive, partially-examined, and largely shoal bay entered between Fort Hill Point, about 8 miles NE of Pinghai Chiao, and the SW extremity of a narrow finger of land about 9 miles NE. It is a refuge for large vessels seeking shelter from typhoon winds.

Tides—Currents.—Tidal rises are extreme, as follows:

1. Lo-shan Chun-tao—6.1m at MHWS.
2. Ren Yu—6.3m at MHWS.
3. Baifu (Pai-tou Hsu)—6.4m at MHWS and 4.9m at MLWN.

Well offshore, currents vary in consequence of monsoon winds, but, in general, they set SW at about 1 knot. Inshore, tidal currents generally set W on a rising tide and E on a falling tide and attain a velocity of about 3 knots. The flood current of a rising tide bifurcates E of Haitan Dao and set S through the N entrance to Haitan Haixia and NW through the SE entrance. The two currents meet near Lao-lo Shan (Middle Islet), where heavy rips and overfalls occur, and attain velocities of 2 to 3 knots in the wider portions of the fairway and 4 to 5 knots in the narrow portion at Ta Yu (Pass Island). The flood current setting NW through Tung-nan K'ou bifurcates NW of Ts'ao Yu and sends a SSW setting branch through Nan K'ou which, in turn, divides into a W setting and S setting branch on reaching Xinghua Shuidao. Current velocity reaches 2 to 3 knots. The ebb current of a falling tide is, in general, the reverse of the

flood current. The tidal current in the seaward entrance to Xinghua Shuidao set SW on a rising tide and SE on a falling tide with a velocity of about 2.3 knots.

Tidal currents at the juncture of Xinghua Shuidao and Nanri Shuidao set W on a rising tide and E on a falling tide. They reach a velocity of 5 to 7 knots at spring and form a race.

Pilotage.—Pilotage is compulsory in Xinghua Wan. Pilots will board in the Reserve and Quarantine Anchorage, in depths of about 22m, in position 25°19'52"N, 119°32'23"E. See paragraph 9.9 for more details on the anchorages located in Xinghua Shuidao.

Anchorage.—Xinghua Wan provides good anchorage to be used in case of a typhoon, as follows:

1. Unrestricted anchorage centered on position 25°21'53"N, 119°23'53"E, with depths of 14 to 21m.
2. General anchorage centered on position 25°22'26"N, 119°22'26"E, with depths of 14 to 21m.
3. General anchorage centered on position 25°18'26"N, 119°24'22"E, with depths of 17 to 28m.
4. General anchorage centered on position 25°24'00"N, 119°24'59"E, with depths of 8 to 12m.

See paragraph 9.9 for a description of the outer anchorages.

Directions.—Vessels having arrived in a position about 1 mile NE of **Da Jiao** (25°21'N., 119°46'E.), steer so as to pass about 0.3 mile off the N extremity of Cao Yu and continue NW until Junksail Islet (Chuang-tan Yu) bears 353°. When the E islet of Tung-cheng bears 270°, they haul to port so as to pass about 0.4 mile W of Junksail Islet.

Caution.—Two areas where fishing or anchoring are restricted have established across Nanri Shuidao and the peninsula to the W, passing N of Shichengda Yu and S of Qing Yu.

The restricted area N of Shichengda Yu is bounded, as follows:

1. North boundary of restricted area—a line joining the following positions:
   a. 25°16'16"N, 119°22'11"E. (coast)
   b. 25°16'11"N, 119°24'14"E.
   c. 25°14'35"N, 119°27'18"E. (coast)
2. South boundary of restricted area—a line joining the following positions:
   a. 25°14'10"N, 119°27'19"E. (coast)
   b. 25°15'49"N, 119°24'13"E.
   c. 25°15'53"N, 119°22'28"E. (coast)

The restricted area passing S of Qing Yu is bounded, as follows:

1. North boundary of the restricted area—A line joining the following positions:
   a. 25°15'00"N, 119°21'57"E. (coast)
   b. 25°14'53"N, 119°22'02"E.
   c. 25°14'37"N, 119°23'40"E.
   d. 25°13'51"N, 119°25'46"E.
   e. 25°13'42"N, 119°26'38"E. (coast)
2. South boundary of the restricted area—A line joining the following positions:
   a. 25°13'10"N, 119°26'37"E. (coast)
   b. 25°13'20"N, 119°25'35"E.
   c. 25°14'06"N, 119°23'29"E.
   d. 25°14'23"N, 119°21'44"E.
   e. 25°15'08"N, 119°21'07"E. (coast)

A wind farm has been established SSE of Luci Dao (Lusi Yu) (25°07.4'N, 119°22.0'E). The Putian Pinghaiwan Wind Farm (25°09.3'N, 119°23.2'E) lies 2.25 miles NNE of the Luci Dao and is marked by lighted buoys.

9.7 Inside Passage.—Vessels, having arrived in a position about 0.4 mile W of Junksail Islet, steer NNW so as to pass about 0.2 mile E of the tripod beacon surmounted by a black spherical topmark standing on several rocks close E of Ta Yu (Pass Island), when they haul to port and, bringing the E side of Junksail Islet in range 136°, astern, with the W side of Ting Tao (Station Islet), steer 316° so as to pass between the beacon and the several sunken Ashuelot Rocks (Yo Shih), they haul to starboard and, bringing the two pyramid beacons on Ta Yu in range 159°, astern, steer 339° so as to pass W of Flag Islet (Chi Yu) and to enter the recommended Wilson Channel (Weishen Shuidao) with the small island Ming-chiang Yu visible ahead between Pei-tou Yu (Charles Islet) and the several black rocks. Vessels favor the W side of Wilson Channel until the white stone cairn on a rock close N of Lao-lo Shan (Middle Islet) comes in range 084° with a similar cairn on the largest of the Saxby Islets (Pai-tou Chiano), when they haul to starboard and, passing W of a 3.2m pinnacle rock lying in mid-channel, steer on a heading of 359° with the rock close W of T'a Chiao (Tower Rock) in range with the SW extremity of Tangyu Dao. When Talisman Peak (Te-li-men Feng) bears 270°, they haul to port and, bring a light-colored patch on the W shoulder of Ku Hsu in range with the conspicuous conical peak Niu-chiao Shan (Yu-kuo Shan), carefully steer 352° until Inner Rock bears 089°, when they ease to starboard and steer on a heading with the two white pyramid beacons on the SE slope of Ku Hsu in range 351° so as to pass fair between Mitre rock and the several dangers about 0.75 mile ESE. When Mitre Rock bears 270°, they haul to starboard and bring Mitre rock in range 217° astern, with a break in the hills SW steer fair between Ku Hsu and Tangyu Dao so as to pass NW of the 4.6m patch on Simpson Spit (Hsin-shen Sha-tsui).

Pi-nang Shuidao (Blind Channel) is a narrow secondary channel used by vessels able to navigate the 4.1m crossover between the N part of the channel and the fairway N of Wilson Channel. Vessels having arrived in a position about 0.5 mile N of Ta Yu, steer to pass about 0.2 mile E of Flag Islet and then continue NNW with the E side of the islet in range 170°, astern, with the W side of Ta Yu, until the white stone cairn on a rock close N of Lao-lo Shan come in range 084° with a similar cairn on the largest of the Saxby Islet, when they ease to starboard and favor the E side of the channel by steering with the E side of Flag Islet in range 174°, astern, with the W side if the islet close W of Ta Yu. When the drying rock Hua Chiao (Tricker Rock) come in range 034° with Pillar Rock (Chu Chiao) be covered, when Pie-tou Yu comes in range 244° with a pagoda standing on the mainland WSW, vessels steer NNW in transit of the crossover and proceed through the fairway N of Wilson Channel as described above.

9.8 Nan K'ou.—Vessels having entered Xinghua Shuidao and arriving in a position about 1 mile N of **Tung-Yueh Yu** (Shuang-jih Tao) (25°16'N., 119°40'E.), steer for Nopass Rock on a NNW heading until Douglas Islet bears NW, distant 1 mile, and the S extremity of Tang Yu (Chung-lou Shan) bears 112°, when they haul to starboard and steer for a conspicuous

sand patch on the S side of Haitan Dao on a heading of 027°. When Junksail Islet bears 353°, they haul to port and proceed as described above.

9.9 Xinghua Shuidao (25°18'N., 119°39'E.), the E entrance channel to Xinghua Wan, is entered between **Shitang Yan** (Sheng-t'u-li Tao) (25°15'N., 119°45'E.), a sunken pinnacle rock, with a depth of 1.6m, and Shuiluo (Scattered Yits), a group of above and below-water dangers about 5 miles WSW.

The channel is deep throughout and trends generally W between the dangers fronting the mainland coast and the many islets and dangers lying NE and N of Nanri Dao (Nanjih Tao), the largest island in the approaches to Xinghua Wan.

Pilotage.—Pilotage is compulsory. See paragraph 9.6 for details.

Anchorage.—An anchorage, in a depth of 6m, is located 0.65 mile NW of **Ren Yu** (25°20'N., 119°37'E.). Dangerous wrecks lie 750m S and about 1.25 miles NW of the anchorage; both positions are approximate.

During the Northeast Monsoon, there is good anchorage about 1 mile E of Ren Yu, with **Punchard Islet** (25°20'N., 119°37'E.) bearing 351° at a distance of 0.6 mile. However, the bottom is reported to be very uneven and vessels should use caution when anchoring.

Several outer anchorages to Xinghua Wan are located, as follows:

1. Pilot and Quarantine Anchorage—Centered on position 25°13'36"N, 119°41'24"E, in depths of about 23m. Caution must be taken for the dangers, including Shuiluo Jiao, that are close to the NW corner of this area.
2. Pilot (reserved) Anchorage—Centered on position 25°17'12"N, 119°39'36"E, in depths of 18 to 27m.
3. Pilot (reserved) Anchorage—Centered on position 25°19'51"N, 119°32'24"E, in depths of 15 to 22m.

Directions.—Vessels, having arrived in a position S of **Sheng-t'u-li Tao** (25°15'N., 119°45'E.), steer NW so as to pass fair between the sunken dangers lying off the inlet groups Heng Shan Yu and Tung-yueh (Shuang-jih Tao), then WNW so as to pass about 0.75 mile N of Hsiang-kan Yen (Hong Kong Rock) and Tung-pri-jih Yen (NE Yit Rock), then N or S of Baifu (Pai-tou Hsu) and then fair through the deep, 0.5 mile wide channel between the islet Lu Hsu and Kao-fu Yu, the small precipitous northernmost islet of the islet group Ta-she Yu.

9.10 Nari Shuidao.—Vessels, having arrived in a position about 1 mile E of **Lu-tz'u Yen** (25°08'N., 119°23'E.), steer N so as to pass about 1 mile E of Ta Hsu and Middle Islet and than steer either NE of Knob Islet (La-tu-ke Tao) and enter Hsing-hua Wan or, steering for the W side of Yeh-ma Hsu, enter Xinghua Shuidao between Lu Yu and Kao-fu Yu when this latter islet bears 090°.

Nanri Shuido (25°12'N., 119°25'E.), the S entrance channel to the bay, is entered between the 6.1m high pinnacle rock **Nanding** (Loutz Rock) (25°08'N., 119°23'E.) and the shoal coastal bank extending SW from Nanri Dao. It is deep throughout and trends N between Nanri Dao and the dangers fronting the mainland.

Anchorage.—Anchorage can also be obtained 0.2 mile W of **Lu Hsu** (25°19.6'N., 119°28.5'E.) in a depth of 22m, mud, out of the strength of the tidal current.

Vessels seeking refuge from typhoon winds anchor, in 9.1m, good holding ground, in a position with Pitou Point bearing 066° distant about 1 mile. Less water than charted has been reported.

Caution.—During the flood tide, a portion of the current enters the N side of Xinghua Shuidao from the S entrance to Haitan Haixia and divides, one part flowing S along the channel and the other part flowing W. At the W end of Xinghua Shuidao, the W current may attain rates of 5 to 7 knots at springs and frequently causes overfalls and eddies.

A dangerous wreck lies approximately 3 miles S of Nanri Dao, in 16.2m of water.

An extensive restricted area has been established within about 2 miles E of the W side of Nanri Dao, between 25°09'N and 25°12'N, where fishing and anchoring is prohibited.

A submarine cable has been placed between Nanri Dao and Haitan Jiao, passing E of Dongjia Dao through the following positions:

a. 25°24'06"N, 119°45'24"E. (coast)
b. 25°22'24"N, 119°47'18"E.
c. 25°17'06"N, 119°47'12"E.
d. 25°14'54"N, 119°45'42"E.
e. 25°09'36"N, 119°35'54"E.
f. 25°09'36"N, 119°34'12"E.
g. 25°10'54"N, 119°33'18"E.
h. 25°11'12"N, 119°32'12"E. (coast)

P'ing-hai Chiao to Wei-t'ou Jiao

9.11 P'ing-hai Chiao (25°10'N., 119°16'E.) is the S extremity of a large peninsula projecting SE from the mainland. The coastline between P'ing-hai Chiao and Weitou Jiao, about 55 miles SW, is extremely irregular and indented by a number of large bays which, extending well inland, are rather shoal and have a shoreline fronted by extensive areas of drying mud flats. Inland, the terrain is low-lying and largely cultivated.

Offshore, the 20m curve parallels the salient coastal points at a distance of 2 to 3 miles and contains all the natural obstructions constituting a danger to navigation.

The principal larger bays are Meizhou Wan and Quanzhou Wan. Shenhu Wan is the principal smaller bay.

Pinghai Wan (25°11'N., 119°10'E.) is entered between P'ing-hai Chiao and Xiao Yu, about 6 miles SW, the town of Pinghai stands close NNW of P'ing-hai Chiao. During the Northeast Monsoon, vessels with local knowledge can obtain anchorage, in depths of 5.5 to 9.1m, off Pinghai, but the holding ground is poor and vessels often drag in strong winds.

9.12 Meizhou Wan (Mei-chou Wan) (25°05'N., 119°02'E.) is an extensive, partially examined, and largely shoal bay entered between Hsiao-tso Chiao, a rather low-lying headland about 18 miles SW of P'ing-hai Chiao, and Rogues Point which, forming the S extremity of the island Meizhou Dao, lies about 6 miles NE.

The shoreline of the bay is extremely irregular and, largely fronted by wide margins of drying mud flats, recedes about 20 miles NNW in a series of coves, inlets, and lesser bays. Several islets and numerous above and below-water dangers encumber the deeper, navigable portion of the fairway in the entrance to the bay.

Depths—Limitations.—A buoyed channel, 300 to 400m wide and having a depth of 14.5m, leads NNW through Meizhou Wan. Vessels with drafts of up to 15.5m can transit the channel at spring tides.

Three channels are located off the main channel. The Dongwu Channel designed for vessels as large as 100,000 dwt, is in the S part starting from Section AB of the main channel and extending to the Dongwu Operations area. The Dongwu Channel is approximately 6.1 miles in length and 250m wide, with a designed depth of 12.5m, and passes through the following turn points:

a. 25°01'17"N, 119°03'08"E.
b. 25°04'49"N, 119°04'39"E.
c. 25°06'03"N, 119°03'56"E.
d. 25°06'34"N, 119°03'04"E.

The portion of the Dongwu Channel beginning at point (a) above, passing through point (b), then stopping at point (c) near No. 1 Berth and No. 2 Berth within the Dongwu Operation Area has been deepened (2016) for bulk carriers of 150,000 tons with drafts to 15.4m, with only one-way traffic allowed.

Another addition to the Dongwu Channel is designed for one-way traffic over a distance of 3.59 miles, with depths of 11m and a width of 210m, to accommodate vessels as large as 50,000 gt. This channel starts from Dongwu Channel at position 25°06'34"N, 119°03'04"E., and passes through position 25°07'26"N, 119°01'21"E. to position 25°08'32"N, 118°59'46"E.

The Putou Channel (2014), designed for vessels as large as 50,000 dwt, is in the N part and starts from Point G in the main channel and extends to the Putou Operation Area. The Putou Channel is approximately 3.2 miles in length and 200m wide, with a designed depth of 10m, and passes through the following turn points:

a. 25°12'23"N, 118°59'09"E. (Point G)
b. 25°13'50"N, 118°57'57"E.
c. 25°14'11"N, 118°57'43"E.
d. 25°15'12"N, 118°57'43"E.

The Waizoumadai Branch Channel, in the SW part of Meizhou Wan, commences from position 25°04'28"N, 119°00'43"E and extends to the Waizoumadai Operation Area. The Waizoumadai Branch Channel is approximately 4.55 miles in length and 150m wide, with a designed depth of 7.4m, and passes through the following turn points:

a. 25°04'15"N, 118°58'37"E.
b. 25°03'51"N, 118°56'54"E.
c. 25°03'27"N, 118°55'52"E.

The five primary terminals in Meizhou Wan and its approaches are, as follows:

1. **Qinglanshan Crude Oil Terminal** (25°03'N., 119°01'E.), at the W entrance to the bay, includes a crude oil pier for the Fujian Refinery. The pier is approached by a fairway, 500m wide, with depths of 21 to 23m.
2. **Waizoumadai Terminal** (25°03'N., 118°55'E.), in the SW part of Meizhou Wan, includes eight berths for chemicals. The depths alongside all berths is 7.1m with a swinging area off the terminal with length of 270m and width of 216m. The terminal is accessed from the Meizhou Wan Main Channel, then through the Waizoumadai Branch Channel described previously.
3. **Xiaocuo** (Dongwu Port) (25°10'N., 118°59'E.) includes Fujian Oil Terminal (25°10'N., 118°59'E.) and dry cargo berths, including a container terminal, along with a ro-ro terminal, in the upper waters of the bay. The Fujian Oil and Petrochemical Terminal extends 240m from the shore.
4. **Xiuyu** (25°13'N., 118°59'E.) is located on Meizhou Dao and includes the Fujian LNG Terminal at the E and upper part of Meizhou Wan and the Putou Operation Area. The channel to Fujian LNG Terminal is dredged to a depth of 14.5m.
5. **Meizhou Wan Coal Terminal** (25°08'N., 119°01'E.) is presently (2016) in the first stage of development and includes Berth No. 9 and Berth No. 10 located in front of the terminal. The length for both berths is 648m with a designed depth of 18.7m and is approached from the main channel. Berth No. 9 accommodates vessels as large as 100,000 tons while Berth No. 10 accommodates vessels as large as 70,000 tons. There is a swinging area shared by both berths that is 725m long and 500m wide, with a depth of 15m. Vessels bound for these berths should maintain a listening watch on VHF channels 10 and 16, following all instructions from the traffic control center.

Talin (25°09.8'N., 119°01.4'E.), a jetty lying on the E side of the bay, opposite Fujian Terminal, can be approached by a channel which has a least depth of 2.5m, and is marked by lighted buoys.

See the table titled **Meizhou Wan—Berth Information** for details on specific berths.

Meizhou Wan—Berth Information

Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
Dry Cargo Berths						
Putian Port Group						
No. 2	149m	6.5m	3,000 dwt	—	—	General cargo and containers.
No. 3	213m	9.6m	10,000 dwt	—	—	Cement, coal, and breakbulk.
No. 6	237m	9.6m	10,000 dwt	—	—	General cargo and containers.
Ro-ro	66m	—	5,000 dwt	—	—	Vehicles.

Meizhou Wan—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
Multipurpose	304m	13.75m	35,000 dwt	—	—	General cargo, containers, dry bulk, and coal.
Shage Terminal						
No. 1	240m	10.5m	100,000 dwt	—	—	General cargo.
No. 11	351m	15.0m	70,000 dwt	—	—	General cargo.
Bafang Gang						
East 1	372m	—	150,000 dwt	289m	17.9m	Coal, iron ore and steel. Maximum beam of 25m.
East 2	—	—	100,000 dwt	250m	14.5m	Coal, iron ore and steel. Maximum beam of 43m.
Luoyu Harbor						
No. 9	386m	—	30,000 dwt	—	—	Iron ore.
No. 10	270m	—	150,000 dwt	—	—	Iron ore
Nanpu Power Plant						
Coal Pier	320m	11.0m	50,000 dwt	—	—	Coal.
SDIC Genting Meizhouwan Power Station						
Coal Jetty	170m	—	100,000 dwt	—	—	Coal.
No. 09	290m	19.2m	100,000 dwt	—	—	Coal.
No. 10	290m	19.2m	70,000 dwt	—	—	Coal.
No. 14	350m	—	35,000 dwt	—	—	Coal.
Xiaocuo Terminal						
No. 2	140m	9.7m	10,000 dwt	—	—	General cargo.
No. 3	290m	14.2m	70,000 dwt	—	—	General cargo.
No. 4	300m	16.2m	100,000 dwt	—	—	General cargo.
Xiaocuo Terminal (Dongwu Port)						
No. 1	285m	—	50,000 dwt	—	—	Multipurpose.
No. 2	312m	—	50,000 dwt	—	—	Multipurpose.
Xiaocuo Terminal (Putou Operation Area)						
No. 1	239m	14.7m	40,000 dwt	—	—	General cargo. (see Note)
No. 2	221m	14.7m	40,000 dwt	—	—	General cargo. (see Note)
Tanker Berths						
Fujian Union Petrochemical						
No. 1	415m	15.22m	150,000 dwt	281m	15.5m	LPG, crude oil, and other petroleum products.
No. 2	192m	9.92m	12,500 dwt	150m	8.3m	LPG, chemicals, and clean products.
No. 3	143m	9.52m	4.500 dwt	60m	6.5m	Petroleum products and NGL (natural gas liquids).
No. 4	94m	4.12m	1,500 dwt	68m	4.1m	LPG, petroleum products, and chemicals.

Meizhou Wan—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
No. 5	52m	12.7m	7,500 dwt	141m	—	Chemicals and clean products. Maximum beam of 20.39m.
No. 6	52m	14.2m	5,000 dwt	164m	—	Clean products and aviation fuel. Maximum beam of 26m with displacement of 20,000 metric tons.
No. 7	52m	11.5m	3,000 dwt	125m	—	Clean products, aviation fuel, and chemicals. Maximum beam of 13.4m with displacement of 5,000 metric tons.
No. 8	52m	11.5m	3,000 dwt	125m	—	Clean products and aviation fuel. Maximum beam of 13.4m with displacement of 5,000 metric tons.
Fujian LNG Terminal						
No. 1	390m	13.6m	100,000 dwt	298m	11.8m	LNG. Maximum beam of 47.2m with a displacement of 165,000 metric tons.
Titan Petrochemical Terminal						
Inner Berth	150m	8.3m	9,900 dwt	298m	7.5m	Chemicals.
Outer Berth	350m	15.8m	105,000 dwt	246m	15.0m	Chemicals, crude oil, clean products, and dirty products.
Dong Gang Shihua Terminal						
Inner Berth	108m	6.5m	3,000 dwt	—	—	Chemicals and clean products.
No. 1	282m	12.0m	50,000 dwt	—	—	Chemicals and clean products.
No. 2	44m	—	3,000 dwt	—	—	Under construction.
Odfjell Terminal Fujian (Quanzhou)						
Inner Berth	200m	—	5,000 dwt	—	—	Under construction.
Outer Berth	—	—	100,000 dwt	—	—	Under construction.
Zhongyuan Liquid Chemical Terminal						
No. 08	85m	—	50,000 dwt	—	—	Chemicals and clean products.
Waizoumadai Terminal						
No. 1	—	—	3,000 dwt	—	—	Solid chemical berth.
Nos. 2-8	—	—	3,000 dwt	—	—	Liquid chemical berths.
Note.—Vessels should maintain a listening watch on VHF channels 10 and 16 when arriving and departing these berths.						

Pilotage.—Pilotage is available for tankers proceeding to the oil terminal only during daylight hours. Tankers bound for the oil terminal can contact pilots on VHF channels 11 and 16, while LNG vessels should use only VHF channel 16. The pilot boarding positions are, as follows:

a. 25°03'07"N, 119°03'17"E. (Quarantine Anchorage No. 1).

b. 25°01'12"N, 119°05'21"E. (Quarantine Anchorage No. 3).

c. 24°51'49"N, 119°00'33"E. (Pilotage and United Quarantine and Tide Anchorage).

d. 25°01'30"N, 119°03'06"E. (No. 2).

e. 25°03'18"N, 119°01'42"E. (No. 3).

f. 24°59'07"N, 119°04'25"E. (Xiuyu—LNG Explosives Anchorage).

Regulations.—All vessel navigation for Meizhou Wan should be reported to Quanzhou Traffic Safety Shore Station on VHF channel 10.

Vessels inbound to the International Container Terminal should advise their agents of their ETA 24 hours prior to arrival and confirm directly at least 3 hours prior to arrival at the pilot station. Upon arrival vessels should contact Fuzhou Port Radio, stating their position and ETA at the pilot station.

Tankers inbound to the oil terminal should advise their agents of their ETA 72 hours, 48 hours, 24 hours, 12 hours, and 6 hours prior to expected arrival at one of the pilot stations.

For LNG vessels, the ETA should be initially advised by e-mail or facsimile to the LNG terminal (with a copy to the agents) at the time of sailing from the port of loading. This initial message should include the following information:

1. Vessel name and nationality.
2. Type of LNG vessel and full load draft.
3. Arrival draft.
4. Last port of call.
5. LNG loaded (in m^3).
6. Quantity in metric tons.
7. LNG stowage and LNG quantity of discharging and on board.
8. Details of vessel's maximum cargo handling rate.
9. LNF calorific value as per Certificate of Quality.
10. Cargo density, temperature, and composition.
11. Manifold details including type and size.
12. Any possible repair work which would delay LNG discharge.
13. Crew list.
14. Material safety data sheets.
15. Consignor's name and address.
16. Vessel's emergency response plan for when berthed alongside.
17. Simultaneous cargo/ballast procedure.

Once underway, the ETA should be updated to the terminal and agents 72 hours, 48 hours, 24 hours, and 12 hours prior to expected arrival at one of the pilot stations. Changes to the ETA in excess of 2 hours in the final 24 hours must also be advised. The terminal should be called 2 hours prior to arrival on VHF channel 68 and again when 7 miles from the pilot boarding position. Entry and depaturas are not permitted after sunset.

Anchorage.—Meizhou Wan has several designated anchorages, as follows:

1. Quarantine anchorage for joint inspection of dry cargo vessels, centered on position 25°02'10"N, 119°03'15"E, with a radius of 550m and a depth of 20m, sand, good holding. Vessels as large as 100,000 dwt can use this anchorage.
2. Quarantine anchorage for joint inspection of tankers, centered on position 25°02'48"N, 119°03'00"E, with a radius of 550m and a depth of 20m, sand and mud, good holding. Tankers as large as 100,000 dwt for the oil terminal can use this anchorage.
3. Anchorage Area No. 1, bounded by lines joining the following positions:
   a. 25°02'57"N, 119°03'41"E.
   b. 25°02'17"N, 119°03'24"E.
   c. 25°02'17"N, 119°03'11"E.
   d. 25°03'47"N, 118°02'49"E.
4. Anchorage Area No. 2, for large ocean-going vessels, has depths from 15m in the SW corner to 41m to the N. This area is marked by a lighted buoy close E at the N end and is bounded by lines joining the following positions:
   a. 25°00'42"N, 119°02'26"E.
   b. 25°00'42"N, 119°02'58"E.
   c. 25°01'56"N, 119°02'41"E.
   d. 25°01'56"N, 118°02'15"E.
5. Anchorage Area No. 3, centered on position 25°01'12"N, 119°05'19"E, has a least depth of 13m, stone.
6. An anchorage area for oil product tankers has been established in the area bounded by lines joining the following positions:
   a. 25°03'42"N, 118°59'48"E.
   b. 25°03'42"N, 118°58'30"E.
   c. 25°04'54"N, 118°58'30"E.
   d. 25°04'54"N, 118°59'48"E.
7. An anchorage area, designated Jianyu, has been established in the area bounded by lines joining the following positions:
   a. 24°58'35"N, 119°02'40"E.
   b. 24°57'46"N, 119°02'50"E.
   c. 24°57'47"N, 119°03'34"E.
   d. 24°58'35"N, 118°03'23"E.
8. Working anchorages for vessels up to 100,000 dwt, centered on position 25°08'30"N, 118°59'42"E, and for vessels up to 50,000 dwt, centered on position 25°12'18"N, 118°59'24"E.
9. An circular anchorage area for LNG vessels located close W of the pilot boarding station has a radius of 600m centered on position 24°59'08"N, 119°04'25"E.
10. A circular anchorage area for LNG vessels (called LNG No. 2 Emergency) is located farther N in the bay and has a radius of 550m centered on position 25°08'58"N, 119°00'04"E.

Caution.—A dangerous wreck, depth unknown, is located in position 24°58'N, 119°06'E.

Uncharted dangers may exist within the bay. Vessels should exercise caution in their approach due to the presence of many fishing vessels.

9.13 Dadian (Sorrel Rock) (25°02'N., 119°11'E.), 19m high, lies 3 miles E of Rogues Point. Ninepin Rock, about 2 miles WNW of Rogues Point, stands on the N end of a reef lying midway in the fairway.

Dazhu Dao (Ta-te Hsu) (25°05'N., 119°02'E.), an islet 85m high, rising from surrounding areas of foul ground, lies about 5 miles NW of Rogues Point.

Currents attaining velocities of up to 4.5 knots may be experienced in Dazhu Hangmen.

In the Northeast Monsoon, anchorage can be obtained by small vessels with local knowledge between Rogues Point and rocks awash, lying about 0.8 mile E of Ninepin Rock. Small vessels, seeking shelter from winds of the Southwest Monsoon season, anchor close NW of Dazhu Dao.

Caution.—An outfall extends ENE from Fengwei (25°07'N., 118°58'E.) into the navigable channel along a line joining the following positions:

a. 25°07'16"N, 118°57'49"E. (shore)
b. 25°07'28"N, 118°58'42"E.
c. 25°07'29"N, 118°59'30"E.

Da Gang (24°55'N., 118°57'E.) lies between Hsiao-tso Chiao and Dashi Yu, 3 miles SSW. It affords good shelter to small vessels with local knowledge during offshore winds.

9.14 Quanzhou Wan (Ch'uan-chou Wan) (24°50'N., 118°43'E.) is a large, shoal bay which, receding about 12 miles E to the mouth of the river Jin Jiang (Chin Chiang), is entered between Mazuyin (Ta-tso Chiao), about 34 miles SW of P'ing-hai Chiao, and Xiangzhi Jiao (Hsiang-chih Chiao), a precipitous headland about 13 miles farther SW. A light is exhibited from a rock 22m high connected to the SE extremity of Mazuyin. About 3 miles W of the above mentioned light is the city of Chongwu (Ch'ung-wu), with a light situated SE of the city. The shoreline is fronted throughout by a margin of drying mud flats which, in the inner reaches of the bay, becomes extensive. Several islands, numerous islets, and a multitude of above and below-water dangers lie scattered throughout. The bay is subject to a heavy swell with any wind and is dangerous at LW for vessels with drafts of more than 3m.

Anchorage.—Four designated anchorages in Quanzhou Wan are listed in the table titled **Quanzhou Wan—Anchorages**.

Quanzhou Wan—Anchorages

Name	Center Position	Depths and Other Remarks
Beiwujiao	24°50'24"N 118°41'48"E	5.0-8.0m, mud and sand
Baiqi	24°52'54"N 118°41'18"E	4.0-6.0m, soft mud
Xiutu	24°51'06"N 118°41'30"E	5.0-8.0m, sand and mud
Houzhu	24°53'18"N 118°41'06"E	5.0-6.0m, soft mud

Caution.—A dangerous wreck, depth unknown, is located in the SE part of the bay in position 24°48'42"N, 118°57'12"E.

Xiaozhui Dao (24°49'N., 118°46'E.), 12m high, is the farthest E and the largest of a group of rocks lying on a reef 2 miles NNW of Xiangzhi Jiao. The S passage into the harbor is between Xiaozhui Dao and an extensive group of above and below-water rocks close S of it.

Dazhui Dao (24°50'N., 118°46'E.), 1 mile N of Xiaozhui Dao, is 101m high. The N passage into the harbor is between Dazhui Dao and Xiaozhui Dao.

9.15 Quanzhou (Ch'uan Chou) (24°54'N., 118°35'E.) is located inside Quanzhou Wan on the Jiujiang and Lupyang Rivers. Quanzhou is a major commercial port with four main port areas that handle salt, grain, coal, oil, ore, stone, general cargo, and construction materials.

Depths—Limitations.—Quanzhou has four main port areas, as follows:

1. Houzhu—The old original port area located near the city, with general cargo berths and the Quanzhou Pacific Container Terminal.
2. Shihu—Located about 12 miles S of the city with an oil terminal and another Quanzhou Pacific Container Terminal. A ro-ro ramp is located close W of the container terminal. The Jinsheng Channel has been opened (2016) and leads to Berth No. 1. This channel is a one-way channel designed for vessels up to 35,000 dwt, with a designed depth of 8.6m, and a width of 150m.
3. Shenhu—Located about 21 miles S of Quanzhou, with general and bulk cargo facilities.
4. Weitou—Approximately 24 miles SW of Quanzhou, with a new container terminal (JPPDC) and a LPG berth.

Quanzhou is approached through three different ways, depending on the port area being used, as follows:

1. Through the Houzhou Channel, with a minimum depth of 9.5m.
2. From the SE through the bay and entered between Xianghzhi Jiao (24°36'21"N, 118°46'40'E.) and the extremity of Chongwu Bandao (24°53'N, 118°59'E.). The peninsula forms the N side of the bay.
3. Through Dazhui Men, which is the main entrance with less dangers, but cannot be used by deep-draft vessels due to being shallower than Xiaozhui Men, the S passage, which has to be used by deep-draft vessels.

See the table titled **Quanzhou—Berth Information** for detailed berth characteristics.

Quanzhou—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Shijing Terminal				
Cargo Quay	172m	7.0m	5,000 dwt	General and bulk cargo.
Nanhui Terminal				
Cargo Berth	190m	—	—	General cargo.
Shijing Cargo Terminal				
No. 1	—	—	—	General cargo.
No. 2	—	—	—	General cargo.
Shijing Ferry Terminal				
No. 1	40m	—	—	Ferries.
No. 2	35m	—	—	Ferries.

Quanzhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Shijing Longxiang				
No. 1	—	5.0m	1,000 dwt	General cargo and steel products.
No. 2	—	5.0m	1,000 dwt	General cargo and steel products.
No. 3	66m	3.8m	500 dwt	General cargo.
Risingdock				
Cargo Quay	122m	—	5,000 dwt	General and bulk cargo.
Haianping				
Cargo Quay	210m	—	—	General and bulk cargo.
Quanzhou Harbor Container				
No. 1	—	8.0m	5,000 dwt	Containers.
No. 2	—	8.0m	5,000 dwt	Containers.
Quanzhou Harbor Honzhu Container				
West Berth	325m	—	5,000dwt	General cargo.
East Berth	290m	—	5,000dwt	General cargo.
Shishi Huajin Port				
No. 1	212m	5.5m	35,000 dwt	Containers and general cargo.
No. 2	220m	5.3m	20,000 dwt	Containers and general cargo.
No. 3	180m	5.0m	5,000 dwt	General cargo.
No. 4	180m	—	15,000 dwt	Under construction (2019).
Quanzhou Pacific Container Terminal Company, Ltd.				
No. 0	115m	—	3,000 dwt	General cargo.
No. 1	200m	9.7m	10,000 dwt	General cargo and container.
No. 2	300m	11.6m	30,000 dwt	General cargo and container.
No. 3	350m	15.1m	50,000 dwt	General cargo and container.
No. 4	380m	—	100,000 dwt	Containers.
No. 5	350m	—	150,000 dwt	Under construction (2019).
No. 6	450m	—	—	Under construction (2019).
Shishi Hongshan Thermal Power Station				
Coal Berth	312m	15.0m	10,000 dwt	Coal.
Shenhu Terminal				
01	—	10.5m	—	General cargo.
02	—	—	—	General cargo.
Meilin Terminal				
Cargo Quay	210m	—	—	General and bulk cargo.
Weitou Container Terminal				
No. 1	248m	9.5m	10,000 dwt	Containers.
No. 2	441m	14.5m	100,000 dwt	Containers.

Quanzhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
Donggang Terminal				
No. 1	86m	—	3,000 dwt	General and bulk cargo.
No. 2	86m	—	3,000 dwt	General and bulk cargo.
No. 3	86m	—	3,000 dwt	General and bulk cargo.
Meilin Terminal				
North Quay	47m	—	—	Chemicals.
Tanker Berths				
Shihu Port Tanker Terminal				
No. 1	220m	—	—	Length including dolphins.
No. 2	220m	—	—	Length including dolphins.
No. 3	96m	—	—	Length including dolphins.
Changcheng Petrochemical				
LPG Berth	140m	—	3,500 dwt	Clean product and chemicals.
Longtian (Hualong Pertochemical)				
No. 1	45m	—	2,000 dwt	Petroleum products.
No. 2	67m	—	3,000 dwt	Petroleum products. Maximum loa of 99m. Maximum beam of 14.6m. Maximum draft of 6.0m.
Baolong Petrochemical				
Baolong Jetty	58m	—	5,000 dwt	Petroleum products.
Xinjinjang Petrochemical				
No. 01	20m	—	5,000 dwt	Petroleum products.
No. 02	66m	—	5,000 dwt	Petroleum products.
Chengpan Terminal				
Chengpan Jetty	67m	—	—	Refined oil.

Pilotage.—Pilotage is compulsory and available during daylight hours only. Pilots board in the following positions:

1. Quanzhou Wan:
   a. 24°47'06"N, 119°48'18"E—No. 1.
   b. 24°48'15"N, 118°46'38"E—No. 2.
   c. 24°45'32"N, 118°49'33"E—Quarantine anchorage.
2. Fujian Shishi Hongshan Thermal Power Plant—24°40'55"N, 118°46'12"E.
3. Weitou Port area—see paragraph 9.18.
4. Shenhu Port area—see paragraph 9.16.
5. Shijing Port area—24°34'17"N, 118°28'04"E.

Contact Information.—The port can be contacted, as follows:

1. VHF: VHF channels 14 and 16
2. Telephone: 86-595-225-09909
3. Facsimile: 86-595-225-09925
4. Web site: https://www.qzgw.com

Regulations.—Vessels should advise their ETA 72 hours, 48 hours, and 24 hours before expected arrival.

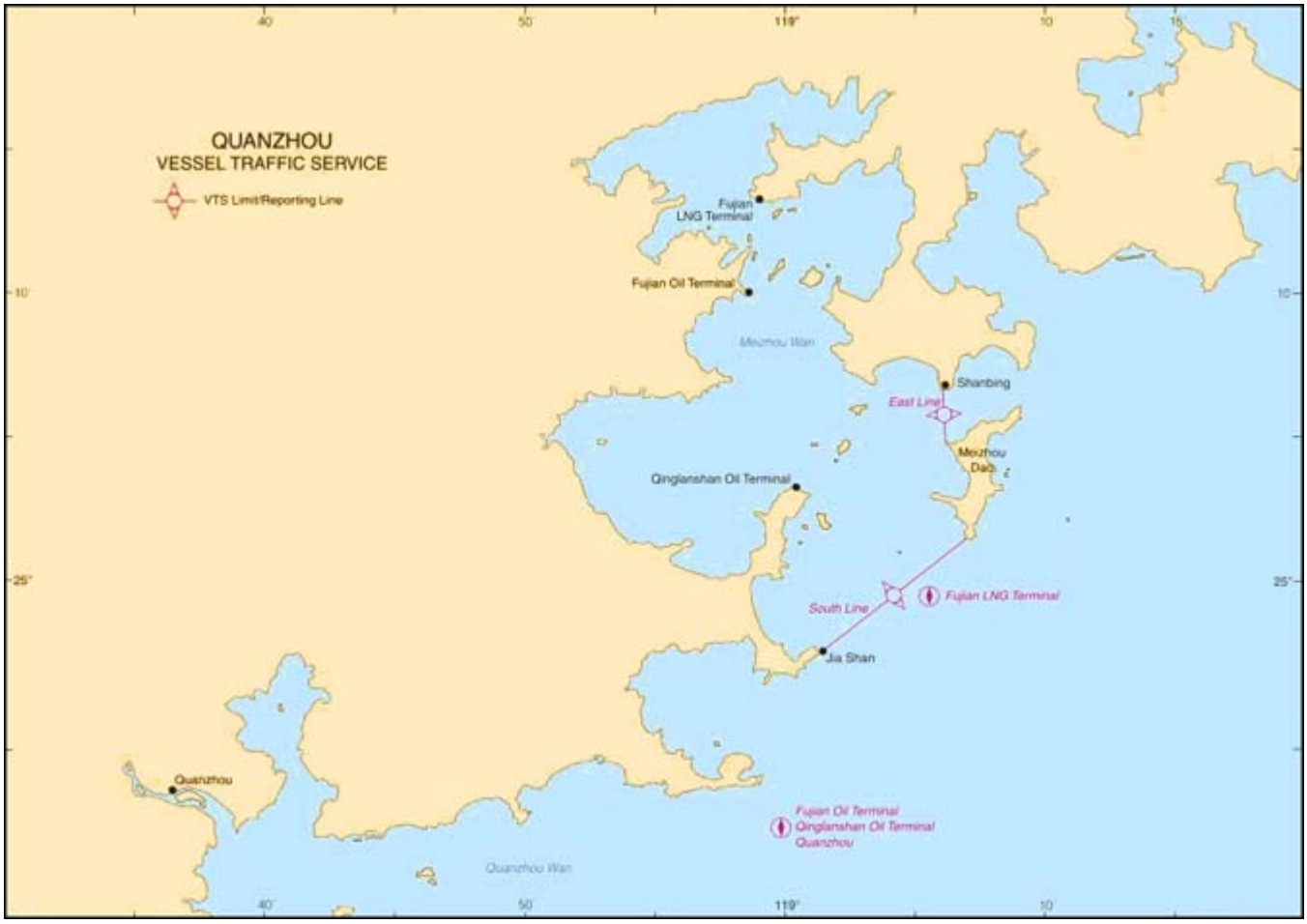
All vessel movements for Quanzhou Port should be reported on VHF channel 10.

Vessel Traffic Service.—The Quanzhou Vessel Traffic Service (VTS) has been established for the waters W of a line from position 25°12'00"N, 120°03'24"E to position 24°30'48"N., 119°11'48"E. The Quanzhou VTS is an integrated part of the Fujian Coastal VTS and comprises Sector 2 of that VTS. See paragraph 7.35 for details that apply to all vessels participating in any part of the Fujian VTS.

The localized portion of the Quanzhou VTS is in effect W of the following established reporting lines:

1. South Line—NW of the line between Jia Shan (24°58'02"N., 119°02'04"E) and the S tip of Meizhou Dao (25°01'37"N., 119°07'14"E).
2. East Line—W of the line between Shanbing (25°06'44"N., 119°06'23"E) and the NW tip of Meizhou Dao (25°04'56"N., 119°06'23"E).

Participation in the Quanzhou VTS is mandatory for the following types of vessels with voluntary participation encour-



Quanzhou VTS

aged for all others:

1. All foreign vessels.
2. Vessels carrying dangerous cargo.
3. Passenger vessels with more than 50 passengers, with the exception of ferries.
4. Vessels engaged in towing.
5. Chinese vessels of 300 gt or greater.

In addition to the Fuzhou VTS reporting requirements (see paragraph 7.36), vessels participating in the Quanzhou VTS will need to report the following to the Quanzhou VTS:

1. Vessel name, call sign or ship identity, and flag.
2. Date and time of event in format of a 6-digit group comprised of the date and followed by four digits to include hour and minutes. If a time other than UTC used, also advise what time zone is being used.
3. Vessel position.

This information is to be reported at the following times:

1. When passing the South Reporting Line or the East Reporting Line in either direction.
2. Upon berthing.
3. Before shifting berths or departing.
4. Upon anchoring or departing the anchorage.

Anchorage.—Anchorage can be obtained off the port or in the channel WNW of Xiaozhui Dao. Anchorage can also be obtained about 1 mile NW of Dazhui Dao, where there is smooth water in any weather. The anchorage is approached by a channel between Dazhui Dao and the mainland to the N.

The outer anchorage, has a depth of 18m, and lies 2.8 miles ESE of Xiangzhi Jiao Light (24°46'N., 118°47'E.).

Anchorage for LNG vessels can be taken in an area, with a radius of 600m, centered on approximate position 24°59'N, 119°04'E.

Vessels waiting to berth at Fujian Oil Refinery, awaiting a pilot, quarantine inspection, or tide, can take anchorage in position 24°52'N, 119°00'E.

See the table titled **Quanzhou Wan—Anchorages** in paragraph 9.14 for additional designated anchorages within Quanzhou Wan.

