PUB. 192

SAILING DIRECTIONS (ENROUTE)

★

NORTH SEA

★

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FIFTEENTH EDITION

Preface

Pub. 192, Sailing Directions (Enroute) for the North Sea, Fifteenth Edition, 2014, is issued for use in conjunction with Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas. Companion volumes are Pubs. 191, 193, 194, and 195.

Digital Nautical Charts 20 and 21 provide electronic chart coverage for the area covered by this publication.

This publication has been corrected to 28 June 2014, including Notice to Mariner No. 26 of 2014. Subsequent updates have corrected this publication to 17 December 2016, including Notice to Mariners No. 51 of 2016.

Explanatory Remarks

Sailing Directions are published by the National Geospatial-Intelligence Agency (NGA), under the authority of Department of Defense Directive 5105.40, dated 12 December 1988, and pursuant to the authority contained in U. S. Code Title 10, Sections 2791 and 2792 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 initial letters of 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 refer to both the paper chart and the Digital Nautical Chart (DNC).

Coastal Features.—It is assumed that the majority of ships have radar. Available coastal descriptions and views, useful for radar and visual piloting are included in geographic sequence in each Sector.

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

1. Toll free: 1-800-362-6289
2. Commercial: 571-557-5455
3. DSN: 547-5455
4. DNC web site: http://msi.nga.mil/NGAPortal/DNC.portal
5. Maritime Domain web site: http://msi.nga.mil/NGAPortal/MSI.portal
6. E-mail: navsafety@nga.mil
7. 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 the publication shown above. Important information to amend material in the publication is updated as needed and available as a downloadable corrected publication from the NGA Maritime Domain web site.

NGA Maritime Domain Website
http://msi.nga.mil/NGAPortal/MSI.portal

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 meridianal 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.

Dangers.—As a rule outer dangers are fully described, but inner dangers which are well-charted are, for the most part, omitted. Numerous offshore dangers, grouped together, are mentioned only in general terms. Dangers adjacent to a coastal passage or fairway are described.

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

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

Index-Gazetteer.—Navigational features and place names are listed alphabetically in the back of the book. The approximate position, along with the Sector and paragraph numbers (e.g. **1.1**), facilitate location in the text.

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 the web sites and expressly disclaims any liability for errors and omissions 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

Light 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.

Maritime Administration (MARAD) Advisories.—MARAD Advisories rapidly disseminate information on maritime dangers, safety, government policy, and other time-sensitive matters pertaining to U.S.-flag vessel operations. MARAD Advisories are issued by the Office of Security to vessel masters, ship operators, and other U.S. Maritime interests. Advisories are communicated via telex or other message formats and are published on the MARAD web site and in the National Geospatial-Intelligence Agency's Weekly Notice to Mariners.

Maritime Administration (MARAD) Home Page
http://www.marad.dot.gov/newsroom

Ports.—Directions for entering ports are depicted where appropriate by means of chartlets, sketches, and photos, which facilitate positive identification of landmarks and navigational aids. These chartlets and sketches are not always to scale, however, and should be used only as a general informational guide in conjunction with the best scale chart. Specific port facilities are omitted from the standard format. They are tabulated in Pub. 150, World Port Index.

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

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

Special Warnings.—A Special Warning may be in force for the geographic area covered by this publication. Special Warnings are printed in the weekly Notice to Mariners upon promulgation and are reprinted annually in Notice to Mariners No. 1. A listing of Special Warnings currently in force is printed in each weekly Notice to Mariners, Section III, Broadcast Warnings, along with the notice number of promulgation. Special Warnings are also available on the Maritime Division web site.

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

Wind Directions.—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.

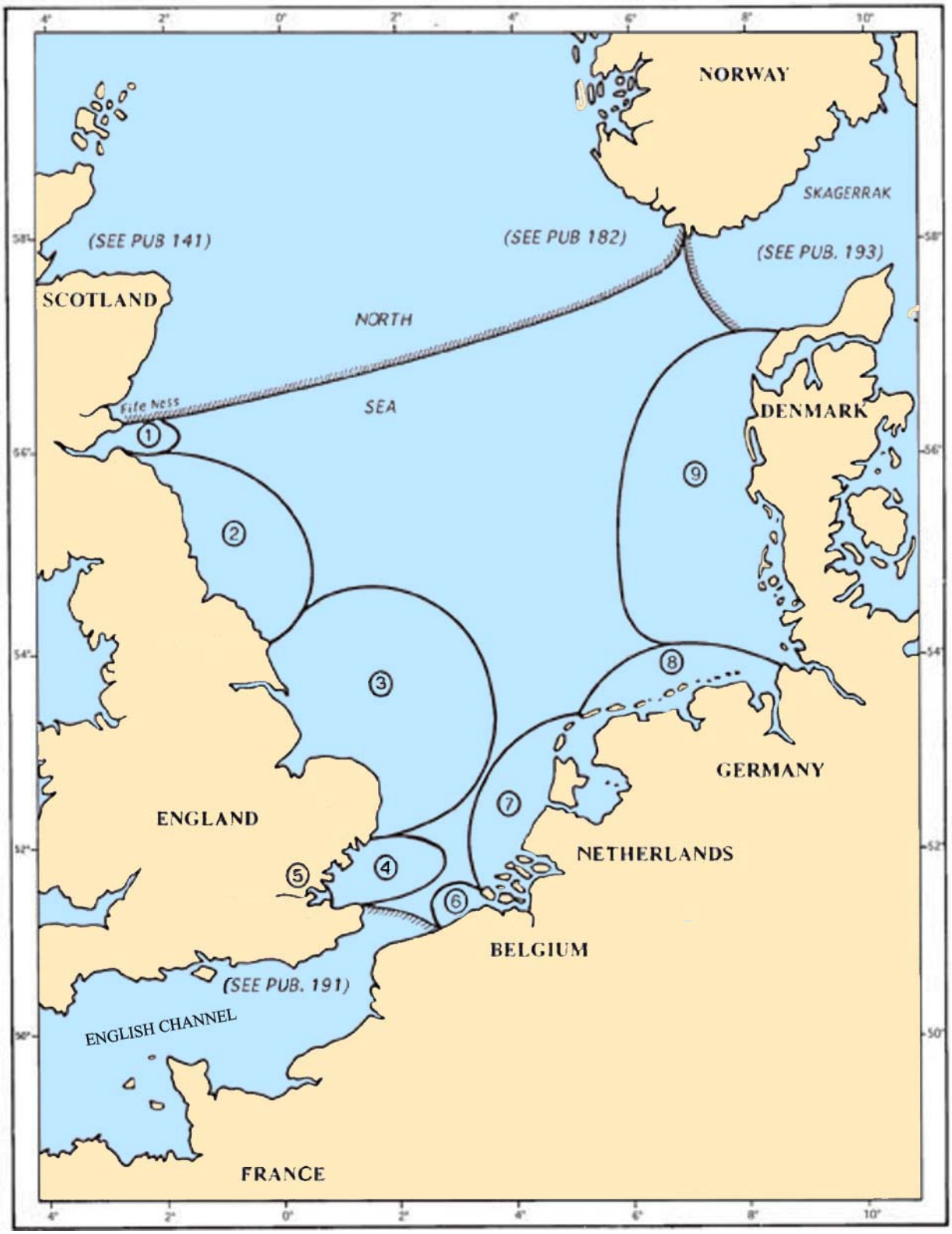
Various port handbooks.

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 December 2016**
Notice to Mariners:	**51/2016**
Sector	**Paragraphs**
Sector 1	Sector Graphic, Paragraph 1.20
Sector 2	Sector Graphic.
Sector 3	Sector Graphic, Paragraphs 3.7 and 3.36
Sector 4	Sector Graphic, Paragraph 4.1
Sector 5	Sector Graphic, Paragraph 5.19
Sector 6	Sector Graphic, Paragraph 6.16
Sector 7	Sector Graphic, Paragraphs 7.18, 7.24 and 7.26
Sector 8	Sector Graphic, Paragraphs 8.3, 8.12, and 8.33
Sector 6	Sector Graphic, Paragraph 9.32



SECTOR LIMITS—**PUB. 192**

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	nrt	net registered 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
CALM	Catenary Anchor Leg Mooring		

The following abbreviations may be used in the text:

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 PD	Position approximate 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

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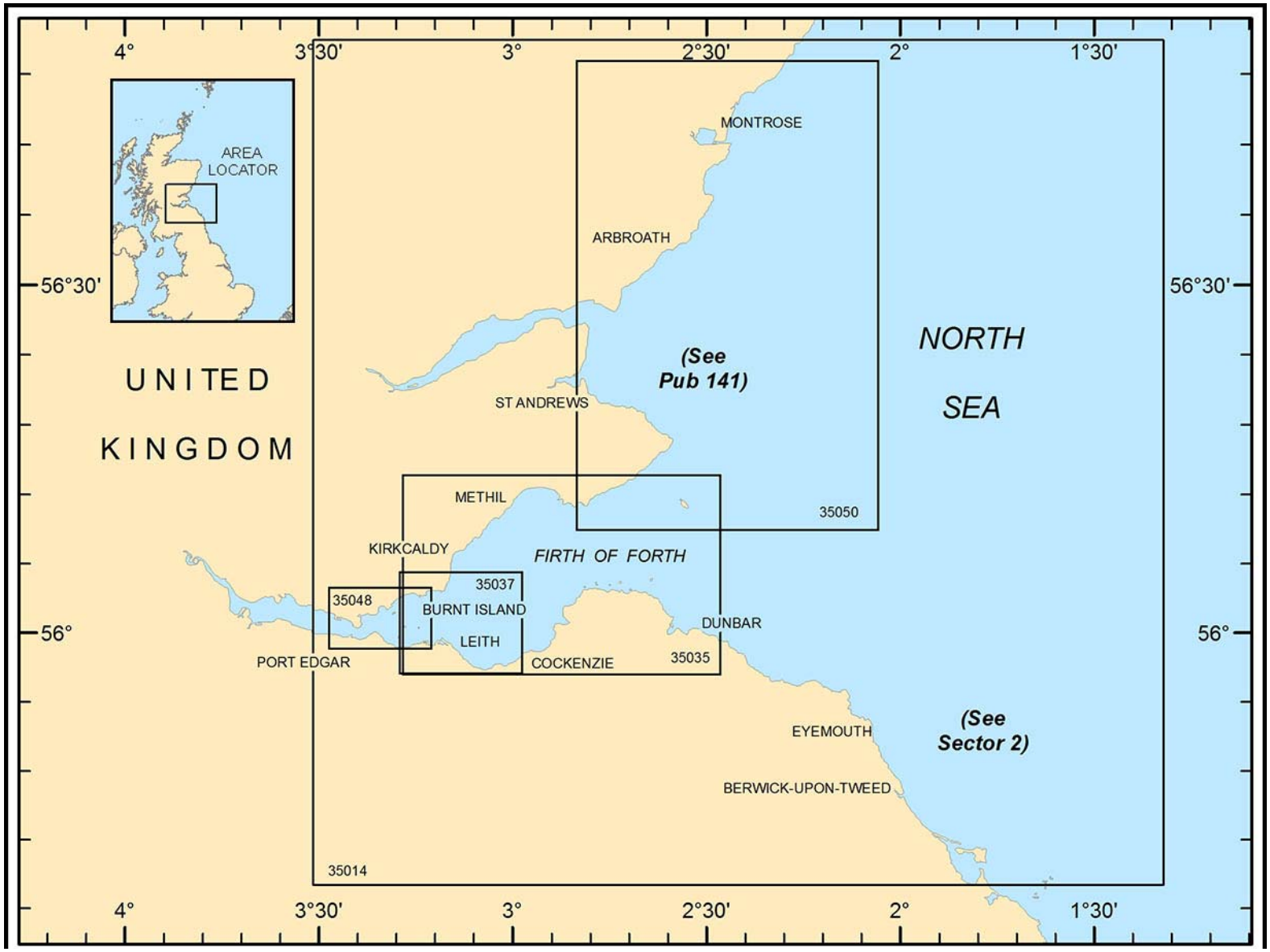
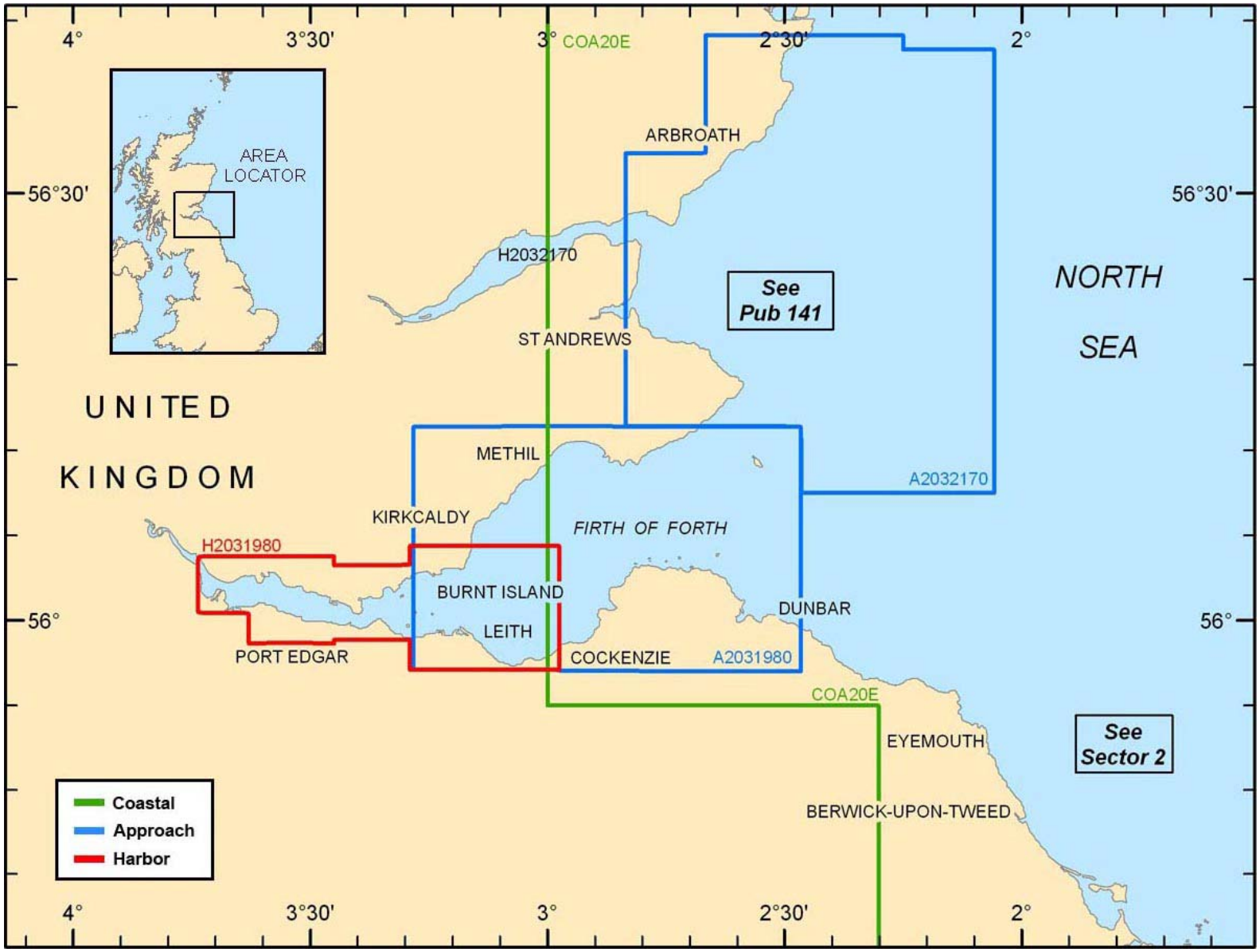


Additional chart coverage may be found in NGA/DLIS Catalog of Maps, Charts, and Related Products (Unlimited Distribution).

SECTOR **1** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 20 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 1 — DNC LIBRARY INFORMATION

SECTOR 1

SCOTLAND—THE FIRTH OF FORTH

Plan.—This sector describes the Firth of Forth and its approaches, followed by a description of the River Forth. The descriptive sequence is W along the S shore of the firth and then E along the N shore.

General Remarks

1.1 The approach to the Firth of Forth is about 12 miles wide and lies between Fife Ness, on the N side, and Bass Rock, off Gin Head, on the S side. The Isle of May (56°11'N., 2°33'W.) lies nearly midway between the entrance points. The entrance proper lies between Elie Ness, located 8 miles W of the Isle of May, and Fidra, an islet 6.7 miles S.

The Firth of Forth is important because of the large amount of traffic, but it also affords the only real refuge during E gales on this part of the coast. At Queensferry, located 20 miles within the entrance, the Firth of Forth is spanned by both road and railway bridges. Vessels of light draft can proceed at HW as far as Stirling, where navigation practically ceases, a total distance, including windings, of 62 miles.

Several piers and tidal harbors are situated within this area including Rosyth Harbor, Grangemouth, Hound Point Oil Terminal, Leith, and Braefoot Bay LNG/LPG Terminal. There are several designated anchorage areas within the firth which may best be seen on the chart.

Tides—Currents.—Tides at the Port of Leith rise about 5.6m at springs and 4.5m at neaps.

In the outer part of the Firth of Forth, between the entrance and Inchkeith, the tidal currents are weak and only exceptionally exceed a spring velocity of 1 knot. The W current begins about 6 hours 15 minutes before HW at Leith and the E current begins about HW; the currents begin about 30 minutes later, on the N side of the firth, and 30 minutes earlier, on the S side, than these times.

In North Channel, 1 mile WNW of Inchkeith, the W current begins 5 hours 30 minutes before HW at Leith and the E current begins about 45 minutes after HW; the spring velocity of both is about 1 knot.

Close W of the Forth Road Bridge, the W current begins 5 hours 30 minutes before HW at Leith and has a spring velocity of 1.5 knots; the E current begins 30 minutes after HW and has a spring velocity of 2.25 knots.

In South Channel and in Leith Roads, the currents run similar to North Channel, but are rather weaker. An eddy sometimes forms off the harbor piers during the E current.

The currents run fairly strongly through the channels under the Forth Railway Bridge and there may be turbulence in the North Channel and off North Queensferry.

Depths—Limitations.—The depths abreast and S of the Isle of May are about 45m, mud bottom. These continue for about 12 miles W or to about 5 miles NW of Fidra. Then towards Leith Roads, the depths S of Inchkeith and through South Channel gradually decrease to 5.5 from 11m. The water is deeper, with depths of 18 to 20m to the N of Inchkeith.

A fairway channel for deep-draft vessels, with a least depth of 18.4m in 56°00.6'N, 3°21.4'W, leads from seaward to the vicinity of oil terminal at Hound Point. Continuing WSW on the recommended track, the depths generally exceed 20m except for a shoal patch of 13.4m in 56°00.5'N, 3°21.6'W. In the narrows under the bridges, the depths increase to over 54m, but rapidly decrease towards the W. There are depths of about 9m in the fairway of the River Forth; the approach channel to Grangemouth is dredged to a depth of 6.5m.

Pilotage.—The compulsory pilotage areas and vessels subject to compulsory pilotage within these areas are defined, as follows:

1. For vessels carrying 12 or more passengers (excluding such vessels which are owned by operators approved from time to time by Forth Ports in their absolute discretion by reference to such requirements as Forth Ports considers appropriate and in particular that the Masters of such vessels possess the requisite skill, experience and local knowledge to be capable of piloting the vessels or those vessels and fishing boats exempted under Section 7(3) of the Pilotage Act 1987)—That part of the Forth which lies to the W of the line of longitude 3°00.0'N.

2. For vessels not carrying 12 or more passengers. excluding those vessels and fishing boats exempted under Section 7(3) of the Pilotage Act 1987:

   a. That part of the Forth which lies to the W of a line drawn from the S extremity of Kinghorn Ness, true E to meridian 3°06.1'W, then true S to latitude 56°02.3'N, then to Stell Point at the N end of the island of Inchkeith, then in the direction of Oxcars Light to latitude 3°15.4'W, then true S to the S shore of the Forth, but excluding any closed lock or other closed work within the area, with the exception of Grangemouth Docks:

      i. Vessels of 45m loa and over.

      ii. Dredges and other craft of 85m loa and over while engaged in dredging activities or involved in civil engineering operations or anti-pollution activities within the Forth.

   b. With the exception of the Eastern Channel, vessels with a summer dwt of less than 8,000 dwt will be exempted from pilotage when shifting berths within Grangemouth Docks (in certain circumstances the Harbormaster may require some vessels with a summer dwt of less than 8,000 dwt to take a pilot).

   c. That part of the Forth (including Leith Docks) which lies to the W of a line drawn due W from position 56°02.3'N, 3°06.1'W to latitude 3°07.3'W, then true S to latitude 56°01.6'N, then true E to latitude 3°06.1'W and then due S to the S shore of the Forth and bounded to the N and W by the limits of the area described in section 2a:

      i. Vessels of 45m loa and over carrying dangerous cargo and other vessels of 80m loa and over.

      ii. Dredges and other craft of 85m loa and over while engaged in dredging activities or involved in civil

engineering operations or anti-pollution activities within the Forth.

d. Vessels with a summer dwt of less than 8,000 dwt and not carrying 12 or more passengers or dangerous goods will be exempted from pilotage when shifting berth within Leith Docks

e. That part of the Forth (including Methil Docks) which lies to the W of line 3°00.0'W and N of line 56°10.0'N:

i. Vessels of 45m loa and over carrying dangerous cargo and other vessels of 60m LOA and over

ii. Dredges and other craft of 85m loa and over while engaged in dredging activities or involved in civil engineering operations or anti-pollution activities within the Forth.

f. That part of the Forth (including Kirkcaldy Docks) which lies to the W of line 3°08.0'W and N of line 56°08.0'N (areas of the river W of the Kincardine Bridge are not included):

i. Vessels of 45m loa and over carrying dangerous cargo and other vessels of 60m loa and over

ii. Dredges and other craft of 85m loa and over while engaged in dredging activities or involved in civil engineering operations or anti-pollution activities within the Forth.

Pilotage is provided for the following ports:

1. Anstruther Harbor.
2. Braefoot Terminal.
3. Hound Point Terminal.
4. Grangemouth.
5. Kirkcaldy.
6. Leith.
7. Methil.
8. Pittenweem Harbor.
9. Rosyth.

Forth Pilots can be contacted, as follows:

1. VHF: VHF channels 71 and 72
2. Telephone: 44-131-5521420
3. Facsimile: 44-131-5515869
4. E-mail: forthpilots@forthports.co.uk
5. Web site: http://www.forthpilots.com

The procedures for entering the Firth of Forth are, as follows:

1. Pilotage is compulsory for specified vessels while navigating within that part of the Forth Ports Authority's area of jurisdiction as detailed in sections 1 and 2 above and, in the case of passenger-carrying vessels, throughout the complete area.

2. Notice of ETA:

a. Vessels should send their ETA at the pilot boarding position 24 hours in advance via e-mail or through the vessel's agent, including the following information:

i. Gross tons.

ii. Maximum draft.

iii. Port of destination.

b. A compulsory ETA must be given 12 hours in advance.

c. If voyage time is less than 12 hours duration, vessels should inform the pilot of their ETA immediately on leaving the last port of call.

3. Vessels should send confirmation of ETA 2 hours prior to arrival at the pilot boarding position via VHF.

4. Vessels having complied with the above then anchored in one of the designated anchorages must give the request a pilot 4 hours in advance.

5. On the final approach to the pilot boarding position all vessels should, if possible, remain in direct VHF contact with the pilot vessel.

6. Pilots board, as follows:

a. Fairway Lighted Buoy (56°03.5'N, 3°00.1'W)—For vessels bound for Hound Point Terminal, passenger vessels, and vessels of 150m loa and over

b. Inchkeith Boarding Station, N of No. 3 Lighted Buoy (56°03.5'N, 3°05.5'W)—For vessels under 150m loa passing N of Inchkeith

c. Narrow Deep Boarding Station, NE of Narrow Deep Lighted Buoy (56°01.5'N, 3°04.6'W)—For vessels under 150m LOA passing S of Inchkeith

d. Kirkcaldy Anchorages—Vessels of 150m loa and over inbound from the Kilo Anchorages must not proceed S of latitude 56°05.0'N until the pilot is on board and has the conduct of the vessel.

e. Alpha Anchorages:

i. Vessels of 150m loa and over must not proceed W of longitude 3°00'W until the pilot is on board and has the conduct of the vessel.

ii. All vessels anchored in Area A4 and Area A5 should remain in the anchorage until the pilot is on board and has the conduct of the vessel.

f. Inchkeith Small Vessel Anchorage (56°02.0'N 3°06.7'W)—Vessels should remain in the anchorage until the pilot is on board and has the conduct of the vessel.

g. Methil Roads (56°10'N 3°00'W) for vessels bound Methil—Vessels should remain in the anchorage until the Pilot is on board and has the conduct of the vessel.

h. Cockenzie Small Vessel Anchorage (55°58.6'N 3°03.2'W): Vessels should remain in the anchorage until the Pilot is on board and has the conduct of the vessel.

7. In adverse weather conditions the pilot boarding position may be amended.

8. Mariners should always obtain clearance to approach the pilot boarding areas from Forth Navigation (see Vessel Traffic Service).

9. Notice of ETD—Vessels should send their ETD to the duty pilot at the Pilot Station at the earliest possible opportunity, but not later than 4 hours before the ETD. A compulsory ETD must be given 2 hours in advance for the following ports:

a. Anstruther Harbor.
b. Braefoot Terminal.
c. Hound Point Terminal.
d. Grangemouth.
e. Kirkcaldy.
f. Leith.
g. Methil.
h. Pittenweem Harbor.
i. Rosyth.

The Forth Ports Authority exercises pilotage jurisdiction over the whole area of the Firth of Forth and the River Forth

from a line joining North Carr Beacon and South Carr Beacon to the head of navigation at Stirling.

Regulations—Below are extracts from the by-laws issued by the Forth Navigation Service.

1. Vessels having a draft in excess of 10m and navigating in the fairway W of Fairway Lighted Buoy may exhibit the appropriate lights and shape for a vessel constrained by draft.
2. Power-driven vessels entering a fairway from a dock, lock, basin, wharf, jetty, or anchorage should sound one prolonged blast.
3. Vessels must reduce speed and keep clear of ships and barges anchored in the designated berths (or made fast to mooring buoys) S of Burntisland.
4. Vessels must reduce speed if necessary and not approach within 100m when passing vessels berthed at Hound Point Marine Terminal.
5. Vessels must not approach within 100m of the main piers of the Forth Road Bridge.
6. Notwithstanding the Collision Regulations, no vessel shall enter or cross a fairway except when the fairway in the vicinity of the vessel is clear, and only in such manner as to not impede or endanger other vessels navigating in the fairway.
7. A vessel under sail or power, which is not confined to a fairway, shall not make use of a fairway so as to cause an obstruction to other vessels which can only navigate within such fairway.
8. A Protected Channel has been established and extends from the vicinity of No. 13 Lighted Buoy and No. 14 Lighted Buoy, moored N of Oxcars, to the N passage under the Forth Railway Bridge, then to Rosyth. On occasion, in order to ensure the safety of large vessels, this protected channel is placed in operation. In such a case, details are broadcast by the Forth Navigation Service.
9. No vessel may pass another while under the Forth Railway Bridge whether in conditions of good visibility or not. In the event that vessels approach the bridge from opposite directions, the outbound vessel has priority to pass under the bridge and the inbound vessel must keep clear.
10. When the visibility is less than 0.5 mile, an inbound vessel shall not, under any circumstances, pass No. 19 Lighted Buoy without clearance to do so from the Forth Navigation Service.
11. When the Traffic Warning Light at the North Queensferry signal station is in operation, no vessel shall pass under the north or south arches of the Forth Railway Bridge.
12. Vessels navigating in the Firth of Forth and bound to or from Leith or Granton, are recommended, when conditions are suitable, to use the passage which passes S of Inchkeith Island (South Channel). This rule applies to commercial and naval vessels of 50 gt and over. It includes such vessels proceeding from Leith and Granton to other ports located in the E part of the Forth and vice versa. It does not include such vessels bound from Leith and Granton to Burnt Island and/or ports located in the W part of the Forth and vice versa. This rule does not apply to working vessels and other small craft such as tugs, pilot boats, or dredgers etc.
13. Movements of large vessels to and from Hound Point Terminal, Braefoot Bay Terminal, and Rosyth may require restrictions to be placed on the movements of other vessels.

Extracts from the by-laws issued by the Forth Navigation Service regarding tanker movements are listed below:

1. When a tanker of 50,000 dwt or more is navigating in the fairway between Fairway Lighted Buoy and the vicinity of Hound Point Terminal, the following rules apply:
   a. An outbound tanker from the terminal shall have right of way over any inbound tanker.
   b. No two tankers, each being 50,000 dwt or more, shall pass each other when in the channel W of No. 7 Lighted Buoy (56°02.8'N., 3°10.9'W.). In addition, if either tanker is 120,000 dwt or more, then neither shall pass each other when in the channel W of Inchkeith.
   c. An outbound tanker of 50,000 dwt or more, shall, after casting off its tugs, continue to be escorted by a tug until such tanker has reached No. 5 Lighted Buoy (56°03.2'N., 3°07.9'W.). A similar inbound vessel shall be escorted by a tug on reaching No. 7 Lighted Buoy.
   d. Every tanker bound for the terminal shall regulate its approach so as not to arrive there prior to the agreed berthing time.
2. When liquefied gas carriers, natural gasoline tankers, bunker fuel vessels, or other tankers in the Forth are bound to or from Braefoot Terminal, the following rules apply:
   a. When a tanker is entering or leaving Forth Deep Water Channel via the W approach passage to Mortimer's Deep, no other vessel shall enter that section of the fairway located between No. 13 Lighted Buoy and a line joining Hound Point, on the S shore, to Hopeward Point, on the N shore.
   b. When a tanker is entering or leaving Forth Deep Water Channel via the E approach passage to Mortimer's Deep, no other vessel shall enter that section of the fairway located between No. 7 Lighted Buoy and No. 11 Lighted Buoy.
3. When liquefied gas carriers more than 145m in length (approximately 12,000 cubic meters capacity) are departing from Braefoot Terminal in a loaded condition, the following rules apply:
   a. When such a tanker is departing via the W approach passage to Mortimer's Deep, no other vessel shall pass in the opposite direction, overtake and pass, or approach within 1 mile of the tanker while it is in any waters located between a line joining Hound Point, on the S shore, to Hopeward Point, on the N shore, and No. 3 Lighted Buoy.
   b. When such a tanker is departing via the E approach passage to Mortimer's Deep, no other vessel shall pass in the opposite direction, overtake and pass, or approach within 1 mile of the tanker while it is in any waters located between No. 11 Lighted Buoy and No. 3 Lighted Buoy.
   c. Pleasure craft 12 meters and less in length are exempt from rules 3a and 3b above. Pleasure craft 22m and less in length which are carrying paying passengers may, subject to the express approval of the Duty Officer of the Forth Navigation Service, be exempt from rules 3a and 3b provided such craft have VHF equipment capable of making contact with the Forth Navigation Service and provided they enter, depart, or navigate within Mortimer's

Deep after obtaining prior clearance from the Forth Navigation Service.

4. When any tankers, either bound to or from Braefoot Terminal, are navigating within the waters located between a line joining Hound Point, on the S shore, to Hopeward Point, on the N shore, and No. 3 Lighted Buoy, it may be necessary to hold or slow down other vessels. In the event of inbound traffic being delayed, the Forth Navigation Service may, at its discretion, direct vessels to a holding area, located not less than 1 mile N of No. 3 Lighted Buoy, until an outbound tanker is past and clear. Pleasure craft 12m and less in length are exempt from this rule.

For rules concerning Selected Vessels navigating in the vicinity of Grangemouth, see paragraph 1.27.

Vessel Traffic Service.—The Forth Navigation Service, a Vessel Traffic Service (VTS) scheme, is operated by the Forth and Tay Navigation Service, Grangemouth.

All inbound vessels shall contact the Forth Navigation Service by e-mail or facsimile at least 24 hours in advance of their ETA at the E limit of the service area, a line joining North Carr Beacon (56°17.7'N., 2°34.3'W.) and South Carr Beacon (56°03.4'N., 2°37.7'W.) or as soon as possible after departure from the last port if less than 24 hours. Any adjustments to the ETA of 2 hours or more should be reported.

The Forth Navigation Service is a UK-designated port VTS and provides the following types of services:

1. Information Service.
2. Traffic Organization Service.
3. The Forth Ports VTS also controls Dundee Harbor Radio and can be reached on VHF channel 12, for all inbound and outbound vessels on the River Tay to Dundee.

The Forth Navigation Service can be contacted, as follows:

1. Call sign: Forth Navigation
2. VHF: VHF channels 20 and 71
3. Telephone: 44-1324-498584
4. Facsimile: 44-1324-668480
5. E-mail: ftns@forthports.co.uk
6. Web site: http://www.forthports.co.uk

Vessels should contact the Forth Navigation Service on VHF channel 71 on reaching the E limit of the Forth Port Authority, stating ETA at the pilot boarding position or anchorage. Vessels should then obtain clearance to proceed towards the pilot boarding position, designated anchorage area, or other destination as agreed with the Forth Navigation Service.

All vessels carrying dangerous or polluting cargo as classified in the International Maritime Dangerous Goods Code shall provide the following information in the pre-arrival report to the Forth Navigation Service:

1. Vessel name.
2. Summer dwt.
3. Country of registry.
4. Maximum draft.
5. Cargo type.
6. Last port of call.
7. Destination.
8. ETA at the E limit of the Forth Port Authority or anchorage.
9. Any defects, including defects and capability of vessel and/or personnel which may affect the safe navigation or maneuverability of the vessel.
10. Confirmation that both anchors will be cleared and available for immediate use at all times when within the Firth of Forth.
11. Confirmation that a Pilot Passage Plan has been prepared, discussed, and agreed on with the pilot upon boarding.
12. Security information as per the ISPS Code.

All vessels must maintain a continuous listening watch on VHF channel 71.

All vessels of 50 gt or more must report to the Forth Navigation Service when passing the reporting points (listed below), which may best be seen on the chart.

1. Forth Port Authority E limit (2°36'W.).
2. Fairway Lighted Buoy (56°03.5'N., 3°00.0'W.).
3. Due N or S of Inchkeith Light (56°02'N., 3°08'W.).
4. Oxcars Light (56°02'N., 3°17'W.).
5. No. 19 Lighted Buoy (56°01'N., 3°22'W.) (inbound only).
6. Dhu Craig Buoy (56°01'N., 3°27'W.) (outbound only).
7. Crombie Pier (56°02'N., 3°32'W.).
8. Hen and Chickens Lighted Buoy (56°02'N., 3°38'W.).

All outbound vessels and vessels shifting berth should obtain permission from the Forth Navigation Service 10 minutes before departure. If vessels are unable to proceed within 15 minutes of the clearance time, clearance permission must be obtained again.

Vessels leaving Rosyth should call the Forth Navigation Service 10 minutes before departure on VHF channel 71 and report when passing No. 5 Buoy and No. 6 Buoy in Rosyth Channel. They should also report their ETA at the Forth Railway Bridge and their future intentions.

The Forth Navigation Service maintains radar surveillance throughout the area. Details of traffic, navigational warnings, and local weather forecasts are available upon request.

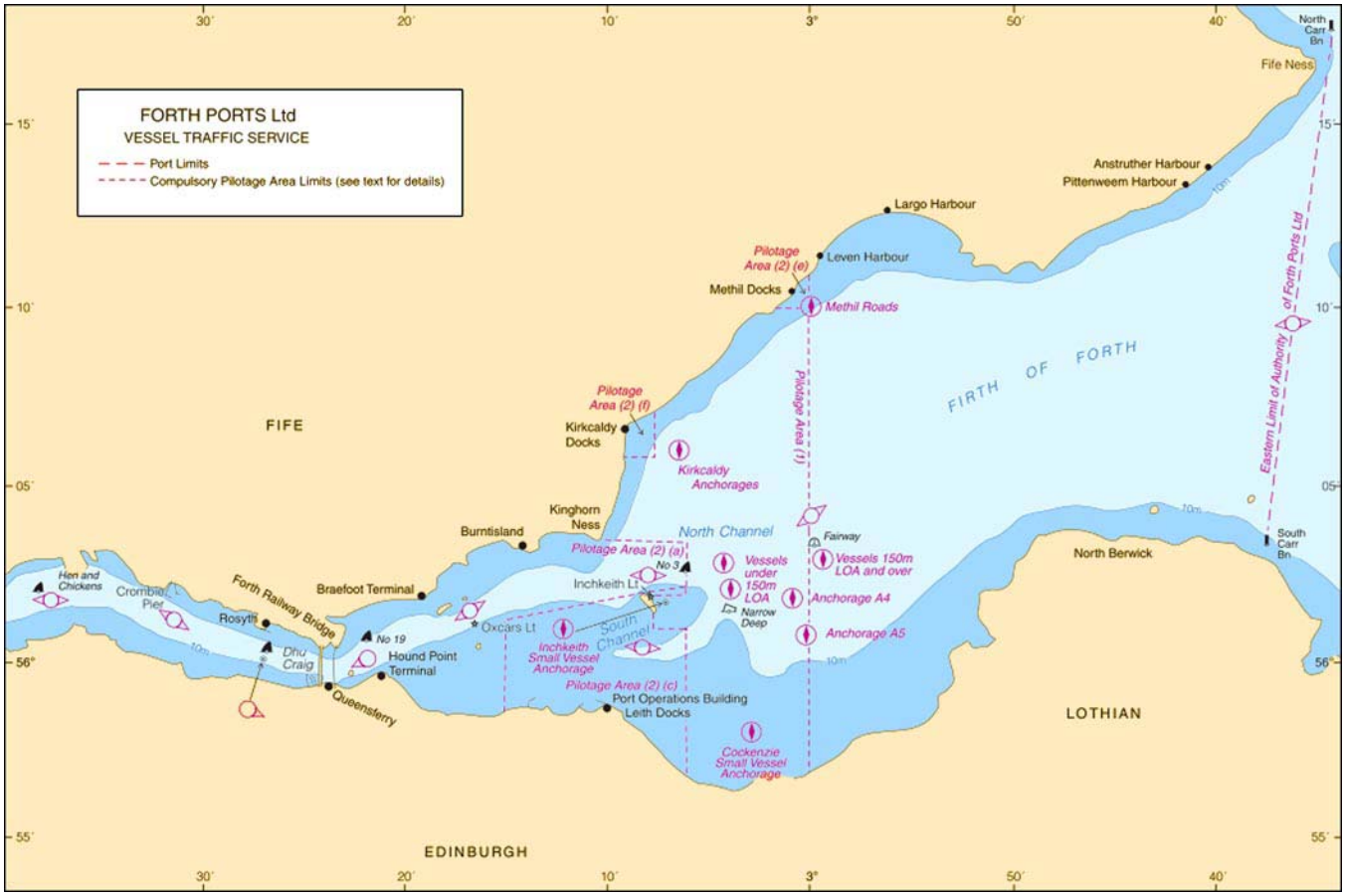
Vessels of more than 50 gt, except those which normally navigate solely within the port, intending to receive bunkers must give notification in writing to and request permission from the relevant Harbormaster or Forth Navigation Service not less than 24 hours in advance. Such vessels must also report by VHF to the relevant Harbormaster or Forth Navigation Service immediately before bunkering is to commence and upon completion.

See Regulations under individual ports and terminals for additional reporting requirements.

Anchorage.—Upon arrival, a vessel shall apply to the harbormaster for an anchorage and shall not change such without permission. No vessel shall anchor in the Forth for the purpose of discharging or loading cargo, bunkering, or taking water without permission of the harbormaster. Anchorages are assigned by the Forth Navigation Service; designated anchorages are shown on the chart.

Except in the case of an emergency, no vessel shall anchor in the designated fairway or any other area which has been designated as a prohibited anchorage.

Two anchor berths (uncharted) for cruise vessels lie 0.5 miles downstream of the Forth Railway Bridge. One anchorage is centered on position (56°00.3'N., 3°22.6'W.), in depths of 35m, mud, and is used by larger vessels. The other anchorage is for vessels less than 275m LOA, and is centered on (56°00.3'N., 3°22.5'W.) in depths of 25m, mud. A pilot must



Vessel Traffic Service boundaries and pilot boarding positions for the Firth of Forth

remain embarked throughout a vessel's stay at these berths and depending on the length of stay and other factors, a tug will normally remain secured aft ready to swing the vessel clear of the main channel if required. Transiting traffic will normally pass N of anchored cruise vessels and no vessel should approach closer than 200m at any time.

Caution.—Numerous oil and gas production fields lie in the approaches to the Firth of Forth (see paragraph 1.4).

Firth of Forth—Approaches

1.2 Fife Ness (56°17'N., 2°35'W.), the N entrance point of the approach to the Firth of Forth, is formed by a dark cliff, 11m high, which rises from a foreshore of projecting ledges. A prominent house stands close W of the point; it has extensive outbuildings, a shrubbery, and a conspicuous square tower.

A light is shown from a white building, 5m high, standing on the point. A prominent radio tower, 47m high, stands at a coast guard station which is situated near the light.

When approaching from seaward, East Lomond, 421m high, and West Lomond, 519m high, will appear first. These detached sugarloaf mountains both stand about 22 miles W of Fife Ness. Also appearing first will be Largo Law, 288m high, and Kellie Law, 180m high, which stand 12 and 6.7 miles, respectively, WSW of Fife Ness. The summit of Largo Law appears notched from most directions and a cairn stands on its NE point. Largo Law and Kellie Law are connected by a ridge.

North Carr Rock, which dries 1.4m, is the outer edge of the foul ground extending about 1 mile NNE from Fife Ness. The beacon, which marks the NE extremity of North Carr Rock, consists of a structure, 5m high, and resembles, at a distance, a small vessel under sail.

Kilminning Craig, a prominent high and black rock, is located about 0.8 mile SW of Fife Ness.

Gin Head (56°04'N., 2°39'W.) is the S entrance point of the approach to the Firth of Forth. The coast in this vicinity is composed of cliffs or steep slopes with rocky points. The prominent ruins of Tantallon Castle stand on the edge of the cliff, about 0.2 miles SE of the point.

North Berwick Law, an imposing hill in the form of a vast pyramid, rises to a height of 185m close S of North Berwick, about 2 miles WSW of Gin Head. This landmark, which is covered to the summit with grass, is visible from a considerable distance in clear weather. Traprain Law, an isolated hill, is 213m high and stands 6 miles S of Gin Head. This hill resembles but is less defined than North Berwick Law, for which it has been mistaken.

Ginhead stack and buildings

South Carr (Great Carr), a rocky ledge, extends nearly 0.5 mile offshore, 1 mile ESE of Gin Head. Its seaward extremity is marked by a prominent beacon, 12m high.

1.3 Off-lying dangers.—Marr Bank (56°23'N., 1°40'W.), lying centered about 30 miles ENE of the Isle of May, has depths of 38 to 53m. On closer approach to the Firth of Forth, Wee Bankie (56°12'N., 2°04'W.) lies about 16 miles E of the Isle of May and has depths of 31 to 36m.

Isle of May (56°11'N., 2°33'W.), lying 5 miles SSE of Fife Ness, occupies a commanding position in the approach to the Firth of Forth. The coasts of this island are bold, except at its NW end, where rocks extend about 100m offshore. The island is formed of dark gray greenstone, with an elevated and uneven grassy surface. Its W side consists of cliffs, 49 to 62m high, which slope down irregularly to the E and terminate in a rocky coast, indented by several deep fissures. Several of these fissures serve as boat harbors.

Altarstones, a boat harbor, is located on the NW side of the island and used during E winds. Kirk Haven, another boat harbor, is located on the SE side of the island and used during W winds. The latter is the larger of the two, but it is obstructed by a sunken rock lying near the entrance.

A light is shown from a prominent tower on a dwelling, 24m high, standing near the center of the island.

Bass Rock (56°05'N., 2°39'W.), a pyramidal rock, is located 1.3 miles NNE of Gin Head and is 115m high. It is precipitous on every side, but the surface of the rock shelves a little on the SW side, where landing may be effected in moderate weather.

Isle of May Light

The rock is very conspicuous and its cliffs have been colored white by the deposit of sea birds. A light is shown from a prominent tower with a dwelling, 20m high, standing on the S side of the rock. This light is mostly obscured to the N.

Craigleith, a rocky islet 51m high, is located 0.8 mile off the coast, 2.5 miles W of Bass Rock. Lamb Isle, a small islet 24m high, is located about 1 mile WSW of Craigleith.

Fidra (56°04'N., 2°47'W.), a dark and rocky islet 31m high, is located 0.5 mile off the coast, 1.2 miles W of Lamb Isle. It has a flat-topped mass at the S end, which becomes detached at

HW, and the ruins of a chapel stand on it. During W winds, small vessels can anchor, in depths of 11 to 13m, off the E side of this islet. A light is shown from a prominent tower, 17m high, standing on the N side of the islet.

Bass Rock from S

Fidra Light

A wreck, with a swept depth of 15.8m, lies about 3 miles W of Fidra Light and is marked by a lighted buoy.

Eyebroughy, a small islet, is located 0.3 mile N of the coast, 1 mile WSW of Fidra. It is 6m high and connected by a reef to the mainland.

1.4 Numerous production platforms, wells, and gas and oil pipelines lie in the waters off the coast of Scotland and in the approaches to the Firth of Forth. They may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Fife Oil Field (56°01'N., 3°11'E.), with storage tanker.
2. Angus Oil Field (56°10'N., 3°05'E.).
3. Hod Field (56°11'N., 3°28'E.).
4. Valhall Field (56°11'N., 3°24'E.).
5. Embla Field (56°20'N., 3°15'E.).
6. Eldfisk Field (56°23'N., 3°16'E.).
7. Edda Field (56°28'N., 3°06'E.).
8. Tommeliten Field (56°30'N., 2°56'E.).
9. Kefirs Field (56°33'N., 3°13'E.).
10. W Ekofisk Field (56°34'N., 3°05'E.).
11. Albuskjell Field (56°39'N., 2°56'E.).
12. Janice Field (56°24'N., 2°15'E.).
13. Clyde Field (56°27'N., 2°17'E.) with SPM.
14. Auk Field (56°24'N., 2°04'E.) with SPM.
15. Fulmar Field (56°29'N., 2°09'E.) with SPM.
16. Judy Field (56°42'N., 2°21'E.).
17. Curlew Field (56°44'N., 1°18'E.), with storage tanker.
18. Tor Field (56°39'N., 3°20'E.).
19. Ekofisk Field (56°32'N., 3°20'E.).
20. Gyda Field (56°54'N., 3°05'E.).
21. Ula Field (57°06'N., 2°51'E.).
22. Cod Field (57°04'N., 2°26'E.).
23. Shearwater Field (57°02'N., 1°57'E.).
24. Franklin Field (56°58'N., 1°52'E.).
25. Elgin Field (57°00'N., 1°50'E.).
26. Banff Field (57°00'N., 1°18'E.), with storage tanker.
27. Erskine Field (57°02'N., 2°04'E.).
28. Pierce Field (57°10'N., 2°18'E.), with storage tanker.
29. Triton Field (57°05'N., 0°54'E.), with storage tanker.

For oil and gas fields in the Norwegian sector of the North Sea N and NE of the above fields, see Pub. 182, Sailing Directions (Enroute) North and West Coasts of Norway.

For oil and gas fields in the North Sea NW of the above fields, see Pub. 141, Sailing Directions (Enroute) Scotland.

For oil and gas fields in the North Sea E and SE of the above fields, see paragraph 3.1, paragraph 8.6, and paragraph 9.1.

Regulations.—A recommendation adopted by the IMO states that laden tankers should avoid the area lying between Bass Rock and the mainland coast to the S.

Directions.—The entrance route leads 7 miles SW from a position S of Elie Ness (56°11'N., 2°49'W.) to the Fairway Lighted Buoy (56°03'N., 3°00'W.).

Caution.—Areas within which seabed obstructions exist lie in the approaches to the firth and may best be seen on the chart.

Numerous wrecks lie throughout the firth and the approaches and may best be seen on the chart.

Disused ammunition dumping areas, the limits of which are shown on the chart, lie about 2 miles E of the Isle of May.

A submarine gas pipeline, which may best be seen on the chart, extends across the Firth of Forth from the E side of Largo Bay (56°13'N., 2°55'W.), on the N shore, to the E side of Gullane Bay (56°03'N., 2°50'W.), on the S shore. Anchoring is prohibited within 1 mile of this pipeline.

Minesweeper vessels exercise in an area which is situated about 5 miles E of the Isle of May (56°11'N., 2°33'W.).

Submarines exercise frequently in the Firth of Forth and the approaches.

Several outfall pipelines extend seaward from the shores of the firth and may best be seen on the chart.

Several spoil ground and foul ground areas lie within the firth and may best be seen on the chart. Extensive foul ground areas lie centered between the Isle of May and the mainland to the NW and 4 miles S of Methil (56°11'N., 3°00'W.).

An area in which experimental buoys may be moored lies centered 2.5 miles NE of Bass Rock (56°05'N., 2°39'W.) and may best be seen on the chart.

Several of the islands and islets within the firth and approaches are designated bird sanctuaries or nature reserves and approaching or landing without permission is prohibited.

1.5 North Channel (56°03'N., 3°07'W.) is the main deep-water passage leading from seaward to the Forth Railway Bridge. It is entered about 7.5 miles W of Fidra Light and passes N of Inchkeith (56°02'N., 3°08'W.).

Fairway Lighted Buoy (56°03.5'N., 3°00.0'W.), equipped with a racon, is moored 4.8 miles ENE of Inchkeith and marks the outer entrance of this channel.

Forth Deep Water Channel (56°03'N., 3°04'W.), the recommended fairway for deep-draft vessels, leads in a W direction through North Channel and may best be seen on the chart. It extends from the Fairway Lighted Buoy to Hound Point Oil Terminal, situated 1 mile E of the Forth Railway Bridge. This fairway is marked by lighted buoys and has a least depth of 18.8m.