Caution.—Bridge construction work is in progress in Quanzhou Gang in a restricted area bounded by lines joining the following positions:

a. 24°51.06'N, 118°42.74'E.
b. 24°51.10'N, 118°42.63'E.
c. 24°50.59'N, 118°42.38'E.
d. 24°50.22'N, 118°42.10'E.
e. 24°49.77'N, 118°42.47'E.

f. 24°50.31'N, 118°42.88'E.
g. 24°50.91'N, 118°43.18'E.
h. 24°48.44'N, 118°40.55'E.
i. 24°50.07'N, 118°41.98'E.
j. 24°49.62'N, 118°42.35'E.
k. 24°48.44'N, 118°41.32'E.

9.16 Shenhu Wan (24°39'N., 118°40'E.) is a small shoal bay with barren shores about 9 miles NE of Wei-t'ou Chiao. Shenhu Wan is under the jurisdiction of Quanzhou Port Authority and provides working anchorages for Shenhu and Meilin.

Depths—Limitations.—A buoyed channel, with a depth of 12.2m and a width of 240m, leads into the harbor. Depths in the central part of the bay average between 5 and 9m.

Aspect.—Kusau Hill, 209m high and surmounted by a pagoda, is located about 4 miles NNW of Yungning Tsui and is a conspicuous landmark in the approaches to Shenhu Wan.

Pilotage.—Pilotage is compulsory for foreign vessels. Pilots will board in one of the following positions:

a. 24°38'32"N, 118°42'10"E.
b. 24°39'06"N, 118°41'44"E.

A notice of ETA should be sent 72 hours, 48 hours, and 24 hours prior to arrival.

Anchorage.—Anchorage and shelter may be obtained by boats in the N part of the bay during the Northeast Monsoon, in depths from 2.5 to 5m, sand and mud.

Pilotage and quarantine anchorages are centered at the following positions:

a. 24°38'33"N, 118°42'09"E—Pilot.
b. 24°40'55"N, 118°46'11"E—Quarantine.

An anchorage for large vessels awaiting orders is centered on position 24°38"55N, 118°42'53"E; an unrestricted anchorage is centered on position 24°40'52"N, 118°45'3"E. An additional unrestricted anchorage within Shenhu Wan is centered on position 24°39'21"N, 119°40'19"E, mud, with a minimum depth of 6m.

Caution.—The bay is reported to be unsafe during the Southwest Monsoon season.

Weitou Jiao to Zhenhaio Jiao

9.17 Weitou Jiao (Wei-t'ou Chiao) (24°31'N., 118°34'E.) is a low, sandy point which rises to a 24.3m hill surmounted by a light-colored and poorly-discernible obelisk. A rock, with a depth of less than 1.8m, is reported to lie about 0.7 mile SE of Weitou Jiao. There is another rocky shoal about 0.6 mile farther SE of this position. The sea breaks heavily on the dangers around the point, and it should be given a wide berth.

The coastline between the point and Zhenhaio Jiao, about 28 miles SW, describes an extensive bay which, giving access to a number of estuaries, inlets, and lesser bays, is largely shoal and encumbered by several large islets and scattered above and below-water dangers. Inland, the terrain is generally low and well cultivated throughout, save on the SW side where steep sided, rugged hills descend to the shore in bold headlands with lowland and sandy beaches intervening. Offshore, several deep water channels lead from sea and, passing through wide areas of shoal water and extensive margins of drying mud flats, proceed well into the inner reaches of the bay.

9.18 Weitou Wan (Wei-t'ou Ao) (24°33'N., 118°30'E.), a large expanse of mostly shoal water, entered between Weitou Jiao and the E side of Chinmen Tao, recedes about 10 miles NW. A deep water channel, having a least known depth of 8.2m, trends about 7 miles WNW from Weitou Jiao, and passes between the several scattered islets and areas of drying reefs and mud flats which extend offshore from the mainland and Chin-men Tao. The SW side of the channel is steep-to and soundings give little warning of its approach.

A petrochemical pier (24°39'N., 118°26'E.), 129m long with an alongside depth of 6.3m, will be operational (2012) and able to accommodate vessels of up to 3,000 tons.

Pilotage.—Pilotage is available and pilots will board in one of the positions:

a. 24°29'31"N, 118°31'18"E—quarantine anchorage.
b. 24°30'12"N, 118°32'45"E.

Anchorage.—The quarantine anchorage, which has depths of 17 to 21m, lies centered in position 24°29.5, 118°31.9"E.

Oyster Islet is a low flat rock about 2 miles NW of Weitou Jiao. Ta-po Hsu is a small islet about 7 miles WNW of the same point.

Vessels, seeking shelter from winds of the Northeast Monsoon season, anchor, in 6.4m, in a position about 0.5 mile SW of Oyster Islet or, in 9.1m, about 0.8 mile W of the islet. Care must be taken to avoid a rocky ledge, 0.6 mile WNW of Oyster Islet.

Caution.—A dangerous wreck, depth unknown, lies close NE of Weitou Jiao in position 24°31'06"N., 118°36'48"E.

9.19 Jinmen Dao (Quemoy) (24°27'N., 118°23'E.) is a large well-cultivated island which, rising to a rather high summit in the E part, has an irregular shoreline somewhat steep-to seaward and encumbered landward by shoal water and an extensive margin of drying mud flats. Chin-men-pei-tung Shui-tao is an encumbered deep-water passage which, leading from the entrance to Weitou Wan, passes around the N extremity of the island. Chin-men Shui-tao is a deep water channel which enters Chin-men Chiang, a shoal and reef-encumbered embankment on the W side of Chin-men Tao, by trending N from the sea between the many underwater dangers extending S from the SW extremity of Chin-men Tao and from the S side of Hsiao-chin-men Tao (Lieh Hsu) (Little Quemoy), a hilly islet close to the W. A swell usually breaks over these dangers at times other than HW.

The Kinmen Bridge, connecting Jinmen Dao and Xiaojinmen Dao, is under construction in the vicinity of position 24°27.0'N, 118°17.1'E. Works are expected to last until 2021, and the safe channel, 172m wide, is marked by lighted buoys.

An offshore oil terminal situated with the seaward extremity of a submarine pipeline in a position about 1.8 miles WNW of **Liaoluo Tou** (24°25'N., 118°26'E.), a peaked islet joined by a reef to the SE extremity of Chin-men Tao. A marker buoy and several mooring buoys are moored in the vicinity. Pilotage may be taken at the quarantine anchorage (24°29'N., 118°32'E.). A fish haven lies 3 miles S of Liaolou Tou. The S pier and breakwater, lit by a beacon, extend from the point of Lialuo Tou in depths of approximately 5 to 7m; the breakwater protects the harbor of Zigan.

Vessels, seeking shelter from lesser winds of the Northeast Monsoon season, anchor, in 8.5m, mud and sand, in a position,

with Liao-lo T'ou bearing 095° and Ta-wu Shan, the summit of Chin-men Tao, bearing 015°. When winds of the Northeast Monsoon season become stronger, a heavy swell sets in and renders the anchorage untenable. Vessels find shelter from all winds in Chin-men Chiang.

Caution.—Anchorage is prohibited in an area SE of the island, best seen on the chart. Additional restricted and prohibited areas are established around the coastline of Jinmen Dao and the adjacent islands. Vessels must keep to the main shipping channels unless prior permission to enter the restricted areas is obtained from the Taiwanese authorities.

Caution must be exercised due to the possible existence of mines in these waters. Surveys may be adequate in determining that formerly mined areas may be charted as doubtful; however, meteorological and hydrographic conditions prevent certainty.

A marine farm, bounded by lines joining the following positions, has been established for use into 2019 close off the W coast of Jinmen Dao:

a. 24°25'48"N, 118°17'45"E.
b. 24°25'45"N, 118°17'50"E.
c. 24°25'41"N, 118°17'43"E.
d. 24°25'40"N, 118°17'48"E.

9.20 **Pei-t'ing Tao** (Beiding Dao) (Dodd Island) (24°26'N., 118°30'E.), 3 miles ENE of Liao-lo T'ou, is 21m high; a light, from which a fog signal is sounded occasionally, is shown from a 13m high, metal framework tower. Reefs and shoals, on which the sea sometimes breaks, extend 1.3 miles E of the island, and also across the passage NW of the island.

Tidal currents inshore of the island set SW and W around the S tip of Chin-men Tao on the flood, and in the reverse direction on the ebb.

Xiaojinmen Dao (24°26'N., 118°14'E.), close W of Jinmen Dao, is a small island, with hills in the N part of the island reaching an elevation of 109m. The SW portion of the island is low lying sand hills and cultivated ground. Local knowledge is needed for navigation between this island and Jinmen Dao.

Caution.—The Kinmen Bridge is being built between the NE side of Xiaojinmen Dao and the larger island of Jinmen Dao, with construction expected to be completed by the summer of 2017. Lighted buoys are deployed at each of these positions on the right and left sides of the channel as listed below.

The right side of channel is delineated by lines joining the following positions:

a. 24°27'18"N, 118°17'12"E.
b. 24°27'11"N, 118°17'11"E.
c. 24°27'04"N, 118°17'09"E.
d. 24°26'57"N, 118°17'09"E.
e. 24°26'51"N, 118°17'11"E.
f. 24°26'44"N, 118°17'12"E.

The left side of channel is delineated by lines joining the following positions:

a. 24°27'15"N, 118°16'59"E.
b. 24°27'09"N, 118°17'01"E.
c. 24°27'04"N, 118°17'03"E.
d. 24°26'56"N, 118°17'03"E.
e. 24°26'51"N, 118°17'02"E.
f. 24°26'42"N, 118°16'59"E.

The third stage of bridge construction has commenced (2014); this has caused the width of the channel beneath the bridge to be reduced from 460m to 172m. Consequently, a two-way traffic control scheme has been implemented and vessels need to contact the traffic warden by VHF in order to obtain permission for passing under the bridge until further notice.

A marine farm, bounded by lines joining the following positions, has been established for use into 2019 close E of Xiamendongce Shuidao:

a. 24°25'17"N, 118°11'25"E.
b. 24°25'14"N, 118°11'38"E.
c. 24°25'08"N, 118°11'21"E.
d. 24°25'05"N, 118°11'34"E.

Xiamen (24°27'N., 118°04'E.)

World Port Index No. 57870

9.21 Xiamen (Hsia-men) (Amoy) is a well-populated metropolis approached from sea through several deep water channels passing between the many low islets, above-water rocks, and drying reefs which lie scattered between Hsiao-chin-men Tao and Chen-hai Chiao.

Hsia-chin-men Shui-tao and Xiamen Dongce Shuidao (Hsia-men-tung-ts'e Shui-tao), the two E channels, pass NW of Hsiao-chin-men Tao where they unite and join a channel which trends SE into Chin-men Chiang and NW around the E side of the large hilly island Xiamen Dao.

Xiamen Port Authority
http://www.portxiamen.gov.cn

Winds—Weather

Southeast winds predominate throughout the year. Typhoons (numbering three to four on average) can occur during the year with the peak time being from July through September. Fog is likely between March and May, with S and SW winds lasting between late afternoon through early the next morning.

Vessels are not permitted to enter or depart the port in winds exceeding force 6 (22-27 knots).

Tides—Currents

Tidal currents set NW on the flood current and SE on the ebb current in the E part of the outer harbor, and set W and E in that part of the outer harbor S of **Gulang Yu (Ku-lang Hsu)** (24°27'N., 118°04'E.).

In the channel W of Gulang Yu, tidal currents set N on the flood and S on the ebb, with a maximum rate of 2 to 3 knots at springs and 1 knot at neaps.

In Xiamen Nei Gang (Inner Harbor), the tidal currents set NW and SE at rates of 2 to 3 knots. Each current runs for about 6 hours. In the middle of the harbor, the NW flood current runs from 45 minutes before LW to 15 minutes after HW.

During the flood current, a strong E set may be experienced in the S entrance, and a W set may sometimes occur soon after the ebb current has begun in Xiamen Nei Gang.

Depths—Limitations

A new deep-water channel has been completed in 2015); its extension project (2016) leads, as follows:

1. From position 24°12'19.1"N, 118°17'38.7"E to position 24°19'42.2"N, 118°10'59.2"E with a width of 450m and a dredged depth of 16m.
2. Through position 24°21'51.4"N, 118°08'26.3"E with a width of 600m and a natural depth of 16m.
3. Through position 24°22'02.4"N, 118°08'13.2"E with a width of between 410 and 600m and a natural depth of 16m.
4. Through position 24°24'18.6"N, 118°05'59.5"E with a width of 410m and a dredged depth of 15.5m.
5. Ending at position 24°25'46.8"N, 118°03'25.1"E with a width of 410m and a dredged depth of 15.5m.

The total length of this channel is 18.79 miles.

Three precautionary areas associated with this channel are located, as follows:

1. Area No. 1—24°11'40.1"N, 118°18'06.4"E.
2. Area No. 2—24°15'17.7"N, 118°11'03.1"E.
3. Area No. 3—Bounded by lines joining the following positions:
   a. 24°20'55.6"N, 118°09'12.3"E.
   b. 24°19'20.6"N, 118°10'45.6"E.
   c. 24°18'38.4"N, 118°10'49.0"E.
   d. 24°19'21.4"N, 118°11'37.3"E.
   e. 24°19'48.4"N, 118°11'16.1"E.
   f. 24°21'14.8"N, 118°09'29.5"E.

Deep-draft vessels await HW to transit the channel W of Gulang Yu, but may enter the E channel at any state of the tide.

The harbor draft limits are generally over 10m at HW and 8m at LW.

Haicang Channel, leading to Xiamen Gang Haicang Gangpu, is 250m wide, and has a depth of 14m. Vessels of up to 50,000 tons can pass in Haicang Channel at HW; vessels of 100,000 tons are restricted to one-way transit.

A buoyed channel to the terminal, approximately 15 miles in length, with a designed depth of 12m, is intended for bulk cargo vessels as large as 70,000 dwt and container vessels up to 100,000 dwt. However, this channel can accommodate vessels with draft of 13m at HW.

Xiamen—Berth Information

Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
Dry Cargo Berths						
Heping Passenger Terminal						
No. 01	100m	7.9m	10,000 dwt	—	—	General cargo and passenger vessels.
No. 02	100m	8.4m	5,000 dwt	—	—	General cargo and passenger vessels.
No. 03	120m	9.9m	10,000 dwt	—	—	General cargo and passenger vessels.
Dongdu						
No. 01	166m	10.6m	10,000 dwt	—	—	Containers.
No. 02	254m	12.6m	50,000 dwt	—	—	Grain in bulk.
No. 05	100m	6.0m	3,000 dwt	—	—	Containers.
Haitian Container Terminal						
No. 05	260m	13.4m	50,000 dwt	—	—	Containers.
No. 06	170m	12.2m	50,000 dwt	—	—	General cargo and containers.
No. 07	177m	12.2m	50,000 dwt	—	—	General cargo.
No. 08	303m	13.3m	50,000 dwt	—	—	Containers.
No. 09	190m	13.3m	—	—	—	Containers.
No. 10	207m	13.8m	—	—	—	Containers.
No. 11	203m	13.8m	—	—	—	Containers.
Shihushan Coal Wharf						
Dongdu 18-19	724m	15.3m	50,000 dwt	—	—	General cargo, iron ore, and coal.
Haicung 07	349m	17.5m	150,000 dwt	—	—	General cargo, iron ore, and coal.
Songyu						
Songyu Dock—L-shaped jetty	88m	5.0m	40,000 dwt	—	—	Passenger and harbor vessels.

Xiamen—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
Songyu Dock—T-shaped jetty	30m	5.0m	40,000 dwt	—	—	Passenger and harbor vessels.
Xiamen Huaxia International Power						
Coal berth	350m	13.5m	35,000 dwt	—	—	Coal discharge.
Songyu Container Terminal						
Nos. 01-03	1,246m	17.0m	150,000 dwt	—	—	Containers.
Xiamen International Container Terminal (XICT)						
No. 01	443m	17.5m	150,000 dwt	—	—	Containers.
No. 02	320m	13.3m	100,000 dwt	—	—	Containers.
No. 03	320m	13.3m	100,000 dwt	—	—	Containers.
Hairun Container Terminal						
No. 04	239m	15.3m	50,000 dwt	—	—	Containers.
No. 05	240m	15.3m	50,000 dwt	—	—	Containers.
No. 06	239m	15.3m	50,000 dwt	—	—	Containers.
Xiamen Gang Haicang Gangqu Berths						
No. 1	298m	13.6m	50,000 dwt	—	—	—
No. 2	136m	6.6m	3,000 dwt	—	—	—
No. 3	114m	6.6m	2,000 dwt	—	—	—
No. 4	250m	6.6m	3,000 dwt	—	—	—
No. 20	633m	15.0m	—	—	—	Bulk cargo.
No. 21			—	—	—	Bulk cargo.
Xiamen Ocean Gate Container Terminal (XOCT)						
No. 13	1,508m	15.0m	100,000 dwt	—	—	Containers.
Nos. 14 to 17	298m	—	50,000 dwt	—	—	General cargo.
Xiamen International Cruise Terminal						
Cruise Berth	240m	12.4m	140,000 gt	—	—	Passengers.
TIG Terminals						
Nos. 20- 21	550m	13.5m	50,000 dwt	—	—	General cargo and containers.
Modern Terminal						
Nos. 1- 4	913m	15.3m	70,000 dwt	—	—	Break-bulk and ro-ro.
Xinhaida Container Terminal						
Nos. 18-19	754m	15.3m	100,000 dwt	—	—	Containers.
Mingda Terminal						
No. 08	258m	13.8m	50,000 dwt	—	—	General cargo.
Liuwudian Port						
Berth No. 1	158m	—	—	—	—	General cargo.
Wutong Ferry Terminal						
Ferry berth	80m	4.0m	3,000 dwt	—	—	Ferry.

Xiamen—Berth Information						
Berth	Length	Depth	Maximum Vessel			Remarks
			Size	LOA	Draft	
Ro-ro berth	80m	4.0m	3,000 dwt	—	—	Ro-ro.
Cargo berth	108m	4.0m	1,000 dwt	—	—	Passengers and general cargo.
Gaoqi Wharf						
Nos. 01-02	140m	—	1,000 dwt	—	—	General cargo.
Liuwudian Shouthern Terminal						
Nos. 06-08	785m	14.9m	5,000 dwt	—	—	General cargo and containers.
Multipurpose Berths (Dongdu)						
No. 03	190m	11.7m	15,000 dwt	—	—	Vegetable oils and fertilizer in bulk.
No. 04	166m	9.5m	10,000 dwt	—	—	Vegetable oils and general cargo.
Tanker Berths						
Lu Yong Terminal						
No. 1	55m	—	6,000 dwt	100m	—	LPG, chemicals, clean products, and aviation fuel.
No. 2	130m	—	5,000 dwt	—	—	LPG, chemicals, clean products, and aviation fuel.
Songyu Paktank Oil Terminal						
Outer jetty	369m	12.5m	100,000 dwt	268m	10.5m	Clean products and chemicals.
Inner jetty	208m	—	10,000 dwt	150m	6.0m	Dirty products.
Xinhai Petrochemical Terminal						
No. 01	95m	6.3m	5,000 dwt	—	11.5m	Chemicals, vegetable oils, and clean products.
Haihong Terminal						
No. 09	233m	13.8m	45,000 dwt	—	—	Chemicals and clean products.
Xianglu Terminal						
No. 10	270m	—	50,000 dwt	240m	—	Chemicals.
Haiao Terminal						
No. 4	54m	—	3,000 dwt	—	—	—
No. 5	55m	—	1,000 dwt	—	—	—
No. 6	45m	—	1,000 dwt	—	—	—
No. 7	40m	—	500 dwt	—	—	—
No. 12	280m	13.5m	65,000 dwt	—	—	Chemicals and clean products.
Songyu Paktank Navy Terminal						
No. 1	125m	—	5,000 dwt	—	—	Clean products.

Another channel for smaller size vessels is in operation for traffic between the Neicuoao Terminal on Gulang Yu and the Xiamen Liner Center on the W coast of Xiamen Dao. This channel is 4,550m in length, with depths of 5m for the first 1,460m, then deepening to 12m until the last 733m, where depths shallow to 11m. The channel passes E of Hou Yu through the following points that start from the terminal on Gulang Yu:

a. 24°26'59.1"N, 118°03'07.7"E.
b. 24°27'12.6"N, 118°02'54.5"E.
c. 24°27'39.4"N, 118°03'07.7"E.
d. 24°28'02.1"N, 118°03'30.0"E.
e. 24°28'26.5"N, 118°03'32.2"E.
f. 24°28'46.8"N, 118°03'40.1"E.
g. 24°29'02.9"N, 118°03'59.4"E.

The port is divided into several districts: Songyu, Haichang,

Dongdu, Haitian, and Gao Oil Terminal on Xiamen Dao. Xiamen Dao is joined to the mainland by the Haicang Bridge and the Xiamen Bridge. The only bridge that will have an effect on shipping is the Haicang Bridge which connects Xiamen Dao with the mainland across the channel W of the island crossing the N tip of Huoshao Yu. The safe vertical clearance is 55m beneath the bridge.

There are berths along the W and NE coast of Xiamen Dao, along the coastal areas of the mainland across the channel from NE Xiamen Dao, along the coast W of Xiamen Dao, along the coast WSW of Xiamen Dao on the N side of the channel leading W from Xiamen Gang, and on the E coast of the penisula S of Xiamen Dao. See table titled **Xiamen—Berth Information** for berthing details.

Aspect

A light is shown from the NE point of Xiamen Dao. Ta-tan Tao, a high hilly islet with a low-lying center portion, lies on the W side of the S entrance to Hsia-men-tao-tung-ts'e and serves as a landmark for vessels navigating the principal channel.

Zhu Hangdao (Dongdu Hangdao) (24°27'N., 118°04'E.), the principal entrance channel, has a least depth of 11.8m as far as Xiang Bi (24°27'N., 118°02'E.). This channel passes between the small low above-water rock **Wutan** (Jih Hsu) (24°22'N., 118°08'E.) and Qing Yu (Ch'ing Hsu), lying about 1 mile to the SW, which rises steep-to on its channel side. A light is shown from the NE slope of Qing Yu. An outgoing current sets strongly onto the island.

Zhu Hangdao passes W of Gulang Yu and has a least depth of 10.8m in the fairway leading N of Xiang Bi to the turning area 0.6 mile NNE of the Haicang Bridge (24°30'N., 118°04'E.); this bridge has a vertical clearance of 57m. The channel continues, with a least depth of 7.2m in the fairway, to the second turning area (24°32'N., 118°05'E.).

The channel from Xiang Bi to the Xiamen International Container Port, 2 miles W, has a least charted mid-channel depth of 11.2m.

Zhangzhougang Jingang Hangdao (24°24'N., 118°06'E.) leads from the vicinity of No. 19 Lighted Buoy and the pilot boarding area, 0.5 mile ENE, to the berths at Zhangzhou Gang (24°25'N., 118°03'E.).

Lujiang Shuidao, the channel passing E of Gulang Yu, has a least mid-channel depth of 7.6m.

There is a least swept depth of 10.5m in the channel for vessels passing W of Hou Yu (24°28'N., 118°03'E.). Care should be taken to avoid a shoal patch, with a depth of 8.6m, lying close ENE of Hou Yu. Power cables having a vertical clearance of 54m cross the channel N of this island.

The port is divided into three areas, as follows:

1. Donghu—the new harbor.
2. Xiamen—the old harbor, located on the SW tip of the peninsula facing Gulang Yu.
3. Gaoqi—the small craft harbor, located on the NW coast of Xiamen Dao.

The port contains more than 30 berths for vessels of various sizes, in addition to ten anchorage berths and five mooring berths. Heping Wharf, on the E bank of Xiamen Nei Gang, is used as an overseas passenger terminal. The channel to Heping Terminal is dredged to a depth of 16m.

A fishing harbor can accommodate up to 100 boats of up to 2,000 tons.

Pilotage

Pilotage is compulsory for berthing, shifting berths, and departing for all foreign vessels and for Chinese vessels that are 230m in length and greater. Pilotage is available 24 hours.

Vessel should advise ETA via agents as early as possible. Pilots should be requested 48 hours in advance of expected arrival and confirm again at 24 hours before arrival. The initial request should include the following information:

1. Vessel name, flag, and call sign.
2. LOA, beam, and draft.
3. Maximum height above water.
4. DWT, gt, and net tonnage.
5. Cargo type and quantity to be loaded.
6. ETA, ETD, and times for any berth shifting.
7. Time and place of mooring.

Xiamen Pilots should be contacted on VHF channel 6 as soon as within range. Pilots will board vessels over 10,000 dwt in position 24°24'25"N, 118°06'53"E.

Pilots can be contacted, as follows:

1. VHF: VHF channel 6
2. Telephone: 86-592-689-1166
3. Facsimile: 86-592-689-2918

Regulations

Foreign vessels and vessels exceeding 500 tons must enter port through Quingyu Shuidao.

Vessels must keep to the main shipping channels. Permission must be obtained from the Taiwanese authorities prior to transiting any areas other than these.

Vessels of less than 500 tons, fishing vessels. and sailing vessels should use Wu'an Shuidao (24°20'N., 118°08'E.) although there are a number of unmarked dangers in this channel.

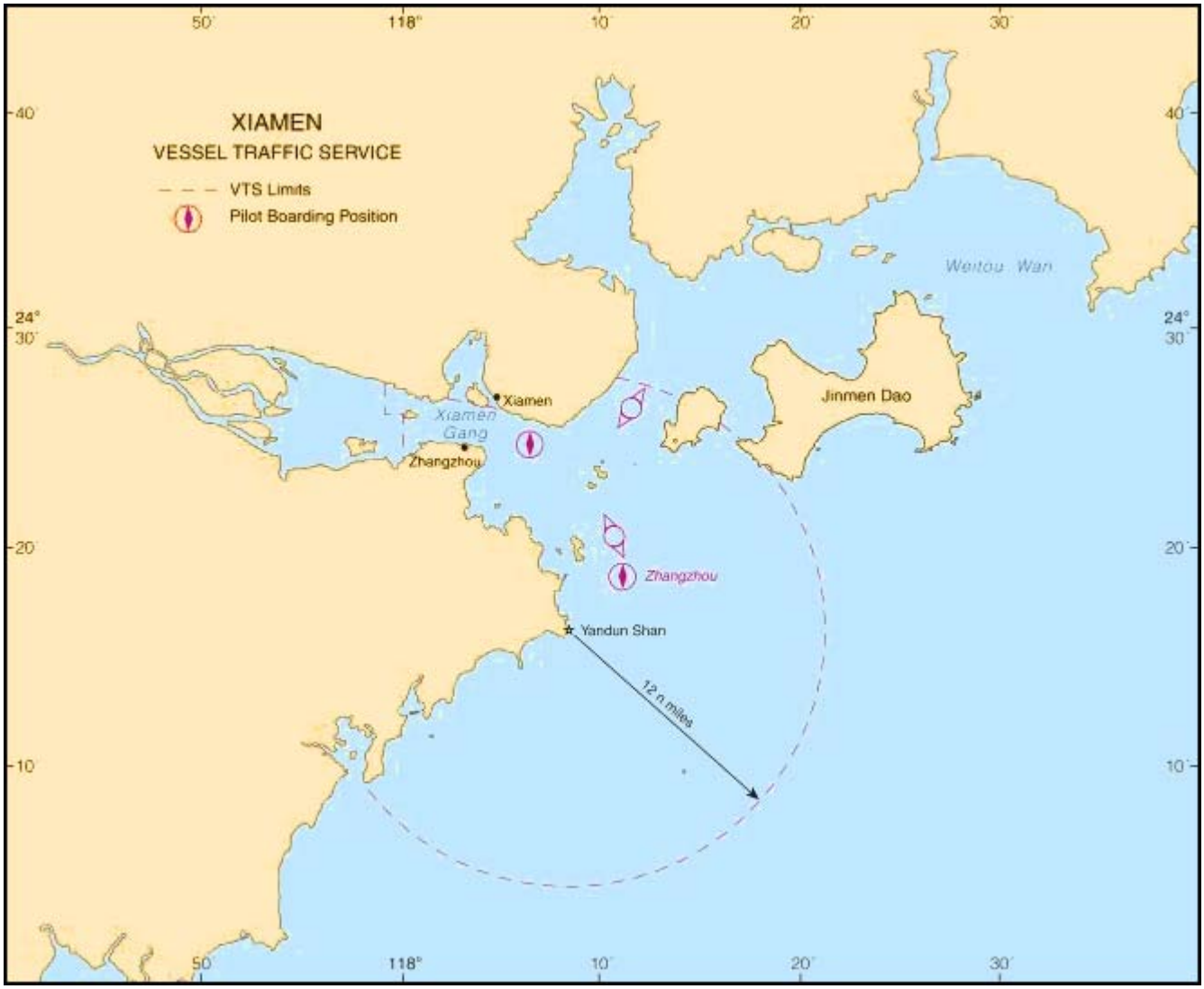
Vessel Traffic Service

The Xiamen Vessel Traffic Service (VTS) is an integrated part of the Fujian Coastal VTS and comprises Sector 3 of that VTS. See paragraph 7.35 for details that apply to all vessels participating in any part of the Fujian VTS. The Xiamen VTS has been established for the waters contained in the following areas:

1. An arc with radius 12 miles from Yandun Shan Light (24°16'12"N, 118°07'54"E.) between bearings 011°- 230°.
2. From the N coast of the Jiulongjiang Estuary due S along longitude 117°58'E until latitude 24°26'N, thence E to longitude 118°00'E, then S to the coast.

The Xiamen VTS is comprised of three radar stations and the center itself and provides the following services:

1. Regular broadcasts regarding aids to navigation, traffic movements and other safety information.
2. Navigational information (on request).
3. Urgent safety information.
4. Traffic organization.
5. Hydrometeorological information (on request).



Xiamen VTS

6. Anchorage arrangements (on request).

Participation in the Xiamen VTS is mandatory for the following types of vessels:

1. All foreign vessels.
2. Chinese vessels of 300 gt or greater.
3. Passenger vessels with more than 50 passengers, with the exception of ferries.
4. Vessels carrying dangerous cargo.
5. Vessels engaged in towing.

Reporting Lines and Points for the VTS have been established as follows:

1. **Southeast Line**—An arc of radius 12 miles from Yandun Shan Light (24°16'09"N 118°07'54"E) between bearings 055°- 230°.
2. **West Line—**From the N coast of the Jiulongjiang Estuary due S along longitude 117°58'E until latitude 24°26'N, then E to longitude 118°E, thence S to the coast.
3. **Position**—24°20'20"N, 118°09'58"E.
4. **Position**—24°27'10"N, 118°11'31"E.

Vessels participating in the Xiamen VTS should report to Xiamen VTS on VHF channel 8 upon passing the Reporting Lines and Reporting Points, and include the following information:

1. Vessel name, call sign, flag, and vessel type.
2. LOA.
3. Tonnage.
4. Vessel position.
5. Draft.
6. Height above water.
7. Description of any dangerous goods on board.
8. Towing information, if applicable.
9. Any other information as required by the VTS.

Vessels should also report to Xiamen VTS on VHF channel 8 prior to berthing or anchoring, and also on departure from berth or anchorage. The report should include the following information:

1. Vessel name.
2. Request for berthing or anchoring.

3. ETA at berth or anchorage.
4. Berth or anchorage name.
5. Time of departure from the berth or anchorage.

Vessels undertaking operations such as engine maintenance or compass calibration within the VTS area should report to Xiamen VTS to obtain authority,

Emergency reports should be made when encountering any pollution, accidents or other emergencies within the VTS area, as well as when observing any obstructions or damaged aids to navigation.

Contact Information

Xiamen VTS can be contacted, as follows:

1. Call sign: Xiamen VTS
2. VHF: VHF channels 8 and 27
3. Telephone: 86-592-689-5123
4. Facsimile: 86-592-689-5262
5. E-mail: vtsxm@fjmsa.gov.cn

The Port Authority can be contacted, as follows:

1. Telephone: 86-592-265-8265
2. Facsimile: 86-592-265-8222
3. E-mail: jz@portxiamen.gov.cn

Anchorage

Five designated anchorages, which can be seen on the chart, are, as follows:

1. Anchorage No. 1—Centered on position 24°18'45"N, 118°10'12"E with radius a radius of 800m and depths of 19 to 28m, mud.
2. Anchorage No. 3—Centered on position 24°23'24"N, 118°05'49"E with depths of 3.8 to 10m, mud, for vessels less than 10,000 dwt. Lighted buoys mark the S and E limits. A dangerous wreck lies close to the center of the area. Another dangerous wreck, with a depth of 3.3m, lies close inside the SW limit of the area.
3. Anchorage No. 4—The quarantine anchorage and pilot boarding area, is centered on position 24°24'14"N, 118°07'00"E with depths of 6.5 to 13m, mud, good holding ground. This area is marked by lighted buoys that are also used for marking the Xiamen Gang main channel and Xiajin Hangdao. A former mined area lies close SE to this area.
4. Anchorage No. 5—Centered on position 24°25'26"N, 118°01'54"E in depths of 7.1 to 10.9m; the anchorage is intended for vessels 1,000 dwt and larger. Lighted Buoy No. 407 marks the SW corner.
5. Anchorage No. 7—Centered on position 24°25'39"N, 118°01"54"E in depths of 5.7 to 10m. A patch of 4.6m lies close to the center of this area and areas close to the N and W sides of the anchorage have depths less than 5m.

A typhoon anchorage for vessels up to 10,000 dwt is available in the outer harbor located S and SW of Gulang Yu but care must be taken to avoid the seabed rocks that are in the area.

Caution

Anchoring and fishing are prohibited in several charted areas containing submarine cables and also in several channels between the mainland and adjacent islands.

A prohibited area surrounds the floating dock in position 24°25.2'N, 118°01.2'E; this area is best seen on the chart.

See paragraph 9.20 under Xiaojinmen Dao for details on a marine farm to be avoided between the S tip of Xiaojinmen Dao and Xiamen.

A dangerous wreck, depth unknown, is located E of Qing Yu in position 24°21'47"N, 118°08'20"E.

9.22 Dongdu (24°30'N., 118°04'E.), a new facility, is situated on the W side of Xiamen Dao, 2 miles N of Xiamen Nei Gang. Vessels enter this new port area by taking the W approach channel, W of Gulang Yu, then pass E of Lighted Buoy No. 34 to E of Hou Yu Light, then adjusting course and turning N to pass W of the light on Manyu Jiao. Then passing W of Lighted Buoy No. 36 and E of Lighted Buoy No. 37, vessels proceed to the berths. An alternate channel, dredged to a depth of 10.5m, passes W of Hou Yu. The channel is marked by lighted buoys. Local authorities should be contacted for more details.

Depths—Limitations.—At Dongdu, there are four deepwater berths, with a total of 776m frontage and alongside depths of 10.9 to 12.6m. The general cargo Berth No. 4 handles vessels up to 10,000 dwt. Berth No. 3 handles break bulk cargo vessels of 15,000 dwt. Berth No. 2 handles bulk carriers up to 50,000 dwt. At the S end of the terminal, Berth No. 4 handles container vessels of 10,000 dwt.

At Donghu, port expansion is in progress for a container berth to handle vessels of 35,000 dwt, a coal wharf for vessels of 25,000 dwt, and two berths for 25,000 dwt general cargo carriers.

Aspect.—Xiamen Gang (Hsia-men Chiang) (Amoy Harbor), the harbor area for Xiamen, extends from the principal entrance between Wu-tan and Qing Yu to a line joining the SW extremity of Xiamen Dao with Sung-hsu Pan-tao, a hilly promontory close to the W.

Hsia-men Wai-chiang, the outer harbor, comprises all of Xiamen Gang not included in the inner harbor. Xiamen Nei Gang, the inner harbor, consists of the narrow, encumbered channel between Xiamen Dao and the well-populated islet Gulang Yu, as well as the N part of the channel passing W of Gulang Yu.

Dapan Jiao (Hsu-tzu Wei) (24°24.5'N., 118°04.0'E.) is a point on the mainland 3 miles NW of Zhenhai Jiao. Ji Yu (Chi Hsu), an island, lies about 3 miles WNW of Dapan Jiao. Yunding Yan (Hung-wan Feng) is a conspicuous peak lying about 2 miles NNE from the S point of Xiamin Dao. It reaches a height of 342m. Yen-tzu-ting (Riguang Yan), 90m high and prominent with boulders on top, is the summit of Gulang Yu. Hou Hsu (Hou Yu), 18m high, marked by a light on its summit, lies about mile NW of the N point of Gulang Yu.

Pilotage.—Pilotage is compulsory. Vessels board pilots in the quarantine anchorage and, in general, enter Xiamen Nei Gang only in daytime. The ETA of a vessel and the request for pilot should be signaled 48 hours in advance through Xiamen coast radio station.

Anchorage.—The outer anchorage is S of Gulang Islet and the Xiamen Peninsula. The pilotage and quarantine anchorage lies between Gulang Islet and Gangziwei, with a depth of 10m, mud and sand bottom.

Caution.—Numerous cables exist in the inner harbor. Care

should be taken when anchoring.

A submarine pipeline is laid across Xiamen Nei Gang, 0.25 mile NW of Pang Shi.

A stranded wreck, dangerous to navigation, lies in approximate position 24°24'N 118°05'E.

A submerged rock with depth of 4.7m lies in approximate position 24°25.4'N, 118°01.9'E.

The Haicang Bridge, with a vertical clearance of 55m, spans the channel between Xiamen Dao and Huoshan Yu.

An overhead power cable, with a vertical clearance of 57m, spans the channel between Huoshao Yu and Xiament Dao.

A dangerous wreck, hazardous to navigation, has been reported (1999) to lie in approximate position 24°28.1'N, 118°03.8'E.

An area, prohibited to anchoring and fishing, lies centered in position 24°32.3'N, 118°05.2'E, and has a radius of 140m.

Depths less than charted exist in the channel between Xiamen Gang and the turning area at the head of the passage.

Ships are advised to keep to the swept channel as mines in these areas may still present a hazard to navigation. Anchoring and fishing are prohibited in areas extending from position 24°26'N, 118°05'E, as follows:

1. An area 0.6 mile wide extending SW to Dapan Jiao.
2. An area about 0.5 mile wide extending SSE to the edge of the mined area, passing clear of the pilotage and quarantine anchorage, as shown on the chart.

Zhenhaio Jiao to Lien-hua-feng Chiao

9.23 Zhenhaio Jiao (Chen-hai Chiao) (24°16'N., 118°08'E.) is a low-lying point which rises to a lofty conspicuous summit about 5.5 miles NW. Zhenhaio Jiao Light is shown from the summit. A reef, which should be given a wide berth, extends 0.8 mile ENE of the point. Discolored and broken water has been reported to extend a considerable distance from the coast between Zhenhai Jiao and Dingtai Tou, 3 miles SW. A pair of range lights is shown from the N and S points of the headland at Zhenhai Jiao.

The coastline between the point and Lien-hua-feng Chiao, about 121 miles SW, continues irregular and much indented by numerous bays and inlets and several estuaries which, in general, are backed by a low to rolling well-cultivated coastal plain. Lofty hills and low mountains become more common near the S part of the coast. Offshore, the 10m curve tends to close the salient coastal points and to contain, with rare exception, the several scattered and isolated dangers to navigation.

The many bays and inlets offer shelter against monsoon winds. The principal harbor in the area is Shantou Gang.

9.24 Dongding Dao (Tung-ting Tao) (24°10'N., 118°14'E.), lying 8 miles SE of Zhenhai Jiao, is 55m high and steep-to. It is grassy on top and perforated at its S end; there is also a remarkable mound at each end of the island. A light is shown from the summit of the island.

Lanbai Qiantan (Rambler Shoal), a small patch with a depth of 8m, and Erjin Qiantan (Erl King), with a least depth of 5m, lie 3 miles and 5 miles NW of Dongding Dao.

Tidal currents near Dongding Dao, during the Southwest Monsoon, have been observed to set N during the flood tide at Xiamen, with a maximum rate of 1 knot; during the ebb tide at Xiamen, the currents near Dongding Dao set SW, with a maximum rate of 2 knots.

Caution.—Three unmarked dangerous wrecks lie approximately 17 miles and 19 miles E, and 21.5 miles SE of Dong-ding Dao.

Linmengao (North Merope) (24°11'N., 118°05'E.), 8 miles WNW of Dongding Dao, is a reef of pinnacle rocks, the highest of which dries 2.4m; the sea breaks on this reef, which is marked close E by a lighted buoy.

Caution.—A wreck, depth unknown, is located (2013) in position 24°10"N, 118°07'E.

Nanding Dao (Lamtia Island) (24°08'N., 118°02'E.), 4 miles SW of Linmengao and marked by a light, is 60m high and appears yellow in color when seen at a distance; a racon transmits from it. The island has a round top and the S side is very steep.

Nan Sha (South Merope) (24°06'N., 118°06'E.), 4 miles ESE of Nanding Dao, is a shoal with a least depth of 1.3m; depths of less than 9m extend 5 miles from it.

9.25 Jiangjun Tou (24°02'N., 117°54'E.), 19 miles SW of Zhanhai Jiao, is the E extremity of a headland. Zao Shan, 578m high, stands 6 miles NW of Jiangjun Tou and is a good landmark. A light is shown on Jiangjun Tou.

Black Point (24°00'N., 117°49'E.), 5 miles WSW of Jiangjun Tou, is dark, table-topped, and rugged. A remarkable peaked sandhill lies 0.8 mile W of the point.

Jiangjun Ao (Red Bay), lying between these two points, is backed by low red sand hills.

Anchorage.—Anchorage can be obtained by small vessels during the Northeast Monsoon, but the N part of the bay is shoal.

Biao Jiao (23°55'N., 117°52'E.), about 5 miles E of Da'ou Jiao and marked by a light, is an isolated 18m high rock with a large boulder on its summit.

Caution.—Islets and submerged dangers extend up to 2 miles seaward of the coast between Jiangjun Tou and Da'ou Jiao, about 5 miles SW.

9.26 Futou Wan (23°51'N., 117°42'E.) is a large shoal basin entered between Da'ou Jiao and Xingzi Jiao (Hsing-tsu Chiao), about 8 miles further SW. Lishi Hangmen is a narrow, deep water channel passing between Lishih Chiao and the partially examined off-lying barren islet group Lishi Liedao.

Anchorage.—Vessels seeking shelter from strong N winds may anchor, in 7.3 to 11m, 0.4 mile SW of Da'ou Jiao, the SE extremity of the peninsula forming the E side of Futou Wan.

Anchorage is also available in a depth of 11m, 0.9 mile SW of the same point. They also anchor, in 11m, in Lishi Hangmen, with the S extremity of the NW islet of Lishi Liedao bearing E, distant 1 mile.

Caution.—A dangerous wreck, with a depth of 22.5m, is reported (2005) to lie near the N entrance to Lishi Hamngmen, in position 23°48'44"N. 117°39'28"E.

9.27 Dongshan Wan (T'ung-shan Chiang) (23°46'N., 117°32'E.) is an excellent storm refuge with entrance between the steep-to, rock-fringed headland **Gulei Tou** (Ku-lei Tou) (23°43'N., 117°34'E.), reported radar conspicuous at about 32 miles, and a point about 3 miles WNW. A light is exhibited 0.2 mile within Gulei Tou.

Ta Yu, a hilly islet with a low-lying center portion, lies about 2 miles WNW of Gulei Tou. The several rock and mud-fringed islets Huyu Dao and the islet group Tsu-mei Lieh-tao lie 2 miles NW and 3 miles N, respectively, of the same point.

9.28 Dongshan (23°45'N., 117°31'E.) is located at the entrance to the bay on the NE side of Dongshan Dao, about 2 miles NW of Tongling (23°44'18"N, 117°31'30"E.). Petroleum, coal, lumber, and cement are imported; the main exports include salt, silicate, and other general cargo. The port of Dongshan includes Gulei Terminal, which is located close S along the coast.

Tides—Currents.—The port is subject to irregular semi-diurnal tides. Tidal currents set NW during flood stage at a rate of 1 knot while setting SE at 0.75 knot during ebb tide.

Depths—Limitations.—A channel, with depths of 16.9m and marked by buoys, extends from the pilot boarding station to a bay. Depths then decrease to 10m to most anchorages and berths.

Four main berthing areas within the harbor are, as follows:

1. Tongling—Includes a new wharf and breakwaters extending SSE and WNW from Duimian Dao.
2. Dongshan Gang.
3. A new L-shaped jetty on the W side of Gulei Bandao.
4. A jetty and wharf built on reclaimed land, also on the W side of Gulei Bandao.

Significant new development continues within the harbor, including a new facility on the W side of Gulei Bandao, which includes 600m of wharf with berthing alongside and another L-shaped pier that will extend about 600m into the main channel.

See tabled titled **Dongshan—Berth Informations** for details on specific berths in the port, including Gulei.

Pilotage.—Pilotage is compulsory for foreign vessels. Pilots board in position 23°43'50"N, 117°34'22"E. For Gulei, pilots will board in position 23°43'47"N, 117°34'17"E.

Regulations.—Vessels should send their ETA 72 hours, 48 hours, and 24 hours prior to expected arrival.

Contact Information.—The port can be contacted through VHF channel 16 or by telephone (86-596-5622374).

Anchorage.—A quarantine anchorage, also used for waiting, lies SW of the entrance to the bay centered on position 23°42'46"N, 117°33'00"E with depths of 9 to 16m. A stone patch lies in the NW corner of this area.

A general purpose anchorage area with radius of 600m is centered on position 23°39'30"N, 117°36'27E.

Two general purpose anchorage areas, each with a radius of 500m, are centered on position 23°41'20"N, 117°35'43E and position 23°41'20"N, 117°36'20"E.

Within Dongshan Wan, ten designated anchorages for unrestricted use lie off the port. Anchorages numbered 10 to 15 are arranged from NNW to SSW and are approximately centered on position 23°45'20"N, 117°33'43'E in depths of 17 to 23m. Anchorages numbered 16 to 19 are arranged from NW to SE and are approximately centered on position 23°44'41"N, 117°33'25'E in depths of 13 to 24m.

Dongshan—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Silicon Sand Bureau				
Silican Sand	130m	7.2m	8,000 dwt	Sand.
Transport Company of Dongshan				
General Cargo	130m	5.5m	20,000 dwt	Containers and general cargo.
Kibing Terminal				
No. 1	300m	—	8,000 dwt	General cargo.
No. 2	240m	—	30,000 dwt	General cargo, steel, and coal.
Zhangpu Yide Petrochemical Terminal				
No. 1	352m	—	100,000 dwt	Clean products.
No. 2	60m	—	5,000 dwt	Clean products.
No. 3	40m	—	5,000 dwt	Clean products.
Oil	152m	5.2m	4,000 dwt	Petroleum.
Gulei Terminal				
S2	463m	24.5m	150,000 dwt	Liquid chemicals. Maximum loa of 334m.
S2-1	244m	13.5m	30,000 dwt	Liquid chemicals. Maximum loa of 203.5m.
S2-2	169m	13.5m	10,000 dwt	Liquid chemicals. Maximum loa of 145m.
S8	349m	—	150,000 dwt	General cargo and coal.
S9	320m	—	50,000 dwt	General cargo, coal, and steel.

Caution.—Several dangerous wrecks, in depths of 21 to 29m, are reported (2005/2009) to lie close off the entrance to Dongshan Wan between Gulei Tou and Yuanzhui Jiao.

Note the cautionary note in the Anchorage paragraph above.

9.29 Dongshan Dao (Tung-shan Tao) (23°40'N., 117°25'E.) is a large rather low well-cultivated island. Close within **Yuanzhui Jiao** (Cone Point) (23°40'N., 117°29'E.), about midway down the E side of the island, stands the prominent cone-shaped peak of Sufeng Shan, 273m high.

The bay SW of Yuanzhui Jiao is separated from Zhaoan Wan by only a low sandy isthmus.

Shi Yu (23°35'N., 117°27'E.), about 5.5 miles SSW of Yuanzhui Jiao, is 45m high. The passage between it and Dongshan Dao, 0.8 mile NW, is clear. A light is exhibited at an elevation of 55m on the N end of the island. Tidal currents attain a rate of 1 to 2 knots and form tide rips.

The S shore of the island, consisting of several bights and headlands, extends W from **Chou-k'o-k'o Chiao** (Jokako Point) (23°36'N., 117°26'E.), the hilly, precipitous SE extremity of the island. Chengzhou Dao is a hilly islet lying in the entrance to Zhao'an Wan (Chao-an Wan), a large shoal bay defining the W side of Dongshan Dao.

Caution.—A dangerous wreck lies 6 miles S of Shi Yu.

9.30 Zhao'an Wan (Chao-an Wan) (23°37'N., 117°17'E.), entered between Zhaoan Tou and Gangkou Tou, about 5 miles WNW, affords good shelter during the Southwest Monsoon, but in the Northeast Monsoon a short, steep sea arises when the wind is strong and makes the anchorage uncomfortable. The bottom is soft mud and the holding ground is bad.

Dacheng Wan (23°35'N., 117°10'E.) is entered between Long Yu and Wai Yu, 6 miles ENE. The NE part of the bay is shallow and there are drying rocks 1.1 miles ENE and 2.5 miles NE of Long Yu.

Depths—Limitations.—Datang Electric Works operates a jetty-type berth which extends 400m SE from the shore inside a L-shaped breakwater. The breakwater is marked by two lights. The berth is 280m in length and can handle vessels as large as 65,000 dwt with drafts as deep as 13m.

Huafeng LPG Terminal, situated on the SW side of Long Yu, is protected by a breakwater extending about 600m SSE of the SE point of Long Yu. The breakwater is marked at the head by a lighted beacon. The maximum size vessel handled at the LPG berth is 230m loa with a draft of 10m at HW.

Pilotage.—Pilotage is compulsory and available only during daylight hours. Pilots board, as follows:

1. Huafeng LPG Terminal—23°30'N, 117°10'E.
2. Datang Terminal—23°31'22"N, 117°07'21"E.
3. Within Anchorage Area No. 2 in position 23°30'18"N, 117°04'39"E.

Zhelin Wan (Che-lin Wan) (23°36'N., 117°03'E.) is a shoal bay entered between **Ch'en-ch'i T'ou** (Fort Head) (23°33'N., 117°05'E.), the S extremity of a rather high headland joined to the mainland NE by a sandy isthmus, and two hilly, larger islands to the W. A narrow, deep water channel leads NE of the high barren rock Ch'ing Hsu and then into the bay between the hilly, smaller islands Hsin-chou Shan and Che-lin Tao (Hsi-ao Shan).

Vessels, seeking shelter from NE and SE winds, steer for the NW side of Hsin-chou Shan on a heading of 326° so as to pass about 0.2 mile NE of Ch'ing Hsu. When the rock bears SSE, distant about 1 mile, alter course to starboard and steer 340° to the anchorage.

Anchorage.—Vessels anchor, in 9 to 11m, mud bottom, in a position within the deep water channel with the NW extremity of Che-lin Tao bearing 064°. The maximum rate of the flood and ebb currents in the entrance to the bay is 2 knots at springs.

Caution.—A stranded wreck, marked by a light, lies about 2 miles SE of the E entrance point of Zhelin Wan.

9.31 Nan'ao Dao (23°26'N., 117°03'E.) is a large, mountainous, and barren but well-inhabited island which is reported radar conspicuous at about 20 miles. It has numerous above and below-water dangers extending about 8 miles S and SE from the SE extremity of the island. A clear, deep water channel passes along the N and W sides of the island. Vessels entering the channel from the E usually pass N of the drying reef Liu-niu Chiao. The island has several prominent summits of over 500m; at its SE point there is a bold headland rising to an elevation of 118m. A light is shown from the SE coast of the island.

Vessels seeking shelter from winds of the Southwest Monsoon season anchor, in 9 to 11m, good holding ground, within Ch'ang Shan Poti, a roadstead lying within the deep water channel off the W side of Nan'ao Dao.

The tidal currents N of Nan'ao Dao run parallel to the coast at a rate of 1 to 3 knots.

Anchorage.—Anchorage No. 1 lies approximately 4 miles SW of Nan'ao Dao and has a minimum depth of 13.4m. Anchorage No. 2 lies approximately 2 miles off the NE coast and has depths ranging from 7.8 to 11.4m.

Caution.—An unexploded depth charge is reported to lie 2 miles E of the NE point of Nan'ao Dao. Another area of unexploded ordnance lies in position 23°29.0'N, 117°14.9'E.

Large fishing stakes exist off the coast.

An exposed wreck, marked by a lighted beacon, lies in the channel 2.5 miles N of Nan'ao Dao. A dangerous wreck (2012) lies in Houjiang Shuidao about 1 mile NW of the fort standing at the W extremity of Nan'ao Dao.

A bridge under construction (2013) extends from the coastline near position 23°26'20"N., 116°51'41"E on a curve to vicinity of position 23°27'10"N., 116°53'54"E (close S of Fenguu Dao) then SE to the W coast of Nan'ao Dao near position 23°26'16"N., 116°56'40"E.

Fenguu Dao (23°28'N., 116°55'E.), a small uninhabited small island approximately 760m in width at the widest part and 1,100m in length, rises to an elevation of 89m in the center. Fenguu Dao is ringed by reefs all around and is marked by a light on the S tip of the island.

Zhisong Yan (Gibson Rock) (23°26'N., 117°18'E.), 8 miles E of the NE point of Nan'ao Dao, has a depth of 5.6m.

Chi-hsing Chiao (23°29'N., 117°14'E.), a group of rocks 1.5 to 2m high, lie 4 miles NW of Zhisong Yan; from E and W they appear as large boulders some distance apart. There is a detached drying rock lying 3 miles farther NW, which vessels usually pass N of when using the channel N of Nan'ao Dao.

Shantou (23°22'N., 116°41'E.)

World Port Index No. 57860

9.32 Shantou (Shan-t'ou) (Swanton) is a densely-populated metropolis on the E bank of a branch of the river Han Chiang, located at a distance of about 5 miles from the river entrance. Shantou Gang, the harbor area within the estuary, is entered through a narrow channel about 6 miles NNW of Biao Jiao (Hao-wang Chiao), the NE extremity of a hilly peninsula.

Tides—Currents

The tide is irregular and considerably influenced by prevailing winds. East winds, with a velocity greater than 10 knots, may cause higher water levels, later HW, and earlier LW than predicted. West winds tend to have the opposite effect. Tidal rise may amount only to 0.6 to 0.9m for a number of days during the Southwest Monsoon season. After 1 or 2 days of calm, the water level falls, with the consequence of more water than charted usually found on the bar.

Tidal currents set directly through Luyu Shuidao (Te Chou Men), the entrance channel to Shantou Gang, except during the ebb current, when a branch sets along the N side of **Lu Yu** (23°19'N., 116°46'E.), 57m high, lying in the entrance to Shatou Gang. The flood current occurs from 1 to 2 hours after LW until 1 to 2 hours after HW; the ebb current occurs from one to two hours after HW until 1 to 2 hours after LW. Eddies form NW of Lu Yu, particularly with the flood current.

The flood current within the anchorage off Shantou occurs from 1 hour 30 minutes after LW until 45 minutes after HW; the ebb current occurs from 45 minutes after HW until 1 hour 30 minutes after LW. The current on the S side of the anchorage turns before that on the N side. The flood current attains a rate of 2 knots, while the ebb current can attain a rate of 4 knots.

Depths—Limitations

The least depth over the bar is 9.1m, with the range lights aligned bearing 322°; however, depths of from 6.3m, a dangerous wreck, and the 5m curve lie close to this alignment. The main channel continues to the harbor, with a least depth of 8.2m.

Depths in the approaches to Shantou Gang are subject to change. The sea breaks heavily on the bar after strong winds.

Luyu Shuidao, the entrance channel to Shantou Gang, passes W of Lu Yu. It extends about 8 miles, has a minimum width of 0.15 mile, and depths in the fairway of 7.8 to 27m, mud and sand bottom.

A vessel with a draft of 6m must enter on the high tide, but a vessel with a draft of 4m can usually enter and depart anytime.

There are two berths for 5,000-ton ships, one for 3,000-ton ships, one coal berth for 3,000-ton ships, and one overseas passenger terminal for ships up to 5,000 tons.

Mooring buoys off the wharves can secure two 10,000-ton ships, two 5,000-ton ships, one 2,000-ton ship, and one 1,000-ton ship.

The **Shantou Bay Bridge** (23°20'N., 116°45'E.) has a vertical clearance of 46m. The Dangshi Bridge, 4.8 miles W, has a vertical clearance of 38m.

Two new berths are under construction for vessels of 5,000 tons. In Tuolin Bay, two anchorage-lighterage berths are being made available for vessels up to 16,000 dwt.

Plans for a major port development at **Guang'ao** (23°14'N., 116°47'E.), S of Shantou, are underway and include construction of 22 berths for vessels of between 20,000 and 1,000,000 dwt. Range lights, in line bearing 359°52', lead into the bay.

Two breakwaters are under construction (2016) on the E side of the bay to enclose Guang'ao Gangqu, as follows:

1. Projecting about 2 miles S from the E entrance point (23°14.56'N 116°44.76'E) of the creek connecting Guangao Wan to Shantou Gang and continuing ESE then E, enclosing Guang'ao Gangqu.
2. Projecting bout 1,600 yards SW from position 23°12.84'N, 116°46.95'E.

Aspect

Biao Jiao (23°14'N., 116°48'E.) is the steep-to E extremity of a hilly peninsula. A light, from which a radiobeacon and a racon transmit, is exhibited on Biao Jiao. Leikou Shan, the highest summit on the peninsula, is flat-topped and conspicuous from the SW. Biao Jiao is reported radar conspicuous at about 22 miles and is apt to be confused in thick weather because of a similarity in summits and sandy beaches, with Haimen Jiao, a point about 10 miles WSW.

Shuan Sha (The Bar) lies between Chi Yu, a low-lying islet about 2 miles NNW of Biao Jiao, and Tai-hsia-chin Sha-tsui, a shoal sand spit which, marked by heavy breakers after strong winds, lies with its S extremity about 1.8 miles NNW of Chi Yu. A light is exhibited on Chi Yu.

Inside the bar, the narrow deep water channel Luyu Shuidao leads into the harbor S of Lu Yu and Ma Yu, two hilly islets. On the E part of Lu Yu, a light is exhibited; in the middle and W parts, there are lights in line bearing 127°, astern. A light is also exhibited on the E peninsula of Ma Yu. The channel N of the islets is navigable by small craft.

Niang Jiao (23°19'N., 116°50'E.), a rock with a least depth of 2.3m, lies on the N side of the approach, 3 miles NE of Chi Yu. A lighted buoy is moored about 0.5 mile S of the rock.

Pilotage

Pilotage is compulsory for all foreign vessels. Pilots must be requested 48 hours prior to arrival, through contact with the Port Office directly, or through ships agents. When departing, pilots need to be requested 24 hours in advance.

Pilots will board in the following locations:

1. Anchorage No. 1 (23°21'N., 117°00'E.).
2. Anchorage No. 2 (23°30'30"N., 117°05'E.).
3. Haimen Wan (23°07'26"N., 116°36'03"E.).
4. Haimen Wan bulk carriers from 50,000 to 150,000 gt (23°02'N., 116°38'E.).
5. No. 1 (23°17'00"N, 116°54'01'E.)
6. No. 2 (23°15'16"N, 116°50'55"E.)
7. Jinghai (22°57'48"N., 116°32'48"E.).
8. No. 1 (23°10'00"N., 116°50'00"E.).
9. No. 2 (23°10'52"N., 116°47'29"E.).

The ETA of a vessel, and the request for a pilot, should be

sent 48 hours in advance through Shantou Gang.

Pilots can be contacted, as follows:

1. VHF: VHF channel 10
2. Telephone: 86-754-888-52419 (Shantou)
   86-754-889-82996 (Yuedong)

Vessel Traffic Service

A vessel traffic service area has been established around the area of Shantou and includes the Nanao Bridge area and is bounded by the 6 Reporting Lines described below:

1. **Reporting Line L1**—Between position 23°30'00"N, 116°59'00"E and position 23°27'40"N, 116°59'00"E.
2. **Reporting Line L2**—Between position 23°25'00"N, 116°52'00"E and position 23°25'30"N, 116°56'30"E.
3. **Reporting Line L3**—Between position 23°25'35"N, 116°50'00"E and position 23°10'40"N, 116°50'00"E.
4. **Reporting Line L4**—Between position 23°06'00"N, 116°41'00"E and position 23°10'00"N, 116°50'00"E.
5. **Reporting Line L5**—Between position 23°06'00"N, 116°41'00"E and position 23°06'00"N, 116°32'00"E.
6. **Reporting Line L6**—Between position 23°26'50"N, 116°27'30"E and position 23°26'50"N, 116°27'45"E.

Participation in the Shantou VTS is mandatory for the following types of vessels:

1. All foreign vessels.
2. Chinese vessels of 500 gt and over.
3. Passengers vessels (except ferries).
4. Vessels carrying dangerous goods.
5. Vessels engaged in towing or with restricted movement.

Several different types of reports need to be made to Shantou VTS periodically by vessels approaching, entering, and sailing through the VTS area. Please refer to the table titled **Shantou VTS—Reporting Requirements** for details.

Shantou VTS can be contacted, as follows:

1. Call sign: Shantou VTS Centre
2. VHF: VHF channels 8 and 14
3. Telephone: 86-754-889-00020
4. Facsimile: 86-754-889-00010
5. E-mail: stvts@gdmsa.gov.cn

Shantou VTS—Reporting Requirements

Report Type	Reporting Time and Method	Information Required
Pre-arrival	Vessels 1,000 gt and over should submit report via e-mail or facsimile 24 hours in advance of arrival or upon departure from previous port if less than 24 hours away.	1. Vessel name and call sign. 2. Vessel nationality and type. 3. Name and address of vessel's owner, operator or agent. 4. LOA, gt, and beam. 5. Maximum height. 6. Number of ME and speed. 7. Cargo type and weight. 8. Class and quantity of dangerous goods. 9. Arrival draft. 10. Number of crew and passengers. 11. ETA. 12. Last port of call. 13. Expected berth.
Berthing	Twenty-four (24) hours in advance via e-mail or facsimile.	1. Estimated time of berthing. 2. Name of berth. 3. Maximum arrival and departure draft. 4. Other relevant information.
Pilotage	Twenty-four (24) hours in advance via e-mail or facsimile.	1. Vessel and pilot name. 2. Area and duration of pilotage.
Anchorage	Twenty-four (24) hours in advance via e-mail or facsimile.	1. Estimated time of anchoring. 2. Position. 3. Maximum draft.
Entry	Upon passing Reporting Lines inbound to the VTS area via VHF.	1. Vessel name or call sign. 2. Current position and intentions. 3. Maximum draft.
Arrival	Upon arrival at wharf, mooring buoy or anchorage destination via VHF.	1. Vessel name or call sign. 2. Berth or anchorage. 3. Berthing time.

Shantou VTS—Reporting Requirements		
Report Type	**Reporting Time and Method**	**Information Required**
Shift	Before shifting berth or anchorage via VHF.	1. Vessel name or call sign. 2. Position. 3. Intended berth or anchorage.
Departure	Before leaving the berth or on heaving anchor via VHF.	1. Vessel name or call sign. 2. Position. 3. Application for departure.
Exit	Upon passing Reporting Lines outbound from the VTS area via VHF.	1. Vessel name or call sign. 2. Report exit VTS.
Incident	When involved in or discovering marine traffic incidents via VHF or any appropriate means.	1. Vessel name or call sign. 2. Vessel flag state. 3. Time and position of incident. 4. Damage situation. 5. Salvage requirements. 6. Cause of incident and any other information required by the VTS.
Security Incident	When involved in or discovering security incidents via VHF or any appropriate means.	1. Vessel name or call sign. 2. Vessel flag state. 3. Position. 4. Vessel type. 5. Condition of crew and cargo. 6. Nature of incident or threat.
Abnormality	When discovering abnormality of navigation aids, drifting objects or any other unusual circumstances which may impede the safety of navigation via VHF.	1. Vessel name or call sign. 2. Position. 3. Abnormality and any other information required by the VTS.
Working	Before or after vessel works.	1. Vessel name or call sign. 2. Position. 3. Operation details.

Signals

Storm signals are displayed from a flagstaff near the conspicuous Customhouse when a typhoon is within 100 miles. When a gale or typhoon is expected to strike the port, the following additional signals are hoisted:

Day	Night	Meaning
One black ball	One red light	Gale
Two black balls	Two red lights	Typhoon

Contact Information

The Port Authority can be contacted, as follows:
1. Telephone: 86-754-889-32345
2. Facsimile: 86-754-888-50425
3. E-mail: spq@stport.com

Port Control can be contacted, as follows:
1. VHF: VHF channels 10, 12, and 18
2. Telephone: 86-754-889-32291

The Marine Safety Administration (MSA) can be contacted, as follows:
1. VHF: VHF channels 9, 14, 16, 25, and 26
2. Telephone: 86-754-889-00159
3. Facsimile: 86-754-889-00159

Anchorage

The pilotage and quarantine anchorage is situated E of Chi Yu, in a depth of about 6.5m. The above mentioned anchorage is the quarantine anchorage No. 1 of this port. Quarantine Anchorage No. 2 and Lower Reach Anchorage are situated between Lighted Buoy No. 1 and Lighted Buoy No. 2, lying 0.75 mile NNW of Ma Yu, and Lighted Buoy No. 3 and Lighted Buoy No. 4, lying 2 miles WNW of Ma Yu.

Upper Reach Anchorage occupies that portion of the harbor extending from S of Shantou to **Gui Yu** (23°20.3'N., 116°38.4'E.); the W part of this anchorage is used for tankers.

These anchorages can be used to ride out typhoons and provide 11 berths for moderate-size vessels lying at anchor or working cargo, in depths of from 5 to 13m, mud bottom.

Caution

A dangerous wreck, marked by a lighted buoy, lies about 1.5 miles ENE of the light on Biao Jiao. A wreck, dangerous to

navigation, lies about 0.75 mile NE of Chi Yu; a stranded wreck lies almost 1.5 miles N of Chi Yu. A dangerous wreck lies almost 2 miles E of the stranded wreck, while an obstruction with 1.6m, lies close N of the stranded wreck.

9.33 Jinghai Gang (22°59'N., 116°32'E.), is a small harbor at the N end of Jinghai Wan.

Depths—Limitations.—The coastline is flat in this area and the inner harbor is shallow with silting. The harbor is approached through a channel, 1 mile in length, marked by lighted buoys, and is also protected by a breakwater extending 1,000m SSW from Beipaotai Jiao.

A coal pier is located close W of the breakwater, with berths on the W side of the pier. A turning basin is located about 250m off the N end of the buoyed entrance channel.

Anchorage.—A waiting anchorage has been designated in Jinghai Wan, in depths of at least 19m, centered on position 22°57'48"N, 116°32'48"E.

Shibeishan Jiao to Ta-p'eng Chiao

9.34 Shibeishan Jiao (22°56'N., 116°29'E.), about 25 miles SW of Biao Jiao, is a low rock-fringed sandy point that rises close inland to a rounded hill about 114m high.

A light is shown from a height of 68m and a racon transmits from the light structure on Shibeishan Jiao.

The coastline between the point and Ta-p'eng Chiao, about 115 miles WSW, is irregular and indented at fairly equal intervals by a series of bights and bays. Inland, the terrain is low-lying for about half of the distance along the coast and then, rising in the remaining half, hilly and mountainous. The shore line throughout has extensive sandy beaches backed in places by areas of sand dunes.

Offshore, the 20m curve continues to close the salient coastal points and to contain, with few exceptions, the several scattered and isolated dangers to navigation.

The several bays indenting the coast are largely of importance as anchorages during the monsoon seasons.

Caution.—A dangerous wreck, depth unknown, has been reported (2013) in Jinghai Gang, about 3 miles NE of Shibeishan Jiao in position 22°57'06"N, 116°34'06"E.

Numerous wrecks, mostly dangerous with depths unknown, have been reported or confirmed within 30 miles seaward of the 20m depth curve contour; all are best seen on the chart.

Shenquan Gang (22°57'N., 116°18'E.) is an open roadstead lying within the larger of two bights indenting the coastline between Shibeishan Jiao and Jiazi Jiao. Mianqian Qunjiao, a rock with a depth of 1.6m, lies 3 miles SE of Shequan Gang.

Shenquan (22°58'N., 116°09'E.) is a village situated about 8 miles WNW of Shibeishan Jiao. The village is on the E entrance point of a river with a bar on which the sea breaks at LW. A pagoda stands on a hill 2 miles N of the village.

Aspect.—A conspicuous square stone stands on the shore about 3.8 miles W of Shibeishan Jiao. A pagoda stands in a village on the E entrance point of a river entering the sea about 11.5 miles W of Shibeishan Jiao.

Anchorage.—Anchorage can be obtained at Shenquan Gang during the Northeast Monsoon, in a depth of 9.4m, with the pagoda bearing 348°. The holding ground is good, but there is often a heavy swell.

9.35 Jiazi Jiao (22°49'N., 116°06'E.), 14 miles SW of Shenquan Gang, is prominent with a rugged summit where a light stands at a height of 78m. Several islets and rocks extend S and SE of Jiazi Jiao and the point should be given a wide berth. Dongbaijiao, a rock 5.4m high, is the outer exposed danger and lies 1 mile S of the point. Rocks, with depths of less than 5.5m, extend 1 mile ENE of Dongbaijiao.

Black Mount (22°52'N., 116°09'E.), a 56m high conspicuous black conical hill that can often be seen at night, rises from surrounding red sand dunes about 4 miles NE of Jiazi Jiao.

Vessels, seeking shelter from winds of the Northeast Monsoon season, steer not greater than 320° for the square rock W of Shibeishan Jiao, so as to pass W of above and below-water dangers, and anchor, in 10.1m, about 0.5 mile WSW of a 15.8m islet, about 2 miles W of Shibeishan Jiao. They also anchor, in 9.4m, good holding ground, with the pagoda at the river entrance W of Shibeishan Jiao bearing 348°. A heavy swell often sets into the anchorage from the S.

Caution.—A dangerous wreck (22°44.2'N., 116°06.8'E.), lies about 5 miles S of Jiaze Jiao.

9.36 Jiazi Gang (Chia-tzu Kang) (22°51'N., 116°04'E.), with a shallow bar at its entrance, is situated 2 miles NNW of Jiazi Jiao. Wu Jiao, lying in the approach to the harbor, is 2m high; other rocks fringe the coast to the W. A light is shown from a white, round masonry structure at the head of a breakwater (22°50.5'N., 116°04.5'E.).

During the Northeast Monsoon, small vessels can obtain anchorage about 0.6 mile SSW of Wu Jiao, in a depth of 9m, but there is usually a heavy ground swell. The currents in the anchorage set NE at a rate of 1 knot on the flood and SE at a rate of 1.5 knots on the ebb.

Hudong Jiao (Hutung Chiao) (22°48'N., 115°57'E.) is situated about 8 miles E of Jaizi Jiao; on it there is a fort and a prominent dome-shaped building resembling a beehive. A rock, peculiar in shape when seen from the E, lies close off a small islet 1 mile SE of Hudong Jiao.

Heiyan Jiao (Black Rock Point) (22°47'N., 115°54'E.), which is distinguished by a conspicuous mound 32m high close NW of it, lies about 3 miles W of Hudong Jiao. The coast between Heiyan Jiao and **Tianwei Jiao** (Tien-wei Chiao) (22°45'N., 115°49'E.), about 5 miles WSW, is a sandy plain.

Jieshi Wan (Chieh-shih Wan) (22°46'N., 115°40'E.) is a bay of quite regular dimensions, whose flat sandy shore is densely populated and whose approaches in moderate weather are crowded with fishing craft. Tianwei Jiao, the E entrance point, is the S extremity of a promontory which, rising to a sharp, conspicuous summit about 1 mile NW, is reported radar conspicuous at about 15 miles. It is marked by a light.

The E part of the bay, between Tainwei Jiao and Jinxiang Jiao, a conspicuous 48m high hillock about 9 miles NW, is encumbered with several remarkably precipitous rocky islets, rocks, and shoals; these shoals are not always visible due to the muddy color of the water.

Anchorage.—Two anchorages in the S part of Jieshi Wan have been designated for sheltering from typhoons. The one farthest to the N is for tankers and has a radius of 2 miles centered on position 22°45'56"N, 115°41'01"E. The other one is

for all other vessels and has a radius of 2 miles centered on position 22°39'56"N, 115°41'05"E.

Xijie Jiao (Hsi-chieh Chiao) (Siki) (22°42'N., 115°47'E.), lying 3 miles SW of Tianwei Jiao, is a rugged islet 14m high with two granite hummocks. A rock, with a depth of 5.5m, lies 0.5 mile NW of Xijie Jiao.

9.37 Dongjie Jiao (Tungki Rocks) (22°46'N., 115°50'E.), a group of black rocks up to 7m high, lies about 1.2 miles SE of Tianwei Jiao; the passage N of the rocks should not be used.

Bi Tou (22°45'N., 115°36'E.), situated about 8 miles SW of Jinxiang Jiao, is the NE extremity of Baisha Bandao, a hilly peninsula connected to the mainland SW by a narrow sandy isthmus. A number of drying rocks extend up to 0.5 mile off the coast between Bi Tou and Zheling Jiao, about 6 miles SSW.

Jin Yu (22°43'N., 115°37'E.), 38m high, with a precipitous rocky summit at its N end, lies on the W side of the entrance to the bay, about 3 miles SSE of Be Tou.

Zhelang Jiao (Che-lang Chiao) (22°39'N., 115°34'E.), the W entrance point of Jeieshi Wan, is marked by a light. The point is the S extremity of a rather low, rocky finger of land which, reported radar conspicuous at about 16 miles, is remarkable for its areas of red sand and black mounds extending for some distance on either side of the point. A conspicuous boulder, on which there is a white-washed mark, is located at an elevation of 31m, 0.2 mile N of the point. A wreck, in 16m of water, lies in position 22°31'41"N, 115°54'42"E.

Anchorage.—Anchorage, protected from all but S winds, can be obtained in Jieshi Wan by choosing a berth on either side of the bay according to the prevailing monsoon; however, vessels of deep draft must anchor well out in the bay.

Shallow draft vessels can obtain anchorage NW of Bi Tou, protected from S winds; and during the Northeast Monsoon in a position 2 miles NW of Tianwei Jiao, or in a position about 0.8 mile W of a prominent block of granite, with an elevation of 18m, which stands on a hillock near the shore about 3 miles N of Tianwei Jiao. The latter anchorage should be approached with the block of granite bearing 075°, to clear the dangers on each side.

Small vessels, with drafts of less than 3m, can anchor 0.5 mile NW of Jinxiang Jiao.

Anchorage with good holding ground and sheltered from the Northeast Monsoon, may be obtained about 0.2 mile W of Zhelang Jiao, in depths of 11 to 12.8m, sand and mud, in a position with the conspicuous boulder N of Zhelang Jiao bearing 044° and with the lighthouse standing on an islet close S of Zhelang Jiao bearing about 132°. Tidal currents are strong in the anchorage.

Caution.—The swell is felt throughout the bay during the Northeast Monsoon. During moderate weather, the bay and its approaches are crowded with fishing boats.

9.38 Honghai Wan (Hung-hai Wan) (22°40'N., 115°10'E.) is a large islet-encumbered, shoal bay lying at the head of an extensive bight which recedes inland between Zhelang Jiao and Fu-chi Chiao, about 37 miles WSW. A light is exhibited 0.5 mile NNW of Fu-chi Chiao. The bay is but partially examined, often crowded with fishing craft in fair weather, and commonly under the influence of a long ground swell. Strong tidal currents are reported to set N and S according to the state of the tide. The tidal range is slight.

Numerous dangers lie off the coast between Zhelang Jiao and Saozhou Wei (Chou-pa Wei), about 10 miles W.

Shui-ya Shih (Flat Rock), 6m high, lies 1 miles W of Zhelang Jiao.

Anchorage.—Two anchorages in the S part of Honghai Wan have been designated for sheltering from typhoons. The one farthest to the N is for tankers and has a radius of 2 miles centered on position 22°40'10"N, 115°17'33"E. The other one is for all other vessels and has a radius of 2 miles centered on position 22°36'54"N, 115°13'00"E.

9.39 Daya Wan (Ta-Ya Wan) (22°37'N., 114°40'E.) is a large islet-cluttered, deep water bay whose shoreline, backed throughout by mountainous terrain, recedes inland in an irregular series of lesser bays and inlets which form the major portion of a considerable coastal embayment.

Depths—Limitations.—A pier extends from the Guanzhou Petrochemical Complex on **Mabian-zhou Island** (22°40.2'N., 114°39.3'E.). The pier is approached through a 175 to 205m wide buoyed channel, which has a controlling depth of 16.1m.

Pilotage.—Pilots may be boarded in the following positions:

1. Position 22°23'N, 114°49'E.
2. Position 22°30'N, 114°46'E.
3. Position 22°33'N, 114°41'E.
4. Anchor Berth No. 8 (22°29'N., 114°42'E.) for oil tankers greater than 100,000 tons, but less than 150,000 tons.
5. No. 7 Tanker Anchorage (22°32'N., 114°41'E.) for oil tankers greater than 30,000 tons, but less than 100,000 tons.
6. No. 6 Tanker Anchorage (22°35'N., 114°40'E.) for oil tankers greater than 10,000 tons, but less than 30,000 tons.
7. Anchor Berth No. 4 (22°36'N., 114°38'E.) for oil tankers and liquified gas carriers less than 10,000 tons.
8. Anchor Berth No. 3 (22°36'N., 114°36'E.) for cargo vessels less than 10,000 tons.
9. Position 22°34'N, 114°36'E for Daya Bay Nuclear Power Plant.

Anchorage.—Two anchorages lie on the E side of Daya Wan. The LNG Anchorage lies centered approximately in position 22°30.5'N, 114°28.0”E. Anchorage No. 2 is located about 1 mile N of the LNG Anchorage.

9.40 Ta-ya Chiao (Daya Jiao) (22°35'N., 114°45'E.), the E en-trance point of the bay is the W extremity of a small peninsula with three peaks; the E and highest peak has an elevation of 116m. A rocky ridge extends 0.6 mile SSW from Ta-ya Chiao; two rocks, 4m and 12m high, lie near the outer end of this ridge.

Fa Shan, 89m high and wooded, lies 1.2 miles W of Ta-ya Chiao. A bare 17m high rock lies 0.3 mile further SE. Foul ground extends 0.2 mile N of Fa Shan; a rock awash lies 0.6 mile NNE of Fa Shan.

Caution.—Vessels should not use the channel between Ta-ya Chiao and Fa Shan.

9.41 Pi-chia Chou (Triple Islet), 45m high at its S end, lies on the outer edge of a coastal bank, 2 miles NNW of Ta-ya Chiao and 0.6 mile offshore. Good anchorage may be obtained W of Pi-chia Chou in the Northeast Monsoon, in a depth of 11m, or anywhere on the E side of Daya Wan, according to

draft.

Ta-liu-chia Tao (Lokaup Island) (22°35'N., 114°39'E.), about 2.8 miles NE of Hsi-chi Chiao, the W entrance point of Daya Wan, is the southernmost and largest of a group of islands extending N into Daya Wan. This island has three summits, the highest of which rises to an elevation of 111m in its N part.

Anchorage.—Anchorage may be obtained on either side of the island, according to the direction of the wind.

9.42 Ta-p'eng Ao (Tai Pang Wan) (22°35'N., 114°30'E.) lies at the head of a large bay in the SW part of Daya Wan.

The bay, although restricted by a coastal bank with depths of less than 5m, affords good anchorage to moderate-sized vessels, sheltered from all but E winds. Vessels entering the bay should keep to the S side of the bay.

Hsi-hi Chiao (22°33'N., 114°36'E.), the W entrance point of Daya Wan, is 48m high.

Teng-huo-pai (Middle Rocks) (22°31'N., 114°41'E.), which dry 1.8m, lie 3.3 miles of Hsi-chi Chiao. A rock, with a depth of less than 2m and on which the sea breaks, lies 0.3 mile SW of Teng-huo-pai.

9.43 Huizhou (22°44'N., 114°36'E.) is situated in Daya Wan on the SE coast of China.about 47 miles NE of Hong Kong. The harbor limit is bounded lines joining the following positions:

a. 22°39.3'N, 114°25.7'E—Hutoumen Lighthouse.
b. 22°39.1'N, 114°39.3'E.
c. 22°42.0'N, 114°39.3'E.
d. 22°45.2'N, 114°36.2'E.

Huizhou Home Page
http://www.hzport.com

Winds—Weather.—The prevailing winds are from the ENE. Severe weather and typhoons can occur from July to September. It is mostly foggy in late winter or early spring.

Tides—Currents.—The tidal rise is 2.2m at springs and 1.0m at neaps.

Depths—Limitations.—The channel approach to the port of Huizhou is 4 miles in length, 110m wide, and has a depth of 10m. Berth details are described in the table titled **Huizhou—Berth Information**.

Vessels up to 300,000 dwt with maximum draft of 21.3m can be accommodated.

Huizhou—Berth Information

Berth	Length	Depth	Maximum Vessel Size	Remarks
Huizhou International Container Terminals (HICT)				
No. 1	400m	15.7m	15,000 dwt	Containers .
No. 2	400m	15.7m	15,000 dwt	Containers.
Pinghai Power Plant				
General Berth	138m	—	3,000 dwt	General cargo.
Coal Wharf	310m	—	70,000 dwt	Coal.
Guohua Daya Bay Power Plant				
Guohua Jetty	275m	--	50,000 dwt	Coal.
Bijia Shawan Terminal				
Cargo Berth	140m	—	1,000 dwt	Containers.
Huizhou Industrial Terminal				
No. 1	213m	12.5m	30,000 dwt	Multipurpose.
No. 2	208m	12.5m	30,000 dwt	Multipurpose.
No. 3	168m	9.0m	10,000 dwt	Multipurpose.
No. 4	173m	7.5m	5,000 dwt	Multipurpose.
No. 5	290m	12.2m	50,000 dwt	Tankers.
No. 6	140m	6.5m	3,000 dwt	Oil.
No. 7	125m	7.1m	3,000 dwt	Oil.
No. 8	125m	7.1m	3,000 dwt	Oil.
No. 9	271m	12.0m	30,000 dwt	Oil.
East Berth	—	15.3m	30,000 dwt	Oil.

Huizhou—Berth Information				
Berth	**Length**	**Depth**	**Maximum Vessel Size**	**Remarks**
West Inner	—	—	5,000 dwt	Oil.
West Outer	—	15.3m	10,000 dwt	Oil.
Donglian Jetty				
Materials Off Loading (MOF)	150m	6.7m	—	Ro-ro vessels.
No. 1	250m	11.0m	12,500 dwt	Chemicals and LPG.
No. 2	267m	11.0m	12,500 dwt	Chemicals, clean products, and dirty products.
No. 3	267m	11.0m	40,000 dwt	Chemicals and clean products.
CNOOC Product Terminal 1	250m	12.6m	30,000 dwt	Aviation and clean products.
CNOOC Product Terminal 2-1	340m	8.6m	10,000 dwt	Aviation, clean products, and chemicals.
CNOOC Product Terminal 2-2	340m	8.9m	5,000 dwt	Aviation, clean products, and chemicals.
CNOOC Product Terminal 3	165m	8.6m	5,000 dwt	Clean product, LPG, and chemicals.
CNOOC Product Terminal 3	250m	12.6m	5,000 dwt	Clean product, LPG, and chemicals.
CNOOC Product Terminal 5	170m	14.0m	—	—
Ma Bian Zhou Jett---MBZ				
MBZ Jetty	412m	14.8m	150,000 dwt	Clean products.
MBZ Hua De GPC Terminal 1	430m	18.7m	315,695 dwt	Crude oil.
MBZ Hua De GPC Terminal 2	490m	21.3m	315,695 dwt	Crude oil.
MBZ CNOOC Crude Berth	468m	21.3m	300,000 dwt	Crude oil.
Daya Bay Oil Terminal				
No. 1	190m	9.6m	10,000 dwt	Chemicals and clean products.
No. 2	190m	9.6m	10,000 dwt	Chemicals and clean products.
Huaying Petrochemical Terminal				
No. 1	—	—	300,000 dwt	Chemicals and clean products.
No. 2	—	—	20,000 dwt	Chemicals and clean products.
No. 3	—	—	20,000 dwt	Chemicals and clean products.
No. 4	—	—	20,000 dwt	Chemicals and clean products.
Zehua Petrochemical Terminal				
West Berth	298m	—	30,000 dwt	Clean products.
East Berth	298m	—	5,000 dwt	Clean products.

Pilotage.—Pilotage is compulsory. Pilots board in the following positions:

1. Mabianzhou No. 1—22°32.5'N, 114°40.8'E. (located in Anchorage No. 7 and intended for vessels between 30,000mt and 80,000mt in size).
2. Mabianzhou No. 2—22°29.0'N, 114°44.5'E.
3. Pinghai Power Plant—22°33.0'N, 114°44.0'E.
4. Huizhou No. 1—22°38.0'N, 114°36.7'E.
5. Huizhou No. 2—22°35.5'N, 114°40.0'E.

Regulations—Berthing and unberthing are during daylight hours only. Vessels in Daya Bay area should report any movement to Huizhou MSA on channel 13 or 16.

Vessel Traffic Service (VTS).—A Vessel Traffic Service is mandatory for all foreign vessels and Chinese vessels over 500 gt. The reporting line is in between position 22°30.8'N, 114°37.4'E and position 22°32.7'N, 114°52.9'E. Other vessels are encouraged to participate on a voluntary basis. Vessels participating in the VTS are required to submit a report to the VTS Center 24 hours before arrival by e-mail or facsimile.

Contact Information.—See the table titled **Huizhou—**

Contact Information.

Huizhou—Contact Information	
Pilots	
VHF	VHF channels 10, 16, and 73
Telephone	86-752-555230
Facsimile	86-752-5572052
Vessel Traffic Service	
Call Sign	Huizhou VTS Center
VHF	VHF channels 8 and 13
Telephone	86-752-5566513
Facsimile	86-752-5566221
Port	
VHF	VHF channels 9 and 16
Telephone	86-752-5553132
Facsimile	86-752-5553631
E-mail	hz-gwjt@hzport.com
Web site	http://www.hzport.com
Huade Guangdong Sinopec Terminal	
VHF	VHF channel 73
Zehua Terminal Control	
VHF	VHF channel 6
Huizhou MSA	
VHF	VHF channel 16
Container Terminal	
Telephone	86-752-5574940
Facsimile	86-752-5574941
E-mail	hpic@hpic.com.cn
Web site	http://www.hpic.com.cn

Anchorage.—There are twelve designated anchorages for the port of Huizhou. Anchorage No. 1 lies within Aotou Wan (22°40.4'N., 114°33.0'E) while Anchorage Nos. 2 to 11 lie within Daya Wan and its approaches. Anchorage No. 12 lies within Pinghai Wan. See the chart for exact locations and functions.

9.44 Tuoning Liendao (22°27'N., 114°38'E.) is a group of islands S of Hsi-chi Chiao that is separated from the mainland by a deep clear channel 1.5 miles wide.

Sanmen Dao (22°28'N., 114°38'E.), 301m high, with a conical summit at its S end, is the N islet of the group. Islet and rocks, with foul ground around them, extend about 1 mile W from the N extremity of Sanmen Dao.

Kuel-wan, 52m high, with Ta-heng Chou, a smaller islet, 42m high, 0.15 mile W of it, lie between To-ning Tao and Xiaosanmen Dao, 84m high, 1 mile to the SE.

Anchorage.—The best anchorage is in Sanmen Po-ti (Sanmen Road), W of the S extremity of Kuel-wan, in depths of 13 to 15m, sheltered from all winds except from SW or S.

During SW winds, there is anchorage off the N side of Sanmen Dao, in depths of 16 to 18m, and also NE of Kuel-wan, in depths of 18 to 22m.

9.45 Qing Zhou (Single Islet) (22°24'N., 114°40'E.), with a rounded summit 91m high, is the S islet of Tuoning Liedao and lies 1 mile SSE of Xiaosanmen Dao. A light is shown from Qing Zhou.

Akong, a remarkable pyramidal rock 30m high, lies 0.6 mile NE of Qing Zhou, with deep water reported between. A rock, with a depth of 4.5m, and which rises abruptly from a depth of 24m, lies 1 mile NE of Akong; an 8m depth lies about a mile N of the 4.5m patch.

Dapeng Jiao (Mirs Point) (22°27'N., 114°30'E.), about 8 miles WSW of Hsi-chi Chiao, is a reef-fringed steep-sided point which rises to an elevation of 391m close inland. A rock, 15m high, lies close off the point.

Anchorage.—Dapeng Wan quarantine anchorage lies in position 22°25'N, 114°34'E.

The coast W of Dapeng Jiao is described in Pub. 161, Sailing Directions (Enroute) South China Sea and Gulf of Thailand.