After passing N of Inchkeith, the fairway leads S of Blae Rock, midway between Inchcolm and Oxcars, and then N of Drum Sand to the Forth Railway Bridge. Vessels may then pass N or S of Inch Garvie as required.

Vessels with drafts of less than 10m proceeding to the Forth Bridges may follow an alternative route, which lies close S of the Forth Deep Water Channel and passes 0.6 mile N of Inchkeith. When NW of Inchkeith, vessels using this alternate route should adjust course to rejoin the main fairway before reaching Lighted Buoy No. 10 (56°02'N., 3°13'W.).

1.6 Inchkeith (56°02'N., 3°08'W.) is located on the S side of the North Channel. A ridge, up to 55m high, occupies the center of the island and descends in regular slopes to the sea, except at the S end, which terminates in a cliff. The E side of the island is free of dangers except for a few rocks, awash, which fringe the N extremity. Foul ground and dangerous rocks front the W side of the island and extend up to about 0.4 mile seaward. Pallas Rock, with a depth of 2.8m, lies about 0.8 mile W of the S end of Inchkeith and is marked by a lighted buoy. Dangerous rocks and reefs extend up to about 0.8 mile S of the S end of the island. A conspicuous stranded wreck lies on the S end of Herwit, a drying shoal located about 0.8 mile SE of the S extremity of the island.

A shallow boat harbor, formed by piers, is situated on the W side of the island. Landing on the island is prohibited without prior permission.

A light is shown from a prominent tower, 19m high, standing on the N part of the island.

Middle Bank, with depths of 3.5 to 7m, extends W from Inchkeith and forms a bar between North Channel and South Channel. Gunnet Ledge, with a least depth of 1.9m, lies on this bank, about 1.5 miles WSW of Inchkeith Light, and is marked by lighted buoys.

Blae Rock (56°03'N., 3°11'W.), over which the sea breaks heavily during E gales, is located 1.9 miles NW of Inchkeith Light and 1 mile SSW of Kinghorn Ness. The W side of this rocky shoal is steep-to with a deep scour. The S end of this shoal is marked by No. 7 Lighted Buoy, which is equipped with a racon.

Rost Bank is located 1.2 miles E of Blae Rock and close S of the Forth Deep Water Channel. It is subject to tide rips during spring tides or strong winds.

Oxcars (56°01'N., 3°17'W.), a rocky islet, is located on the S side of the Forth Deep Water Channel, 3 miles ENE of Hound Point Terminal. It lies near the W end of Oxcars Bank, which extends about 2.7 miles E. A light is shown from a prominent tower, 22m high, standing on this islet. A tide gauge, showing the clearance under the spans of the Forth Railway Bridge, is painted on the light tower.

Cow and Calves, an islet 4m high, is located on a rocky ledge on the N edge of Drum Flat, about 0.5 mile SSE of Oxcars.

Inch Mickery, a small island 15m high, is located 0.8 mile SSE of Oxcars. A boat pier is situated at the W side of the island.

Drum Flat and Drum Sand, with depths of less than 5.5m, extend E and W of Inch Mickery and form the S limit of the North Channel.

1.7 Inchcolm (56°02'N., 3°18'W.), a rocky island, is located 0.8 mile NW of Oxcars Light. It lies on the SW end of a shoal flat which separates North Channel from Mortimer's Deep. The ruins of an abbey, which include a conspicuous tower with a spire, stand near the center of this island.

A light is shown from a framework tower, 10m high, standing at the SE end of the island. Additional lights are shown from the N side of the island to aid navigation within Mortimer's Deep.

Car Craig, a conspicuous rocky islet 9m high, lies on the S edge of the shoal flat, about 0.5 mile NE of Inchcolm. Meadulse Rocks are located near the N side of the shoal flat, about 0.5 mile W of Car Craig. This group of rocks dries and is marked by a beacon at the W end.

Haystack, a bare rock 5m high, stands about 0.5 mile W of the W extremity of Inchcolm, at the W end of Mortimer's Deep.

Inch Garvie (56°00'N., 3°23'W.), a rocky islet 12m high, is located close off the E side of the center of the Forth Railway Bridge, at what may be considered the mouth of the River Forth. The center cluster of piers, which supports the Forth Railway Bridge, stands on the NW end of this islet. A lighted beacon is shown from the NW end and a tide gauge, showing the clearance under the span of the bridge, is situated close SE of it.

Anchorage.—A small vessel anchorage area, the limits of which are shown on the chart, is centered 0.8 mile ESE of Inchkeith Light and has depths of 8 to 10m. Vessels must make a special request to the Forth Navigation Service prior to using this anchorage.

1.8 South Channel (56°01'N., 3°05'W.) leads in a SW direction from Fairway Lighted Buoy and passes S of Inchkeith (56°02'N., 3°08'W.). The section of this channel lying centered about 1 mile SSE of Inchkeith has depths of 17 to 34m and is known as Narrow Deep. South Channel Approach Lighted Buoy is moored about 3.3 miles E of Inchkeith.

Oxcars Lighthouse

Inch Garvie (under the Forth Railway Bridge)

Leith Channel (56°02'N., 3°04'W.), which may best be seen on the chart, is the fairway leading to the road-steads of Leith and Granton. It is also known as the Alternate Channel. This fairway leads SW and W from the vicinity of Fairway Lighted Buoy and passes through South Channel and Narrow Deep.

The E part of Leith Channel has depths of 10 to 13m and Narrow Deep has depths of 17 to 34m. The depths in the fairway then decrease towards the W where, in the roadstead, there are depths of 5.5 to 11m.

North Craig, a rocky shoal, lies on the S side of the fairway, about 2.5 miles ESE of Inchkeith Light. It has a least depth of 3.2m and is marked by a lighted buoy. Craig Waugh, a detached shoal, lies about 2.7 miles SE of Inchkeith Light. It dries and is marked by a lighted buoy.

Several shoal patches, with depths of less than 5m, lies close to the sides of the channel, near the W end of Narrow Deep. The dangers lying on the N side of the channel include those extending S from the S end of Inchkeith, which have previously been described.

Caution.—Several foul ground and spoil ground areas, which may best be seen on the chart, lie in the vicinity of North Channel and South Channel.

Several submarine cables, some disused, lie in the vicinity of North Channel and South Channel and may best be seen on the chart.

Firth of Forth—South Shore

1.9 North Berwick (56°04'N., 2°43'W.), a small harbor, is located about 2 miles W of Gin Head. It is used by fishing and pleasure craft. A large hotel and two churches, with belfries, stand in the town and are all prominent. A large house,

Inchcolm Island

Inchcolm Island

with a square tower at its W end, is situated on a hill behind the town and is conspicuous from the E and N.

The harbor entrance, which faces SW, is 8m wide and can be closed by booms in bad weather. The harbor dries at LW, but at HW there are depths of 5m at springs and 4m at neaps; local knowledge is required.

Gullane Point (56°02'N., 2°52'W.), formed by a hill of moderate elevation, is located 5 miles SW of North Berwick. It is black and rocky on the N side. Gullane House, standing 0.7 mile E of the point, is conspicuous.

Hopetoun Monument (55°59'N., 2°48'W.), standing about 4 miles SE of Gullane Point, is very conspicuous from seaward.

Aberlady Bay (56°01'N., 2°53'W.) is entered between Gullane Point and Craigielaw Point, 1.8 miles SSW. It consists mostly of drying sands on which several stranded wrecks are situated. Several dangerous wrecks lie W of this bay and may best be seen on the chart.

Gosford Bay (56°00'N., 2°54'W.) lies between Craigielaw Point and Ferny Ness, 1.5 miles S. It is obstructed by drying sands. Gosford House, with a cupola, stands near the coast, about 1 mile SSE of Craigielaw Point. It is situated in a clearing among the trees and is conspicuous from the N and W.

Seton Sands extend 2 miles WSW from Ferny Ness, the S entrance point of Gosford Bay, and end at Port Seton, a small fishing boat harbor, located close E of Cockenzie.

Anchorage.—Ten designated anchorage berths, allocated by the Forth Ports Authority for large vessels, lie centered about 3.5 miles W of Aberlady Bay and are indicated on the chart.

1.10 Cockenzie (55°58'N., 2°58'W.) a small harbor, is located about 5 miles SW of Gullane Point. It is used by fishing vessels and pleasure craft. Two conspicuous chimneys stand in the vicinity of a power station, close W of the harbor. The entrance, which is 24m wide, faces N. The harbor has a depth of 5m at HWS and can accommodate vessels up to 18m in length and 2m draft.

Corsik Rock, which dries, lies close offshore, about 0.2 mile NE of the harbor entrance.

A small jetty, associated with the power station, is situated close W of the harbor and has a depth of 6m alongside at HWS.

Musselburgh (55°57'N., 3°03'W.), located 3.5 miles SW of Cockenzie, stands on low ground at the mouth of the River Esk. The town can be identified by its numerous factory chimneys. A conspicuous church, with a tall spire, is situated on the summit of a low hill which stands close S of the town. Fisherrow, a shallow and drying yacht harbor, is situated close W of the town.

The coast between Fisherrow Harbor and Leith, 4.5 miles NW, is low. It is fringed by a drying sandbank for about 3 miles and then, for 1.5 miles, by rocky ledges and patches, some of which dry, extending up to 0.8 mile from the coast.

Two conspicuous chimneys stand at the NW end of Portobello, about 3.2 miles WNW of Musselburgh.

Anchorage.—Small vessels may anchor, in a depth of 7m, in the roadstead, close N of the Cockenzie harbor entrance.

An anchorage area, designated for small vessels, lies centered 1.8 miles N of Musselburgh. It has depths of 6 to 8m and may best be seen on the chart

Caution.—An outfall pipeline extends NNE for 1.5 miles from a point on the coast located about 3.5 miles WNW of Musselburgh. Diffuser heads, situated at the seaward end of this pipeline, are marked by buoys.

Leith (55°59'N., 3°11'W.)

World Port Index No. 31930

1.11 Leith, the commercial port for the city of Edinburgh, stands at the mouth of a small stream which empties into the harbor. It is also a supply base for the North Sea oil and gas fields. The non-tidal harbor is enclosed by two large breakwaters. It consists of several basins and is entered through a lock.

Leith

Tides—Currents.—Tides rise about 5.6m at springs and 4.4m at neaps.

Depths—Limitations.—The harbor is approached from the roadstead through an entrance channel, 122m wide, which leads SSE and is dredged to a depth of 6.7m.

The entrance lock is 259m long and 31.6m wide between fenders. It was reported (2011) the depth in the lock was 11m. There are depths over the sill of 12.3m at MHWS and 6.7m at MLWS. An area, dredged to a depth of 10.3m, extends from the entrance lock into Western Harbor. Information on changes of depth in the harbor and the adjacent docks can be obtain via Forth Port web site (http://www.forthports.co.uk).

Imperial Dock has 1,396m of quayage and a depth of 9.5m. It can handle vessels up to 9.2m draft.

Albert Dock has 844m of quayage and a depth of 8m. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.6m draft.

Edinburgh Dock, accessible through Albert Dock, has 1,120m of quayage and a depth of 8m. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.6m draft.

Victoria Dock has 570m of quayage. It is entered through a passage, 18.2m wide, and can handle vessels up to 7.4m draft.

Outer Harbour has about 450m of quayage and depths of 8 to 9.5m alongside. It can handle vessels up to 9.2m draft.

Western Harbour, entered directly from the lock, has 970m of quayage and depths of 9.5 to 11.3m alongside. It can handle vessels up to 9.8m draft.

There are facilities for general cargo, bulk, container, ro-ro, ferry, passenger, tanker, and oil and gas field support vessels. Vessels of up to 240m in length, 30m beam, and 9.8m draft can be accommodated.

Repairs can be carried out at two dry docks. The largest can handle vessels up to 160m in length, 21m beam, and 7.3m draft.

Aspect.—Leith is marked by numerous factories and flour mills. The grain elevators situated at the W side of the harbor and the tower standing on the E breakwater are conspicuous. Several high apartment buildings stand S of Western Harbour and are prominent.

The city of Edinburgh extends beyond Leith. Edinburgh Castle and Nelson's Monument stand 2.5 miles SSW and 2.1 miles S, respectively, of the harbor entrance; both are very conspicuous. Salisbury Craig and Arthur's Seat, 248m high, stand about 2 miles S of Leith and are prominent.

The roadstead, N of the port, is approached via Leith Channel and Narrow Deep. An approach lighted buoy is moored in the roadstead, about 0.6 mile NNW of the harbor entrance, and marks the N end of the dredged entrance channel.

Newhaven, a small fishing and pleasure boat harbor, is located at the W side of the root of the W breakwater.

Edinburgh Castle

Pilotage.—Pilotage is compulsory as per the Forth Ports Authority areas (see paragraph 1.1). The pilot station is situated at the root of the E breakwater and can be contacted on VHF channel 71. Pilots are available for entering Leith or Granton. For further details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth are given under Regulations in paragraph 1.1.

All vessels bound for Leith should contact the port by VHF prior to arriving in the roadstead.

Tugs will generally attend incoming vessels in the Leith Roads. Tugs can be contacted on VHF channels 6, 8, 11, and 12.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Signals.—Traffic signal lights, controlling entry and departure, are shown from both sides of the seaward and inner ends of the lock walls, as follows:

1. A red light indicates that the port is closed.
2. A green light indicates that a vessel may proceed into the lock.
3. Two green lights, displayed vertically, indicates on which side of the lock the vessel will be mooring.

Time signals are operated daily, except Sunday, as follows:

1. A ball is lowered from a mast on Nelson's Monument at 1200 GMT.
2. A gun is fired from Edinburgh Castle at 1300 local time.

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

1. Call sign: Leith Harbor
2. VHF: VHF channel 12
3. Telephone: 44-1324-498585
4. Facsimile: 44-1324-668480

Anchorage.—Three anchorage areas, designated for large vessels, are situated about 1 mile NNE of the harbor entrance and have depths of 7 to 11m. An anchorage area, designated for small vessels, is situated about 1 mile N of the entrance to Granton Harbour and has depths of 7 to 10m. The limits of these areas may best be seen on the chart.

Caution.—An obstruction lies about 1 mile NE of the harbor entrance, close S of the easternmost anchorage area.

During the flood tidal current, an eddy sometimes forms in the vicinity of the breakwater heads.

1.12 Granton (55°59'N., 3°13'W.) is located about 1.5 miles W of Leith. The harbor is protected by breakwaters and consists of two basins, which are separated by a pier. A conspicuous gas holder tank, 100m high, stands near the shore, 0.8 mile W of the harbor.

The headquarters of the Forth Pilotage Authority is situated on the pier and can be contacted by VHF.

The harbor entrance, which is 104m wide, is approached through Leith Channel, Narrow Deep, and Leith Roads. The pier provides about 340m of quayage with a depth of 3.2m alongside. The E basin, which dries in places, is mostly used by yachts.

Granton Point (55°59'N., 3°15'W.) is located about 1 mile W of Granton Harbour. The coast between is bordered by rocks and ledges, some of which dry.

Hound Point is located 3.5 miles WNW of Granton Point and the coast between is fronted by Drum Sands and Drum Flat, which extend N to the S side of the fairway.

Cramond Island, located 1.5 miles WNW of Granton Point, is connected to the shore by a low water causeway, which extends SSW from the island.

Mons Hill, 116m high, stands 0.6 mile SSW of Hound Point and is prominent.

Caution.—An outfall pipeline extends about 0.8 mile NE from Granton Point and its seaward end is marked by a buoy.

Hound Point Marine Terminal

1.13 Hound Point Marine Terminal (56°00'N., 3°22'W.) (World Port Index No. 31972) is situated about 0.4 mile offshore, NW of Hound Point. The terminal consists of two berths, each with a concrete island structure flanked by dolphins connected by catwalks. A central island structure links the two berths. Several submarine pipelines extend between the terminal and the shore. A number of mooring buoy are situated close SW of the W berth and are for the use of tugs.

Tides—Currents.—Tides rise about 5.6m at springs and 4.4m at neaps.

Depths—Limitations.—The terminal berths, which are situated adjacent to the S side of the recommended fairway maintains a minimum depth of 24m alongside where vessels up to 300,000 dwt can be accommodated. Vessels with drafts up to 21.64m can be handled at springs and vessels with drafts up to 20.72m can be handled at neaps. At the outer end of the Forth Deep Water Channel there is a charted depth of 19.4m in the vicinity of No.1 Lighted Buoy. Departing deep-draft tankers should leave the berth no later than 2 hours before HW Leith.

Pilotage.—Pilotage is compulsory. The terminal can be contacted by VHF. For further details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth and special rules applying to tankers bound for Hound Point Terminal are given under Regulations in paragraph 1.1.

Vessels must reduce speed if necessary and must not approach within 100m of tankers berthed at the terminal.

Anchoring is prohibited in the vicinity of the terminal.

Berthing is generally prohibited when the wind on or off the berth exceeds 20 knots, when the wind in any direction exceeds 30 knots, or when the visibility is less than 1 mile.

No unauthorized person is permitted to approach within 100m of the terminal.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

The Forth Bridges

1.14 The **Forth Railway Bridge** (56°00'N., 3°23'W.) is situated at the entrance of the River Forth and consists of three cantilevers which cross the navigable channels N and S of Inch Garvie. The center pier stands on Inch Garvie, thereby forming two navigation spans, each 521m long. The total height of the vertical columns is 112.7m; in the center of the navigable channels, for a width of 146m, there is a vertical clearance of

42m at MHWS under the maintenance platforms. These platforms can be removed to add an additional vertical clearance of 1.58m.

The Forth Bridges from NW

The Forth Bridges from NE

The **Forth Road Bridge** (56°00'N., 3°24'W.), situated 0.5 mile W of the Forth Railway Bridge, consists of three spans. The center span, which crosses the navigable channel, lies between the two main support towers, which are154.5m high and over 1,000m apart. It has a vertical clearance under the maintenance platforms at MHWS of 40m (41m below the central white light), These platforms can be removed to add an additional vertical clearance of 2.45m.

Directions.—Recommended routes, both eastbound and westbound, are indicated on the chart and lead under the N navigation span of the Forth Railway Bridge. If required, vessels may also pass S of Inch Garvie and under the S span. See Regulations in paragraph 1.1.

Caution.—Radar interference has been reported by vessels in the vicinity of the bridges. Vessels departing Port Edgar and Rosyth are unlikely to be detected on radar by vessels in the river. It was observed that vessels with antenna heights between 12m and 24m had no difficulty.

Vessels passing under the Forth Railway Bridge have observed magnetic anomalies, with compass deflections of up to 11 degrees.

Queensferry (55°59.5'N., 3°23.0'W.), located on the S shore between the bridges, has a small harbor which dries. It is used by yachts. A clock tower and a chimney stand in the town and are conspicuous. Small craft moorings lie offshore in this vicinity.

Long Craig Pier, situated about 0.4 mile E of the Forth Railway Bridge, extends 305m N from the S shore of the firth and dries alongside.

North Queensferry (56°01'N., 3°24'W.), located on the N shore between the bridges, has a small harbor which dries. It is used by yachts and small craft.

Firth of Forth—North Shore

1.15 Battery Point (56°00'N., 3°23'W.) on the N shore, is located at the N end of the Forth Railway Bridge. A naval signal station, from which is shown the main traffic warning light, is situated close E of the bridge. See Regulations for the Dockyard Port of Rosyth and the Protected Channel in paragraph 1.1.

West Ness, the S entrance point of Inverkeithing, is located 1 mile N of Battery Point and the coast between is precipitous.

Inverkeithing (56°02'N., 3°24'W.) a harbor formed by a natural basin, is located on the W side of Inverkeithing Bay, which has depths of less than 4m. The entrance, which is 120m wide, is approached through a dredged channel. The harbor has two berths which are used to export scrap and stone. The approach channel, indicated by a directional light, leads in a W direction. It has a least depth of 1m, near the entrance, and is subject to silting. Vessels up to 80m in length can be handled.

A quarry terminal, consisting of a T-head jetty, extends S from the shore, close E of the entrance to Inverkeithing, but is reported to be no longer in use.

St. David (56°02'N., 3°22'W.) located on the N side of Inverkeithing Bay, is a small harbor with a bottom of soft mud, used for ship breaking. The entrance, formed by two piers, is 62m wide and faces W. A pier, situated at the S side of the harbor, has a depth of 5.5m alongside at HW. It was reported that the harbor is in a poor state of preservation.

Downing Point, on which stands a beacon, is located about 0.5 mile E of St. David and the coast between is fronted with rocky ledges.

Dog Rock, surrounded by shallow wrecks, lies about 0.4 mile SW of Downing Point. A mooring buoy, for use by naval vessels only, is situated about 0.3 mile SSE of this rock.

1.16 Braefoot Point (56°02'N., 3°19'W.) is located 1 mile NE of Downing Point and Dalgety Bay indents the shore between them. This bay is fronted by a muddy ledge and rocky patches, which dry.

Haystack, a bare rock 5m high, lies on a shoal about 0.3 mile S of Braefoot Point.

Hawkcraig Point (56°03'N., 3°17'W.), located 1.5 miles NE of Braefoot Point, is a cliffy headland which terminates in a sharp and well-defined point. A large white metal building, conspicuous from the E, stands close behind the point. Aberdour, a small and shallow harbor, is located 0.5 mile W of the point. The coast between this harbor and Braefoot Point is bold and wooded.

Mortimer's Deep (56°02'N., 3°18'W.), a narrow channel, extends between Inchcolm and Meadulse Rocks, on the SE side, and the dangers lying off the N side of the firth, on the NW side. Tidal currents within this channel can attain rates of 1 to 2 knots. Several detached rocks, which dry, lie along the N side of the channel. Braefoot Bay Marine Terminal, a gas tanker terminal, is situated on the N side of this channel (see paragraph 1.17).

Caution.—Two disused submarine cables lie across the W part of Mortimer's Deep and may best be seen on the chart.

Several foul ground areas lie within Mortimer's Deep and may best be seen on the chart.

An outfall pipeline extends 0.6 mile SSE from a point on the shore located 0.3 mile N of Hawkcraig Point.

1.17 Braefoot Bay Marine Terminal (56°02'N., 3°19'W.) (World Port Index No. 31945), a gas tanker terminal, is situated on the N side of Mortimer's Deep, about 0.3 mile E of Braefoot Point. It consists of two jetties flanked by dolphins. The W jetty exports propane, butane, and natural gasoline; the E jetty exports ethylene.

Braefoot Bay Marine Terminal

Depths—Limitations.—The Braefoot Marine Terminal is approached from Forth Deep Water Channel via Mortimer's Deep, the channel between Inchcolm and the N side of the Firth. The terminal may be approached from either end of the deep. Controlling depth from the E approach is 10m on the leading line. In the SW approach, between Haystack and the W end of Inchcolm is narrow that has a controlling depth of 14.7m.

The Shell Jetty can accommodate tankers up to 60, 000 cubic meters capacity, 220m loa, and a draft of 13m. The Exxon jetty is used by tankers of up to 20, 000 dwt 165m LOA and a draft up to 9.5m.

Aspect.—The approach fairway leading through Mortimer's Deep is marked by lighted buoys. Ranges, which may best seen on the chart, indicate both E and W approaches to the terminal.

Pilotage.—Pilotage is compulsory. The terminal (Braefoot Control) can be contacted by VHF from 2 hours before a vessel is expected. For additional details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—Vessels should send an ETA to the terminal at least 72 hours in advance, reporting any change greater than 12 hours. Vessels should also send a confirmation of their ETA to the terminal 24 hours in advance, reporting any change greater than 4 hours.

Prior to arrival, vessels should provide the terminal with the following information:

1. Details of any defects affecting cargo operations or maneuverability.
2. Last port of call.
3. Last three cargoes.
4. Arrival draft.
5. Sailing draft.
6. Technical details as required by operator.

General rules for navigation within the Firth of Forth and special rules applying to tankers bound for Braefoot Bay Marine Terminal are given under Regulations in paragraph 1.1.

The following additional rules concern all tankers using the terminal:

1. No vessel is allowed to enter Mortimer's Deep without obtaining permission from the Forth Navigation Service unless destined for Braefoot Bay Marine Terminal. This rule does not apply to pleasure craft 12m or less in length. Such craft must reduce speed to a minimum and not approach within 100m of vessels berthed at the terminal.
2. Every tanker bound for the terminal shall conduct its approach so as not to arrive prior to the agreed berthing time.
3. Berthing and unberthing is not permitted when visibility at the jetties is less than 0.5 mile.
4. Tankers of 145m or move in length should approach the W jetty through the W approach passage, between Haystack and Inchcolm, on a flood tide or at slack water, and moor heading NE.
5. Tankers of less than 145m in length may approach the E jetty through the E approach fairway and moor, on the ebb tide or at slack water, heading SW. Such vessels will be required to swing, using tugs, on departure.
6. Tankers departing the terminal may be directed to transit the E or W approach routes.
7. No vessel shall enter Mortimer's Deep, or the channels leading to it, when the terminal is occupied or when a tanker is maneuvering in the area, except that a second tanker may enter and berth when a first tanker has been securely berthed at the terminal.
8. Radio transmissions and the operation of radar are prohibited in the vicinity of the terminal. Vessels may test their normal equipment provided that no source of ignition is present and permission from the local authorities has been obtained.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Signals.—An amber flashing light is shown from the main terminal jetty 2 hours prior to and during a tanker movement to warn other vessels

1.18 Burntisland (56°03'N., 3°14'W.) stands prominently on a low peninsula located 1.5 miles E of Hawkcraig Point. The harbor, which handles bauxite for a nearby aluminum works, consists of two wet docks leading off an outer tidal basin.

Tides—Currents.—Tides rise about 5.6m at springs and 4.5m at neaps.

Depths—Limitations.—The outer tidal basin entrance, formed by two piers, is 76m wide and has a controlling depth of 2.2m. Vessels cannot enter the basin at LWS.

The West Dock is entered via a passage from the NW corner of the outer basin. It has a depth of 6.4m over the gate sill at HWS. This dock is not used for commercial shipping; however, a fitting out and fabrication berth, which can handle vessels up to 167m in length and 23m beam, is situated on the W side.

East Dock is entered through a set of storm gates at the E side of the outer basin. The entrance is 18.29m wide and has a

Burntisland

depths of 8.6m over the gate sills at HWS and 7.5m at HWN. Vessels up to 8,000 dwt, 122m in length, 16.8m beam, and 6.7m draft can be accommodated.

Aspect.—The Binn, a precipitous hill, rises about 0.8 mile N of the harbor and is 190m high. A conspicuous radio mast stands on this hill about 1 mile N of the harbor entrance. Another conspicuous radio mast, 130m high, stands about 0.7 mile NW of the harbor entrance.

A large shed, 32m high, is situated close W of West Dock and is conspicuous from seaward. A prominent radar tower stands close S of the entrance to East Dock.

Pilotage.—Pilotage is compulsory. Pilots may be contacted by VHF and embark within 1.5 miles of the harbor entrance. For additional details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth are given under Regulations in paragraph 1.1.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Anchorage.—Three designated anchorage, numbered B1, B2, and B3 are allocated by (VTS) with depths of 13 to 28m, mud, lying between the harbor and the main fairway. These berths are mainly used by vessels of all sizes, which discharge bauxite into barges.

Caution.—A submarine cable lies in the outer tidal basin.

A wreck, swept to a depth of 12.6m, lies about 0.9 mile SSE of the harbor entrance.

A degaussing range area, the limits of which are shown on the chart, extends up to about 1.3 miles S from the shore, 0.5 mile W of the harbor entrance.

An outfall pipeline, with a diffuser at the seaward end, extends about 0.8 mile S from a point on the shore located 0.4 mile NW of the harbor entrance and may best be seen on the chart.

1.19 Kinghorn Ness (56°04'N., 3°10'W.), fronted by drying rocks, is located 2 miles E of Burntisland. The bay lying between is fronted by a widespread sand flat and patches of rocks which dry.

Three conspicuous blocks of buildings stand near the shore about 2.3 miles NNE of Kinghorn Ness. The coast between is fronted by rocky patches.

Kirkcaldy (56°07'N., 3°09'W.) a small harbor, is located 3.2 miles NNE of Kinghorn Ness. The town, with its suburbs, extends along the shores of Kirkcalby Bay. The harbor, which is used only by local fishing boats, consists of a tidal basin and has an entrance, 46m wide. Depths in the harbor are no longer maintained and the former wet dock is to be filled in.

Dysart (56°08'N., 3°07'W.) a small town, is situated 1.5 miles NE of Kirkcaldy. It stands on the crest of a slope backing the shore and is fronted by a small yacht harbor. The coast between is fringed by shoals which extend up to about 0.5 mile seaward. A church, with a prominent spire, and some factories are situated in the NE part of the town.

Wemyss Castle stands amongst the woods, 1.5 miles NE of Dysart, and is conspicuous. East Wemyss, with a prominent factory building and a chimney at its SW end, is situated 2.5 miles NE of Dysart. The ruins of a castle, which resemble two towers standing slightly apart, are situated on the crown of a slope about 0.3 mile NE of East Wemyss.

Buckhaven, a village with a silted up harbor, is situated on a slope about 4 miles NE of Dysart.

Anchorage.—Kirkcaldy Bay is free from dangers, but the bottom consists of rock covered with sand and the holding ground is not good. A recommended anchorage berth within the roadstead lies, in a depth of 10m, about 0.7 mile ESE of the outer pier head. Vessels should not anchor here in the winter during onshore winds.

An anchorage area, designated for small vessels, lies centered about 1 mile SE of the harbor and may best be seen on the chart.

Nine designated anchorage berths, for large vessels, are situated off Kirkcaldy Bay and may best be seen on the chart. These anchorage berths are not to be used by tankers bound for Hound Point Terminal.

Caution.—A wreck, with a swept depth of 8.9m, lies about 1 mile E of Dysart and is marked by a lighted buoy.

An outfall pipeline, with a diffuser at the seaward end, extends about 0.6 mile SE from the shore at Buckhaven and is marked by a lighted buoy.

1.20 Methil (56°11'N., 3°00'W.) (World Port Index No. 32070), a small port with a large steel foundry, stands on the W side of Largo Bay. It consists of two wet docks and an open wharf. Structures for the North Sea oil fields are fabricated here and wood products are handled.

Tides—Currents.—Tides rise about 5.5m at springs and 4.4m at neaps.

Aspect.— Two conspicuous blocks of buildings are situated about 0. 4 mile W of the harbor entrance.

Several conspicuous cranes, 133m high, stand in the vicinity of a fabrication yard about 0.5 mile SW of the harbor entrance.

Depths—Limitations.—The harbor is protected to the E by an outer pier and approached through a short channel, 15m wide, with a dredged depth of 2.3m. Wet Dock No. 2 is entered through a gate, 15m wide, which is normally operated for a period of 3 hours prior to HW. The gate has a depth over the sill of 7.9m at HWS. This dock provides 350m of berthage with a maintained depth of 6m.

Wet Dock No. 1, with about 500m of berthage, is entered from the N end of Wet Dock No. 2 through a passage, 15m wide. A disused wet dock and its entrance channel are situated close E of these docks.

Vessels up to 102m in length, 14.6m beam, and a 5.5m draft can be accommodated in the wet docks.

An open wharf, 190m in length, is situated adjacent to a rig fabrication area, about 0.3 mile WSW of the outer pier head. It partly dries alongside and has several mooring buoys situated in the vicinity. Two small wet docks are close S of this wharf.

Pilotage.—Pilotage is compulsory as per the Forth Ports Authority areas (see paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth are given under Regulations in paragraph 1.1.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Signals.—The following traffic signals are displayed from a mast at the E side of the entrance to Wet Dock No. 2 from 3 hours before HW until both dock gates are closed:

1. A red light indicates that the docks are closed and vessels should remain in the roads until another signal is shown.
2. A red light over a green light indicates that it is dangerous to enter and vessels should bring up in the roads.
3. A red light over a white light indicates that vessels may enter Wet Dock No. 2.

Anchorage.—An anchorage area, designated for small vessels, lies centered 0.8 mile SE of the harbor entrance.

Five anchorage berths, with depths of 12 to 33m, lie in an area centered about 2.5 miles SE of the harbor entrance. These anchorage berths are designated for rigs or large vessels and may best be seen on the chart.

Another two anchorage berths lie between the Methil Anchorage and the Aberlady Bay Anchorage. These are designated as Z1 (56°06.6'N., 2°57.0'W.) and Z2 (56°05.7'N., 3°57.7'W.).

1.21 Largo Bay (56°12'N., 2°56'W.) lies between Methil and Kingcraig Point, 5 miles ENE. Craig Heugh, a ridge 64m high, rises from Kingcraig Point and is prominent, even at night. A conspicuous radio tower, 88m high, stands on this ridge.

Largo (56°13'N., 2°56'W.), with a small and shallow harbor, is located at the head of the bay, 3 miles NE of Methil. The harbor is only used by local fishing boats and pleasure craft. A railway bridge, with four arches, is situated in the vicinity of the town and is conspicuous from seaward.

Largo Law, a prominent hill, rises about 1.3 miles NNE of Largo and is 288m high.

Elie Ness (56°11'N., 2°49'W), a low and rocky headland, is located 1.8 miles E of Kingcraig Point. A light is shown from a prominent tower, 11m high, standing on the SW part of this headland.

Elie, a village, stands at the head of Elie Bay, which is entered between Elie Ness and Chapel Ness, 0.7 mile W. The bay affords shelter from all winds except those between SE and SW. A small pier, situated on the E side of the bay, is connected to the village by a causeway and has depths of 4 to 5m alongside at HWS. During E gales, small craft and fishing boats shelter within this bay, but local knowledge is required.

East Vows, a rocky shoal which dries 3.1m, lies 0.2 mile S of Chapel Ness and is marked by a prominent beacon. West Vows, a rocky shoal which dries 3.6m, lies 0.2 mile SW of Chapel Ness. Thill Rock, which dries 0.6m, lies on the E extremity of a ledge, 0.3 mile SE of Chapel Ness and is marked by a buoy.

Elie Ness Light

The coast between Elie Ness and Fife Ness, 9.5 miles NE, consists of low cliffs and steep banks with a rocky foreshore.

St. Monance (St. Monans) (56°12'N., 2°46'W.), a small harbor, is located 2 miles NE of Elie Ness Light. A church, with a conspicuous spire, stands close to the coast at the W end of the town. The ruins of a castle, which stand on the top of a slope, are situated 0.5 mile SW of the church and are very prominent from seaward. The harbor dries and is used only by fishing boats. Local knowledge is required. Vessels should not approach the harbor in strong SE winds or when there is a NE swell.

Anchorage.—Largo Bay affords good anchorage even during E gales. An anchorage area, designated for small vessels, lies centered 1.4 miles S of Largo and may best be seen on the chart.

Caution.—Drilling rigs, drilling vessels, and large oil-related structures, proceeding to the anchorage berths SE of Methil, may be encountered in the waters S of Largo Bay.

1.22 Pittenweem (56°13'N., 2°44'W.), a small fishing harbor, is located 1.3 miles NE of St. Monance. The town may be readily distinguished as it stands upon higher ground than any other in the vicinity. A conspicuous church, with a short spire and a clock tower, stands at the E end of the town which is partly built on the crest and face of a slope. The harbor entrance, which faces SW, is 23m wide and has a depth of 1.5m. Vessels up to 27m in length can enter.

Anstruther Easter (56°13'N., 2°42'W.) is located 1.2 miles NE of Pittenweem. It forms the central portion of a long straggling town, of which Anstruther Wester and Cellardyke are the extremities. The small harbor, named Anstruther Union, is protected by two piers and used by fishing vessels. It dries and has a depth of 4.6m at HWS. The entrance, which has a depth of 0.3m, faces SW and is indicated by a lighted range. Entry should not be attempted in strong E or S winds.

Crail (56°15'N., 2°38'W.) stands on a moderately-high slope, 3.2 miles NE of Anstruther. The village may be identified by a church, with a square tower surmounted by a spire, standing at its W end. The small harbor is used by fishing

boats. The entrance faces W and is 7m wide. It is protected by booms during heavy weather.

Fife Ness (56°17'N., 2°35'W.), the N entrance point of the approach to the Firth of Forth, is located 2 miles NE of Crail and has been previously described in paragraph 1.2.

Caution.—Submarine cables, which may best be seen on the chart, extend seaward from the vicinity of Crail and Anstruther Easter to the Isle of May.

The River Forth

1.23 The River Forth, which may be said to join the Firth of Forth at the Forth Railway Bridge, has a least depth of 9m in the main fairway as far as Craigmore Rocks (56°02'N., 3°36'W.), 7.5 miles above the bridge. However, there is no swinging room for deep-draft vessels above Crombie, 6 miles W of the bridge. Between Craigmore Rocks and Hen and Chickens, about 1 mile W, the main fairway has a least depth of 8m. An approach fairway, leading to Grangemouth, then continues W from Hen and Chickens and is dredged to a depth of 6.5m.

Above the Forth Railway Bridge, the river expands to a width of nearly 2 miles; the main fairway is marked by lighted buoys and beacons. Pilotage is compulsory. See Pilotage for Firth of Forth in paragraph 1.1.

Beamer Rock (56°00'N., 3°25'W.), which dries, lies on the N side of the main fairway, about 0.3 mile W of the Forth Road Bridge. It is marked by a light shown from the SE side. A shoal, with a depth of 9.6m, lies close WNW of the light structure.

Tides—Currents.—Within the River Forth, the times at which the currents begin and their velocities, are subject to great changes. Generally, at springs, there is a relatively short and strong incoming current and a longer and weaker outgoing current. At neaps, the currents are of nearly equal duration; the outgoing current being slightly stronger. With strong and continued E winds, both the duration and the velocity of the incoming currents may be increased; the outgoing currents may be correspondingly decreased. When snow is melting and during and after heavy rain, both the duration and the velocity of the outgoing currents will be increased; the incoming currents will be correspondingly decreased. The meteorological effects increase as the river is ascended.

Off Bo'ness, the incoming current begins about 4 hours 30 minutes before HW at Leith; the outgoing current begins about 1 to 2 hours after HW at Leith. At Kincardine, the incoming current begins about 4 hours before HW at Leith; the outgoing current begins about 1 hour after HW at Leith.

The spring velocity at Bo'ness is about 2 knots and at Kincardine about 2.8 knots.

The phenomenon known as the "leaky tide" is often discernible at Kincardine. When this occurs, the incoming or outgoing current is interrupted soon after it begins by a short period of outgoing or incoming current.

Regulations.—General rules for navigation within the Firth of Forth and the river are given under Regulations in paragraph 1.1.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Anchorage.—The river above Beamer Rock affords anchorages for all classes of vessels, in depths of 8 to 30m, mud, but the holding ground is not good. During the flood tide at springs, the eddies caused by Beamer Rock are reported to cause vessels at anchor within 0.8 mile of the rock, to sheer considerably.

Designated anchor berths, reserved for naval ships, are situated in the river between Rosyth and Charlestown (56°02'N., 3°30'W.) and may best be seen on the chart.

An anchorage area, designated for small commercial vessels, is situated in the river SSE of Charlestown and may best be seen on the chart. Three of the anchorage berths, reserved for naval ships, lie within this area.

Tancred Bank Anchorage, consisting of six designated berths, each with a swing radius of 185m, for commercial vessels is situated in the middle of the river N of Bridgeness (56°01'N., 3°35'W.) and may best be seen on the chart.

Caution.—The stretch of water lying between Bo'ness and Culross and in the vicinity of Craigmore Rocks can be dangerous for small craft during conditions of flood tide and a strong SW wind.

Submarine gas pipelines, as indicated on the chart, extend across the River Forth about 4.5 miles and 6 miles above the bridges; submarine cables, as indicated on the chart, extend across the River Forth about 4 miles above the bridges.

Rosyth (56°01'N., 3°26'W.)

World Port Index No. 31980

1.24 Rosyth, is situated on the N shore of the River Forth, about 1.2 miles WNW of North Queensferry. The countryside between is wooded and cultivated. The port consists of a main basin, which is entered through a lock; a small tidal basin; and several tidal quays. Three dry docks are situated on the N side of the main basin.

Rosyth was formerly a naval dockyard base. The facilities at the Main Basin, South Arm, and Middle Jetty are now privately owned by a defense contractor. The remainder of the base is operated as a commercial port.

Rosyth

Tides—Currents.—Tides rise about 5.8m at springs and 4.7m at neaps.

In the main channel, both flood and ebb currents run for 4 hours and attain maximum spring rates of 1.5 knots. A branch of the flood runs out of the main channel through the boat channel and rejoins the main current in the river; conversely, a

branch of the ebb sets through the boat channel and joins the main ebb current in main channel.

Depths—Limitations.—The main approach channel has a dredged depth of 8.8m, but is subject to frequent silting.

The main basin is entered through a lock which can accommodate vessels up to 244m in length and 30m beam. There is a depth of 11m over the sill and the basin is normally maintained at a minimum depth of 10.6m. The lock can generally be used only from 3 hours before HW until 2 hours after HW. In addition, transit into or out of the main basin can be made through the direct emergency entrance gate; however, this is rarely used. A depth of 6.6m is maintained on the sill of the direct emergency entrance gate, which can be used only on a rising tide between the time the tide reaches a height of 4.25m and 30 minutes before HW.

A depth of 11m is normally maintained alongside all the berths within the main basin. The largest of the three drydocks situated at the N side is 311m long and 42.4m wide. It has a depth of 12.4m over the sill at HWS.

South Arm extends SE from the SE corner of the entrance lock. It has a berth 200m long with a depth of 10.5m alongside.

Rosyth Ferry Terminal

North Wall extends along the N side of the main channel. It has a berth 550m long, with a depth of 8.3m alongside.

Middle Jetty extends E from close N of the direct entrance gate and has a depth of 6.7m alongside. Tidal basins, with depths of 4 to 4.9m, are located N of Middle Jetty and are used by small vessels.

There are facilities for general cargo, cruise, ro-ro, bulk, and high-speed ferry vessels. Vessels up to 250m in length, unrestricted beam, and 44m air draft can be handled in the harbor.

Aspect.—A dredged approach fairway, known as the Main Channel, leads from close W of the bridges to the dockyard. It is marked by lighted buoys and beacons, and is indicated by directional lights which may best be seen on the chart.

Main Channel is fronted on the S side by Whale Back, a shallow shoal. Dhu Craig, a bank with depths of less than 1m, lies close W of Whale Back and is separated from it by a boat channel with a least depth of 3m.

Admiralty House and a flagstaff stand close to the shore on the E side of the Main Channel and are very prominent. Radio masts, standing 1.2 miles NW of North Queensferry, and a chimney, standing 0.2 mile N of the drydocks, are conspicuous. The prominent ruins of a castle are situated 0.5 mile E of the drydocks and a prominent fixed crane stands on the W side of the main basin.

Pilotage.—Pilotage is compulsory. For additional details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth and special rules concerning the movement of tankers are given under Regulations in paragraph 1.1.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Directions.—Vessels approaching from the E should pass NE of Beamer Rock and keep to the center of the main channel, which leads NW and WNW. Recommended tracks in the approaches under the bridges are indicated on the chart. Vessels approaching from the W may pass W of Beamer Rock; however, caution should be exercised when the E current is running.

Caution.—Depths throughout the entire area of the dockyard and in the main channel are maintained by dredging. However, due to annual silting, depths may be less than charted and the harbormaster should be consulted.

In the vicinity of North Wall and the close approaches to the main basin, circular tidal currents, with rates not exceeding 0.5 knot, occur both on the flood and the ebb. A strong SW set has also been reported on the N side of Middle Jetty, at about 1 hour before HW.

1.25 The River Forth—North Shore.—Between Limekilns (Brucehaven), a small boat harbor located 1 mile W of Rosyth, and Charlestown, 1.2 miles W, the shore is backed by a steep ridge on which is situated the wooded park of Broomhall; a large house stands within the park, but is only visible from the SE. Gellet Rock, a square mass of limestone, 15m high, stands within the park. Its top is generally level with the tops of the trees, 56m high, and surmounted by a flagstaff.

Charlestown (56°02'N., 3°30'W.), a small yacht harbor, is formed by piers and protected from all winds. It dries and has a depth of 4m over soft mud at HWS.

Crombie (56°02'N., 3°32'W.) is located 0.9 mile W of Charlestown. Two conspicuous jetties extend S from the shore to the edge of the main fairway. The berth at the head of the W and outer jetty has a dredged depth of about 11.2m alongside, but is subject to heavy siltation.

Hen and Chickens (56°02'N., 3°38'W.) lies on the edge of a shallow bank, 3.4 miles W of Crombie, and is marked close S by a lighted buoy. It is formed by an isolated patch of sand, mud, and rocks, which dries.

Craigmore Rocks, another rocky patch which dries, lies 1 mile E of Hen and Chickens, at the S end of an area of reclaimed land. A prominent chimney stands on the SE part of this area.

Between Crombie and Hen and Chickens, the conspicuous villages of Torryburn, Low Torry, and Culross are situated on the N shore of the river. A prominent chimney stands close W of Low Torry. A church, with a spire, and the ruins of an abbey stand near Culross and are conspicuous.

A very conspicuous chimney, 185m high, stands at the power station situated at Longannet, 1.7 miles W of Hen and Chickens.

Caution.—Several mooring buoys are situated in the river between Rosyth and Charlestown. Vessels moored at these buoys occasionally do not exhibit any lights or sound fog signals.

Several outfall pipes extend into the river from the N shore and may best be seen on the chart.

A Protected Area is situated in the vicinity of the jetties at Crombie which are the property of the Ministry of Defence. Vessels are prohibited from entering this area without authorization. The area is marked by buoys and may best be seen on the chart.

1.26 The River Forth—South Shore.—Port Edgar (56°00'N., 3°25'W.), formerly operated by the Royal Navy, is located close W of the Forth Road Bridge. The harbor is formed by two breakwaters which converge and create an entrance, 222m wide. A marina, protected by a floating breakwater, is situated within the harbor; yachts up to 12m in length and 2.4m draft can be accommodated. A commercial berth is situated at a pier in the SW part of the harbor; vessels up to 61m in length can be handled at all stages of the tide, except in extreme wind conditions.

A prominent white house is situated close to the shore, 1.2 miles W of Port Edgar.

Black Ness, located 3.5 miles W of Port Edgar, is easily distinguished by the high walls of a conspicuous old castle which stands on a projecting point.

Binns Tower, 108m high, stands on a hill about 1 mile S of Black Ness and is conspicuous.

Bridgeness (56°01'N., 3°35'W.) is situated 2.5 miles W of Black Ness A very conspicuous tower, which was once a windmill, stands on a mound and shows above the surrounding houses of the town. A church, with a prominent spire, stands 0.3 mile ESE of the tower.

Bo'ness, fronted by a closed harbor, is located 0.6 mile W of Bridgeness.

Caution.—A reserved area, the limits of which are shown on the chart, extends about 0.6 mile from the shore, 2 miles W of Port Edgar.

Several mooring buoys are situated in the river between Port Edgar and Black Ness. Vessels moored at these buoys occasionally do not exhibit any lights or sound fog signals.

Several outfall pipes extend into the river from the S shore and may best be seen on the chart.

Grangemouth (56°01'N., 3°43'W.)

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1.27 Grangemouth stands on the S shore of the River Forth at its junction with the River Carron. The harbor is entered through a lock and consists of wet docks, all of which are interconnected.

Tides—Currents.—Tides rise about 5.7m at springs and 4.5m at neaps.

Depths—Limitations.—The approach fairway, which has a least width of 120m, is dredged to a depth of 6.5m. It is marked by lighted buoys and beacons and entered S of Hen and Chickens.

A diversionary channel, 200m wide, lies N of the main fairway and is marked by lighted buoys and beacons. It is entered from the fairway, 0.4 mile SW of Hen and Chickens, and rejoins it 0.4 mile NE of the entrance lock.

The entrance lock is 238m long and 31m wide (29.1m between fenders). It has a depth of 11.7m over the sill at HWS.

Eastern Channel Basin, entered from the lock, provides seven tanker berths. These berths are 82 to 210m long, with depths of 11m alongside.

Grangemouth from NE

Grange Dock, entered from Eastern Channel Basin via East Cut, has 2,175m of quayage, with a depth of 7.9m alongside.

Carron Dock, entered from Grange Dock via Western Channel, has 775m of quayage, with a depth of 7m alongside.

Old Dock and Junction Dock, located close W of Carron Dock, are no longer in use.

There are facilities for heavy lift, ro-ro, general cargo, container, bulk, tanker, and gas vessels. Vessels up to 32,000 dwt, 183m in length, and 26m beam can be accommodated. Generally, maximum drafts are limited to 10.6m for tankers and 7.6m for other vessels.

Repairs can be carried out at a dry dock, which can handle vessels up to 105m in length, 16.1m beam, and 5.6m draft.

Aspect.—The entrance lock, which leads into the Eastern Channel Basin, is protected by approach jetties situated on each of the outer sides. The lock lies close SE of the old entrance which is now disused and sealed off. The harbor can be identified by two prominent container cranes, standing on the E side of Grange Dock, and several conspicuous oil tanks, standing on both sides of the lock. Part of the bay located SE of the entrance lock is being reclaimed.

Pilotage.—Pilotage is compulsory. Harbor pilots can be contacted by VHF and generally board S of Hen and Chickens Lighted Buoy (56°02.3'N., 3°38.1'W). For additional details, see Pilotage for the Firth of Forth (paragraph 1.1).

Regulations.—General rules for navigation within the Firth of Forth and special rules concerning the movement of tankers are given under Regulations in paragraph 1.1.

The following rules apply to all Selected Vessels bound to and from Grangemouth:

1. Vessels must not navigate within the fairway W of Hen and Chickens Lighted Buoy (56°02.3'N., 3°38.1'W) without the express permission of the Grangemouth Harbormaster. When such a vessel is underway in the fairway, no other vessel shall proceed in the opposite direction within that section of the fairway.
2. Vessels are prohibited from anchoring, except in emergency, in the fairway W of Hen and Chickens Lighted Buoy.
3. Vessels will normally be locked into and out of the docks singly unless expressly permitted to do otherwise by the Grangemouth Harbormaster.
4. When a vessel is maneuvering in the docks, no other vessel shall proceed underway within the docks without the express permission of the Grangemouth Harbormaster.