Chinese

CHINESE	English
A	
ai	a saddle between hills
an	embankment, shore, cliff, coast riverbank
an-chiao	submerged rock, reef
ao	bay, cove, inlet, dock
C	
cha	lock, dam, flood barrier
chai	camp, house
chan	railroad station
chang	mountain
chao	bog, marsh
chau	island, islet(s)
ch'e-chan	railroad station
chen	town, market town
ch'eng, chin	town, city, walled town
chi	obstruction, ledges in river
ch'i	stream, point, river, head, cape, mountain, seven
chia	cape, bluff, point
ch'ia	custom's barrier
chiang	bay, harbor, inlet, sound, lagoon
chiang-k'ou	estuary, stream, anchorage, river, shoal
chiang-tao	channel, strait, sound, river mouth
chiao	point, cape, promontory, headland, reef, rock, bank
ch'iao	bridge
chien	mountain, peak, island
ch'ien	shallow, shoal, rock
ch'ien-lai	bank, shoal
ch'ien-t'an	sandbanks; bank, shoal
ch'ien-tui	bank
ch'ih	lake, pool, pond
chih-chiang-tao	reach
chih-k'ou	river mouth
chih-liu	channel, tributary
ching	capital city, isthmus, ford, ferry
chiu	nine
chou	island, bank, islet, shoal
chow-chow	rippling and swirling water
ch'uan	stream, river
chuang	village
chueh	cape, point
chung	middle, center, mountain
chung-yuan	mainland
ch'un-tao	archipelago, group of islands
E	
erh	two
F	
fang	hamlet, house, shore, street
feng	peak, mountain, hill
fon	wind
fou	port
fow fu	buoy
fu	province, capital, peak
H	
hada	mountain
hai	sea, gulf, ocean
hai-ching	strait, channel
hai-hsia	do
hai-kau	bight, creek
hai-k'ou	channel entrance
hai-pin	seashore, beach
hai-tao	island
hai-wan	bay, gulf
hang	dry
hang-lu	fairway
hang-men	pass navigable to ships
hao	ditch, crane
hei, heh	black
hiang tsun	village
ho	river, waterway
hoi	channel, bay, anchorage, inlet
ho-k'ou	river mouth
ho tun	lighthouse
hsi	west, mountain, stream, swamp
hsia	strait, gorge, lower
hsiang	rural area, village
hsiao	small
hsien	district, district capital, steep hill
hsin	new
hsu	islet(s), island, village
hsuan	eddies
hu	lake, reservoir
huang	yellow
hung	red, desert
K	
kan	dry, harbor, port
kang	mound, hill, bridge
kao	high
kao-chiao	promontory
kao-yuan	plateau
khi, ki	river
king	capital, city
kok	point, corner, angle, horn, peninsula
kou	stream, ravine, gully, ditch
k'ou	bay, cove, inlet, river mouth, mountain pass
ku	valley, gorge
ku-k'ou	ravine
kuan	barrier, customs
kuo	country, kingdom, state
kwai	cliff
kwan	customhouse

CHINESE	English

L

lai	shoal, submerged rock
lan	blue, marketplace
lao	old, tower
leng	chain of hills, mountain pass
li	inner, one-third of a mile, gravel, shingle
liao	distant
lieh-hsu	reef
lieh-tao	group of islands, islands
lieh-yen	group of rocks
lin	forest
ling	chain of hills, mountain pass, mountain, mountain range
liu	stream, current, six
lu	road

M

mao-ti	anchorage
ma tao	jetty, strait
men	gate, pass, entrance, channel
miao	temple
miu	bay, cove
mu	a wood, trees, grave

N

nan, nam	south, southern
nei, nui	inner
nei-ao	basin
ngam, ngaam	point, cliff, rock
n'i	mud

P

pa	embankment, quay, eight
pai, peh	rock, shoal, islet, white
pan-tao	peninsula
pao	hill, town, village, rampart
p'ao-t'ai	fort
pei (peh, pak)	north, northern
peng	stream, creek
pi	point, cape, nose
piao	rock, islet
ping-chou	level shoals
p'o	arm of the sea, port, sound
po-ti	anchorage, roadstead
p'u	citadel, commercial village, inlet, creek
pwang shih	rocks

S

sampan	boat
san, (see shan)	three
san-chiao-chou	delta
sha	sand, sandbank, sand island, low sandy point, sand cay
sha-chiao	sandspit
sha-ch'iu	sand dune
sha-kan	banks
shan	hill, mountain, island
shang	upper
shan-hu	coral
shan-hu-chiao	coral reef
shan-mo	mountain range
shan-sha	bar, sandbar
shan-t'ien	mountain summit
shan-tau	bluff, cliff, island
shan-tzu	island
shao	upper, small, few
sha-sien	shoal
sha-t'an	sandy shoal, sandflats
sha-tsui	sandspit
sha-tui	sandbank
she tan	reef
shen	deep
sheng	province
shih	stone, rock, hill, ten, city, market
shih-t'ai	ridge of rocks
shih-ti	swamp
shu	tree
shu-lin	forest
shuan-chou	bar
shui	small river, water, stream
shui-kuan	customs
shui-lu	channel passage
shui-tao	reach, channel, strait, passage
si	west, western
sia	lower
siao	small, little
siao ho	small river, rivulet
sing	spring
so	town, village
ssu	temple, monastery, four
su (also, see hsu)	island, islet

T

ta	great, large
t'a	pagoda
tai (also, see tui)	plateau
tam	cove, pool, lake
tan, t'an	rapids, shoal, bar, bank flat
tang, t'ang	pond, embankment, canal, stream
tang lao	lighthouse
tao	island, island group, road, paddy field
t'ao	bay
tao tu	clay
tao-tzu	islet
teng lao	lighthouse
than	rapids
ti	low, point, cape, head, embankment, dike, earth, ground
t'ien	arable land, field, swamp
ting	peak, summit
t'o	stone, rocky eminence
to mu	wooded
tong	cove, pool, lake, bay
t'o-tzu	stone, rocky knob, islet
tou or t'ou	cape, headland, point
tsi	ravine

CHINESE	English
tsui	cape, point, spit, mouth
tsui sha	gravel
ts'un	village
tu	ferry, ford
tui	sandbank, bank
tung	east, eastern, mountain
tui-tsui, see tui	bank, spit

W

wa	swamp
wai	outer
wan	bay, gulf, bend in river
wei	headland, walled town, bay, cove
wen	rock

Y

yai	cliff
yang	bay, inlet, wide water, ocean
yeh	moorland
yen	embankment, rock, reef, dike, cliff
yen-ch'ang	salt works
yen-t'an	salt pan
yen tun	beacon, buoy
yu	island, islet
yun-ho	canal

Korean

KOREAN	English
A	
ae	cliff
ag	mountain
am	rock, temple
amcho	reef
amchwi	point
amja	temple
amseogjidae	rocky
apateu	apartment buildings
B	
baesuji	filtration bed
baljeonso	power plant
bando	peninsula
bangchug	causeway
bangjoje	causeway
bangjug	causeway
bangpaje	breakwater
bangsaje	groin
bangsong-gug	broadcasting station
bau	rock
bawi	rock
beol	plains
bi	monument, cape
bihaengjang	airport
bingha	glacier
bong	mountain, peak
bonghwa	beacon
budu	pier, quay, wharf
bunj	basin
bunsuryeong	watershed
burag	populated place
byeog	cliff
byeong-weon	hospital
byeonjeonso	transformer station
C	
chaeseogjang	quarry
chang-go	warehouse
chaseon	lane
chedo	island
cheoldo	railroad
cheon	stream
chi	pass
cho	reef
choho	lagoon
choweon	grassland
chunghontab	monument to the loyal dead
chwi	point
D	
dae	plateau, hill, tableland
daehag	college, university
dam	pond, lake
dan	cape, point
dang	shrine
dari	bridge
ddaem	dam
deog	hill
deogi	hill
deul	field, plains
deung	mountain, hill
deungdae	lighthouse, beacon
do	islande
dolchulje	jetty
dong	populated place, copper
dong-gul	cave
dongmulweon	zoo
doseo	archipelago
doseogwan	library
du	cape, point
E	
eocho	fishing bank
eojang	fishery
eun	silver
G	
gab	cape, point
gae	stream
gaecheogji	reclaimed land
gaecheon	ditch
gaeganji	reclaimed land
gae-ul	stream
gag	cape, point
gan	gorge
gang	stream, river
gang-gu	estuary
geomyeogso	quarantine station
geum	gold
geumgwang	gold mine
ggeut	cape, point
god	cape, point
gog	gorge, valley
gogae	pass
gogagyo	viaduct
gogyo	high school
gol	populated place, valley
golpujang	golf course
gong-eobhaggyo	engineering school
gong-gogyo	technical school
gongjang	factory
gosogdoro	superhighway
goweon	plateau
gubi	bend
guggyo	elementary school
gugribgong-weon	national park
gul	cave, tunnel
gulddug	chimney

KOREAN	English
gundo	archipelago
gung	palace
gwan	historical hall
gwangjang	square
gwangsan	mine
gwasuweon	orchard
gye	gorge, stream
gyegog	valley
gyeongmajang	horse race track
gyo	bridge
gyocharo	interchange
gyodoso	prison
gyohoe	church

H

ha	stream, river
hae	sea, sound
haean	coast, shore
haehyeob	strait, narrows
haeman	bay
haesuyogjang	beach
haggyo	school
hang	harbor, port
hang-gu	harbor
hangro	passage
ho	lake
hoesa	company
hwaryeogbaljeonso	thermoelectric power plant
hwasan	volcano
hyang-gyo	confucian school
hyeol	cave
hyeon	pass
hyeobgog	canyon
hyon	mountain, pass

J

jadongchagongjang	car factory
jae	pass
jagal	gravel
jang	market place
jangsatoe	sandbank
jan-gyo	jetty, pier, suspension bridge
je	reservoir
jebang	embankment, dike
jedo	island group
jeol	temple
jeolbyeog	cliff
jeon	hall
jeomogjang	log dump, lumber yard
jeoncheol	electric railroad
jeong	pavilion
jeongbagji	anchorage roads, roadstead
jeongja	pavilion
jeong-yugongjang	oil refinery
jeosuji	reservoir
ji	pond
jihadogwan	underground aqueduct
jin	ferry, inlet, fort
jinheug	mud
joseondae	patent slip, slipway
joseonso	shipyard
ju	sand bank
jujeonghang	boat harbor
jung-gogyo	middle and high school
jung-gyo	middle school

M

maeng-ahaggyo	school for the deaf and dumb
mal	point
man	bay
mangru	watchtower
meori	point
mi	point
mi reung	statue
mod	pond
moe	mountain
mogjang	stock farm
morae	sand
mudeom	tomb
mun	gate
myo	tomb
myoji	anchorage, cemetary

N

nae	stream
naru	ferry
neup	marsh, swamp
non	rice paddy
nongdae	agricultural college
nongjang	plantation
nongsasiheomjang	agricultural experimental station
nung	tomb
neup	pond

O

ol	mountain
oncheon	hot spring
oreum	mountain
oyejang	dump

P

po	bay, inlet, falls, lake
pogpo	falls
poji	fortress, ruins
pokpo	waterfall
ponae	stream mouth
pu, bu	city
pyeong-ya	plain

R

reung	royal tomb
ri	populated place
rim	forest
roe, noe	reef
ryeong	pass

KOREAN	English
S	
sa	temple
sagyeogjang	firing range
saju	sand bar
samag	desert
san	mountain
sanag	mountains
sangdae	commercial college
sang-gogyo	trade school
sanho	coral
sanmaeg	mountain range
sanjulgi	mountain range
sanseong	fort
sataeg	company housing
satoe	sandbank
segwan	customshouse
seo	island
seoggul	cave
seogtan	coal
seom	island
seon	railroad
seonchang	dock, wharf
seong	fort
seon-geo	dock
seongji	ruins
sesa	sand
seupji	marsh, swamp
skijang	ski ground
so	marsh, swamp
su	stream
sudo	channel, strait
sudoseon	aqueduct
sudoweon	monastery
sumun	lock
suryeogbaljeonso	hydroelectric power plant
susan-gogyo	fisheries school
suweon	reservoir
suweonji	reservoir

KOREAN	English
T	
tab	tower, pagoda
taeg	pond
tan	rapids, shoal
tan-gwang	coal mine
teo	ruins
toe	sandbank
tondae	beacon site
U	
uchegug	post office
undongjang	playground, stadium
unha	canal
W	
wangreung	royal tomb
Y	
yagsuteo	mineral spring
yang	ocean
yang-eojang	fish farm
yangsujang	water pumping station
yeo	island
yeog	railroad station
yeodae	womens college
yeog	railroad station
yeoldo	archipelago
yeomjeon	salt pan
yeom	stoney island
yeon	lake, pond, lead
yeon-gwang	lead mine
yeoul	rapids, shoal
yeoulmog	ford
yoyangso	sanatorium
yujo	oil tank

Wade-Giles to Pinyin

WADE-GILES	PINYIN
Ai Chou	Ai Zhou
Ai-ch'i Shan	Aiqishan
Ai-chou Lieh-tao	Aizhou Liedao
Ai-wan Wan	AiWan
An-hai	Anhai
An-p'u	Anpu
Ao Shan	Aoshan
Ao-shan T'ou	Aoshan Tou
Chu Shan	Ju Shan
Chun Pi Chiao	Junbi Jiao
Chun Shan	Jun Shan
Chun-ying Ling	Junying Ling
Ch'uan-chou	Quanzhou
Ch'uan-chou Wan	Quanzhou Wan
Ch'uan-chow	Quanzhou
Ch'un-tao	Qundao
Ch'-hsing Chiao	Qixing Jiao
Ch'a shan	Cha Shan
Ch'a-mu Yu	Chamu Yu
Ch'ai Shan	Chaishan
Ch'ai Yu	Chai Yu
Ch'ang Chou	Chang Zhou
Ch'ang Tao	Changdao
Ch'ang Tsui	Chang Zui
Ch'ang Tsui-tzu	Chang Zuizi
Ch'ang Yu	Chang Yu
Ch'ang-chiang K'ou	Changjiang Kou
Ch'ang-chiang Tsui	Changjiang Zui
Ch'ang-chiang-k'ou Mao-ti	Changjiangkou Maodi
Ch'ang-chiang-k'ou-pei Chiao	Changjiangkou Beijiao
Ch'ang-chih Shan	Changzhishan
Ch'ang-erh Chien	Changer Jian
Ch'ang-hsing Ch'ien-t'an	Changxing Qiantan
Ch'ang-hsing Dao	Changxing Dao
Ch'ang-hsing Tao	Changxing Dao
Ch'ang-hua-ta Ling	Changhua Daling
Ch'ang-le	Changle
Ch'ang-li	Changli
Ch'ang-ma-Teng	Changmadeng
Ch'ang-men Yen	Changmen Yan
Ch'ang-pai Shan	Changbaishan
Ch'ang-piao Tao	Changbiao Dao
Ch'ang-shan Shui-tao	Changshan Shuidao
Ch'ang-yao Shan	Changyaoshan
Ch'ao-yang	Chaoyang
Ch'ao-yang Shan	Chaoyang Shan
Ch'e-cb'r Ting	Cheqi Ding
Ch'e-yu Tao	Cheyou Dao
Ch'en-ch'ien Shan	Chenqianshan
Ch'en-chia Tsui	Chenjia Zui
Ch'eng Shan	Cheng Shan
Ch'eng-chou Tao	Chengzhou Dao
Ch'eng-hai	Chenghai
Ch'eng-mai Chiao	Chengmai Jiao
Ch'eng-mai Wan	Chengmai Wan
Ch'eng-p'u Shan	Chengpu Shan
Ch'eng-shan Chiao	Chengshan Jiao
Ch'e Niu Shan	Cheniushan
Ch'i Shan	Qi Shan
Ch'i-ao Tao	Qiao Dao
Ch'i-chia-tseng	Qijiazeng
Ch'i-chou Lieh-tao	Qizhou Liedao
Ch'i-hsing Chiao	Qixing Jiao
Ch'i-hsing Ling	Qixing Ling
Ch'i-hsing Tao	Qixing Dao
Ch'i-jen Chiao	Qiren Jiao
Ch'i-k'an	Chikan
Ch'i-lin-tou	Qilintou
Ch'i-niang Shan	Qiniang Shan
Ch'i-p'ai Chiao	Qipai Jiao
Ch'i-p'ai Shih	Qipai Shi
Ch'i-t'ai Tsui	Qitai Zui
Ch'i-t'ai-shan	Qitaishan
Ch'i-tzu-mei	Qizimei
Ch'iao-liu-tao	Jiaoliudao
Ch'ien Shan	Qian Shan
Ch'ien-ku Shan	Qiangu Shan
Ch'ih-shan-chi	Chishan Ji
Ch'ih-t'ou Shan	Chitoushan
Ch'ih-tzu-wei	Chixai Wei
Ch'in-chou Wan	Qinzhou Wan
Ch'in-huang-tao	Qinhuangdao
Ch'in-huang-tao Kang	Qinhuangdao Gang
Ch'in-huang-tao Wan	Qinhuangdao Wan
Ch'in-p'eng Tao	Qinpeng Dao
Ch'in-shan Tao	Qinshan Dao
Ch'ing Chou	Qing Zhou
Ch'ing Yen	Qing Yan
Ch'ing-chou Shui-tao	Qingzhou Shuidao
Ch'ing-feng	Qingfeng
Ch'ing-lan T'ou	Qinglan Tou
Ch'ing-niu Shan	Niuqing Shan
Ch'ing-pin Tao	Qingbin Dao
Ch'ing-shan Chiao	Qingdao Jiao
Ch'ing-shan Tao	Qingshan Dao
Ch'ing-shan Tsui	Qingshan Zui
Ch'ing-shih-lan	Qingshi Lan
Ch'ing-t'ai-tun	Qingtaidun
Ch'ing-tao	Qingdao
Ch'ing-tao Kang	Qingdao Gang
Ch'ing-yuan Shan	Qingyuan Shan
Ch'ing-yuan Shan	Qingyuan Shan
Ch'ip'an Shih	Qipan Shi
Ch'iung-chou Hai-hsia	Qiongzhou Haixia
Ch'u-shui Shih	Chushui Shi
Ch'uan Chiao	Chuan Jiao
Ch'uan-hu Lieh-tao	Chuanhu Liedao
Ch'uan-pi	Chuanbi
Ch'uan-pi Tao	Chuanbi Dao
Ch'uan-sha	Chuansha

WADE-GILES	PINYIN
Ch'uan-shan Pan-tao	Chuanshan Bandao
Ch'uan-shih Tao	Chuanshi Dao
Ch'uang-niu Shan	Chuangaiushan
Ch'ung Shan	Chongshan
Ch'ung-ming	Chongming
Ch'ung-ming Ch'ien-Tan	Chongming Qiantan
Ch'ung-ming Tao	Chongming Dao
Ch'ung-wu	Chongwu
Cha-p'o	Zhapo
Cha-p'u	Zhapu
Chai Tai	Zhai Dao
Chai-jo Shan	Zhairuoshan
Chai-t'ang Tao	Zhaitang Dao
Chai-tzu Shan	Zhaizishan
Chan-chiang	Zhanjiang
Chan-chiang Kang	Zhanjiang Gang
Chang Chiang	Zhang Jiang
Chang-chou	Zhangzhou
Chang-p'u	Zhangpu
Chang-tzu Tao	Zhangzi Dao
Chang-tzu-tao Shui-tao	Zhanzidao Shuidao
Chao-an	Zhaoan
Chao-an T'ou	Zhaoan Tou
Chao-an Wan	Zhaoan Wan
Chao-lien Tao	Chaolian Dao
Chao-pei Tsui	Zhaobei Zui
Che-lang Chiao	Zhelang Jiao
Che-lang Yen	Zhelang Yan
Che-lin	Zhelin
Che-lin Wan	Zhelin Wan
Chen-hai	Zhenhai
Chen-hai Chiao	Zhenhai Jiao
Chen-hai Wan	Zhenhai Wan
Chen-Yen-T'ou	Zhenyantou Yan
Cheng Chou Tao	Changzhou Dao
Cheng-ch'i Shan	Zheng qi Shan
Chiu-jung-ch'eng	Jiurong Cheng
Chi lung Chiao	Jilong Jiao
Chi Yu	Ji Yu
Chi-hsin	Jixin
Chi-ku Chiao	Jigu Jiao
Chi-ku Shan	Jigushan
Chi-kuan Shan	Jiguanshan
Chi-lung Kang	Jilong Gang
Chi-lung Shan	Jilong Shan
Chi-mei	Jimei
Chi-ming Tao	Jiming Dao
Chi-mo	Jimo
Chi-mu Chiao	Qimu Jiao
Chi-pei Yu	Jibei Yu
Chia-p'eng Liedao	Jiapeng Liedao
Chia-shan Ling	Jiashan Ling
Chia-tzu	Jiazi
Chia-tzu Chiao	Jiazi Jiao
Chia-tzu Kang	Jiazi Gang
Chia-tzu Shan	Jiazi Shan
Chiang-chun Ao	Jiangjun Ao
Chiang-chun T'ou	Jiangjun Tou
Chiang-chun-ao Yu	Jiang Junao Yu
Chiang-chun-Mao	Jiangjunmao
Chiang-erh-ao	Jiangerao
Chiang-hung Hsu	Jianghong Xu
Chiang-k'ou	Jiangkou
Chiang-mu Tao	Jiangmu Dao
Chiang-p'ing Hsu	Jiangping Xu
Chiang-ya Hang-tao	Jiangya Hangdao
Chiang-yin Tao	Jiangyin Dao
Chiang-Yun Ting	Jiang Yun Ding
Chiao Shan	Jiao Shan
Chiao-chou Wan	Jiaozhou Wan
Chiao-lieh Tao	Jiao Liedao
Chiao-nan	Jiaonan
Chiao-pei Shan	Jisobeishan
Chiao-t'ou Pi	Jiaotou Bi
Chiao-wei Chiao	Jiaowei Jiao
Chiao-wei Wan	Jiaowei Wan
Chieh-shih Wan	Jieshi Wan
Chien-feng Ling	Juantang Ling
Chien-huang-p'ing	Jianhuang Ping
Chien-yang Tao	Jianyang Dao
Chih Yu	Chi Yu
Chih-chih Men	Zhizhi Men
Chih-fu Tao	Zhifu Dao
Chih-kung	Zhigong
Chih-mao-wan	Zhimao Wan
Chih-shih Tzu	Chishizai
Chih-sung Yen	Zhisong Yan
Chih-wan Tao	Zhiwan Dao
Chin men	Jinmen
Chin Chiang	Jin Jiang
Chin Yu	Jin Yu
Chin-chi Ling	Jinji Ling
Chin-chi Shan	Jinjishan
Chin-chiang	Jinqiang
Chin-chou Wan	Jinzhou Wan
Chin-hsien	Jin Xian
Chin-men Dao	Jinmen Dao
Chin-men Wan	Jinmen Wen
Chin-mu Chiao	Jinmu Jiao
Chin-shan Kang	Jinshan Gang
Chin-shan Tsui	Jinshan Zui
Chin-shan-wei	Jinshanwei
Chin-t'ang Shan	Jintang Shan
Chin-t'ang Shui-tao	Jintang Shuidao
Chin-t'ou Wan	Qitou Wan
Ching-hai Wan	Jinghai Wan
Ching-hai-wei	Jinghaiwei
Ching-tzu T'ou	Jingzi Tou
Ching-yu Yen	Jingyu Yan
Chiu-hua Shan	Jiuhua Shan
Chiu-lau Shan	Jiulou Shan
Chiu-lung Chiang	Jiulong Jiang
Chiu-shan Lieh-tao	Jiushan Liedao
Chiu-ts'un Ling	Jiuaun Ling
Chiu-tuan Sha	Jiudan Sha
Chiu-tung Shan	Jiudongshan

WADE-GILES	PINYIN
Chou-shan Tao	Zhoushan Dao
Chou-Shan Chun-tao	Zhoushan Qundao
Chu Shan	Zhu Shan
Chu Tao	Zhu Dao
Chu Yu	Zhu Yu
Chu-ch'a Tao	Zhucha Dao
Chu-chia Chien	Zhujiajian
Chu-chiang K'ou	Zhujiang Kou
Chuang-yuan-ao	Zhuangywanao
Chuang-yuan-Ao	Zhuangyuanao
Chui Shan	Zhui Shan
Chung Shui-tao	Zhong Shuidao
Chung-chieh-shan Chun-tao	Zhongjieshan Qundao
Chung-chu Men	Zhongzhu Men
Chung-chu Shan	Zhongzhushan
Chung-k'uei Shan	Zhongkui Dao
Chung-p'eng Tao	Zhengpeng Dao
Chung-yang Sha	Zhongyang Sha
Da-heng-ch'in Tao	Dahengqin Dao
Erh Chou	Er Zhou
Erh-chin-ch'ien T'an	Erjin Qiantan
Erh-huo	Erhua
Erh-lung Shan	Erlong Shan
Erh-mu-luan-tzu	Ermuluanzi
Erh-shan-tzu Tao	Ershanzi Dao
Erh-suan Shan	Ersuanshan
Erh-t'o-tzu Tao	Ertuozi Dao
Erh-tan	Erdan
Fan-kuei Chou	Fangui Zhou
Fan-pi	Fanbi
Fang-ch'eng	Fangcheng
Fang-ch'eng Kang	Fangcheng Gang
Fei-huang-he K'ou	Feihuanghe Kou
Fei-yun-chiang Kou	Feiyhujiang Kou
Feng-ch'ao Yen	Fengchao Yan
Feng-ch'iu Sha	Fenggiu Sha
Feng-huang Shan	Fenghuang Shan
Feng-huang Tsui	Fenghuang Zai
Feng-huang-wei	Fenghuangwei
Feng-men Ling	Fengmen Ling
Feng-ming Tao	Fengming Dao
Feng-shui Chiao	Fengshui Jiao
Feng-t'ing	Fengting
Feng-tung Shan	Fengdong Shan
Feng-wei Tsui	Fengwei Zui
Fo Ting	Fo Ding
Fo-lo	Foluo
Fo-tu Tao	Fodu Dao
Fu Shan	Fu Shan
Fu-ch'ing	Fuqing
Fu-ch'ing Wan	Fuqing Wan
Fu-chou	Fuzhou
Fu-chou	Fuzhou Gang
Fu-chow Wan	Fuzhou Wan
Fu-hu Ling	Fuhu Ling
Fu-ning Wan	Funing Wan
Fu-t'ou Wan	Futou Wan
Fu-ting	Fuding
Fu-wen	Fuwen
Fu-yao Tao	Fuyao Liedao
Fu-ying Tao	Fuying Dao
Hai Chiao	Hai Jiao
Hai Wei	Ha Wei
Hai-an	Haian
Hai-an Wan	Haian Wan
Hai-chia Shan	Haijia Shan
Hai-chou Wan	Haizhou Wan
Hai-feng	Haifeng
Hai-huang Shan	Haihuangshan
Hai-k'ang	Haikang
Hai-k'ou	Haikou
Hai-k'ou Kang	Haikou Gang
Hai-k'ou Wan	Haikou Wan
Hai-lu Tao	Hailu Dao
Hai-ling-shan Kang	Hailingshan Gang
Hai-ling-shan Tao	Hailingshan Dao
Hai-lu Tao	Hailu Dao
Hai-mao Tao	Haimao Dao
Hai-mao-tzu T'ou	Haimaozi Tou
Hai-men	Haimen
Hai-men Chiao	Haimen Jiao
Hai-men Tao	Haiman Dao
Hai-men Wan	Haimen Wan
Hai-nan Tao	Hainan Dao
Hai-ning	Haining
Hai-t'an Chiao	Haitan Jiao
Hai-t'an Hai-hsia	Hailan Haixia
Hai-t'an Shih	Haitan Shi
Hai-t'an Wan	Haitan Wan
Hai-yang	Hai Yang
Hai-yang Tao	Haiyang Dao
Hai-yen	Haiyan
Haing-hua Shui-tao	Xinghua Shuidao
Han-chiang	Han Jiang
Han-ku	Hangu
Hang-chou Wan	Hangzhou Wan
He pao Tao	Hebao Dao
Hei Chiao	Hei Jiao
Hei Chou	Hei Zhou
Hei Yen	Hei Yan
Hei-shi-chiao Wan	Heishijiao Wan
Hei-ts'un Chiao	Heicun Jiao
Heng Chou	Heng Zhou
Heng Sha	Heng Sha
Heng Shan	Heng Shan
Heng-chih Shan	Hengzhishan
Heng-kang Tao	Henggang Dao
Heng-mien Sha	Heng Mian Sha
Ho Shan	He Shan
Ho-chung Chiao	Ha Zhong Jiao
Ho-chung Chiao	Hezhong Jiao
Ho-hua-sheng Shan	Hehuashan Shan
Ho-kang Shan	Hegang Shan
Ho-lien-ya	Helian Ya
Ho-p'u	Hepu
Ho-t'ao-yuan-tzu	Hetaoyuanzi

WADE-GILES	PINYIN
Hong Kong	Xiang Gang
Hou Chiao	Hou Jiao
Hou-ch'ing Yu	Houqing Yu
Hou-chi shan	Houjishan
Hou-chi Shui-tao	Houji Shuidao
Hou-chi Tao	Houji Dao
Hou-erh-shih Tsui	Houershi Zui
Hou-hai Sha	Houhai Sha
Hou-shui Wan	Houshui Wan
Hou-to Chiao	Houduo Jiao
Hsu-kung Tao	Xugong Dao
Hsu-wen	Xuwen
Hsuan Shan	Xuanshan
Hsueh-chia-tao	Xuejiadao
Hsi K'uei Shan	Xikui Daio
Hsi Yu	Xi Yu
Hsi-ao Chiao	Xiao Jiao
Hsi-ch'uan Tao	Xiquan Dao
Hsi-ch'ang	Xichang
Hsi-chi Yu	Xiji Yu
Hsi-chieh Chiao	Xijie Jiao
Hsi-chung Tao	Xizhong Dao
Hsi-fang Ch'ien t'an	Xifang Qiantan
Hsi-fu Shan	Xifushan
Hsi-hsing Tao	Xixing Dao
Hsi-hu Tsui	Xihu Zui
Hsi-huo Shan	Xihuoshan
Hsi-ku Tao	Xigu Dao
Hsi-lu hua Shan	Xiluhuashan
Hsi-lien Tao	Xilian Dao
Hsi-lo Tao	Xiluo Dao
Hsi-ma-i Tao	Ximayi Dao
Hsi-mao Chou	Ximao Zhou
Hsi-mo-p'an	Ximopan
Hsi-nan Ch'ien-t'an	Xinan Qiantan
Hsi-pan-yang Chiao	Xibanyang
Hsi-pei Chiao	Xibei Jiao
Hsi-t'ai Shan	Xitaishan
Hsi-tan Tao	Xidan Dao
Hsi-ting Yu	Xiding Yu
Hsi-yang Tao	Xiyang Dao
Hsi-yin Chiao	Xiyin Jiao
Hsi-yin Tao	Xiyin Dao
Hsi-yu-P'ing Yu	Xiyuping Yu
Hsia Yu	Xia Yu
Hsia-an	Xiaan
Hsia-ch'i Tao	Xiaqi Dao
Hsia-ch'ien Shan	Xiaqianshan
Hsia-ch'uan Shan	Xiachuanshan
Hsia-ch'uan Tao	Xiachuan Dao
Hsia-chu Shan	Xiazhushan
Hsia-hai Shan	Xiahaishan
Hsia-kan Shan	Xiaganshan
Hsia-lang T'ang	Xialangtang
Hsia-lang-t'ang	Xialangtang
Hsia-ma-an Shan	Xiamanshan
Hsia-men	Xiamen
Hsia-men Kang	Xiamen Gang
Hsia-men Tao	Xiamen Dao
Hsia-p'u	Xiapu
Hsia-san-hsing	Xiasanxing
Hsia-ssu Chiao	Xissi Jiao
Hsia-ta-ch'en Shan	Xiadachenshan
Hsia-wan Shan	Xiawanshan
Hsiang Chiao	Xiang Jiao
Hsiang Shan	Xiangshan
Hsiang Tsui	Xiang Zui
Hsiang Yu	Xiang Yu
Hsiang-chih Chiao	Xiangzhi Jiao
Hsiang-p'an Chiao	Xiangpan Jiao
Hsiang-shan Kang	Xiangshan Gang
Hsiao-an Shui-Tao	Xiaoan Shuidao
Hsiao-ch'u Shan	Xiaoguishan
Hsiao-ch'uan tsui-Tzu	Xiaoquan Zuizi
Hsiao-ch'ang-t'u Shan	Xiaochangtushan
Hsiao-ch'ing Tao	Xiaoging Dao
Hsiao-ch'uan Tsui-tzu	Xiaoquan Zuizi
Hsiao-chi Shan	Xiaojishan
Hsiao-chih-chu Tao	Xiaozhi Zhu Dao
Hsiao-chin	Xiaojin
Hsiao-chin-men Tao	Xiaojinmen Dao
Hsiao-chu Chou	Xiaozhu Zhou
Hsiao-chu Shan	Xiaozhu Shan
Hsiao-chu-shan Tao	Xiaoshanzi
Hsiao-hao Tao	Xiaohao Dao
Hsiao-heng-chin Tao	Xiao heng Qin Dao
Hsiao-hsi-fan Shih	Xiaoxifan Shi
Hsiao-hsi-yang Tao	Xiaoxiyang Dao
Hsiao-hsing Shan	Xiaoxingshan
Hsiao-huang-lung Shan	Xiaohuanglongshan
Hsiao-jih Tao	Xiaori Dao
Hsiao-kan Shan	Xiaoganshan
Hsiao-kuang Tao	Xiaoguan Dao
Hsiao-kung Tao	Xiaogong Dao
Hsiao-lung-shan Tao	Xiaolongshan Dao
Hsiao-mao Shan	Xiaomao Shan
Hsiao-men Tao	Xiaomen Dao
Hsiao-ming-fu Tao	Xiaomingfu Dao
Hsiao-mu Tao	Xiaomu Dao
Hsiao-o-kuan	Xiaoeguan
Hsiao-p'u-t'ai	Xiaoputai
Hsiao-pan Men	Xiaoban Men
Hsiao-pan Pab	Xiaban Dao
Hsiao-san-shun Tao	Xiaosanshan Dao
Hsiao-shih Tao	Xiaoshi Dao
Hsiao-shu-lang	Xiaoshulang
Hsiao-t'ang Kang	Xiaotang Gang
Hsiao-teng Tao	Xiaoding Dao
Hsiao-yu Shan	Xisoyushan
Hsiao-yang Shan	XiaoyangShan
Hsieh-p'u Shan	Xiepushan
Hsieh-yang Tao	Xieyang Dao
Hsien T'ang	Xian Tang
Hsien-chiao Yu	Xianjiao Yu
Hsien-mai	Xianmai
Hsien-o Chiao	Xian'e Jiao

WADE-GILES	PINYIN
Hsien-yu	Xianyou
Hsin-hsing	Xinxing
Hsin-huai-ho K'ou	Xinhuaihe Kou
Hsin-liao Tao	Xinliao Dao
Hsin-ta Yen	Xinda Yan
Hsin-K'ai K'ou	Xin Kai Kou
Hsing-hua Wan	Xinghua Wan
Hsing-Ts'un	Xing Cun
Hsiu Shan	Xiushan
Hsiu-ying	Xiuying
Hsiung-ti Yu	Xiongdi Yu
Hsueh-chia Tao	Xuejia Dao
Hu-ching Yu	Hujing Yu
Hu-hsiao-she	Huxiaoshie
Hu-kung Shan	Hugong Shan
Hu-lu Dao	Hulu Dao
Hu-lu Tao	Hulu Dao
Hu-lu-shan Wan	Hulushan Wan
Hu-p'ing Tao	Huping Dao
Hu-shih	Hushi
Hu-t'ou Yu	Hutou Yu
Hu-tung Chiao	Hudong Jiao
Hu-yu Tao	Huyu Dao
Hua Yu	Hua Yu
Hua-niao Shan	Huaniaoshan
Hua-p'ing Shan	Huapingshan
Huan-hai-ssu Ti-tsui	Huanhaisi Dizui
Huang Chiao	Huang Jiao
Huang Hai	Huang Hai
Huang Ho	Huang He
Huang Shan	Huang Shan
Huang Tao	Huang Dao
Huang-ch'eng	Huangcheng
Huang-ch'eng Shan	Huangchengshan
Huang-ch'i	Huangqi
Huang-chia-t'ang Wan	Huangjiatang Wan
Huang-chiao Shan	Huangjia Shan
Huang-ching Ling	Huangjing Ling
Huang-chu Chiao	Huangzhu Jiao
Huang-ho K'ou	Huanghe Kou
Huang-hsien	Huang Xian
Huang-hsing Tao	Huangxing Dao
Huang-hua	Huanghua
Huang-kan Tao	Huanggan Dao
Huang-kua Yu	Huanggua Yu
Huang-liu	Huangliu
Huang-lung-wei Tsui	Hunglongwei Zui
Huang-mao Shan	Huangmao Shan
Huang-mao Tao	Huangmao Dao
Huang-men Shan	Huangmenshan
Huang-meng Tao	Huangmeng Dao
Huang-niu Chiao	Huangniu Jiao
Huang-pai Tsui	Huangbai Zui
Huang-shih Shan	Huangshi Shan
Huang-ta-ao Shui-tao	Huangdaao Shuidao
Huang-tiung-kou Chen	Huatonggou Zhen
Huang-tse Shan	Huangze Shan
Huang-tsui-tzu Wan	Huangzuizi Wan
Huang-yang Chien	Huangyang Jian
Huang-yen	Huangyan
Huang-Pai-Tsui-Li Ho	Huangbaizuiliho
Hui Shan	Hui Shan
Hui Tao	Hui Dao
Hui-an	Huian
Hui-lai	Hui-lai
Hui-tung	Huidong
Hung Shan	Hong Shan
Hung Yu	Hung Yu
Hung-chien Shan	Hengjian Shan
Hung-hai Wan	Honghai Wan
Hung-yu P'ai	Hongyu Pai
Huo-shan Lieh-tao	Huoshan Liedao
I Tao	Yi Dao
I-chiang-shan Tao	Yijiangshan Dao
I-suan Shan	Yisuan Shan
I-tung Chiao	Yidong Jiao
Jao-p'ing	Raoping
Jih-chao	Rizhao
Jih-yueh Yu	Riyue Yu
Jui Shan	Rushan
Jui-an	Ruian
Jui-shan K'ou	Rushan Kou
Jung-ch'eng	Rongcheng
Jung-ch'eng Wan	Rongcheng Wan
Jung-ch'eng-ma Shan	Rongcheng Mashan
K'ai-ping	Kaiping
K'ai-shan Tao	Kaishan Dao
K'an-man	Kanmen
K'an-wei Sha	Kanwei Sha
K'ao-tao	Gao Dao
K'o-t'ang Shan	Ketangshan
K'o-tzu Shan	Kezi Shan
K'uei-shan Tao	Kuishan Dao
K'ung-k'o Yu	Kongke Yu
K'ung-tung Tao	Kongtong Dao
Kah-en Chiao	Gadon Jiao
Kan-ch'eng	Gan Chang
Kan-en Sha	Gan'en Sha
Kang Shan	Gang Shan
Kang-wei	Gangwei
Kao Shan	Gao Shan
Kao-ch'iao	Gaoqiso
Kao-chiao	Gao Jiao
Kao-lan Lieh-tao	Gaolan Liedao
Kao-lan Tao	Gaolan Dao
Kao-nao-tzu Chiao	Gaonaozi Jiso
Kao-shan Ling	Gaoshen Ling
Kao-shan Tao	Gaoshan Dao
Kao-shang Ling	Gaoshan Ling
Kao-teng Tao	Gaodeng Dao
Ko-hung Shan	Gehong Shan
Ko-li Yen	Geli Yan
Ko Yu	Luo Yu
Kou-ch'i Shan	Gouqishan
Ku lei Shan	Gulei Shan
Ku-lei-t'ou	Guleitou

WADE-GILES	PINYIN
Ku-lung Tsui	Gulong Zui
Ku-p'o Yu	Gopo Yu
Ku-t'ou Shan	Gutou Shan
Kua-lien Shan	Gualianshan
Kuan-ch'ien-ts'un	Gengoian Cun
Kuan-ch'uan-ao	Guanchuanao
Kuan-ho K'ou	Guanghe Kou
Kuan-men Shan	Guaymen Shan
Kuan-shan Tao	Guanshan Dao
Kuan-t'ou Ling	Guantou Ling
Kuan-yun	Guanyun
Kuan-yin Chiao	Guanyin Jiao
Kuan-yin Ling	Guanyin Ling
Kuan-yin Shan	Guanyin Shan
Kuan-yin-peng Ling	Guanyanbeng Ling
Kuang-hai	Guanghai
Kuang-hai Wan	Guanghai Wan
Kuei Yu	Gui Yu
Kuei-ling Tao	Guiling Dao
Kuei-shan Tao	Guishan Dao
Kuei-t'ien Shan	Kuitian Shan
Kung-k'ou T'ou	Gongkou Tou
Lu-shun	Lushun
Lu-ta Ta-lien	Luda Dalian
Lan-ku Shan	Langu Shan
Lan-Ts'un	Lan Cun
Lang-ch'i Tao	Langqi Dao
Lang-chi Shan	Langji Shan
Lang-kang-shan Lieh-tao	Langgangshan Liedao
Lanpai-ch'ien T'an	Laibai Qtuntan
Lao Shan	Lao Shan
Lao-hu Shan	Laohu Shan
Lao-p'ien Tao	Laopian Dao
Lao-shan T'ou	Laoshan Tou
Lao-shan Wan	Laoshan Wan
Lao-t'ieh Shan	Laotie Shan
Lao-t'ieh-shan-hsi Chiao	Laotieshan Xijiao
Lao-t'ieh-shan-tung Chiao	Laotieshan Dongjiao
Lao-t'ieh-Shan Hsi	Laotieshan Xijiao
Lao-t'iek-shan Shui-tao	Laotieshan Shuidao
Lao-tung Chiao	Laodong Jiao
Le-ch'ing	Leqing
Le-ch'ing Wan	Leqing Wan
Le-men Lieh-tao	Lemen Liedao
Lei-chou	Leizhou
Lei-chou Wan	Leizhou Wan
Lei-kung Sha	Leigong Sha
Li-cheng Chiao	Lizheng Jiao
Li-huo Yu	Lihuo Yu
Li-ken Wan	Ligen Wan
Li-shih Lieh-tao	Lishi Liedao
Li-ssu-kuai	Lisikuai
Li-t'ou Tsui	Li-tou Zui
Li-tao	Lidao
Li-tzu Tao	Lizi Dao
Li-tzu-Tu	Lizatu
Li-yu pei Chiao	Liyubei Jiao
Liang-ch'eng	Liang Cheng
Liang-heng Shan	Lianghengshan
Liang-hsiung-ti Tao	Liangxiongdi Dao
Liang-t'ou-tung	Liangtoudong
Liang-wen Kang	Liangwengang
Liao-lo T'ou	Liaoluo Tou
Liao-lo Wan	Liaoluo Wan
Liao-pan-t'ian	Liaobantian
Liao-tung Wan	Liaodong Wan
Lieh Yen	Lie Yan
Lieh-tzu K'ou	Liezi Kou
Lieh-chiang	Lianjiang
Lien-feng Shan	Lianfeng
Lien-hua Shan	Lianhua Shan
Lien-tui Chiao	Liandui Jiao
Lien-tzu Chiao	Lianzi Jiao
Lien-yun-kang	Lianyungang
Lin-ch'ang Tao	Linchang Dao
Lin-hai	Linhai
Lin-kao	Lingao
Lin-kao Chiao	Lingao Jiao
Lin-men-kao	Linmangao
Ling-ch'ang Tao	Linchang Dao
Ling-feng Shan	Lingfeng Shan
Ling-shan Shui-tao	Lingshan Shuidao
Ling-shan Tao	Lingshan Dao
Ling-shan Wan	Lingshan Wan
Ling-t'ou-ma-an Ling	Lingtouman Ling
Liu ch'uan Chiao	Liuquan Jiao
Liu-heng Tao	Liuheng Dao
Liu-kung Tao	Liugong Dao
Liu-sha Wan	Liusha Wan
Lo Yu	Luo Yu
Lo Yen	Luo Yan
Lo-ch'in Shan	Laoqua Shan
Lo-chia Shan	Luojiashan
Lo-ssu T'ou	Luosi Tou
Lo-t'ou Shui-tao	Luotou Shuidao
Lo-tou Sha	Luodou Sha
Lo-yuan	Luoyuan
Lu Tao	Lu Dao
Lu-chia Chih	Lujiazhi
Lu-feng	Lufeng
Lu-feng Shan	Lufeng Shan
Lu-hsi Tao	Luxi Dao
Lu-hui-t'ou Chiao	Luhuitou Jiao
Lu-ssu Yu	Lusi
Luan-ho K'ou	Luanhe Kou
Luan-ma Chiao	Luanmo Jiao
Luan-yen-Tou	Luanyantou
Lung Men	Longmen
Lung Yu	Long Yu
Lung-erh-t'an-ta Ling	Longertan Daling
Lung-hsu Tao	Longxu Dao
Lung-k'ou	Longkou
Lung-k'ou Kang	Longkou Gang
Lung-kao Shan	Longgao Shan
Lung-kou Kang	Longkou Gang
Lung-mu Chiao	Longmu Jiao