For the purpose of the above rules, a Selected Vessel is a vessel of more than 80m in length carrying dangerous cargo in bulk or which has residues of dangerous cargo in empty tanks or cargo holds that have not been cleaned, purged, gas-freed, or ventilated as appropriate.

Vessel Traffic Service.—For details of the Forth Navigation Service (VTS) system, see Vessel Traffic Service for the Firth of Forth (paragraph 1.1).

Anchorage.—An anchorage area, designated for small vessels, lies centered 0.5 mile NE of the lock entrance and may best be seen on the chart.

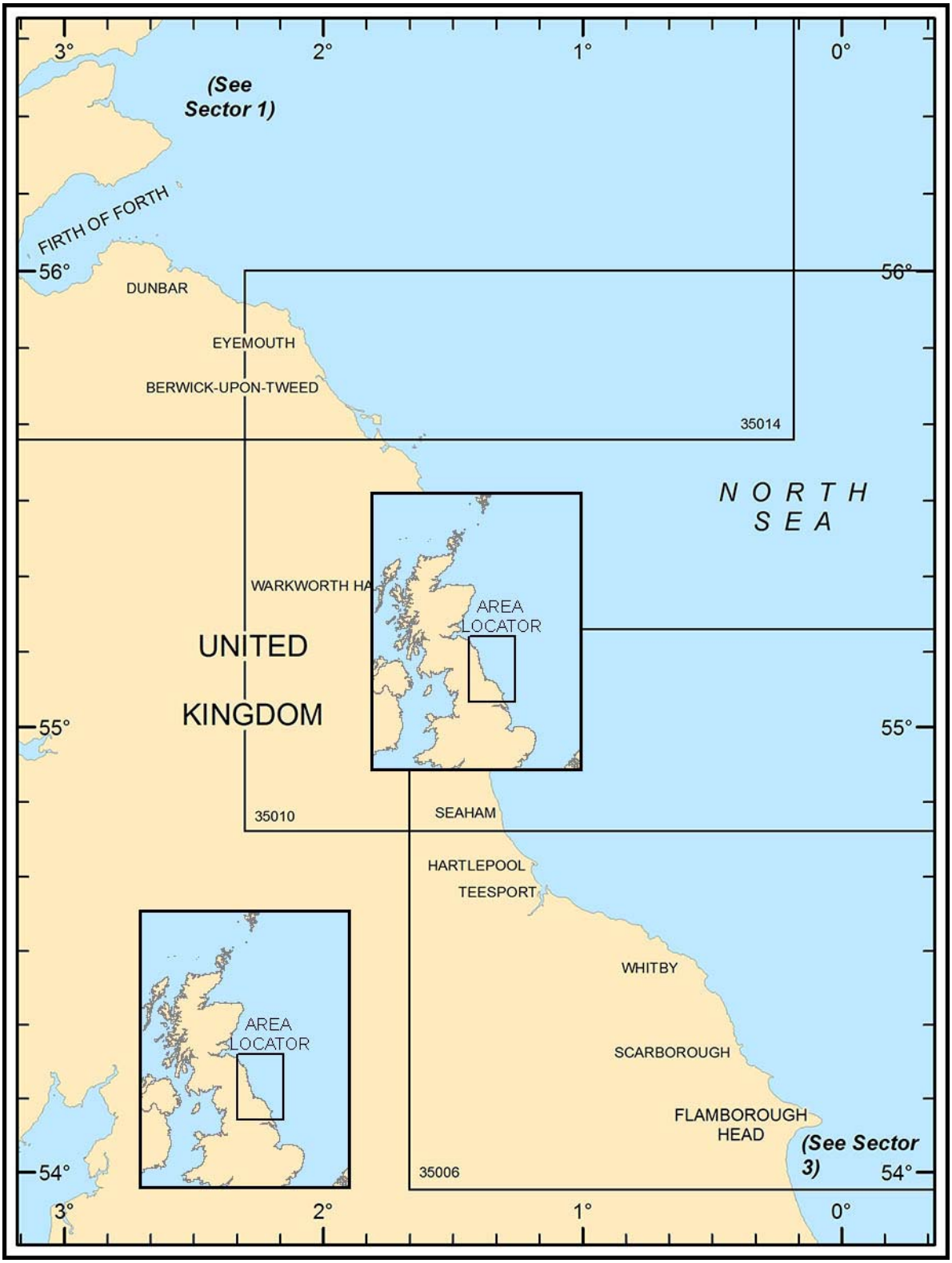
1.28 The River Forth—Upper Part.—Between Grangemouth and Kincardine, 2 miles NW, the river channel is narrowed by shoals on either side to a width of about 270m. Inch Brake, a shoal with a least depth of 1.3m, lies in the channel about 1 mile NW of the power station at Longannet and is marked by a buoy.

Kincardine (56°04'N., 3°43'W.) stands on the NE bank of the river. Prominent landmarks include a clock tower, a church, and two chimneys, 122m high, standing at the power station located close NW of the town. The navigable channel off the town contracts to a width of about 220m; this causes an acceleration of the tidal current and the ebb has sometimes attained a velocity of 4 knots in this vicinity.

A former swing bridge spans the river at Kincardine; it is now permanently closed. It has two passages, each 46m wide, with a vertical clearance of 9m.

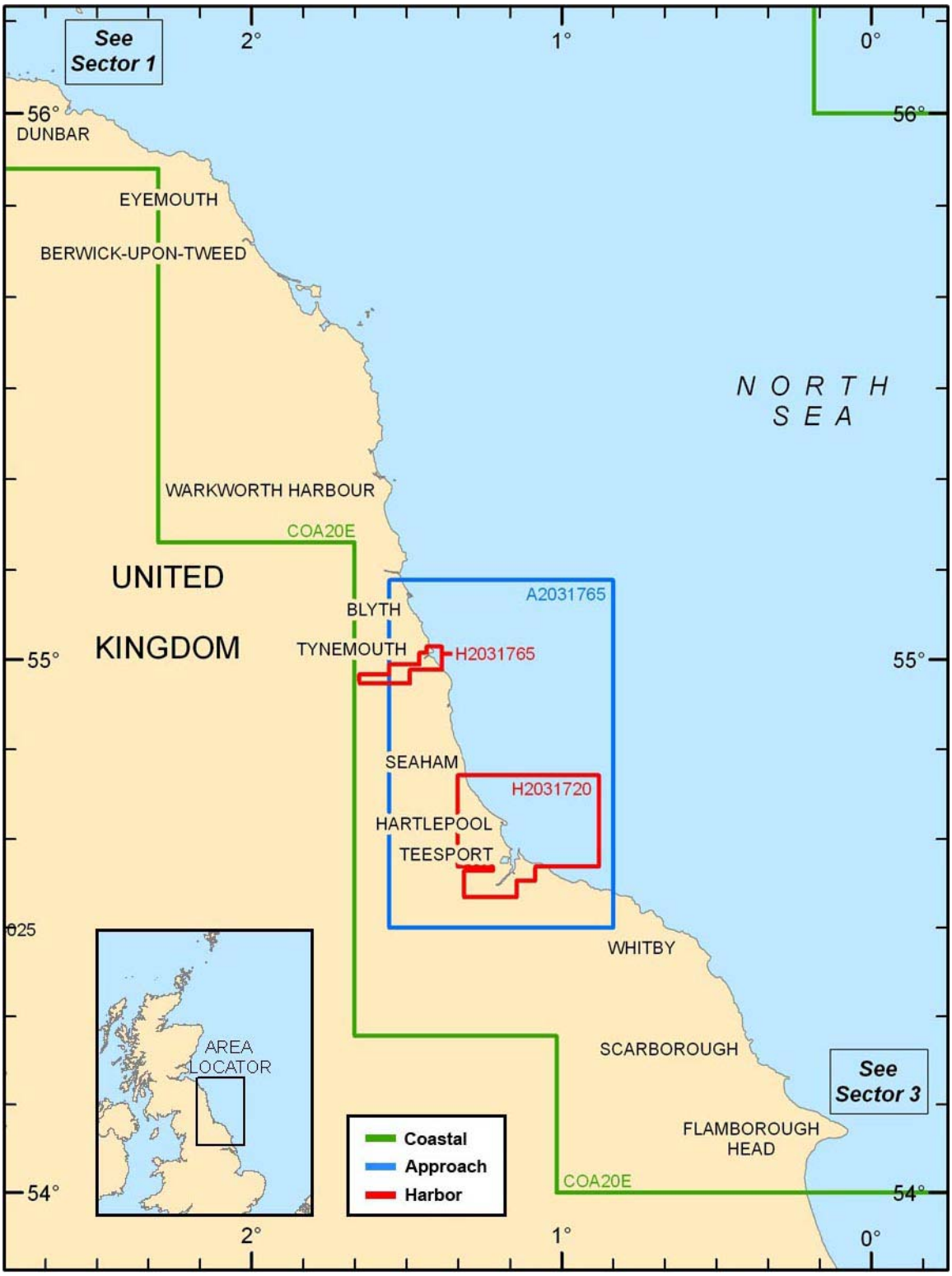
Stirling (56°07'N., 3°56'W.), located 62 miles above the Isle of May, is considered to be the head of navigation of the river. Small craft, with drafts up to 3m, can reach as far as here at HWS. Local knowledge is required.

For safety reasons, commercial vessels do not transit above the bridge at Kincardine. In addition, pilotage is unavailable, the channel is not buoyed, and the depths continually change.



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

SECTOR **2** — CHART INFORMATION



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SECTOR 2 — DNC LIBRARY INFORMATION

SECTOR 2

SCOTLAND AND ENGLAND—GIN HEAD TO FLAMBOROUGH HEAD

Plan.—This sector describes the E coasts of Scotland and England between the S entrance to the Firth of Forth and Flamborough Head. The descriptive sequence is from N to S.

General Remarks

2.1 Tides—Currents.—Off St. Abbs Head, the S current begins at the time of HW at Dover and the N current begins about 6 hours before HW at Dover. These currents run strongly around the head, off which there is turbulence, especially when strong winds blow against the currents.

Between St. Abbs Head and Berwick, the currents run regularly SE and NW along the coast. with a spring velocity of about 1 knot.

Between Berwick and Flamborough Head, a weak current runs S off the coast. Its velocity is increased by strong and continuous N and NW winds. Winds from the S and SE reduce this current and, if strong and continuous, they may even reverse its direction.

In a position about 7 miles E of Berwick, the S current from off the E coast of Scotland meets the ESE current from the Firth of Forth. The combined current flows SSE in the direction of the coast. Likewise, the NNW current from off the E coast of England divides and runs N off the E coast of Scotland and WNW into the Firth of Forth.

Farther S, between 5 and 10 miles from the coast, the currents begin later and are greater in strength. The spring velocity in each direction is 1.5 to 2 knots.

Off Berwick, the coastal current begins about 45 minutes earlier than the offshore current, 7 miles E. Farther S, this difference increases gradually until it attains a value of 2 to 2 hours 30 minutes off Sunderland. Between Sunderland and Seaham, the coastal current changes rapidly and off the latter place, the coastal and offshore currents begin nearly simultaneously. These conditions continue until near Flamborough Head, where the coastal current is affected by eddies.

Regulations—Reporting Systems.—An Automatic Ship Identification and Ship Reporting System (AIRS) has been established to monitor the movements of vessels around the British Isles. The system utilizes the capability of the VHF DSC installations adopted for the Global Marine Distress and Safety System (GMDSS). For further details of AIRS, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

The WETREP (Western Europe Tanker Reporting System) is a VTS system, under SOLAS regulations, which operates in the W approaches to Spain, Portugal, France, Belgium, the United Kingdom (including the Shetland Islands), and Ireland. This system is mandatory for all oil tankers over 600 dwt carrying heavy crude oil, heavy fuel oil, or bitumen and tar and their emulsions. It does not apply to warships, naval auxiliary, or other vessels owned or operated by a contracting government and used, for the time being, only on government non-commercial service. For further details, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

The WETREP (Western Europe Tanker Reporting System) operating areas have also been designated by the IMO as Particularly Sensitive Sea Areas (PSSA). For further details of PSSA, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

Signals.—International traffic signals displayed at the majority of ports described within this volume are, as follows:

1. Three red lights displayed vertically indicate that vessels shall not proceed.
2. Three red flashing lights displayed vertically indicate that there is an emergency and all vessels must stop or divert according to instructions.
3. Three green lights displayed vertically indicate that vessels may proceed in one-way traffic.
4. Three lights displayed vertically, the two upper lights being green and the lower one being white, indicate that vessels may proceed in two-way traffic.
5. Three lights displayed vertically, the upper and lower lights being green and the center light being white, indicate that vessels may proceed only when they have obtained specific instructions to do so.

Directions.—The main coastal route leads in a general SE direction from the entrance to the Firth of Forth and continues through the channel lying between Dogger Bank (54°40'N., 2°20'E.) and the mainland. For additional information on these routes, see paragraph 3.17, paragraph 3.18, paragraph 3.19, and paragraph 3.35.

Caution.—Large numbers of fishing vessels may be encountered along this stretch of coast.

Caution, especially in low visibility, is advised in the offshore areas due to the presence of moving drilling rigs.

Numerous wrecks, some dangerous, exist along this coast; they mainly lie within 10 miles of the shore and may best seen on the chart.

Visibility may be affected along parts of this coast, especially between the River Tyne and the River Tees, by industrial smoke haze.

Numerous areas of spoil ground lie offshore along this coast and may best be seen on the chart.

Numerous oil and gas fields lie off the coasts of Scotland and England and may best be seen on the charts. The principal fields are listed in paragraph 1.4, paragraph 3.1, paragraph 8.6, and paragraph 9.1.

Gin Head to Holy Island

2.2 Dunbar (56°00'N., 2°31'W.) a small town, stands prominently at the E end of Tyne Sands, 5.5 miles SE of Gin Head, the S entrance point of the Firth of Forth. The town is mostly built of dark-colored stone, but the church, built of reddish sandstone, is prominent from seaward.

A small harbor, used by fishing boats and pleasure craft, is located at the NW end of the town. It is fronted by dangerous rocks and protected from the N by a breakwater. The entrance faces NW and is cut through the solid rock. The approach channel is marked by perches and indicated by a lighted range. The fairway has depths of 5.6m at HWS and 4.6m at HWN. Vessels up to 30m in length and 4m draft can enter at HWS; however, they must lie aground on a sandy bottom at LW. Vessels waiting for the tide may anchor, in a depth of 13m, about 0.4 mile NW of the harbor entrance.

Belhaven Bay, which fronts Tyne Sands, lies between Whitberry Point and Dunbar, 2.4 miles ESE. Whitberry Point is low and dark with a small conical hill near its center.

Lady Ground, a steep-to shoal patch, has a least depth of 6.1m and lies about 1 mile ENE of Whitberry Point.

Sicar, a detached rock with a depth of 7.9m, lies about 1.5 mile ENE of Dunbar and the sea breaks on it during onshore gales.

Barns Ness (55°59'N., 2°27'W.), a low point fringed by rocky ledges, is located 2.5 miles ESE of Dunbar. A conspicuous disused light tower, 37m high, stands on the point.

Barns Ness Disused Light Tower

Ruddystone, a rocky shoal with a dangerous wreck lying close SE, is located 0.5 mile N of the light. Vault Ness, a low and wide projection, is located 1.2 miles WNW of the point and has a large house standing on its W side.

Two conspicuous chimneys, 119m high, stand near the coast 0.8 mile SW of Barns Ness. Doon Hill stands about 2.8 miles SW of Barns Ness and is bold and well-defined; it forms the NW end of the high land in that area. A conspicuous pylon, 256m high, stands close N of a mast, about 2.5 miles S of Barns Ness.

Torness Point (55°58'N., 2°24'W.), fronted by rocky ledges, is located 1.7 miles SE of Barns Ness. A conspicuous nuclear power station building stands close SW of this point.

Pease Bay lies at the mouth of a deep and wooded ravine, 5.2 miles SE of Barns Ness. The ravine is spanned by a stone viaduct, with four unequal arches, which is very conspicuous from seaward.

Cove Harbor, used by fishing boats, is located 0.7 mile NW of Pease Bay. The entrance is 22m wide and within the harbor there is a depth of 3m at HWS. Dunglass Mansion, a conspicuous building, stands within a wood, 0.8 mile W of the harbor.

Fast Castle Head, on which the prominent ruins of a castle stand, is located 8 miles SE of Barns Ness.

Torness Nuclear Power Station

During onshore gales, the sea breaks heavily on all of the off-lying rocks and ledges which front this stretch of coast between Dunbar and St. Abbs Head. In addition, as the SE current sets towards it, vessels should give this part of the coast a wide berth.

2.3 St. Abbs Head (55°55'N., 2°08'W.), a bold promontory of dark rock, is located 11.2 miles SE of Barns Ness. It rises vertically to a height of 93m and the rock face of the cliff is broken into deep fissures. The head is separated from Cross Law, about 2 miles W, by a valley which causes it to appear as an island when seen from NW or SE. St. Abbs Head Light is shown from a tower with buildings, 9m high, standing on the head. A racon is situated at the light structure.

St. Abbs Head

St. Abbs Head Light

The coast S of St. Abbs Head is rugged and bleak. It is backed by high land, which rises boldly, and is mostly bare of trees, with only a few identifiable marks. A small boat harbor,

fronted by rocks, is located 1.2 miles S of the head; the entrance faces N and is 6m wide.

Anchorage.—During offshore winds, anchorage can be temporarily obtained by small vessels in Scoughall Roads. The roadstead has depths of 9 to 11m, clay, and lies about 0.5 mile offshore, 3 miles NW of Dunbar.

Caution.—An outfall pipeline, which may best be seen on the chart, extends 1.3 miles N from a point on the shore located 1.2 miles WSW of Dunbar. Its seaward end is marked by a buoy.

A measured distance, marked by beacons, is situated close WNW of St. Abbs Head and may best be seen on the chart. It is reported that the beacons are difficult to distinguish from beyond 2 miles offshore and are no longer maintained.

2.4 Eyemouth (55°52'N., 2°05'W.) stands on low ground at the S end of a shallow bay, 3 miles SSE of St. Abbs Head. It is situated at the W side of the mouth of the River Eye and backed by hills, 75m high.

The harbor, which is used by a small fishing fleet, lies at the entrance to the river and is fronted by rocks. The entrance, which faces NW, lies between two breakwaters and is approached through a channel, 300m long and about 18m wide, indicated by a lighted range. The harbor, within which a depth of 0.9m is maintained, has depths of 6.1m at HWS and 4.6m at HWN. Small vessels with drafts up to about 4.6m draft can enter at HW. Local knowledge is recommended.

The coast S of Eyemouth is low, but it rises to a height of about 90m close N of Burnmouth.

Burn mouth (55°50'N., 2°04'W.), a small village, is situated at the mouth of a deep ravine, 2 miles SSE of Eyemouth. Dangerous rocks front the mouth and lie up to 0.6 mile offshore. The small harbor, which dries, is formed by a pier at the inner end of an opening in the rocks. It is used by fishing boats with local knowledge. The approach channel is indicated by a lighted range.

A prominent television mast stands about 0.7 mile WSW of the harbor.

Between Burnmouth and Berwick, 5 miles SSE, the coast consists of steep banks and cliffs up to 19m high, which gradually decrease in height towards the S. Rocks fringe the shore and extend up to 0.4 mile offshore. Lamberton Hill, 215m high, and Halidon Hill, 162m high, back this part of the coast and stand 3 miles S and 5 miles SSE, respectively, of Eyemouth.

The border between England and Scotland is located about midway between Burnmouth and Berwick.

2.5 Berwick (Berwick-Upon-Tweed) (55°46'N., 2°00'W.) (World Port Index No. 31860) stands on the side of a hill which slopes down to the N side of the mouth of the River Tweed. The small towns of Spittal and Tweedmouth stand on the low ground at the S side of the river entrance.

Port of berwick Home Page

http://www.portofberwick.co.uk

Tides—Currents.—Tides rise about 4.7m at springs and 3.8m at neaps.

At a position about 1.5 miles E of the breakwater, the SE tidal current begins 10 minutes after HW at Dover and attains a spring velocity of about 0.8 knot. The NW current begins about 6 hours before HW at Dover and attains a velocity of about 1 knot. Within the river, the currents are fairly strong. Freshets may increase both the duration and the velocity of the outgoing current and reduce the incoming current correspondingly.

Depths—Limitations.—The harbor, which is mostly used by coasters, consists of a tidal dock basin and a jetty, which are situated on the S side of the river. The entrance fairway over the bar that has a depth of 1.7m.

Ledges and foul ground extend up to 0.4 mile from the coast, N of the breakwater. Spittal Hirst, a shoal with a depth of 10.1m, lies about 4.5 miles E of the river entrance. Vessels approaching from the S should pass E of it.

The jetty, used for loading stone, has a depth of 2m alongside at MLWS. It can handle vessels up to 75m in length and 4.6m draft at HW.

The dock basin provides 457m of quayage and has extensive facilities for bulk cargo. It has depths of 6.4m at HWS and 4.9m at HWN. Vessels up to 4,000 dwt, 115m in length, and 16.5m beam can be accommodated with drafts up to 4.6m at springs and 3.9m at neaps. Vessels not fitted with a bow thruster are limited to a length of 68m.

Aspect.—The harbor, located at the mouth of the river, is entered between a breakwater projecting from the N entrance point and a low, sandy spit extending from the S entrance point. This spit acts as a natural breakwater. A bar, composed of sand and rocky boulders, lies between the spit and the head of the breakwater.

The town hall, with a spire, and two churches stand on high ground at the N side and are conspicuous. A prominent chimney stands on the S side of the entrance. A light is shown from a prominent tower, 13m high, standing on the head of the breakwater. The channel within the harbor, which is about 100m wide, is marked by buoys and beacons and is indicated by lighted ranges.

Pilotage.—Pilotage is compulsory for all commercial vessels over 40m in length. Vessels should send an ETA to the harbor office or the ship agent at least 24 hours in advance in advance. Large vessels should confirm their length, beam, draft, and whether fitted with bow thruster with or without twin screws prior to arrival. Pilots can be contacted by VHF on channel 12 and 16. Pilot boards about 1 mile E of the breakwater, 3 hours before HW to HW during weekdays between 0800 and 1700.

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

1. Telephone: 44-1289-307404
2. E-mail: berwickharbour@onetel.com

Anchorage.—Good anchorage may be found, in depths of 13 to 15m, about 0.8 mile ESE of the breakwater head, but it is exposed to N and E winds. During strong E winds, it may be possible to enter Holy Island Harbor when Berwick is closed. During strong W winds, anchorage in Berwick Bay, with its better holding ground, is preferred.

Caution.—During the period of the outgoing current, particularly with freshets, entering or leaving the harbor is considered dangerous.

It is reported that equally bright lights in the vicinity of the town may be mistaken for the navigation light at the head of the breakwater.

Considerable shoaling may take place in the vicinity of the sands at the mouth of the river and at the entrance to the wet dock, especially after W gales. Due to these frequent changes, local knowledge is essential.

2.6 Berwick Bay (55°45'N., 1°55'W.) lies between the entrance to the River Tweed and the N end of Holy Island, 6.5 miles SE. It is the beginning of the most dangerous section of the E coast of England, N of the River Humber. For about 0.6 mile SSE of the entrance to the River Tweed, a sandy beach fringes the coast. Then for about 2.7 miles to Cheswick, it is fringed by a rocky ledge, the central part of which is backed by cliffs, 31m high. Then, a low beach fronts the shore and gradually extends seaward to where, at LW, it connects Holy Island to the mainland and forms an extensive area of sand flats. In the S part of the bay, several shoals lie up to 3 miles from the coast.

A conspicuous silo tower stands near the coast at Goswick, 4.8 miles SE of Berwick.

Directions.—The coastal route leads about 14 miles SE from a position located ENE of Berwick to a position E of Longstone. It then continues for about 4 miles SSE to a position E of North Sunderland.

Holy Island to the Snook

2.7 Holy Island (55°41'N., 1°47'W.), moderately elevated, slopes to the SW and has scarcely a tree or shrub on it. The main body of the island is based on limestone rock which extends about 400m seaward on the N, E, and S sides. Extensive tracts of drying sand extend from the W and S sides of the island. A low and narrow ridge of sand hills extends W from the main body of the island and terminate at Snook Point. A causeway crosses the tract of sand, about 0.8 mile wide, between Snook Point and Beal Point on the mainland. A tower and a flagstaff stand about 0.4 mile E of Snook Point.

Emanuel Head, the NE extremity of Holy Island, is formed by a cliff, 3m high, on which stands a conspicuous stone beacon, 15m high. Castle Point, the SE extremity of the island, is low and fronted by rocks.

Holy Island Harbour, secure and well-sheltered, is situated at the S side of the island. It is very small, but appears large at HW. The entrance lies between Castle Point and Old Law, a narrow islet 0.8 mile SW. The harbor can sometimes be entered during E winds, when Berwick is closed. It is mostly used by fishing vessels, especially during the herring season, which lasts from June to September. There are no alongside berths except for a jetty which is used to land fish. Vessels may anchor within the harbor, in depths of 5 to 7m, sand. There are depths of 2.1 to 2.7m over the bar at the entrance; the bottom is chiefly stones covered by kelp with patches of sand. A stony patch, with a depth of 1.8m, lies close S of the entrance fairway, which is indicated by sets of range beacons. Pilots are unavailable.

Holy Island Castle, surmounted by a flagstaff, stands on a hill close WNW of Castle Point and is conspicuous. Heugh Hill, on which a beacon stands, is located 0.5 mile farther W. It is rocky and covered with short grass. A church, with a prominent belfry, stands in the village of Holy Island, close W of this hill.

Holy Island Castle

Goldstone Channel leads between St. Nicholas Rock and Goldstone, on the E side, and Outer Wingate and Plough Seat Reef, on the W side. It has a least depth of 8.2m, but should only be used when the aids are plainly visible as the depths are irregular and the tidal currents strong.

Black Rocks Point (55°37'N., 1°33'W.) is located on the mainland 3.7 miles SSE of the SE extremity of Holy Island. A sector light is shown from a building, 9m high, standing on the point and indicates the inner channel.

Bamburgh Castle is situated 0.5 mile SE of the point. It stands on a rock, which rises abruptly from a flat beach, and is conspicuous. The village of Bamburgh, with a prominent church tower, is situated close W of the castle.

Bamburgh Castle

Anchorage.—Anchorage is available, in a depth of 8m, about 4.5 miles E of Castle Point or in Skate Roads, 1.5 miles E of Holy Island Castle. However, both anchorages are exposed.

Caution.—The E coast of Holy Island is fronted by several dangers through which the approach channel leads.

St. Nicholas Rock, with a depth of 6.1m, lies about 1.7 miles ESE of Emanuel Head; the sea often breaks heavily over this danger.

Goldstone, a rock which dries 1.5m, lies about 2 miles ESE of Emanuel Head and is marked by a buoy. Stiel Reef, with a

depth of 5.8m, lies close ESE of Goldstone. Guzzard, a shoal, with a least depth of 4.9m, lies about 0.5m mile SSE of Goldstone and Tree o' the House, another shoal, with a least depth of 8.2m, lies about 0.6 mile farther S.

Outer Wingate, a shoal, with a depth of 3.4m, lies about 1 mile SE of Emanuel Head and the sea generally breaks over it. Minscore, with a depth of 4.3m, is connected to it. An isolated shoal patch, with a depth of 8.2m, lies about 1.5 miles SE of Emanuel Head. Plough Seat Reef, which dries 0.9m, and Wingate, a group of rocks with depths of 1.5m, lie close S of Outer Wingate. Plough Rock, marked by a buoy, lies 1 mile SSE of Emanuel Head.

2.8 The **Farne Islands** (55°38'N., 1°37'W.) are a chain of rocky islands, reefs, and shoals which extend up to 4.3 miles NE of Black Rocks Point. The chain is divided into two groups by Staple Sound. Due to a considerable tidal range, the islands present very different aspects at high and low water.

Staple Sound, which separates the outer group of islands from the inner, is seldom used. It is not marked and the tidal currents attain velocities of up to 4 knots at springs.

Inner Sound, which leads between the islands and the mainland, has a least width of about 0.5 mile and is used as an inshore route.

The islands are designated as a nature reserve and landing is subject to restrictions. During the breeding season, May through July, many puffins and grey seals may be encountered.

2.9 The Farne Islands—Outer Group.—Longstone (55°39'N., 1°36'W.), so called from its shape, is the outermost of the Farne Islands. It appears as one island at LW, but is divided into several parts at HW. Longstone Light (55°39'N., 1°37'W.) is shown from a conspicuous tower, 26m high, standing on the island and is equipped with AIS.

Longstone Light

Knivestone, a rock which dries 3.4m, is located about 0.5 mile NE of Longstone. Whirl Rocks, with a least depth of 0.6m, lie within 0.2 mile N of Knivestone. Northern Hares, 3.7m high, is the northwesternmost islet of the outer group and is located 0.2 mile NW of Longstone, to which it is joined at LW.

Staple Islet, located 0.7 mile SSW of Longstone, is the southwesternmost islet of the outer group. A prominent tower stands on this islet and its S side is formed by a bold cliff. Several detached rocks, known as The Pinnacles, lie close E of the cliff and have the appearance of broken pillars. Another prominent tower stands on Brownsman Islet, 0.2 mile N of Stable Islet.

Crumstone, located 0.9 mile E of Staple Islet, is a flat, black rock. Callers, a reef which dries 2.1m, extends 0.3 mile WNW of Crumstone. Fang, a spit with a depth of 5.2m, projects S from Crumstone.

Caution.—Strong tidal currents and numerous eddies exist seaward of Longstone in the vicinity of Knivestone and Whirl Rocks.

2.10 The Farne Islands—**Inner Group.—Farne Island** (55°37'N., 1°39'W.), located 2.2 miles E of Black Rocks Point, is the nearest of the group to the mainland. It is the highest of the inner group and a bold cliff, 8m high, rises on the SW side and gradually slopes NE.

An old tower building, with a house nearby, stands on the NE part of the island. A light is shown from a conspicuous tower with a dwelling, 13m high, standing on the SE extremity of the island.

Farne Light

Two islets, with rugged cliffs on their SW sides, lie close E of Farne Island. Bush, located 0.7 mile E of Farne Island, is a rocky ledge which dries in parts. Islestone Shad, lying about 0.7 mile NNE of Farne Island, is a rocky patch, with a depth of 4.3m, over which the sea breaks in bad weather. Glororum Shad, lying about 1 mile N of Farne Island, is a shoal with a depth of 6.1m. Megstone, located 1 mile NW of Farne Island, is a prominent black rock, 5.5m high. Oxcar, a rock which dries, is located 0.5 mile NE of Megstone. Swedman, a drying reef, lies about 0.4 mile W of Megstone and is marked by a buoy.

Anchorage.—During S winds, anchorage may be obtained N of Farne Island, but the bottom is rocky and the holding ground is bad. In fair weather, vessels may anchor, in a depth of 16m, about 0.3 mile SE of Farne Island. Vessels may anchor, in an emergency, in a depth of 22m, sand, about 0.2 mile S of Staple Islet.

Caution.—It is preferable for all but small coasting vessels to pass outside the Farne Islands. To navigate the Inner Sound with safety requires fine weather and local knowledge. The area lying E of Longstone is a focal point for shipping and depths of 45m to 55m lie within 1 mile of the dangers E of the outer group. Vessels are advised, during poor visibility, to pass at least 3 miles E of Longstone, make due allowance for the tidal current, and remain in depths of 65m or greater.

2.11 The Snook (55°35'N., 1°38'W.), also known as North Sunderland Point, is located 3.5 miles SE of Black Rocks Point. It consists of a cliff, 9m high, which has an extensive foreshore of parallel ledges dipping to the S. Grimstone, a detached rock which dries, lies about 0.2 mile E of the point. The Falls, a continuation of the parallel ledges, lies 0.2 mile SSE of Grimstone and is marked by a buoy.

The land in the vicinity of The Snook is flat, but a few miles inland, it rises to a ridge of cultivated land which lies parallel to the coast. Hepburn Hill, 313m high, and Heiferlaw Hill, 157m high, stand 8.5 miles WSW and 8 miles SSW, respectively, of The Snook and are prominent. The summits of some of the Cheviots, such as Hedgehope Hill, 712m high, are visible farther inland, standing about 8 miles WSW of Hepburn Hill. The Cheviot, 813m high, stands 2 miles W of Hedgehope Hill and its summit is marked by a conspicuous cairn.

North Sunderland (55°35'N., 1°39'W.), a small town, stands 0.5 mile NW of The Snook. The harbor, which dries, is used only by fishing vessels. It is formed by an outer pier and a breakwater. The entrance faces N and is 61m wide. Seahouses, a village, is situated at the SW side of the harbor. There are depths of 4m at HWS and 3.7m at HWN within the harbor. Vessels up to 30m in length and 2.7m draft can enter at HWS; vessels less than 30m in length can enter with drafts up to 3.7m. Local knowledge is advisable.

The Snook to Port of Tyne

2.12 Breadnell Point (55°33'N., 1°37'W.), located 2 miles SE of The Snook, is low and wedge-shaped. A small and shallow harbor is located on the SW side of the point. It is used only by small craft and has an entrance, 8m wide. A church spire, situated 0.5 mile W of the point, shows prominently above the woods; a conspicuous silo stands on the N side of the point. Beadnell Bay, entered S of the point, is foul.

Embleton Bay (55°30'N., 1°36'W.) is entered between Castle Point, located 3.8 miles SSE of Beadnell Point, and a group of rocks lying SSE of Newton Point, 1.3 miles NNW. It affords good shelter to small craft during offshore winds. Vessels may anchor, in depths of 11 to 14m, good holding ground, about 0.9 mile N of Castle Point. Shoals and foul ground lie up to 1 mile NE of Newton Point and are marked by a buoy.

The E and S sides of Castle Point are formed by black perpendicular pillars, which shelve down to the sea. Its N side is cliffy. The ruins of Dunstanburgh Castle stand on the N side of the point and are very conspicuous.

Newton Skere (55°33'N., 1°29'W.), with a least depth of 22m, and Dicky Shad, with a least depth of 21m, lie about 1.8 miles ENE and 4.5 miles E, respectively, of Beadnell Point; the sea breaks heavily over these rocky banks during heavy gales.

Craster Skeres (55°29'N., 1°28'W.), consisting of rocky patches with a least depth of about 22m, lies 5 miles E of Castle Point. The sea breaks heavily over these patches during stormy weather. Several wrecks lie in the vicinity of these patches and may best be seen on the chart.

Cullernose Point (55°28'N., 1°35'W.) is located 1.7 miles S of Castle Point. The coast between consists of a sloping grassy bank. Craster, a village with a tower, is situated in an opening about halfway along this bank. A small harbor, formed by two piers, fronts the village. It is used by small craft and has a depth of 4m within it at HWS. Drying ledges lie N and S of the entrance and local knowledge is required.

Boulmer, a village, is situated on the coast 2.5 miles S of Cullernose Point. A prominent clump of trees stands at the W end of the village and a flagstaff stands close S of it. A small and shallow boat harbor fronts the village and beacons mark the passage leading through the rocks to it.

2.13 Alnmouth Bay (55°22'N., 1°34'W.) lies between Seaton Point, located 3.3 miles S of Cullernose Point, and Hauxley Point, 5.2 miles SSE. Coquet Island is located close off the S part of the bay. The village of Alnmouth stands on the N side of the mouth of the River Aln, which enters the bay 1.5 miles SW of Seaton Point. Warkworth Harbour (Amble) lies at the mouth of the River Coquet, which enters the S side of the bay.

Seaton Point is low and rounded. It is fronted by rocky ledges which extend about 0.8 mile ESE of the point. Seaton Shad and Boulmer Stile, with depths of less than 10m, extend 0.7 mile farther S and are extensions of the above ledges; they are marked by a buoy.

Alnmouth (55°23'N., 1°37'W.) stands on the N side of the mouth of the River Aln. A church, with a conspicuous spire, stands in the center of the village. The harbor is formed by the lower reaches of the river. It is little used except by a few fishing boats and pleasure craft. The bottom consists of stiff clay covered with sand, and there are depths of 3.5m over the bar and in the harbor at HWS, but vessels lie aground at LW. The river is subject to freshets during the winter. Local knowledge is required as the position of the bar and width of the entrance channel are constantly changing.

A conspicuous group of radar antennas stands at an elevation of 248m, 6.5 miles W of Seaton Point. A conspicuous framework radio mast stands at an elevation of 250m, about 2 miles S of the antennas.

The coast between the River Aln and the River Coquet consists of sand hills which are only broken by a rocky cliff, 20m high, at the midpoint.

2.14 Coquet Island (55°20'N., 1°32'W.), located 0.8 mile NE of Hauxley Point, is fringed by drying ledges which extend up to about 0.2 mile from its N side. A light is shown from a conspicuous tower, 22m high, standing on the SW extremity of the island.

Coquet Island Light

Steel Bush and North East Bush, two shoals, lie about 0.3 mile NNE of the island and are marked by a buoy. Pan Bush, located about 0.8 mile NW of Coquet Island, is a rocky and shallow shoal which lies at the N end of a spit and is also marked by a buoy.

The channel lying between Coquet Island and the mainland narrows to a width of only about 200m in the S part. It has a least depth of 1.2m, is unmarked, and requires local knowledge.

Warkworth Harbour (Amble) (55°20'N., 1°35'W.) is formed at the lower reaches of the River Coquet by two outer breakwaters and two inner jetties. The village of Warkworth stands 1.5 miles NW of the harbor and the village of Amble stands on the S side of the entrance. A castle, with a conspicuous tower, stands at Warkworth.

The harbor, which is used only by fishing vessels and pleasure craft, has a depth of 1m and there are depths of 0.9 to 1.8m over the bar. The harbor entrance is 68m wide. Vessels up to 4m draft can enter at HW, but local knowledge is advised. Small vessels awaiting the tide are recommended to anchor, in a depth of 9m, sand and mud, about 0.8 mile NNE of the S breakwater head.

Caution.—Coquet Island is a designated bird reserve and unauthorized access is prohibited.

A dangerous wreck, with a depth of 1.7m, lies close ENE of Warkworth N breakwater head.

An outfall pipeline extends about 0.3 mile seaward from a point on the shore located close S of Warkworth South Breakwater and is marked by a lighted buoy.

2.15 Druridge Bay (55°17'N., 1°33'W.) is entered between Hauxley Point, at the S end of Alnmouth Bay, and Snab Point, 6 miles S. It has a low and sandy coast which is backed by moderately high land. Rocky ledges and detached rocks extend up to 0.6 mile seaward from Hauxley Point and are marked by a buoy. Shirlaw Pike, a hill 306m high, stands 10 miles W of Hauxley Point and can be identified by its steep N face. Simonside Hill, 427m high, stands 5 miles SW of Shirlaw Pike and may also be seen from offshore in clear weather. A prominent cupola surmounts a large mansion, which stands in the midst of trees 0.7 mile NW of Snab point, and is visible from seaward.

Northern Hill, a rocky patch with a least depth of 3m, lies about 1.4 miles SE of Hauxley Point. Cresswell Skeres, consisting of two rocky patches with a least depth of 3m, lies 1.4 miles NNE of Snab Point.

Vessels may anchor, in depths of 9 to 11m, about midway between the entrance points of the bay.

Newbiggin Point (55°11'N., 1°30'W.), located 3.3 miles SSE of Snab Point, is 12m high and fringed by rocky ledges which extend up to 0.7 mile seaward. A church, with a spire, stands close within the point and is prominent when approaching from the N or S. The River Lyne flows into the sea, 1.7 miles NNW of the point. A prominent sand hill stands on the N side of its mouth and a conspicuous chimney stands on the S side of its mouth.

Caution.—A measured distance (1,852m) lies off Newbiggin Point and may best be seen on the chart. It is marked by two pairs of conspicuous framework towers. Vessels using this measured distance for trials should identify themselves to Cullercoats Coast Radio Station.

Blyth (55°07'N., 1°30'W.)

World Port Index No. 31820

2.16 Blyth stands on the SW side of the mouth of the River Blyth. The harbor is an artificial one, formed out of the natural course of the river.

Port of Blyth Home Page
http://www.portofblyth.co.uk

Tides—Currents.—Tides rise about 5m at springs and 3.9m at neaps.

The coastal currents run SE and NW across the harbor entrance. Within the harbor, the currents are of no great strength.

Depths—Limitations.—The approach channel is dredged to a depth of 8.5m. Within the entrance, the fairway is dredged to a depth of 7.6m over a width of 85m as far as the Alcan Terminal. The remainder of the harbor is dredged to a depth of 6.8m.

South Harbor is dredged to a depth of 6.8m. The main berths include North Quay, 153m long, with a depth of 8.5m alongside, and West Quay, 153m long, with a depth of 7m alongside. There are also moorings for yachts.

The main berths on the river include the Alcan Terminal, 153m long, with a depth of 10.3m alongside, and Bates Wharf, 183m long, with a depth of 7.6m alongside.

The tidal basin at the head of the harbor has grain berths with depths up to 8.5m alongside. There are three drydocks at the S side of the river; the largest is 143m long and 18m wide.

Vessels up to 25,500 dwt, 191m in length, and 9.8m draft can be accommodated within the harbor. There are extensive facilities for ro-ro and bulk vessels.

Aspect.—The harbor, formed by the river, is about 2 miles long. It is protected on the E side by a low strip of land known as Link End. The entrance, which faces SE, lies between two breakwaters. Nine conspicuous wind generators stand along the E breakwater, which extends 0.8 mile SSE from the S end of Link End. South Harbor is situated close within the entrance and a tidal basin is situated at the head of the harbor. Most berths lie along the river.

A light is shown from a prominent tower, 14m high, standing on the head of the E breakwater. Link End is fronted by drying rocks and shoals which extend up to 0.5 mile seaward and are marked by a buoy. The approach and harbor fairways are indicated by lighted ranges which may best be seen on the chart.

Pilotage.—Pilotage is compulsory for vessels over 50m loa navigating within the Blyth Pilotage Area and:

1. Carrying dangerous goods or harmful substances of Class 1 and Class 7 as defined under Chapter VII/1.4 of the 1974 SOLAS convention
2. Carrying liquid bulk cargoes
3. Carrying passengers
4. Substandard or in any way hampered or handicapped
5. Where the master of the vessel calling the port for the first time
6. Where the vessel does not carry up-to-date chart of Blyth Pilotage Area

Vessels should send their ETA 24 hours prior to arrival.

Vessels ETA should be confirmed to the harbor control office on VHF 2 hours and 1 hour prior to arrival.

Pilots usually board within 2 miles of the entrance.

Contact Information.—Blyth Pilot and Blyth Port can be contacted, as follows:

1. VHF: VHF channels 11, 12, and 16
2. Telephone: 44-1670-352678
3. E-mail: marine@blythport.co.uk

Anchorage.—Vessels may anchor, in a depth of 17m, about 1 mile E of the head of E breakwater.

Caution.—A submarine power cable lies across the harbor, about 0.2 mile within the entrance.

Several dangerous wrecks lie in the approaches to the harbor and may best be seen on the chart.

A passenger ferry crosses the river in the upper harbor.

During onshore winds, a considerable scend may be sent into the harbor due to the conducting effect of the breakwaters.

The fairway channels are subject to shoaling and dredging operations are frequently carried out in the vicinity of the entrance.

2.17 Between Blyth and Seaton Sluice, 2 miles SSE, the coast is low and sandy, with numerous chimneys standing inland. A prominent tower stands near the coast, 0.7 mile SW of the entrance to Blyth. From Seaton Sluice to Curry Point, 1 mile SE, the coast consists of a cliff fronted by rocky ledges which extend up to 0.4 mile seaward.

St. Mary's Island (55°04'N., 1°27'W.) is located close NE of Curry Point and connected to it by a causeway. The island is low and fringed by shoals. The tower structure of a disused lighthouse, 37m high, stands on the island and is conspicuous.

St. Mary's Island Disused Lighthouse

Brown Point (55°02'N., 1°26'W.), fringed by rocky ledges, is located 2 miles SSE of Curry Point. The coast between is fronted by ledges and off-lying rocks.

A conspicuous white building, 44m high, stands near the coast, 1.5 miles NW of the point and a conspicuous white dome stands 0.6 mile SSE of it. Villages, which are situated inland, are visible from seaward along this stretch of coast.

Cullercoats, a village, stands on the coastal cliffs, 0.2 mile S of Brown Point. A small boat harbor is approached through a gap in the rocky ledges; the entrance is indicated by lighted range beacons. A prominent church, with a spire, stands 0.5 mile S of Brown Point. A conspicuous group of radio masts stands about 0.5 mile W of Cullercoats.

The coast between Brown Point and the entrance to the River Tyne, 1.4 miles SSE, is fronted by rocks. Bellhues Rocks, with a least depth of 7.4m, lie about 0.8 miles ESE of Brown Point.

Caution.—An extensive spoil ground dumping area, the limits of which may best be seen on the chart, lies centered 4 miles NE of St. Mary's Island.

Port of Tyne (Tynemouth) (55°00'N., 1°30'W.)

World Port Index No. 31765

2.18 The River Tyne empties into the sea at Tynemouth. The river banks are heavily industrialized and are the scene of great commercial activity. The river is navigable as far as Lemington, 15 miles above the entrance. However, depths are only maintained as far as Redheugh Bridge at Newcastle, 10 miles upriver. Both banks of the river are lined with numerous works and collieries.

The Port of Tyne includes the facilities at North Shields and South Shields which lie, respectively, on the N and S sides of the river, adjacent to the mouth; Jarrow, which lies on the S side, 3.5 miles above the mouth; and Newcastle and Gateshead, which lie, respectively, on the N and S sides of the river, 8 miles above the mouth.

The port is a main terminus for passenger and container traffic from northern Europe. In addition, oil platforms and associated structures are constructed here.

Port of Tyne Home Page

http://www.portoftyne.co.uk

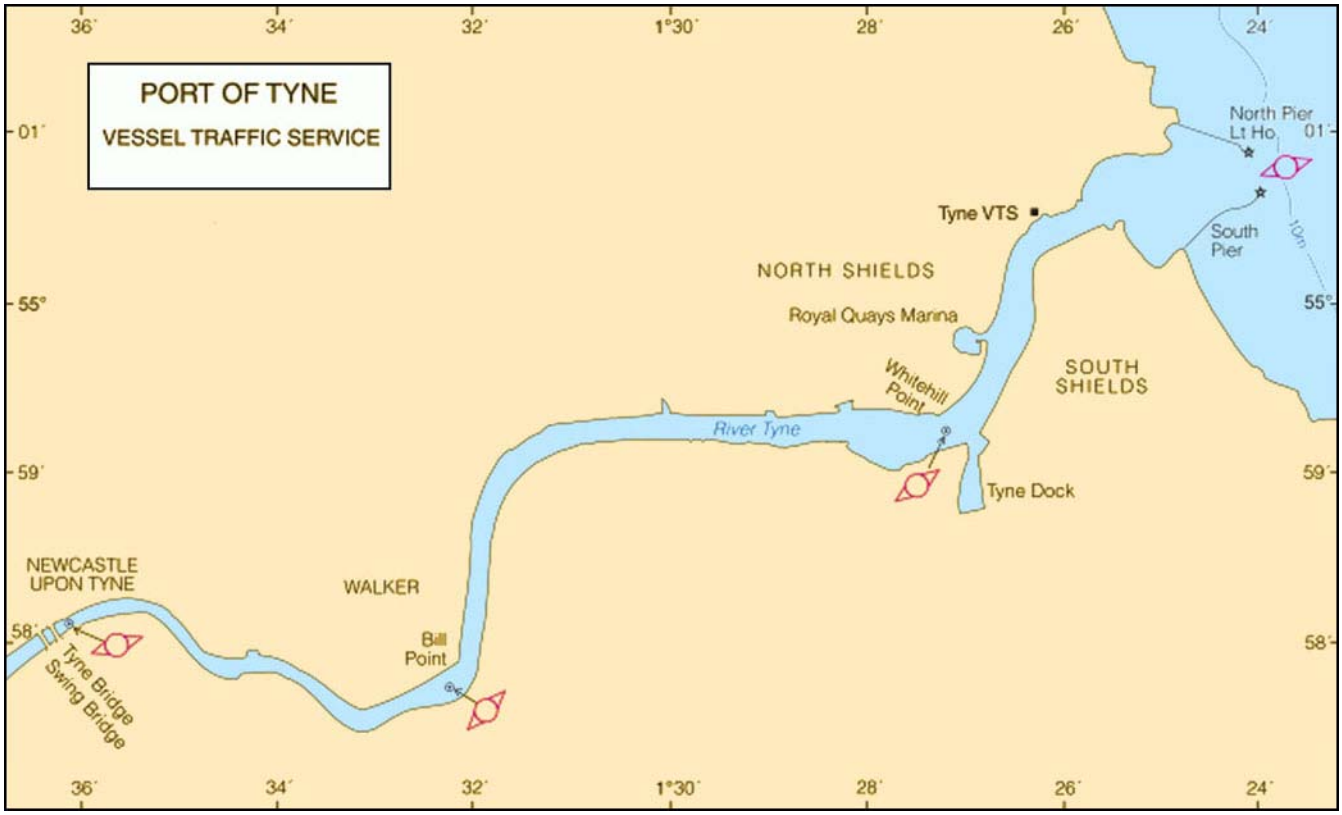
Tides—Currents.—Tides rise about 5m at springs and 3.9m at neaps at North Shields.

Off the entrance, the S current begins about 4 hours before HW at Tyne and the N current about 2 hours after HW at Tyne. The spring velocity of each is in excess of 1 knot. During the outgoing current from the river, there is frequently turbulence, especially with NE gales.

In the river entrance, the incoming current begins about 5 hours 30 minutes before HW at Tyne and the outgoing current about 40 minutes after HW at Tyne; the times at which the currents begin change irregularly as the river is ascended. The spring velocity of the currents within the river is generally about 2.5 knots in each direction. The currents run in the direction of the channel, but set rather towards the outer banks at the bends.