WADE-GILES	PINYIN
Lung-ni ch'an Shih	Longnichan Shi
Lung-she	Longshe
Lung-shui Ling	Longshu Ling
Lung-tung Tsui	Longdong Zui
Ma Ling	Ma Ling
Ma-an Lieh-tao	Maan Liedao
Ma-an Ling	Maan Ling
Ma-an Shan	Maanshan
Ma-chi Shan	Majishan
Ma-erh Shan	Maer Shan
Ma-erh Tao	Maer Dao
Ma-hsieh	Maxie
Ma-t'a Chiao	Mata Jiao
Ma-tsu Hai-hsia	Mazu Haixia
Ma-tsu Lieh-tao	Mazu Liedao
Ma-tsu Tao	Mazu Dao
Ma-tsu-yin	Mazuyin
Ma-tz'u Tao	Maci Dao
Ma-wei	Mawei
Ma-wei Chou	Mawei Zhou
Macao	Macao
Mai Tao	Mai Dao
Man-yu T'ou	Manyu Tou
Mang Chou	Mang Zhou
Mao Yu	Mao Yu
Mao-chiao Tsui	Maojiao Zui
Mao-ming	Maoming
Mei-chou Wan	Meizhou Wan
Mei-san Lieh-tao	Meisan Liedao
Mei-shan Tao	Meishan Dao
Mi-t'o Tao	Mituo Dao
Mi-yu-li Shui	Miyudi Sha
Miao Tao	Miao Dao
Miao-tao Ch'un-tao	Miaodao Qundao
Miao-tzu-hu Tao	Miaozibu Dao
Miao-wan Tao	Miaowan Dao
Mien-hua Shan	Mianhua Shan
Min Chiang	Min Jiang
Min-chiang K'ou	Minjiang Kou
Mo-hsin Kang	Moxin Gang
Mo-yeh Tao	Moye Dao
Mu-p'ing	Muping
Mu-tou Yu	Mudou Yu
Nu Tao	Nu Dao
Nu-ying Chiao	Nuying Jiao
Nan shan	Nanshan
Nan Chiao	Nan Jiao
Nan Hai	Nan Hai
Nan Shuitao	Nan Shuidao
Nan Yu	Nan Yu
Nan-ao	Nanao
Nan-ao Tao	Nan'ao Dao
Nan-ch'ang-shan Tao	Nanchangshan Dao
Nan-chi Shan	Nanjishan
Nan-chi-shan Lieh-tao	Nanjishan Liedao
Nan-chih	Nanzhi
Nan-chiu Shan	Nanjiushan
Nan-chiu-shan Mao-ti	Nanjiushan Maodi
Nan-fang Ch'ien-t'an	Nanfang Qiantan
Nan-huang-ch'eng Tao	Nanhuangeheng Dao
Nan-hui	Nanhui
Nan-jih Ch'un-tao	Nanri Qundao
Nan-jih Shui-tao	Nanri Shuidao
Nan-jih Tao	Nanri Dao
Nan-k'u-tang Tao	Nankudang Dao
Nan-kang	Nankang
Nan-p'ai Shan	Nanpaishan
Nan-p'eng Lieh-Tao	Nanpeng Liedao
Nan-p'eng Tao	Nanpeng Dao
Nan-pu	Nan Pu
Nan-san Tao	Nansan Dao
Nan-sha	Nansha
Nan-shan Chiao	Nanshan Jiao
Nan-shan Ling	Nanshan Ling
Nan-shan Tsui	Nanshan Zui
Nan-shih	Nanshi
Nan-shuang Tao	Nanshuang Dao
Nan-shui Tao	Nanshui Dao
Nan-t'ai	Nantai
Nan-t'o-chi Shui-tao	Nantuoji Shuidao
Nan-ting	Nanding
Nan-ting Tao	Nanding Dao
Nan-ts'ao-chi	Nancpoji
Nan-ts'e	Nance
Nanyushan	Nanyushan
Nao-chou Tao	Naozhou Dao
Nei-ling-ting Tao	Neilingding Dao
Ni-lo Yu	Niluo Yu
Ni-yu Shan	Niyushan
Niang Chiao	Niang Jiao
Niang-niang Ting	Niangniangding
Niao-tsui	Niaozua
Niao-yu	Niao Yu
Ning-chin-so	Ningjinsuo
Ning-hai	Ninghai
Ning-po	Ningbo
Ning-po Kang	Ningbo Gang
Niu Shan	Niushan
Niu Shan Tao	Niushan Dao
Niu-ch'ing Shan	Niuqing Shan
Niu-chiao Shan	Niujiao Shan
Niu-fen Chiao	Niufen Jiao
Niu-hsin Tao	Niwxin Dao
Niu-ku Ling	Niugu Ling
Niu-lung Tsui	Niulong Zui
Niu-o Men	Niue Men
Niu-o Shan	Niueshan
Niu-p'i Chiao	Niupi Jiao
Niu-pi-shan Shui-tao	Niubishan Shuidao
Niu-shan Tsui	Niushan Zui
Niu-t'ou Shan	Niutou Shan
Niu-t'ou Tao	Niutou Dao
O-feng Chang	Ehuang Zhang
O-hao Ling	Ehuo Ling
O-mei Chang	Emei Zhang
Ou-chiang-nan K'ou	Oujiang Nankou

WADE-GILES	PINYIN
Ou-chiang-pei K'ou	Oujiang Beikou
Ou-i Ling	Ouyi Ling
P'ai Shih	Pai Shi
P'ai-wei Chiao	Paiwei Jiao
P'an-shih	Pamshi
P'ao-lu Chiao	Paolu Jiao
P'eng Chiao	Peng Jiao
P'eng-hu	Penghu
P'eng-hu Kang	Penghu Gang
P'eng-hu Lieh-Tao	Penghu Liedao
P'eng-lai	Penglai
P'eng-lai T'ou	Penglai Tou
P'i p'a Shan	Pipashan
P'i Shan	Pishan
P'ing Chou	Ping Zhou
P'ing Tao	Ping Dao
P'ing-hai	Pinghai
P'ing-hai Wan	Pinghai Wan
P'ing-shih	Pingshi
P'ing-t'an	Pingtan
P'ing-yang	Pingyang
P'ing-yang Tsui	Pingyang Zui
P'o-li	Poli
P'u-ch'ien Chiao	Puqian Jiao
P'u-ch'ien Wan	Puqian Wan
P'u-chen	Pu Zhen
P'u-lan-tien Wan	Pulandian Wan
P'u-t'ien	Putian
P'u-t'o	Putuo
P'u-t'o Shan	Putuoshan
Pa Chiao	Ba Jiao
Pa-chao Lieh-tao	Bazhao Liedao
Pa-chao Shui-tao	Bazhao Shuidao
Pa-chao Tao	Bazhao Dao
Pa-so Kang	Basuo Gang
Pai Chiao	Bai Jiao
Pai Shan	Baishan
Pai-ch'uan Lieh-tao	Baiquan Liedao
Pai-chia Shan	Bajiashan
Pai-chieh Hsia	Baijie Xia
Pai-chieh Shan	Bayieshan
Pai-fen Ling	Beifen Ling
Pai-hu Chiao	Baihu Jiao
Pai-hu T'ou	Baihu Tou
Pai-hu t'ou Sha	Baihutou Sha
Pai-k'eng Shan	Baikeng Shan
Pai-kuo Shan	Beiguoshan
Pai-li Tao	Baili Dao
Pai-li-sha Tsui	Beili Shaxui
Pai-lung Yen	Bailong Yan
Pai-lung-wei	Bailong Wei
Pai-ma Shan	Baima Shan
Pai-mien-chiang-chun	Baimianjiangjun
Pai-mu-t'ien Chiao	Baimutian Jiao
Pai-mu-ti Chiao	Baimudi jiao
Pai-pu-lou	Baibulou
Pai-se Yen	Baise Yan
Pai-sha Shan	Baishashan
Pai-sha Tao	Baisha Dao
Pai-shui-lin	Baishuilin
Pai-su Yen	Baisu Yan
Pai-t'a Sham	Baitasham
Pai-t'ou	Baitou
Pai-yu-wan Tao	Baiyuwan Dao
Pai-yun Shan	Baiyun Shan
Pai-ya P'ai	Baiya Pai
Pai-Sha Ch'ien-t'an	Baisha Qiantan
Pan-ch'ao Chiao	Banchao Jiao
Pan-chao Lieh-tao	Banzhao Liedao
Pan-lu Shih	Banlu Shi
Pan-mian Shan	Banmian Shan
Pan-mien-shan	Banmian Shan
Pan-t'ian Shan	Bantian Shan
Pan-yang Chiao	Banyang Jiao
Pan-yang Shan	Banyangshan
Pang-hu Shan	Benghu Shan
Pao-hu Chiao	Baohu Jiao
Pao-hu Shan	Baohu Shan
Pao-kai Shan	Baogai Shan
Pei Chiao	Bei Jiao
Pei Shui-tao	Bei Shuidao
Pei Ts'ao	Bei Cao
Pei Wan	Bei Wan
Pei-ao Tao	Beiao Dao
Pei-ch'uan Chiao	Beiquan Jiao
Pei-ch'ang-shan Tao	Beichangshan Dao
Pei-ch'i Yen	Beiqi Yan
Pei-chi shan	Beijishan
Pei-chi-shan Lieh-tao	Beijishan Liedao
Pei-chia Ling	Bingma Shan
Pei-chiao Pan-tao	Beijiao Bandao
Pei-chiao Tsui	Beijiao Zui
Pei-chien Tao	Beijian Dao
Pei-fang Ch'ient'an	Beifang Qiantan
Pei-hai	Beihai
Pei-hai Kang	Beihai Gang
Pei-huang-ch'eng Tao	Beihuangcheng Dao
Pei-kan-t'ang Dao	Beigantang Dao
Pei-kan-t'ang Tao	Beigantang Dao
Pei-kang Shan	Beigangshan
Pei-kou-t'o	Beigoutuo
Pei-kuan Tao	Beiguan Dao
Pei-li	Beili
Pei-li Wan	Beili Wan
Pei-li-ch'ien T'an	Baili Qiantan
Pei-lung Shan	Beilongshan
Pei-pai	Beibai
Pei-pu Wan	Beibu Wan
Pei-sha Tao	Beisha Dao
Pei-shih	Beishi
Pei-shuang Tao	Beishuang Dao
Pei-shuang-yang K'ou	Beishuangyang Kou
Pei-t'ai-wu Shan	Beitaiwu Shan
Pei-t'ang	Beitang
Pei-t'ien-wei	Beitian Wei
Pei-t'ing Shan	Beitingshan

WADE-GILES	PINYIN
Pei-t'o-chi Shui-tao	Beituoji Shuidao
Pei-ting Tao	Beiding Dao
Pei-ting-hsin	Beidingxin
Pei-tse	Beize
Pei-yu Shan	Beiyushan
Pei-Chian Pan-tao	Beijiao Bandao
Pi-chia Ling	Bijia Ling
Pi-chia Shan	Bijia Shan
Pi-t'ou Chiao	Bitou Jiao
Piao Chiao	Biao Jiao
Piao-tan	Biaodan
Pien-yu T'ou	Pianyu
Ping-hu Tao	Pinghu Dao
Ping-ma Chiao	Bingma Jiao
Ping-ma Shan	Bingma Shan
Po Hai	Bo Hai
Po-hai Hai-hsia	Bohai Haixia
Po-hai Wan	Bohai Wan
Po-tao Tsui	Bodaozui
San Sha	San Sha
San-chia Ling	Sanjia Ling
San-chia Tseng	Sanjiazeng
San-chia-tseng	Sanjiazeng
San-chiang Shan	Sanjiang Shan
San-chiao-shan Tao	Sanjiaoshan Dao
San-hsia Kou	Sanxia Kou
San-hsing Lieh-tao	Sanxing Liedao
San-liang-ch'e	Sanliang Che
San-men Dao	Sanmen Dao
San-men Lieh-tao	Sanmen Liedao
San-men Tao	Sanmen Dao
San-men Wan	Sanmen Wan
San-niang Wan	Sanniang Wan
San-pei-chiu	Sanbeijin
San-sha	Sansha
San-shan-tzu Tao	Sanshanzi Dao
San-suan Shan	Sansuanshan
San-t'a Ting	Santa Ding
San-tou Chiao	Sandou Jiao
San-tsao Tao	Sanzao Dao
San-tu	Sandu
San-tu Ao	Sandu Ao
San-tu Tao	Sandu Dao
San-tun	Sandun
San-ya Kang	Sanya Gang
San-ya Pai	Sanya Pai
San-ya Shih	Sanya Shi
San-Yueh Shan	Sanyueshan
Sang Tao	Sang Dao
Sang-kou Wan	Sanggou Wan
Sao-chou-wei	Saozhou Wei
Sha-ch'eng	Shacheng
Sha-ch'eng Kang	Shacheng Gang
Sha-t'o-tzu	Shatuozi
Sha-wai-hang Shui-t'ao	Shawaihang Shuidao
Shan-chu Ling	Shanzhu Ling
Shan-chiang-yuan Ling	Shanjiang Yuan Ling
Shan-hai-kuan	Shanhaiguan
Shan-pai	Shanbai
Shan-t'ou	Shantou
Shan-t'ou Kang	Shantou Gang
Shan-tzu Shih	Shanzi Shi
Shan-wei	Shanwei
Shan-wei Kang	Shanwei Gang
Shan-wei T'ou	Shanwei Tou
Shan-Tzu Shih	Shanzi Shi
Shang-ch'uan Chiao	Shangchuan Jiao
Shang-ch'uan Shan	Shangchuan Shan
Shang-ch'uan Tao	Shangchuan Dao
Shang-chu Shan	Shangzhushan
Shang-hai	Shanghai
Shang-hai Kang	Shanghai Gang
Shang-kan Shan	Shangganshan
Shag-ma-an Shan	Shangmaanshan
Shang-p'an Shan	Shangpanshan
Shang-tao-ch'en Shan	Shangdachenshan
She-p'an Shan	Shepanshan
She-shan Tao	Sheshan Dao
She-yang-ho K'ou	Sheyanghe Kou
Shen-chien	Shanjian
Shen-hu Wan	Shenhu Wan
Sheng-ssu	Shengsi
Sheng-ssu Lieh-tao	Shengsi Liedao
Shi-chiu Tsui	Shijiu Zui
Shih Ling	Shi Ling
Shih Yu	Shi Yu
Shih-chiao	Shi Jiao
Shih-chiu-t'o	Shi Jiut To
Shih-chiw-So	Shijiusuo
Shih-li Ling	Shili Ling
Shih-mao Ling	Shimao Ling
Shih-pei Shan Chiao	Shibeishan Jiao
Shih-pi	Shibi
Shih-t'ang Yen	Shitang Yan
Shih-t'ou Sha	Shitou Sha
Shih-tao Kang	Shidao Gang
Shih-tzu T'ou	Shizi Tou
Shou Shih	Shou Shi
Shu-lang-hu	Shulanghu
Shu-wei Yu	Shuwei Yu
Shuang Chou	Shuang Zhou
Shuang Shan	Shuangshan
Shuang-fan	Shuangfan
Shuang-fan Shih	Shuangfan Shi
Shuang-shan Men	Shuangshan Men
Shuang-shan Tao	Shuangshan Dao
Shuang-ting Shan	Shuangding Shan
Shuang-yu Tsui	Shuangyu Zui
Shui-lo	Shuiluo
Shui-tao	Shuidao
Shui-tao-ch'ien T'an	Shuidao Qiantan
Shui-wei	Shuiwei
Shui-wei Chiao	Shuiwei Jiao
Ssu Shan	Si Shan
Ssu-chiao Shan	Sijiaoshan
Ssu-keng-sha Chiao	Sigangsha Jiao

WADE-GILES	PINYIN
Ssu-mu Yu	Simu Yu
Ssu-p'ing Shan	Siping Shan
Ssu-tzu-mei Tao	Sizimei Dao
Su-shan Tao	Sushan Dao
Sui-hsi	Suixi
SSu-shuang Lieh-tao	Sishuang Liedao
T'a Shan	Ta Shan
T'a-yu	Ta Yu
T'ai-chou Lieh-tao	Taizhou Liedao
T'ai-chou Wan	Taizhou Wan
T'ai-p'ing Chiao	Taiping Jiao
T'ai-p'ing Shan	Taipeng Shan
T'ai-p'ing-lan	Dapinglan
T'ai-ping Wan	Taiping Wan
T'ai-shan	Taishan
T'ai-tzu Shan	Taizi Shan
T'ai-wu Shan	Taiwu Shan
T'ai-Wan ch'ien T'an	Taiwan Qiantan
T'aip'ing Shan	Taiping Shan
T'an-hu Shan	Tanxushan
T'an-t'ou Shan	Tanoushan
T'an-wan Hai-hsia	Taiwan Haixia
T'ang Yu	Tang Yu
T'ang-ku	Tanggu
T'ang-nao Shan	Tangnososhan
T'ao-erh-ho K'ou	Taoerhe Kou
T'ao-hua Tao	Taohua Dao
T'ao-tzu Wan	Taozi Wan
T'e-ch'eng Tao	Techang Dao
T'eng-ch'iao	Tengqiao
T'ieh-chueh Shan	Tiejue Shan
T'ieh-lu Chang	Tielu Zhang
T'ieh-Tun	Tiedun
T'ien-an-hou-ta Ling	Tianuatou Daling
T'ien-ch'ih Kang	Tianchi Gang
T'ien-chin-hisn Kang	Tianjin Xingang
T'ien-chu Shan	Tianzhou Shan
T'ien-heng Tao	Tianheng Dao
T'ien-t'u	Tiantu
T'ien-wei Chiao	Tianwei Jiao
T'o-chi Tao	Tuoji Dao
T'o-ning Lieh-tao	Tuoning Lidao
T'ou-chin Yu	Toujin Yu
T'ou-men Shan	Toumenshan
T'u Chiao	Tu Jiao
T'u-erh Shan	Tuer Shan
T'u-erh Tao	Tuer Dao
T'u-pu Shan	Tubu Shan
T'ung Shan	Tongshan
T'ung-an	Tongan
T'ung-ku Chiao	Tonggu Jiao
T'ung-p'an Shan	Tongpan Shan
T'ung-p'an Yu	Tongpan Yu
T'ung-sha Ch'ian T'an	Tongsha Qiantan
T'ung-sha Hang-Tao	Tongsha Hangdao
T'ung-sha Sha-tsui	Tongsha Shazui
T'ungh'ang	Tengjiang
Ta Chiao	Dajiao
Ta Kang	Da Gang Channel
Ta Ling	Da Ling
Ta P'ai	Da Pai
Ta Shan	Da Shan
Ta Shan Ling	Dashan Ling
Ta Yu	Da Yu
Ta-ao Tsui	Daao Zui
Ta-chui Tao	Dashui Dao
Ta-ch'u Shan	Daqushan
Ta-ch'a-hua	Dachahua
Ta-ch'ang-t'an	Dachangtan
Ta-ch'ang-t'u Shan	Dachangtushan
Ta-ch'en Shan	Dachenshan
Ta-ch'i Chiao	Daqi Jiao
Ta-ch'iao Tao	Daqiao Dao
Ta-ch'in Tao	Daqin Dao
Ta-ch'ing Shan	Daqingshan
Ta-ch'ing-ho K'ou	Daqinghe
Ta-ch'u Shan	Daqushan
Ta-chi Shan	Dajishan
Ta-chia Shan	Dajiaoshan
Ta-chiao Shan	Dajiao Shan
Ta-chiao T'ou	Dajiao Tou
Ta-chien Feng	Dajian Feng
Ta-chien Feng	Dalian Feng
Ta-chih-chu Tao	Dazhizhu Dao
Ta-chin	Dajin
Ta-chin Chiao	Dajin Jia
Ta-chin Shan	Dajin Shan
Ta-chu Chou	Dazhu Zhou
Ta-chu Shan	Dazhushan
Ta-chu shan Tao	Dazhushan Dao
Ta-chu-shan Tsui	Dazhushan Zui
Ta-chui Tao	Dazhui Dao
Ta-feng Chiang	Dafeng Jiang
Ta-fo Tao	Dafo Dao
Ta-hei-shan Tao	Daheishan Dao
Ta-ho-shang Shan	Daheshang Shan
Ta-hsi Shui-tao	Daxi Shuidao
Ta-hsi-chai Tao	Daxizhai Dao
Ta-hsi-fan Shih	Daxifan Shi
Ta-hsieh Tao	Daxie Dao
Ta-hsing-shan Chiao	Daxingshan Jiao
Ta-hsing-tsan Yen	Daxingzan Yan
Ta-hua	Dahua
Ta-hua Shan	Dahua Shan
Ta-huang-lung Shan	Dahuanglong Shan
Ta-huo Pai	Denghuo Pai
Ta-kan Shan	Dagan Shan
Ta-kang	Dagang
Ta-kang Ting	Dagang Ding
Ta-kou Tsui-tzu	Dagou Zuizi
Ta-ku	Dagu
Ta-ku K'ou Mao-ti	Dagukou Maodi
Ta-kuan Tao	Daguan Dao
Ta-kung Tao	Dagong Dao
Ta-lao-chi	Dalaoji
Ta-lieh Tao	Dalie Dao

WADE-GILES	PINYIN
Ta-lien Kang	Dalian Gang
Ta-lien Tao	Dalian Dao
Ta-lien Tao-tzu	Dalian Daozi
Ta-lien Wan	Dalian Wan
Ta-lo	Daluo
Ta-lu Shan	Dalushan
Ta-lu Tao	Dalu Dao
Ta-ma-i Tao	Damayi Dao
Ta-mai Yu	Damai Yu
Ta-mai-i Tao	Damayi Dao
Ta-mang	Damang
Ta-mao Shan	Damao Shan
Ta-men Tao	Damen Dao
Ta-ming-fu	Daming fu
Ta-ming-Fu	Damingfu
Ta-mo Shan	Damoshan
Ta-mu Tao	Damu Dao
Ta-nan Shan	Danan Shan
Ta-nien Shan	Danianshan
Ta-ou Chiao	Daou Jiao
Ta-p'ai Chiao	Dapai Jiao
Ta-p'eng Shan	Dapengshan
Ta-p'i-kai	Dapikai
Ta-p'ing Yu	Daping Yu
Ta-p'ing-lan	Dapinglan
Ta-p'u-ho K'ou	Dapuhe Kou
Ta-pan Tao	Daban Dao
Ta-pao-hsing	Dabaoxing
Ta-pei Lieh-tao	Dabei Liedao
Ta-pei Shan	Dabei Shan
Ta-san-p'an	Dasanpan
Ta-san-shan Shui-tao	Dasanshan Shuidao
Ta-san-shan Tao	Dasanshan
Ta-shan-ting Chien	Dashanding Jiao
Ta-shu Tao	Dashu Dao
Ta-t'ang	Datang
Ta-t'u-ch'an Shih	Datuchan Shi
Ta-tan	Dadan
Ta-teng Tao	Dading Dao
Ta-tien	Dadian
Ta-ts'ai-hua Shan	Dacaihuashan
Ta-tung-ling	Dadongling
Ta-wan-shan Tao	Dawanshan Dao
Ta-wen-ch'ung	Dawenchong
Ta-yu	Da Yu
Ta-yu Chiao	Dayu Jiao
Ta-yu Shan	Dayushan
Ta-yu-ts'ang Shan	Dayucang Shan
Ta-ya Wan	Daya Wan
Ta-yang Shan	Dayangshan
Ta-yang T'ou	Dayang Tou
Ta-yao Chiao	Dayao Jiao
Tafang-chi Tao	Dafangji Dao
Tai Shan	Daishan
Tai-hu Shan	Taihu Shan
Tai-pang Wan	Dapeng Wan
Tai-shan Lieh-tao	Taishan Liedao
Tan Shui	Dan Shui
Tan-kan Lieh-tao	Dangan Liedao
Tan-kan Shui-tao	Dangan Shuidao
Tan-kan Tao	Dangan Dao
Tan-men Shan	Danmenshan
Tan-shui	Danshui
Tan-wei Chiao	Danwei Jiao
Tao-lo	Taoluo
Tao-mo Ting	Damoding
Tao-tou-ao	Daodouao
Teng-chou Ch'ien-t'an	Dengzhouqianian
Teng-chou Ch'ien-tan	Dengshou Qiautan
Teng-chou Shui-tao	Dengzhou Shuidao
Teng-pu Tao	Dengbu Dao
Ti Chiao	Di Jiao
Ti-chiao-chen	Dijiao Zhen
Ti-liu Hsing	Diliuxing
Tiao-erh Shan	Diaoer Shan
Tien-ch'eng	Diancheng
Tien-pai	Dianbai
Ting-hai	Dinghai
Ting-shih	Dingshi
Ting-t'ai T'ou	Dingtai Tou
Ting-ts'ao Yu	Dingcao Yu
Ting-tzu-ho K'ou	Dingzihe Kou
To Shan	Duo Shan
To-ku Shan	Dougu Shan
To-tzu Shan	Duozishan
Tou-chin Shui-tao	Toujin Shuidao
Tou-luan Tao	Douluan Dao
Ts'ai-hua Ling	Caihua Ling
Ts'ao Yu	Cao Yu
Ts'ao-fei-tien	Caofeidian
Ts'ao-fei-tien Tan	Caofeidian Tan
Ts'e-tzu Shan	Cezishan
Ts'en-kang	Cengang
Ts'u-lu Tao	Culu Dao
Ts'Ai Yu	Cai Yu
Ts'Ao Yu	Cao Yu
Tsao shun	Zao Shan
Tsen-chih-fu	Zengzhifu
Tsou-ma-Teng	Zoumadeng
Tsui-tung	Zaidong
Tsung Chiao	Zong Jiao
Tuan-piao Tao	Duanbiao Dao
Tui-ta T'ou	Duida Tou
Tung shang Wan	Dongshan Wan
Tung Chou	Dongzhou
Tung Hai	Dong Hai
Tung Shan	Dong Shan
Tung-an Tao	Dongan Dao
Tung-an Yen	Dongxiang Yan
Tung-ao Tao	Dongao Dao
Tung-ch'uan Tao	Dongquan Dao
Tung-ch'ang Wan	Dong Chang Wan
Tung-chi Lieh-tao	Donji Liedao
Tung-chi Shan	Dongjishan
Tung-chi Yu	Dongji Yu
Tung-chia Tao	Dongjia Dao

WADE-GILES	PINYIN
Tung-chia-k'ou Tsui	Dongjiakou Zui
Tung-chieh Chiao	Dongjie Jiao
Tung-chien	Dongjian
Tung-fang	Dongfang
Tung-fu Shan	Dongfushan
Tung-hai Tao	Donghai Dao
Tung-hai-tzu	Donghaizai
Tung-hsiang Tao	Dongxiang Dao
Tung-hsing	Dongxing
Tung-hsing Kang	Dongxing Gang
Tung-huo Shan	Donghuoshan
Tung-k'uei Shan	Dongkui Dao
Tung-ka Yu	Donggua Yu
Tung-kua Yu	Donggua Yu
Tung-lu-hua Shan	Dongluhuashan
Tung-lien-Tao	Dongxilian Dao
Tung-lo Lieh-Tao	Donglu Liedao
Tung-lo Tao	Dongluo Dao
Tung-ma-i Tao	Dongmayi Dao
Tung-mao Chou	Dongmao Zhou
Tung-men Yu	Dongmen Yu
Tung-mo-p'an	Dongmopan
Tung-nan K'ou	Dongnan Kou
Tung-pan Shan	Dongban Shan
Tung-pan-yang Chiao	Dongpanyang Jiao
Tung-pi Tao	Dongbi Dao
Tung-sha Tao	Dongsha Dao
Tung-shan Tao	Dongshan Dao
Tung-shan-wan Mao-ti	Dongshanwan Maodi
Tung-shuang Tao	Dongshuang Dao
Tung-t'ai Shan	Dongtaishan
Tung-t'ing Shan	Dongtingshan
Tung-t'ou Shan	Dongtoushan
Tung-t'ou-shan Tao	Dongtoushan Dao
Tung-ta-fan Shih	Dongdafan Shi
Tung-ting Tao	Deagding Dao
Tung-ts'e	Dongce
Tung-tsui Chiao	Dongzui Jiao
Tung-wang Sha	Dongwang Sha
Tung-yu-p'ing Yu	Donyuying Yu
Tung-yin Tao	Dongyin Dao
Tung-yu Shan	Dongyushan
Tung-Ting Yu	Dongding Yu
Tz'u Shan	Ci Shan
Tz'u-hsi	Cixi
Tzu-lo Shan	Ziluo Shan
Tzu-mao Shan	Zimao Shan
Wai Chiao	Wai Jiao
Wai Lan-chiang-sha	Wai Lanjiang Sha
Wai Sha	Wai Sha
Wai-chu Men	Waizhoumen
Wai-lan-chiang Sha	Wei Lanjiangshi
Wai-ling-ting Tao	Wailingding Dao
Wai-lung-yen	Wailongyan
Wai-p'u Sham	Waipusham
Wai-pai-chiao	Waipaijiao
Wai-pai-mu-t'ien Chiao	Waibaimutian Jiao
Wai-ssu Chiao	Waisi Jiao
Wai-ssu-k'uai	Waisikuai
Wai-ssu-k'uai Chiao	Waisikuai Jiao
Wai-t'a Chiao	Waita Jiao
Wai-t'ou	Weitou
Wai-t'ou Shan	Waitou Shan
Wai-tiao Shan	Waidiaoshan
Wai-ting-tzu Shan	Waidingzi Shan
Wai-tung Tsui	Waidong Zui
Wai-T'ou Shan	Waitou Shan
Wan-shan	Wanshan
Wang Lan	Henglan
Wang-chia Tao	Wangjia Dao
Wang-fu Chou	Wangfu Zhou
Wang-p'an Shan	Wangpan Shan
Wang-t'ien Ting	Wangtian Ding
Wei-chia Tao	Weijia Dao
Wei-chou Tao	Weizhou Dao
Wei-hai	Weihai
Wei-hai Kang	Weihai Gang
Wei-t'ou Chiao	Weitou Jiao
Wei-t'ou Wan	Weitou Wan
Wen Chou	Wen Zhou
Wen-ch'ung Shan Men	Wenchongshan Men
Wen-ch'ung-shan	Wenchongshan
Wen-chou Tao	Wenzhou Dao
Wen-chou Wan	Wenzhou Wan
Wen-chou-ch'ien T'an	Wenzhou Qiantin
Wen-kuan Tao	Wenquan Dao
Wen-ling	Wenling
Wen-teng	Wendeng
Wen-wei Chou	Wenwei Zhou
Weng-kung Chiao	Wenggong Jiao
Wo-lung Ling	Wolong Ling
Wu Jiao	Wu Jiao
Wu Shan	Wu Shan
Wu Yu	Wu Yu
Wu-ch'i Chou	Wuqi Zhou
Wu-ch'iu Yu	Wuiqiu Yu
Wu-ch'uan	Wuchuan
Wu-chu Chou	Wuzhu Zhou
Wu-chu Shan	Wuzhushan
Wu-hu Chiao	Yuhu Jiao
Wu-mien Ling	Wumen Ling
Wu-p'eng Yu	Wupeng Yu
Wu-shih	Wu Shi
Wu-shih-lien	Wushilian
Wu-sung	Wusong
Wu-sung K'ou	Wusong Kou
Wu-tao-kou Tsui-tzu	Wudagouzuizi
Yu-ch'ih Shih	Yuchi Shi
Yu-huan Tao	Yuhuan Dao
Yu-huang Shan	Yuhuang Shan
Yu-ling Chiao	Yulia Jiao
Yu-san Chiao	Yusan Jiao
Yu-t'ou Tao	Yutou Dao
Yu-weng Tao	Yuweng Dao
Yu-yao	Yuyao
Yu-Shah Lieh-tao	Yushan Liedao

WADE-GILES	PINYIN
Yuan Yu	Yuan Yu
Yuan-sha	Yuansha
Yuan-tzu Chiao	Yaunzi Jiao
Yuan-yang Tao	Yuanyang Dao
Yun-feng Shan	Yufeng Shan
Yun-hsiao	Yunxiao
Yun-nan Yen	Yunnan Yan
Yun-t'ai Shan	Yuntai Shan
Yun-ting Shan	Yunding Shan
Yun-ting-Yan	Yundingyan
Ya-lung Chiao	Yalong Jiao
Ya-lung Wan	Yalong Wan
Yai-ch'eng	Yacheng
Yai-chou Wan	Yazhou Wan
Yai-hsien San-ya	Xian Sanya
Yai-men-wai K'ou	Yamen Waikou
Yang-chia Shih	Yangjia Shi
Yang-chiao Chiao	Yangjiao Jiao
Yang-ho K'ou	Yanghe Kou
Yang-kang	Yangjiang
Yang-lan Shih	Yanglan Shi
Yang-ma Tao	Yangma Dao
Yang-p'u Wan	Yangpu Wan
Yang-p'u-pi	Yang pu Bi
Yang-pi	Yang-bi
Yang-shan Tao	Vangshan
Yang-yu Tao	Yangyu Dao
Yang-yu-ch'ih Wan	Yangyuchi Wan
Yeh-ma Yu	Yema Yu
Yeh-mao-tung	Yemaodong
Yen Yen	Yan Yan
Yen-lou Chiao	Yanlou Jiao
Yen-t'ai	Yanta
Yen-t'ai Kang	Yantai Gang
Yen-t'ou Shan	Yantou Shan
Yen-tang Shan	Yangdang Shan
Yen-tou Shan	Yandou Shan
Yen-wei Kang	Yanweigang
Yen-wo Tao	Yanwo Dao
Yin-kang Chiao	Yingang Jiao
Ying-ko Tsui	Yingge Zui
Ying-ko-hai	Yinggehai
Ying-p'an	Yingpan
Ying-tsui Shih	Yangzui Shi
Yu Yen	Yu Yan
Yu-shui Yen	Youshui Yan
Yu-Ts'ai-hua-chi	Youcaihuazhi
Yuan-chiu Chiao	Yuanzhui Jiao
Yuan-t'ou Ling	Guangtou Ling
Yung Chiao	Yong Jiang

Pinyin to Wade-Giles

PINYIN	WADE-GILES
Ai Zhou	Ai Chou
Aiqishan	Ai-ch'i Shan
Aizhou Liedao	Ai-chou Lieh-tao
AiWan	Ai-wan Wan
Anhai	An-hai
Anpu	An-p'u
Aoshan	Ao Shan
Aoshan Tou	Ao-shan T'ou
Bayieshan	Pai-chieh Shan
Ba Jiao	Pa Chiao
Bai Jiao	Pai Chiao
Baibulou	Pai-pu-lou
Baihu Jiao	Pai-hu Chiao
Baihu Tou	Pai-hu T'ou
Baihutou Sha	Pai-hu-t'ou Sha
Baijie Xia	Pai-chieh Hsia
Baikeng Shan	Pai-k'eng Shan
Baili Dao	Pai-li Tao
Baili Qiantan	Pei-li-ch'ien T'an
Bailong Wei	Pai-lung-wei
Bailong Yan	Pai-lung Yen
Baima Shan	Pai-ma Shan
Baimianjiangjun	Pai-mien-chiang-
Baimudi jiao	Pai-mu-ti Chiao
Baimutian Jiao	Pai-mu-t'ien Chiao
Baiquan Liedao	Pai-ch'uan Lieh-tao
Baise Yan	Pai-se Yen
Baisha Dao	Pai-sha Tao
Baisha Qiantan	Pai-Sha Ch'ien-t'an
Baishan	Pai Shan
Baishashan	Pai-sha Shan
Baishuilin	Pai-shui-lin
Baisu Yan	Pai-su Yen
Baitasham	Pai-t'a Sham
Baitou	Pai-t'ou
Baiya Pai	Pai-ya P'ai
Baiyun Shan	Pai-yun Shan
Baiyuwan Dao	Pai-yu-wan Tao
Bajiashan	Pai-chia Shan
Banchao Jiao	Pan-ch'ao Chiao
Banlu Shi	Pan-lu Shih
Banmianshan	Pan-mien-shan
Banmian Shan	Pan-mian Shan
Banmian Shan	Pan-mien-shan
Bantian Shan	Pan-t'ian Shan
Banyang Jiao	Pan-yang Chiao
Banyangshan	Pan-yang Shan
Banzhao Liedao	Pan-chao Lieh-tao
Baogai Shan	Pao-kai Shan
Baohu Jiao	Pao-hu Chiao
Baohu Shan	Pao-hu Shan
Basuo Gang	Pa-so Kang
Bazhao Dao	Pa-chao Tao
Bazhao Liedao	Pa-chao Lieh-tao
Bazhao Shuidao	Pa-chao Shui-tao
Bei Cao	Pei Ts'ao
Bei Jiao	Pei Chiao
Bei Shuidao	Pei Shui-tao
Bei Wan	Pei Wan
Beiao Dao	Pei-ao Tao
Beibai	Pei-pai
Beibu Wan	Pei-pu Wan
Beichangshan Dao	Pei-ch'ang-shan Tao
Beiding Dao	Pei-ting Tao
Beidingxin	Pei-ting-hsin
Beifang Qiantan	Pei-fang Ch'ient'an
Beifen Ling	Pai-fen Ling
Beigangshan	Pei-kang Shan
Beigantang Dao	Pei-kan-t'ang Dao
Beigantang Dao	Pei-kan-t'ang Tao
Beigoutuo	Pei-kou-t'o
Beiguan Dao	Pei-kuan Tao
Beiguoshan	Pai-kuo Shan
Beihai	Pei-hai
Beihai Gang	Pei-hai Kang
Beihuangcheng Dao	Pei-huang-ch'eng Tao
Beijiao Dao	Pei-chien Tao
Beijiao Bandao	Pei-chiao Pan-tao
Beijiao Zui	Pei-chiao Tsui
Beijishan	Pei-chi shan
Beijishan Liedao	Pei-chi-shan Lieh-tao
Beili	Pei-li
Beili Shaxui	Pai-li-sha Tsui
Beili Wan	Pei-li Wan
Beilongshan	Pei-lung Shan
Beiqi Yan	Pei-ch'i Yen
Beiquan Jiao	Pei-ch'uan Chiao
Beisha Dao	Pei-sha Tao
Beishi	Pei-shih
Beishuang Dao	Pei-shuang Tao
Beishuangyang Kou	Pei-shuang-yang K'ou
Beitaiwu Shan	Pei-t'ai-wu Shan
Beitang	Pei-t'ang
Beitian Wei	Pei-t'ien-wei
Beitingshan	Pei-t'ing Shan
Beituoji Shuidao	Pei-t'o-chi Shui-tao
Beiyushan	Pei-yu Shan
Beize	Pei-tse
Benghu Shan	Pang-hu Shan
Biao Jiao	Piao Chiao
Biaodan	Piao-tan
Bijia Ling	Pi-chia Ling
Bijia Shan	Pi-chia Shan
Bingma Jiao	Ping-ma Chiao
Bingma Shan	Pei-chia Ling
Bingma Shan	Ping-ma Shan
Bitou Jiao	Pi-t'ou Chiao
Bo Hai	Po Hai
Bodaozui	Po-tao Tsui
Bohai Haixia	Po-hai Hai-hsia

PINYIN	WADE-GILES
Bohai Wan	Po-hai Wan
Cai Yu	Ts'Ai Yu
Caihua Ling	Ts'ai-hua Ling
Cao Yu	Ts'ao Yu
Caofeidian	Ts'ao-fei-tien
Caofeidian Tan	Ts'ao-fei-tien Tan
Cengang	Ts'en-kang
Cezishan	Ts'e-tzu Shan
Cha Shan	Ch'a shan
Chai Yu	Ch'ai Yu
Chaishan	Ch'ai Shan
Chamu Yu	Ch'a-mu Yu
Chang Yu	Ch'ang Yu
Chang Zhou	Ch'ang Chou
Chang Zui	Ch'ang Tsui
Chang Zuizi	Ch'ang Tsui-tzu
Changbaishan	Ch'ang-pai Shan
Changbiao Dao	Ch'ang-piao Tao
Changdao	Ch'ang Tao
Changer Jian	Ch'ang-erh Chien
Changhua Daling	Ch'ang-hua-ta Ling
Changjiang Kou	Ch'ang-chiang K'ou
Changjiang Zui	Ch'ang-chiang Tsui
Changjiangkou Beijiao	Ch'ang-chiang-k'ou-pei Chiao
Changjiangkou Maodi	Ch'ang-chiang-k'ou Mao-ti
Changle	Ch'ang-le
Changli	Ch'ang-li
Changmadeng	Ch'ang-ma-Teng
Changmen Yan	Ch'ang-men Yen
Changshan Shuidao	Ch'ang-shan Shui-tao
Changxing Dao	Ch'ang-hsing Dao
Changxing Dao	Ch'ang-hsing Tao
Changxing Qiantan	Ch'ang-hsing Ch'ien-t'an
Changyaoshan	Ch'ang-yao Shan
Changzhishan	Ch'ang-chih Shan
Changzhou Dao	Cheng Chou Tao
Chaolian Dao	Chao-lien Tao
Chaoyang	Ch'ao-yang
Chaoyang Shan	Ch'ao-yang Shan
Cheng Shan	Ch'eng Shan
Chenghai	Ch'eng-hai
Chengmai Jiao	Ch'eng-mai Chiao
Chengmai Wan	Ch'eng-mai Wan
Chengpu Shan	Ch'eng-p'u Shan
Chengshan Jiao	Ch'eng-shan Chiao
Chengzhou Dao	Ch'eng-chou Tao
Cheniushan	Ch'eNiu Shan
Chenjia Zui	Ch'en-chia Tsui
Chenqianshan	Ch'en-ch'ien Shan
Cheqi Ding	Ch'e-cb'r Ting
Cheyou Dao	Ch'e-yu Tao
Chi Yu	Chih Yu
Chikan	Ch'i-k'an
Chishan Ji	Ch'ih-shan-chi
Chishizai	Chih-shih Tzu
Chitoushan	Ch'ih-t'ou Shan
Chixai Wei	Ch'ih-tzu-wei
Chongming	Ch'ung-ming
Chongming Dao	Ch'ung-ming Tao
Chongming Qiantan	Ch'ung-ming Ch'ien-Tan
Chongshan	Ch'ung Shan
Chongwu	Ch'ung-wu
Chuan Jiao	Ch'uan Chiao
Chuanbi	Ch'uan-pi
Chuanbi Dao	Ch'uan-pi Tao
Chuangaiushan	Ch'uang-niu Shan
Chuansha	Ch'uan-sha
Chuanshan Bandao	Ch'uan-shan Pan-tao
Chuanshi Dao	Ch'uan-shih Tao
Chushui Shi	Ch'u-shui Shih
Ci Shan	Tz'u Shan
Cixi	Tz'u-hsi
Culu Dao	Ts'u-lu Tao
Da Gang Channel	Ta Kang
Da Jiao	Ta Chiao
Da Ling	Ta Ling
Da Pai	Ta P'ai
Da Shan	Ta Shan
Da Yu	Ta-yu
Daao Zui	Ta-ao Tsui
Daban Dao	Ta-pan Tao
Dabaoxing	Ta-pao-hsing
Dabei Liedao	Ta-pei Lieh-tao
Dabei Shan	Ta-pei Shan
Dacaihuashan	Ta-ts'ai-hua Shan
Dachahua	Ta-ch'a-hua
Dachangtan	Ta-ch'ang-t'an
Dachangtushan	Ta-ch'ang-t'u Shan
Dachenshan	Ta-ch'en Shan
Dadan	Ta-tan
Dadian	Ta-tien
Dading Dao	Ta-teng Tao
Dadongling	Ta-tung-ling
Dafangji Dao	Tafang-chi Tao
Dafeng Jiang	Ta-feng Chiang
Dafo Dao	Ta-fo Tao
Dagan Shan	Ta-kan Shan
Dagang	Ta-kang
Dagang Ding	Ta-kang Ting
Dagong Dao	Ta-kung Tao
Dagou Zuizi	Ta-kou Tsui-tzu
Dagu	Ta-ku
Daguan Dao	Ta-kuan Tao
Dagukou Maodi	Ta-ku K'ou Mao-ti
Daheishan Dao	Ta-hei-shan Tao
Dahengqin Dao	Da-heng-ch'in Tao
Daheshang Shan	Ta-ho-shang Shan
Dahua	Ta-hua
Dahua Shan	Ta-hua Shan
Dahuanglong Shan	Ta-huang-lung Shan
Daishan	Tai Shan
Dajian Feng	Ta-chien Feng
Dajiao	Ta Chiao
Dajiao Shan	Ta-chiao Shan
Dajiao Tou	Ta-chiao T'ou
Dajiaoshan	Ta-chia Shan