With heavy freshets, which discharge an immense body of water, both the duration and the velocity of the outgoing current are increased and the incoming current being correspondingly reduced.

Gales from NE cause the highest sea at the entrance when the outgoing current is running strongly. Vessels should try to enter before the incoming current has ceased running, observing that at that time it will also be setting across the entrance. During N gales, vessels are advised to keep close



Port of Tyne VTS

under the lee of the North Pier. During S gales, especially with an outgoing current, vessels are advised to stay close under the lee of the South Pier.

Depths—Limitations.—Dredged depths in the fairway are maintained, as follows:

1. A depth of 8.6m from the entrance to Jarrow Quay Corner, a distance of about 3.2 miles.
2. A depth of 6m for 1.5 miles to Jarrow Staith.
3. A depth of 5.2m for 4.7 miles to Newcastle Swing Bridge.
4. Above the Newcastle Swing Bridge, no authorized depths are maintained and vessels should consult the port operations service.

The entrance between the piers is 366m wide. When vessels using the entrance range reach the pier heads, they must alter course to navigate the river channel.

A speed limit of 6 knots is enforced within the port.

There are no restrictions of length and beam at the entrance, as these depend upon the berth to be used. Vessels are generally limited to a draft of 8m at LW and 11m at HW.

At Newcastle (54°58'N., 1°35'W.), the following seven bridges, in order from E to W, span the river:

1. The Gateshead Millennium Bridge, a footbridge, has a single arch, with a clear width of 30m. It has vertical clearances of 24m when tilted open and 3.7m when closed.
2. The Tyne Bridge, a road bridge with one span, is 114m wide. It has a vertical clearance of 24m.

Port of Tyne (Tynemouth)

3. The Newcastle Swing Bridge has four spans, so constructed that the two central spans swing on a central pier. This provides a channel 31m wide on the N side and a channel 29m wide on the S side. When closed, the bridge has a vertical clearance of only 3.8m.
4. The Newcastle High Level Bridge has two levels and a vertical clearance of 23m. The center span swings on a central pier and provides a channel 27m wide on the N side, and a channel 30m wide on the S side.

5. The Queen Elizabeth II Bridge has a vertical clearance of 25m.

6. The King Edward Bridge has a vertical clearance of 24m. Two channels, each 89m wide, lead under the bridge. Upriver traffic uses the N channel; downriver traffic uses the S channel.

7. The Redheugh Bridge has a vertical clearance of 28m.

Gateshead Millennium Bridge (closed)

Gateshead Millennium Bridge (open)

Tyne Bridge

Shields Harbor (55°00'N., 1°27'W.) includes North Shields and South Shields; it may be considered to lie between The Narrows, located 1 mile inward of the entrance, and Riverside Quay, situated 2.7 miles above the entrance. Fish Quay and Western Quay, situated on the N bank at The Narrows, are used by fishing vessels.

Albert Edward Dock is entered through a lock or a tidal entrance, with gates, which have depths of 9.1m at HWS and 8m at HWN. The lock is 105m long and 18.3m wide; the tidal entrance is 24m wide. The dock has normal depths of 6.7 to 7.9m. The main berths within the dock are Warehouse Quay, 356m long, and East Dock Wall, 162m long; both have a depth of 7.9m alongside. Vessels up to 146m in length, 20m beam, and 7.6m draft can enter this dock at HWS.

Tyne Dock is entered through an outer basin and a tidal entrance with gates. The entrance is 21.3m wide and has a depth of 10.7m at HWS. The former E and central entrances are closed. The dock has normal depths of 7 to 8.2m. The main berths within the dock are North West Quay, 243m long, with a depth of 8.2m alongside, and Factory Quay, 196m long, with a depth of 7m alongside. Vessels up to 122m in length, 19m beam, and 7.6m draft enter this dock at HWS.

The main berths in the river include the following:

1. Tyne Commission Quay, 335m long, with a depth of 9m alongside.
2. Tyne Commission Quay Extension, 118m long, with a depth of 6.2m alongside.
3. Car Ferry Terminal Ro-Ro No. 3 Quay, 125m long, with a depth of 7.1m alongside.
4. Ro-Ro No. 4 Quay, 140m long, with a depth of 7.5m alongside.

Riverside Quay, situated close W of Tyne Dock, includes a bulk wharf and provides the largest berth in the port. It is 514m long and has a depth of 12.1m alongside.

It is reported that there are no length or beam restrictions at the harbor entrance. Vessels up to 234m in length, 32.2m beam, and 12m draft have been accommodated alongside the bulk wharf at HW.

Jarrow (54°59'N., 1°29'W.) stands on the S side of Long Reach, about 3.5 miles from the river entrance; Wallsend, mainly consisting of fabrication and shipbuilding facilities, stands on the N bank.

A swinging area, about 360m in diameter and dredged to a depth of 8.6m, lies W of Riverside Quay. Tyne Coal Terminal, with a depth of 10.5m alongside, is situated on the S bank, adjacent to the swinging area.

The Tyne Car Terminal is situated close W of the Tyne Coal Terminal. There are three berths here, with dredged depths of 7 to 9.5m alongside.

Velva Liquids Terminal, 248m long, has a depth of 7.1m alongside and is situated on the N bank, adjacent to the swinging area.

Esso Tynemouth Oil Terminal is situated close W of the Velva Liquids Terminal and has a main berth, 274m long, with a depth of 9.5m alongside.

Newcastle (54°58'N., 1°35'W.) is situated on the sides and summits of the hills standing on the N bank of the river, about 8 miles upstream. Gateshead, on the S side of the river, stands on a steep declivity. Between Jarrow and Newcastle, numerous industrial and shipbuilding yards lie on both sides of the river.

Newcastle Quays extend E from Tyne Bridge along the N side of the river. The main quay, Spillers Grain Berth, is 237m long and has a depth of 8m alongside.

A yacht marina is situated on the N bank, E of Newcastle Quays.

The **River Tyne** (54°58'N., 1°35'W.) is navigable above Newcastle as far as Stella Power Station at Lemington, about 5 miles above the swing bridge. The depth is not maintained in this part of the river and vessels should contact the Port Operations Service for information. Between Newcastle and Lemington, the river is crossed by several bridges and power cables, the lowest having a vertical clearance of 6.4m.

Numerous other berths and facilities are situated along both sides of the lower reaches of the river and may best be seen on the chart. These include several drydocks, the largest of which is 259m long and 44m wide, with a depth of 8.8m over the sill at HWS. It can accommodate vessels up to 259m in length, 43m beam, and 10.5m draft.

Tyne North Pier Light

Aspect.—The entrance is protected by two piers which extend seaward from the N and S banks of the river. A light is shown from a prominent tower, 23m high, standing on the head of North Pier. The entrance channel is indicated by a directional sector light which may best be seen on the chart. It is reported that this light has a range of 19 miles at night and 5 miles by day.

Tynemouth Head, close N of the root of North Pier, is a very conspicuous promontory surmounted by the ruins of a priory and a castle. Spanish Battery, situated 0.2 mile S of Tynemouth Head, stands on a prominent cliff, 17m high. A high bank extends 0.5 mile W from this cliff and forms the NW side of the river entrance.

Collingwood Monument, standing close W of Spanish Battery, is very prominent. A church, with a conspicuous spire, stands 0.2 mile NW of this monument.

A prominent cupola, surmounting the town hall building, is situated 0.6 mile SW of the root of South Pier.

Within the river, a conspicuous gas works stands on the N bank, 1.5 miles SW of Spanish Battery. A prominent pylon, 129m high, stands near an oil terminal on the S bank, about 1.1 miles SSW of the gas works.

Entrance to the River Tyne

Collingwood Monument

Pilotage.—The pilotage area for the Port of Tyne includes the waters within 3 miles of the pier heads. Pilotage is compulsory for vessels over 50m in length, except those exempted by law. Pilots can be contacted by VHF and usually board within 3 miles of the entrance.

Inbound vessels must send a request for pilotage 24 hours in advance to Tyne VTS (see Vessel Traffic Service).

Vessels shifting berth or docking/undocking entirely outside the main navigable channel, or passing through the outer area when bound for another port, or using the anchorage area located to the NE of the port entrance do not require a pilot.

Vessel Traffic Service.—Tyne Vessel Traffic Service (Tyne VTS) operates in the port.

Inbound vessels should send an ETA message to Tyne VTS at least 24 hours in advance or on leaving a previous port if the transit time is less than 24 hours. The message must state the following information:

1. The destination within the port.
2. Maximum draft.
3. ISPS documentation.
4. Waste declaration.
5. Details of any dangerous cargo onboard.

Vessels must then confirm their ETA 2 hours in advance, or when within range, on VHF channel 12. They must state the following information:

1. Vessel name.
2. IMO number and call sign.
3. Maximum draft.
4. Previous port.
5. Destination.
6. Details of any defects affecting maneuverability or navigation.
7. Requirements for port services and/or details of any Pilotage Exemption Certificates.
8. Any changes to information previously given and confirmation that Tanker Check List has been completed (tankers only).

When 3 miles from the pier heads, inbound vessels must obtain a traffic update and instructions regarding the boarding of the pilot and/or clearance to enter.

Vessels within the area should maintain a continuous listening watch on VHF channel 12. They should contact Tyne VTS when passing the Reporting Points, when anchoring (stating proposed position), and on berthing. The Reporting Points are, as follows:

1. North Pier Light.
2. Whitehill Point (North Shields).
3. Bill Point.
4. Tyne Bridge (New Castle).

Vessels intending to navigate through the Gateshead Millennium Bridge and/or the Newcastle Swing Bridge and requiring either one to be opened should give at least 24 hours advance notice to Tyne VTS.

Tyne VTS, on request, will provide details of navigation hazards, traffic movements, docking instructions, visibility, tide heights, wind speeds and directions, and the local weather for the next 12 hours.

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

1. Call sign: Tyne VTS
2. VHF: VHF channels 8, 11, 12, 16, and 69
3. Telephone: 44-191-2572080 (24 hours)
4. Facsimile: 44-191-2583238
5. E-mail: tynevts@portoftyne.co.uk

Signals.—A vessel requesting entry to the wet docks should sound three prolonged blasts for Tyne Dock and four prolonged blasts for Albert Edward Dock.

Three red lights shown at either dock entrance indicate that vessels may not enter.

Three green lights shown at either dock entrance indicate that vessels may enter.

Anchorage.—An anchorage area, the limits of which are shown on the chart, lies centered 1.5 miles NE of the river entrance.

Caution.—Ferries cross the river at various points as shown on the chart.

An overhead power cable, with a vertical clearance of 65m, spans the river about 3.2 miles above the entrance.

Due to silting, depths within the port area are liable to change.

Several wrecks lie in the vicinity of the approach and may be best seen on the chart. A wreck, with a depth of 10.8m, lies in the entrance between the pier heads.

A foul ground area, the limits of which are shown on the chart, lies about 0.5 mile SSE of the head of South Pier.

Port of Tyne to Sunderland

2.19 Marsden Point (54°59'N., 1°23'W.) is located 1.8 miles SSE of the entrance to the Port of Tyne. The coast between is first composed of sand hills, fronted by sands, and then is backed by a gentle hill and fronted by rocky ledges. A prominent brick elevator shaft stands on the cliffs, 0.6 mile S of the point.

Lizard Point (54°58'N., 1°22'W.) is located 1.2 miles SE of Marsden Point. The coast between is backed by a limestone bank, 15 to 18m high, and fringed by ledges and several detached rocks, the largest being 26m high. A conspicuous disused light tower (Souter), 23m high, stands close inside the point. A prominent water tower stands at an elevation of 103m on Cleadon Hill, 1.3 miles W of the point.

Souter Point (54°57'N., 1°21'W.), located 1.1 miles SSE of Lizard Point, is 6m high. It can be easily distinguished when approaching from the N or S. The coast between this point and the River Wear, 2.5 miles S, is fronted by rocky ledges and shallow shoals. A dangerous wreck, with a depth of 1.9m, lies about 1.2 miles S of Souter Point and is marked by a buoy. Mill Rock, with a depth of 11.6m, lies about 1 mile SE of the same point.

A prominent disused light tower stands at Seaburn, about 1 mile N of the mouth of the River Wear.

Seaburn Disused Lighthouse

Caution.—A rifle range is situated in the vicinity of Souter Point. Its seaward safety limits are marked by lighted buoys moored 1.3 miles NE and 1.4 miles ESE of the point.

A spoil ground dumping area, which may be best seen on the chart, lies centered 4 miles ENE of Lizard Point.

An outfall pipeline, which may best be seen on the chart, extends about 0.6 mile seaward from a point on the shore located 0.8 mile SSW of Souter Point. The diffuser at the outer end is marked by a buoy.

Sunderland (54°55'N., 1°22'W.)

World Port Index No. 31760

2.20 Sunderland stands on both banks at the mouth of the River Wear, which extends W for about 65 miles. In addition to

Cleadon Hill Water Tower

Souter Disused Lighthouse (Lizard Point)

being a commercial port it is also a base for support vessels serving the North Sea oil and gas production platforms.

Port of Sunderland Home Page

http://www.portofsunderland.org.uk

Tides—Currents.—Tides rise about 5.2m at springs and 4.2m at neaps.

In the river, the incoming current begins about 6 hours 5 minutes before HW at Tyne and the outgoing current about 5 minutes before HW at Tyne.

Depths—Limitations.—The outer harbor is protected by two breakwaters. Roker Pier, the N breakwater, curves ESE and New South Pier, the S breakwater, curves NNE. Both are fronted by shallow rocky ledges.

White Stones, a group of rocky shoals with a least depth of 2.6m, lie about 1.7 miles SSE of the harbor entrance. Hendon Rock, with a least depth of 0.9m, lies about 1.2 miles SSE of the harbor entrance.

The outer harbor entrance is 200m wide and lies between the head of Roker Pier and an obstruction, marked by a lighted buoy, lying close N of the head of New South Pier.

The entrance channel within the outer harbor is dredged to a depth of 7.8m. A fairway channel, dredged to a depth of 7.6m, leads into the inner harbor and up to the W end of Corporation Pier, a deep-water berth on the S side of the river. Above this berth, the fairway channel is dredged to a depth of 5.7m as far as Wearmouth Bridge. It is reported that the shipyards situated above this bridge are closed.

The Sunderland Railway Bridge, with a vertical clearance of 25m, spans the river about 1 mile above the entrance. The Wearmouth Bridge, situated close E of the railway bridge, and the Queen Alexandra Bridge, situated 1.2 miles above it, both have greater vertical clearances.

A swinging basin is located close W of the entrance to the inner harbor. North Dock, entered to the N of this swinging basin, is the site of a large marina. It is 256m long, 61m wide, and dredged to a depth of 2.1m.

Corporation Pier, situated on the S bank close W of the swinging basin, is a deep-water berth. It is 323m long and has a dredged depth of 8.8m alongside. Vessels up to 213m in length and 8.4m draft can be accommodated here.

South Docks, consisting of Hudson Dock and Hendon Dock, are entered S of the swinging basin through Half Tide Basin which has a gateway, 21.3m wide. Hudson Dock is entered from Half Tide Basin through a gateway, 19.2m wide, which has depths over the sill of 9m at HWS and 7.9m at HWN. Hendon Dock is entered from Hudson Dock through a passage 62m long and 27m wide.

South Docks can accommodate vessels up to 142m in length and 18.9m beam, with drafts up to 8m at springs and 7.2m at neaps. It is reported to be mainly used by coasters.

Within the port, there are facilities for bulk, tanker, ro-ro, container, and fishing vessels.

Aspect.—South Outlet, a former entrance, is situated about 0.8 mile S of the port entrance and is permanently closed. The coast on both sides of the entrance to the river is backed by a dense industrial area which contains numerous towers and chimneys.

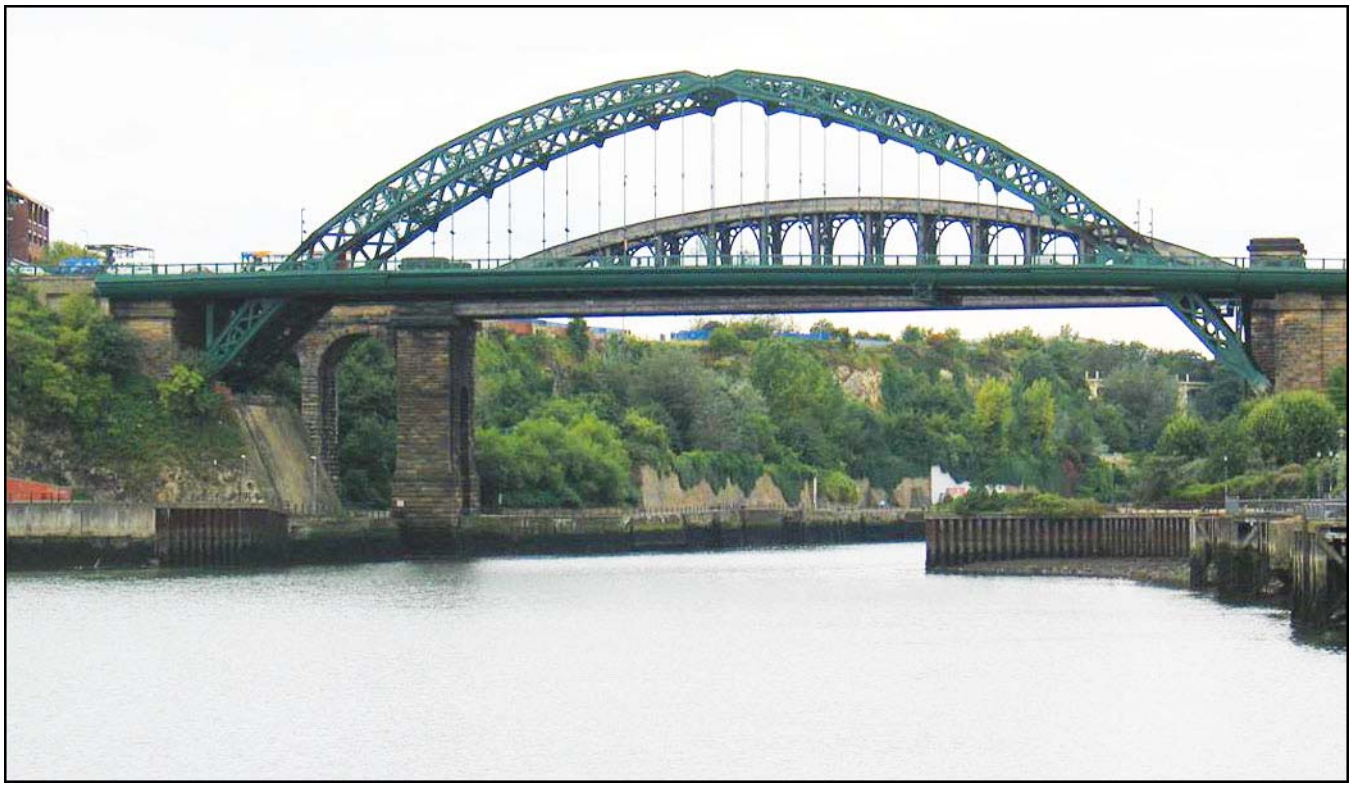
Tunstall Hills, with twin summits called Maiden Paps, rise to a height of 109m about 2.5 miles SSW of the entrance and are visible from seaward. Warden Law, a conical hill 160m high, stands 2.5 miles SSW of Maiden Paps.

A light is shown from a prominent tower, 23m high, standing on the head of Roker Pier.

Prominent landmarks on the N side of the river include a church tower standing 0.4 mile NW of the root of Roker Pier and five blocks of flats standing WSW of the harbor entrance. Prominent landmarks on the S side of the river include eight blocks of flats standing SW of the harbor entrance; a chimney, 107m high, standing at an incinerator, 1.6 miles WSW of the harbor entrance; a chimney, 81m high, standing at a paper mill, 2 miles SSW of the harbor entrance; and a group of gas holding tanks standing 1.7 miles SSW of the harbor entrance. In addition, a conspicuous chimney, with a pronounced collar at the top, stands about 3.5 miles SSW of the harbor entrance.

Pilotage.—Pilotage is compulsory for the following vessels:

1. All vessels 50m LOA and over.
2. All vessels assisted by tugs or while under tow.



Sunderland Railway Bridge

Entrance to the River Wear (Sunderland)

3. Any vessel with a defect in its hull, machinery or equipment which might affect the safe navigation of the vessel.
4. Passenger vessels licensed to carry more than 12 passengers.
5. All vessels carrying dangerous substances.

Pilot Exemption Certificates (PECs) may be granted to the Master and first mate of vessels (except those under tow or suffering defect), subject to meeting prescribed qualifying criteria. Exemptions to pilotage apply to named vessels/Master engaged in dredging operations and transporting dredged spoil (at Port Authority's discretion) and for vessels anchoring within port limits.

Pilot boards in position 54°55.34'N 1°19.88'W, or within 1.5 miles radius of Roker Pier Light, as directed.

Roker Pier Light (Sunderland)

Regulations.—Vessels should forward ETA together with the following information at least 24 hours in advance of arrival at pilot station (or as soon as possible if inbound voyage less that 24 hours duration).

1. ISPS PAN.
2. Crew list.
3. Waste declaration.
4. Dangerous goods manifest (if applicable)

When approaching, anchoring or navigating within port limits, vessels must maintain a continuous listening watch on VHF Channels 14 and 16.

Hydrographic and weather reports are available on request.

Contact Information.—The port may be contacted as follows:

1. Call sign: Sunderland Harbor Radio
2. VHF: VHF channels 11, 14, and 16
3. Telephone: 44-191-514-2752
   44-191-567-0101
   44-191-553-2149
4. Facsimile: 44-191-553-2145
5. E-mail: portmarineoperations@sunderland.gov.uk

Pilot Office:

1. Telephone: 44-191-553-2148 (Contact LPS if no reply)
2. Facsimile: 44-191-553-2145
3. Pilot vessel can be contacted on VHF channel 14

Harbor Master:

1. Telephone: 44-191-553-2146 (Contact LPS if no reply)
2. Facsimile: 44-191-553-2120

Port Authority:

1. VHF: VJF channels: 11, 14, and 16
2. Telephone: 44-191-553-2100 (0800-1700)
   44-191-514-2752 (24 hours)
3. E-mail: portmarineoperations@sunderland.gov.uk

Anchorage.—Vessels may anchor, in depths of 12 to 14m, about 1 mile E of the head of Roker Pier. The holding ground is good, but care must be taken to avoid the wrecks in the vicinity.

Caution.—Numerous wrecks, some dangerous, lie in the approaches to the harbor entrance and may be best seen on the chart.

Depths in the dredged channels are subject to change because of silting and strong winds.

Depths in the wet docks are not uniform and, in some cases, may be less than that over the entrance sill.

Gales from ENE and ESE send a heavy sea into the outer harbor.

A spoil ground dumping area, which may be best seen on the chart, lies centered 2 miles E of the harbor entrance.

An outfall pipeline, which may best be seen on the chart, extends about 0.8 mile seaward from the vicinity of South Outlet, the former entrance.

2.21 Seaham (54°50'N., 1°19'W.) (World Port Index No. 31750) stands on the coast 5 miles S of Sunderland. The port consists of an outer harbor, protected by two curving breakwaters, and an inner wet dock, protected by short inner breakwaters.

Tides—Currents.—Tides rise about 5.2m at springs and 4.1m at neaps.

Depths—Limitations.—Louis Rocky Patch, a detached shoal with a least depth of 8.6m, lies about 0.5 mile E of the harbor entrance. Shallow ledges and banks extend seaward from the shores on the N and S sides of the outer breakwaters. North Scar, a shoal patch with a least depth of 1m, lies 0.2 mile SSE of the harbor entrance.

The outer harbor entrance, which is 85m wide, has a depth of 2.1m. The fairway channel leading to the wet dock has a least depth of 1.4m. A rocky patch, with a least depth of 1.9m, lies close E of the harbor entrance and should be passed to the S. Vessels cannot enter at LW.

A tidal basin situated on the N side of the inner harbor has depths of 5.2m at springs and 3.7m at neaps. It has an entrance, 10m wide, and is used by fishing vessels.

South Dock, a wet dock, is entered through a gate, 19.8m wide, with depths over the sill of 6.7m at springs and 5.9m at neaps. It has 625m of total quayage. Vessels up to 6,500 dwt, 120m in length, and 16m beam have been accommodated. Drafts are generally limited to 6.5m at springs and 5.5m at neaps, but depend upon the rise of tide.

Aspect.—The town stands in a break in the coastal cliffs which rise to heights of 15 to 18m. A light is shown from a prominent structure, 10m high, standing on the head of the N breakwater. A conspicuous chimney stands on the coast, 0.8 mile NW of the harbor entrance.

A chemical works and several blast furnaces stand along the coast on the S side of the harbor. A chimney, standing 3 miles S of the harbor, is also prominent because of its pronounced collar at the top.

Pilotage.—Pilotage is not compulsory, but is recommended for vessels without local knowledge. Tees Bay Pilots are available and may be contacted by VHF on channel 16 9 and pilot vessel on channel 12 14 and 6. The wet dock gates are open only from 2 hours 30 minutes before to about 1 hour 30 minutes after HW.

Regulations.—Vessels must send an ETA, with necessary details, to the Port Operations Office through the agent at least 24 hours in advance or on departure from the last port.

Vessels should not exceed a speed of 5 knots in the harbor.

Signals.—Control signals are shown from the N side of the dock entrance, as follows:

1. A red light indicates that vessels may enter the dock.
2. A green light indicates that vessels may leave the dock.

Anchorage.—Anchorage may be obtained, in depths of 8 to 16m, between 0.3 and 1 mile NE of the N breakwater. The bottom is sand and fairly clear of rocks, but there is no protection.

Caution.—During SE gales, the gates at the wet dock cannot be opened due to the scend caused in the dock.

Gales from the ESE cause the heaviest seas in the approach and entry should not be attempted.

Outfall pipelines, which may best be seen on the chart, extend about 0.9 mile seaward from points located on the shore 1 mile and 3.5 miles S of the harbor entrance.

Hartlepool (54°42'N., 1°11'W.)

World Port Index No. 31740

2.22 Hartlepool is located at the NW end of Hartlepool Bay, 4 miles NNW of the entrance to the River Tees. It is administered by the Tees and Hartlepool Port Authority. In addition to the handling of various cargo vessels, the port has facilities for the construction of structures and pipelines used in the North Sea oil and gas fields.

Tides—Currents.—Tides rise about 5.4m at springs and 4.2m at neaps.

The tidal currents, both on the flood and ebb, set directly across the entrance to the Outer Harbor.

Depths—Limitations.—The entrance channel is dredged to a depth of 5.7m.

Outer Harbor, outside of the entrance channel, dries.

Victoria Dock is dredged to a depth of 6.8m. Victoria Quay, on the NE side, is 150m long; Irvine Quay, on the SW side, is 380m long; and the Deep Water Berth, on the NW side, is 295m long. These quays are all dredged alongside to a depth of 9.5m. A ro-ro berth is located at the N end of Victoria Quay.

Vessels of up to 190m in length, 33m beam, and 8m draft can be accommodated; however, an underkeel clearance of 1.2m must generally be maintained.

North Basin, the wet dock, is 198m long and 73m wide. It provides 494m of total quayage and has a depth of 7.9m. The gateway is 21.3m wide and has a depth of 8.1m over the sill at HWS.

Union Dock, Jackson Dock, and Coal Dock, situated S of Central Dock, have been separated from the commercial docks to form a marina. They are entered through a lock, which is approached by a narrow channel dredged to a depth of 0.8m.

Aspect.—The port is protected to the E by the Hartlepool Peninsula, of which The Heugh is the low and rocky E extremity. The seaward cliffs of this peninsula are being eroded and protecting walls have been constructed outside them. A light is shown from a prominent tower, 13m high, standing on The Heugh.

Rocky ledges and shoals front the peninsula and a breakwater extends 0.2 mile SSE from a point located on the shore close SSW of the light. The Stones, a group of detached rocks, lies close NE of this breakwater head.

Long Scar, a detached ledge of rock fringed by patches, is located 1.3 miles SSW of The Heugh and dries 2m. An isolated group of shoal patches, with depths of less than 4m, lies about 0.3 mile NE of the E end of Long Scar and is marked by a lighted buoy which should be passed to the N.

A conspicuous church tower stands 0.2 mile WSW of the light and a conspicuous chimney, 92m high, stands at the magnesite works, 1.5 miles NW of The Heugh. A prominent chimney, 48m high, stands 0.8 mile NW of The Heugh and is reported to be used as a mark when approaching the entrance range.

Hartlepool

For other landmarks situated to the S of the port, see Teesport in paragraph 2.23.

A dredged entrance channel passes through the Outer Harbor and leads into Victoria Dock, a tidal basin. This channel is marked by lighted buoys and beacons and indicated by a directional light which may be best seen on the chart. A series of wet docks are entered through a lock situated on the W side of the tidal basin.

West Harbor, located W of the entrance channel and S of the wet docks, is entered directly from Hartlepool Bay. It is only used by small craft and yachts.

Pilotage.—Pilotage in the approaches to Hartlepool is provided by the Tees and Hartlepool Pilotage Service (Tees Bay Pilots); for further information, see paragraph 2.23.

Heugh Light

Regulations.—A Port Operation and Information Service is maintained for Hartlepool and the River Tees. For more information, see Regulations for Teesport in paragraph 2.23.

Prior to entering the Hartlepool approach channel, all vessels must obtain permission by VHF from the Port Dockmaster.

Signals.—Traffic signals are shown from a mast standing on the NE side of the entrance to Victoria Dock and are visible within the harbor and to seaward. A single fixed amber light, shown by day and at night, indicates that vessels may enter but may not leave the port. When no such light is shown, vessels may leave but may not enter the port.

Anchorage.—Vessels may anchor, in a depth of 9m, about 0.7 mile SE of The Heugh. Small vessels may anchor, in depths of 5 to 6m, muddy sand over clay, about 0.6 mile S of The Heugh, close NE of the entrance channel.

Caution.—The harbor is liable to silt and depths may be reduced. Vessels approaching the maximum dimensions should contact the port in advance.

Hartlepool, like the entrances of the River Tyne and Sunderland, is often shrouded in a dense cloud of smoke and coal dust which prevents the land from being seen at any considerable distance.

Vessels entering or leaving this port, or crossing Tees Bay, should not impede vessels using the approach channel for the River Tees.

Numerous wrecks and a spoil ground area lie in the approaches to the port and may best be seen on the chart.

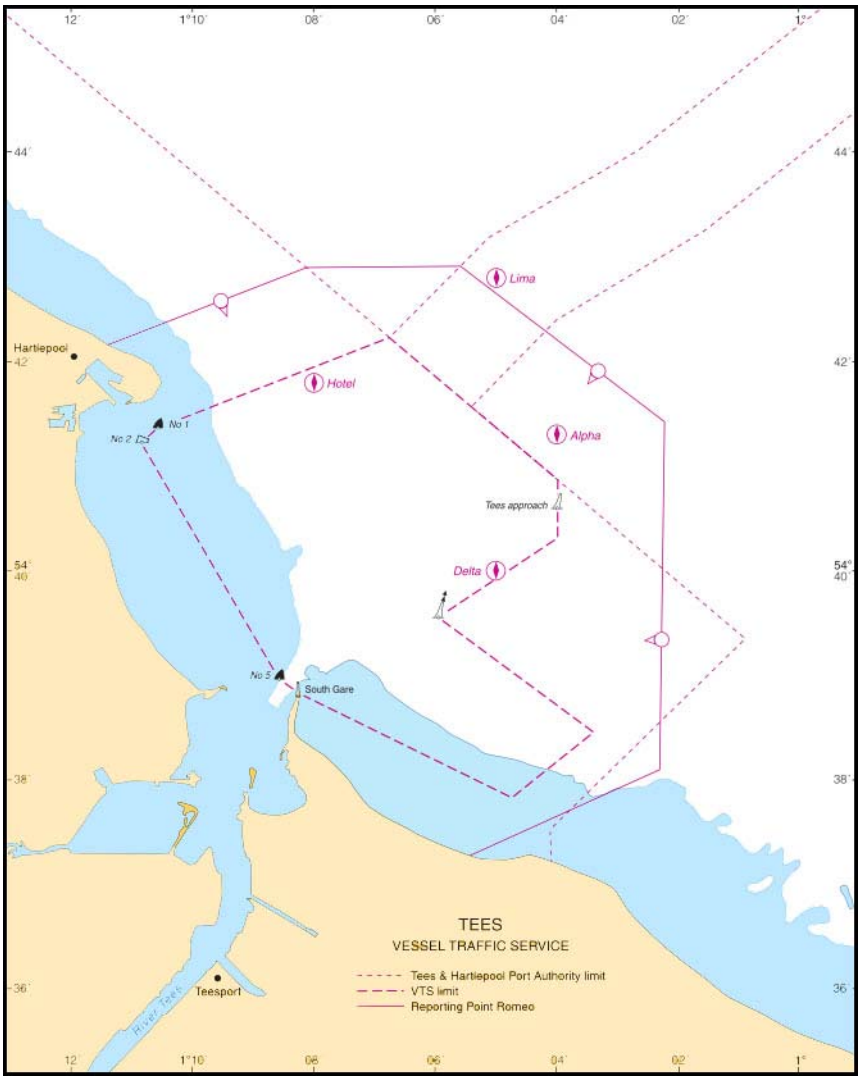
Platforms and pipeline structures for the North Sea oil and gas fields are constructed within the port and may be encountered entering, leaving, or in the vicinity of the harbor.

Teesport (River Tees) (54°39'N., 1°08'W.)

World Port Index No. 31720

2.23 The River Tees discharges into the head of Tees Bay, which is about 6 miles wide between The Heugh and Redcar,

and exposed to E winds. The coast on either side of the river is low and sandy. The estuary, which is entered between breakwaters, leads in a general SSW direction to the harbors upriver.



Tees Vessel Traffic Service

Teesport, located about 3 miles upriver, is the center of a large petrochemical complex. Middlesbrough is located about 6 miles from the river entrance and Billingham, above which dredged depths are no longer maintained, is located about 1.5 miles farther upriver. The port is administered by the Tees and Hartlepool Port Authority.

Tees and Hartlepool Home Page

http://www.pdports.co.uk

Tides—Currents.—Tides rise about 5.5m at springs and 4.3m at neaps.

Off the entrance to the River Tees, the SE current and the NW current begin, respectively, about 3 hours before and 3 hours after HW Tees. The spring velocity in each direction is generally 1 to 1.5 knots, but has been reported to reach 2 knots. During the outgoing current from the river, especially with E or NE gales, turbulence may develop.

In the river entrance, the outgoing current commences at about 40 minutes before HW. The incoming current commences about 5 hours 20 minutes before HW. The general spring velocity in the river is 2 to 3 knots in each direction. The currents run in the direction of the channel, but set towards the outer banks at bends.

During the ebb, there is often turbulence where Seaton Channel enters the river.

With freshets, both the duration and the velocity of the current is increased and reduced accordingly.

Depths—Limitations.—The approach channel, 240m wide, is dredged to a depth of 15.4m from its seaward entrance to within the breakwaters. The channel is then dredged to a depth of 14.1m as far as Redcar Ore Terminal, 1.5 miles above the mouth, and then to a depth of 10.4m as far as 0.5 mile SW of

Tees Dock. The river channel is then progressively reduced to a dredged depth of 4.5m at Billingham, 7 miles above the entrance.

The Teeside offshore wind farm lies between 0.5 and 2.5 miles E of the South Gare Breakwater. It is centered on (54°38.7'N., 1°05.6'W.). It comprises 27 turbines. The ones situated at the N, S, E, and W extremities show navigational lights. It is also marked on its N corner by a lighted buoy (N cardinal).

Seaton on Tees Channel, entered on the W side of the river 1.2 miles above the entrance, is no longer maintained. All vessels must obtain permission to use this channel. A nuclear power station stands on the N side of this channel and its intakes are marked by beacons.

Teeside wind farm turbines

Teesport, located from 1.5 to 4.5 miles within the entrance of the river, contains several major cargo-handling facilities. The main facilities situated along the W side of the river are listed below.

Phillips Norsea Oil Terminal is situated about 1.5 miles above the entrance. It consists of two berths along the W side of the river and six berths located within a basin. The two river berths and the two berths situated on the W side of the basin are all 295m long and have a depth of 18.2m alongside. They can accommodate tankers up to 150,000 dwt and 295m in length. The four berths on the E side of the basin have depths of 14 to 15.6m alongside and can accommodate LPG carriers of up to 60,000m^3.

Seal Sands, an extensive petrochemical storage complex, is situated above the oil terminal and is fronted by eight berths with depths of 7.2 to 12.7m alongside. Vessels up to 80,000 dwt and 271m in length can be accommodated.

The main cargo-handling facilities situated along the E side of the river are listed below.

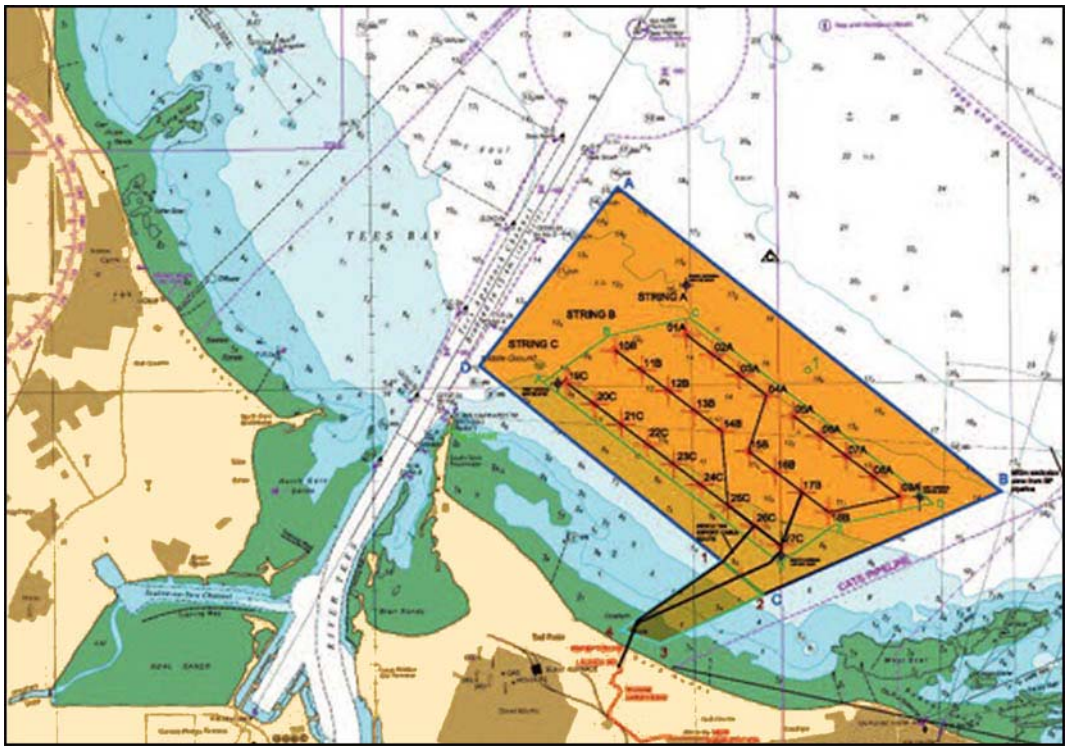
Redcar Ore Terminal is situated 1.2 miles above the entrance and has a berth, 306m long, with a depth of 17.3m alongside. Generally, vessels up to 175,000 dwt, 305m in length, and 16.5m draft can be accommodated. It is reported that, on special occasions, vessels up to 220,000 dwt and 17m draft can be handled. A disused crude oil jetty is situated 0.6 mile S of the ore terminal.

A riverside ro-ro berth, with a depth of 10.9m alongside, is situated close NE of the disused oil jetty.

Teesport Container Terminal is situated close SW of the disused oil jetty. It provides 294m of quayage, with depths of 7.5 to 8.5m alongside.

Tees Dock, a tidal basin, is entered 1.1 miles above the ore terminal and has a center channel dredged to a depth of 8.8m. Within the basin, there are eight berths, 183 to 223m long, with depths of 8.8 to 10.9m alongside, which handle general cargo, bulk, and ro-ro vessels.

A swinging area, dredged to a depth of 8.8m, is located in the vicinity of the entrance to Tees Dock.



Teeside offshore wind Farm

Tees Dock and Norsea Oil Terminal

Teesport (Seal Sands)

An overhead power cable, (54°35.5'N., 1°11.0'W.) with a vertical clearance of 87.9m, spans the river close above Tees Dock; a tunnel crosses the river close E of this cable.

Queen Elizabeth II Jetty, a tanker berth, is situated close above Tees Dock and has a dredged depth of 10.9m alongside. It can handle vessels up to 40,000 dwt and 198m in length.

West Byng Jetty, a tanker berth, is situated close above Queen Elizabeth II Jetty and has a dredged depth of 10m alongside. It can handle vessels up to 40,000 dwt and 198m in length.

Tees Offshore Base, situated 1.2 miles above West Byng Jetty, specializes in oil and gas exploration support and rig module construction. It is fronted by a quay, 860m long, with a depth of 6.5m alongside.

Middlesbrough (54°35'N., 1°14'W.) is a large manufacturing city and a center of the iron and steel trade. Middlesbrough Dock is situated on the SE side of the river, 3 miles above Tees Dock. However, it is no longer used for shipping and the lock gates are kept open permanently.

A transporter bridge, with a vertical clearance of 48m, crosses the river 0.5 mile above the entrance to Middlesbrough Dock.

Tees Newport Bridge

The Tees Bridge (Newport Bridge) spans the river about 2 miles above the transporter bridge. It is permanently in the down position and has a vertical clearance of only 6.4m. An overhead cable, a submarine gas pipeline, and a submarine power cable cross the river in the vicinity of this bridge.

Numerous private wharves, with depths of 4.7 to 7.5m alongside, are situated along both sides of the river between Tees Offshore Base and the Tees Bridge (Newport Bridge).

Ro-ro vessels up to 200m in length and 35m beam can be accommodated in the port. For entering the port, vessels are generally restricted to a length of 305m, a beam of 48m, and a draft of 16.5m. However, depending upon the rise of tide and weather, vessels up to 17m draft have entered the port. Vessels with drafts over 16.2m or with unusual configurations (oil rigs, etc.) are subject to prior consultation with the port authorities.

Aspect.—The river is entered between North Gare Breakwater and South Gare Breakwater. The area between the embankments at the mouth is, for the most part, occupied by sand banks which uncover at half ebb. The river leading between these sand banks is confined by training walls so as to form a channel. The training walls are raised to about 2.1m above the low water level.

From a considerable distance seaward, the glare from several flares and blast furnaces may be sighted.

Two conspicuous cooling towers, 74m and 77m high, stand about 2.6 miles W of the river entrance.

Numerous chimneys, cranes, and tanks stand within the industrial areas bordering the river, and care is required when identifying specific landmarks.

A light is shown from a tower, 13m high, standing on the head of South Gare Breakwater and a radar tower stands close to it.

Fairway Lighted Buoy, equipped with a racon, is moored about 2.6 miles NE of the river entrance. The dredged approach channel, which is entered 0.7 mile SW of the outer fairway lighted buoy, is marked by lighted buoys and indicated by a lighted range. The fairway channel throughout the river is marked by buoys, lighted buoys, and beacons.

For additional landmarks and aids located to the N of the entrance, see Hartlepool (paragraph 2.22).

Tees Transporter Bridge

Pilotage.—Pilot location is South Gare Breakwater (54°38.4'N 1°08.4'W) and is compulsory within the following areas:

1. The Tees Approach Channel and the River Tees inward of Tees North Lighted Buoy (54°40.4'N 1°07.2'W.).
2. The navigable area of the Seaton Channel and Holding Basin.
3. The navigable area of the Tees between the inner limit of the Seaton Turning Area and lighted buoy No. 23.
4. The navigable area of the Tees between lighted buoy No. 23 and the upper limit of PD Teesport jurisdiction.
5. Hartlepool, which comprises:
   a. The Hartlepool Fish Quay between No 1 Lt buoy and the W end of the Fish Quay
   b. Hartlepool Dock.

Pilotage is compulsory for the following vessels:

1. Vessels over 95m LOA.
2. Vessels exceeding 4000 tons summer dwt.
3. Vessels exceeding 4000 gt.
4. Vessels over 20m LOA carrying:
   a. Any goods defined in Regulation 2(1) of the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 as dangerous goods or marine pollutant, carried in bulk.
   b. Those goods contained in the List of Oils at Appendix 1 to Annex 1 of Marpol 73/78 carried in bulk.
   c. Explosives class 1.1 in excess of 1000 kg NEQ.
5. Vessels over 50m requiring the services of a tug.
6. Vessels under 50m requiring the services of a tug, where a risk assessment carried out by the Harbor Master and Tees bay Pilots so dictates.
7. Vessels over 80m LOA navigating within the navigable area of the Tees between No 23 Lighted buoy and the inner limit of PD Teesport jurisdiction.

Pilotage is exempt for vessels moving along a quay without letting go from that quay.

Pilot boards in the following positions:

1. Alpha: 54°41.3'N 1°04.0'W (Arrivals approaching from the S).
2. Delta: 54°40.0'N 1°05.0'W (Departures).
3. Lima: 54°42.8'N 1°05.0'W (Large vessel (over 200m) arrivals).
4. Hotel: 54°41.8'N 1°08.0'W (Vessels arriving from or departing to the N, also Hartlepool vessels).

Suspension Of Compulsory Pilotage In Heavy Weather for the area between Tees North and South lighted buoys and lighted buoy No. 13 can occur for the following vessels when the prevailing weather conditions preclude safe embarkation and or disembarkation.

1. Hazardous vessels under 150m LOA.
2. All other vessels under 175m LOA except ro-ro ferries which must be less than 200m LOA provided that Tees VTS can satisfactorily complete a relevant risk assessment.

Regulations.—A Port Operation and Information Service is maintained for Hartlepool and the River Tees area. The service

provides radar surveillance which covers the approaches up to a distance of about 12 miles offshore.

Entrance to the River Tees

Vessels Traffic Service.—The VTS area includes the area within the harbor that includes the navigable channels and the area bounded by a line joining the following positions:

1. 54°38.9'N 1°08.3'W (South Gare Lt).
2. 54°39.0'N 1°08.6'W (Tees Approach No 5 Lt buoy)
3. 54°41.2'N 1°10'.9·W (Hartlepool Approach No 2 Lighted buoy)
4. 54°41.3'N 1°10.7'W (Hartlepool Approach No 1 Lighted buoy)
5. 54°42.2'N 1°06.8'W
6. 54°40.9'N 1°04.0'W
7. 54°40.2'N 1°04.0'W
8. 54°39.6'N 1°06.0'W (N Cardinal Buoy)
9. 54°38.4'N 1°03.5'W
10. 54°37.9'N 1°05.0'W
11. 54°38.9'N 1°08.3'W (South Gare Light)

Information Service—Vessels may obtain navigational advice and port operations information at any time by calling Tees VTS on VHF channel 14, by telephone, or e-mail.

This is a UK designated port VTS and provides the following types of service:

1. Information Service
2. Traffic Organization Service
3. Navigational Assistance Service

Procedure—All vessels carrying dangerous or polluting goods, as defined in the Merchant Shipping (Traffic Monitoring and Reporting Requirements) Regulations 2004 should comply with the requirements of those regulations.(See Planning Guide Pub 140).

1. The Master of a VTS controlled vessel, unless the Harbor Master has agreed to waive the requirements of this general direction, must:
   a. If carrying hazardous cargo in bulk and intending to enter the harbor, give the Harbor Master not less than 24 hours notice of the intention to do so (or not later than 1 hour after departure from the last port called)
   b. If not carrying hazardous cargo and intending to enter the harbor, give the Harbor Master not less than 6 hours notice of the intention to do so (or not later than 1 hour after departure from the last port called)
   c. If intending to move within or sail from Hartlepool harbor, give the Harbor Master at least 2 hours notice of the intention to do so.
   d. If intending to move within or sail from the Tees, give the Harbor Master at least 2 hours notice of the intention to do so.
   e. Give the Harbor Master 2 hours notice of arrival at Reporting Point Romeo or at the intended anchorage.
2. VTS controlled vessels intending to:
   a. Enter the VTS area must obtain permission from Tees VTS at Reporting Point Romeo.
   b. Navigate, sail or move must obtain permission from Tees VTS before leaving the berth.

This permission will expire 15 minutes after the time it is given.

3. All vessels underway within the VTS area should maintain a continuous listening watch on VHF Channel 14 and any calls to Tees VTS should be made on the same channel.

Reporting Point Romeo—is bounded by a line joining the following positions:

1. 54°42.2'N 1°11.5'W
2. 54°42.9'N 1°08.1'W
3. 54°42.9'N 1°05.6'W
4. 54°42'.6·N 1°04.9'W
5. 54°41.4'N 1°02.2'W
6. 54°38.2'N 1°02.2'W
7. 54°37.4'N 1°05.1'W

Contact Information.—Tees VTS can be contacted as follows:

1. Call sign: Tees VTS
2. VHF: VHF channel 14
3. Telephone: 44-1642-277205
   44-1642-277206
4. Facsimile: 44-1642-277207
5. E-mail: teesvts@pdports.co.uk
6. Website: http//.www.pdports.co.uk

Tug (Svitzer Marine Ltd) can be contacted through VHF channels 14, and 16. Telephone: 44-1642-247277

The Port Operation and Information Service can be contacted by telephone (44-1642-213391),

Port Authority Maintenance Craft can be reached on VHF Channel: 16, 14.

Harbor Master can be contacted by telephone (44-1642-277201) Monday- Friday 0900-1700 and email as described below:

E-mail: harbourmaster@thpal.co.uk
Website: www.pdports.co.uk

Radar Surveillance—Tees VTS provides harbor surveillance radar covering the Tees, Hartlepool, Tees Bay and the approaches for ranges up to 12 miles. Vessels may obtain navigational advice and port operations information at any time by calling Tees VTS on VHF channel 14, by telephone, or e-mail.

Traffic Control Signals:
1. Port Traffic Control Lights are displayed from:
   a. South Gare Radar Tower (54°38.8'N 1°08.3'W)
   b. Tees Dock Radar Tower (54°36.2'N 1°09.7'W)
   c. Middleton Pier Breakwater at the entrance to Hartlepool Dock (54°41.6'N 1°11.3'W).
2. The signals consist of the following:
   a. Three fixed lights in a vertical line, green-white-green, meaning VTS controlled vessels may proceed only when they have received specific orders to do so from Tees VTS.
   b. Three fixed red lights in a vertical line, meaning vessels must not proceed.

River Tees Barrage (54°34'N., 1°17'W.) Procedure:
1. Vessels wishing to pass the barrage should use the channel and lock located to the south of the barrage.
2. Prior to entering the channel and lock, vessels should contact Tees Barrage to obtain clearance.

Contact Information (at any time):
1. Call sign: Tees Barrage Radio
2. VHF: VHF channel 37
3. Telephone: 44-1642-633273

Anchorage.—Large vessels should anchor seaward of Tees Fairway Lighted Buoy and the prohibited anchorage areas situated in the vicinity. Vessels intending to anchor should seek advice on anchor berths from the Tees VTS before arrival.
1. Echo Anchorage: centered on (54°43.0'N., 0°52.5'W) with depths of 44 to 55m.
2. Whiskey Anchorage: at (54°46.7'N., 1°11.0'W) with depths of 22 to 35m.
3. Charlie Anchorage: at (54°42.3'N., 1°01.0'W) with depths of 34 to 45m, for vessels under 100m in length.

Anchoring is prohibited in the following locations:
1. Within the Tees port limits, except with the prior approval of Tees VTS.
2. Within 0.25 mile of the Ekofisk oil and CATS (Everest) gas pipelines, which come ashore 1 mile NW and 2 miles SE, respectively, of the harbor entrance.

Caution.—At night, the glare from the numerous blast furnaces, which border the estuary, is generally visible to seaward and care is necessary in distinguishing the navigational lights.

Submarine pipelines, which may best be seen on the chart, extend seaward to the North Sea oil and gas fields from points located along the shore about 1.2 miles WNW and 2 miles ESE of the river entrance.

An area, within which fishing and anchoring are prohibited, lies in the vicinity of Tees Fairway Lighted Buoy and may be best seen on the chart.

Several foul and spoil areas lie within the vicinity of the approach channel and may be best seen on the chart.

Dredged depths within the river are subject to silting.

Numerous wrecks, some dangerous, lie in the vicinity of the approach to the river and may be best seen on the chart.

Large structures such as oil rigs may be encountered entering, leaving, or in the vicinity of the port.

Teesport to Flamborough Head

2.24 Redcar (54°37'N., 1°04'W.) stands at the E entrance point of Tees Bay. The coast in this vicinity is low and fronted by detached ledges and shoals which extend up to 1.2 miles offshore. A tower and two churches, with spires, stand in the town and are prominent from seaward.

Salt Scar, a rocky ledge which dries, fronts the shore and extends up to about 0.8 mile seaward. It is the outermost danger in this vicinity and is marked by a lighted buoy moored about 2.3 miles NE of Redcar.

Eston Nab Radio Tower stands at an elevation of 239m, 4 miles SW of Redcar, and is conspicuous from seaward.

Hunt Cliff, located 4.5 miles ESE of Redcar, is an almost perpendicular cliff. It is a dark red color and stands 110m high. Warsett Hill, 164m high, stands about 0.5 mile S of this cliff and has a well-defined summit.

Captain Cook's Monument

Captain Cook's Monument (54°29'N., 1°05'W.) stands at an elevation of 322m, 8 miles SW of Hunt Cliff, and is very conspicuous from seaward.

Prominent marks in this vicinity include church towers standing at Marske-by-the-Sea, 2 miles SE of Redcar and at Saltburn-by-the-Sea, 3.5 miles SE of Redcar.

Between Hunt Cliff and Cowbar Nab, 5.5 miles ESE, the coast is formed by mostly one continuous line of cliffs which vary from 33 to over 200m high. The most conspicuous is Redcliff, located 2 miles WNW of Cowbar Nab, which is deep red in color and one of the boldest features along this whole coast. This stretch of coast is subject to heavy landslides.

A conspicuous radio mast stands at the top of a hill, about 0.5 mile S of Redcliff. A prominent group of chimneys stands at an elevation of 114m on a headland, about 2.4 miles W of Redcliff. During S winds, small craft may obtain anchorage, in depths of 9 to 11m, clay, in Skinningrove Wick, located 1.7 miles WNW of Redcliff.

Cowbar Nab (54°34'N., 0°47'W.) is a prominent point. Old Nab, a low black cliff with a flagstaff, is located 0.5 mile E of the point. A group of conspicuous chimneys stands at Boulby, about 1 mile W of Cowbar Nab.

The village of Staithes is situated close within Cowbar Nab. The small harbor, used by fishing vessels, is formed by two breakwaters. The entrance faces NE and is 61m wide. Within the harbor, which dries, there is a depth of 4.6m at HWS.

Runswick Bay (54°32'N., 0°44'W.), located 2.5 miles SE of Cowbar Nab, is encumbered with sunken ledges, particularly off Kettle Ness, its SE entrance point. A village stands on the W side of the bay.

Caution.—Because of the irregularity of the coast between Hunt Cliff and Whitby, vessels without local knowledge are advised not to approach within depths of less than 20m.

An outfall pipeline, which may best be seen on the chart, extends 1 mile NE from the shore at the E end of Redcar.

A submarine cable extends seaward from the shore at the E end of Redcar and may best be seen on the chart.

A disused submarine cable extends seaward from the shore in the vicinity of Marske-by-the-Sea, 2 miles SE of Redcar, and may best be seen on the chart.

An outfall pipeline extends about 1.3 mile NNE from the shore at Boulby, 1 mile W of Cowbar Nab, and is marked by a lighted buoy.

2.25 Whitby (54°29'N., 0°37'W.) (World Port Index No. 31700), Captain Cook's former home port, stands on both sides of the mouth of the River Esk, 5 miles SE of Runswick Bay. This small commercial port supports a fishing fleet and is also a yachting center.

Tides—Currents.—Tides rise about 5.4m at springs and 4.3m at neaps.

Whitby

In the roadstead, the tidal currents are weak, but the SE flood current and the NW ebb current run strongly across the harbor entrance. During W or SW gales, the flood current may attain rates of 3 knots in the roadstead and 5 knots in the vicinity of the fairway lighted buoy while the ebb current is negligible.

The freshets discharged by the river are often sudden and heavy and may run between the piers with a rate of up to 5 knots. In dry weather, the flow is hardly perceptible. The tidal character of the river has been greatly curtailed by an upriver dam and the scour through the harbor is almost entirely dependent on the land floods.

Depths—Limitations.—The harbor is protected by two outer and inner piers. Whitby Rock is located close E of the harbor entrance. The Scar, a rocky ledge, lies inshore of this rock. These dangers, which are covered with kelp, dry in places and the swell breaks heavily over them.

The approach to the harbor, which has depths of 5.5 to 13m, passes W of Whitby Rock and The Scar. The bar, a flat ledge of shale extending across the entrance, has a depth of 1.4m. The inner piers form an entrance, 49m wide. These depths are maintained by dredging.

The harbor, formed by the lower portion of the river, is divided into Lower Harbour and Upper Harbour by a passage, 21m wide, which is spanned by a swing bridge. Lower Harbour, which dries over its greater part, has a channel leading through it from the inner piers to the Upper Harbour. This channel is 27m wide and has a depth of 1m.

The main facilities include Fish Quay, in the Lower Harbour, which is 213m long and has dredged depths up to 2.4m alongside, and Endeavour Wharf, in the Upper Harbour, which is 172m long and has depths alongside of 2.5m at LWS and 6.7m at HWS. Vessels up to 85m in length and 14m beam have been accommodated. Vessels are generally limited to drafts of between 4.5m and 6m, depending on the tide.

Aspect.—Conspicuous landmarks include a castle, with a flagstaff, standing 1.2 miles WSW of the entrance; a large hotel building standing above the cliff at the W side of the entrance; the ruins of an abbey standing above the cliff at the E side of the entrance; a framework television mast, 109m high, standing close ENE of the abbey; and the tower of a church standing close WNW of the abbey.

A prominent disused light tower, 22m high, stands on the inner head of the W pier. A fairway lighted buoy is moored about 0.7 mile N of the harbor entrance and vessels should pass close NNE of it. Leading marks and lighted range beacons indicate the approach and entrance channels.

Pilotage.—Pilotage is compulsory for fishing vessels over 45.5m in length and all other vessels over 37m in length. It is recommended for all vessels without local knowledge. Pilots can be contacted by VHF and board within 0.8 mile of the entrance. A green light is shown from the top of the disused light tower standing on the W inner pier head when a piloted vessel is entering at night.

Anchorage.—Vessels may anchor, in a depth of 13m, within the roadstead, about 0.7 mile NNW of the entrance.

Caution.—A spoil ground area, which may best be seen on the chart, lies 1 mile NNE of the harbor entrance.

No attempt to enter should made in gales from between the N and NE as the sea breaks a long way offshore and renders the approach dangerous.

Whitby High Light

2.26 Saltwick Nab (54°29'N., 0°35'W.), 19m high, is a dark but conspicuous promontory located 0.8 mile ESE of Whitby harbor entrance. The coast between this promontory and Scarborough, 14.5 miles SSE, is cliffy and fringed by rocky ledges which extend up to about 0.3 mile offshore in places. For the first 2.7 miles to North Cheek, the N entrance point of Robin Hood's Bay, the coast consists of dark-colored cliffs, occasionally tinged with red. To the S of this bay the

high cliffs continue, but gradually decrease in height towards Scarborough.

Whitby High Light (54°29'N., 0°34'W.) is shown from a conspicuous tower with dwellings, 13m high, standing on the N slope of Ling Hill, 1.7 miles SE of Whitby harbor entrance.

Robin Hood's Bay (54°26'N., 0°30'W.) is entered between North Cheek and South Cheek, 2.5 miles SSE. The shore is divided between cliff and grassy banks, broken in places by deep gullies. It is backed by ground, which rises like an amphitheater, and fronted by rocky ledges extending up to 0.5 mile seaward. Ravenscar, a village, is situated near South Cheek and is conspicuous from seaward. A conspicuous radio mast stands close S of the village.

Caution.—Numerous wrecks, some dangerous, lie within 3 miles of the shore along this stretch of coast and may best be seen on the chart.

2.27 Scarborough (54°17'N., 0°24'W.) stands at the head of Scarborough Bay, 9 miles SSE of Robin Hood's Bay and is approached between Scarborough Rock, a headland, and White Nab, a cliffy point, 1.4 miles S. It is a small commercial port, a fishing center, and a yachting center.

Grand Hotel Scarborough

Scarborough Rock (Castle Keep)

Tides—Currents.—Tides rise about 5.7m at springs and 4.7m at neaps.

In the bay, the tidal currents are barely perceptible, but off the E pier, the N current runs with some strength from 1 hour before HW to 2 hours after LW.

Depths—Limitations.—The bay is fronted by rocky ledges which dry. It has depths of 9m, decreasing to 1.8m about 0.2 mile offshore.

The harbor is formed by four piers which act as breakwaters and divide it into two sections, Old Harbour and East Harbour.

East Harbour, located between East Pier and Old Pier, dries and is used as a yacht haven. Vincent Pier is located close to the head of Old Pier and connected to it by a drawbridge. The regular entrance to East Harbour is 8m wide and lies between the heads of Vincent Pier and East Pier. During winter months, a boom is placed across this entrance and access is then only possible through an entrance, 9m wide, at the site of the drawbridge.

Old Harbour, located between Old Pier and West Pier, dries and has an entrance 29m wide. The wharf on the inner side of West Pier is used by fishing vessels and the wharf and pier on the N side of the harbor are used by coasters. There are depths in the channel, which is 10m wide and leads to the berths, of 5m at springs and 3.8m at neaps. Vessels up to 2,400 dwt and 79m in length can enter with drafts up to 4.6m at HWS and up to 3.7m at HWN.

Vessels using the harbors should be capable of taking the bottom at LW.

Aspect.—Scarborough Rock, 85m high, is a headland which forms the N entrance point of the bay. The ruined keep of a castle stands on this headland and is one of the most striking objects along this coast. Also conspicuous from seaward is the war monument standing on Oliver Mount, 1.5 miles SSW of the headland.

Prominent marks within the town include a chimney, the tower of a church, and several hotel buildings. The Grand Hotel standing at the S end of the town is conspicuous.

A light is shown from a prominent tower, 15m high, standing in the harbor on Vincent Pier.

The harbor is formed by four piers which act as breakwaters and divide it into two sections, Old Harbor and East Harbor.

Pilotage.—Pilotage is compulsory for vessels over 37m in length and fishing vessels over 45.5m in length. It is recommended for all vessels without local knowledge. Pilots can be contacted by VHF on channel 16 12 and board about 1 mile E of the entrance.

Signals.—Tidal signals are shown when there is a depth of more than 1.8m in the entrance, as follows:

1. A fixed yellow light from Vincent Pier Light.
2. Two fixed red lights from West Pier.
3. Two fixed green lights from the SW corner and the drawbridge at Vincent Pier.

When there is a depth of more than 3.7m, a black ball is displayed, by day, and a white isophase light shown, at night, from Vincent Pier Light.

Anchorage.—Vessels can anchor, in a depth of 8m, sand over blue clay, good holding ground, about 0.5 mile E of the harbor entrance.

Caution.—Both harbor sections experience silting.

Several spoil ground areas lie in the approach to the harbor and may be best seen on the chart.

Several wrecks, some dangerous, lie in the approach to the harbor and may best be seen on the chart.

When heavy swells are running from the N or E, vessels should not navigate close to the East Pier or Scarborough

Rock. Strong winds from the NNW also send a heavy sea into the bay. Vessels should enter the harbor between half flood and first quarter ebb.

Scarborough Light (Vincent Pier)

2.28 Filey Brigg (54°13'N., 0°16'W.), located 6 miles SE of Scarborough Bay, is a chain of rocky ledges which extends up to about 0.5 mile ESE from a point on the coast. A shallow shoal fronts the chain and is marked by a lighted buoy.

The coast between Scarborough and this chain is cliffy and fronted in most places by foul ground extending up to 0.5 mile offshore.

Filey Bay (54°12’N., 0°15’W.) lies between Filey Brigg and King and Queen Rocks, 3.5 miles SSE. It affords shelter from the N and offshore winds, but is shallow and may only be used by small vessels. The shore of the bay is cliffy and backed by a grassy bank.

Filey, a small resort town, stands on the top of a bank at the NW end of the bay. A church, with a tower, stands in the N part of the town and is conspicuous. Small vessels can anchor, in a depth of 5m, clay covered with sand, about 0.7 mile E of the town.

Conspicuous radio masts stand 3 miles S, 5 miles WSW, and 4.5 miles SSW of Filey.

The coast between King and Queen Rocks and Flamborough Head, 6 miles SE, consists of precipitous cliffs which are only broken at a small inlet, located 1.2 miles NW of the headland.

Filey Bay and Filey Brigg

Flamborough Head (54°07’N., 0°05’W.), from which a light is shown, is described in paragraph 3.3.

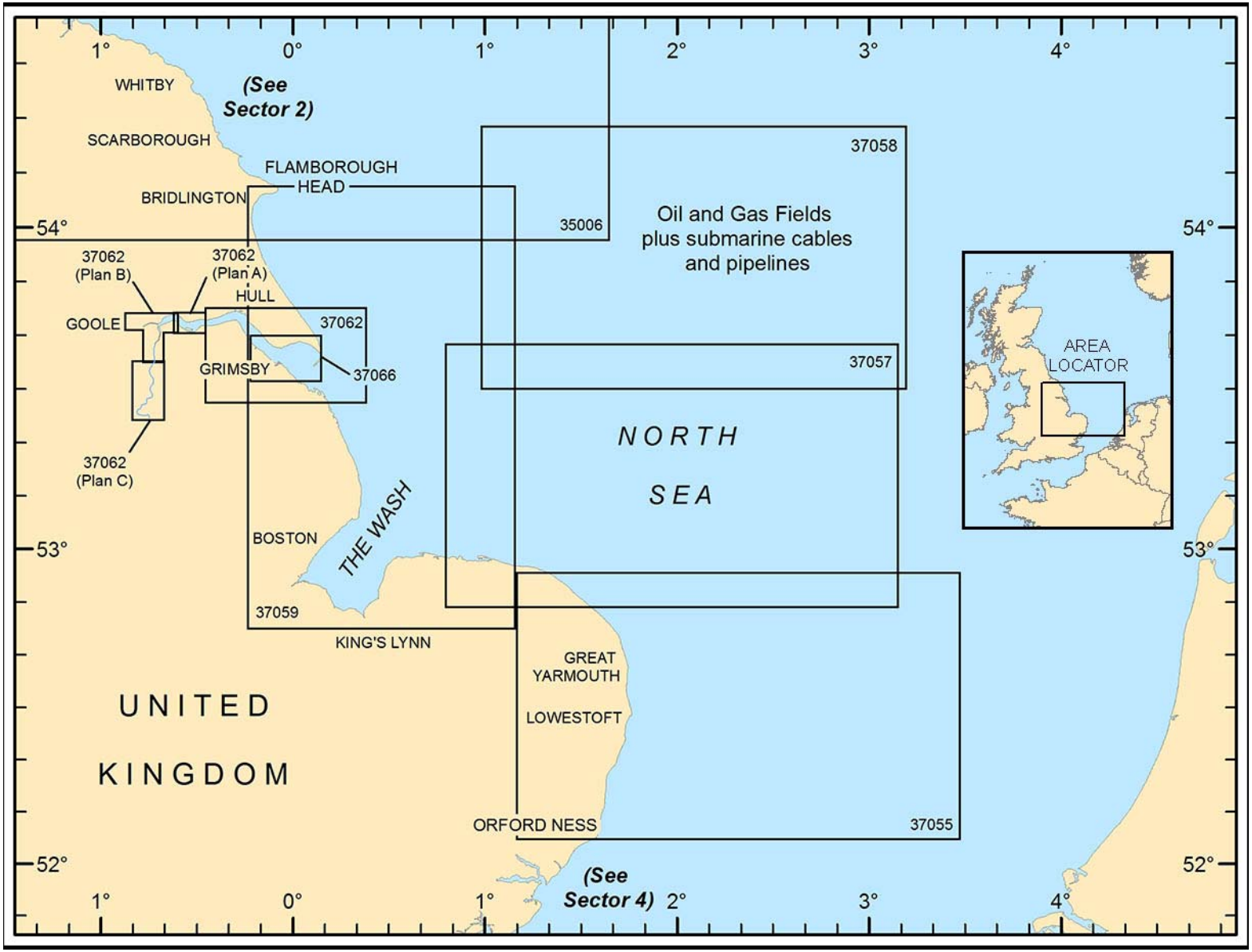
Caution.—An area centered about 1.2 miles NW of Flamborough Head and lying adjacent to the coast has not been surveyed.

Several submarine cables extend seaward from the vicinity of Filey Bay and may be best seen on the chart.

Within about 1.5 miles of the coast, the light shown from Flamborough Head is obscured up to 8 miles N by the cliffs.

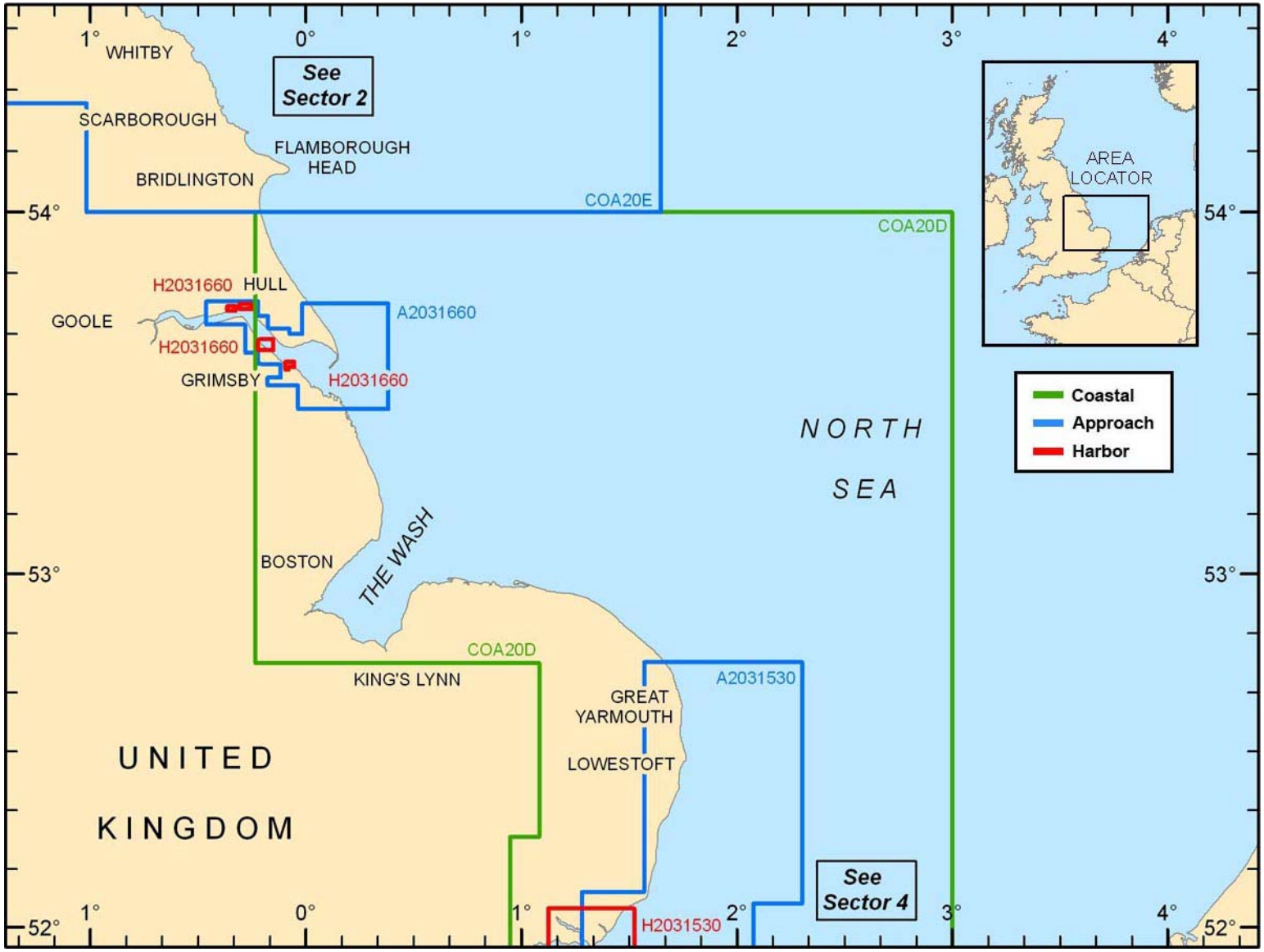
Numerous wrecks, some dangerous, lie up to 4 miles offshore along this stretch of coast and are best seen on the chart.

A firing practice area, which may best be seen on the chart, lies centered in position 54°47'N, 0°45'E, about 50 miles NE of Flamborough Head. There are no restrictions on vessels transiting the area at any time. For further information, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.



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

SECTOR **3** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 20 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 3 — DNC LIBRARY INFORMATION

SECTOR 3

ENGLAND—FLAMBOROUGH HEAD TO THE THAMES ESTUARY

Plan.—This sector describes the E coast of England between Flamborough Head and Orford Ness, at the N entrance of the Thames estuary. Included within this sector are the off-lying banks and dangers which are located in the approaches to the River Humber. The general descriptive sequence is from N to S.

General Remarks

3.1 Tides—Currents.—The offshore tidal currents between Flamborough Head and Oxford Ness change rapidly and begin 3 hours 15 minutes later off Winterton Ness than off Flamborough. Farther S, the rate of change decreases and eventually ceases; the currents begin 30 minutes earlier in the entrance to The Wash than off Flamborough.

The currents run in the same direction in the whole area for brief periods, but meet or separate at other times.

In the S part of the area, over and between the shoals off the N coast of Norfolk, the currents are more or less rotatory counterclockwise, but when strongest, run in about the directions of the channels. The times at which the currents are weakest and strongest vary considerably with the position.

Between the banks and shoals extending NE from the NE coast of Norfolk, the tidal currents follow the directions of the coast. In the outer channels, the current is more or less rotatory and, though when strongest it follows the direction of the channels, when changing from running SE to NW it sets SW. When changing from running NW to SW it sets NE across the shoals.

The currents gradually lose strength NE from Haisborough Sand, and in the channel between Leman and Ower Banks the spring velocity is about 2 knots, decreasing to 1.5 knots outside the outer bank. When strong currents run across the shoals or inequalities of the bottom, overfalls or ripples may be formed.

Directions.—For information concerning the offshore and inshore routes in this area, see paragraph 3.17, paragraph 3.18, paragraph 3.19, and paragraph 3.35.

Caution.—In the vicinity of the off-lying banks and dangers, fleets of fishing vessels are constantly encountered and a careful lookout for them should be maintained.

Caution, especially in low visibility, is also required in this offshore area because of the presence of gas production platforms and drilling rigs which often move. It should also be noted that radar responses from these rigs appear similar to those from ships.

The positions of the permanent production platforms and accompanying submarine pipelines are shown on the charts. Adjacent platforms may be connected by catwalk bridges.

In the offshore areas, seismic survey vessels, rig supply vessels, and maintenance vessels with divers may be encountered.

High speed craft may be encountered within the waters described in this sector.

Numerous wellheads are situated in the vicinity of the offshore oil and gas fields and are shown on the chart; those which are a possible hazard to surface navigation are marked by lighted buoys.

Adjacent to the oil and gas fields, designated development areas may exist and are shown on the chart. Within these areas, various maintenance craft may be working and vessels are advised to keep outside of the limits.

Incinerator vessels burning chemical waste may be observed in the offshore areas; flames and smoke may be emitted, giving the appearance of a ship on fire.

Vessels are strongly advised not to anchor or trawl near the pipelines in this area, because damaging a pipeline could create an immediate fire hazard. The natural gas in these pipelines is light, flows under high pressure, and is highly flammable.

Numerous dangerous wrecks lie within the area described by this sector and are best seen on the charts.

Off-lying Dangers

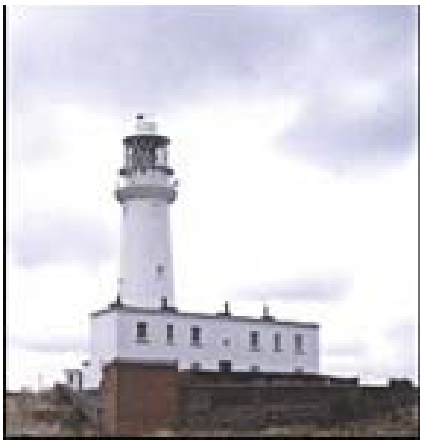
3.2 Numerous production platforms, wells, and gas and oil pipelines lie in the waters off the E coast of England and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Tyne Gas Field (54°27'N., 2°29'E.).
2. Munro Gas Field (54°26'N., 2°18'E.).
3. Trent Gas Field (54°18'N., 1°40'E.).
4. Kilmar Gas Field (54°17'N., 1°20'E.).
5. Boulton Gas Field (54°15'N., 2°09'E.).
6. Murdoch Gas Field (54°16'N., 2°19'E.).
7. Caister Gas Field (54°12'N., 2°27'E.).
8. Ketch Gas Field (54°03'N., 2°29'E.).
9. Schooner Gas Field (54°04'N., 2°05'E.).
10. Windermere Gas Field (53°50'N., 2°46'E.).
11. Ravenspurn N Gas Field (54°02'N., 1°06'E.).
12. Ravenspurn S Gas Field (54°03'N., 0°54'E.).
13. Cleeton Gas Field (54°02'N., 0°44'E.).
14. Neptune Gas Field (53°59'N., 0°47'E.).
15. Minerva Gas Field (53°57'N., 0°36'E.).
16. Rough Gas Field (53°50'N., 0°28'E.).
17. Hyde Gas Field (53°48'N., 1°43'E.).
18. Hoton Gas Field (53°48'N., 1°12'E.).
19. West Sole Gas Field (53°43'N., 1°08'E.).
20. Amethyst Gas Field (53°37'N., 0°44'E.) Dev Area.
21. Barque Gas Field (53°37'N., 1°32'E.).
22. Sole Pit Gas Field (53°34'N., 1°38'E.).
23. Ann Gas Field (53°43'N., 2°04'E.).
24. Mimas Gas Field (53°46'N., 1°42'E.).
25. Tethys Gas Field (53°39'N., 2°03'E.).
26. Wenlock Gas Field (53°35'N., 2°16'E.).
27. Saturn Gas Field (53°43'N., 1°54'E.).
28. Audrey Gas Field (53°34'N., 2°00'E.).
29. Ensign Gas Field (53°34'N., 1°53'E.).
30. Malory Gas Field (53°33'N., 1°15'E.).

31. Pickerill Gas Field (53°33'N., 1°08'E.).
32. Galahad Gas Field (53°33'N., 1°22'E.).
33. Excalibur Gas Field (53°28'N., 1°21'E.).
34. Guinevere Gas Field (53°25'N., 1°16'E.).
35. Lancelot Gas Field (53°25'N., 1°19'E.).
36. Waveney Gas Field (53°21'N., 1°18'E.).
37. Clipper Gas Field (53°28'N., 1°44'E.).
38. Alison Gas Field (53°31'N., 2°09'E.).
39. Clipper South Gas Field (53°24'N., 1°47'E.).
40. Galleon Gas Field (53°28'N., 1°55'E.).
41. Viking Gas Field (53°27'N., 2°20'E.).
42. Cutter Gas Field (53°42'N., 2°37'E.).
43. Valiant S Gas Field (53°19'N., 2°06'E.).
44. Valiant N Gas Field (53°23'N., 2°00'E.).
45. Vanguard Gas Field (53°23'N., 2°07'E.).
46. Ganymede Gas Field (53°19'N., 2°14'E.).
47. Victor Gas Field (53°20'N., 2°22'E.).
48. Indefatigable Gas Field (53°20'N., 2°35'E.).
49. Corvette Gas Field (53°14'N., 2°37'E.).
50. Bessemer Gas Field (53°12'N., 2°29'E.).
51. Bure Gas Field (53°07'N., 2°25'E.).
52. Vulcan Gas Field (53°15'N., 2°01'E.).
53. Anglia Gas Field (53°22'N., 1°43'E.).
54. North Hewett Gas Field (53°06'N., 1°46'E.).
55. Della Gas Field (53°05'N., 1°54'E.).
56. Hewett Gas Field (53°02'N., 1°45'E.).
57. Leman Gas Field (53°05'N., 2°11'E.).
58. Camelot Gas Field (52°57'N., 2°09'E.).
59. Norpipe 37-4-A Pump Station (55°54'N., 1°36'E.).
60. Norpipe 36-22-A Pump Station (55°18'N., 0°13'E.).

For oil and gas fields located E and SE of the above fields, in the vicinity of the North Sea Deep Water Routes, see paragraph 8.6 and paragraph 9.1.



Flamborough Head Light

Flamborough Head to the River Humber

3.3 Flamborough Head (54°07'N., 0°05'W.) is formed by a perpendicular cliff of white chalk, 37 to 40m high. It is very bold and a common landfall point for vessels passing N and S along this coast, as well as those sailing between the River Humber and the Baltic Sea.

A light is shown from a conspicuous tower, 27m high, standing on the headland. A prominent disused light tower stands 0.2 mile WNW of the light.

Flamborough Steel, the rocky ledge extending about 0.3 mile SE of the headland, can be avoided by keeping the upper part of the light structure in sight above the cliff, or by giving the cliff a berth of 0.5 mile.

Tides—Currents.—The tidal currents are stronger closer inshore than from 5 to 10 miles off Flamborough Head, but they appear to be affected by eddies.

At a position 1.5 miles ENE of the headland, the currents begin nearly 2 hours earlier than the corresponding currents near the coast NW of the headland and 1 hours 30 minutes earlier than those near the coast S of the headland.

Caution.—Within a distance of 8 miles N of Flamborough Head and within about 1.5 miles of the coast, Flamborough Head Light may be obscured by the cliffs. It may also be obscured within the N part of Bridlington Bay.

Submarines frequently exercise in the waters lying off Flamborough Head.

Flamborough Head from S

3.4 Off-lying banks and dangers—Dogger Bank (54°40'N., 2°20'E.) lies mostly between the parallels of 54°05'N and 55°20'N, and the meridians of 1°10'E and 5°00'E.

Southwest Patch, with depths of 13 to 18m, lies at the SW end of Dogger Bank and the sea breaks heavily over it during gales. This bank is a favorite resort of the fishermen, but should be avoided in bad weather. The brownish color of the water in the North Sea is largely due to the stirred-up deposits of this bank which are held in suspension.

Outer Well Bank (54°10'N., 2°00'E.), with a least depth of 19m, lies near the S end of Dogger Bank.

Outer Silver Pit (54°05'N., 2°10'E.), with depths of 36 to 82m, is a deep which separates Dogger Bank from a large area of shoal banks lying off the coast to the SW. The edges of this deep are often marked by tide ripples. The W end of the deep is known locally as Skate Hole; the E end is known locally as Botney Cut.

Caution.—Submarine pipelines, which may best be seen on the chart, extend SW from Cleeton Gas Field (54°02'N., 0°44'E.), SW from Rough Gas Field (53°50'N., 0°28'E.), and in a W direction from Amethyst Gas Field (53°37'N., 0°44'E.). These pipelines connect the various platforms situated within the fields to a mainland terminal located at Easington (53°39'N., 0°07'E.), about 5 miles N of Spurn Head.

Numerous dangerous wrecks and submerged well heads are situated in the vicinity of Dogger Bank and may best be seen on the chart.

A mine exercise area lies near the E end of Outer Silver Pit. Vessels are cautioned against anchoring or fishing in this area, due to the risk from explosives lying on the bottom.

An exercise range used by aircraft is centered on a radio tower (53°45'N., 2°34'E.), marked by a light, standing offshore, about 85 miles E of Spurn Head. Five other towers are situated in a circle, with a radius of 15 miles, around the central tower. The towers are connected by submarine power cables. The range, which may best be seen on the chart, is not used for weapons firing.

A submarine exercise area, which is indicated on the chart, lies about 20 miles N of the above central aircraft range tower.

3.5 **Sewerby** (54°06'N., 0°09'W.), a village, is situated 3.5 miles WSW of Flamborough Head. The coast between is composed of rocky cliffs fronted by a flat rocky foreshore. Then to Kilnsea, 31 miles farther SSE, the coast is composed of dark clay cliffs, 6 to 24m high. Inland, the country is low and there are not many features by which one part of the coast may be distinguished from another. A prominent building stands amid the trees at Sewerby.

North Smithic (54°05'N., 0°05'W.), a shoal with a least depth of 3.2m, lies centered about 1.3 miles S of Flamborough Head and is marked by a lighted buoy. South Smithic, a shoal with a least depth of 2.6m, lies centered about 3.7 miles SSW of Flamborough Head and is marked by a lighted buoy. These two shoals lie in the approaches to Bridlington Bay and extend into one another.

Bridlington (54°05'N., 0°11'W.) a resort town, stands at the head of Bridlington Bay, which lies between Flamborough Head and Bromston Sands, 7.5 miles SW. The harbor, which is formed by two piers, is used only by fishing vessels and pleasure craft. Tides rise about 6.1m at springs and 4.7m at neaps. The entrance faces S and is 27m wide. A sand spit, which dries, fringes the S side of the head of the N pier. Both the harbor and the near approach dries and vessels should be capable of taking the ground at LW. There is a depth of 4.3m alongside the inner side of the S pier at HWS. Vessels up to 45m in length and 3.9m draft have entered the harbor.

Several churches, with prominent spires, are situated in the town and a conspicuous block of apartments stands close W of the harbor. The harbor may be contacted by VHF and local fishermen will act as pilots for vessels without local knowledge. Vessels approaching from NE should pass NNW of North Smithic Lighted Buoy and vessels approaching from SE should pass WSW of South Smithic Lighted Buoy.

Anchorage.—Anchorage may be obtained in any part of Bridlington Bay between South Smithic and the coast. The best anchorage berth lies, in a depth of 10m, about 1.7 miles SW of Flamborough Head Light.

Caution.—A spoil ground area lies centered about 1.5 miles SE of Bridlington harbor entrance.

During N gales, a heavy and steep sea may be experienced over North Smithic and well into the lee of Flamborough Head.

An outfall pipeline extends 1 mile seaward from a point located on the shore about 0.6 mile SW of the Bridlington harbor entrance and is marked by a lighted buoy.

3.6 **Hornsea** (53°55'N., 0°10'W.), a small resort town, stands on low ground and is surrounded by trees, 10 miles S of Bridlington. A prominent church spire stands close to the cliffs at Mappleton, 2.3 miles S of Hornsea. Prominent church towers stand 1 mile apart in the villages of Ulrome and Skipsea, about 5 miles NNW of Hornsea.

Withernsea (53°44'N., 0°01'E.) is located 13 miles SSE of Hornsea. A conspicuous disused light tower, 39m high, stands close NW of the church in this village.

Withernsea

The high land at Dimlington, 4.5 miles SE of Withernsea, consists of a cliff of clay and pebbles, 40m high, and is a very conspicuous landmark from seaward.

Easington, with a prominent church tower and windmill, is located about 1.3 miles SSE of Dimlington. A conspicuous radio mast stands 0.7 mile W of the church tower.

Kilnsea, with a prominent church tower, is located 2 miles SSE of Easington. A tongue of land extends 3 miles S from Kilnsea to Spurn Point and forms the N entrance to the River Humber.

Caution.—A target firing area, marked by lighted buoys, is situated off the coast between Hornsea and Withernsea.

Several submarine gas pipelines, which may best be seen on the chart, extend seaward from a terminal (Easington) located near the shore about 2 miles N of Kilnsea.

The River Humber (Humberside)

3.7 The **River Humber** (Humberside) (53°33'N., 0°01'E.) is a common outlet for the numerous streams which drain the greater part of Yorkshire and the Midlands. It is formed by the junction of the River Ouse and the River Trent, which is located about 15 miles above Hull and 34 miles from the sea. Here the river is 0.5 mile wide, but, after an irregular course, it nearly triples its width as it reaches Hull. About 2 miles E of Hull, the river turns abruptly and runs SSE for 6 miles. It then bends to the E and joins the sea as a stream about 4 miles wide at high water.

The Humber is confined for nearly the whole of its course between low embanked lands, from which the water has been progressively excluded. The river is entered between Spurn Head and Donna Nook, 6 miles SSE.

Both sides of the estuary are fronted by extensive flats, which in some places dry up to 2 miles from the coastline. The navigable channels are narrowed by numerous shoals and depths within the fairways are constantly changing.

Above the Humber Bridge, the changes are so frequent that only local charts are published and local knowledge is essential.

Ports on the River Humber include Grimsby, Immingham, Hull (Kingston upon Hull), and Goole. A tanker terminal monobuoy is moored at Tetney.

ABP Humber Home Page

http://www.humber.com

Tides—Currents.—Tides at Goole rise about 5.7m at springs and 3.7m at neaps.

Tides at Hull rise about 7.5m at springs and 5.8m at neaps.

Both the duration and the velocity of the outgoing tidal current is increased during and after periods of heavy rain; the incoming current is correspondingly reduced. These changes are very small in the river entrance, but increase farther upriver; off Immingham, the outgoing current may continue to run up to almost 1 hour after the time at which the incoming current normally begins.

In the river entrance, the tidal currents run in the direction of the channel across Chequer Shoal, around Spurn Head, in Hawke Channel, and in Sunk Road; across Chequer Shoal, the currents are very strong and in Hawke Channel, they are subject to sudden changes of direction. The currents are generally stronger in the channels of the river than over the banks on both sides.

Between Grimsby and Immingham, the tidal currents run generally in the direction of the channel, but the incoming current on the NE side of the river sets strongly across Holme Ridge to the channel W of Foul Holme Spit.

Off Immingham, the spring velocities of the flood and ebb are about 3 knots and 5 knots, respectively; however, they may reach 4 knots and 7 knots, respectively, under exceptional circumstances. The dividing line between the strength of the current in the river and the comparatively slack water between the piers varies slightly in position, but is normally on a line joining the elbows of the piers, bending slightly in the center towards the lock entrance. It is somewhat nearer the lock entrance at HW than at LW. The dividing line can frequently be seen on the surface. The division between the weak currents at the piers and the slack water at the lock entrance occurs on a line between the outer ends of the masonry piers, where they join the pile piers.

In the river above Hull and in the lower reaches of the River Ouse and the River Trent, tidal currents normally run at velocities of 3 to 4 knots, but may exceed 6 knots at times. A bore occurs in the River Trent at equinoctial spring tides.

The quantity of fresh water increases as the river is ascended and on the surface, the outgoing current is observed to be stronger and of longer duration than the incoming current.

Depths—Limitations.—In the approach to the River Humber, the depths are singular and therefore useful in making this river in thick weather. The special feature, New Sand Hole, is a narrow and deep depression which has depths of 15 to 44m within it and depths of 9 to 16m on each side. At its NE end, this depression expands into an irregular basin with depths of 18 to 31m, sand.

With the exception of New Sand Hole, the depths off the River Humber, S of Dimlington, though somewhat irregular, nowhere exceed 23m, except in another depression which extends W from the SW end of New Sand Hole to about 2 miles S of Spurn Head; the bottom consists of sand and stones over an hardened brown clay. The Binks and Outer Binks shoals extend up to about 4 miles E of Spurn Head. Chequer Shoal, with depths of less than 4.6m, lies SE of The Binks and forms the N side of the channel between New Sand Hole and Spurn Head.

Haile Sand Flat, on the S side of the approach to the Humber, extends about 3.8 miles NNE from Donna Nook. Depths of 1 to 4.2m lie within 0.8 mile of the N edge of this shoal. Depths of less than 11m extend NE from Donna Nook to a position lying off the SE side of New Sand Hole.

Bull Sand shoal lies in mid-channel, 1.5 miles SW of Spurn Head. Haile Channel is located on the S side of Bull Sand and Bull Channel is located on the N side. The Middle, an extensive shoal, lies about 4 miles WNW of Spurn Head. Both of these shoals are subject to great changes in depths and configuration.

Hawke Channel, leading to the dredged passage through Sunk Road, is located N of The Middle. The Sunk Dredged Channel is about 215m wide and maintained at or near its designed depth of 8.8m.

Grimsby Middle Channel is located to the S side of The Middle. When navigating in this channel, vessels inbound should keep to the N side of the channel and vessels outbound should keep to the S side of the channel; all vessels should comply with the navigation aids which mark shoal patches within the fairway.

Between the W end of the Sunk Dredged Channel and Immingham, the channel fairway is indicated by a range.

Above Immingham, the channel configuration is subject to frequent change and the fairways are well-marked by lighted buoys and light floats, which are moved as necessary; the least depth in the channel as far as Hull Roads was reported to be 6.2m.

Limitations for entry to the various ports on the Humber are governed by the state of the tide together with the physical dimensions of the vessel. See Depths and Limitations for the individual ports.

Aspect.—Humber Light Float (53°38.7'N., 0°21.2'E.), equipped with a racon, is moored about 9 miles NE of Spurn Head and about 2 miles N of the NE end of New Sand Hole.

Spurn Light Float (53°33.5'N., 0°14.2'E.), equipped with a racon, is moored about 4.6 miles E of Spurn Head.

Outer Sand Lighted Buoy (53°36.4'N., 0°29.5'E.), equipped with a racon, is moored about 14 miles ENE of Spurn Head.

South Sand Lighted Buoy (53°35.6'N., 0°25.3'E.) is moored about 12.5 miles ENE of Spurn Head and 1.8 miles SW of Outer Sand Lighted Buoy.

Spurn Head (53°35'N., 0°07'E.), the N entrance point of the river, is formed by the S extremity of a tongue of land. A pilot and VTS control station is situated here. A conspicuous disused light structure, 39m high, stands on the tongue, about 0.5 mile NE of the head and another old disused light structure stands on the foreshore close W of it.

Spurn Light Float

Spurn Head

Spurn Head Lighthouse (disused)

Spurn Head Disued Lighthouses

Bull Sand Fort

Rough Gas Field (53°50'N., 0°28'E.), with a prominent lighted platform complex, is located about 20 miles NE of Spurn Head.

The S side of the entrance between Donna Nook and Grimsby, 9 miles NW, is low, as are all the shores of river, and fronted by extensive sands.

Bull Sand Fort stands 1.5 miles SW of Spurn Head and is marked by two lighted buoys. Bull Light Float is moored about 0.4 mile ESE of the fort.

Haile Sand Fort, marked by a light, stands about 3.5 miles SW of Spurn Head and is surmounted by a mast, 6m high.

The **Humber Bridge** (53°42'N., 0°27'W.), with a main span of 1,410m, is one of the longest single span suspension bridges in the world and crosses the river about 5 miles above Hull Roads; the two conspicuous towers, 161m high, can be seen for a considerable distance. The bridge has a vertical clearance of 30m.

Numerous small havens are situated on both banks of the river and are shown on the chart; the approach channels are marked by buoys or beacons. These havens contain many small marinas and are mainly used by pleasure craft. They generally dry and have depths of 1.5m at HW (see paragraph 3.12).

For additional landmarks located within the estuary, see Aspect listed under the individual ports.

For information concerning the Traffic Separation Scheme (TSS) situated off the entrance to the River Humber, see Directions.

The Humber Gateway Offshore Wind Farm: comprising 73 turbines. The wind farm is centered 2 miles W of Humber Light Float and is marked by lighted buoys (cardinal) at its NE, E, S, SW and NW corners.

The Westermost Rough Wind farm lies about 2 miles offshore from the coast of Yorkshire, and N of Hull. It contains 35 wind turbines.

Pilotage.—Humber Pilotage Control and Vessel Traffic Service (VTS) are combined in a single center located at Spurn Head. The Humber Pilotage Area includes the VTS area (see Regulations) and extends seaward to longitude 0°40'E.

Pilot ordering for inbound or outbound passages must be made to the Humber VTS center by facsimile, telephone, telex, or the appropriate VHF channel (VHF channel 12, 14, or 15). Pilot ordering may not be made by e-mail.

Inbound vessels from seaward should make their requests for pilotage on VHF channel 14.

In the approaches to the River Humber, VHF channel 13 is used as an intership channel and for communication between pilot boats and vessels embarking or disembarking pilots.

Pilotage is compulsory for vessels of 60m in length and over and all vessels carrying dangerous substances in bulk within the pilotage area. Pilotage is also compulsory for vessels 40m in length and over and all vessels carrying dangerous substances in bulk above Goole.

Vessels requiring pilotage, or their agent, should send an ETA message to the Humber VTS center at least 12 hours in advance of arriving at the seaward limit of the pilotage area. The message must state the following:

1. Name.
2. Call sign.
3. Draft.
4. Length.
5. Deadweight tons, gt, and nrt.
6. Air draft (if bound above the Humber Bridge or Steel Terminal at Hull or Goole).
7. Billing agency.
8. Last port of call or anchorage.
9. ETA at Spurn Light Float.
10. Destination dock or berth.
11. Tugs ordered and tug company.
12. Cargo details, including any hazardous cargo.
13. If pilot is required and boarding position.
14. Pilot Exemption Certificate number and name.
15. Any defects.
16. ISPS level.
17. Other information as necessary.

Westermost Rough Wind Farm

The Humber Offshore Windfarm

Humber Gateway Offshore Wind Farm Turbines

All inbound vessels must confirm their ETA not later than 2 hours 30 minutes prior to arriving at Alpha Lighted Buoy (53°32.8'N., 0°13.3'E.) on VHF channel 14. This confirmation is required under all circumstances and is not dependent on the availability of a berth or berthing time.

Vessels exempted from pilotage, in addition to the ETA confirmation above, must also advise Humber VTS on the appropriate VHF channel when passing the Reporting Points (see Regulations), when shifting berths, and when leaving any river berth or lock.

All outbound vessels departing from any port or berth within the pilotage area must send a request for pilotage to Humber VTS and give 2 hours advance notice.

Communications with Humber VTS is made, as follows:

1. For initial calling and safety vessels may use VHF channel 16.

2. Within the pilotage area from seaward up to the meridian of No. 4A Clee Ness Light Float (53°39.8'N., 0°02'E.), vessels should use VHF channel 14.

3. From the meridian of No. 4A Clee Ness Light Float to the Humber Bridge, vessels should use VHF channel 12.

4. Above the Humber Bridge, vessels should use VHF channel 15.

Pilots boarding and discharging positions are, as follows:

1. **Deep-draft vessels** (53°39'N., 0°22.0'E.).—Pilot board about 1.5 miles NE of the Humber Light Float. The term deep-draft vessels refers to Very Large Ships (VLS), meaning vessels greater than 40,000 dwt, gas carriers greater than 20,000m3, or vessels with drafts greater than 11m. Pilots may also board VLS at deepwater anchorage stated below.

2. **PB1 (Papa Bravo 1)** (53°33.3'N., 0°15.0'E.).—This is the main pilot boarding area for all inbound vessels, except for VLS and other large or complex vessels, and is located about 0.5 mile SE of Spurn Light Float.

3. **PB2 (Papa Bravo 2)** (53°34.4'N., 0°16.5'E.).—This is the boarding position for large vessels inbound via New Sand Hole TSS and is located in the vicinity of S Binks Light Buoy.

4. **PB3 (Papa Bravo 3)** (53°33.2'N., 0°18.0'E.).—This is the boarding position for large or complex vessels for inbound vessels entering via Inner Sea Reach TSS and is located in the vicinity of Inner Sea Reach Light Buoy.