PINYIN	WADE-GILES
Dajin	Ta-chin
Dajin Jia	Ta-chin Chiao
Dajin Shan	Ta-chin Shan
Dajishan	Ta-chi Shan
Dalaoji	Ta-lao-chi
Dalian Dao	Ta-lien Tao
Dalian Daozi	Ta-lien Tao-tzu
Dalian Feng	Ta-chien Feng
Dalian Gang	Ta-lien Kang
Dalian Wan	Ta-lien Wan
Dalie Dao	Ta-lieh Tao
Dalu Dao	Ta-lu Tao
Daluo	Ta-lo
Dalushan	Ta-lu Shan
Damai Yu	Ta-mai Yu
Damang	Ta-mang
Damao Shan	Ta-mao Shan
Damayi Dao	Ta-ma-i Tao
Damayi Dao	Ta-mai-i Tao
Damen Dao	Ta-men Tao
Daming fu	Ta-ming-fu
Damingfu	Ta-ming-Fu
Damoding	Tao-mo Ting
Damoshan	Ta-mo Shan
Damu Dao	Ta-mu Tao
Dan Shui	Tan Shui
Danan Shan	Ta-nan Shan
Dangan Dao	Tan-kan Tao
Dangan Liedao	Tan-kan Lieh-tao
Dangan Shuidao	Tan-kan Shui-tao
Danianshan	Ta-nien Shan
Danmenshan	Tan-men Shan
Danshui	Tan-shui
Danwei Jiao	Tan-wei Chiao
Daodouao	Tao-tou-ao
Daou Jiao	Ta-ou Chiao
Dapai Jiao	Ta-p'ai Chiao
Dapeng Wan	Tai-pang Wan
Dapengshan	Ta-p'eng Shan
Dapikai	Ta-p'i-kai
Daping Yu	Ta-p'ing Yu
Dapinglan	T'ai-p'ing-lan
Dapinglan	Ta-p'ing-lan
Dapuhe Kou	Ta-p'u-ho K'ou
Daqi Jiao	Ta-ch'i Chiao
Daqiao Dao	Ta-ch'iao Tao
Daqin Dao	Ta-ch'in Tao
Daqinghe	Ta-ch'ing-ho K'ou
Daqingshan	Ta-ch'ing Shan
Daqushan	Ta-ch'u Shan
Dasanpan	Ta-san-p'an
Dasanshan	Ta-san-shan Tao
Dasanshan Shuidao	Ta-san-shan Shui-tao
Dashan Ling	Ta Shan Ling
Dashanding Jiao	Ta-shan-ting Chien
Dashu Dao	Ta-shu Tao
Dashui Dao	Ta-chui Tao
Datang	Ta-t'ang
Datuchan Shi	Ta-t'u-ch'an Shih
Dawanshan Dao	Ta-wan-shan Tao
Dawenchong	Ta-wen-ch'ung
Daxi Shuidao	Ta-hsi Shui-tao
Daxie Dao	Ta-hsieh Tao
Daxifan Shi	Ta-hsi-fan Shih
Daxingshan Jiao	Ta-hsing-shan Chiao
Daxingzan Yan	Ta-hsing-tsan Yen
Daxizhai Dao	Ta-hsi-chai Tao
Daya Wan	Ta-ya Wan
Dayang Tou	Ta-yang T'ou
Dayangshan	Ta-yang Shan
Dayao Jiao	Ta-yao Chiao
Dayu Jiao	Ta-yu Chiao
Dayucang Shan	Ta-yu-ts'ang Shan
Dayushan	Ta-yu Shan
Dazhizhu Dao	Ta-chih-chu Tao
Dazhu Zhou	Ta-chu Chou
Dazhui Dao	Ta-chui Tao
Dazhushan	Ta-chu Shan
Dazhushan Dao	Ta-chu-shan Tao
Dazhushan Zui	Ta-chu-shan Tsui
Deagding Dao	Tung-ting Tao
Dengbu Dao	Teng-pu Tao
Denghuo Pai	Ta-huo Pai
Dengshou Qiautan	Teng-chou Ch'ien-tan
Dengzhou Shuidao	Teng-chou Shui-tao
Dengzhouqianian	Teng-chou Ch'ien-t'an
Di Jiao	Ti Chiao
Dianbai	Tien-pai
Diancheng	Tien-ch'eng
Diaoer Shan	Tiao-erh Shan
Dijiao Zhen	Ti-chiao-chen
Diliuxing	Ti-liu Hsing
Dingcao Yu	Ting-ts'ao Yu
Dinghai	Ting-hai
Dingshi	Ting-shih
Dingtai Tou	Ting-t'ai T'ou
Dingzihe Kou	Ting-tzu-ho K'ou
Dong Chang Wan	Tung-ch'ang Wan
Dong Hai	Tung Hai
Dong Shan	Tung Shan
Dongan Dao	Tung-an Tao
Dongao Dao	Tung-ao Tao
Dongban Shan	Tung-pan Shan
Dongbi Dao	Tung-pi Tao
Dongce	Tung-ts'e
Dongdafan Shi	Tung-ta-fan Shih
Dongding Yu	Tung-Ting Yu
Dongfang	Tung-fang
Dongfushan	Tung-fu Shan
Donggua Yu	Tung-ka Yu
Donggua Yu	Tung-kua Yu
Donghai Dao	Tung-hai Tao
Donghaizai	Tung-hai-tzu
Donghuoshan	Tung-huo Shan
Dongji Yu	Tung-chi Yu
Dongjia Dao	Tung-chia Tao

PINYIN	WADE-GILES
Dongjiakou Zui	Tung-chia-k'ou Tsui
Dongjian	Tung-chien
Dongjie Jiao	Tung-chieh Chiao
Dongjishan	Tung-chi Shan
Dongkui Dao	Tung-k'uei Shan
Dongluhuashan	Tung-lu-hua Shan
Dongluo Dao	Tung-lo Tao
Dongluo Liedao	Tung-lo Lieh-Tao
Dongmao Zhou	Tung-mao Chou
Dongmayi Dao	Tung-ma-i Tao
Dongmen Yu	Tung-men Yu
Dongmopan	Tung-mo-p'an
Dongnan Kou	Tung-nan K'ou
Dongpanyang Jiao	Tung-pan-yang Chiao
Dongquan Dao	Tung-ch'uan Tao
Dongsha Dao	Tung-sha Tao
Dongshan Dao	Tung-shan Tao
Dongshan Wan	Tung shan Wan
Dongshanwan Maodi	Tung-shan-wan Mao-ti
Dongshuang Dao	Tung-shuang Tao
Dongtaishan	Tung-t'ai Shan
Dongtingshan	Tung-t'ing Shan
Dongtoushan	Tung-t'ou Shan
Dongtoushan Dao	Tung-t'ou-shan Tao
Dongwang Sha	Tung-wang Sha
Dongxiang Dao	Tung-hsiang Tao
Dongxiang Yan	Tung-an Yen
Dongxilian Dao	Tung-lien-Tao
Dongxing	Tung-hsing
Dongxing Gang	Tung-hsing Kang
Dongyin Dao	Tung-yin Tao
Dongyushan	Tung-yu Shan
Dongyuying Yu	Tung-yu-p'ing Yu
Dongzhou	Tung Chou
Dongzui Jiao	Tung-tsui Chiao
Donji Liedao	Tung-chi Lieh-tao
Douluan Dao	Tou-luan Tao
Duanbiao Dao	Tuan-piao Tao
Duida Tou	Tui-ta T'ou
Duo Shan	To Shan
Duogu Shan	To-ku Shan
Duozishan	To-tzu Shan
Ehuang Zhang	O-feng Chang
Ehuo Ling	O-hao Ling
Emei Zhang	O-mei Chang
Er Zhou	Erh Chou
Erdan	Erh-tan
Erhua	Erh-huo
Erjin Qiantan	Erh-chin-ch'ien T'an
Erlong Shan	Erh-lung Shan
Ermuluanzi	Erh-mu-luan-tzu
Ershanzi Dao	Erh-shan-tzu Tao
Ersuanshan	Erh-suan Shan
Ertuozi Dao	Erh-t'o-tzu Tao
Fanbi	Fan-pi
Fangcheng	Fang-ch'eng
Fangcheng Gang	Fang-ch'eng Kang
Fangui Zhou	Fan-kuei Chou

PINYIN	WADE-GILES
Feihuanghe Kou	Fei-huang-he K'ou
Feiyuajiang Kou	Fei-yun-chiang Kou
Fengchao Yan	Feng-ch'ao Yen
Fengdong Shan	Feng-tung Shan
Fenggiu Sha	Feng-ch'iu Sha
Fenghuang Shan	Feng-huang Shan
Fenghuang Zai	Feng-huang Tsui
Fenghuangwei	Feng-huang-wei
Fengmen Ling	Feng-men Ling
Fengming Dao	Feng-ming Tao
Fengshui Jiao	Feng-shui Chiao
Fengting	Feng-t'ing
Fengwei Zui	Feng-wei Tsui
Fo Ding	Fo Ting
Fodu Dao	Fo-tu Tao
Foluo	Fo-lo
Fu Shan	Fu Shan
Fuding	Fu-ting
Fuhu Ling	Fu-hu Ling
Funing Wan	Fu-ning Wan
Fuqing	Fu-ch'ing
Fuqing Wan	Fu-ch'ing Wan
Futou Wan	Fu-t'ou Wan
Fuwen	Fu-wen
Fuyao Liedao	Fu-yao Tao
Fuying Dao	Fu-ying Tao
Fuzhou	Fu-chou
Fuzhou Gang	Fu-chou
Fuzhou Wan	Fu-chow Wan
Gadon Jiao	Kah-en Chiao
Gan Chang	Kan-ch'eng
Gan'en Sha	Kan-en Sha
Gang Shan	Kang Shan
Gangwei	Kang-wei
Gao Dao	K'ao-tao
Gao Jiao	Kao-chiao
Gao Shan	Kao Shan
Gaodeng Dao	Kao-teng Tao
Gaolan Dao	Kao-lan Tao
Gaolan Liedao	Kao-lan Lieh-tao
Gaonaozi Jiso	Kao-nao-tzu Chiao
Gaoqiso	Kao-ch'iao
Gaoshan Dao	Kao-shan Tao
Gaoshan Ling	Kao-shang Ling
Gaoshen Ling	Kao-shan Ling
Gehong Shan	Ko-hung Shan
Geli Yan	Ko-li Yen
Gengoian Cun	Kuan-ch'ien-ts'un
Gongkou Tou	Kung-k'ou T'ou
Gopo Yu	Ku-p'o Yu
Gouqishan	Kou-ch'i Shan
Gualianshan	Kua-lien Shan
Guanchuanao	Kuan-ch'uan-ao
Guanghai	Kuang-hai
Guanghai Wan	Kuang-hai Wan
Guanghe Kou	Kuan-ho K'ou
Guangtou Ling	Yuan-t'ou Ling
Guanshan Dao	Kuan-shan Tao

PINYIN	WADE-GILES
Guantou Ling	Kuan-t'ou Ling
Guanyanbeng Ling	Kuan-yin-peng Ling
Guanyin Jiao	Kuan-yin Chiao
Guanyin Ling	Kuan-yin Ling
Guanyin Shan	Kuan-yin Shan
Guanyun	Kuan-yun
Guaymen Shan	Kuan-men Shan
Gui Yu	Kuei Yu
Guiling Dao	Kuei-ling Tao
Guishan Dao	Kuei-shan Tao
Gulei Shan	Ku lei Shan
Guleitou	Ku-lei-t'ou
Gulong Zui	Ku-lung Tsui
Gutou Shan	Ku-t'ou Shan
Ha Wei	Hai Wei
Ha Zhong Jiao	Ho-chung Chiao
Hai Jiao	Hai Chiao
Hai Yang	Hai-yang
Haian	Hai-an
Haian Wan	Hai-an Wan
Haifeng	Hai-feng
Haihuangshan	Hai-huang Shan
Haijia Shan	Hai-chia Shan
Haikang	Hai-k'ang
Haikou	Hai-k'ou
Haikou Gang	Hai-k'ou Kang
Haikou Wan	Hai-k'ou Wan
Hailan Haixia	Hai-t'an Hai-hsia
Hailingshan Dao	Hai-ling-shan Tao
Hailingshan Gang	Hai-ling-shan Kang
Hailu Dao	Hai-lu Tao
Haiman Dao	Hai-men Tao
Haimao Dao	Hai-mao Tao
Haimaozi Tou	Hai-mao-tzu T'ou
Haimen	Hai-men
Haimen Jiao	Hai-men Chiao
Haimen Wan	Hai-men Wan
Hainan Dao	Hai-nan Tao
Haining	Hai-ning
Haitan Jiao	Hai-t'an Chiao
Haitan Shi	Hai-t'an Shih
Haitan Wan	Hai-t'an Wan
Haiyan	Hai-yen
Haiyang Dao	Hai-yang Tao
Haizhou Wan	Hai-chou Wan
Han Jiang	Han-chiang
Hangu	Han-ku
Hangzhou Wan	Hang-chou Wan
He Shan	Ho Shan
Hebao Dao	He pao Tao
Hegang Shan	Ho-kang Shan
Hehuashan Shan	Ho-hua-sheng Shan
Hei Jiao	Hei Chiao
Hei Yan	Hei Yen
Hei Zhou	Hei Chou
Heicun Jiao	Hei-ts'un Chiao
Heishijiao Wan	Hei-shi-chiao Wan
Helian Ya	Ho-lien-ya
Heng Mian Sha	Heng-mien Sha
Heng Sha	Heng Sha
Heng Shan	Heng Shan
Heng Zhou	Heng Chou
Henggang Dao	Heng-kang Tao
Hengjian Shan	Hung-chien Shan
Henglan	Wang Lan
Hengzhishan	Heng-chih Shan
Hepu	Ho-p'u
Hetaoyuanzi	Ho-t'ao-yuan-tzu
Gezhong Jiao	Ho-chung Chiao
Hong Shan	Hung Shan
Honghai Wan	Hung-hai Wan
Hongyu Pai	Hung-yu P'ai
Hou Jiao	Hou Chiao
Houduo Jiao	Hou-to Chiao
Houershi Zui	Hou-erh-shih Tsui
Houhai Sha	Hou-hai Sha
Houji Dao	Hou-chi Tao
Houji Shuidao	Hou-chi Shui-tao
Houjishan	Hou-chi shan
Houqing Yu	Hou-ch'ing Yu
Houshui Wan	Hou-shui Wan
Hua Yu	Hua Yu
Huang Dao	Huang Tao
Huang Hai	Huang Hai
Huang He	Huang Ho
Huang Jiao	Huang Chiao
Huang Shan	Huang Shan
Huang Xian	Huang-hsien
Huangbai Zui	Huang-pai Tsui
Huangbaizuiliho	Huang-Pai-Tsui-Li Ho
Huangcheng	Huang-ch'eng
Huangchengshan	Huang-ch'eng Shan
Huangdaao Shuidao	Huang-ta-ao Shui-tao
Huanggan Dao	Huang-kan Tao
Huanggua Yu	Huang-kua Tu
Huanghe Kou	Huang-ho K'ou
Huanghua	Huang-hua
Huangjia Shan	Huang-chiao Shan
Huangjiatang Wan	Huang-chia-t'ang Wan
Huangjing Ling	Huang-ching Ling
Huangliu	Huang-liu
Huanglongwei Zui	Huang-lung-wei Tsui
Huangmao Dao	Huang-mao Tao
Huangmao Shan	Huang-mao Shan
Huangmeng Dao	Huang-meng Tao
Huangmenshan	Huang-men Shan
Huangqi	Huang-ch'i
Huangshi Shan	Huang-shih Shan
Huangxing Dao	Huang-hsing Tao
Huangyan	Huang-yen
Huangyang Jian	Huang-yang Chien
Huangze Shan	Huang-tse Shan
Huangzhu Jiao	Huang-chu Chiao
Huangzuizi Wan	Huang-tsui-tzu Wan
Huanhaisi Dizui	Huan-hai-ssu Ti-tsui
Huaniaoshan	Hua-niao Shan

PINYIN	WADE-GILES
Huapingshan	Hua-p'ing Shan
Huatonggou Zhen	Huang-tiung-kou Chen
Hudong Jiao	Hu-tung Chiao
Hugong Shan	Hu-kung Shan
Hui Dao	Hui Tao
Hui Shan	Hui Shan
Hui-lai	Hui-lai
Huian	Hui-an
Huidong	Hui-tung
Hujing Yu	Hu-ching Yu
Hulu Dao	Hu-lu Dao
Hulu Dao	Hu-lu Tao
Hulushan Wan	Hu-lu-shan Wan
Hung Yu	Hung Yu
Huoshan Liedao	Huo-shan Lieh-tao
Huping Dao	Hu-p'ing Tao
Hushi	Hu-shih
Hutou Yu	Hu-t'ou Yu
Huxiaoshie	Hu-hsiao-she
Huyu Dao	Hu-yu Tao
Ji Yu	Chi Yu
Jiang Junao Yu	Chiang-chun-ao
Jiang Yun Ding	Chiang-Yun Ting
Jiangerao	Chiang-erh-ao
Jianghong Xu	Chiang-hung Hsu
Jiangjun Ao	Chiang-chun Ao
Jiangjun Tou	Chiang-chun T'ou
Jiangjunmao	Chiang-chun-Mao
Jiangkou	Chiang-k'ou
Jiangmu Dao	Chiang-mu Tao
Jiangping Xu	Chaing-p'ing Hsu
Jiangya Hangdao	Chiang-ya Hang-tao
Jiangyin Dao	Chiang-yin Tao
Jianhuang Ping	Chien-huang-p'ing
Jianyang Dao	Chien-yang Tao
Jiao Liedao	Chiao-lieh Tao
Jiao Shan	Chiao Shan
Jiaoliudao	Ch'iao-liu-tao
Jiaonan	Chiao-nan
Jiaotou Bi	Chiao-t'ou Pi
Jiaowei Jiao	Chiao-wei Chiao
Jiaowei Wan	Chiao-wei Wan
Jiaozhou Wan	Chiao-chou Wan
Jiapeng Liedao	Chia-p'eng Liedao
Jiashan Ling	Chia-shan Ling
Jiazi	Chia-tzu
Jiazi Gang	Chia-tzu Kang
Jiazi Jiao	Chia-tzu Chiao
Jiazi Shan	Chia-tzu Shan
Jibei Yu	Chi-pei
Jieshi Wan	Chieh-shih Wan
Jigu Jiao	Chi-ku Chiao
Jiguanshan	Chi-kuan Shan
Jigushan	Chi-ku Shan
Jilong Gang	Chi-lung Kang
Jilong Jiao	Chi-lung Chiao
Jilong Shan	Chi-lung Shan
Jimei	Chi-mei
Jiming Dao	Chi-ming Tao
Jimo	Chi-mo
Jin Jiang	Chin Chiang
Jin Xian	Chin-hsien
Jin Yu	Chin Yu
Jinghai Wan	Ching-hai Wan
Jinghaiwei	Ching-hai-wei
Jingyu Yan	Ching-yu Yen
Jingzi Tou	Ching-tzu T'ou
Jinji Ling	Chin-chi Ling
Jinjishan	Chin-chi Shan
Jinmen	Chin men
Jinmen Dao	Chin-men Dao
Jinmen Wen	Chin-men Wan
Jinmu Jiao	Chin-mu Chiao
Jinqiang	Chin-chiang
Jinshan Gang	Chin-shan Kang
Jinshan Zui	Chin-shan Tsui
Jinshanwei	Chin-shan-wei
Jintang Shan	Chin-t'ang Shan
Jintang Shuidao	Chin-t'ang Shui-tao
Jinzhou Wan	Chin-chou Wan
Jisobeishan	Chiao-pei Shan
Jiuaun Ling	Chiu-ts'un Ling
Jiudan Sha	Chiu-tuan Sha
Jiudongshan	Chiu-tung Shan
Jiuhua Shan	Chiu-hua Shan
Jiulong Jiang	Chiu-lung Chiang
Jiulou Shan	Chiu-lau Shan
Jiurong Cheng	Chiu-jung ch'eng
Jiushan Liedao	Chiu-shan Lieh-tao
Jixin	Chi-hsin
Ju Shan	Chu Shan
Juantang Ling	Chien-feng Ling
Jun Shan	Chun Shan
Junbi Jiao	Chun Pi Chiao
Junying Ling	Chun-ying Ling
Kaiping	K'ai-ping
Kaishan Dao	K'ai-shan Tao
Kanmen	K'an-man
Kanwei Sha	K'an-wei Sha
Ketangshan	K'o-t'ang Shan
Kezi Shan	K'o-tzu Shan
Kongke Yu	K'ung-k'o Yu
Kongtong Dao	K'ung-tung Tao
Kuishan Dao	K'uei-shan Tao
Kuitian Shan	Kuei-t'ien Shan
Luda Dalian	Lu-ta Ta-lien
Lushun	Lu-shun
Laibai Qtuntan	Lanpai-ch'ien T'an
Lan Cun	Lan-Ts'un
Langgangshan Liedao	Lang-kang-shan Lieh-tao
Langji Shan	Lang-chi Shan
Langqi Dao	Lang-ch'i Tao
Langu Shan	Lan-ku Shan
Lao Shan	Lao Shan
Laodong Jiao	Lao-tung Chiao
Laohu Shan	Lao-hu Shan

PINYIN	WADE-GILES
Laopian Dao	Lao-p'ien Tao
Laoqua Shan	Lo-ch'in Shan
Laoshan Tou	Lao-shan T'ou
Laoshan Wan	Lao-shan Wan
Laotie Shan	Lao-t'ieh Shan
Laotieshan Dongjiao	Lao-t'ieh-shan-tung Chiao
Laotieshan Shuidao	Lao-t'iek-shan Shui-tao
Laotieshan Xijiao	Lao-t'ieh-shan-hsi Chiao
Laotieshan Xijiao	Lao-t'ieh-Shan Hsi
Leigong Sha	Lei-kung Sha
Leizhou	Lei-chou
Leizhou Wan	Lei-chou Wan
Lemen Liedao	Le-men Lieh-tao
Leqing	Le-ch'ing
Leqing Wan	Le-ch'ing Wan
Li-tou Zui	Li-t'ou Tsui
Liandui Jiao	Lien-tui Chiao
Lianfeng	Lien-feng Shan
Liang Cheng	Liang-ch'eng
Lianghengshan	Liang-heng Shan
Liangtoudong	Liang-t'ou-tung
Liangwengang	Liang-wen Kang
Liangxiongdi Dao	Liang-hsiung-ti Tao
Lianhua Shan	Lien-hua Shan
Lianjiang	Lien-chiang
Lianyungang	Lien-yun-kang
Lianzi Jiao	Lien-tzu Chiao
Liaobantian	Liao-pan-t'ian
Liaodong Wan	Liao-tung Wan
Liaoluo Tou	Liao-lo T'ou
Liaoluo Wan	Liao-lo Wan
Lidao	Li-tao
Lie Yan	Lieh Yen
Liezi Kou	Lieh-tzu K'ou
Ligen Wan	Li-ken Wan
Lihuo Yu	Li-huo Yu
Linchang Dao	Lin-ch'ang Tao
Linchang Dao	Ling-ch'ang Tao
Lingao	Lin-kao
Lingao Jiao	Lin-kao Chiao
Lingfeng Shan	Ling-feng Shan
Lingshan Dao	Ling-shan Tao
Lingshan Shuidao	Ling-shan Shui-tao
Lingshan Wan	Ling-shan Wan
Lingtouman Ling	Ling-t'ou-ma-an Ling
Linhai	Lin-hai
Linmangao	Lin-men-kao
Lishi Liedao	Li-shih Lieh-tao
Lisikuai	Li-ssu-kuai
Liugong Dao	Liu-kung Tao
Liuheng Dao	Liu-heng Tao
Liuquan Jiao	Liu Ch'uan Chiao
Liusha Wan	Liu-sha Wan
Liyubei Jiao	Li-yu pei Chiao
Lizatu	Li-tzu-Tu
Lizheng Jiao	Li-cheng Chiao
Lizi Dao	Li-tzu Tao
Long Yu	Lung Yu
Longdong Zui	Lung-tung Tsui
Longertan Daling	Lung-erh-t'an-ta Ling
Longgao Shan	Lung-kao Shan
Longkou Gang	Lung-k'ou Kang
Longmen	Lung Men
Longmu Jiao	Lung-mu Chiao
Longnichan Shi	Lung-ni ch'an Shih
Longshe	Lung-she
Longshu Ling	Lung-shui Ling
Longxu Dao	Lung-hsu Tao
Lu Dao	Lu Tao
Luanhe Kou	Luan-ho K'ou
Luanmo Jiao	Luan-ma Chiao
Luanyantou	Luan-yen-Tou
Lufeng	Lu-feng
Lufeng Shan	Lu-feng Shan
Luhuitou Jiao	Lu-hui-t'ou Chiao
Lujiazhi	Lu-chia Chih
Luo Yan	Lo Yen
Luo Yu	Ko Yu
Luo Yu	Lo Yu
Luodou Sha	Lo-tou Sha
Luojiashan	Lo-chia Shan
Luosi Tou	Lo-ssu T'ou
Luotou Shuidao	Lo-t'ou Shui-tao
Luoyuan	Lo-yuan
Lusi	Lu-ssu Yu
Luxi Dao	Lu-hsi Tao
Ma Ling	Ma Ling
Maan Liedao	Ma-an Lieh-tao
Maan Ling	Ma-an Ling
Maanshan	Ma-an Shan
Macao	Macao
Maci Dao	Ma-tz'u Tao
Maer Dao	Ma-erh Tao
Maer Shan	Ma-erh Shan
Mai Dao	Mai Tao
Majishan	Ma-chi Shan
Mang Zhou	Mang Chou
Manyu Tou	Man-yu T'ou
Mao Yu	Mao Yu
Maojiao Zui	Mao-chiao Tsui
Maoming	Mao-ming
Mata Jiao	Ma-t'a Chiao
Mawei	Ma-wei
Mawei Zhou	Ma-wei Chou
Maxie	Ma-hsieh
Mazu Dao	Ma-tsu Tao
Mazu Haixia	Ma-tsu Hai-hsia
Mazu Liedao	Ma-tsu Lieh-tao
Mazuyin	Ma-tsu-yin
Meisan Liedao	Mei-san Lieh-tao
Meishan Dao	Mei-shan Tao
Meizhou Wan	Mei-chou Wan
Mianhua Shan	Mien-hua Shan
Miao Dao	Miao Tao
Miaodao Qundao	Miao-tao Ch'un-tao
Miaowan Dao	Miao-wan Tao

PINYIN	WADE-GILES
Miaozibu Dao	Miao-tzu-hu Tao
Min Jiang	Min Chiang
Minjiang Kou	Min-chiang K'ou
Mituo Dao	Mi-t'o Tao
Miyudi Sha	Mi-yu-li Shui
Moxin Gang	Mo-hsin Kang
Moye Dao	Mo-yeh Tao
Mudou Yu	Mu-tou Yu
Muping	Mu-p'ing
Nuying Jiao	Nu-ying Chiao
Nan Hai	Nan Hai
Nan Jiao	Nan Chiao
Nan Pu	Nan-pu
Nan Shuidao	Nan Shuitao
Nan Yu	Nan Yu
Nan'ao Dao	Nan-ao Tao
Nanao	Nan-ao
Nance	Nan-ts'e
Nanchangshan Dao	Nan-ch'ang-shan Tao
Nancpoji	Nan-ts'ao-chi
Nanding	Nan-ting
Nanding Dao	Nan-ting Tao
Nanfang Qiantan	Nan-fang Ch'ien-t'an
Nanhuangeheng Dao	Nan-huang-ch'eng Tao
Nanhui	Nan-hui
Nanjishan	Nan-chi Shan
Nanjishan Liedao	Nan-chi-shan Lieh-tao
Nanjiushan	Nan-chiu Shan
Nanjiushan Maodi	Nan-chiu-shan Mao-ti
Nankang	Nan-kang
Nankudang Dao	Nan-k'u-tang Tao
Nanpaishan	Nan-p'ai Shan
Nanpeng Dao	Nan-p'eng Tao
Nanpeng Liedao	Nan-p'eng Lieh-Tao
Nanri Dao	Nan-jih Tao
Nanri Qundao	Nan-jih Ch'un-tao
Nanri Shuidao	Nan-jih Shui-tao
Nansan Dao	Nan-san Tao
Nansha	Nan-sha
Nanshan	Nan shan
Nanshan Jiao	Nan-shan Chiao
Nanshan Ling	Nan-shan Ling
Nanshan Zui	Nan-shan Tsui
Nanshi	Nan-shih
Nanshuang Dao	Nan-shuang Tao
Nanshui Dao	Nan-shui Tao
Nantai	Nan-t'ai
Nantuoji Shuidao	Nan-t'o-chi Shui-tao
Nanyushan	Nanyushan
Nanzhi	Nan-chih
Naozhou Dao	Nao-chou Tao
Neilingding Dao	Nei-ling-ting Tao
Niang Jiao	Niang Chiao
Niangniangding	Niang-niang Ting
Niao Yu	Niao-yu
Niaozua	Niao-tsui
Niluo Yu	Ni-lo Yu
Ningbo	Ning-po
Ningbo Gang	Ning-po Kang
Ninghai	Ning-hai
Ningjinsuo	Ning-chin-so
Niubishan Shuidao	Niu-pi-shan Shui-tao
Niue Men	Niu-o Men
Niueshan	Niu-o Shan
Niufen Jiao	Niu-fen Chiao
Niugu Ling	Niu-ku Ling
Niujiao Shan	Niu-chiao Shan
Niulong Zui	Niu-lung Tsui
Niupi Jiao	Niu-p'i Chiao
Niuqing Shan	Ch'ing-niu Shan
Niuqing Shan	Niu-ch'ing Shan
Niushan	Niu Shan
Niushan Dao	Niu Shan Tao
Niushan Zui	Niu-shan Tsui
Niutou Dao	Niu-t'ou Tao
Niutou Shan	Niu-t'ou Shan
Niwxin Dao	Niu-hsin Tao
Niyushan	Ni-yu Shan
Nu Dao	Nu Tao
Oingyuan Shan	Ch'ing-yuan Shan
Ouanzhou	Ch'uan-chow
Oujiang Beikou	Ou-chiang-pei K'ou
Oujiang Nankou	Ou-chiang-nan K'ou
Ouyi Ling	Ou-i Ling
Pai Shi	P'ai Shih
Paiwei Jiao	P'ai-wei Chiao
Pamshi	P'an-shih
Paolu Jiao	P'ao-lu Chiao
Peng Jiao	P'eng Chiao
Penghu	P'eng-hu
Penghu Gang	P'eng-hu Kang
Penghu Liedao	P'eng-hu Lieh-Tao
Penglai	P'eng-lai
Penglai Tou	P'eng-lai T'ou
Pianyu	Pien-yu T'ou
Ping Dao	P'ing Tao
Ping Zhou	P'ing Chou
Pinghai	P'ing-hai
Pinghai Wan	P'ing-hai Wan
Pinghu Dao	Ping-hu Tao
Pingshi	P'ing-shih
Pingtan	P'ing-t'an
Pingyang	P'ing-yang
Pingyang Zui	P'ing-yang Tsui
Pipashan	P'i p'a Shan
Pishan	P'i Shan
Poli	P'o-li
Pu Zhen	P'u-chen
Pulandian Wan	P'u-lan-tien Wan
Puqian Jiao	P'u-ch'ien Chiao
Puqian Wan	P'u-ch'ien Wan
Putian	P'u-t'ien
Putuo	P'u-t'o
Putuoshan	P'u-t'o Shan
Qi Shan	Ch'i Shan
Qiangu Shan	Ch'ien-ku Shan

PINYIN	WADE-GILES
Qian Shan	Ch'ien Shan
Qiao Dao	Ch'i-ao Tao
Qijiazeng	Ch'i-chia-tseng
Qilintou	Ch'i-lin-tou
Qimu Jiao	Chi-mu Chiao
Qing Yan	Ch'ing Yen
Qing Zhou	Ch'ing Chou
Qingbin Dao	Ch'ing-pin Tao
Qingdao	Ch'ing-tao
Qingdao Gang	Ch'ing-tao Kang
Qingdao Jiao	Ch'ing-shan Chiao
Qingfeng	Ch'ing-feng
Qinglan Tou	Ch'ing-lan Tao
Qingshan Dao	Ch'ing-shan Tao
Qingshan Zui	Ch'ing-shan Tsui
Qingshi Lan	Ch'ing-shih-lan
Qingtaidun	Ch'ing-t'ai-tun
Qingyuan Shan	Ch'ing-yuan Shan
Qingzhou Shuidao	Ch'ing-chou Shui-tao
Qinhuangdao	Ch'in-huang-tao
Qinhuangdao Gang	Ch'in-huang-tao Kang
Qinhuangdao Wan	Ch'in-huang-tao Wan
Qiniang Shan	Ch'i-niang Shan
Qinpeng Dao	Ch'in-p'eng Tao
Qinshan Dao	Ch'in-shan Tao
Qinzhou Wan	Ch'in-chou Wan
Qiongzhou Haixia	Ch'iung-chou Hai-hsia
Qipai Jiao	Ch'i-p'ai Chiao
Qipai Shi	Ch'i-p'ai Shih
Qipan Shi	Ch'ip'an Shih
Qiren Jiao	Ch'i-jen Chiao
Qitai Zui	Ch'i't'ai Tsui
Qitaishan	Ch'i-t'ai-shan
Qitou Wan	Chin-t'ou Wan
Qixing Dao	Ch'i-hsing Tao
Qixing Jiao	Ch'i-hsing Chiao
Qixing Ling	Ch'i-hsing Ling
Qizhou Liedao	Ch'i-chou Lieh-tao
Qizimei	Ch'i-tzu-mei
Quanzhou	Ch'uan-chou
Quanzhou Wan	Ch'uan-chou Wan
Qundao	Ch'un-tao
Raoping	Jao-p'ing
Riyue Yu	Jih-yueh Yu
Rizhao	Jih-chao
Rongcheng	Jung-ch'eng
Rongcheng Mashan	Jung-ch'eng-ma Shan
Rongcheng Wan	Jung-ch'eng Wan
Ruian	Jui-an
Rushan	Jui Shan
Rushan Kou	Jui-shan K'ou
San Sha	San Sha
Sanbeijin	San-pei-chiu
Sandou Jiao	San-tou Chiao
Sandu	San-tu
Sandu Ao	San-tu Ao
Sandu Dao	San-tu Tao
Sandun	San-tun
Sang Dao	Sang Tao
Sanggou Wan	Sang-kou Wan
Sanjia Ling	San-chia Ling
Sanjiang Shan	San-chiang Shan
Sanjiaoshan Dao	San-chiao-shan Tao
Sanjiazeng	San-chia Tseng
Sanjiazeng	San-chia-tseng
Sanliang Che	San-liang-ch'e
Sanmen Dao	San-men
Sanmen Liedao	San-men Lieh-tao
Sanmen Wan	San-men Wan
Sanniang Wan	San-niang Wan
Sansha	San-sha
Sanshanzi Dao	San-shan-tzu Tao
Sansuanshan	San-suan Shan
Santa Ding	San-t'a Ting
Sanxia Kou	San-hsia Kou
Sanxing Liedao	San-hsing Lieh-tao
Sanya Gang	San-ya Kang
Sanya Pai	San-ya Pai
Sanya Shi	San-ya Shih
Sanyueshan	San-Yueh Shan
Sanzao Dao	San-tsao Tao
Saozhou Wei	Sao-chou-wei
Shacheng	Sha-ch'eng
Shacheng Gang	Sha-ch'eng Kang
Shanbai	Shan-pai
Shangchuan Dao	Shang-ch'uan Tao
Shangchuan Jiao	Shang-ch'uan Chiao
Shangchuan Shan	Shang-ch'uan Shan
Shangdachenshan	Shang-tao-ch'en Shan
Shangganshan	Shang-kan Shan
Shanghai	Shang-hai
Shanghai Gang	Shang-hai Kang
Shangmaanshan	Shang-ma-an Shan
Shangpanshan	Shang-p'an Shan
Shangzhushan	Shang-chu Shan
Shanhaiguan	Shan-hai-kuan
Shanjian	Shen-chien
Shanjiang Yuan Ling	Shan-chiang-yuan Ling
Shantou	Shan-t'ou
Shantou Gang	Shan-t'ou Kang
Shanwei	Shan-wei
Shanwei Gang	Shan-wei Kang
Shanwei Tou	Shan-wei T'ou
Shanzhu Ling	Shan-chu Ling
Shanzi Shi	Shan-tzu Shih
Shanzi Shi	Shan-Tzu Shih
Shatuozi	Sha-t'o-tzu
Shawaihang Shuidao	Sha-wai-hang Shui-t'ao
Shengsi	Sheng-ssu
Shengsi Liedao	Sheng-ssu Lieh-tao
Shenhu Wan	Shen-hu Wan
Shepanshan	She-p'an Shan
Sheshan Dao	She-shan Tao
Sheyanghe Kou	She-yang-ho K'ou
Shi Jiao	Shih-chiao
Shi Jiut To	Shih-chiu-t'o

PINYIN	WADE-GILES
Shi Ling	Shih Ling
Shi Yu	Shih Yu
Shibeishan Jiao	Shih-pei Shan Chiao
Shibi	Shih-pi
Shidao Gang	Shih-tao Kang
Shijiu Zui	Shi-chiu Tsui
Shijiusuo	Shih-chiw-So
Shili Ling	Shih-li Ling
Shimao Ling	Shih-mao Ling
Shitang	Shih-t'ang
Shitang Yan	Shih-t'ang Yen
Shitou Sha	Shih-t'ou Sha
Shizi Tou	Shih-tzu T'ou
Shou Shi	Shou Shih
Shuang Zhou	Shuang Chou
Shuangding Shan	Shuang-ting Shan
Shuangfan	Shuang-fan
Shuangfan Shi	Shuang-fan Shih
Shuangshan	Shuang Shan
Shuangshan Dao	Shuang-shan Tao
Shuangshan Men	Shuang-shan Men
Shuangyu Zui	Shuang-yu Tsui
Shuidao	Shui-tao
Shuidao Qiantan	Shui-tao-ch'ien T'an
Shuiluo	Shui-lo
Shuiwei	Shui-wei
Shuiwei Jiao	Shui-wei Chiao
Shulanghu	Shu-lang-hu
Shuwei Yu	Shu-wei Yu
Si Shan	Ssu Shan
Sigangsha Jiao	Ssu-keng-sha Chiao
Sijiaoshan	Ssu-chiao Shan
Simu Yu	Ssu-mu Yu
Siping Shan	Ssu-p'ing Shan
Sishuang Liedao	SSu-shuang Lieh-tao
Sizimei Dao	Ssu-tzu-mei Tao
Suixi	Sui-hsi
Suhan Dao	Su-shan Tao
Ta Shan	T'a Shan
Ta Yu	T'a-yu
Taihu Shan	Tai-hu Shan
Taipeng Shan	T'ai-p'ing Shan
Taiping Jiao	T'ai-p'ing Chiao
Taiping Shan	T'aip'ing Shan
Taiping Wan	T'ai-ping Wan
Taishan	T'ai-shan
Taishan Liedao	Tai-shan Lieh-tao
Taiwan Haixia	T'an-wan Hai-hsia
Taiwan Qiantan	T'ai-Wan ch'ien T'an
Taiwu Shan	T'ai-wu Shan
Taizhou Liedao	T'ai-chou Lieh-tao
Taizhou Wan	T'ai-chou Wan
Taizi Shan	T'ai-tzu Shan
Tang Yu	T'ang Yu
Tanggu	T'ang-ku
Tangnsoshan	T'ang-nao Shan
Tantoushan	T'an-t'ou Shan
Tanxushan	T'an-hu Shan
Taoerhe Kou	T'ao-erh-ho K'ou
Taohua Dao	T'ao-hua Tao
Taoluo	Tao-lo
Taozi Wan	T'ao-tzu Wan
Techang Dao	T'e-ch'eng Tao
Tengjiang	T'ungh'ang
Tengqiao	T'eng-ch'iao
Tianchi Gang	T'ien-ch'ih Kang
Tianheng Dao	T'ien-heng Tao
Tianjin Xingang	T'ien-chin-hsin Kang
Tiantu	T'ien-t'u
Tianuatou Daling	T'ien-an-hou-ta Ling
Tianwei Jiao	T'ien-wei Chiao
Tianzhou Shan	T'ien-chu Shan
Tiedun	T'ieh-Tun
Tiejue Shan	T'ieh-chueh Shan
Tielu Zhang	T'ieh-lu Chang
Tongan	T'ung-an
Tonggu Jiao	T'ung-ku Chiao
Tongpan Shan	T'ung-p'an Shan
Tongpan Yu	T'ung-p'an Yu
Tongsha Hangdao	T'ung-sha Hang-Tao
Tongsha Qiantan	T'ung-sha Ch'ian T'an
Tongsha Shazui	T'ung-sha Sha-tsui
Tongshan	T'ung Shan
Toujin Shuidao	Tou-chin Shui-tao
Toujin Yu	T'ou-chin Yu
Toumenshan	T'ou-men Shan
Tu Jiao	T'u Chiao
Tubu Shan	T'u-pu Shan
Tuer dao	T'u-erh Tao
Tuer Shan	T'u-erh Shan
Tuoji Dao	T'o-chi Tao
Tuoning Lidao	T'o-ning Lieh-tao
Vangshan	Yang-shan Tao
Wai Jiao	Wai Chiao
Wai Lanjiang Sha	Wai Lan-chiang-sha
Wai Sha	Wai Sha
Waibaimutian Jiao	Wai-pai-mu-t'ien Chiao
Waidiaoshan	Wai-tiao Shan
Waidingzi Shan	Wai-ting-tzu Shan
Waidong Zui	Wai-tung Tsui
Wailingding Dao	Wai-ling-ting Tao
Wailongyan	Wai-lung-yen
Waipaijiao	Wai-pai-chiao
Waipusham	Wai-p'u Sham
Waisi Jiao	Wai-ssu Chiao
Waisikuai	Wai-ssu-k'uai
Waisikuai Jiao	Wai-ssu-k-uai Chiao
Waita Jiao	Wai-t'a Chiao
Waitou Shan	Wai-t'ou Shan
Waizhoumen	Wai-chu Men
Wangfu Zhou	Wang-fu Chou
Wangjia Dao	Wang-chia Tao
Wangtian Ding	Wang-t'ien Ting
WangPanshan	Wang-p'an Shan
Wanshan	Wan-shan
Wei Lanjiangshi	Wai-lan-chiang Sha