5. Smaller vessels in adverse weather and ships with unusual construction characteristics: 53°32.9'N 0°10.6'E (AW1 Inward - Chequer No. 3 Lighted Buoy)

6. Smaller vessels in adverse weather and ships with unusual construction characteristics: 53°32.5'N 0°10.6'E (AW1 Outward - Chequer No. 3 Lighted Buoy)

7. Smaller vessels in adverse weather and ships with unusual construction characteristics: 53°34.2'N 0°05.5'E (AW2 Inward - Spurn Head)

8. Smaller vessels in adverse weather and ships with unusual construction characteristics: 53°33.8'N 0°05.5'E (AW2 Outward - Spurn Head)

9. Vessels exempt from compulsory pilotage but requiring a pilot for the Ouse or Trent: 53°44.1'N 0°20.5W (River Trent and River Ouse - Riverside Quay, Albert Dock, Hull).

10. Pilot disembarks in position 53°32.5'N 0°15.0'E (Haile Sand). Disembarkation of all vessels not subject to the Humber Passage Plan.

11. **River Trend and River Ouse** (53°44.1'N., 0°20.5'E.).—For vessels exempt from compulsory pilotage on the River Humber and which require pilot for River Trend and River Ouse board in Hull Roads off Riverside Quay, in Albert Dock.

12. **Outward** (53°32.5'N., 0°15.0'E.). All vessels, except Very Large Ships, discharge the pilot at 1 mile E of Haile Sand Light Buoy.

13. **Humber Deepwater Anchorage.—**Large vessels, a waiting for pilot should anchor in the deep-water anchorage centered about 3.5 miles SE of the Humber Light Float. The limits of the anchorage are marked by four lighted buoys containing three designated berths, each with a swinging radius of 0.5 mile. However, vessels anchored in this area have been known to drag at the rate of up to 2 knots in a N direction toward the gas pipelines situated 4 miles N.

The Humber Bridge

Regulations.—Vessels sheltering, anchoring, or moving within the river should not transfer fuel, goods, spares, materials, or personnel between vessels without first obtaining permission from the harbormaster via Humber VTS.

Vessels must not cross a fairway in such a manner as to cause inconvenience or danger to other vessels.

Vessels not confined to a fairway by reason of draft shall not impede other vessels confined to the fairway.

Vessels turning round shall give four short blasts on the whistle followed by one short blast if turning to starboard and two short blasts if turning to port.

Vessels are cautioned to prevent their wash causing damage to other vessels moored alongside. Such vessels should reduce their speed to less than 5 knots.

Vessels navigating against the tidal current shall on approaching bends, bridges, or fairways reduce speed or stop in order to allow vessels navigating with the current to pass clear. This rule does not apply if the former vessel is constrained or can only navigate safely within the fairway.

The Humber Serious Marine Emergency Plan (HSMEP) is a contingency plan developed to deal with any marine accident or emergency including oil pollution within the river. Details of this plan and the emergency will be broadcast by Humber VTS on VHF channels 12, 14, and 16.

Any vessels within the river that are involved in incidents such as collisions, fires, groundings, spillages, fouling of pipelines or cables etc. should immediately contact Humber VTS on VHF channel 16 or the other appropriate area channel.

Special passage procedures for vessels of 40,000 dwt and over (whether laden, partly laden, or light), vessels with a draft of 11m and over, and gas carriers with a capacity of 20,000 cu.m. and over (irrespective of draft) are in effect when bound to and from the following facilities:

1. Tetney Monobuoy (see paragraph 3.8).
2. Immingham Oil Terminal (see paragraph 3.10).
3. Immingham Gas Terminal (see paragraph 3.10).

4. South Killingholme Oil Terminal (see paragraph 3.10).
5. Immingham Bulk Terminal (see paragraph 3.10).
6. Humber International Terminal (see paragraph 3.10).
7. Salt End Oil Terminal (see paragraph 3.11).

Such vessels must follow the procedures stated in the Humber Passage Plan, which has been prepared by Associated British Ports (ABP) Humber to facilitate the safe movements of large vessels in the river. These large vessels generally embark two pilots. They should also allow an underkeel clearance of 2m while transiting the traffic lanes situated SE of Spurn Head due to sea and swell conditions and turning maneuvers.

Vessel Traffic Service.—Humber Vessel Traffic Service (Humber VTS) is divided into three operational areas, as follows:

1. Area 1 extends W from seaward to the meridian of No. 4A Clee Ness Light Float (53°35'N., 0°02'E.). The seaward limit is bound by a line joining the following:
   a. Easington Church (53°39.0'N., 0°06.9'E.).
   b. Position 53°40.0'N, 0°30.0'E.
   c. Position. 53°30.0'N, 0°30.0'E.
   d. Donna Nook (53°28.4'N., 0°09.2'E.).
2. Area 2 extends upriver from the meridian of No. 4A Clee Ness Light Float to the Humber Bridge.
3. Area 3 extends upriver from the Humber Bridge to Gainsborough, on the River Trent, and Goole, on the River Ouse.

The Humber VTS procedures are mandatory for all vessels over 50 gt and those vessels carrying dangerous cargoes.

Communication with Humber VTS should be carried out, as follows:

1. Within Area 1, vessels should use VHF channel 14. VHF channel 13 may be used for intership communication.
2. Within Area 2, vessels should use VHF channel 12. VHF channel 10 may be used for intership communication.
3. Within Area 3, vessels should use VHF channel 15. VHF channel 10 may be used for intership communication.

All times should be given in local time using the 24-hour notation.

All vessels within the pilotage area should keep a continuous watch on the appropriate VHF channel.

All inbound vessels should send a report to the Harbor Master via Humber VTS at least 24 hours in advance or within 1 hour of leaving a previous port of call where such port is not situated within the River Humber. The report should include an ETA and the same information as listed above in the request for pilotage message.

Vessels should report to Humber VTS on VHF channel 14 when 2 hours 30 minutes from Alpha Lighted Buoy (53°32.8'N., 0°13.3'E.), They should then maintain a continuous listening watch on VHF channels 14 and 16.

To avoid congestion on the main VHF channels, vessels wishing to communicate with each other, for the purpose of navigation only, should initially use the appropriate VHF channel for the area and then move to the appropriate inter-ship channel. Vessels are required to keep a continuous listening watch on the main operational VHF channel but not on the intership channel.

Inbound vessels are required to contact Humber VTS on the appropriate VHF channel when passing the following Reporting Points:

1. When entering the TSS and passing either Humber Lightfloat (53°38.7'N., 0°21.4'E.), Outer Sea Reach Lighted Buoy (53°32.7'N., 0°23.0'E.), or Outer Rosse Reach Lighted Buoy (53°29.8'N., 0°20.9'E.).
2. When the pilot is embarked.
3. When passing Spurn Light Float (53°33.5'N., 0°14.2'E.).
4. When anchoring and not proceeding to a port.
5. When passing the meridian of No. 4A Clee Ness Light Float (53°35'N., 0°02'E.). (Change from VHF channel 14 to channel 12).
6. When passing Sunk Split Lighted Buoy (53°37.1'N., 0°04.6'W.).
7. When passing No. 19 Paull Sand Lighted Buoy (53°42.0'N., 0°13.7'W.).
8. When passing the Humber Bridge (53°42'N., 0°27'W.). (Change from VHF channel 12 to channel 15).
9. When passing Brough (53°44.0'N., 0°33'W.).
10. When passing Trent Falls (53°42.0'N., 0°41'W.) for vessels entering the River Trent or River Ouse.
11. When passsing Skelton Railway Bridge (River Ouse).
12. When passsing Keadby Railway Bridge (River Trent).
13. When made fast in any lock or alongside any berth.
14. When securely moored at a final destination berth.

Inbound vessels intending to navigate the Sunk Dredged Channel should obtain clearance from Humber VTS prior to passing Spurn Head (53°34.0'N., 0°6.6'E.).

The Sunk Dredged Channel in now dredged continuously; the least available depth is announced by Humber VTS on VHF channels 12, 14, and 15 during regular river broadcasts. This information is also available on request.

Outbound deep-draft vessels, which are constrained by their draft, may occasionally navigate against the traffic flow in that part of the TSS lying between Spurn Head and Spurn Light Float. Vessels intending to carry out this maneuver must first obtain permission from Humber VTS, which then broadcasts appropriate warnings.

Vessels at anchor that are bound for a port or berth within the River Humber must obtain clearance from Humber VTS prior to leaving the anchorage and again when departing from the anchorage.

General information including visibility, weather, tidal information, aids, navigational warnings, and traffic movements is broadcast by Humber VTS on VHF channels 12, 14, and 15 every 2 hours commencing 0103 hours LT. Prior notification is given on VHF channel 16.

Humber VTS provides AIS coverage throughout the area. Radar tracking is available between the seaward limit of the VTS area and the Humber Bridge.

Humber VTS may be contacted by e-mail, as follows:

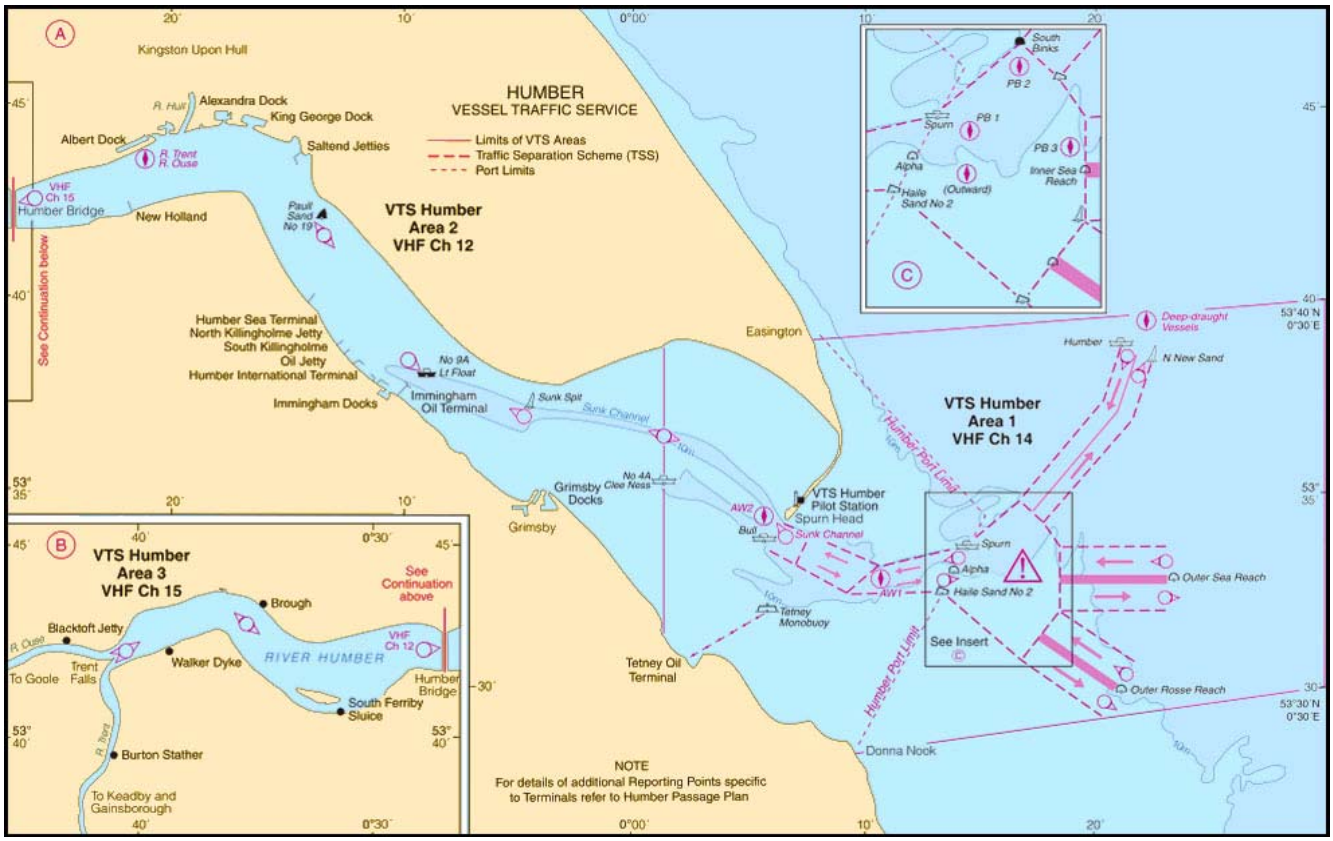
hespilotage@abports.co.uk

Signals.—The following signals are shown from the entrances to the locks at the individual ports within the river:

1. Three vertical red lights—Vessels should not enter.

2. A white light with a green light vertically above and below it—Vessels may enter when specific orders to do so have been received.

Anchorage.—A deep-water anchorage area lies centered about 3.5 miles SE of the Humber Light Float. It is used by large vessels (see Pilotage).



Humber VTS

Bull Anchorage, centered about 1.8 miles S of Spurn Head, is a general anchorage area, with depths of 6 to 12m.

Haile Anchorage, which adjoins the SW side of Bull Anchorage, is for the use of vessels carrying explosives.

Hawke Anchorage lies centered 3 miles WNW of Spurn Head. It is used by small vessels and has depths of 4.4 to 8.8m.

The limits of these anchorage areas may best be seen on the chart.

Directions.—An IMO-adopted Traffic Separation Scheme (TSS) has been established in the approaches to the River Humber where Rule 10 of 72 COLREGS applies. This TSS is marked by lighted buoys and may best be seen on the chart.

The TSS includes two small Precautionary Areas lying centered 0.6 mile S and 2.8 miles SE of Spurn Head and a large Precautionary Area lying centered 1.5 miles SE of Spurn Light Float.

A Separation Zone extends 3.2 miles SW through New Sand Hole (see Depths and Limitations) and connects to the NE side of the large Precautionary Area at a position about 2 miles ENE of Spurn Light Float. Inbound and outbound traffic lanes, used by vessels from the NE, are situated on the NW side and SE side, respectively, of this zone. The outer limits of these traffic lanes are marked by lighted buoys. Large vessels should use these traffic lanes.

A Separation Zone extends 3 miles W and connects to the E side of the large Precautionary Area at Inner Sea Reach Lighted Buoy (53°32.7'N., 0°18.4'E.). Inbound and outbound traffic lanes, used by vessels from the E, are situated on the N side and S side, respectively, of this zone.

A Separation Zone extends 2.5 miles NW and connects to the SE side of the large Precautionary Area at Inner Rosse Reach Lighted Buoy (53°31.2'N., 0°17.6'E.). Inbound and outbound traffic lanes, used by vessels from the SE, are situated on the NE side and SW side, respectively, of this zone.

A Separation Zone, connecting the E side of the outer small Precautionary Area to the W side of the large Precautionary Areas, extends W between Alpha Lighted Buoy (53°32.8'N., 0°13.3'E.) and Bravo Lighted Buoy (53°32.6'N., 0°11.2'E.). An inbound traffic lane is situated on the N side of this zone and an outbound lane is situated on the S side.

A Separation Zone, connecting the two smaller Precautionary Areas, extends NW between Charlie Lighted Buoy (53°32.7'N., 0°09.7'E.) and Delta Lighted Buoy (53°33.5'N., 0°07.2'E.). An inbound traffic lane is situated on the NE side of this zone and an outbound lane is situated on the SW side.

Caution.—The dredged channel through Sunk Road is subject to silting, so the charted depth and full width of the channel is rarely available.

Due to the changing configuration of the shoals and fairways within the river, navigation aids are frequently moved and may not be at the positions indicated on the chart. Only those channels which are buoyed should be used.

Numerous dangerous wrecks lie in the approaches to the river and may best be seen on the chart.

A measured distance course is situated adjacent to the N bank of the river in the vicinity of the W end of the Sunk Dredged Channel. Beacons marking the distance are situated on the shore and can best be seen on the chart.

Several submarine gas pipelines, which may best be seen on the chart, cross the river about 1 mile below the Salt End Oil Terminal.

Outfall pipelines extend 1.5 miles seaward from points located on the S bank of the river, 0.7 mile and 1.2 miles W of Royal Dock, Grimsby. Their outer ends are marked by lighted buoys.

Several unlit mooring buoys are situated in the river about 1.5 miles N of Grimsby and may best be seen on the chart.

Several spoil ground areas are located in the river and the approaches and may best be seen on the chart.

Tetney Monobuoy

Deep-draft vessels approaching from the E and SE should not attempt to transit the E and SE traffic lane routes of the TSS. Such vessels should proceed N and utilize the NE traffic lane route (see Directions).

Vessels moored in the deep-water anchorage are, at times, in danger of dragging their anchors. For further information, see Pilotage.

3.8 **Tetney Monobuoy** (53°32'N., 0°07'E.), a tanker mooring buoy, is situated off the S shore of the entrance to the River Humber, about 2 miles S of Spurn Head. A submarine pipeline extends for about 3 miles in a SW direction from the monobuoy to the shore. When not in use, a floating hose pipe, marked by lights, may extend up to 290m from the monobuoy. Vessels up to 150,000 dwt (and up to 280,000 dwt, if only partly laden), with drafts up to 15.5m, can be accommodated.

Tetney Oil Terminal can be contacted by VHF and by the following email address:

tetms@conocophillpis.com

Tetney Oil Terminal also provides berthing instructions. Vessels should send an ETA to the terminal 72 hours and 24 hours in advance. See regulations for large vessels in paragraph 3.7.

Other vessels should keep a safe distance from tankers secured to the monobuoy or maneuvering in the vicinity.

Grimsby (53°35'N., 0°04'W.)

World Port Index No. 31640

3.9 Grimsby stands on the SW shore of the River Humber, 6 miles W of Spurn Head and 14 miles below Hull. It is a large fishing and commercial port.

Grimsby

Tides—Currents.—Tides rise about 7m at springs and 5.6m at neaps.

Both the flood and ebb tidal currents are reported to circulate around the tidal basin and, except at HWN, are reported to run SE across the lock entrance. Winds from the NNE cause the highest tides and those from NNW the most sea, but the swell very seldom prevents the dock gates being opened.

Depths—Limitations.—The docks and entrance are subject to constant dredging. The Dock Master should be consulted for the latest information. The fairway has a least charted depth of 1.7m, but a charted depth of 1.2m lies close N of the centerline.

The W dock complex consists of Royal Dock, Union Dock, and Alexandra Dock. The entrance lock is approached through the tidal basin, which is 76m wide. The lock is 90m long, 21.4m wide, and has depths on the sill of 8.2m at HWS and 6.8m at HWN. It normally operates from 1 hour 30 minutes to 30 minutes before HW, depending upon draft.

Vessels up to 145m in length and 20.6m beam can enter with drafts up to 6.4m at springs and 5.8m at neaps; vessels of over 81.7m in length have to canal through the lock at HW. An underkeel clearance of 0.9m is required.

Alexandra Dock is entered through Union Dock, 28m wide, entered from Royal Dock. A small craft marina is situated in the S part of Alexandra Dock; it can accommodate craft up to 23m in length and 4.5m draft.

Within the W dock complex, there is 1,595m of total berthage, with extensive facilities for ro-ro, bulk, container, and automobile ferry vessels.

The E dock complex has extensive facilities for fishing vessels and supports one of the largest fishing fleets in the United Kingdom. The entrance lock is 21m long and 13m wide, with depths on the sill of 8.2m at HWS and 5.8m at HWN. Vessels up to 73m in length, 12.2m beam, and 5.5m

draft can enter; the larger fishing vessels have to canal through the lock at HW.

There are two Ro-Ro berths suitable for ships up to 175m in length, with a depths alongside each dock of 7.2m. Depths are liable to change. For the latest depth information contact the Dock Master. Lights are exhibited from the E end of the jetty.

Aspect.—The port is approached through Bull Channel and a fairway which is marked by light floats and lighted buoys. The harbor consists of a tidal basin and two wet dock complexes. The easternmost complex is used by fishing vessels; the westernmost complex forms the commercial part of the port.

A conspicuous water tower stands at Cleethorpes, 1.5 miles SE of the harbor entrance. A hydraulic tower, 94m high, stands at the entrance to Royal Dock and is also conspicuous. A large prominent factory, with three chimneys, is situated 1.3 miles W of the harbor entrance; the northernmost chimney is distinguishable by a spiral wind baffle.

Pilotage.—See pilotage for the River Humber in paragraph 3.7.

Anchorage.—Small, light-draft vessels can anchor in Grimsby Roads; however, vessels are prohibited from anchoring in the fairway leading to the harbor entrance and within the prohibited anchorage area indicated on the chart.

Hawke Anchorage, situated on the N side of Grimsby Middle Channel, has depths of 4.4 to 8.8m. It is a general anchorage area for small vessels and the limits may best be seen on the chart.

Immingham (53°38'N., 0°12'W.)

World Port Index No. 31650

3.10 Immingham stands on the SW shore of the River Humber, 5.5 miles above Grimsby. The port consists of a wet dock and several terminal berths which extend for about 2 miles along the river side.

Depths—Limitations.—The entrance lock of Immingham Dock is 256m long and 27.4m wide. It is fitted with three pairs of gates and divided into two sections, 160m and 96m long. There are depths over the inner sill of 11.3m at HWS and 9.9m at HWN. A depth of about 10.8m is maintained in the dock; however, depths alongside the berths are subject to change. Vessels up to 37,000 dwt, 198m in length, 26.2m beam, and 10.4m draft have been accommodated. The dock has 1,700m of total quayage, with facilities for ro-ro, bulk, and container vessels.

Eastern Jetty and Western Jetty, which are situated on either side of the approach to the lock, provide berths for coasters and tankers. Vessels up to 30,000 dwt, 213m in length, and 10.3m draft can be handled alongside.

Immingham Oil Terminal, situated below the entrance to the lock, consists of three T-headed berths with associated mooring dolphins. A jetty, 0.5 mile long, extends NE and connects the berths to the shore. Tankers up to 290,000 dwt, partly laden, 366m in length, and 13.1m draft can be accommodated.

Immingham Bulk Terminal, 525m long, is situated 0.6 mile above the entrance to the lock. It has a berth for loading coal or coke and a berth for discharging iron ore. Vessels up to 200,000 dwt, partly laden, 303m in length, and 14m draft can be handled.

Humber International Terminal lies adjacent to the N side of Immingham Bulk Terminal. The terminal is 300m long and has a depth of 14.7m alongside. Vessels up to 100,000 dwt, 265m in length, and 14.2m draft can be handled.

Immingham Oil Terminal

Immingham Bulk Terminal

Humber Sea Terminal

Immingham Gas Terminal, situated close above Humber International Terminal, consists of an L-shaped jetty. The berth has a seaward face, 80m long, with associated mooring dolphins and is dredged to a depth of 12m alongside. Vessels up to 80,000m^3 capacity, 280m in length, and 11m draft can be accommodated.

South Killingholme Oil Terminal, situated close above Immingham Gas Terminal, consists of an L-shaped jetty. The berth has an outer face, 85m long, with associated mooring dolphins. It has a depth of 10m alongside and can handle vessels up to 213m in length.

North Killingholme Oil Terminal, situated 2.7 miles above the entrance to Immingham lock, consists of a T-shaped jetty

with dolphins. The berth has a depth of 10.1m alongside and vessels up to 177m in length can be handled.

North Killingholme Haven, situated close S of the root of North Killingholme Oil Terminal, is a cargo terminal which provides three berths. Vessels up to 5,000 dwt, 140m in length, and 6.5m draft can be handled.

Humber Sea Terminal, consisting of an L-shaped jetty, lies close E of North Killingholme Oil Terminal. This jetty provides two ro-ro berths, with a depth of 9.3m alongside. The approach channel is reported to be dredged to a depth of 7.2m.

South Killingholme Oil Terminal

Aspect.—Immingham may be approached by way of Hawke Channel and the Sunk Dredged Channel.

A conspicuous chimney stands 0.5 mile SSE of the dock entrance. Several chimneys and a flare stand in the vicinity of a prominent oil refinery, 2.3 miles WNW of the dock entrance.

Several lighted ranges and directional lights, situated in the vicinity of Killingholme, indicate the approach fairways to Immingham and the main terminals. These aids may best be seen on the chart.

Pilotage.—See pilotage for the River Humber in paragraph 3.7.

Regulations.—Inbound vessels should not proceed past Bull Light Float without obtaining permission from Humber VTS.

Signals.—Synchronized traffic lights are shown by day and at night from the top of the signal tower (Tower A) at the entrance to Immingham Dock and on the signal mast (Tower B) at Immingham Oil Terminal Jetty, as follows:

1. A white group flashing light giving two flashes, each of 2 seconds duration, every 10 seconds—A vessel is arriving or leaving Immingham Dock, East Jetty or West Jetty, or is maneuvering at the Bulk Terminal.
2. A white light giving one flash of 6 seconds duration every 15 seconds—A vessel is maneuvering off Immingham Oil Terminal Jetty.

Anchorage.—Whitebooth Roads, 2 miles NW of the dock entrance, affords anchorage, in depths of 5.8 to 9m.

Caution.—When entering or leaving the dock, allowance for the tidal currents must be made and sufficient speed for good steerage way maintained. When entering with a strong current, vessels are advised to proceed at low speed close in to the Western Jetty on the flood and close in to the Eastern Jetty on the ebb.

Due to siltation, depths in the entrance to the dock are continually changing. The channel above Immingham is subject to change and the buoys are moved accordingly.

Hull (Kingston Upon Hull) (53°45'N., 0°17'W.)

World Port Index No. 31660

3.11 Hull stands on the N shore of the River Humber at its junction with the River Hull, 20 miles above Spurn Head. A tidal surge barrier crosses the River Hull near its mouth. The port, which extends for about 6 miles along the shore, consists of wet docks, river berths, and an oil terminal. It handles passenger and cargo vessels, and supports a large fishing fleet.

Tides—Currents.—See the River Humber in paragraph 3.7.

Depths—Limitations.—King George, Queen Elizabeth, and Alexandra, the three main commercial wet docks, are situated in the E part of the port. Albert and William Wright wet docks, which are use only by fishing vessels, are situated in the W part of the port.

The lock at the entrance to King George Dock is 228m long and 25.7m wide. It has depths over the sill of 13.1m at HWS and 11.5m at HWN. King George Dock has 3,423m of total quayage and Queen Elizabeth Dock, an extension of King George Dock, has 1,646m of total quayage. Both docks are usually maintained at a depth of 11m. Vessels entering the docks at HWS are generally limited to a length of 196m, a beam of 25.5m, and a draft of 10.4m. It is reported that vessels up to 222m in length have entered by special arrangement. Vessels up to 5.8m draft generally have access to the docks over the full 24-hour period on neap tides and over an 18-hour period on spring tides. These enclosed docks have facilities for ro-ro, bulk, ferry, container, and passenger vessels. A covered steel berth is situated at the SE end of King George Dock on the site of a former drydock. It can handle vessels up to 127m in length, 20.1m beam, 7m draft, and 13.5m air draft.

Riverside Terminal 1, a ro-ro jetty, is situated 0.3 mile W of the entrance to King George Dock. It provides a berth for vessels up to 180m in length and 6.5m draft.

Hull—King George Dock and Queen Elizabeth Dock

It is reported that two additional ro-ro ferry berths are to be constructed close E of the entrance to King George Dock.

Alexandra Dock, situated W of King George Dock, is entered through a lock 167.8m long and 25.7m wide, with a

depth on the sill of 10.4m at HWS. The dock has 4,082m of total quayage and has been dredged to a depth of 8.3m. Vessels up to 153m in length, 23.7m beam, and 7.9m draft can enter at HWS. There are extensive facilities for bulk vessels.

It is reported that a container terminal is under construction outside the entrance to Alexandra Dock.

Alexandra River Quay, situated at the W side of the entrance to Alexandra Dock, is 325m long and can handle vessels with drafts up to 6.7m at HWS.

Old Harbor, situated 1 mile W of Alexandra River Quay, extends about 0.5 mile upstream from the mouth of the River Hull. It is the original harbor and is still used by coasters and small craft up to 500 gt. A tidal surge barrier crosses the river, about 200m above the mouth.

Albert Dock, situated 0.5 mile W of Old Harbor, and William Wright Dock, an extension, provide 3,453m of total quayage and have depths of 6.5m. These enclosed docks are mostly used by fishing vessels and are entered through a lock, 97m long and 24.3m wide, which has depths on the sill of 8.5m at HWS and 7m at HWN.

Hull Marina, situated close E of Albert Dock, is entered through basin and a lock. It can accommodate small craft up to 22.8m in length. The depth in the marina is normally maintained at 2.5m and access is limited to 3 hours either side of HW.

Salt End Oil Terminal, at the SE end of the port, consists of a T-shaped jetty with two berths and associated dolphins. Tankers up to 40,000 dwt and 214m in length can be accommodated with drafts up to 10.4m at HWS.

Salt End Oil Terminal

Aspect.—Thorngumbald Clough is a rather prominent point on the NE shore of the river, 2.5 miles below the entrance to King George Dock. A lighted reverse range is shown from this point and marks the fairway adjacent to the Salt End Oil Terminal. A disused light structure, standing 0.7 mile NNW of the point, is prominent and two cooling towers, standing 0.8 mile NE of the oil terminal, are conspicuous. Lighted ranges, which may best be seen on the chart, indicate the limits of the deep water in the approach to the oil terminal; they are only shown when a vessel is berthing.

Conspicuous landmarks in the vicinity of the city include a large grain silo standing at the W side of King George Dock, the towers of the tidal surge barrier at the mouth of the River Hull, and the tower of Holy Trinity Church standing close NNW of the tidal barrier.

A conspicuous aquarium building (The Deep) stands on the E entrance point of the River Hull.

Hull—King George Dock Lock (HW)

Hull—Alexandra Dock

Hull—The Deep Aquarium

Pilotage.—See pilotage for the River Humber in paragraph 3.7.

Signals.—Tidal surge barrier signals, consisting of two pairs of yellow quick flashing lights, are shown from each side of the entrance to the River Hull when the river is closed to traffic.

A high intensity quick flashing light is shown from the entrance to Albert Dock to warn other traffic that vessels are leaving the lock.

Anchorage.—Hull Road affords anchorage, in depths of 6 to 9m, mud and sand, but the upper part of the roadstead is too shallow for large vessels.

Caution.—Vessels of large size must not remain at anchor in the roadstead during low water springs, as the depths are liable to vary from those charted and grounding is possible.

Anchorage is prohibited within the areas, the limits of which are shown on the chart, situated SW of Thorngumbald Clough, in the approaches to the oil terminal and in the approaches to Albert Dock.

The Upper River Humber

3.12 No directions can be given for the River Humber above Hull due to the constant changes in the channels. Lighted buoys, light floats, and beacons which mark the channel fairways are moved as required.

New Holland (53°42'N., 0°21'W.) is situated on the S side of the river, 2 miles SW of the mouth of the River Hull. A T-shaped pier, formerly used by ferries, provides four berths with depths alongside of 7m at HWS and 5.5m at HWN. Vessels up to 6,180 dwt and 114m in length can be handled. A small tidal dock has two berths, with depths up to 6.2m at HWS and 4.5m at HWN. Vessels of up to 5,000 dwt and 105m in length can enter.

Goole (53°42'N., 0°50'W.) (World Port Index No. 31670) stands on the W bank of the River Ouse, about 24 miles above Hull. The port provides an outlet for the inland waterway system and consists of an extensive wet dock complex.

Goole

Depths—Limitations.—The port is approached by a tortuous channel which is navigable by vessels with drafts up to 5.5m at springs and 4.6m at neaps. It consists of eight interconnected docks which may be entered through two locks.

Ocean Lock is 104m long and 24.4m wide. It has depths on the sill of 8m at HWS and 6.1m at HWN. Victoria Lock, constructed in two sections, is 145m long and 14.2m wide. It has depths on the sill of 7.8m at HWS and 6m at HWN.

Vessels up to 100m in length, 24m beam, and 5.5m draft have been accommodated. The dock complex has about 3 miles of total quayage, which provides 30 berths with facilities for container, ro-ro, and bulk vessels.

Aspect.—The Humber Bridge (see paragraph 3.7) spans the river 5.5 miles above Hull Roads and is very conspicuous. Lights are shown from a shipyard located at Hessle Haven on the N side of the river, about 0.7 mile E of the bridge. A church, with a prominent spire, stands 0.4 mile NNW of the shipyard.

A prominent chimney stands on the S side of the river, about 0.7 mile E of the bridge. A conspicuous chimney stands at a cement factory at Ferriby Sluice, on the S side of the river, about 3 miles above the bridge. A prominent green building (bird observatory) stands at Barton-on-Humber, on the S side of the river, close E of the bridge.

Ferriby Sluice (cement factory chimney)

Barton-on-Humber (bird observatory)

Brough Haven—River Humber

Brough Haven, which is used as a yacht marina, lies on the N bank, 4.8 miles WNW of the bridge. During the Roman occupation of Britain, this haven was the N destination of a river ferry.

The junction of the River Ouse and the River Trent is located about 16 miles above Hull Roads; Goole is situated on the River Ouse, about 8 miles above the junction. The channel leading to Goole above the junction is marked by shore lights and beacons.

Pilotage.—Pilotage from Hull to Goole is compulsory for vessels over 60m in length and all vessels carrying dangerous substances. Local knowledge of the channels is absolutely necessary and all vessels are advised to obtain the services of a pilot. For further information, see pilotage for the River Humber in paragraph 3.7.

Caution.—A submarine cable area lies about 4 miles W of Hull Roads and may best be seen on the chart.

Overhead power cables, with vertical clearances of 43 and 34m, span the River Ouse, about 3 miles above the junction.

Several swing bridges span the River Ouse between Goole and Selby.

3.13 Howden Dyke (53°45'N., 0°52'W.), situated 2.5 miles above Goole, has four jetty berths with 230m of total quayage. Vessels up to 3,300 dwt, 88m in length, and 14m beam can be handled with drafts up to 5m at HWS and 3m at HWN. Vessels take the ground on soft mud at LW.

Selby (53°47'N., 1°04'W.), situated about 16 miles above Goole, has a quay 75m long. Vessels up to 1,800 dwt, 75m in length, and 4m draft have been accommodated alongside; however, vessels over 61m in length may only be handled at certain states of the tide.

Several small private wharves are situated within the River Trent as far as Keadby, 7 miles above the junction with the River Ouse. They can handle vessels between 90m and 100m in length, with drafts up to 5.5m at HWS and 3.1m at HWN.

Small vessels up to 1,000 dwt and about 4m draft, depending on the tide, can reach Gainsborough, which is situated on the River Trent, 62 miles from the sea. However, they have to pass under the bridge at Keadby which has a vertical clearance of only 5m. In addition, vessels are limited to about 58m in length because of the sharp bends in the river.

Pilotage.—Pilotage above the port of Goole is not compulsory, but is recommended for all vessels without local knowledge.

The River Humber to The Wash

3.14 Off-lying banks and dangers.—Sole Pit (53°40'N., 1°32'E.), located about 50 miles E of the entrance of the River Humber, is a submarine valley with depths of 36 to 91m. Barque Gas Field (53°37'N., 1°32'E.) and Sole Pit Gas Field (53°34'N., 1°38'E.) are located in the vicinity of this valley.

Well Hole (53°43'N., 1°51'E.), a narrow submarine valley, lies 11 miles ENE of Sole Pit and has depths of 37 to 80m.

Coal Pit (53°30'N., 1°45'E.), another submarine valley, lies about 7 miles SE of the S end of Sole Pit and has depths of 31 to 73m. Clipper Gas Field (53°28'N., 1°44'E.) lies in the vicinity of this valley.

Silver Pit (53°30'N., 0°40'E.) is a deep submarine valley which lies directly across the approach to the River Humber and about 20 miles from the entrance. It has depths of 32 to 98m. In the central area, the increase in depths is very rapid on both sides; in some cases from 22 to 73m within a very short distance. At the N and S ends of the valley, the transition is not so abrupt. The edge of this deep valley is usually marked by tide ripples, and in thick weather they are a very useful position guide.

Amethyst Gas Field (53°37'N., 0°43'E.) lies near the N end of Silver Pit, about 20 miles E of Spurn Head.

Indefatigable Banks (53°32'N., 2°21'E.), lying about 75 miles E of the entrance to the River Humber, are the outermost of a series of narrow, parallel banks which are located in the approach to the river. These banks consist of two narrow ridges with a least depth of 12.6m.

Swarte Bank (53°24'N., 2°10'E.), about 20 miles long, lies 5 miles SW of the SW part of Indefatigable Banks and is another narrow ridge. Patches and smaller ridges, with depths of less than 18m, lie between Indefatigable Bank and Swarte Bank and within 20 miles NW of Swarte Bank. A sand wave formation, with depths of less than 18m in places, lies about 3 miles SW of the NW end of Swarte Bank.

Broken Bank (53°21'N., 2°05'E.), Well Bank (53°16'N., 2°00'E.), and Inner Bank (53°12'N., 2°02'E.) lie to the SW, within 13 miles, and parallel to Swarte Bank. These dangers have depths of less than 10m and are entirely unmarked. Every precaution should be taken when approaching them. Crossing these banks, especially in heavy weather, should not be attempted unless the vessel's position is accurately known.

A sand wave formation, with depths of less than 18m in places, lies midway between Well Bank and the S extremity of Broken Bank.

Ower Bank (53°11'N., 1°56'E.) lies about 1.5 miles SW of Inner Bank and runs nearly parallel to the other ridges in this area. The shallowest areas of this bank are indicated by smooth ripplings during the strength of the tidal current. In rough weather, the sea breaks over this bank. Several patches, with depths of less than 5m, lie near its SE end and a wreck, with a depth of 1.5m, lies on the SW side of the NW patch.

Caution.—Numerous gas fields and submarine pipelines lie in the vicinity of Indefatigable Bank, Swarte Bank, Broken Bank, Well Bank, Inner Bank, and Ower Bank and may best be seen on the chart (see paragraph 3.1).

3.15 Leman Bank (53°06'N., 1°59'E.) lies about 3 miles SW of Ower Bank and runs parallel to it. This bank is about 23 miles long NW and has a least depth of 3.4m. Haddock Bank, with depths of 5 to 20m, lies close NW of the NW end of Leman Bank.

Leman Gas Field (53°04'N., 2°12'E.), an extensive platform complex, lies E of the S end of Leman Bank.

Smiths Knoll (52°53'N., 2°12'E.) is a narrow shoal ridge lying parallel with the coast between Cromer and Yarmouth, about 20 miles offshore. The E side of this shoal ridge is steep-to and a least depth of 4.6m lies near the middle of the ridge, about 8.5 mile S of the SE end of Leman Bank.

Smiths Knoll Lighted Buoy (52°44'N., 2°18'E.), equipped with a racon, is moored in the vicinity of the S end of this shoal ridge.

Hewett Ridges (52°59'N., 2°00'E.) consists of two shoal banks lying W of the N part of Smiths Knoll. The N bank is steep-to on its NE side and has a least depth of 7.9m. The S bank lies 5 miles W of the middle of Smiths Knoll and has depths of 9 to 18m. Numerous wrecks, some dangerous to navigation, lie S of Hewett Ridges and W of Smiths Knoll.

Outer Dowsing Shoal (53°27'N., 1°07'E.), with a least depth of 3.9m, lies with its NW end located 33 miles E of the entrance to the River Humber. It extends for about 13 miles SE

and is marked at the N extremity and W side by lighted buoys. Vessels should avoid the area lying close NE of the shoal, especially during heavy weather, as it has irregular bottom soundings.

Cromer Knoll Shoal (53°18'N., 1°18'E.) lies about 6 miles SE of the S extremity of Outer Dowsing Shoal and has a least depth of 5.5m. Inner Cromer Knoll, with detached patches, lies 5.5 miles SE of Cromer Knoll Shoal and has a least depth of 9.2m.

Caution.—Several areas, within which unexploded ordnance exists, lie in the vicinity of the above shoals and may best be seen on the chart.

3.16 Triton Knoll (53°24'N., 0°53'E.) lies about 27 miles ESE of the entrance to the River Humber and about 10 miles SSW of the N extremity of Outer Dowsing Shoal. It consists of many detached patches with a least depth of 6.1m. Tide rips indicate the position of this shoal.

A small group of shoals, with a least depth of 7.9m, lies within 6 miles SE of Triton Knoll and is marked by tide rips at LW.

Dudgeon Shoal (53°16'N., 0°57'E.) lies about 13 miles W of Cromer Knoll and has a least depth of 4.3m. East Dudgeon Shoals, with a least depth of 4.2m, extend 4 miles N from the SE end of Dudgeon Shoal and are marked by a lighted buoy. North Ridge, with a least depth of 5.5m, is practically an extension to the WNW of Dudgeon Shoal. The overfalls on North Ridge are very conspicuous at LW, when there is a strong tidal current running across it.

Additional shoals, with depths of less than 11m, lie up to 3.5 miles N of North Ridge.

Race Bank (53°11'N., 0°54'E.), lying 5 miles SW of Dudgeon Shoal, has a least depth of 1.8m. It is about 10 miles long and is marked at the NW and SE ends by lighted buoys. An extension to this bank, with depths of less than 11m, connects the NE side to the W extremity of North Ridge and is marked by a lighted buoy.

The remaining off-lying shoal banks and dangers, which are located inshore of those above, are described along with the coastal features.

Caution.—Numerous oil and gas fields, in addition to those mentioned, lie in the vicinity of the above shoal banks and may best be seen on the chart (see paragraph 3.1).

Numerous dangerous wrecks lie within the vicinity of the above shoal banks and may best be seen on the chart.

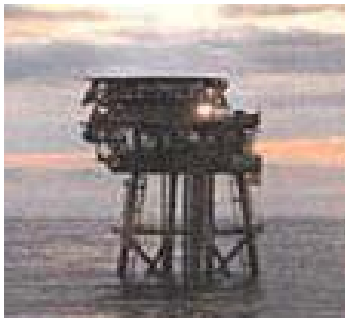
3.17 Directions.—The off-lying banks and dangers in the approach to the River Humber lie within 90 miles E through SE of the River Humber entrance. Between these banks and dangers are several available passages for vessels leaving or approaching the coast. For vessels approaching from the N, the channel between Dogger Bank (54°40'N., 2°20'E.) and the coast is broad and open. For vessels proceeding to or from the E (German Bight), the channel through Outer Silver Pit (54°05'N., 2°10'E.) is wide and free from dangers (see paragraph 3.4), with due regard being paid to the depths over the wrecks. However, during strong NW winds, vessels are advised to proceed SW of Leman Bank (53°07'N., 1°56'E.) and then through Outer Dowsing Channel.

Outer Dowsing Channel (53°25'N., 1°00'E.) leads between Outer Dowsing Shoal and Cromer Knoll, on its E side, and Triton Knoll and East Dudgeon Shoals, on its W side. It is about 7 miles wide and marked on the E side by lighted buoys, which are moored on the W side of Outer Dowsing Shoal.

A narrow deep-water fairway, with depths over 18m, lies within the channel, close W of Outer Dowsing Shoal. The remainder of the channel has depths of 10 to 18m, except for the small group of shoal patches, previously mentioned, which lie within 6 miles SE of Triton Knoll (53°24'N., 0°53'E.).

BID Dowsing Platform (53°34'N., 0°53'E.), equipped with a racon, stands about 4.5 miles W of the N end of Outer Dowsing Shoal; a light is shown from it. This platform marks the NW end of Outer Dowsing Channel.

Dudgeon Lighted Buoy (53°17'N., 1°16'E.), equipped with a racon, is moored close W of Cromer Knoll and marks the SE end of Outer Dowsing Channel.



BID Dowsing Lighted Platform (Amethyst Field)

3.18 Offshore route.—The main coastal route, for vessels proceeding S from Scotland or the N part of England into the S part of the North Sea, leads S and SSE to the vicinity of the Humber Light Float (53°39'N., 0°20'E.). It passes E of Flamborough Head and clear of Rough Gas Field (53°50'N., 0°28'E.).

The route then leads SE from a position located about 6 miles NE of the Humber Light Float to the N end of Outer Dowsing Channel (53°25'N., 1°00'E.). Vessels should pass SW of Amethyst Gas Field (53°37'N., 0°44'E.) and SW of BID Lighted Platform (53°34'N., 0°53'E.).

The route continues in a general SE direction though Outer Dowsing Channel and passes SW of Dudgeon Lighted Buoy (53°17'N., 1°16'E.) and SW of Inner Cromer Knoll (53°17'N., 1°16'E.).

From a position located about 5 miles SW of Inner Cromer Knoll, the route leads ESE between Leman Bank and Hewett Ridges to a position E of the N end of Smiths Knoll (52°53'N., 2°12'E.). Vessels must stay clear of the North Hewett Gas Field (53°06'N., 1°46'E.).

From E of Smiths Knoll, the route leads SSE and passes E of Smiths Knoll Lighted Buoy (52°44'N., 2°18'E.). It then continues S and SSW into the S part of the North Sea.

The above channel is reduced to a width of about 3 miles at its SE end, between Leman Bank and Smiths Knoll; vessels must exercise caution in the vicinity of the adjacent gas fields.

The outer channels lying between Swarte Bank, Broken Bank, Well Bank, and Inner Bank are straight and about 4

miles wide, except for the latter, which is 2 miles wide. These channels, which have moderate depths, should not be used except in good weather and when vessels are certain of their positions, as no aids are visible on the shore and the channels are not buoyed.

Large vessels transiting S from Scotland or the N part of England may initially proceed ESE and, passing E of Indefatigable Banks (53°32'N., 2°21'E.), join the main North Sea Deep Water Routes (see paragraph 6.5). By doing so, the offshore banks are circumvented.

Deep-draft vessels proceeding from Dover Strait to ports on the NE coast of England are recommended to follow the DW Route and then approach the coast through Outer Silver Pit (54°05'N., 2°10'E.).

3.19 Inshore routes.—From a position located about 6 miles NE of the Humber Light Float (53°39'N., 0°20'E.), an inner route leads outside of Protector Overfalls and Inner Dowsing, and between Docking Shoal and Race Bank. It then leads N of Sheringham Shoals and between Leman Bank and Hewett Ridges.

Wind farms exist and are being developed in the approaches to The Wash, as follows:

1. **Inner Dowsing Offshore Wind Farm.—**Twenty-seven wind turbines, centered on position 53°11.5'N, 0°26.8'E, lie within a submarine cable area that extends about 3 miles in a N to S direction and 1.5 miles in an E to W direction. Seven wind turbines marking the outer limits of the wind farm are lit, as shown on the chart. This area lies within the Lincs Offshore Wind Farm development site.

2. **Lynn Offshore Wind Farm.—**An area marked by lighted buoys (cardinal and special) is centered on position 53°08.2'N, 0°27.6'E and extends about 2 miles in a N to S direction and 2.75 miles in an E to W direction. This area lies within the Lincs Offshore Wind Farm development area.

3. Several wind farms are under development in the approaches to The Wash, in the approximate positions as follows:

a. Lynn—53°08.1'N, 0°27.0'E.

b. Race Bank—53°18.8'N, 0°44.9'E.

c. Docking Shoal—53°09.5'N, 0°38.9'E.

d. Lincs Offshore—53°11.0'N, 0°28.5'E. This area is marked by lighted buoys and includes the already constructed Inner Dowsing and Lynn Offshore Wind Farms.

e. Sheringham Shoal—53°08.1'N, 1°08.7'E. This area is marked by lighted buoy and extends about 3.25 miles in a N to S direction and 3.5 miles in an E to W direction.

While these wind farms are being constructed, partially built structures may exist within the area marked by lighted buoys. There also are structures, totally or partially submerged, that are not marked.

The route, which leads towards Cromer (52°56'N., 1°18'E.), should only be used by vessels with local knowledge.

Vessels proceeding N may pass either N or S of Sheringham Shoal (53°03'N., 1°10'E.) or Race Bank. However, the vessel's draft, in addition to the tidal conditions, must be taken into account in the selection of these passages.

For light-draft vessels, which can pass W of Protector Overfalls, the channel towards Cromer, leading between Docking Shoal and Burnham Flats, is suitable.

The Would (52°52'N., 1°40'E.), a channel 7 miles wide lying between Haisborough Sand and the coast, leads SE from abreast Cromer to Haisborough Gat (52°48'N., 1°56'E.) (see paragraph 3.34).

Vessels may pass between Sheringham Shoal and Blakeney Overfalls, and then between Docking Shoal and Burnham Flat. However, deep-draft vessels should proceed through the channels passing N of Docking Shoal.

Light-draft vessels bound for The Wash, after passing Cromer, may proceed, with a suitable condition of tide, along the coastal route passing N of Bridgirdle and through The Bays (52°59'N., 0°32'E.) or Sledway (53°02'N., 0°34'E.). Local knowledge is required.

Caution.—In regard to all the routes described above, the IMO strongly recommends that vessels constrained by their draft or proceeding infrequently in this area use the services of a Deep Sea Pilot.

See caution under General Remarks in paragraph 3.1 for information concerning production platforms.

Numerous dangerous wrecks lie in the vicinity of the above routes and may best be seen on the chart.

3.20 Skegness (53°09'N., 0°20'E.), at the NW side of the entrance to The Wash, is situated 21 miles SSE of Donna Nook, the S entrance point of the River Humber. The coast between is composed of sand hills. The flat, which fronts this stretch of coast, shelves gradually from the shore to a depth of over 10m, about 10 miles offshore abreast Saltfleet (53°25'N., 0°10'E.) and 5 miles offshore abreast Ingoldmells Point. Here, it merges into the shoals which form the bar at the N end of Boston Deep, on the W side of the entrance to The Wash. A narrow channel leads into Saltfleet and can be used by small vessels with drafts up to 1.5m within 3 hours of HW.

The most conspicuous landmarks along this coast include a tower, 8m high, standing on the foreshore, 2 miles SSE of Saltfleet; the extensive convalescent home building at Mablethorpe (53°20'N., 0°15'E.); and the windmill at Ingoldmells, 2.5 miles N of Skegness. In very clear weather, the tall spire of the church at Louth, 7 miles WSW of Saltfleet, may be seen from seaward. In addition, the Lincolnshire Downs may be seen in the background.

Saltfleet can be identified by the numerous trees in its vicinity and the conspicuous tower of a church, which stands about 1 mile S of the village. This church tower is the most conspicuous of several which stand along this part of the coast.

Within Ingoldmells Point, two churches can be seen from seaward. Another prominent church stands about midway between the point and Skegness.

Caution.—Saltfleet Overfalls, Theddlethorpe Overfalls, and Trusthorpe Overfalls, with depths of less than 10m, lie about 2 to 4 miles offshore abreast the respective places from which they take their names, S of the River Humber. These patches lie so close together that they are practically one bank.

Protector Overfalls (53°25'N., 0°25'E.), with a least depth of 3.9m, lies about 8 miles E of Saltfleet and is marked by a lighted buoy. Several detached patches, with depths of less than 11m, lie up to 4.5 miles E and 5 miles S of this shoal bank.

A firing area, marked by buoys, is situated between Donna Nook and Saltfleet and extends about 6 miles seaward.

Submarine gas pipelines, which may best be seen on the chart, extend seaward from the vicinity of Theddlethorpe (53°22'N., 0°13'E.) to the offshore gas fields.

The Wash

3.21 The Wash (53°00'N., 0°20'E.) is a deep bight lying 33 miles S of the River Humber. It is, for the most part, occupied by numerous and dangerous sands, some of which skirt the coast, while others lie a considerable distance offshore. Through these sands, several rivers, which have their outlets in The Wash, find their way at LW. The rapidity of the tides in this deep bight, the low character of its shores, and the mist, which almost constantly prevails, make navigation difficult and caution necessary. In addition, the greater part of its sea area is occupied by shoals.

The principal rivers emptying into The Wash are the Witham, Welland, Nene, and Ouse.

The entrance to The Wash, between Skegness and Gore Point, is about 12 miles wide. The shores are low and marshy and protected by embankments; the only exception is in the vicinity of Hunstanton, 2 miles SW of Gore Point.

The ports of Boston, Wisbech, and King's Lynn are situated within The Wash.

The main channel leading into The Wash lies between Inner Dowsing and Lynn Knock Shoals, on the W side, and Docking Shoal, Burnham Flats, and Burnham Ridge, on the E side. It is about 1 mile wide at the narrowest part and leads into The Well and Lynn Deeps. In thick weather, The Well, with its depths of over 36m, can be a useful guide.

Inner Dowsing Lighted Buoy (53°20'N., 0°34'E.), equipped with a racon, is moored close NE of the N end of the Inner Dowsing Shoal.

The Well and Lynn Deeps are marked by a lighted buoy, equipped with a racon, moored about 7 miles SE of Skegness.

Vessels approaching from the E may enter the main channel from the passage which leads between Race Bank and Docking Shoal. It has depths of 13 to 18m in the fairway and a least width of 1 mile, at the NW end.

The channel between Inner Dowsing Shoal and the coast has a least depth of 7.9m, for a width of about 2 miles. Vessels using this passage should pass E of Protector Overfalls, and W of Inner Dowsing Overfalls. The latter shoal is formed by a cluster of detached patches, with a least depth of 6.1m, lying between 1 and 2 miles W of the N end of Inner Dowsing Shoal.

The channel between Docking Shoal and Burnham Flats has a least depth of 5.4m in the fairway at its W entrance. Several patches of sand waves, which are liable to change their configuration, lie in this channel.

Vessels without local knowledge are advised not to use the channel which leads through Wainfleet Road, SE of Skegness, and Wainfleet Swatchway, which leads into Boston Deep. The banks in this vicinity are constantly changing and the buoys do not necessarily mark the deep-water fairway. In addition, it is not easy to identify marks ashore from this area.

Tides—Currents.—The tidal currents run regularly in and out of the estuary, with a spring velocity in each direction of about 2 knots. The incoming current is usually a little stronger than the outgoing, but its duration is shorter. The currents set in the directions of the principal channels, but across the subsidiary channels on the W side of the head of the estuary, where their directions differ appreciably from those of the principal channels. In Boston Deep, the currents run with a spring velocity in each direction of about 2.5 knots. In Freeman Channel, the currents run SSW or NNE across the fairway when the banks on either side are covered. Otherwise, the currents in this channel are weak, but run their direction may be irregular.

Strong NE winds of a long duration cause an incoming current which increases both the velocity and duration of the flood tidal current in the estuary and the rivers. The winds may also increase the sea level height at the head of the estuary by up to 0.6m. Strong SW winds of a long duration have the opposite effects; however, these changes are not constant.

The tidal currents in the rivers are affected by meteorological and astronomical conditions, but little reliable information is available. Generally, the outgoing currents in the rivers begin soon after local HW. Heavy rain increases the outgoing currents and freshets have resulted in rates of 6 to 8 knots in the rivers.

Caution.—When navigating in The Wash, caution should be exercised as the tidal currents are strong, the rise and fall of the tide considerable, and the weather frequently misty.

Due to the frequent bottom changes occurring in the vicinity of the channels and sandbanks, the positions of the navigation aids may be altered accordingly.

Several dangerous wrecks lie close E of Lynn Knock and may best be seen on the chart.

3.22 Off-lying dangers.—Inner Dowsing, lying 10 miles NE of Skegness, is a very narrow shoal ridge of sand with a least depth of 1.5m. Scott Patch, with a least depth of 5.2m, lies about 1.8 miles SE of the S end of Inner Dowsing. Both of these shoals are marked by lighted buoys at their S ends.

Docking Shoal, with a least depth of 3.6m, is centered about 13 miles NNE of Gore Point and is marked at its N end and E side by lighted buoys.

Burnham Flats extends about 10 miles NNE of Gore Point and is marked by a lighted buoy on its W side which is steep-to. Depths over the shallowest parts of this shoal vary between 1.8m and awash. Woolpack is the SW part of Burnham Flats; its S edge forms the N side of the narrow passage known as Sledway. Middle Bank, which dries 1.5m, lies on the S side of this passage.

Burnham Ridge, located 8 miles N of Gore Point, lies parallel to the W edge of Burnham Flats and has a least charted depth of 2.7m. However, less water may exist over this shoal as it consists of several large sand waves which are liable to move both horizontally and vertically. An obstruction lies in the channel about 1.5 miles W of the shallowest part of Burnham Ridge.

Three detached shoal patches, with depths of 6.9, 6.8, and 8.3m, lie in the channel W of the entrance to Sledways and close NW of Middle Bank. They are formed of sand waves and are liable to change.

Lynn Knock, located 5 miles SE of Skegness, lies on the NW side of the approach to The Wash. It has a least depth of 3.6m and is marked by a lighted buoy. This shoal also consists of several sand waves which are liable to move both horizontally

and vertically and change the position of their least depth. There are frequently heavy overfalls over Lynn Knock during spring tides. A dangerous wreck and a detached shoal patch, with a depth of 7.2m, lie in the channel close to the E edge of this shoal.

Lighted wind-measuring masts, 87m high, stand 6 miles E and 9.8 miles SSE of Inner Dowsing Lighted Buoy.

3.23 West coast.—Skegness (53°09'N., 0°20'E.), at the NW entrance of The Wash, is a small resort town. A conspicuous water tower stands in its N part and numerous houses extend along the coast for 1.5 miles S of the town.

A lighted wind-measuring mast, 50m high, stands about 2.7 miles offshore, 4.5 miles NE of Skegness.

The coast between Skegness and Gibraltar Point, a low projection 3 miles S, consists of low sand hills fringed by a flat which extends up to 0.4 mile offshore; then to New Cut at the mouth of the River Witham, 14 miles SW, the coast is marshy with an embanked outline. It is fronted by extensive flats which extend from 2 to 3 miles offshore.

Caution.—Lynn Farm and Inner Dowsing Farm, two areas within which numerous wind generators are being constructed (2007), lie centered 4 miles E and 4.5 miles NE, respectively, of Skegness.

It is reported (2011) that the Lincs Offshore Wind Farm is being developed E of Skegness. Submarine power cables will connect each turbine to the next and then to the shore E of River Nene. The cables will be laid between the wind farm and the shore in an area centered around approximate position 52º59'01.8"N, 0º22'07.8"E.

Wainfleet Sand and Friskney Flat front the shore up to 6 miles SW of Gibraltar Point and form an extensive live bombing range. It is marked by several buoys and beacons. The range control tower stands 4 miles SSW of Skegness and displays a red flag by day and red lights at night when the range is operational. Vessels should avoid the range area and, in an emergency, call Boston Dock on VHF channel 12.

3.24 Boston Deep (53°04'N., 0°21'E.), a passage leading to the River Witham and Boston, extends 16 miles SE from Skegness Middle (53°08'N., 0°24'E.). It is bounded on the NW side by extensive flats, which front the coast, and Scullridge, a drying shoal lying close SE of Friskney Flat. Inner Dogs Head, Long Sand, The Ants and Bar, Roger Sands, Toft Sands, and Black Buoy Sands lie on its SE side. The fairway is marked by buoys which are very small, difficult to see, and should not be relied upon. Boston Deep is entered at its N end through Wainfleet Road and Wainfleet Swatchway, which is only 0.2 mile wide. The banks along these channels are constantly changing and this passage should only be used by small vessels with local knowledge. Parlour Channel, lying between Inner Dogs Head and Long Sand, leads from The Well into Boston Deep. However, depths within this narrow channel may be less than charted and it is generally no longer used.

Freeman Channel (52°58'N., 0°15'E.), lying between The Ants and Roger Sands, is the main route into Boston Deep and should be approached through The Well and Lynn Deeps. It leads into the S end of Boston Deep and is about 230m wide at the narrowest part.

Gat Channel, which passes S of Roger Sand, is only used by local fishing vessels.

The S end of Boston Deep leads into Lower Road, which extends SW for about 2 miles. Lower Road then leads into New Cut, a narrow fairway, which leads up the river to Boston.

Roaring Middle Light Float (52°58'N., 0°21'E.) is moored near the N end of a narrow shoal, at the S end of Lynn Deeps. The E entrance to Freeman Channel is located 3.5 miles WSW of it.

3.25 Boston (52°58'N., 0°01'W.) (World Port Index No. 31630) stands on both banks of the River Witham in the SW part of The Wash. The port, approached through New Cut, is situated 2.5 miles above the river mouth. It consists of a wet dock and several river berths.

Tides—Currents.—Tides rise about 6.8m at springs and 4.8m at neaps.

The tidal currents are fairly strong. Off Boston, the flood current is reported to attain a spring velocity of about 4 knots during its first half, after which the velocity decreases. The tides in Boston Deep are strongly influenced by the wind. A continuance of NW gales, during springs, can cause a tidal rise of up to 0.6m higher than normal. Gales from SW can lower the height of the tide by the same amount.

Depths—Limitations.—The river channel dries in places and has depths of 7.9m at HWS and 5.8m at HWN.

A power cable, with a vertical clearance of 45m, spans the river close below the entrance to the dock.

The wet dock is entered by a lock 91m long and 13.7m wide. It has depths on the sill of 7.5m at springs and 5.4m at neaps. An underkeel clearance of 1.5m is normally required. The dock has 730m of total quayage and can handle vessels up to 95m in length, 13m beam, and 5.5m draft at HWS.

Eight river berths, which dry, are situated along both banks, upstream of the dock entrance. Generally, vessels up to 107m in length can be accommodated with drafts up to 5.5m at springs and 4.3m at neaps. As there are considerably greater depths in the channel, on exceptional tides, the harbormaster can allow vessels with drafts up to 6.1m to reach Boston.

Aspect.—The river is spanned at the town, situated close above the dock, by two fixed bridges and a sluice. The sluice barrier prevents the ingress of tidal waters into the upper portion of the river and converts the lower portion into a mere inlet which silts during dry seasons. The silt is then removed again by the first long continued flood.

Entry to the inland waterway system can be gained through a lock at Boston. The river fairway is marked by lighted beacons and indicated by lighted ranges. The town can be identified by its very conspicuous church tower, known to seamen as Boston Stump. A large grain silo stands adjacent to the wet dock.

Pilotage.—Pilotage is compulsory for vessels over 50 gt or 30m in length. Pilots may be contacted by VHF or telephone and should be arranged through the agent. Pilots generally board near No. 9 Lighted Buoy in Lower Road or, on request, at the E entrance to Freeman Channel. Vessels without local knowledge are recommended to embark a pilot at this position.

Vessels should send an ETA, via the agent, to the port at least 12 hours in advance. The message must include the vessel's gt and draft. The ETA may be amended by contacting Boston Pilots 2 hours 30 minutes before HW. Vessels carrying

dangerous cargo or who are not gas-free are required to send full details at least 24 hours in advance.

Regulations.—Vessels must report to Boston Port Control when passing Boston Roads Lighted Buoy (52°57.7'N., 0°16.0'E.), No. 9 Lighted Buoy (52°57.6'N., 0°08.4'E.), and before entering or leaving the River Witham (on passsing Tabs Head). Vessels navigating the River Witham, or the River Welland for Fosdyke, must maintain a listening watch on VHF channel 12 when seaward of Boston Grand Sluice or the Fosdyke Bridge.

Anchorage.—In good weather, anchorage can be obtained anywhere in the entrance of The Wash. The best berth is in a depth of 20m, at the S end of Lynn Deeps.

Good anchorage can also be found, in a depth of 9m, within Lower Road. A triangular anchorage, marked by buoys, is reported to be 1.3 miles NE of Boston Roads Channel, and can best be seen on the chart.

Caution.—The navigational aids at the entrance to Lower Road and New Cut are liable to frequent alteration as the channels are constantly shifting.

3.26 The **Fosdyke Bridge** (52°52'N., 0°02'W.) is situated 3 miles above the entrance to the River Welland, at the SW corner of The Wash. It is approached through Welland Cut which leads SW from abreast New Cut. The channel is embanked in places and marked by beacons. An overhead cable, with a vertical clearance of 24m, spans the river about 1 mile below the Fosdyke Bridge.

A wharf, 69m long, is situated on the N side of the river and can generally accommodate vessels up to 58m in length and 5m draft at springs; vessels up to 52m in length and 2.8m draft can be accommodated at neaps. Pilotage is compulsory and available in conjunction with Boston.

3.27 East coast.—Gore Point (52°58'N., 0°33'E.), the SE entrance point of The Wash, is composed of small sand hills with marshland behind them. These hills continue to Hunstanton Point, 2.3 miles SW. The E shore of The Wash is sandy and cliffy in its N part, but is marshy and embanked in its S part. However, inland the contused is elevated.

Saint Edmund's Point (Hunstanton Point) (52°57'N., 0°30'E.), located 2.4 miles SW of Gore Point, is formed by a cliff which is composed of marl, and red and grey chalk. It is remarkable both for the variety of its coloring and because it is the only cliff in the vicinity. A prominent disused light structure stands on the point and the town of Hunstanton is situated close S of it.

The most conspicuous landmarks along this stretch of coast are the church at Holme, standing 1 mile S of Gore Point; the disused windmill, 55m high, standing 1.8 miles S of Gore Point; a tower standing about 1.3 miles S of Saint Edmund's Point; and the spire of the church at Snettisham, 3 miles S of Hunstanton. However, all of these marks are often difficult to identify when the sun is shining from behind them.

The Bays, a narrow, shallow, and uneven passage, lies between the shoals which front the shore in the vicinity of Gore Point and Gore Middle, Middle Bank, and Sunk Sand on its N and W sides. Another narrow passage leads between the coast and Sunk Sand. These passages are shallow and are only used by small craft with local knowledge.

Hunstanton Light (not active)

Hunstanton Point

3.28 King's Lynn (52°45'N., 0°24'E.) (World Port Index No. 31610) stands 2 miles within the entrance of the River Ouse, at the S end of The Wash. The harbor consists of two wet docks and several river berths. Entry to the inland waterway system may be gained at King's Lynn.

Tides—Currents.—Tides rise about 6.8m at springs and 5m at neaps.

Depths—Limitations.—The channel through Lynn Cut is 161m wide at HW and 111m wide at LW at its outer end. It has a width of 148m at HW and 97m at LW at the inner end. There are depths of 1m in the river channel and vessels cannot enter at LW. Lynn Cut is the artificially-straightened mouth of the river and has embankments up to 3.5m high. An overhead cable, with a vertical clearance of 46m, spans the fairway in Lynn Cut.

Alexandra Dock is entered through a lock 15.2m wide, which has depths on the sill of 7.6m at HWS and 5.4m at HWN. Bentinck Dock is entered from Alexandra Dock through a passage 96m long and 15.2m wide, which is spanned by two swing bridges. A minimum depth of 5.3m is generally maintained in the wet docks, which have 1,600m of total quayage. Vessels up to 3,000 dwt, 119m in length, 13.8m beam, and 5.5m draft have been accommodated at HWS.

Riverside Quay is 220m long and South Quay is 365m long. Vessels up to 5,000 dwt, 140m in length, 20m beam, and 5.5m

draft can be accommodated at springs (3.4m draft at neaps) alongside these river berths, but take the ground at LW. There are facilities for container, ro-ro, tanker, general cargo, and bulk vessels.

Aspect.—The fairway in Bull Dog Channel is marked by lighted buoys and lighted beacons. The S end of the channel is bordered by drying training walls. The fairway in Lynn Cut is indicated by a lighted range.

The town stands on low, flat ground. The two towers of St. Margaret's church, the spire of St. Nicholas church, and several tall chimneys are all prominent and visible from seaward. The two pylons of the overhead cable, which spans Lynn Cut, and a silo, standing on the E bank of the river, are conspicuous.

Pilotage.—Pilotage is compulsory for vessels exceeding 35m loa from 4 hours before HW until time of HW when shipping movements are expected, otherwise from 2 hours before HW to time of HW.

Vessels should send ETA 24 hours in advance via facsimile using the Pilot Order Form (see port website) with any amendments by facsimile up to 4 hours before HW.

Pilot boards in position (52°56.0'N., 0°21.7'E.) (E of Lighted Bouy No. 1), from 2 hours before HW until it is too late to reach King's Lynn.

Vessels are requested to report their movements to King's Lynn Harbour Radio on VHF Channel 14 as follows:

1. Inbound: On passing No 3 Lt buoy (52°55.0'N 0°21.6'E).
2. Inbound: On passing West Bank Lt Bn (52°47.5'N 0°22.0'E).
3. Inbound: On passing the Pylons (52°46.4'N 0°22.8'E).
4. On departure from berth at King's Lynn.

All vessels maneuvering in the approaches to King's Lynn should maintain a continuous listening watch on VHF Channel 14 and to report their movements to King's Lynn Harbour radio on the same channel.

Contact Information—Pilots can be contacted as follows:

1. Facsimile: 44(0)1553 763431
2. E-mail: klcb.pilots@btconnect.com.

The harbormaster can be contacted as follows:

1. Call sign: King's Lynn Harbour Radio
2. VHF: VHF channels 11, 14, and 16
3. Telephone: 44-1553-773411
4. Facsimile: 44-1553-763431
5. E-mail: klcb.hm@btconnect.com
6. Website: http//.www.kingslynnport.co.uk

The port office can be contacted as follows:

1. Call sign: King's Lynn Docks
2. VHF: VHF channels 11, 14, and 16
3. Telephone: 44-1553-691555 (ext 246)
   44-1553-775041
4. Facsimile: 44-1553-775041
5. E-mail: kingslynn@abports.co.uk
6. Website: www.abports.co.uk

Regulations.—All vessels over 80m in length or close to the upper limits of beam or draft should contact the authorities prior to entry for the latest information.

Generally, vessels over 100m in length transit the approach channel only on daylight tides. The attendance of a tug is compulsory for all tankers over 73m in length and all other vessels over that length not fitted with bow thrusters.

Anchorage.—Vessels can anchor in The Wash, SE of the Roaring Middle Light Float.

Directions.—It is reported that Bull Dog Channel, entered about 4 miles SSE of Roaring Middle Light Float (52°58'N., 0°21'E.), is the main approach channel. It leads S and SSW for 6 miles between sand banks to the entrance of Lynn Cut. A fairway then leads through Lynn Cut and up the river to the port.

There are several alternative shallow approach channels. Teetotal Channel, lying W of Bull Dog Channel, and Coke Hole Channel, lying E of Bull Dog Channel, are former entrance channels which are now only suitable for small craft with local knowledge.

Caution.—The positions of the aids in the approach channels are subject to frequent change.

A small ferry boat crosses the river close S of the entrance to the lock.

Vessels constrained by their draft keep to the deepest water. As a result, vessels may be encountered on either side of the channel, especially when rounding bends.

3.29 Wisbech (Sutton Bridge) (52°40'N., 0°07'E.) stands on both banks of the River Nene, at the S end of The Wash. Entrance to the inland waterway system can be gained at this small port.

Port of Wisbech (Sutton Bridge) Home Page
http://www.croports.com/ports_sutton_bridge.html

Tides—Currents.—The tidal currents are reported to be strong at springs; however, at neaps with freshets in the river, the flood current sometimes does not reach Wisbech.

Depths—Limitations.—The channel through Wisbech Cut has a width of 37m. A bridge, with an opening 18m wide, is situated at Sutton Bridge. Three overhead cables, with vertical clearances of 36m, span the river between the bridge and Wisbech.

There is 1,600m of riverside quayage at Wisbech, with depths alongside of 4.6 to 6.1m at HWS. Generally, vessels up to 2,000 dwt, 83m in length, and 13m beam can be handled, with drafts up to 4.9m at HWS and 3.3m at HWN. Vessels take the ground, which is soft mud, at LW. It was reported that a vessel of 3,000 dwt had been handled at the port.

There is 350m of riverside quayage at Sutton Bridge, with depths alongside of 9.3m at HWS and 5.2m at HWN. Generally, vessels up to 5,000 dwt, 120m in length, and 6.3m draft can be handled.

Aspect.—Wisbech Channel, approached through Lynn Deeps, is entered W of Roaring Middle Shoal and about 3 miles SSW of the Roaring Middle Light Float. It passes between the E edge of Old South Shoal and the W side of Outer Westmark Knock, and is tortuous and liable to frequent changes. Wisbech Cut is entered from Wisbech Channel and leads to the river and the port. The fairway within the channels is marked by lighted buoys and beacons. Sutton Bridge and Wisbech are situated 3 miles and 12 miles, respectively, above the river entrance.

Sutton Bridge

Pilotage.—Pilotage is compulsory for commercial vessels from 3 hours before HW until time of HW or when a vessel is expected.

Vessels should send their ETA 24 hours prior to arrival at the pilot station or anchorage. The vessel should report to Wisbech Pilots on VHF channel 9 upon arrival at the Bar Flat Anchorage.

The pilot boards in a position S of RAF Lighted Buoy No. 4 (52°53.88'N., 0°15.82'E.). In bad weather, the pilot boards S Holbeach RAF Lighted Buoy No. 4 (52°52.5'N., 0°15.2'E.).

Contact Information.—Pilots can be contacted as follows:

1. Call sign: Wisbech Pilots
2. VHF: VHF channels 9 and 16
3. Telephone: 44-1945-588059
   44-7860-576685 (Duty Officer, Mobile, AOH)
   44-7793-960094 (Pilot Master, Mobile)
4. Facsimile: 44-1945-580589

The port authority can be contacted as follows:

1. Telephone: 44-1945-588059
2. Facsimile: 44-1945-588089
3. Website: www.fenland.gov.uk/wisbechport

Anchorage.—Vessels can anchor in an area centered about 0.8 mile NNE of Nene Roads Lighted Buoy (52°54.4'N., 0°15.4'E.).

Caution.—A firing exercise area lies close W of Wisbech Channel and is marked by beacons and buoys.

The Wash to Cromer

3.30 Scolt Head (52°59'N., 0°41'E.), located 5.2 miles ENE of Gore Point, is the N point on the coast between The Wash and Cromer. It is formed by a remarkable long sand hill, but is often difficult to identify when the sun is shining from behind it. The coast between Gore Point and Scolt Head consists of sand hills backed by a range of moderately wooded hills. It is broken only by several very small and shallow harbors which stand along this stretch of shore.

Distinguishable from seaward are the church, with its ruined tower, at Thornham, 1.7 miles SE of Gore Point; the church, with a slender spire, at Titchwell, 1.5 miles E of Thornham; the tower of a church among the trees at Brancaster, 0.5 mile E of Tichwell; and a lifeboat house, with a large red building close W, on the coast N of Brancaster.

Anchorage can be obtained, in depths of 5 to 7m, stiff clay and sand, in Brancaster Roads, about 1 mile N of Scolt Head. Anchorage is also available, in a depth of 6m, 1.3 miles NW of Scolt Head. Caution is advised as the sea, in onshore gales, breaks over the whole of the outer part of this anchorage.

The coast between Burnham Harbour, 2.2 miles E of Scolt Head, and High Cape, 3 miles E, is lined with sand hills, 6 to 9m high and covered with coarse grass.

Brancaster Harbour, entered close W of Scolt Head, and Burnham Harbour should only be used by small craft with local knowledge as the entrance channels are constantly changing.

Wells (52°58'N., 0°51'E.), a small port, is situated 1 mile SE of High Cape. A prominent lifeboat house stands at the W entrance of the harbor and a conspicuous church stands in the town. A fairway lighted buoy is moored 0.8 mile NNW of the entrance to the approach channel. The entrance fairway, which leads between the banks fronting the coast, is indicated by a range and is marked by buoys and beacons. Vessels should not attempt to enter without local knowledge.

The harbor, which dries, has a quay, 196m long, with depths alongside up to 3.2m at HWS and 2.1m at HWN. Coasters up to 275 nrt can be handled, but take the ground at LW. Vessels waiting to enter can obtain anchorage, in a depth of 8m, clay, N of the entrance channel.

Blakeney (52°57'N., 1°02'E.), situated 6 miles E of Wells, is approached through a shallow channel. The small harbor is formed by a creek. Small craft can enter but must take the ground at LW. The entrance fairway is marked by buoys and range beacons; these aids are frequently moved due to changes in the channel. A conspicuous church, 33m high, stands in the village and can be seen from every part of the coast between Hunstanton and Cromer; in clear weather, it has been reported visible from the vicinity of Dudgeon Shoal (53°16'N., 0°57'E.). A prominent windmill stands at Cley, 0.7 mile E of Blakeney.

3.31 Off-lying dangers.—Blakeney Knock and Blakeney Overfalls (53°03'N., 0°57'E.) are the outermost of several shoal ridges which project E from the E end of Burnham Flats. They lie parallel with the coast about 5 miles offshore and have least depths of 2.1 to 2.7m.

Stiffkey Overfalls, lying about 3.8 miles NNW of High Cape, is a shallow tongue of shoal water connected to the coastal bank by Bridgirdle. Sheringham Shoal, with a least depth of 3.7m, lies about 8 miles NE of Blakeney. Pollard, with a least depth of 5.2m, lies 1.5 miles offshore, about 3.5 miles NE of Blakeney.

Blakeney Overfalls, Bridgirdle, and Sheringham Shoal are marked by buoys.

Tides—Currents.—Near Scolt Head, the currents are reported to be weak, but increase gradually to the E attaining a spring velocity of 2 to 3 knots off Cromer. There may be ripples or overfalls in the vicinity of the above-mentioned shoals.

Caution.—Several wrecks, some dangerous, lie in the vicinity of the off-lying shoals and may best be seen on the chart.

3.32 Weybourne (52°57'N., 1°08'E.) is situated 5.5 miles ESE of the entrance to Blakeney. The coast between is low and sandy and fringed by a shingle beach. The coast then begins to rise and consists, for the most part, of moderately high cliffs.

Conspicuous marks include the tower of the church at Weybourne and three water tanks standing close W of it. Prominent marks include a church standing 2 miles WNW of Weybourne and a long low building, with a mast, standing near the beach, 1 mile NW of Weybourne.

Sheringham (52°57'N., 1°13'E.), situated 2.5 miles E of Weybourne, stands in a hollow between two prominent hills. A large hotel building stands on the cliff and is conspicuous. Prominent churches stand 0.5 mile and 0.7 mile ESE of the town.

Four high radio masts, marked by obstruction lights, stand 2.8 miles SSW of Sheringham. These lights are reported to be visible for at least 5 miles in clear visibility, but are obscured by the land when within 1.5 miles of the coast.

Sheringham Shoal Offshore Wind Farm has been established and is comprised of 78 wind turbines in an area centered on (53°08.1'N., 1°08.7'E.). It extends about 7.5 miles NW/SE and 3 miles NE/SW. Eight marginal wind turbines show navigation lights.

Cromer (52°56'N., 1°18'E.) stands on the edge of a cliff, 4 miles ESE of Sheringham. A light is shown from a conspicuous tower, 18m high, standing close SE of the town. The light is equipped with a racon and AIS. In addition, a searchlight, which exhibits a narrow beam for 10 minutes every hour to illuminate the cloudbase, is situated near the light tower.

A church, with its embattled tower, stands 0.7 mile NW of the light. Two prominent radio masts stand 1.2 miles SE of the light.

Cromer Light

Foulness, a shoal with depths of less than 5.5m, extends up to 1 mile offshore in the vicinity of Cromer and is marked by a lighted buoy. This shoal flat is very uneven and can cause a high sea during gales.

Caution.—Submarine cables extend seaward from the shore in the vicinity of Weybourne and may best be seen on the chart.

Cromer to Great Yarmouth

3.33 The Would (52°52'N., 1°40'E.), a channel, leads 18 miles SE from abreast Cromer to a position NE of Winterton Ness. It leads into Haisborough Gat and Cockle Gatway (see Directions in paragraph 3.36), the former being the only channel suitable for vessels of deep draft at all times.

North Haisboro Lighted Buoy (53°00'N., 1°32'E.), equipped with a racon, is moored close NW of the N end of Haisborough Sand and marks the N entrance to The Would. The E limit of the channel is marked by lighted buoys moored at the W side and the S end of Haisborough Sand. There is a least depth of 16m in the channel, at its N end.

The coast between Cromer and Happisburgh, 10 miles SE, consists of cliffs, which are subject to extensive landslips, and is fronted by a submarine forest. To the S of Happisburgh, the coast changes to sand hills.

Mundesley (52°53'N., 1°26'E.) is situated 5 miles SE of Cromer. A prominent water tower stands in the NW part of this village.

A conspicuous white radar dome, 68m high, is situated at Trimingham, 1.2 miles NW of Mundesley.

Bacton (52°51'N., 1°29'E.) is situated 2.4 miles SE of Mundesley. A prominent church stands in the village. Two conspicuous radio masts and the conspicuous buildings of the gas terminal stand on the coast, close NW of the church. The gas terminal buildings are brightly illuminated at night.

Caution.—Several submarine gas pipelines extend seaward from the shore adjacent to the gas terminal buildings at Bacton and cross The Would, passing to the NW and SE of Haisborough Sand.

Numerous wrecks, some dangerous, lie within The Would and off Cromer and may best be seen on the chart.

3.34 Happisburgh (52°49'N., 1°32'E.) is situated on a rounded hillock close to the coast, 2.4 miles SE of Bacton. A conspicuous church, with an embattled tower, stands on the NW side of the village. A prominent water tower stands 0.7 mile SW of the village. A light is shown from a prominent tower, 26m high, standing close SE of the church.

Happisburgh Light

Between Happisburgh and Winterton Ness, 7.5 miles SE, several churches stand along the coast and can be seen from seaward.

Haisborough Sand (52°57'N., 1°40'E.), marked by lighted buoys, lies parallel with the coast and about 8 miles offshore. It has least depths of awash to 0.3m and is steep-to, especially on its NE side. The position of this shoal is indicated, except at slack water, by tidal eddies and even a moderate sea or slight swell breaks over its shallowest part. Haisborough Tail, with a least depth of 4.2m, lies parallel with and about 2.5 miles E of the S part of Haisborough Sand.

Haisborough Gat (52°49'N., 1°56'E.), with depths of 18 to 40m, is the passage which continues SE of The Would. This channel lies with Haisborough Sand, Haisborough Tail, and Hammond Knoll on its N side; Winterton Ridge and Hearty Knoll on its E side; and Newarp Banks and Winterton Shoal on its SW side.

Newarp Lighted Buoy (52°48'N., 1°56'E.), equipped with a racon, is moored about 5 miles SE of the SE end of Haisborough Sand and marks the channel through Haisborough Gat.

Generally, vessels proceeding S pass SW of Newarp Lighted Buoy and those proceeding N pass NE of it.

Hammond Knoll (52°52'N., 1°55'E.), with a least depth of 1.6m, lies about 2 miles E of Haisborough Tail and is marked by a lighted buoy on its E side and at its S end.

Winterton Ridge (52°50'N., 2°01'E.), marked by a lighted buoy at the S end, lies with its N end located about 2 miles E of Hammond Knoll. It has a least depth of 5.6m; however, less water than charted was reported to lie over this shoal ridge. Hearty Knoll lies with its N end located about 1.5 miles NE of the S end of Winterton Ridge. It extends SSE for about 6 miles and has a least depth of 9.8m.

The area lying between Winterton Ridge and Smiths Knoll to the E is known as Middle Ground.

Winterton Ness (52°44'N., 1°41'E.) is situated 7.5 miles SE of Happisburgh. The village of Winterton stands behind the sand hills, 1.2 miles S of Winterton Ness. A church, with a conspicuous high tower, stands in the village and a prominent disused light tower, 21m high and surmounting a building, is situated on an eminence, 0.3 mile SE of it.

It is reported that a number of prominent wind generators, 60m high, stand in an area centered about 0.5 mile WSW of the church at Winterton.

Caution.—Several submarine cables, some disused, extend seaward from the shore in the vicinity of Winterton Ness and may best be seen on the chart.

3.35 Caister Point (52°39'N., 1°43'E.) is located 5.7 miles SSE of Winterton Ness. A very conspicuous water tower, with a prominent radio mast located close N of it, stands 1 mile NNW of the point.

Caister water tower

Newarp Banks (52°46'N., 1°54'E.), two detached shoals over which the sea breaks in stormy weather, lies about 8 miles ENE of Winterton Ness. The W shoal has a least depth of 9.4m and the E shoal a least depth of 7.6m. Depths of less than 11m also extend up to about 2 miles SSE from the E shoal.

Winterton Shoal, with a least depth of 10.7m, lies about 5 miles NE of Winterton Ness. Eddies form over this shoal in any strength of tidal current.

During offshore winds, vessels can obtain anchorage in The Would, off the coast between Bacton and Winterton Ness. Even during E winds, this roadstead is somewhat protected by Haisborough Sand; however, N and NW winds cause the greatest sea in this area.

Scroby Shoals (52°39'N., 1°47'E.), consisting of North, Middle, and South Scroby, lie parallel to the coast and may best be seen on the chart. They extend N for about 7 miles from a position located 2 miles NE of the entrance to Great Yarmouth Haven. Tide rips occur in the vicinity of these shoals. The shoals dry in places and are continuously changing and must not be approached without local knowledge.

Scroby Wind Monitoring Mast (52°40.2'N., 1°47.2'E.) stands on North Scroby Shoal, about 2.2 miles NE of Caister Point. It is 50m high, lighted, and conspicuous.

Scroby Sands Wind Farm (52°38.6'N., 1°47.3'E.) is situated on the shoal, about 2 miles E of Caister Point. It consists of 30 wind generators, each 61m high. Submarine cables extend between the SW corner of the wind farm and the mainland.

Corton Shoal (52°35'N., 1°48'E.), which dries in places, lies centered about 2.2 miles E of the entrance to Great Yarmouth Haven, near the S end of Scroby Shoals.

Cross Sand (52°40'N., 1°52'E.), an extensive sandy bank, lies about 5 miles offshore and is constantly changing. It consists of three shallow areas, North Cross, Middle Cross, and South Cross, which may best be seen on the chart. This bank extends in a SSW direction for about 12 miles between the S end of Newarp Banks and the SE end of Corton Bank. It forms the outermost off-lying danger in this area.

Cross Sand Lighted Buoy (52°37'N., 1°59'E.), equipped with a racon, is moored to the E of the off-lying shoals, about 9.3 miles ENE of Great Yarmouth Haven and about 11.5 miles SSE of Newarp Lighted Buoy.

Directions.—Vessels proceeding through The Would and Haisborough Gat may then steer SE and then S, staying to seaward of the coastal shoals, into the S part of the North Sea. Alternatively, vessels leaving Haisborough Gat may steer SSW to a position E of Holm Channel (see Directions in paragraph 3.36), the principal approach fairway leading to Great Yarmouth and Lowestoft.

Great Yarmouth (52°37'N., 1°44'E.)

World Port Index No. 31580

3.36 Great Yarmouth stands on a low narrow strip of land between the E bank of the River Yare and the sea. Gorleston, a suburb, is situated on the W bank of the river. Great Yarmouth Haven, the port, is formed in the lower reaches of the river, between its mouth and the entrance to Breydon Water, 2.5 miles N. This port provides access to over 120 miles of the inland waterway system.

The Outer Harbor lies on the seaward side of the E bank and adjacent to the mouth of the river Yare. It is rectangular in shape enclosed by N and S breakwaters. The entrance opens to the E of the basin and is 150m wide with a reported depth of 10m. The N half of the Outer Harbor including the berths NT1 and WT4 has been reported (2012) to be dredged to 10m. The West Terminal comprises two berths with a combined length of 200m and a dredged depth of 10m for general and bulk cargo. A Ro-Ro berth with a length of about 90m and a charted depth of 8m. lies S of the West Terminal.

An extensive series of shoals, with approach channels between them, forms the roadstead for the port. These shoals, which front the entire coast from nearly abreast Winterton Ness to Benacre Ness, 20 miles S, consist of numerous sand banks lying from 0.5 to 5 miles offshore. This series of shoals forms a barrier and acts as a breakwater against the heavy seas which, during gales from the E, would otherwise reach the low coast. The depths on this natural barrier vary, but are subject to frequent changes; during some years, the shoals of previous years disappear, while the deeper parts become shallower.

Tides—Currents.—Tides rise about 2.4m at springs and 2.1m at neaps.

The tidal currents in the river are affected by the large expanse of Breydon Water, which is tidal. They tend to run inward when the sea level is higher than the water in Breydon Water and outward when the sea level is lower. The ebb current may attain a velocity up to 4 knots, but the flood current does not normally exceed a velocity of 2 knots, except in the vicinity of Haven Bridge, where it can attain a rate of 3 knots.

Both the duration and velocity of the ebb current are increased during and after heavy rain; the flood current is correspondingly reduced. Under these circumstances, the flood current may attain a velocity of 6 knots off Brush Quay, close within the S side of the river entrance.

Off the entrance, the flood current corresponds approximately with the S current and the ebb current with the N current. The S current flows past the N breakwater and forms an eddy close S of it which sets into the harbor. The ebb current flows past the N breakwater and turns N with the N current.

During the flood, great care is necessary when passing the head of South Pier. An eddy sets almost directly from South Pier to North Pier. A vessel may experience this set on the port bow when her stern is still affected by the S tidal current and be deflected towards the North Pier. During the ebb, the tidal current flows out between the piers and, on this account, the N current does not set as squarely across the entrance as the eddy on the flood. Hence, entry during the flood is made more difficult. During both currents, the sharp bend at the river entrance requires caution and tugs are commonly used.

Depths—Limitations.—At the river mouth, the entrance to the port is protected by two breakwaters with an entrance 210m wide and a basin with a project depth of 10m. A fairway channel, which is about 70m wide, leads in a W direction for about 0.3 mile between the breakwaters. It has minimum depths of 4.3m at LWS and 6.1m at HWS. The river then turns sharply N and extends for 2 miles to Haven Bridge. It has a general uniform width of about 80m with a least depth of 4.3m. Haven Bridge has a lifting portion 26.8m wide.

Numerous berths, with 7,131m of total quayage, are situated along both banks of the river. The main quays have depths of 2.5 to 5m alongside and include Atlas Terminal, 315m long; Bollard Quay, 228m long; East Quay, 209m long; Ocean Terminal, 80m long; South Quay, 554m long; Southtown Wharf, 100m long; Bunns Quay, 123m long; Warehouse Quay, 153m long; Palgrave Wharf, 94m long; Ventureforth Base Wharf, 240m long; Wood Offshore Base Wharf, 370m long; and Yeoman Wharf, 176m long.

Generally, vessels up to 123m in length and 5.7m draft can be accommodated at HWS. However, it is reported that vessels up to 138m in length have entered the port and vessels with drafts up to 6.2m have berthed alongside. There are terminals for ro-ro, container, bulk, and tanker vessels. In addition, there are extensive facilities for offshore gas and oil service vessels.

Deep-draft vessels are advised to obtain the latest depth information in the channels from the pilot.

Aspect.—To the N of the harbor entrance, the coast is low and sandy. To the S of the entrance, the coast consists of cliffs, up to 17m high, which are composed of sand, gravel, and red loam. They stretch as far as the village of Corton, 3.5 miles S. Then to Lowestoft, the coast is low and fringed with a sandy beach. A church with a conspicuous tower stands at Corton.

Great Yarmouth VTS and Pilot Stations

The harbor entrance is protected by two breakwaters. A light is shown from a prominent building standing near the head of the S breakwater. The upper half of the building is red brick; the lower half is painted white and illuminated to assist mariners at night and during reduced visibility.

A power station chimney, 42m high, stands 0.7 mile N of the harbor entrance and is conspicuous. Nelson's Monument, also conspicuous, stands 0.3 mile N of the chimney.

Britannia Pier fronts the shore about 2 miles N of the harbor entrance and is lighted at night. The large pavilion building standing on its inner end is prominent.

A prominent disused brick lighthouse, 21m high, is situated on the W bank of the river where the channel turns N. A directional sector light, indicating the entrance channel, is shown from a lattice tower standing close E of the disused lighthouse.

Cross Sand Lighted Buoy (52°37'N., 1°59'E.), equipped with a racon, is moored to the E of the off-lying shoals, about 9.3 miles ENE of Great Yarmouth Haven.

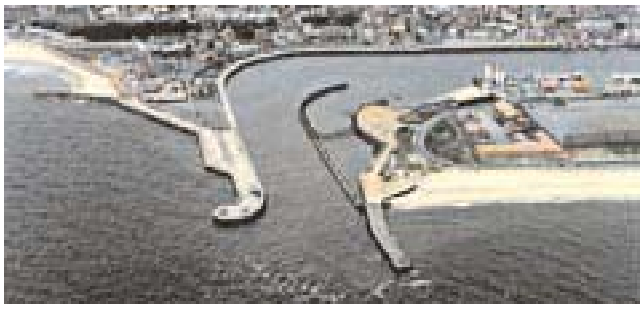
Pilotage.—There are two pilotage areas for Great Yarmouth; Compulsory and Voluntary. The following paragraphs describes the limits of each and then the procedures for pilotage.

1. The Port of Great Yarmouth Compulsory Pilotage Area covers the waters within the Outer Harbor and also the waters within the River Yare, bounded by:
   a. The entrance to the River Yare between Gorleston Pier and the northern pier (52°34.4'N 1°44.3'E).
   b. The seaward side of the Haven Bridge (52°36.4'N 1°43.4'E).
2. The Port of Great Yarmouth Voluntary Pilotage Area covers the waters within an area bounded by the following positions, but excluding the Compulsory Pilotage Area:
   a. The seaward limits:
      i. 52°44.0'N 1°41.1'E—on the coast.
      ii. 52°44.0'N 1°52.0'E
      iii. 52°30.0'N 1°52.0'E
      iv. 52°30.0'N 1°45.4'E—on the coast, to the port limits of the Port of Great Yarmouth on the river Yare at position 52°36.6N 1°43.2E.

Procedure:

1. Pilotage is compulsory for all vessels of 40m LOA and over within the harbor.
2. Vessels should send ETA 8 hours in advance of arrival if a Pilot is required giving the following information:
   a. Vessel LOA
   b. Draft
   c. Gross Tons
   d. Last port of call
   e. Cargo
   f. Berth (outer harbour or river port)
   g. Number of persons onboard.
3. Changes to ETA should be reported as necessary, with final confirmation advised 2 hours before arrival or when within VHF range.
4. Vessels departing a port within 8 hours voyage time should send ETA on departure.
5. Inbound vessels or vessels moving within the port should send request for pilots 2 hours in advance. NOTE: pilotage is not compulsory for vessels shifting within the River Yare but is recommended.
6. Outbound vessels should order Pilots at least 1 hour before departure.
7. Pilots board in the following positions:
   a. Great Yarmouth (Outer): 52°32.0'N 1°51.9'E.
   b. Great Yarmouth (Inner): 52°34.8'N 1°46.0'E
   c. Great Yarmouth River Port: 52°34.2'N 1°45.7'E

Vessels should then contact the pilot station and confirm their ETA 2 hours prior to arrival or when within VHF range.



Entrance to the River Yare (Great Yarmouth)

Contact Information: Pilots can be contacted as follows:

1. Call sign: Yarmouth Pilots
2. VHF: VHF channel 12
3. Telephone: 44-1-493-335515
4. E-mail: marineservices@eastportuk.co.uk

Vessel Traffic Service.—Great Yarmouth Vessel Traffic Service (Great Yarmouth VTS) operates in the approaches to the port.

All inbound vessels should report their ETA off the port entrance to the VTS Control at least 1 hour prior to arrival. This report should include draft, length, gt, agent, last port of call, details of cargo, designated berth, and number of persons on board.

When 1 mile from the entrance, vessels should contact the Great Yarmouth VTS on VHF channel 12 in order to obtain a clearance before proceeding into the port. In addition, all vessels should report when passing the calling-in-points within the river, which may best be seen on the chart, and are listed in the table below.

All vessels outbound or shifting berth should inform Great Yarmouth VTS within 15 minutes of ETD in order to obtain a clearance to proceed.

Reporting Points:

1. Inbound vessels approaching Outer Harbour breakwater should report to Yarmouth Radio in position 52°34.7'N 1°44.9'E and when outbound this report should be made in position 52°34.7'N 1°44.5'E.
2. Vessels over 50 gt should report when passing the following points, stating whether in52°35.1'Nbound or outbound:

Reporting Points	Position
River Yare Entrance	52°34.4'N 1°43.8'E
Ocean Terminal, (Berth 7)	52°35.1'N 1°43.8'E
Atlas Berth, Trinity Wharf	52°35.7'N 1°43.6'E
Haven Bridge	52°36.4'N 1°43.4'E
Breydon Bridge	52°36.7'N 1°42.9'E
Turntide Jetty, Breydon Water	52°35.2'N 1°38.8'E
On completion of berthing alongside	———

Signals.—When the incoming tidal current is running between the pier heads, a quick flashing amber light, visible only from seaward, is shown from a building standing near the head of the S breakwater pier (see Aspect).

Anchorage.—Yarmouth and Caister Roads form one continuous anchorage area between Scroby Sand and the coast. This area has depths of 9 to 24m, fine sand, gravel, and pebbles. However, several foul areas and numerous wrecks lie in this vicinity and may best be seen on the chart.

The roads are exposed to E winds, which cause a short and choppy sea. During these conditions, vessels should, if possible, endeavor to anchor off the shallowest parts of the off-lying sand banks. These shift, but are always indicated in bad weather by the heaviest breakers. Gorleston Road, SE of the entrance, provides good sheltered berths, in depths of 10 to

20m, sand. At night, vessels anchor off the coast between the entrance and Brittania Pier, 2 miles N.

Directions.—From the N, the approach may be made through Cockle Gatway, Barley Picle, and Hemsby Hole. From the E and S, the approach may be made through Holm Channel or Lowestoft North Road and Corton Road. Vessels from the N may also proceed through the main route in Haisborough Gat and then steer accordingly in order to pass through Holm Channel.

Barley Picle, the outermost of the N approach channels, lies between Cross Sand and Scroby Sand. There are depths of over 40m at its N end and less than 10m at the S end. This channel is not buoyed and due to the changing sands should not be used.

Hemsby Hole, which narrows to a width of 0.2 mile at its S end, lies between Cockle Shoal and Caister Shoal, on its E side, and the coast, on its W side. This channel leads into Caister Road and passes over a spur with a least depth of 2.1m. Vessels without local knowledge are recommended not to enter this channel.

Cockle Gatway (52°43'N., 1°45'E.) lies between Winterton Overfalls and Scroby Shoals, on its E side, and Caister Shoal, on its W side. This channel passes over Cockle Shoal and leads into Caister Roads and Yarmouth Roads. The fairway is about 0.4 mile wide and has least depths of 4 to 5m. It is indicated by the lighted buoys which mark the adjacent shoals.

In Cockle Gatway, it is necessary to watch the tidal currents, as although they appear to run through the channel near the NE side of Cockle Shoal, elsewhere they set across the channel. The S current generally sets on to Scroby Sand and the N current sets on to Cockle and Caister Shoals.

The passage through Lowestoft North Road and Corton Road provides a shorter and more sheltered route for coastal vessels, but requires local knowledge. (See Lowestoft in paragraph 3.37).

Holm Channel (52°33'N., 1°48'E.), the main approach channel to Great Yarmouth, lies between the N side of Holm Sand (See Lowestoft.) and the S side of Corton Sand. It extends 3 miles NW from the outer entrance which is marked by Corton Lighted Buoy, moored 5.4 miles SE of Great Yarmouth Haven. The fairway is marked by lighted buoys which are frequently moved to indicate the changing depths and shoals. Depths in the fairway vary between 6.5m and 8m.

After passing through Holm Channel into Gorleston Road, a lighted range indicates the approach fairway through the river entrance.

Hewett Channel, lying between Middle Scroby and Corton Sand, and Corton Channel, located on the S side of Corton Sand, are former entrance channels which are no longer marked by aids.

Caution.—Vessels, especially those of deep draft, are cautioned that changes in the banks and the passages between them are frequent and no channel should be used unless buoyed, even though the charted depths appear sufficient. Experience has shown that the changes in the unbuoyed channels are more frequent than elsewhere.

Because of the frequent depth changes it is often necessary to place or move buoys prior to the dissemination of a Notice to Mariners.

Numerous wrecks, some of which are marked by buoys, lie in the approaches to the port and may best be seen on the chart.

Numerous vessels in transit to and from the gas fields and production platforms in the North Sea may be encountered within the channels leading to the port, which is a base for such craft.

Cross Sand and Scroby Sand are continually altering, both in shape and position, and should not be approached on their unmarked sides without local knowledge.