PINYIN	WADE-GILES
Weihai	Wei-hai
Weihai Gang	Wei-hai Kang
Weijia Dao	Wei-chia Tao
Weitou	Wai-t'ou
Weitou Jiao	Wei-t'ou Chiao
Weitou Wan	Wei-t'ou Wan
Weizhou Dao	Wei-chou Tao
Wen Zhou	Wen Chou
Wenchongshan	Wen-ch'ung-shan
Wenchongshan Men	Wen-ch'ung Shan Men
Wendeng	Wen-teng
Wenggong Jiao	Weng-kung Chiao
Wenling	Wen-ling
Wenquan Dao	Wen-kuan Tao
Wenwei Zhou	Wen-wei Chou
Wenzhou Dao	Wen-chou Tao
Wenzhou Qiantan	Wen-chou-ch'ien T'an
Wenzhou Wan	Wen-chou Wan
Wolong Ling	Wo-lung Ling
Wu Jiao	Wu Jiao
Wu Shan	Wu Shan
Wu Shi	Wu-shih
Wu Yu	Wu Yu
Wuchuan	Wu-ch'uan
Wudaogouzuizi	Wu-tao-kou Tsui-tzu
Wumen Ling	Wu-mien Ling
Wupeng Yu	Wu-p'eng Yu
Wuqi Zhou	Wu-ch'i Chou
Wuqiu Yu	Wu-ch'iu Yu
Wushilian	Wu-shih-lien
Wusong	Wu-sung
Wusong Kou	Wu-sung K'ou
Wuzhu Zhou	Wu-chu Chou
Wuzhushan	Wu-chu Shan
Xi Yu	Hsi Yu
Xia Yu	Hsia Yu
Xiaan	Hsia-an
Xiaban Dao	Hsiao-pan Pab
Xiachuan Dao	Hsia-ch'uan Tao
Xiachuanshan	Hsia-ch'uan Shan
Xiadachenshan	Hsia-ta-ch'en Shan
Xiaganshan	Hsia-kan Shan
Xiahaishan	Hsia-hai Shan
Xialangtang	Hsia-lang T'ang
Xialangtang	Hsia-lang-t'ang
Xiamanshan	Hsia-ma-an Shan
Xiamen	Hsia-men
Xiamen Dao	Hsia-men Tao
Xiamen Gang	Hsia-men Kang
Xian Sanya	Yai-hsien San-ya
Xian Tang	Hsien T'ang
Xian'e Jiao	Hsien-o Chiao
Xiang Gang	Hong Kong
Xiang Jiao	Hsiang Chiao
Xiang Yu	Hsiang Yu
Xiang Zui	Hsiang Tsui
Xiangpan Jiao	Hsiang-p'an Chiao
Xiangshan	Hsiang Shan
Xiangshan Gang	Hsiang-shan Kang
Xiangzhi Jiao	Hsiang-chih Chiao
Xianjiao Yu	Hsien-chiao Yu
Xianmai	Hsien-mai
Xianyou	Hsien-yu
Xiao heng Qin Dao	Hsiao-heng-chin Tao
Xiao Jiao	Hsi-ao Chiao
Xiaoan Shuidao	Hsiao-an Shui-Tao
Xiaoban Men	Hsiao-pan Men
Xiaochangtushan	Hsiao-ch'ang-t'u Shan
Xiaoding Dao	Hsiao-teng Tao
Xiaoeguan	Hsiao-o-kuan
Xiaoganshan	Hsiao-kan Shan
Xiaoging Dao	Hsiao-ch'ing Tao
Xiaogong Dao	Hsiao-kung Tao
Xiaoguan Dao	Hsiao-kuang Tao
Xiaoguishan	Hsiao-ch'u Shan
Xiaohao Dao	Hsiao-hao Tao
Xiaohuanglongshan	Hsiao-huang-lung Shan
Xiaojin	Hsiao-chin
Xiaojinmen Dao	Hsiao-chin-men Tao
Xiaojishan	Hsiao-chi Shan
Xiaolongshan Dao	Hsiao-lung-shan Tao
Xiaomao Shan	Hsiao-mao Shan
Xiaomen Dao	Hsiao-men Tao
Xiaomingfu Dao	Hsiao-ming-fu Tao
Xiaomu Dao	Hsiao-mu Tao
Xiaoputai	Hsiao-p'u-t'ai
Xiaoquan Zuizi	Hsiao-ch'uan tsui-Tzu
Xiaoquan Zuizi	Hsiao-ch'uan Tsui-tzu
Xiaori Dao	Hsiao-jih Tao
Xiaosanshan Dao	Hsiao-san-shun Tao
Xiaoshanzi	Hsiao-chu-shan Tao
Xiaoshi Dao	Hsiao-shih Tao
Xiaoshulang	Hsiao-shu-lang
Xiaotang Gang	Hsiao-t'ang Kang
Xiaoxifan Shi	Hsiao-hsi-fan Shih
Xiaoxingshan	Hsiao-hsing Shan
Xiaoxiyang Dao	Hsiao-hsi-yang Tao
Xiaoyang Shan	Hsiao-yang Shan
Xiaozhi Zhu Dao	Hsiao-chih-chu Tao
Xiaozhu Shan	Hsiao-chu Shan
Xiaozhu Zhou	Hsiao-chu Chou
Xiapu	Hsia-p'u
Xiaqi Dao	Hsia-ch'i Tao
Xiaqianshan	Hsia-ch'ien Shan
Xiasanxing	Hsia-san-hsing
Xiawanshan	Hsia-wan Shan
Xiazhushan	Hsia-chu Shan
Xibanyang	Hsi-pan-yang Chiao
Xibei Jiao	Hsi-pei Chiao
Xichang	Hsi-ch'ang
Xidan Dao	Hsi-tan Tao
Xiding Yu	Hsi-ting Yu
Xiepushan	Hsieh-p'u Shan
Xieyang Dao	Hsieh-yang Tao
Xifang Qiantan	Hsi-fang Ch'ien t'an
Xifushan	Hsi-fu Shan

PINYIN	WADE-GILES
Xigu Dao	Hsi-ku Tao
Xihu Zui	Hsi-hu Tsui
Xihuoshan	Hsi-huo Shan
Xiji Yu	Hsi-chi Yu
Xijie Jiao	Hsi-chieh Chiao
Xikui Dao	Hsi K'uei Shan
Xilian Dao	Hsi-lien Tao
Xiluhuashan	Hsi-lu hua Shan
Xiluo Dao	Hsi-lo Tao
Ximao Zhou	Hsi-mao Chou
Ximayi Dao	Hsi-ma-i Tao
Ximopan	Hsi-mo-p'an
Xin Kai Kou	Hsin-K'ai K'ou
Xinan Qiantan	Hsi-nan Ch'ien-t'an
Xinda Yan	Hsin-ta Yen
Xing Cun	Hsing-Ts'un
Xinghua Shuidao	Haing-hua Shui-tao
Xinghua Wan	Hsing-hua Wan
Xinhuaihe Kou	Hsin-huai-ho K'ou
Xinliao Dao	Hsin-liao Tao
Xinxing	Hsin-hsing
Xiongdi Yu	Hsiung-ti Yu
Xiquan Dao	Hsi-ch'uan Tao
Xisoyushan	Hsiao-yu Shan
Xissi Jiao	Hsia-ssu Chiao
Xitaishan	Hsi-t'ai Shan
Xiushan	Hsiu Shan
Xiuying	Hsiu-ying
Xixing Dao	Hsi-hsing Tao
Xiyang Dao	Hsi-yang Tao
Xiyin Dao	Hsi-yin Tao
Xiyin Jiao	Hsi-yin Chiao
Xiyuping Yu	Hsi-yu-P'ing Yu
Xizhong Dao	Hsi-chung Tao
Xuanshan	Hsuan Shan
Xuejia Dao	Hsueh-chia Tao
Xuejiadao	Hsueh-chia-tao
Xugong Dao	Hsu-kung Tao
Xuwen	Hsu-wen
Yacheng	Yai-ch'eng
Yalong Jiao	Ya-lung Chiao
Yalong Wan	Ya-lung Wan
Yamen Waikou	Yai-men-wai K'ou
Yan Yan	Yen Yen
Yandang Shan	Yen-tang Shan
Yandou Shan	Yen-tou Shan
Yang pu Bi	Yang-p'u-pi
Yang-bi	Yang-pi
Yanghe Kou	Yang-ho K'ou
Yangjia Shi	Yang-chia Shih
Yangjian	Yang-kang
Yangjiao Jiao	Yang-chiao Chiao
Yanglan Shi	Yang-lan Shih
Yangma Dao	Yang-ma Tao
Yangpu Wan	Yang-p'u Wan
Yangyu Dao	Yang-yu Tao
Yangyuchi Wan	Yang-yu-ch'ih Wan
Yangzui Shi	Ying-tsui Shih
Yanlou Jiao	Yen-lou Chiao
Yanta	Yen-t'ai
Yantai Gang	Yen-t'ai Kang
Yantou Shan	Yen-t'ou Shan
Yanweigang	Yen-wei Kang
Yanwo Dao	Yen-wo Tao
Yazhou Wan	Yai-chou Wan
Yema Yu	Yeh-ma Yu
Yemaodong	Yeh-mao-tung
Yi Dao	I Tao
Yidong Jiao	I-tung Chiao
Yijiangshan Dao	I-chiang-shan Tao
Yingang Jiao	Yin-kang Chiao
Yingge Zui	Ying-ko Tsui
Yinggehai	Ying-ko-hai
Yingpan	Ying-p'an
Yisuan Shan	I-suan Shan
Yong Jiang	Yung Chiang
Youcaihuazhi	Yu-Ts'ai-hua-chi
Youshui Yan	Yu-shui Yen
Yu Yan	Yu Yen
Yuan Yu	Yuan Yu
Yuansha	Yuan-sha
Yuanyang Dao	Yuan-yang Tao
Yuanzhui Jiao	Yuan-chiu Chiao
Yuanzi Jiao	Yuan-tzu Chiao
Yuchi Shi	Yu-ch'ih Shih
Yufeng Shan	Yu-feng Shan
Yuhu Jiao	Wu-hu Chiao
Yuhuan Dao	Yu-huan Tao
Yuhuang Shan	Yu-huang Shan
Yulia Jiao	Yu-ling Chiao
Yunding Shan	Yun-ting Shan
Yundingyan	Yun-ting-Yan
Yunnan Yan	Yun-nan Yen
Yuntai Shan	Yun-t'ai Shan
Yunxiao	Yun-hsiao
Yushan Liedao	Yu-Shan Lieh-tao
Yutou Dao	Yu-t'ou Tao
Yuweng Dao	Yu-weng Tao
Yuyao	Yu-yao
Zaidong	Tsui-tung
Zao Shan	Tsao shun
Zengzhifu	Tsen-chih-fu
Zhai Dao	Chai Tai
Zhairuoshan	Chai-jo Shan
Zhaitang Dao	Chai-t'ang Tao
Zhaizishan	Chai-tzu Shan
Zhang Jiang	Chang Chiang
Zhangpu	Chang-p'u
Zhangzhou	Chang-chou
Zhangzi Dao	Chang-tzu Tao
Zhanjiang	Chan-chiang
Zhanjiang Gang	Chan-chiang Kang
Zhanzidao Shuidao	Chang-tzu-tao Shui-tao
Zhaoan	Chao-an
Zhoan Tou	Chao-an T'ou
Zhaoan Wan	Chao-an Wan

PINYIN	WADE-GILES
Zhaobei Zui	Chao-pei Tsui
Zhapo	Cha-p'o
Zhapu	Cha-p'u
Zhelang Jiao	Che-lang Chiao
Zhelang Yan	Che-lang Yen
Zhelin	Che-lin
Zhelin Wan	Che-lin Wan
Zheng qi Shan	Cheng-ch'i Shan
Zhengpeng Dao	Chung-p'eng Tao
Zhenhai	Chen-hai
Zhenhai Jiao	Chen-hai Chiao
Zhenhai Wan	Chen-hai Wan
Zhenyantou Yan	Chen-Yen-T'ou
Zhifu Dao	Chih-fu Tao
Zhingong	Chih-kung
Zhimao Wan	Chih-mao-wan
Zhisong Yan	Chih-sung Yen
Zhiwan Dao	Chih-wan Tao
Zhizhi Men	Chih-chih Men
Zhong Shuidao	Chung Shui-tao
Zhongjieshan Quando	Chung-chieh-shan Chung-tao
Zhongkui Dao	Chung-k'uei Shan
Zhongyang Sha	Chung-yang Sha
Zhongzhu Men	Chung-chu Men
Zhongzhushan	Chung-chu Shan
Zhoushan Dao	Chou-shan Tao
Zhoushan Qundao	Chou-Shan Chun-tao
Zhu Dao	Chu Tao
Zhu Shan	Chu Shan
Zhu Yu	Chu Yu
Zhuangyuanao	Chuang-yuan-Ao
Zhuangywanao	Chuang-yuan-ao
Zhucha Dao	Chu-ch'a Tao
Zhui Shan	Chui Shan
Zhujiajian	Chu-chia Chien
Zhujian Kou	Chu-chiang K'ou
Ziluo Shan	Tzu-lo Shan
Zimao Shan	Tzu-mao Shan
Zong Jiao	Tsung Chiao
Zoumadeng	Tsou-ma-Teng

How to use the Index—Gazetteer

Geographic names of navigational features are generally those used by the nation having sovereignty and are listed alphabetically. Diacritical marks, such as accents, cedillas, and circumflexes, which are related to specific letters in certain foreign languages, are not used in the interest of typographical simplicity.

Geographic names or their spellings do not necessarily reflect recognition of the political status of an area by the United States Government. Positions are approximate and are intended merely as locators to facilitate reference to the charts.

To use as a Gazetteer, note the position and Sector number of the feature and refer to the Boundaries diagram for the Sector. Plot the approximate position of the feature on this diagram.

To use as an Index of features described in the text, note the Sector-Paragraph number at the right. The Sector-Paragraph number is then used to manually locate this feature. Each Index entry is also hot-linked to its location in the text.

Index—Gazetteer

	Position				Sec. Para
	°	'	°	'	
A					
AEAM GAP	38	39 N	125	36 E	3.32
AEWOL HANG	33	28 N	126	20 E	1.6
AILIAN WAN	37	11 N	122	34 E	5.5
AIWAN WAN	28	16 N	121	30 E	7.11
AL SOM	40	39 N	129	33 E	2.42
ALGERINE ROADS	26	37 N	119	53 E	7.26
AMHAE DO	34	51 N	126	16 E	3.10
AMHERST ROCKS	31	10 N	122	23 E	5.29
AMNYONG KKUT	39	08 N	127	45 E	2.29
AMYONG KKUT	39	08 N	127	45 E	2.29
AN DO	36	57 N	126	10 E	3.18
ANMA GUNDO	35	21 N	126	00 E	3.12
AN-P'ING KANG	23	00 N	120	09 E	8.19
AN-P'ING NEW HARBOR	22	58 N	120	09 E	8.20
ANSONG GAP	39	53 N	127	53 E	2.34
AOQIAN	25	28 N	119	50 E	9.4
ASAN MAN	36	59 N	126	49 E	3.20
AYAJIN NI	38	16 N	128	33 E	2.25
B					
BAEG AM	35	02 N	128	38 E	1.44
BAEG SEO	34	38 N	128	00 E	1.25
BAEGIL HANG	34	18 N	126	34 E	1.11
BAEGUN SAN	37	29 N	126	31 E	3.23
BAIJIASHAN	28	37 N	121	52 E	7.8
BAIJIE SHAN	30	37 N	122	25 E	6.10
BAIJIE XIA	30	36 N	122	25 E	6.10
BAIQUAN LIEDAO	25	58 N	119	55 E	7.31
BANG SEO	33	55 N	126	24 E	1.9
BANYANG JIAO	30	01 N	121	58 E	6.27
BARREN ISLANDS	30	44 N	123	09 E	6.5
BAYLISS ROCK	30	14 N	122	15 E	6.16
BAYUQUAN	40	18 N	122	05 E	4.14
BAYUQUAN	40	18 N	122	05 E	4.14
BEAK HEAD CHANNEL	29	43 N	122	16 E	6.25
BEIAO DAO	26	53 N	120	13 E	7.22
BEICHANGSHAN DAO	37	57 N	120	44 E	4.41
BEIDING DAO	24	26 N	118	30 E	9.20
BEIGANTANG DAO	26	13 N	119	59 E	7.29
BEIGUAN DAO	27	10 N	120	31 E	7.21
BEIJIAO ZUI	26	23 N	119	57 E	7.28
BEIJING	39	56 N	116	24 E	4.26
BEIJSHAN LIEDAO	27	38 N	121	12 E	7.18
BEILUN OIL TERMINAL	29	57 N	121	49 E	6.29
BEILUN ORE TERMINAL	29	56 N	121	53 E	6.29
BEIQUAN JIAO	26	07 N	119	58 E	7.30
BEITANG KOU	39	03 N	117	48 E	4.24
BEIYING ZUI	34	46 N	119	22 E	5.23
BELL CHANNEL	30	00 N	121	57 E	6.27
BI TOU	22	45 N	115	36 E	9.37
BIAO JIAO	23	14 N	116	48 E	9.32
BIAO JIAO	23	55 N	117	52 E	9.25
BICHI DO	35	13 N	125	55 E	3.10
BIEUNG DO	35	57 N	126	32 E	3.14
BIHAG SAN	36	09 N	129	16 E	2.15
BIJIN DO	34	43 N	128	28 E	1.34
BINGJANG MAL	36	41 N	129	28 E	2.16
BIYANG DO	33	24 N	126	14 E	1.2
BIYANG DO	33	25 N	126	15 E	1.6
BLACK POINT	24	00 N	117	49 E	9.25
BLACK ROCK POINT	22	47 N	115	54 E	9.36
BLONDE GROUP	39	03 N	122	47 E	4.4
BO HAI	38	30 N	120	00 E	4.37
BOGIL DO	34	09 N	126	32 E	1.10
BOGSA CH'O	34	06 N	126	10 E	3.7
BOHAI HAIXIA	38	24 N	121	00 E	4.40
BORYEONG	36	24 N	126	29 E	3.16
BU DO	35	06 N	128	39 E	1.45
BUDO SUDO	35	05 N	128	39 E	1.45
BUKHANG BRIDGE	35	06 N	129	04 E	1.53
BULGEUN DO	34	09 N	126	45 E	1.12
BUSAN	35	06 N	129	02 E	1.53
BYEONGSAN YEOLDO	35	01 N	128	46 E	1.42
C					
CAMBRIA POINT	29	50 N	122	25 E	6.14
CAOFEIDIAN	38	56 N	118	32 E	4.22
CAOJING DONGHANGDAO	30	37 N	121	55 E	6.3
CAOJING XIHUANGDAO	30	42 N	121	35 E	6.3
CAPE ADKINS	36	23 N	120	53 E	5.13
CAPE NELSON	31	40 N	121	51 E	5.29
CASTLE POINT	26	32 N	119	50 E	7.25
CEZI SHAN	30	06 N	121	56 E	6.27
CEZI SHUIDAO	30	00 N	121	57 E	6.27
CH'ANGSON DO	34	51 N	128	02 E	1.32
CH'E-CH'ENG CHIAO	22	05 N	210	42 E	8.25
CH'EN-CH'I T'OU	23	33 N	117	05 E	9.30
CH'I-HOU SHAN	22	37 N	120	15 E	8.23
CH'I-HSING YEN	21	46 N	120	49 E	8.12
CH'ILBAL TO	34	47 N	125	47 E	3.4
CH'ING HSU	28	33 N	121	55 E	7.4
CH'IN-HUANG-TAO	39	56 N	119	37 E	4.20
CH'I-T'OU CHIAO	29	53 N	122	08 E	6.26
CH'I-T'OU YANG	29	48 N	122	04 E	6.26
CH'O DO	38	32 N	124	50 E	3.29
CH'OL TO	38	39 N	125	39 E	3.32
CH'OLSAN PANDO	39	40 N	124	40 E	3.33
CH'ONGSAN DO	34	11 N	126	53 E	1.14
CH'ONSU MAN	36	25 N	126	28 E	3.16
CH'U DO	34	55 N	128	05 E	1.33
CH'U SHAN	30	27 N	122	20 E	6.13
CH'UAN CHOU	24	54 N	118	35 E	9.15
CH'UAN-CHOU WAN	24	50 N	118	43 E	9.14
CH'UKSAN HANG	36	31 N	129	27 E	2.16
CH'UNGMU	34	50 N	128	26 E	1.35
CH'UNGMU HANG	34	50 N	128	25 E	1.35
CH'AHO	40	12 N	128	39 E	2.38
CH'ONGJIN	41	46 N	129	49 E	2.46
CHA SHAN	36	51 N	122	17 E	5.8
CHAEWONSO SUDO	35	06 N	126	00 E	3.10
CHAG TO	34	25 N	127	54 E	1.24
CHAGWI DO	33	19 N	126	09 E	1.2

CHAMAE DO	38	41 N	124	59 E	3.30
CHANG JIANG	31	48 N	121	10 E	5.32
CHANG-ANSO	37	04 N	126	18 E	3.21
CHANGGI GAP	36	04 N	129	34 E	2.13
CHANGGUN DO	34	44 N	127	44 E	1.26
CHANGJIANG KOU LIGHT VESSEL	31	06 N	122	32 E	5.29
CHANGJIANGKUO BEIJIAO	31	40 N	121	51 E	5.29
CHANGJON MAN	38	44 N	128	12 E	2.28
CHANGJUK SUDO	34	19 N	126	07 E	3.7
CHANGPO MAL	36	25 N	129	26 E	2.15
CHANGSAN GOT	38	08 N	124	39 E	3.29
CHANGSEON DO	34	51 N	128	02 E	1.32
CHANGSHAN QUNDAO	39	15 N	122	35 E	4.4
CHANGSHAN SHUIDAO	38	00 N	120	40 E	4.40
CHANGSO LIGHT	34	50 N	128	26 E	1.35
CHANGTU GANG	30	15 N	122	17 E	6.16
CHANGTUSHAN	30	15 N	122	20 E	6.16
CHANGXING DAO PORT	39	30 N	121	17 E	4.11
CHANSHAN TOU	36	23 N	120	53 E	5.13
CHAO-AN WAN	23	37 N	117	17 E	9.30
CHAOLIAN DAO	35	54 N	120	52 E	5.15
CHAO-LIEN TAO	35	54 N	120	52 E	5.15
CHAO-PEI TSUI	37	28 N	122	14 E	4.44
CHE'NG-TZU MAN	29	51 N	122	17 E	6.24
CHEJU	33	31 N	126	32 E	1.7
CHEJU DO	33	25 N	126	30 E	1.2
CHEJU HAEHYOB	33	50 N	126	40 E	1.8
CHEJU HANG	33	31 N	126	32 E	1.7
CHE-LANG CHIAO	22	39 N	115	34 E	9.37
CHE-LIN WAN	23	36 N	117	03 E	9.30
CHEN YEN-T'OU	22	19 N	115	06 E	9.3
CHENGIAN SHAN	30	44 N	122	49 E	6.8
CHENG-KUNG PO-TI	23	06 N	121	22 E	8.10
CHENGSHAN JIAO	37	24 N	122	42 E	4.47
CHENGSHAN TOU	39	09 N	122	09 E	4.3
CHENGSU DO	33	55 N	126	38 E	1.8
CHENGTOUGU TAN	38	08 N	117	50 E	4.24
CHEN-HAI	29	57 N	121	42 E	6.32
CHEN-HAI CHIAO	24	16 N	118	08 E	9.23
CHEONGSAN DO	34	11 N	126	53 E	1.14
CHEONSEONG MAN	35	01 N	128	49 E	1.42
CHI CHIAO	29	40 N	121	54 E	6.36
CHIA-TZU KANG	22	51 N	116	04 E	9.36
CHI-CHIAO SHAN	26	34 N	119	48 E	7.25
CHIEH-SHIH WAN	22	46 N	115	40 E	9.36
CHI-HSING CHIAO	23	29 N	117	14 E	9.31
CHI-KU CHIAO	31	10 N	122	23 E	5.29
CHIKU SHAN	28	23 N	121	43 E	7.10
CHI-LUNG KANG	25	09 N	121	46 E	8.3
CHI-LUNG TAO	25	12 N	121	47 E	8.4
CHIN DO	34	27 N	126	15 E	3.4
CHIN FENG	26	00 N	119	41 E	9.4
CHINHAE	35	09 N	128	40 E	1.44
CHINHAE MAN	35	00 N	128	34 E	1.44
CHINJUDOK SAN	41	30 N	129	37 E	2.45
CHIRI TO	38	42 N	125	08 E	3.30
CHISE P'O	34	50 N	128	43 E	1.37
CHIU-SHAN LIEH-TAO	29	26 N	122	12 E	6.34
CHOAM DO	35	26 N	129	22 E	2.6
CHODO	34	56 N	128	02 E	1.33
CHODO GUNDO	34	14 N	127	15 E	1.17
CHONGDUNG HAE	34	27 N	126	04 E	3.8
CHONGHA HANG	37	26 N	129	12 E	2.20
CHONGSHAN SHUIDAO	27	54 N	121	04 E	7.15
CHOSAN MAN	42	17 N	130	30 E	2.50
CHOU-K'O-K'O CHIAO	23	36 N	117	26 E	9.29
CHUANHU LIEDAO	30	36 N	122	20 E	6.10
CHUANSHAN BANDAO	29	53 N	122	08 E	6.23
CHU-CHIA KANG	29	54 N	122	24 E	6.24
CHUGSAN HANG	36	31 N	129	27 E	2.16
CHU-HSU CHIANG	30	14 N	122	14 E	6.16
CHUJA KUNDO	33	57 N	126	20 E	1.9
CHUK TO	34	13 N	125	51 E	3.4
CHUKPYON MAN	37	03 N	129	25 E	2.17
CHUMUNJIN DAN	37	54 N	128	50 E	2.24
CHUMUNJIN HANG	37	53 N	128	50 E	2.24
CHUN DO	35	26 N	129	21 E	2.7
CHUNGMU	34	50 N	128	26 E	1.35
CHWASARI DO	34	34 N	128	21 E	1.30
CLEFT ROCK	27	06 N	120	49 E	7.19
CONE POINT	23	40 N	117	29 E	9.29
CUSTOMS POINT	26	38 N	119	40 E	7.26

D

DA GANG	24	55 N	118	57 E	9.13
DA JIAO	25	21 N	119	46 E	9.6
DACHENG WAN	23	35 N	117	10 E	9.30
DADIAN	25	02 N	119	11 E	9.13
DADONG GANGQU	39	49 N	124	09 E	4.3
DAE AM	34	17 N	127	26 E	1.18
DAEBANG SAN	34	51 N	127	59 E	1.32
DAEBON MAL	35	45 N	129	30 E	2.11
DAEBYEON	35	13 N	129	14 E	2.5
DAEBYEON HANG	35	13 N	129	14 E	2.4
DAEHEUGSAN GUNDO	34	42 N	125	26 E	3.3
DAEJIN RI	38	30 N	128	26 E	2.26
DAEJUG DO	35	08 N	128	41 E	1.47
DAESAN HANG	37	01 N	126	25 E	3.19
DAFENG (GANG)	31	13 N	120	47 E	5.28
DAGANG GANGQU	38	43 N	117	00 E	4.28
DAGANG QU	38	56 N	121	39 E	4.6
DAGONG DAO	35	58 N	120	29 E	5.15
DAGU TANGGU	38	58 N	117	40 E	4.27
DAHUANGMANG	29	59 N	121	48 E	6.28
DAI SHAN	30	17 N	122	10 E	6.17
DAI SHI	26	08 N	119	58 E	7.30
DAISHAN DAO	30	17 N	122	10 E	6.20
DAJI SHAN DAO	30	49 N	122	10 E	6.2
DAJIAO SHAN	30	13 N	122	08 E	6.17
DAJIN JIAO	26	43 N	120	09 E	7.22
DAJIN MAN	41	16 N	129	45 E	2.44
DALIAN XINGANG	38	58 N	121	54 E	4.7
DALIAN	38	55 N	121	40 E	4.6
DALMAN GAP	36	06 N	129	26 E	2.12
DALU DAO	39	45 N	123	44 E	4.3
DAMUZHI SHAN	40	07 N	119	26 E	4.20
DANDONG	39	49 N	124	09 E	4.3
DANGGANG MAL	35	03 N	129	01 E	1.52
DAPAN JIAO	24	24 N	118	04 E	9.22
DAPENG JIAO	22	27 N	114	30 E	9.45
DAQU SHAN	30	27 N	122	20 E	6.13
DAVENPORT POINT	37	47 N	120	37 E	4.35
DAXIE DAO	29	55 N	121	58 E	6.30
DAXIZHAI DAO	30	14 N	122	29 E	6.15
DAYA JIAO	22	35 N	114	45 E	9.40
DAYA WAN	22	37 N	114	40 E	9.39
DAYANGSHAN	30	35 N	122	04 E	6.11
DAYAO WAN	39	01 N	121	52 E	4.8
DAYOUSHAN	29	59 N	121	45 E	6.32
DAYU SHAN	26	57 N	120	21 E	7.22
DAYU SHAN	30	19 N	121	58 E	6.18
DAZHU DAO	25	05 N	119	02 E	9.13
DAZHUI DAO	24	50 N	118	46 E	9.14
DAZHUSHAN ZUI	35	44 N	120	00 E	5.17
DAZHUXU	30	17 N	122	15 E	6.16
DENGZHOU SHUIDAO	37	52 N	120	45 E	4.41
DEOGJEOG DO	37	14 N	126	07 E	3.23
DEOGPO DAN	38	22 N	128	31 E	2.26
DEOGU DO	34	15 N	127	01 E	1.17
DEUGRYANG MAN	34	35 N	127	05 E	1.19
DINGHAI	30	00 N	122	06 E	6.31
DIXIE	29	55 N	121	59 E	6.30
DO TO	34	13 N	127	00 E	1.17
DODD ISLAND	24	26 N	118	30 E	9.20
DOJANG PO	34	46 N	128	41 E	1.37
DOK TO	37	15 N	131	52 E	2.2
DONAE HAE	34	03 N	127	18 E	1.15
DONG SUDO	37	06 N	126	20 E	3.18
DONGDU	24	30 N	118	04 E	9.22
DONGDU HANGDAO	24	27 N	118	04 E	9.21
DONGDUMAL	34	59 N	128	50 E	1.41
DONGFU SHAN	30	08 N	122	46 E	6.15
DONGGOU GANG	31	17 N	121	34 E	5.30
DONGHAE	37	29 N	129	09 E	2.21
DONGJIAKOU	35	34 N	119	48 E	5.19
DONGJIAZHUANG	36	43 N	121	23 E	5.13
DONGJIE JIAO	22	46 N	115	50 E	9.37
DONGLUO DAO	26	25 N	119	55 E	7.27
DONGNAN KOU	25	23 N	119	44 E	9.5
DONGQUAN DAO	25	58 N	119	58 E	7.31
DONGSHAN DAO	23	40 N	117	25 E	9.29
DONGSHAN WAN	23	46 N	117	32 E	9.27
DONGSHAN	23	45 N	117	31 E	9.28
DONGTING SHAN	29	52 N	122	35 E	6.21

DONGTOU SHAN	27	50 N	121	08 E	7.14
DONGYIN DAO	26	22 N	120	29 E	7.31
DU DO	35	03 N	129	01 E	1.52

E

ELLIOT GROUP	39	15 N	122	35 E	4.4
ELLIOT PATCH	29	59 N	122	06 E	6.31
ENTRANCE ISLAND	29	32 N	121	40 E	6.36
EOCHEONGDO	36	07 N	125	59 E	3.15

F

FANG-LIAO KANG	22	22 N	120	35 E	8.25
FEIYUN JIANG	27	42 N	120	40 E	7.18
FENGCHAO YEN	30	22 N	122	41 E	6.13
FENGCHENG	36	42 N	121	14 E	5.12
FENGUU DAO	23	28 N	116	55 E	9.31
FENGWEI	25	07 N	118	58 E	9.13
FODU DAO	29	44 N	122	01 E	6.35
FODU SHUIDAO	29	48 N	122	04 E	6.26
FORMOSA STRAIT	24	00 N	119	00 E	8.27
FORT HEAD	23	33 N	117	05 E	9.30
FO-TU SHAN	29	44 N	122	01 E	6.35
FREMANTLE CHANNEL	29	54 N	122	24 E	6.24
FUJIAN VTS	26	00 N	119	00 E	7.35
FU-KUEI CHIAO	25	18 N	121	32 E	8.2
FUNING WAN	26	51 N	120	07 E	7.22
FUTOU WAN	23	51 N	117	42 E	9.26
FU-YAO SHAN	26	57 N	120	21 E	7.22
FUYING DAO	26	35 N	120	08 E	7.24
FUZHOU	26	05 N	119	18 E	7.36

G

GADD ROCK	21	44 N	121	37 E	8.12
GADEOG DO	35	00 N	128	50 E	1.41
GADEOG SUDO	35	00 N	128	48 E	1.41
GAE DO	34	34 N	127	40 E	1.23
GAGEODO	34	04 N	125	07 E	3.2
GAJO DO	34	58 N	128	32 E	1.44
GALSAN DO	34	58 N	128	46 E	1.40
GALSAN MAL	37	17 N	129	19 E	2.19
GAMCHEON	35	03 N	129	00 E	1.52
GAMPO HANG	35	48 N	129	31 E	2.11
GANGGU HANG	36	21 N	129	24 E	2.15
GANJEOL GAP	35	21 N	129	22 E	2.5
GANJINGZI QU	38	57 N	121	38 E	4.6
GAODENG DAO	26	17 N	119	59 E	7.29
GAOQIAO GANG	31	20 N	121	33 E	5.30
GEOGEUM DO	34	27 N	127	10 E	1.20
GEOGEUM SUDO	34	26 N	127	16 E	1.19
GEOJE DO	34	50 N	128	40 E	1.37
GEOJIN DAN	38	27 N	128	28 E	2.26
GEOJIN HANG	38	27 N	128	28 E	2.26
GEOMUN DO	34	02 N	127	19 E	1.15
GEUMDANG SUDO	34	25 N	127	07 E	1.19
GEUMO DO	34	32 N	127	45 E	1.21
GEUMO SUDO	34	33 N	127	45 E	1.22
GEUMO YEOLDO	34	30 N	127	47 E	1.21
GIBSON ROCK	23	26 N	117	18 E	9.31
GO AM	34	30 N	128	29 E	1.30
GODONG MAL	35	19 N	129	18 E	2.5
GOHEUNG BANDO	34	33 N	127	20 E	1.19
GOJEONG HANG	36	24 N	126	29 E	3.16
GU GAN	38	35 N	121	36 E	4.9
GUANCHUANAO	29	27 N	122	11 E	6.34
GUANG'AO	23	14 N	116	47 E	9.32
GUANHE KOU	34	29 N	119	48 E	5.25
GUANYIN AO	25	28 N	119	50 E	9.4
GUDOL SEO	34	37 N	128	07 E	1.24
GUI YU	23	20 N	116	38 E	9.32
GULANG YU	24	27 N	118	04 E	9.21
GULEI TOU	23	43 N	117	34 E	9.27
GULF OF CHIHLI	38	30 N	120	00 E	4.37
GULONG ZUI	36	44 N	121	38 E	5.10
GUNDO KUNDO	33	57 N	126	20 E	1.9
GUNDO KUNDO	34	10 N	126	27 E	1.10
GUNSAN	35	59 N	126	42 E	3.14
GURYONGPO HANG	35	59 N	129	34 E	2.12
GWANGGYE MAL	35	14 N	129	15 E	2.5
GWANGYANG HANG	34	51 N	127	48 E	1.29
GYE DO	34	18 N	126	37 E	1.11
GYE DO	34	30 N	127	14 E	1.19
GYEONGRYEOLBI YEOLDO	36	37 N	125	34 E	3.17

H

HA DO	34	49 N	128	14 E	1.32
HABAEG DO	34	03 N	127	35 E	1.16
HABAEK TO	34	03 N	127	35 E	1.16
HACHUJA DO	33	57 N	126	20 E	1.9
HAEAM YEO	33	40 N	126	18 E	1.8
HAEJU MAN	37	45 N	125	40 E	3.25
HAENAM GAG	34	18 N	126	31 E	1.11
HAENGAM MAN	35	08 N	128	41 E	1.47
HAGNIM DO	34	45 N	128	25 E	1.34
HAI HE	38	59 N	117	43 E	4.26
HAI JIAO	30	44 N	123	09 E	6.5
HAI-K'OU WAN	22	06 N	120	42 E	8.26
HAI-LU DAO	37	27 N	122	40 E	4.46
HAIMEN GANG	28	41 N	121	27 E	7.9
HAI-T'AN TAO	25	33 N	119	48 E	8.27
HAITAN DAO	25	30 N	119	36 E	9.1
HAITAN HAIXIA	25	27 N	119	38 E	9.5
HAITAN SHI	25	46 N	119	48 E	9.5
HAIXI BANDAO	35	57 N	120	14 E	5.17
HAIYANG DAO	39	03 N	123	12 E	4.4
HAIYANG GANGQU	36	41 N	121	14 E	5.12
HAI-YANG	36	42 N	121	14 E	5.12
HAIZHOU WAN	34	55 N	119	20 E	5.22
HANG DO	34	11 N	126	56 E	1.14
HANGCHOW BAY	30	25 N	121	00 E	6.1
HANGNIM DO	34	45 N	128	25 E	1.34
HANGZHOU	30	15 N	120	10 E	4.26
HANGZHOU WAN	30	25 N	121	00 E	6.1
HANRIM HANG	33	25 N	126	16 E	1.6
HARLEQUIN ISLAND	29	32 N	121	34 E	6.36
HASA MAL	36	50 N	129	27 E	2.17
HATAEDO	34	25 N	125	17 E	3.2
HAXI WAN	36	00 N	120	16 E	5.16
HEBE HEAD	28	08 N	121	21 E	7.12
HEINIU WAN	27	48 N	121	07 E	7.16
HEIYAN JIAO	22	47 N	115	54 E	9.36
HESHANG TOU	28	21 N	121	40 E	7.10
HEUGIL DO	34	17 N	126	33 E	1.12
HEYSHANG DAO	39	01 N	121	45 E	4.6
HIMUKI SHO	33	57 N	124	36 E	3.2
HO DO	39	20 N	127	33 E	2.30
HODO PANDO	39	20 N	127	33 E	2.30
HOENG DO	35	20 N	125	59 E	3.12
HOENGGAN SUDO	34	16 N	126	35 E	1.11
HONG DO	34	32 N	128	44 E	1.30
HONG DO	34	42 N	125	12 E	3.2
HONGHAI WAN	22	40 N	115	10 E	9.38
HO-P'ING TAO	25	09 N	121	46 E	8.4
HO-P'ING KANG	24	18 N	121	45 E	8.7
HOSAN HANG	37	10 N	129	21 E	2.18
HOU DO	34	24 N	127	07 E	1.19
HOU YU	24	28 N	118	03 E	9.21
HOU-CHI TAO	38	02 N	120	40 E	4.41
HOUJI DAO	38	02 N	120	40 E	4.41
HOU-TZU PI	22	48 N	121	12 E	8.10
HSIANG-SHAN CHIANG	29	38 N	121	48 E	6.36
HSIAO-CH'IU	26	15 N	120	01 E	7.29
HSIAO-KUNG TAO	36	00 N	120	35 E	5.15
HSIAO-PAN MEN	30	12 N	122	36 E	6.15
HSIAO-YANG-MO-YU	29	54 N	122	09 E	6.27
HSI-CHIEH CHIAO	22	42 N	115	47 E	9.36
HSI-CHU TAO	25	59 N	119	56 E	7.31
HSI-HI CHIAO	22	33 N	114	36 E	9.42
HSIN LAI	25	12 N	121	44 E	8.4
HSI-PI SHIH	26	04 N	119	57 E	7.30
HSIUNG-TI YU	23	33 N	117	40 E	9.3
HSI-YIN TAO	26	20 N	120	12 E	7.23
HSUAN-PO-KU SHAN	29	50 N	122	19 E	6.24
HSU-TSU WEI	24	24 N	118	04 E	9.22
HUA-LIEN KANG	24	00 N	121	38 E	8.9
HUANG XIAN	37	38 N	120	30 E	4.33
HUANGDAO SHUIDAO	27	56 N	121	07 E	7.15

HUANGHUA	38	19 N	117	40 E	4.29
HUANGJIATANG WAN	35	33 N	119	40 E	5.19
HUANGNIC JIAO	29	58 N	121	54 E	6.32
HUANGNIU JIAO	29	58 N	121	54 E	6.28
HUANG-NUI CHIAO	29	42 N	121	52 E	6.36
HUANIAO SHAN	30	51 N	122	41 E	6.6
HUA-P'ING YU	25	25 N	121	57 E	8.3
HUAPING SHAN	30	04 N	122	29 E	6.22
HUDONG JIAO	22	48 N	115	57 E	9.36
HUGIL TO	34	17 N	126	33 E	1.12
HUIZHOU	22	39 N	114	40 E	9.43
HUJIANG DAO	26	07 N	119	38 E	7.33
HULU DAO	30	02 N	122	26 E	6.22
HULUDAO GANG	40	42 N	120	59 E	4.17
HU-LU-TAO CHIANG	40	42 N	120	59 E	4.17
HUNG DAN	42	18 N	130	35 E	2.50
HUNG-HAI WAN	22	40 N	115	10 E	9.38
HUNGNAM	39	50 N	127	37 E	2.33
HUOSHAN LIEDAO	30	20 N	121	55 E	6.18
HUP'O HANG	36	41 N	129	27 E	2.16
HU-TOU HSU	27	50 N	121	15 E	7.14
HUTOU YU	27	50 N	121	15 E	7.14
HUTUNG CHIAO	22	48 N	115	57 E	9.36
HWA DO	34	49 N	128	28 E	1.35
HWANG DO	36	14 N	125	58 E	3.15
HWANGAMDONG MYOJI	40	49 N	129	34 E	2.42
HWANGJE DO	34	11 N	127	05 E	1.17
HWANGJIN MAN	41	06 N	129	44 E	2.44
HWASUN HANG	33	14 N	126	28 E	1.3
HYEONG DO	33	12 N	126	19 E	1.3
HYEONGJEDO MOYJI	33	13 N	126	20 E	1.3

I

IJIN MAN	42	04 N	130	07 E	2.48
IMWON HANG	37	14 N	129	21 E	2.19
IMYE SOM	37	06 N	126	32 E	3.20
INCHEON	37	28 N	126	37 E	3.23
IPP'A DO	37	06 N	126	32 E	3.20
IRARI GAK	39	09 N	127	36 E	2.28
IRARI GAK	39	10 N	127	36 E	2.29
ISU DO	34	58 N	128	44 E	1.40
IWON HANG	40	17 N	128	39 E	2.39

J

JAEWEONSEO SUDO	35	06 N	126	00 E	3.10
JAM DO	35	03 N	128	40 E	1.45
JANGGI GAB	36	04 N	129	34 E	2.13
JANGSEUNGPO HANG	34	52 N	128	44 E	1.38
JEJU	33	31 N	126	32 E	1.7
JEJU DO	33	25 N	126	30 E	1.2
JEJU HAEHYEOB	33	50 N	126	40 E	1.8
JEJU HANG	33	31 N	126	32 E	1.7
JEJU NAVAL BASE HARBOR	33	14 N	126	29 E	1.4
JEO DO	35	01 N	128	45 E	1.43
JEOLMYEONG SEO	33	52 N	126	19 E	1.9
JIANGJIA ZUI	34	46 N	119	26 E	5.23
JIANGJUN TOU	24	02 N	117	54 E	9.25
JIAOBEI SHAN	30	11 N	122	18 E	6.17
JIAOBEISHAN	30	11 N	122	18 E	6.16
JIAZI GANG	22	51 N	116	04 E	9.36
JIAZI JIAO	22	49 N	116	06 E	9.35
JIESHI WAN	22	46 N	115	40 E	9.36
JIGU JIAO	31	10 N	122	23 E	5.29
JIGUSHAN	28	23 N	121	43 E	7.10
JIH HSU	24	22 N	118	08 E	9.21
JIMA DO	34	20 N	127	22 E	1.18
JIN YU	22	43 N	115	37 E	9.37
JINDO	34	27 N	126	15 E	3.4
JINGHAI GANG	22	59 N	116	32 E	9.33
JINGTANG	39	12 N	119	01 E	4.21
JINHAE	35	09 N	128	40 E	1.44
JINHAE HANG	35	08 N	128	39 E	1.46
JINHAE MAN	35	00 N	128	34 E	1.44
JINMEN DAO	24	27 N	118	23 E	9.19
JINMI MAL	36	54 N	129	25 E	2.17
JINPAI MEN	26	08 N	119	35 E	7.33
JINSHAN	30	41 N	121	17 E	6.3
JINTANG SHUIDAO	29	57 N	121	52 E	6.28
JINZHOU	40	45 N	121	06 E	4.18
JISE PO	34	50 N	128	43 E	1.37
JITSUKO SHO	33	57 N	124	36 E	3.2
JIUDUAN LIGHT FLOAT	31	07 N	121	57 E	5.29
JIUSHAN LIEDAO	29	26 N	122	12 E	6.34
JOAM DO	35	26 N	129	22 E	2.6
JOKAKO POINT	23	36 N	117	26 E	9.29
JUG DO	34	13 N	125	51 E	3.4
JUGBYEON MAN	37	03 N	129	25 E	2.17
JUNG-CHENG WAN	37	21 N	122	38 E	5.4
JWASARI DO	34	34 N	128	21 E	1.30

K

K'URESA CH'O	35	05 N	128	38 E	1.45
KA DO	34	42 N	125	28 E	3.3
KADOK	35	00 N	128	48 E	1.41
KADOK TO	35	00 N	128	50 E	1.41
KAE DO	34	34 N	127	40 E	1.23
KAIDAE MAN	42	15 N	130	23 E	2.50
KAISER POINT	35	54 N	120	10 E	5.17
KAISER ROCK	26	37 N	119	44 E	7.26
KAJO DO	34	58 N	128	32 E	1.44
KAL TO	37	43 N	125	39 E	3.25
KALMA BANDO	39	11 N	127	29 E	2.31
KALSAN DO	34	58 N	128	46 E	1.40
KALSAN MAL	37	17 N	129	19 E	2.19
KAMCH'ON	35	03 N	129	00 E	1.52
KAMNAEP'O	35	03 N	129	00 E	1.52
KAMPO HANG	35	48 N	129	31 E	2.11
KANGGU HANG	36	21 N	129	24 E	2.15
KANG-K'OU WAN	21	59 N	120	51 E	8.10
KANJOL GAP	35	21 N	129	22 E	2.5
KANSHIN TAN	37	34 N	129	07 E	2.23
KANYO AM	34	17 N	127	51 E	1.24
KAO-HSIUNG KANG	22	37 N	120	15 E	8.23
KAOHSIUNG	22	37 N	120	15 E	8.23
KAO-T'AI SHIH	21	44 N	121	37 E	8.12
KAO-TENG TAO	26	17 N	119	59 E	7.29
KAUM DO	35	13 N	126	19 E	3.12
KEELUNG	25	09 N	121	46 E	8.4
KETANGSHAN	28	54 N	121	41 E	7.7
KIDONG MAN	41	54 N	129	56 E	2.47
KIMCH'AEK	40	40 N	129	12 E	2.41
KIWA PAU	40	01 N	128	02 E	2.34
KODONG MAL	35	19 N	129	18 E	2.5
KOGUM SODO	34	26 N	127	16 E	1.19
KOGUNSAN KUNDO	35	50 N	126	25 E	3.13
KOHUNG BANDO	34	33 N	127	20 E	1.19
KOJE DO	34	50 N	128	40 E	1.37
KOJIN DAN	38	27 N	128	28 E	2.26
KOJO P'O	38	58 N	127	53 E	2.29
KOJONG HANG	36	24 N	126	29 E	3.16
KOL-SOM	42	10 N	130	19 E	2.49
KOMUN DO	34	02 N	127	19 E	1.15
KUANSHAN CHIANG	30	13 N	122	12 E	6.18
KU-AO-T'OU	27	36 N	120	33 E	7.18
KUDOK SAN	35	07 N	129	00 E	1.53
KUDOL SO	34	37 N	128	07 E	1.24
KUEI-LUAN YEN	24	49 N	121	56 E	8.6
KUEI-SHAN TAO	24	51 N	121	57 E	8.6
KUISHAN DAO	26	30 N	120	08 E	7.24
KU-LEI TOU	23	43 N	117	34 E	9.27
KU-LUNG SHAN	39	49 N	124	01 E	3.36
KUMDANG SUDO	34	25 N	127	07 E	1.19
KUMGOL SAN	34	32 N	126	18 E	3.6
KUMO SAN	34	35 N	127	48 E	1.22
KUMO SUDO	34	33 N	127	45 E	1.22
KUMO SUDO	43	33 N	127	45 E	1.22
KUMO YOLTO	34	30 N	127	47 E	1.21
KUMODO	34	32 N	127	45 E	1.21
KUNDO GUNDO	34	14 N	127	15 E	1.17
KUNSAN	35	59 N	126	37 E	3.14
KUREISSER CHO	35	05 N	128	38 E	1.45
KURYONGP'O HANG	35	59 N	129	34 E	2.12
KWAE DO	40	27 N	129	00 E	2.40
KWAKKOT CH'OE	39	49 N	124	25 E	3.35
KWANGGYE MAL	35	14 N	129	15 E	2.5
KWANGYANG HANG	34	51 N	127	48 E	1.29
KYOMAEK TO	34	31 N	125	41 E	3.4
KYOMIP'O	38	44 N	125	37 E	3.32

KYONGNYOLBI YOLTO,	36	37 N	125	34 E	3.17
KYONGSONG MAN	41	35 N	129	50 E	2.45

L

LAIZHOU GANG	37	24 N	119	56 E	4.31
LAIZHOU WAN	37	20 N	119	22 E	4.30
LAMTIA ISLAND	24	08 N	118	02 E	9.24
LAN YU	22	04 N	121	32 E	8.11
LANG TAO	26	20 N	120	12 E	7.23
LANGGANG SHAN	30	26 N	122	55 E	6.13
LANGJISHAN	28	32 N	121	37 E	7.8
LANSHAN	35	05 N	119	21 E	5.21
LAOSHAN TOU	36	08 N	120	43 E	5.15
LAOSHAN WAN	36	20 N	120	50 E	5.14
LAO-T'IEH-SHAN-HSI CHIAO	38	44 N	121	08 E	4.12
LAOTIESHAN JIAO	38	44 N	121	08 E	4.12
LAOTIESHAN SHUIDAO	38	30 N	121	00 E	4.40
LIANCOURT ROCKS	37	15 N	131	52 E	2.2
LIANGXIONGDI DAO	30	10 N	122	57 E	6.15
LIANYUNGANG	34	44 N	119	27 E	5.23
LIAODONG WAN	40	30 N	121	30 E	4.10
LIAOLUO TOU	24	25 N	118	26 E	9.19
LIAO-TUNG WAN	40	30 N	121	30 E	4.10
LIDAO	37	15 N	122	34 E	5.5
LIE YAN	27	06 N	120	49 E	7.19
LIEN YUN CHIANG	34	44 N	119	27 E	5.23
LIEN-HUA-FENG CHIAO	22	56 N	116	29 E	8.27
LIGEN WAN	35	42 N	119	57 E	5.18
LIHUO YU	30	06 N	122	22 E	6.22
LINGSHAN DAO	35	45 N	120	10 E	5.18
LINGSHAN WAN	35	50 N	120	05 E	5.17
LINMENGAO	24	11 N	118	05 E	9.24
LITOU ZUI	28	16 N	121	25 E	7.10
LIU-CH'IU YU	22	21 N	120	22 E	8.25
LIU-CH'UAN CHIAO	26	05 N	119	58 E	7.30
LIUDOU ZUI	28	16 N	121	25 E	7.10
LIUQUAN JIAO	26	05 N	119	58 E	7.30
LO HSU	28	16 N	121	44 E	7.10
LO SHAN BAY	36	20 N	120	50 E	5.14
LO-HSING-T'A MAO-TI	25	59 N	119	27 E	7.34
LOKAUP ISLAND	22	35 N	114	39 E	9.41
LONGKOU	37	39 N	120	20 E	4.33
LONGKOU GANG	37	38 N	120	17 E	4.33
LONGWAN	27	58 N	120	48 E	7.17
LONGYAN	37	24 N	122	38 E	4.46
LOUTZ ROCK	25	08 N	119	23 E	9.10
LU HSU	25	20 N	119	29 E	9.10
LU TAO	22	40 N	121	29 E	8.11
LU YU	23	19 N	116	46 E	9.32
LUANJIAKOU	37	47 N	120	37 E	4.35
LUCHAOGANG	30	52 N	121	51 E	6.2
LU-CHIANG	24	03 N	120	25 E	8.13
LUHUASHAN	30	49 N	122	38 E	6.7
LUJIANG SHUIDAO	24	27 N	118	04 E	9.21
LUJIAZHI	29	55 N	122	18 E	6.24
LUJIAZUI	31	14 N	121	29 E	5.30
LUO YU	28	16 N	121	44 E	7.10
LUOCHENG ZHOU	32	18 N	119	44 E	5.32
LUOTOU SHUIDAO	29	55 N	122	03 E	6.26
LUOYUAN WAN	26	25 N	119	43 E	7.27
LU-SHUN	38	47 N	121	15 E	4.9
LUSHUN	38	47 N	121	15 E	4.9
LUSI	32	05 N	121	45 E	5.27
LU-TZ'U YEN	25	08 N	119	23 E	9.10

M

MAAN DO	34	45 N	128	05 E	1.32
MAAN DO	39	48 N	124	11 E	3.36
MA-AN LIEDAO	30	44 N	122	45 E	6.6
MABIANZHOU ISLAND	22	40 N	114	39 E	9.39
MADO	35	56 N	128	02 E	1.33
MAEMUL DO	34	38 N	128	34 E	1.30
MAEMUL TO	34	13 N	127	00 E	1.17
MAEMUL TO	34	31 N	125	41 E	3.4
MAEMUL TO	34	38 N	128	34 E	1.30
MAENGGOL KUNDO	34	13 N	125	51 E	3.4
MAENGGOL SUDO	34	14 N	125	53 E	3.5
MAIAN WAN	37	25 N	122	39 E	4.46
MAI-LIAO	23	47 N	120	10 E	8.18
MAJI SHAN	30	40 N	122	25 E	6.12
MA-KUNG	23	34 N	119	33 E	8.31
MANGWA DO	35	02 N	128	43 E	1.43
MANRYOKIKI	38	43 N	125	23 E	3.31
MAN-T'OU KANG-TOU	29	05 N	121	40 E	7.7
MAOCAOSHAN	28	12 N	121	25 E	7.11
MAO-T'OU-SHAN TSUI	29	06 N	121	39 E	7.7
MARA DO	33	07 N	126	16 E	1.2
MARO HAE	34	23 N	126	25 E	3.6
MASAN	35	11 N	128	34 E	1.48
MA-TA CHIAO	37	12 N	122	37 E	5.5
MATA JIAO	37	12 N	122	37 E	5.5
MAWEI	25	59 N	119	27 E	7.36
MAYAN DO	40	00 N	128	11 E	2.35
MAYANG DO	40	00 N	128	11 E	2.35
MAZU DAO	26	09 N	119	56 E	7.29
MAZU HAIXIA	26	11 N	119	57 E	7.29
MAZU STRAIT	26	11 N	119	57 E	7.29
MEI-CHOU WAN	25	05 N	119	02 E	9.12
MEI-HUA CHIANG	26	03 N	119	37 E	7.32
MEIZHOU WAN	25	05 N	119	02 E	9.12
MEIZHOU WAN COAL TERMINAL	25	08 N	119	01 E	5.
MI PO	35	31 N	129	27 E	2.10
MIAODAO QUNDAO	38	10 N	120	45 E	4.41
MIAO-TAO CH'U-TAO	38	10 N	120	45 E	4.41
MIDDLE ROCKS	22	31 N	114	41 E	9.42
MIEN-HUA YU	25	29 N	122	06 E	8.3
MIN JIANG	26	05 N	119	32 E	8.27
MIN'AN MEN	29	03 N	119	30 E	7.33
MIPO	35	31 N	129	27 E	2.10
MIRS POINT	22	27 N	114	30 E	9.45
MOG DO	34	59 N	129	00 E	1.42, 1.43
MOGP'O GU	34	46 N	126	18 E	3.6
MOK TO	34	59 N	129	00 E	1.42, 1.43
MOKP'O HANG	34	47 N	126	23 E	3.6
MOKP'O	34	47 N	126	23 E	3.11
MOKTOKTO	36	56 N	125	47 E	3.18
MORUN MAL	35	02 N	128	58 E	1.51
MOUNT BLACK	22	52 N	116	09 E	9.35
MOUTH POINT	26	27 N	119	50 E	7.25
MOYE DAO	36	55 N	122	31 E	5.6
MUKHO HANG	37	33 N	129	07 E	2.22
MUN DO	34	07 N	127	31 E	1.16
MUN SEO	34	08 N	127	34 E	1.16
MUN SO	34	08 N	127	34 E	1.16
MUSU DAN	40	50 N	129	43 E	2.43
MYO DO	34	53 N	127	45 E	1.28
MYODO	34	53 N	127	45 E	1.28
MYONDO SUDO	34	58 N	126	06 E	3.10

N

NAENARO DO	34	30 N	127	28 E	1.21
NAGDONG PO	35	03 N	128	54 E	1.51
NAJIN	42	14 N	130	18 E	2.49
NAKP'OGAK	34	51 N	127	47 E	1.28
NAKSAN MAN	42	05 N	130	11 E	2.48
NAKTONG P'O	35	03 N	128	54 E	1.51
NAM PO	34	50 N	128	29 E	1.36
NAMHAE DO	34	48 N	128	00 E	1.26
NAMHYEONGJE DO	34	53 N	128	57 E	1.43
NAMHYONGJE DO	34	53 N	128	57 E	1.43
NAMP'O	38	43 N	125	24 E	3.31
NAMUSEOM	34	59 N	129	00 E	1.43
NAN DO	39	00 N	128	06 E	2.27
NAN DO	40	19 N	128	46 E	2.40
NAN DO	40	39 N	129	33 E	2.42
NAN SHA	24	06 N	118	06 E	9.24
NAN SHUIDAO	31	02 N	122	11 E	5.29
NAN YU	26	56 N	120	21 E	7.20
NAN'AO DAO	23	26 N	117	03 E	9.31
NANCHANGSHAN DAO	37	56 N	120	45 E	4.41
NANDING	25	08 N	119	23 E	9.10
NANDING DAO	24	08 N	118	02 E	9.24
NANG DO	34	36 N	127	33 E	1.23
NANHUI	30	50 N	121	50 E	6.2
NANHUI ZUI	30	53 N	121	53 E	6.2
NANJISHAN LIEDAO	27	27 N	121	04 E	7.18

NANKOU SHUIDAO	25	20 N	119	40 E	9.5
NAN-LIAO	22	40 N	121	29 E	8.11
NANPENG LIEDAO	23	16 N	117	17 E	9.3
NANQUAN	26	37 N	120	20 E	7.23
NANRI SHUIDO	25	12 N	119	25 E	9.10
NANSHAN TOU	39	55 N	119	37 E	4.20
NAN-SHAN TSUI	38	52 N	121	41 E	4.9
NANSHAN ZUI	38	52 N	121	41 E	4.9
NAN-SHAN-CHIAO PI	24	16 N	121	44 E	8.8
NANZHI LANBY	30	58 N	122	11 E	5.29
NARO YEOLDO	34	30 N	127	30 E	1.21
NEI LANGJIANGSHA	26	07 N	119	41 E	7.32
NIANG JIAO	23	19 N	116	50 E	9.32
NI-LO CHIAO	29	08 N	122	03 E	7.6
NILUO YU	29	08 N	122	03 E	7.6
NINGBO	29	53 N	121	33 E	6.33
NINGDE	26	40 N	119	12 E	7.25
NIUBISHAN SHUIDAO	29	37 N	122	06 E	6.34
NIUSHAN DAO	25	26 N	119	56 E	9.4
NIU-SHAN TAO	25	26 N	119	56 E	9.4
NIUSHAN ZUI	29	01 N	121	43 E	7.7
NIU-T-OU	29	07 N	121	56 E	7.6
NIUTOU SHAN	29	07 N	121	56 E	7.6
NO MAL	34	55 N	128	05 E	1.31
NOMI GAK	37	00 N	126	47 E	3.21
NORTH MEROPE	24	11 N	118	05 E	9.24
NORTON ROCK	25	46 N	119	48 E	9.5

O

OCH'ONG DO	36	07 N	125	59 E	3.15
ODAEJIN	41	23 N	129	47 E	2.45
OEBUJI DO	34	42 N	128	24 E	1.34
OEPO RI	34	56 N	128	43 E	1.40
OEYONDO MYOJI	36	13 N	126	03 E	3.15
OG AM	42	18 N	130	30 E	2.50
OGOG DO	34	44 N	128	26 E	1.34
OGOK TO	34	44 N	128	26 E	1.34
OGPO MAN	34	53 N	128	43 E	1.39
OKGYE HANG	37	37 N	129	03 E	2.23
OKPO HANG	34	53 N	128	43 E	1.39
O-LUAN PI	21	54 N	120	51 E	8.10
ONG DO	36	39 N	126	01 E	3.17
ONSAN	35	27 N	129	22 E	2.7
ORANG DAN	41	23 N	129	48 E	2.45
OSIG DO	35	58 N	126	34 E	3.14
OU CHIANG	28	01 N	120	44 E	7.12

P

P'ALMIDO	37	21 N	126	31 E	3.23
P'ENG-CHIA YU	25	38 N	122	04 E	8.2
P'ENG-HU KANG	23	36 N	119	32 E	8.30
P'ING-HAI CHIAO	25	10 N	119	16 E	9.11
P'OHANG MAN	40	59 N	129	44 E	2.43
P'UNG DO	37	06 N	126	23 E	3.20
P'ENG-HU TAO	23	34 N	119	37 E	8.29
PA ZA ISLETS	29	30 N	121	36 E	6.36
PAEGIL HANG	34	18 N	126	34 E	1.11
PAEK SO	34	15 N	127	06 E	1.18
PAEK-AM	35	02 N	128	38 E	1.44
PAEKSO	34	38 N	128	00 E	1.25
PAENGNYONG DO	37	57 N	124	40 E	3.28
PAI HO	38	59 N	117	43 E	4.26
PAI-CH'UAN LIEH-TAO	25	58 N	119	55 E	7.31
PAI-SHA CHIA	25	03 N	121	04 E	8.15
PAI-YA YANG	29	55 N	122	03 E	6.26
PALMI DO	37	21 N	126	31 E	3.23
PAN-CH'AO YEN	29	49 N	122	21 E	6.24
PANG SHAN	26	13 N	120	01 E	7.29
PANGCH'UK DO	35	51 N	126	23 E	3.13
PANSHI	27	59 N	120	50 E	7.17
PAN-YANG CHINO	30	01 N	121	58 E	6.27
PA-YAO WAN	22	08 N	120	53 E	8.10
PEDRO BLANCO	22	19 N	115	06 E	9.3
PEI CHIAO	24	36 N	121	53 E	8.6
PEI-CHING	39	56 N	116	24 E	4.26
PEI-CHUAN CHIAO	26	07 N	119	58 E	7.30
PEI-FANG WAN	24	36 N	121	53 E	8.7
PEI-KAN-T'ANG TAO	26	13 N	119	59 E	7.29
PEI-T'ING TAO	24	26 N	118	30 E	9.20
PEKING	39	56 N	116	24 E	4.26
PENG-HU CH'UN-TAO	23	23 N	119	30 E	8.28
PENGLAI	37	50 N	150	37 E	4.34
PESCADORES ISLANDS	23	23 N	119	30 E	8.28
PIJIN DO	34	43 N	128	28 E	1.34
PILOT ROCK	26	07 N	120	02 E	7.30
PINGHAI WAN	25	11 N	119	10 E	9.11
PINGJANG MAL	36	41 N	129	28 E	2.16
PINGYANG ZUI	27	28 N	120	40 E	7.19
PI-T'OU CHIAO	25	08 N	121	55 E	8.5
PIUNG DO	35	57 N	126	32 E	3.14
PIYANG DO	33	24 N	126	14 E	1.2
PIYANG DO	33	25 N	126	15 E	1.6
PO HAI HAI-HSIA	38	24 N	121	00 E	4.40
POGIL TO	34	09 N	126	32 E	1.10
POHANG HANG	36	03 N	129	23 E	2.13
POHANG YEONGIL	36	07 N	126	26 E	2.14
PONGSU PANDO	40	00 N	128	09 E	2.35
POSAN	38	53 N	125	34 E	3.32
PUDO SUDO	35	05 N	128	39 E	1.45
PUKCHANGJA SO	37	20 N	126	29 E	3.21
PULGUN DO	34	09 N	126	45 E	1.12
PUNCHARD ISLET	25	20 N	119	37 E	9.9
PUNG DO	37	06 N	126	23 E	3.20
PUSAN	35	06 N	129	02 E	1.53
PYEONGTAEK HANG	37	00 N	126	48 E	3.21

Q

QBK OIL FIELD	24	48 N	120	40 E	8.16
QI SHAN	26	00 N	119	41 E	9.4
QIAN SHAN	28	03 N	121	24 E	7.12
QING ZHOU	22	24 N	114	40 E	9.45
QINGBIN DAO	30	12 N	122	42 E	6.15
QINGDAO GANG	36	02 N	120	16 E	5.16
QINGLANSHAN	25	03 N	119	01 E	1., 2.
QINGSHAN DAO	26	37 N	119	47 E	7.25
QINGSHAN DAO	27	55 N	121	07 E	7.16
QINHUANGDAO	39	56 N	119	37 E	4.20
QINSHAN DAO	34	52 N	119	17 E	5.22
QIQU QUNDAO	30	36 N	122	05 E	6.11
QIXING DAO	27	03 N	120	51 E	7.19
QIXING JIAO	26	05 N	119	50 E	7.32
QUANZHOU	24	54 N	118	35 E	9.15
QUANZHOU WAN	24	50 N	118	43 E	9.14
QUEMOY	24	27 N	118	23 E	9.19
QUSHAN DAO	30	26 N	122	22 E	6.13
QUSHAN DAO	30	27 N	122	20 E	6.20

R

RAMBLER CHANNEL	29	51 N	122	17 E	6.24
REN YU	25	20 N	119	37 E	9.9
RENGONG DAO	39	01 N	118	12 E	4.23
REOEO MAL	35	35 N	129	28 E	2.11
RI DAO	37	29 N	122	12 E	4.44
RIDGE POINT	26	35 N	119	51 E	7.26
RIYUE YU	27	02 N	120	25 E	7.20
RIZHAO LIGHT	35	23 N	119	33 E	5.20
RIZHAO	35	23 N	119	33 E	5.20
ROCK POINT	27	56 N	121	05 E	7.15
ROKKO	24	03 N	120	25 E	8.13
RONGCHENG WAN	37	21 N	122	38 E	5.4
RONGXING	40	41 N	122	00 E	4.16
ROUNDABOUT ISLAND	29	54 N	122	09 E	6.27
RUSHAN KOU	36	46 N	121	29 E	5.11

S

SAENGIL TO	34	19 N	127	00 E	1.19
SAIL DAN	37	18 N	129	18 E	2.19
SAIL ROCK	29	42 N	121	52 E	6.36
SAIL TAN	37	18 N	129	18 E	2.19
SAKUNSO SEO	35	02 N	128	44 E	1.43
SAM GI	34	48 N	127	49 E	1.26
SAMCH'OK	37	26 N	129	12 E	2.20
SAMCH'ONP'O HANG	34	55 N	128	05 E	1.31
SAMCHEOK HANG	37	26 N	129	12 E	2.20

SAMCHEONPO	34	55 N	128	04 E	1.31
SAMCHOK HANG	37	26 N	129	12 E	2.20
SAMGI	34	48 N	127	49 E	1.26
SAMT'AE DO	34	25 N	125	17 E	3.2
SANDU	26	38 N	119	40 E	7.26
SANDU AO	26	35 N	119	50 E	7.25
SANDU DAO	26	39 N	119	41 E	7.26
SANGBAEG DO	34	02 N	127	37 E	1.16
SANGBAEK TO	34	02 N	127	37 E	1.16
SANGGOU WAN	37	06 N	122	31 E	5.6
SANGI MAL	35	03 N	129	06 E	1.53
SANGWANGDUNG DO	35	39 N	126	07 E	3.13
SAN-LIEN YU	26	14 N	120	03 E	7.29
SANMEN DAO	22	28 N	114	38 E	9.44
SANMEN WAN	29	00 N	121	45 E	7.7
SANSHA	26	55 N	120	13 E	7.22
SANSHA WAN	26	25 N	120	00 E	7.24
SANSHAN SHUIDAO	38	54 N	121	50 E	4.6
SAN-TIAO CHIAO	25	01 N	122	00 E	8.6
SAN-TIAO CHIAO	25	07 N	122	02 E	8.6
SAN-TU AO	26	35 N	119	50 E	7.25
SANXIANTAI	24	36 N	121	54 E	8.7
SANXIANTAI YU	23	08 N	121	24 E	8.10
SANXING LIEDAO	30	26 N	122	31 E	6.13
SARYANG DO	34	49 N	128	14 E	1.32
SASUDO	33	55 N	126	39 E	1.8
SEJON DO	34	30 N	128	05 E	1.24
SENBONG	42	20 N	130	24 E	2.51
SEO DO	35	01 N	128	59 E	1.49
SEOGWIP'O HANG	33	14 N	126	34 E	1.3
SEOI MAL	34	47 N	128	44 E	1.37
SEONGSAN BANDO	33	28 N	126	56 E	1.5
SEOUL	37	35 N	127	00 E	3.23
SEUL DO	35	29 N	129	26 E	2.9
SHA LUNG OIL TERMINAL	25	09 N	121	11 E	8.15
SHACHENG GANG	27	10 N	120	24 E	7.21
SHAFENG JIAO	26	01 N	119	42 E	9.4
SHANGDACHEN SHAN	28	30 N	121	53 E	7.4
SHANGHAI	31	13 N	121	30 E	5.30
SHAN-HSI T'OU	38	59 N	121	49 E	4.5
SHANTOU	23	22 N	116	41 E	9.32
SHANXI TOU	38	59 N	121	49 E	4.5
SHATOU SHUIDAO	28	01 N	121	02 E	7.15
SHEN-AO WAN	25	08 N	121	49 E	8.5
SHENGSI LIEDAO	30	42 N	122	30 E	6.9
SHENG-T'U-LI TAO	25	15 N	119	45 E	9.9
SHENG-T'U-LI TAO	25	15 N	119	45 E	9.9
SHENHU WAN	24	39 N	118	40 E	9.16
SHENQUAN	22	58 N	116	09 E	9.34
SHENQUAN GANG	22	57 N	116	18 E	9.34
SHESHAN DAO	28	33 N	121	55 E	7.4
SHEYANGHE KOU	33	49 N	120	29 E	5.25
SHI JIAO	26	39 N	120	07 E	7.23
SHI YU	23	35 N	117	27 E	9.29
SHIBEISHAN JIAO	22	56 N	116	29 E	9.34
SHIDAO GANG	36	54 N	122	28 E	5.7
SHIH-P'U	29	13 N	121	57 E	7.6
SHIH-PENG CHIANG	29	46 N	122	15 E	6.25
SHIH-TZU-T'OU PI	25	14 N	121	39 E	8.3
SHIJIUSUO	35	23 N	119	33 E	5.20
SHIMAI TO	38	41 N	124	59 E	3.30
SHINSU HANG	34	54 N	128	04 E	1.32
SHITANG YAN	25	15 N	119	45 E	9.9
SHOU SHAN	22	39 N	120	15 E	8.23
SHUANG SHAN	29	27 N	122	12 E	6.34
SHUANG-JIH TAO	25	16 N	119	40 E	9.8
SIA HAE	34	40 N	126	14 E	3.9
SIBIDONGP'A DO	35	59 N	126	13 E	3.13
SIGNAL HILL	36	04 N	120	20 E	5.16
SIJIAO SHAN	30	42 N	122	30 E	6.9
SIKI	22	42 N	115	47 E	9.36
SIN PO	35	28 N	129	23 E	2.8
SINCH'ANG HANG	40	07 N	128	29 E	2.37
SINGLE ISLET	22	24 N	114	40 E	9.45
SINJIDO	34	20 N	126	51 E	1.13
SINP'O	40	02 N	128	12 E	2.36
SINSU DO	34	54 N	128	05 E	1.32
SISHUANG LIEDAO	26	40 N	120	21 E	7.23
SIZIMEI DAO	30	10 N	122	52 E	6.15
SO DO	38	33 N	124	46 E	3.29
SO YONG DAN	34	24 N	127	48 E	1.22
SOAN KUNDO	34	10 N	126	27 E	1.10
SOCH'ONG DO	37	46 N	124	45 E	3.28
SOCOTRA ROCK	32	07 N	125	11 E	5.2
SODEIN	36	38 N	125	43 E	3.17
SODO	35	01 N	128	59 E	1.49
SODUNG DO	36	38 N	125	43 E	3.17
SOHUKSAN DO	34	04 N	125	07 E	3.2
SOI MAL	34	47 N	128	44 E	1.37
SOJUNGGWAN KUNDO	34	12 N	125	30 E	3.2
SOK TO	38	39 N	125	00 E	3.29
SOKCH'O HANG	38	12 N	128	36 E	2.25
SOKU TO	38	39 N	125	00 E	3.29
SOLITARY ROCK	27	02 N	120	25 E	7.20
SOMA DO	34	14 N	126	47 E	1.12
SOMO DO	34	14 N	126	47 E	1.12
SONG DO	42	15 N	130	23 E	2.50
SONG XIA	25	41 N	119	35 E	9.2
SONGDAE MAL	35	48 N	129	31 E	2.11
SONGDO GAP	40	02 N	128	20 E	2.37
SONGJON MAN	39	20 N	127	30 E	2.32
SONGJONG DAN	42	11 N	130	19 E	2.49
SONGMUN AM	38	31 N	124	55 E	3.29
SONGNYONG MAN	40	02 N	128	00 E	2.34
SONJUG YEOLDO	34	17 N	127	23 E	1.18
SORREL ROCK	25	02 N	119	11 E	9.13
SOSUAP TO	37	50 N	125	45 E	3.25
SOSURAJI	42	16 N	130	36 E	2.50
SOUTH MEROPE	24	06 N	118	06 E	9.24
SOYA DO	37	12 N	126	11 E	3.22
SOYO AM	36	19 N	126	29 E	3.16
SSANGP'O MAN	41	57 N	129	59 E	2.47
STRAWSTACK ISLAND	26	56 N	120	21 E	7.20
SU-AO KANG	24	36 N	121	52 E	8.7
SUIZHONG GANG	40	04 N	121	03 E	4.19
SUJEON MAL	37	00 N	129	25 E	2.17
SUNWIDO MYOJI	37	45 N	125	20 E	3.27
SUNYEOM MAL	35	40 N	129	28 E	2.11
SUSAN DAN	38	05 N	128	41 E	2.25
SUSHAN DAO	36	45 N	122	15 E	5.8
SUU DO	34	50 N	128	08 E	1.32
SUUDO	34	50 N	128	08 E	1.32
SUUN DO	39	41 N	124	25 E	3.35
SUWON DAN	38	41 N	128	22 E	2.28
SUYEONG MAN	35	08 N	129	09 E	2.3
SUYONG MAN	35	08 N	129	09 E	2.3

T

T'AI-CHOU WAN	28	40 N	121	37 E	7.8
T'AI-TUNG KANG	22	45 N	121	09 E	8.10
T'O-CHI TAO	38	10 N	120	45 E	4.41
T'OEJO MAN	39	53 N	127	47 E	2.34
T'ONGYONG HAEMAN	34	47 N	128	27 E	1.34
T'OU-CH'ENG CH'UAN	24	51 N	121	49 E	8.6
T'SE-TZU SHU-TAO	30	00 N	121	57 E	6.27
T'UNG-SHAN CHIANG	23	46 N	117	32 E	9.27
T'UNG-T'OU SHAN	29	14 N	122	00 E	7.6
T'AIPEI KANG	25	09 N	121	23 E	8.14
T'AIPEI	25	09 N	121	23 E	8.14
TA-CH'EN TAO	28	30 N	121	53 E	7.3
TA-CH'I SHAN	30	49 N	122	10 E	6.2
TADAEPO	35	03 N	128	59 E	1.50
TAE AM	34	17 N	127	26 E	1.18
TAE DAN	42	18 N	130	27 E	2.50
TAEBANG SUDO	34	56 N	128	02 E	1.32
TAEBANGSAN	34	51 N	127	59 E	1.32
TAEBYON	35	13 N	129	14 E	2.5
TAEHUKSAN GUNDO	34	42 N	125	26 E	3.3
TAEJIN NI	38	30 N	128	26 E	2.26
TAEJUK TO	35	08 N	128	41 E	1.47
TAEO DO	39	13 N	127	38 E	2.30
TAERYANGHWA MAN	41	13 N	129	44 E	2.44
TAI PANG WAN	22	35 N	114	30 E	9.42
TAI SHIH	26	08 N	119	58 E	7.30
TAI TAN	34	39 N	127	49 E	1.25
TAI-CHUNG	24	17 N	120	30 E	8.17
TAIPING SHAN	36	04 N	120	21 E	5.16
TAISHAN LIEDAO	27	00 N	120	42 E	7.20
TAIWAN BANKS	23	00 N	118	35 E	8.27
TAIWAN STRAIT	24	00 N	119	00 E	8.27
TAIZHOU LIEDAO	28	30 N	121	53 E	7.3
TAJIN MAN	41	16 N	129	45 E	2.44

TAKE SHIMA	37	15 N	131	52 E	2.2
TA-KUNG TAO	35	58 N	120	29 E	5.15
TA-LIN-PU	22	32 N	120	20 E	8.24
TA-LIN-PU OFFSHORE OIL TERM	22	30 N	120	17 E	8.24
TA-LIU-CHIA TAO	22	35 N	114	39 E	9.41
TALLI DO	34	46 N	126	19 E	3.11
TALMAN GAP	36	06 N	129	26 E	2.12
TA-LU TAO	39	45 N	123	44 E	4.3
TANGGANG MAL	35	03 N	129	01 E	1.52
TANGGEON YEO	34	22 N	127	31 E	1.21
TANGJIN HWARYOK	37	03 N	126	30 E	3.20
TANGNAO SHAN	30	36 N	121	58 E	6.13
TANGSHAN	39	12 N	119	01 E	4.21
TAN-SHUI KANG	25	11 N	121	24 E	8.14
TANTOU SHAN	29	10 N	122	02 E	7.6
TA-P'ENG AO	22	35 N	114	30 E	9.42
TA-PAN-LIEH MAO-TI	21	57 N	120	45 E	8.26
TA-PENG CHIAO	29	50 N	122	25 E	6.14
TA-TE HSU	25	05 N	119	02 E	9.13
TAU-TSUI HEAD	36	44 N	121	38 E	5.10
TA-YA CHIAO	22	35 N	114	45 E	9.40
TA-YA WAN	22	37 N	114	40 E	9.39
TA-YUAN SHAN	30	14 N	122	16 E	6.16
TENG-HUO-PAI	22	31 N	114	41 E	9.42
TERMINAL HEAD	39	09 N	122	09 E	4.3
TIANJIN BINHAI	39	01 N	117	34 E	4.27
TIANJIN XIN GANG	38	58 N	117	50 E	4.25
TIANWEI JIAO	22	45 N	115	49 E	9.36
TIAOZHOU MEN	29	43 N	122	16 E	6.25
TIEN-WEI CHIAO	22	45 N	115	49 E	9.36
TING-HAI	30	00 N	122	06 E	6.31
TOGU DO	34	15 N	127	01 E	1.17
TOJANG P'O	34	46 N	128	41 E	1.37
TOK TO	38	45 N	124	58 E	3.31
TOK TO	38	45 N	125	26 E	3.31
TOKCHOK TO	37	14 N	126	07 E	3.23
TOKP'O DAN	38	22 N	128	31 E	2.26
TOKU SOMU	38	45 N	124	58 E	3.31
TOLSAN DO	34	38 N	127	48 E	1.25
TOLSANDO	34	38 N	127	48 E	1.24
TONG SUDO	37	06 N	126	20 E	3.18
TONGDUMAL	34	59 N	128	50 E	1.41
TONGJOSON MAN	39	30 N	128	00 E	2.27
TONGYEONG HAEMAN	34	47 N	128	27 E	1.34
TONGYONG	34	50 N	128	25 E	1.35
TORI DO	37	07 N	126	37 E	3.20
TOUMEN SHAN	28	41 N	121	47 E	7.8
TOUYANG GANG	29	43 N	122	16 E	6.25
TOWN POINT	26	33 N	119	48 E	7.25
TS'AO-HSIEH-PA YU	29	00 N	121	54 E	7.7
TSO-YING KANG	22	42 N	120	15 E	8.22
TU-LAN WAN	22	50 N	121	12 E	8.10
TULSAN DO LIGHT	34	42 N	127	48 E	1.22
TUMEN RIVER	42	17 N	130	41 E	2.52
TUNG TAO	30	44 N	123	09 E	6.5
TUNG-CHU TAO	25	58 N	119	58 E	7.31
TUNG-HSU SHAN	29	37 N	122	02 E	6.34
TUNG-KANG PO-TI	22	27 N	120	26 E	8.25
TUNGKI ROCKS	22	46 N	115	50 E	9.37
TUNG-SHA TAO	26	10 N	120	24 E	7.5
TUNG-SHAN TAO	23	40 N	117	25 E	9.29
TUNG-YIN TAO	26	23 N	120	30 E	7.5
TUNG-YUEH YU	25	16 N	119	40 E	9.8
TUOJI DAO	38	10 N	120	45 E	4.41
TUONING LIENDAO	22	27 N	114	38 E	9.44

U

U AM	34	43 N	127	48 E	1.26
U DO	33	30 N	126	58 E	1.8
UGA MAL	35	36 N	129	28 E	2.11
UGI MAL	35	36 N	129	28 E	2.11
UL GI	35	29 N	129	27 E	2.9
ULGI	35	29 N	129	27 E	2.9
ULLEUNG DO	37	30 N	130	50 E	2.2
ULLUNG DO	37	30 N	130	50 E	2.2
ULSAN HANG	35	30 N	129	23 E	2.8
ULSAN MAN	35	27 N	129	24 E	2.8
UNG DO	35	04 N	128	43 E	1.45

V

VERNON CHANNEL	29	46 N	122	15 E	6.25

W

WA AM	40	01 N	128	02 E	2.34
WAI LANGJIANGSHA	26	07 N	119	46 E	7.32
WAI-CH'ANG-SHAN SHUIDAO	39	03 N	122	47 E	4.4
WAI-HUO HSU	30	04 N	122	27 E	6.22
WAILONGYAN	28	13 N	121	33 E	7.11
WAI-SAN-TING CHOU	23	31 N	120	02 E	8.13
WAI-SHENG CHIAO	23	42 N	120	10 E	8.19
WAIYANG'AN DAO	29	52 N	122	35 E	6.21
WAI-YU SHAN	29	59 N	121	45 E	6.32
WAIZHE DAO	37	15 N	122	35 E	5.5
WANDO	34	21 N	126	42 E	1.13
WANDO HANG	34	19 N	126	45 E	1.13
WANG DO	34	16 N	127	32 E	1.18
WAN-JEN-TUI PI	25	10 N	121	44 E	8.4
WAN-SHOU SHAN	22	39 N	120	15 E	8.23
WATERWITCH CHANNEL	26	36 N	119	46 E	7.25
WEIFANG GANG	37	15 N	119	11 E	4.32
WEIHAI	37	30 N	122	06 E	4.44
WEI-T'OU AO	24	33 N	118	30 E	9.18
WEI-T'OU CHIAO	24	31 N	118	34 E	9.17
WEITOU JIAO	24	31 N	118	34 E	9.17
WEI-TOU SHUI-TAO	25	31 N	119	38 E	7.32
WEITOU WAN	24	33 N	118	30 E	9.18
WEN-CH'UNG SHAM	30	12 N	122	15 E	6.16
WENCHONG SHAN	29	24 N	122	10 E	6.34
WENZHOU	28	01 N	120	39 E	7.17
WENZHOU QIANTAN	27	56 N	120	57 E	7.15
WENZHOU WAN	27	55 N	121	15 E	7.14
WI DO	35	35 N	126	17 E	3.12
WOLMI DO	37	28 N	126	36 E	3.23
WONSAN	39	10 N	127	27 E	2.31
WU CHIAO	30	22 N	122	41 E	6.13
WUAB SHUIDO	24	20 N	118	08 E	9.21
WU-CH'IU HSU	25	00 N	119	27 E	9.3
WU-CHU CHIANG	26	10 N	119	36 E	7.32
WUQIU YU	25	00 N	119	27 E	9.3
WU-SHA MEN	29	49 N	122	22 E	6.24
WUSONG KOU	31	23 N	121	31 E	5.30
WU-TAN	24	22 N	118	08 E	9.21

X

XIADANCHEN SHAN	28	26 N	121	53 E	7.3
XIALANGTAN	28	04 N	121	31 E	7.12
XIAMEN DAO	40	13 N	121	57 E	4.12
XIAMEN	24	27 N	118	04 E	9.21
XIANGSHAN GANG	29	38 N	121	48 E	6.36
XIANRENDAO GANGQU	40	13 N	121	57 E	4.13
XIAOBAN MEN	30	12 N	122	36 E	6.15
XIAOCUO	25	10 N	118	59 E	3.
XIAOGAN SHAN	29	57 N	122	14 E	6.24
XIAOGONG DAO	36	00 N	120	35 E	5.15
XIAOJIAOTOU	28	28 N	121	55 E	7.4
XIAOJINMEN DAO	24	26 N	118	14 E	9.20
XIAOLONGSHAN DAO LIGHT	38	58 N	120	59 E	4.10
XIAOSANSHAN SHUIDAO	38	56 N	121	50 E	4.6
XIAOZHUI DAO	24	49 N	118	46 E	9.14
XIAZHI MEN	29	46 N	122	15 E	6.25
XIJIE JIAO	22	42 N	115	47 E	9.36
XINGDAO DAO	26	59 N	120	28 E	7.20
XINGHUA SHUIDAO	25	18 N	119	39 E	9.9
XINGHUA WAN	25	20 N	119	20 E	9.6
XIONGDI YU	23	32 N	117	40 E	9.3
XIPI SHI	26	04 N	119	57 E	7.30
XIQUAN DAO	25	59 N	119	56 E	7.31
XIU SHAN	30	10 N	122	10 E	6.18
XIUYU	25	13 N	118	59 E	4.
XIYANG DAO	26	30 N	120	03 E	7.24
XUWEI	34	37 N	119	37 E	5.24

Y

YA-LU CHIANG	39	55 N	124	20 E	4.3

YALU RIVER	39	40 N	124	15 E	3.34
YALU RIVER	39	55 N	124	20 E	4.3
YANG AM	34	44 N	127	47 E	1.26
YANG PO HANG	35	52 N	129	32 E	2.12
YANGDEOG DO	34	30 N	126	07 E	3.8
YANGKOU	32	32 N	121	25 E	5.26
YANGMA DAO	37	28 N	121	37 E	4.43
YANGPO HANG	35	52 N	129	32 E	2.12
YANGSHAN	30	37 N	122	03 E	5.31
YANGTZE RIVER	31	48 N	121	10 E	5.32
YANTAI SHAN	37	33 N	121	24 E	4.42
YA-TAO CHIA	36	08 N	120	43 E	5.15
YEH-LIU PAN-TAO	25	13 N	121	42 E	8.4
YEMAODONG	30	48 N	122	47 E	6.8
YEN TAO	26	37 N	119	47 E	7.25
YEN-SHUI KANG	24	45 N	120	54 E	8.15
YEOGMAN DO	34	10 N	127	21 E	1.18
YEOJA MAN	34	40 N	127	30 E	1.23
YEONGIL MAN	36	04 N	129	28 E	2.12
YEONJA DO	35	25 N	129	22 E	2.6
YEONPYEONG	37	40 N	125	42 E	3.24
YEOSEO DO	33	59 N	126	56 E	1.8
YEOSU	34	44 N	127	45 E	1.27
YINGKOU	40	41 N	122	14 E	4.15
YIN-SHUI CHIAO	26	07 N	120	02 E	7.30
YISUAN SHAN	28	13 N	121	40 E	7.10
YOGJI DO	34	38 N	128	15 E	1.30
YOKCHI DO	34	38 N	128	15 E	1.30
YON DO	36	05 N	126	26 E	3.17
YONDAE DO	34	44 N	128	24 E	1.34
YONGAMP'O	39	56 N	124	22 E	3.36
YONGCHU GAP	37	03 N	129	26 E	2.18
YONGDAE GAP	40	28 N	129	04 E	2.40
YONGDANGP'O	38	00 N	125	42 E	3.26
YONGHUNG MAN	39	15 N	127	30 E	2.30
YONGIL MAN	36	04 N	129	28 E	2.12
YONGMAN DO	34	10 N	127	21 E	1.18
YONGWI DO	37	47 N	125	20 E	3.27
YONJA DO	35	25 N	129	22 E	2.6
YONP'YONG YOLTO	37	40 N	125	42 E	3.24
YOSU	34	44 N	127	45 E	1.27
YOSU BANDO	34	44 N	127	45 E	1.26
YOSU HAEMAN	34	40 N	127	51 E	1.24
YU YAN	38	34 N	121	38 E	4.40
YU YAN	38	35 N	121	36 E	4.9
YUAN DAO	38	40 N	122	10 E	4.7
YUANYAO ZUI	37	34 N	122	04 E	4.43
YUANZHUI JIAO	23	40 N	117	29 E	9.29
YUDAL SAN	34	47 N	126	22 E	3.11
YUEQING WAN	28	06 N	121	07 E	7.13
YUHUAN DAO	28	08 N	121	12 E	7.12
YULPO MAL	34	53 N	128	08 E	1.32
YUN-AN LNG TERMINAL	22	49 N	120	11 E	8.21
YUSHAN LIEDAO	28	52 N	122	15 E	7.2
YU-SHAN LIEH-TAO	28	52 N	122	15 E	7.2
YUXINGNAO	30	21 N	121	52 E	6.18

Z

ZHAITOU JIAO	28	08 N	121	21 E	7.12
ZHANGJIABU	36	54 N	122	07 E	5.9
ZHAO'AN WAN	23	37 N	117	17 E	9.30
ZHAOBEI ZUI	37	28 N	122	14 E	4.45
ZHAPU	30	35 N	121	05 E	6.4
ZHELANG JIAO	22	39 N	115	34 E	9.37
ZHELIN WAN	23	36 N	117	03 E	9.30
ZHENHAI	29	57 N	121	42 E	6.32
ZHENHAIO JIAO	24	16 N	118	08 E	9.23
ZHENYAN TOU	22	19 N	115	06 E	9.3
ZHISONG YAN	23	26 N	117	18 E	9.31
ZHONGJIESHAN QUNDAO	30	11 N	122	40 E	6.14
ZHOUSHAN DAO	30	05 N	122	06 E	6.19
ZHU HANGDAO	24	26 N	118	04 E	9.21
ZHUANGHE	39	37 N	122	57 E	4.4
ZHUCHA DAO	35	57 N	120	19 E	5.17
ZHUJIAJIAN DAO	29	56 N	122	23 E	6.21
ZIGAN	24	24 N	118	25 E	9.19