Temporary shoaling is liable to occur in the vicinity of the harbor entrance during strong E winds, when depths of 0.9m less than those charted may be expected.

A submarine gas pipeline crosses the river about 0.3 mile above the entrance.

Several submarine power cables cross the river 1.2 miles above the entrance.

A ferry crosses the river 1.3 miles above the entrance.

Due to silting, depths alongside the river berths are subject to frequent change.

Light-draft vessels can enter at any time, but high or low slack water is recommended. Entry should be delayed when there is a heavy sea in the entrance, particularly during strong SE winds and an ebb current.

Lowestoft (52°29'N., 1°45'E.)

World Port Index No. 31570

3.37 Lowestoft stands on the summit and slopes of a steep bank with many trees on it. The town extends both N and S of the harbor entrance and is prominent from seaward. The port, which is entirely artificial, is divided into Outer Harbor and Inner Harbor. It is approached through the extensive series of shoal banks which front this entire coast as far S as Benacre Ness. These shoals form a natural breakwater and afford protection to the roadstead and the harbor.

Winds—Weather.—At Lowestoft, the sea level is greatly affected by winds. Strong N winds can raise the level by up to 0.9m; strong S winds have the opposite effect. At neaps, the sea level may rise continuously during the period of falling tide and at springs, the normal flood and ebb currents may be nearly canceled.

The sea level is depressed with winds from the ENE, through S, to SW; winds from other directions have the opposite effect. With force 3 to 4 ESE winds, the level can be depressed by up to 0.1m; with force 3 to 4 NW winds, the level can be raised by the same height. It is reported that strong winds and gales can depress or raise the level by up to 1.2m. Similar changes possibly occur at other places on this coast.

The sea level is also affected by seiches of considerable range. During strong N gales, the rising tide may be interrupted, at frequent intervals, by periods of fall; the falling tide may also be interrupted by periods of rise. The tidal currents in the entrance and harbor, under these circumstances, are similarly affected; they may change from flood to ebb and from ebb to flood at frequent intervals, attaining velocities up to 4 knots at the bridge.

Tides—Currents.—Tides rise about 2.4m at springs and 2.1m at neaps.

In Newcome Channel, the tidal currents appear to be deflected to the E by the shoals in the vicinity; in Corton Road and Lowestoft North Road, the currents generally set in the

direction of the coast.

In the narrow channel lying between the NW side of Lowestoft Bank and the harbor entrance, the currents attain a velocity of 4 knots at springs.

In the entrance of the harbor, the tidal currents are strong and complex.

After HW at Lowestoft, the N current produces a strong N set across the entrance which is met by the ebb current from the harbor. These two currents then run together in a NE direction along the North Pier extension. A vessel entering the harbor under these conditions will have the ebb current on its starboard bow, while the outside N current will be on the port quarter. This will result in the vessel tending to sheer towards the South Pier as the entrance is approached.

When a S current runs outside the harbor during the flood, the resulting current will flow SW along the North Pier extension and into the harbor or across South Pier. Under these conditions, a vessel will tend to be swept onto South Pier as the entrance is approached.

Depths—Limitations.—The entrance to the harbor, between North Pier and South Pier, is 46m wide and has depths of 7.1m at HWS and 5.2m at LWS. The Outer Harbor consists of Hamilton Dock, Waveney Dock, and Trawl Dock, on the N side, and Yacht Basin, on the S side. The docks on the N side have depths alongside of up to 5.5m at HWS and 3.6m at LWS and are mainly used by fishing vessels and vessels connected with the North Sea oil and gas fields. In addition, oil platform module construction is carried out in Waveney Dock.

Lowestoft

The Outer Harbor and the Inner Harbor are connected by a channel, 22.7m wide, which is spanned by a bascule bridge. This channel is maintained by dredging and has depths of 7.1m at HWS and 5.2m at LWS.

Inner Harbor has 1,982m of total quayage, with depths alongside of up to 7.1m at HWS and 5.2m at LWS. There are extensive cargo berths including terminals for container, bulk, tanker, and ro-ro vessels. In addition, there are facilities for large offshore supply vessels.

Vessels up to 8,420 dwt, 125m in length, and 6.4m draft have been accommodated at HWS.

Aspect.—Lowestoft Ness, located 0.6 mile N of the harbor entrance, is the easternmost point of England. It is low, rounded, and sandy.

A light is shown from a prominent tower, 16m high, standing 1 mile N of the harbor entrance.

Prominent landmarks to the N of the entrance include the tower of the church at Corton, 2.1 miles NNW of the light, and the narrow spire of the church standing 0.5 mile W of the light. Conspicuous landmarks include a large apartment building standing 0.4 mile S of the light and a silo, 49m high, standing on the N side of the Inner Harbor.

It is reported that a conspicuous wind generator, 80m high, stands on the shore, 0.5 mile NNE of the harbor entrance.

Conspicuous landmarks to the S of the entrance include the southernmost of two water towers standing 1.7 miles SSW of the harbor entrance; the tower of the church at Kessingland, 2 miles S of the water tower; and Claremont Pier, now partly derelict, located 0.5 mile SSW of the harbor entrance.

Lowestoft Light

Pilotage.—Pilotage is compulsory for vessels over 60m loa, and all vessels, including tows, over 20m loa carrying a dangerous cargo. Vessels over 30m loa, including tows, carrying 12 passengers require a pilot.

Vessels should send an ETA at least 24 hours in advance to Lowestoft Port Control. This ETA should be confirmed 3 hours and 1 hour prior to arrival on VHF channel 14. Vessels should state their preferred pilot boarding position.

Pilots may be contacted by VHF and board, as follows:

1. For vessels intending to use Holm Channel—Lowestoft (Outer Station) (52°30.8'N., 1°50.8'E.).
2. For vessels intending to use Stanford Channel, especially those approaching from the S and E—Lowestoft (South Station) (52°26.6'N., 1°48.3'E.).
3. For any vessel entering the port—Lowestoft (Inner Station) (52°29.8'N., 1°47.0'E.). This station will be used in all cases when conditions do not permit safe boarding at the Outer Station or the South Station.

Regulations.—Inbound vessels should request instructions from the Vessel Traffic Service (VTS) before approaching the harbor entrance. Outbound vessels should request instructions before leaving the berth and before approaching the bridge.

Vessels departing the port have very limited vision until they are clear of the piers. Therefore, vessels on coastal passage proceeding close to the harbor entrance are advised to contact the VTS system on VHF channel 14 for traffic information.

The maximum speed for vessels within the harbor is 4 knots.

Signals.—The harbor control light, a white quick flashing light, is shown below the light at the head of South Pier. When

the light is flashing, vessels may proceed to sea but shall not enter. At all other times, vessels may enter the harbor but shall not proceed to sea.

Vessels shall not approach to within 137m of the bascule bridge, at the entrance to the Inner Harbor, until a green light is shown on the N wall of the entrance. When this light is shown, vessels may enter or leave the Inner Harbor.

Directions.—Holm Sand lies with its N end located about 3.5 miles SE of the entrance to Great Yarmouth Haven. This shoal forms the S side of Holm Channel and extends about 3 miles S to join the E arm of Newcome Sand. Part of Holm Sand dries and the sea breaks over it in all but the calmest weather.

Newcome Sand is a Y-shaped shallow shoal. From a position 3 miles SSE of the entrance to Lowestoft, its W arm extends N to a position about 0.7 mile E of the entrance; the thinner E arm extends NNE to a position about 1.8 miles ENE of the entrance and joins the S end of Holm Sand. The Ridge, with a least depth of 4.2m, extends ESE for about 0.3 mile from a point on the coast, 0.5 mile NNE of the harbor entrance. Lowestoft Bank, with a least depth of 1m, extends S from The Ridge and joins the W arm of Newcome Sand. The inner edge of this bank connects with the coastal bank, about 1 mile SSW of the harbor entrance. Barnard, an irregular-shaped shoal with a least depth of 2.1m, extends up to 1.3 miles offshore in the vicinity of Benacre Ness, 4 miles S of the harbor entrance.

From the N, the port can be approached either through Holm Channel (see paragraph 3.36) or Yarmouth Road, then through Corton and Lowestoft North Roads. This approach is marked by lighted buoys.

From the S, a buoyed channel, which is entered between Barnard Shoal and the S end of Newcome Sand, leads to Pakefield Road, 1.5 miles S of the harbor entrance. From Pakefield Road, an approach channel leads W of Lowstoft Bank and through Lowestoft South Road to the entrance. This approach necessitates a tight turn into the harbor entrance; therefore, large vessels are recommended to pass the harbor entrance, turn in Lowstoft North Roads, and make their entry from the N.

Vessels can also approach the port from the E by using Stanford Channel. This channel, which leads between Holm Sand and Newcome Sand, is marked by lighted buoys. It is entered about 1.7 miles SE of the harbor and leads 1.5 miles NNW to join the route from the N in the vicinity of the S part of Lowestoft North Roads.

Vessels are advised to enter the harbor on the flood and leave on the ebb tide. When approaching from N or S, vessels are advised to proceed as slowly as possible until about 100m off the entrance when speed should be increased for entry into the harbor.

Anchorage.—Corton Road affords good but confined anchorage, in depths of 8 to 13m, blue clay and mud.

Lowestoft North Road affords anchorage, in depths of 6 to 16m, sand and gravel; however, this anchorage is exposed to E winds which cause an exceptionally short and choppy sea. Lowestoft South Road is not used as an anchorage due to shoaling.

Caution.—Due to the continually changing nature of the shoals and channels in the approaches to the port, local knowledge is essential and pilotage is recommended for all vessels.

A spoil ground area is centered about 1 mile E of the harbor entrance and may best be seen on the chart.

A measured distance, marked by beacons, is situated on the W side of Lowestoft North Roads and may best be seen on the chart.

An outfall pipeline, which may best be seen on the chart, extends about 0.6 mile seaward from Lowestoft Ness.

A submarine cable, which may best be seen on the chart, extends E from the shore, about 0.7 mile N of the harbor entrance, in the vicinity of Lowestoft Ness.

Numerous wrecks and obstructions lie within the approaches to the port and may best be seen on the chart.

Numerous groins, some marked by beacons, extend from the shores in the vicinity of the port and are a danger to small craft navigating inshore.

Numerous vessels in transit to and from the gas fields and production platforms in the North Sea may be encountered within the channels leading to the port, which is a base for such craft.

A submarine power cable crosses the harbor channel close E of the bascule bridge.

It is reported that when the bascule bridge is opened on demand from the pilot, it is only opened when the vessel is quite close to the bridge. Large vessels may not approach within 150m of the bridge unless so directed.

The bascule bridge structure imposes restraints upon vessels transiting the Bridge Channel. In the fully raised position, parts of the bridge structure are within a few centimeters horizontally of the coping edge. Contact with the bridge leaves could damage a vessel, the bridge structure, or its control systems. If it is not certain whether a risk exists, the harbormaster should be consulted.

Due to silting, depths within the harbor may be less than charted at times.

It is reported that depths up to 1m less than charted exist within the harbor, outside the dredged areas.

Lowestoft to Orford Ness

3.38 Benacre Ness (52°24'N., 1°44'E.), a low and indefinite point, is located 5 miles S of Lowestoft. There are no conspicuous objects in this vicinity, except for a thick, compact grove of trees standing close to the coast, SW of the point. To the N of this point the offshore shoals merge with the coastal bank. A prominent church and two conspicuous water towers stand at Pakefield, about 3 miles N of the point. A conspicuous church tower is situated at Kessingland, about 1.2 miles N of the point.

The coast to the S of Benacre Ness consists of low cliffs fringed by beaches. In places within 2 miles of the point, the coast is eroding and after HWS or storms, debris such as tree trunks may be encountered offshore. A prominent church stands at Covehithe, about 1.5 miles SSW of the point.

Southwold (52°20'N., 1°41'E.), a small resort town, stands on a hill of moderate elevation, 4.6 miles SSW of Benacre Ness. A church standing on the NW side of the town and a water tower standing close W of it are conspicuous. A light is shown from a prominent tower, 31m high, standing in the middle of the town.

Southwold Light

The harbor, located 0.5 mile S of the town, lies in the lower reaches of the River Blyth and is used by small fishing boats and pleasure craft. There are depths up to 2.1m in the entrance, 1.1 to 1.3m over the bar, and 1.7 to 2.8m alongside the berths. Most craft berth alongside pontoons moored upstream. Vessels should keep to the N side of the river as shoal water extends N from the S pier. The depths and extent of the sand over the bar change frequently. Pilotage is unavailable, but instructions for entering the harbor are given by VHF on request.

Caution.—Several submarine cables, some disused, extend seaward from the coast between Lowestoft and the vicinity of Benacre Ness and may best be seen on the chart.

3.39 Dunwich Cliffs (52°16'N., 1°38'E.), 17m high, are located 4 miles SSW of Southwold Light. They rise abruptly and are a prominent light color. A conspicuous church stands in the town of Walberswick, 0.7 mile W of the entrance to Southwold.

Thorpe Ness (52°11'N., 1°37'E.), a rounded point with an elevation of 12m, is located 4.7 mile S of Dunwich Cliff. Several white cottages, prominent in the morning light, stand on the cliffs in the vicinity of Minsmere Sluice, 4 miles N of Thorpe Ness.

The village of Thorpeness stands on the coast, 0.5 mile SSW of Thorpe Ness. A conspicuous water tower stands in the village. Another water tower, which has the appearance of a dovecot, stands near a windmill, about 0.2 mile WNW of the village. A prominent radio mast, 91m high, stands 1 mile W the village and a prominent television mast stands 1.8 miles inland.

Sizewell Nuclear Power Station (52°13'N., 1°37'E.) is located near the village of the same name, 1.4 miles N of Thorpe Ness. The power station consists of conspicuous large building, 71m high, with another building surmounted by a white dome, 75m high, standing close N of it.

Aldeburgh (52°09'N., 1°36'E.), a small resort town, stands behind a low shingle beach, 2.2 miles SSW of Thorpe Ness. A church, with a conspicuous tower, stands in the town, but the water tower situated close SW of it is usually hidden by trees. The Benjamin Britten Monument stands on the beach about 0.3 mile N of the church and consists of a prominent steel scalloped shell, 4m high.

Sizewell Nuclear Power Station

A low shingle beach extends S between the town and Orford Ness. The River Alde approaches close to the sea at a position about 0.8 mile S of the town and a conspicuous martello tower stands in this vicinity.

Orford Ness (52°05'N., 1°35'E.), located 4.4 miles SSW of Aldeburgh, is described in paragraph 4.12.

Caution.—Careful attention must be paid to the tidal currents in the vicinity of Orford Ness.

3.40 Off-lying dangers.—Dunwich Bank and Sizewell Bank, with least depths of 3.3m, lie parallel with the coast 1 to 1.5 miles offshore, adjacent to Dunwich Cliffs and Sizewell.

Aldeburgh Napes, with a least depth of 10.1m, is a detached shoal which lies about 4 miles E of Aldeburgh.

Aldeburgh Ridge, with a least depth of 1.3m, lies about 0.7 mile off the coast, 1.5 miles NE of Orford Ness; the S and shallowest part of this shoal is named Onion.

Caution.—Submarine pipelines extend up to 0.4 mile seaward from the shore in the vicinity of the nuclear power station at Sizewell.

Several submarine cables, some disused, extend seaward from the coast in the vicinity of Aldeburgh and may best be seen on the chart.

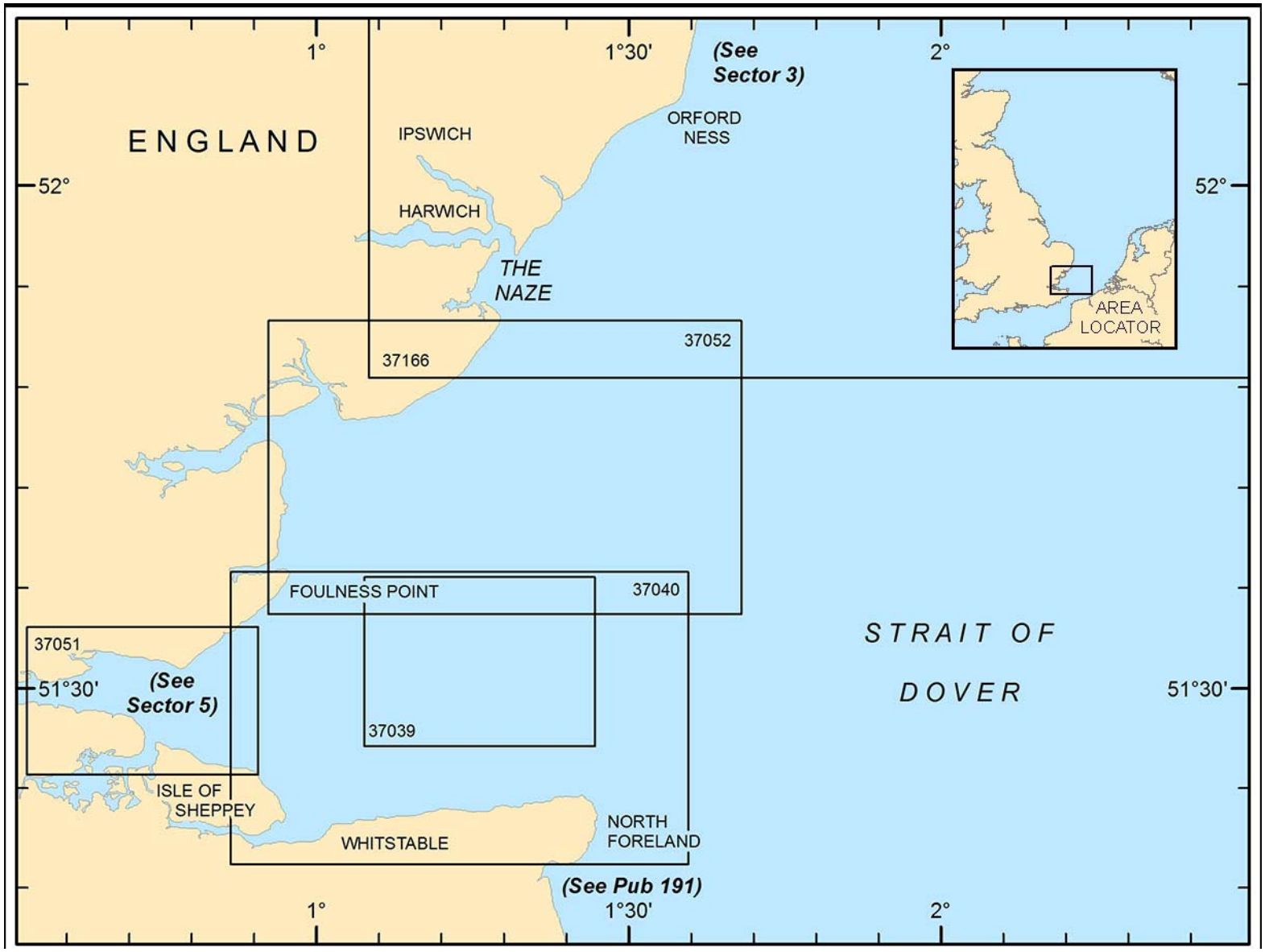
An outfall pipeline, which may best be seen on the chart, extends about 0.8 mile SE from the S part of Aldeburg and is marked by a buoy.

It is reported that transfer of liquid cargo between tankers takes place, occasionally, in a position about 11 miles ESE of Southwold. Vessels engaged in this task may be at anchor or otherwise unable to maneuver.

A disused explosives dumping ground area, the limits of which are shown on the chart, lies centered about 12 miles E of Orford Ness.

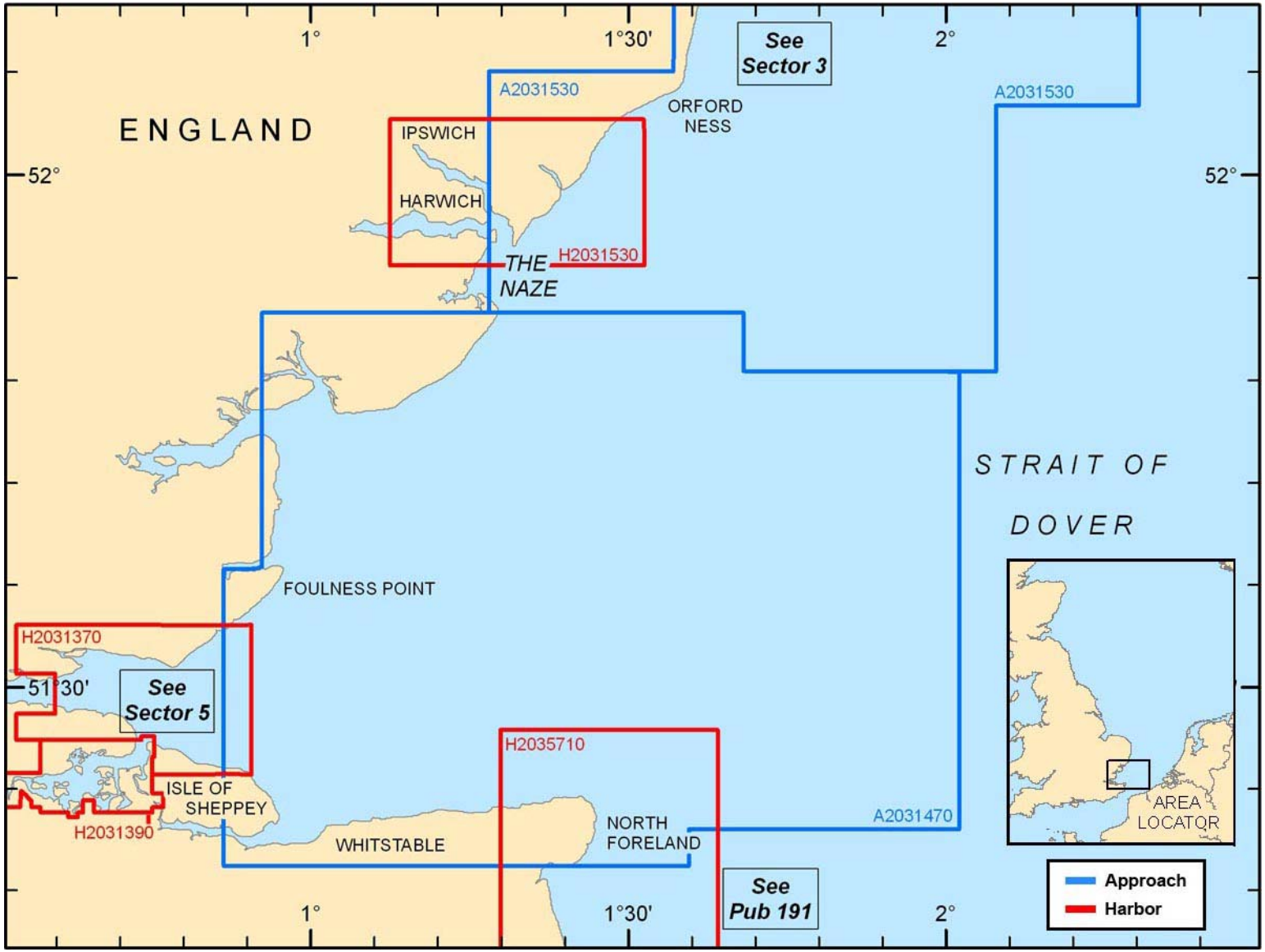
Numerous wrecks, some dangerous, lie off this stretch of coast and may be best seen on the chart.

Numerous lobster pots are laid, in the summer, off the coastal banks on this area.



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

SECTOR **4** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 20 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 4 — DNC LIBRARY INFORMATION

SECTOR 4

ENGLAND—THE THAMES ESTUARY

Plan.—This sector describes the estuary of the River Thames and the outer passages between Orford Ness and North Foreland. Also included is a description of the channels through the estuary and along the adjacent coasts. The general descriptive sequence is from seaward to the entrance of the River Thames.

General Remarks

4.1 The estuary of the River Thames is entered between Orford Ness and North Foreland. It extends as far W as The Nore (51°29'N., 0°51'E.), at the entrance to the river itself. This triangular space enclosed within these three points is greatly encumbered by shoals and banks, many of which dry. Between these banks are several channels which lead to Harwich and the River Thames. The estuary proper, may be said to be contained between The Naze (51°52'N., 1°17'E.) and Shoebury Ness, 28 miles SW, on its N side, and North Foreland and Garrison Point, 27 miles W, on its S side. In this funnel shaped area are numerous long and narrow shoals which generally run in NE and SW directions.

In using the channels, vessels, as a rule, have to depend on the buoys and beacons which mark the banks and shoals, as, although there are many conspicuous landmarks standing on the N and S shores of the estuary, they are not usually available because of the lowness of the land and the prevailing poor visibility.

Soundings should be taken continuously for, although the charts give the depths at the last survey, changes are often frequent and rapid. It is equally important to be aware of the state of the tide and tidal current conditions. Local knowledge is essential.

Tides—Currents.—Tides at the Shivering Sand Tower (51°30'N., 1°05'E.), in the vicinity of Knob Channel, rise about 5.2m at springs and 4.1m at neaps.

Negative surges are important as they result in reduced underkeel clearances. They occur in the S part of the North Sea as a result of local S or SW winds and are most frequent during December and January, but are rare in summer. The Thames Estuary is the area most affected by these surges. In February 1968, the level in the estuary was 0.6m below that predicted for 24 hours, the lowest level being 1.8m below that predicted. The largest recorded surge occurred at Sheerness during December 1982, with a level of 2.25m below than predicted, which remained 1m below that predicted for over 12 hours. London VTS broadcasts tidal information, including negative surge predictions.

There is no evidence of any appreciable permanent current in the Thames Estuary. Strong currents may occur during and after tidal surges, which can augment the tidal currents or tend to cancel them out.

Between Orford Ness (52°05'N., 1°35'E.) and Kentish Knock (51°39'N., 1°37'E.), there is little or no variation of the times at which the tidal currents begin. However, off North Foreland (51°23'N., 1°27'E.), they begin 1 hour 30 minutes earlier than at Kentish Knock. The times at which the tidal currents begin become progressively later farther W and off the entrances to the River Medway and the River Thames, the tidal currents begin 1 hour 15 minutes later than in the outer approaches.

In the outer part of the estuary, the general direction of the tidal currents is SSW on the flood and NNE on the ebb. Farther in, the tidal currents set in the direction of the channels. There may be eddies towards the sides of these channels and at entrances to swashways.

Pilotage.—Deep Water pilot boarding area is designated in position 51° 29.0'N, 1°34.0'E. The seaward limit of the Port of London Pilotage District is bounded by the following positions:

1. Foulness Point (51°37.0'N., 0°57.3'E.).
2. Gunfleet Old Lighthouse (51°46.1'N., 1°20.5'E.).
3. Long Sand Head (51°48.0'N., 1°40.0'E.).
4. Position (51°36.0'N, 1°23.1'E.)
5. Position (51°26.6'N, 1°25.5'E.)
6. Warden Point (51°24.9'N., 0°54.6'E.).

The inner limit of the London Pilotage District is on the River Thames at Putney Bridge.

Pilotage within the area is compulsory, as follows:

1. To the E of Sea Reach Lighted Buoy No. 1 (N and S) for the following:
   a. Vessels or tugs and tows of 90m or more in length.
   b. Vessels or tugs and tows of 50m or more in length that are Specified Vessels, passenger vessels, and vessels carrying marine pollutants in bulk.
   c. Vessels or tugs and tows of 50m in length and up to 90m in length, with an operating draft of 6m or more.
   d. Vessels or tugs and tows of 50m in length and up to 90m in length, with an operating draft of 4m or more, or when in restricted visibility, or when that part of the London Pilotage District to the East of Sea Reach No. 1 Lighted buoys (N and S) where the vessel has planned to navigate.
2. To the W of Sea Reach Lighted Buoy No. 1, (N and S) for:
   a. Vessels or tugs and tows of 80m or more in length.
   b. Vessels or tugs and tows of 50m or more LOA.that are specified vessels, passenger vessels and vessels carrying marine pollutants in bulk.
   c. Vessels or tugs and tows of 50m or more in length, with an operating draft of 5m or more. when restricted visibility exists where the vessel is within that part of the London Pilotage District through which the vessel has planned its passage or both.
   d. Vessels or tugs and tows of 50m or more in length, with an operating draft of 4m or more. when restricted visibility exists within that part of the London Pilotage District to the W of Sea Reach No. 1 Lighted buoys (N and S) where the vessel is planning to navigate.

e. To the W of the Margaret Ness Limit, a line extending across the River Thames from Margaret Ness Light (51°30.5'N., 0°05.5'E.) in a direction of 334°, for vessels or tugs and tows of 40m or more LOA.

Pilotage is not compulsory for the following vessels within the areas below:

1. United Kingdom warships and vessels in the long term service of HM Customs & Excise, Border Force and Trinity House in any part of the London Pilotage District.
2. Tugs and tows, where the tug undertaking the tow is licensed for towage under the PLA Act 1968 (as amended), in any part of the Pilotage District as follows:
   a. To the W of Sea Reach Lighted Buoy No. 1, (N and S) provided that the length of the object towed does not exceed 80m.
   b. To the W of Tower Bridge, provided that the length of the object towed does not exceed 50m.
3. To the E of Sea Reach Lighted Buoy No. 1(N and S) for such vessels up to 140m in length as the Port of London Authority, (PLA) may specify from time to time, and for such period as the PLA may specify, subject to the requirements of the Harbor Master. This exception will only apply where vessels are actually engaged in activities such as dredging or maintaining navigation buoys and marks or offshore structures within the London Pilotage District.
4. To the W of the Margaret Ness limit for vessels of 40m LOA or more, normally trading wholly within the London Pilotage District, or tugs and tows in excess of the limits prescribed in above, as the PLA may specify from time to time, subject to the requirements of the Harbor Master, and for such period as the PLA may specify.

Provisional Pilotage Order:

1. All vessels requiring the services of a PLA Pilot must make a Provisional Order to Port Control Center. This includes inward-bound vessels, outward-bound vessels leaving a berth, buoy, tier or anchorage, as well as those moving from one berth, buoy, pier or anchorage to another.
2. This Provisional Order should be given 24 hour in advance of the requirement for a Pilot. The following information is required:
   a. Location at which the Pilot is required
   b. Vessel's IMO number
   c. gross tons
   d. LOA
   e. Operating draft
   f. Full maneuvering speed
   g. Destination (name of berth or anchorage for an inward-bound passage)
   h. Destination (for an outward-bound passage)
   i. Date and time at which the Pilot is required

Note: Details required by Port Control Center should be sent using the web-based ordering system PISCES. Exceptionally the standard "Port of London Authority - Movement, Pilotage and PEC Notifications" (downloaded from the Port of London Authority website: http:\\www.pla.co.uk), may be used unless the vessel is carrying Dangerous or Polluting Goods when PISCES must be used. Reporting vessels should send the completed notification form to the Port Control Center 24 hours in advance of arrival/departure/shifting berth or within 1 hour of departure from last port of call (if nearer), reporting any changes to Port Control Center. Vessels for which no provisional order is given risk delay in being provided a Pilot.

Specified Vessels are defined as any vessel having on board (including slop tanks) quantities of the following:

1. Explosives in excess of 10 kg.
2. LNG in bulk, LPG in bulk, or being non-gas free following discharge of these cargoes.
3. Flammable liquids and substances in bulk or being non-gas free following discharge of these cargoes.
4. Toxic and corrosive substances in bulk or being non-gas free following discharge of these cargoes.

Restricted Visibility is defined as all circumstances when visibility is less than 0.5 mile.

Operating draft is defined as the maximum draft of the vessel during its current passage within the Pilotage Area.

For further details of these definitions, see *The Port of London Regulations (General Directions for Navigation in the Port of London 2003)*.

Inbound vessels should send an ETA message, with a Provisional Order for a pilot and the mandatory pilotage details (see the table titled **London VTS—Reporting Information**), to the London Port Control Center, Gravesend at least 24 hours prior to arrival at the pilot boarding position.

When it is not possible to give advanced notice as described above, Provisional Orders must be received before 1500 (local time) of the day prior to that on which the pilotage service is required.

A confirmed order:

1. Confirmation of the requirement for a Pilot should be given to Port Control Center. This constitutes Compulsory Notice and shorter notice than is set out (see Notice Requirements below) may attract a surcharge and may result in delay to the vessel.
2. A confirmed order will not be accepted without the draft of the vessel. Failure to give an accurate confirmed draft, or to keep PLA informed of any subsequent changes, may result in a delay to the vessel, or a charge for canceling and reallocating the Pilot.

Notice Requirements: A confirmed order must be given in advance of the vessel's ETA at the port station as follows:

1. Inbound vessels:
   a. 8 hours from the Sunk Pilot Station
   b. 6 hours from the NE Spit and Warps Pilot Stations
   c. 6 hours by vessels which are inward-bound from any E coast port within the range of Great Yarmouth to Dover
2. Outbound vessels:
   a. 6 hours if the vessel is proceeding beyond Sea Reach No. 1 Lighted buoys (N and S)
   b. 4 hours if the vessel only requires the services of a River Pilot as far as Gravesend or Sea Reach No. 1 Lighted buoys (N and S)
3. Vessels at anchor in the Estuary:
   a. 8 hours by vessels which anchor in the general vicinity of the Sunk or are inbound from any port adjacent to the N and NE limits of the London Pilotage District.
   b. 6 hours by vessels which anchor in the general vicinity of the Outer Tongue or Margate Roads.

c. 4 hours by vessels proceeding from the inner London anchorages (Mouse, Southend and Warp Deep Water, Great Nore, Southend Lettered, Leigh Small Ships, Chapman, Mucking, Higham Bight and Gravesend Lower).

4. For vessels whose voyage is of less duration than the minimum notice requirements, notice should be given as soon as possible

5. Surcharges: Any orders or changes giving less than 8 hours notice of ETA or 4 hours notice of ETD must be notified to Port Control Center, Gravesend and will be subject to a surcharge on a sliding scale dependent on notice given. An exception is granted to vessels engaged in short sea voyages who may give notice of the confirmed order for a Pilot and ETA at the time of leaving the previous port to a minimum notice of 4 hours after which surcharges will be applicable. However, vessels bound for London (or Medway Ports), which anchor in the general vicinity of the Sunk, Outer Tongue or Margate Roads (i.e. at outer anchorages), or are inbound from any port adjacent to the limits of the London Pilotage District, are still required to give not less than 8 hours notice of the requirement for a Pilot. Surcharges may also apply for vessels with a draft of less than 7.5m embarking a Pilot at the Sunk rather than the NE Spit Pilot Station.

6. Vessels requiring a Pilot to embark or disembark at a continental port should obtain the approval of the PLA Pilotage Administration office at least 3 days before the service is required through the following contact information:

1. Telephone: 44-1-474-562362
2. Facsimile: 44-1-474-562378
3. E-mail: pilotage@pla.co.uk

A final ETA and any changes must be given when the vessel is in VHF radio contact with the appropriate pilot station (see below) or London VTS.

Outbound vessels, vessels shifting berth, and vessels leaving an anchorage should send an ETD message, with a Provisional Order for a pilot and the mandatory pilotage details (see table titled London VTS—Reporting Information) to the London Port Control Center, Gravesend at least 24 hours in advance. The Provisional Order should include the same details as for inbound vessels.

When it is not possible to give advance notice as described above, Provisional Orders must be received before 1500 local time of the day prior to that on which the pilotage service is required.

A confirmed order for pilotage must then be given 6 hours in advance of the vessel's ETD. Any changes must be reported up to 2 hours before sailing. Thereafter, the vessel must contact the London VTS directly.

Pilot Station Contact Details.—

1. Call sign: North East Spit Pilots
2. VHF: VHF channels 9, 69
3. Telephone: 44-1-843-583786
4. Facsimile: 44-1-843-595664

Procedures:

a. Vessels subject to compulsory pilotage to the E of Sea Reach No. 1 Lighted buoys (N and S) may board a Pilot at the NE Spit or Sunk Pilot Stations

b. Vessels boarding a Pilot at the NE Spit Pilot Station may take passage through the Princes Channel or Fisherman's Gat. Alternatively, deeper draft vessels embarking a Pilot at NE Spit may take passage to the Black Deep via the Longsand Head inshore route or via the Sunk Precautionary Area.

c. Unless otherwise notified or instructed, it will be assumed that vessels taking passage through the Princes Channel/Fisherman's Gat will use the inner boarding area and vessels taking passage through the Black Deep via Longsand Head/Sunk Precautionary Area will use the Tongue boarding area.

d. For all inbound vessels, the NE Spit pilot vessel will contact the vessel on VHF channel 69 as the pilot vessel approaches, to gain agreement on location, course and speed required for Pilot boarding.

e. Pilot boards in the following positions:

i. Inner boarding area: centered on position (51°25'N., 1°30'E.) (between NE Spit lighted buoy and Elbow lighted buoy)

ii. Deep Water (DW) boarding area: centered on position (51°29'N., 1°34'E.)

The Port Control Center London may be contacted by e-mail for all aspects of information, including Port of London Authority Regulations and changes or amendments in the London River By-Laws of 1978, as follows:

shipcon@pla.co.uk

Vessels engaged in short voyages may give confirmation notices for pilotage and an ETA when leaving the previous port if less than the above required times.

Vessels bound for London (or Medway) ports, which anchor in the general vicinity of Sunk, Outer Tongue, or Margate Roads (at the outer anchorages), or are inbound from any port located adjacent to the limits of the London Pilotage District are required to give not less than 8 hours notice.

Vessels requiring a pilot to embark or disembark at a port on the European continent should obtain the approval of the Pilotage Manager at the PLA Pilotage Administration Office not later that 3 days before the service is required. The Pilotage Manager may be contacted, as follows:

1. Telephone:44-1-474-562362
2. Facsimile:44-1-474-562378

Vessels requiring a pilot to embark or disembark at other United Kingdom ports within the Thames estuary may make arrangements subject to availability and a minimum confirmed notice time of 8 hours in advance.

Pilots for the Port of London may be embarked or disembarked at the following pilot boarding stations:

1. **NE Spit Pilot Station (Ramsgate).—**There are three pilot boarding positions at the North East Spit Pilot Station, as follows:

a. North East Goodwin (51°20.2'N, 1°39.0'E).
b. North East Spit (51°25.0'N, 1°29.8'E).
c. Tongue (51°29.0'N, 1°34.0'E).

Vessels may request or be directed by London VTS, to use a specified pilot boarding position, the decision depending on a vessel's draft the height of tide and the weather conditions.

Vessels should contact the DW station on VHF channels 9 or 69, using Call sign (NE Spit Pilots). Pilots at this station shall normally be embarked or disembarked by the following vessels:

a. Inbound vessels entering via the NE Spit, will be contacted by the pilot vessel as it approaches on VHF channel 69. At this time vessel and pilot will agree on the course and speed for pilot boarding.

b. Vessels entering from the S or E, or departing for the S or E, whose operating draft allows use of the Princes Channel (see paragraph 4.10) or Fisherman's Gat (see paragraph 4.8). Alternatively, deeper draft vessels boarding pilots at NE Spit may take a passage through Black Deep via the Longsand Head Inshore Route or via the Sunk Precautionary Area.

c. Pilotage to be confirmed 4 hours in advance by vessels proceeding from the inner London anchorages (Mouse, Southend and Warp Deep Water, Great Nore, Southend Lettered, Leigh Small Ships, Chapman, Mucking, Higham Bight and Gravesend Lower)

2. **Sunk Pilot Station (Harwich).—**Pilots board in position 51°51.4'N, 1°40.5'E, about 3.5 miles WNW of Sunk Center Light Float. This station also provides pilots for Harwich, Felixstowe, Ipswich, and Mistley (Haven Ports) (see paragraph 4.15). Vessels should communicate with this station on VHF channels 14 and 9 (call sign: Sunk Pilots). This boarding station is situated in the NE part of Sunk Inner Precautionary Area and within the Sunk VTS area (see Regulations below and in paragraph 4.15). Pilots at this station are normally embarked or disembarked by the following:

a. Vessels with drafts of 6m or more entering from or leaving for ports to the N and NE of the River Thames.

b. Vessels entering from or leaving for ports to the S and E of the River Thames which are unable to use Princes Channel (see paragraph 4.10) or Fishermans Gat (see paragraph 4.8) because their operating draft is too great.

c. Vessels with drafts of less than 6m which agree to pay an additional pilotage charge for such service.

d. Vessels entering from or leaving for ports in Essex or Suffolk.

3. **Warp Pilot Station (Sheerness).—**Vessels should communicate with this station on VHF channel 69. This pilot station should be used by vessels for which pilotage is compulsory only to the W of Sea Reach Lighted Buoy No. 1. Pilots normally board in position 51°29.7'N, 0°55.0'E and disembark in position 51°29.4'N, 0°52.5'E (close S of Sea Reach Lighted Buoy No.1). Additional contact information as listed below:

a. Call sign: Sheerness Pilots
b. Telephone: 44-1-795-561-207
c. Telephone: 44-1-795-561-309

Procedure for Warp Pilot Station:

Pilots shall normally be boarded or landed at the Warp Pilot Station by vessels for which pilotage is compulsory only to the W of Sea Reach No. 1 Lighted buoys (N and S). Pilot embarks and disembarks in the following positions:

a. Embark: (51°29'.7N., 0°55'.0E.).
b. Disembark: (51°29'.4N., 0°52'.5E.).

4. **River Pilot Station (Gravesend).—**Vessels should communicate with this station on VHF channel 9 (call sign: London Pilots). This pilot station should be used by vessels for which pilotage is compulsory to the W of the Crayford Ness Limit, a line extending across the River Thames from Crayford Ness, on the S bank, on the line of longitude 0°12.8'E. Pilots board and disembark vessels off Gravesend (0.2 mile N of Royal Terrace Pier).

5. Telephone:44 - 1474 560311
6. Fax:44 - 1474 352996

Procedure for River Pilot:

1. Pilots shall normally be boarded or landed at the Gravesend Pilot Station W of the Crayford Ness Limit, defined as a line drawn across the Thames from Crayford Ness on the south bank along longitude 0°12·8'E.

2. Pilot boards off Gravesend (0.2 n miles N of Royal Terrace Pier).

3. Contact Details:

Patrol Launches:
1. Call sign: Thames Patrol
2. VHF: VHF channels 14, 68, 69

Tugs (Oil Refineries)
1. VHF: VHF channels 10, 13

Tugs (River Berths)
1. VHF: VHF channels 8, 13, 72

Tugs (North Fleet Hope Container Terminal)
1. VHF: VHF channel 77

Notes:

1. Call on main port working frequency appropriate to VTS Sector.

2. At Shell and Coryton, VHF channel 36 (P2) is used for mooring vessels over 11,000 gt and over 160m LOA. VHF channel 10 is used for all other vessels. If two vessels over 11,000 gt and over 160m LOA are berthing or unberthing at the same time, the vessel at Coryton will use VHF channel 10 and the vessel at Shell will use VHF channel 36 (P2).

3. All VHF radios used in tanker mooring operations must be intrinsically safe.

Regulations.— Ultra Large Container Ships **(ULCS)** are defined as those vessels exceeding LOA of 320m and or drawing more than a 13.5m draft. These types of vessels must note Provisions 14 and 38 of the General Directions for Navigation in the Port of London (2016) found at (http://www.pla.co.uk/safety/byelaws-rules-and-regulations-governing-navigation)

ULCS must display lights and shapes indicating a vessel constrained by her draft at all times, when underway in the Thames. ULCS must submit a passage plan to London VTS, not less than six hours before the planned voyage.

ULCS vessels navigating through the Knock John Channel between Black Deep No. 9 buoy (51°35.13'N., 1°15.09'E.) and Knock John No. 7 buoy (51°31.96'N., 1°06.4'E.), and between the W Oaze buoy (51°28.97'N., 0°55.41'E.), and Sea Reach No. 3 buoys (51°29.32'N., 0°46.77'E.), may require one-way traffic operation within the buoyed channels. Vessels navigating with the tidal flow will normally have priority. Passing and overtaking may only be permitted by London VTS, and agreement with the Master of the ULCS.

All vessels in the vicinity of a ULCS vessel must pay particular attention to rule (9a) and (9d) of the International Regulations for Preventing Collisions at Sea (1972). Any Reporting Vessel, or any passenger vessel, excluding assisting tugs, must maintain a separation of 1 mile ahead, or 0.5 miles astern of the ULCS navigating the Thames, unless passing or overtaking with the permission from the London VTS and also agreement from the ULCS Master.

Precautionary Areas, Designated Routes, and associated TSSs are situated in the approach to the Thames Estuary, in the vicinity of Sunk (51°51'N., 1°38'E.). They have been established in order to reduce the risk of collision and control traffic in this congested area.

Sunk Outer Precautionary Area, which is about 12 miles long and 6 miles wide, lies centered on Sunk Center Light Float (51°50'N., 1°46'E.).

An Area to be Avoided is centered on Sunk Center Light Float in order to protect this aid from damage. It has a radius of 0.5 mile and may best be seen on the chart.

All vessels should follow the recommended counterclockwise traffic direction around the light vessel.

Sunk TSS North, about 2 miles long, is situated adjacent to the N side of Sunk Outer Precautionary Area, between Inner Gabbard and Shipwash. The southbound traffic lane is located on the W side of the separation zone; the northbound traffic lane is located on the E side of the separation zone. Beyond this TSS, the coastal route leads in a N direction along the E coast of England.

Sunk TSS East, about 5.5 miles long, is situated adjacent to the E side of Sunk Outer Precautionary Area, between Inner Gabbard and The Galloper. The southwest bound traffic lane is located on the N side of the separation zone; the northeast bound traffic lane is located on the S side of the separation zone. Beyond this TSS, a route leads in an ENE direction to the vicinity of the North Hinder Junction Precautionary Area (see Sector 7).

Sunk TSS South, about 3.8 miles long, is situated adjacent to the S side of Sunk Outer Precautionary Area, between Kentish Knock and North Falls. The southbound traffic lane is located on the W side of the separation zone; the northbound traffic lane is located on the E side of the separation zone. Beyond this TSS, routes lead SSE through Falls Gap or SSW to the Dover Strait TSS (see Directions in paragraph 4.4).

Sunk Inner Precautionary Area is situated adjacent to the W side of Sunk Outer Precautionary Area. This area, which is about 6 miles long and 6 miles wide, is irregular in shape. Sunk Inner Light Float (51°51'N., 1°35'E.) is moored near the center of this area.

Galloper Recommended Route leads in an ESE direction from the SE side of Sunk Outer Precautionary Area. This route is designed for cross-channel ferries proceeding to and from Oostende or Zeebrugge. Such vessels cross the Noord Hinder South TSS in the vicinity of Twin Lighted Buoy (51°32.0'N., 2°22.6'E.).

Shipwash Bank Route and Long Sand Head Two-Way Route have been established in order to reduce congestion in the approaches to the Sunk Pilots boarding station. Both routes avoid the Sunk Outer Precautionary Area.

Shipwash Bank Route leads S into Sunk Inner Precautionary Area, passing W of Sunk TSS North and E of Shipwash. Access is via a restricted area; vessels are normally prohibited from passing into the Harwich Deep-Water Channel between South Shipwash Lighted Buoy (51° 52.7'N., 1°34.2'E.) and Walker Lighted Buoy, moored about 1 mile N. This route may be used by vessels of less than 20m in length, sailing vessels, and vessels engaged in fishing irrespective of port of destination or origin. It may also be used by vessels operated under a pilot exemption certificate and vessels exempt from pilotage by the regulations of the port of destination. All such vessels may proceed to or from any port accessible by Sunk Inner Precautionary Area, including Thames and Medway ports.

Long Sand Head Two-Way Route, which is about 11 miles long, leads N into Sunk Inner Precautionary Area, close E of Long Sand Head (51° 46'N., 1°37'E.). It passes between Kentish Knock and the W side of Sunk TSS South. This route may be used by vessels of less than 20m in length, sailing vessels, and vessels engaged in fishing irrespective of their port of destination or origin. It may also be used by vessels operated under a pilot exemption certificate and vessels exempt from pilotage by the regulations of the port of destination, which are proceeding only to or from Thames or Medway ports. In accordance with Rule 9 (72 COLREGS), vessels less than 20m in length, sailing vessels, and vessels engaged in fishing using this route shall not impede the passage of vessels which can safely navigate only within the narrow channel or fairway.

All of the above Precautionary Areas, TSSs, and routes are IMO-adopted and may best be seen on the chart.

1. **Sunk Vessel Traffic Service (VTS).—**Sunk VTS is appointed by the United Kingdom Maritime and Coastguard Agency (MCA) and it is based at Dover Maritime Rescue Coordination Center (MRCC). The VTS covers the two Sunk Precautionary Areas and the TSSs together with other routes that lead into them. Within the VTS area, all vessels of 300gt and over are required to comply with the VTS rules. All vessels within the area are required to comply with 72COLREGS.

2. **Within the VTS following rules apply.—**All vessels equipped with VHF radio, when within the area, shall monitor the designated VHF channel.

   a. Vessels of 300gt and over shall report on entering and leaving the VTS area. The initial entry report shall comprise the vessel's name, call sign, reporting point, draft, destination, intended route, and ETA at the pilot station, if applicable.

   b. Vessels of 300 gross tons and over shall report when anchoring in a designated anchorage or elsewhere within the VTS area.

   c. The VTS working channel is required to be monitored continuously when at anchor.

   d. Any incident that effects the safety of navigation of a vessel is to be reported to the VTS.

3. Vessels which are not proceeding to or departing from ports within the Thames Estuary or Harwich Haven, shall avoid Sunk Inner Precautionary Area.

4. Vessels navigating within Sunk Inner Precautionary Area shall avoid impending the passage of a vessel constrained by draft and following Deep Water route.

5. Fishing vessels engaged in fishing shall report their intentions on entering or leaving Sunk Inner Precautionary Area.

6. Dredging vessels working within the VTS area shall submit passage plans for approval by the VTS authority.

7. Vessels proceeding towards the Dover Strait TSS will be requested to provide CALDOVREP information when reporting to Sunk VTS. This information will also be passed to Channel Navigation Information Services.

For further information concerning Sunk VTS regulations and reporting procedures, see Regulations under Harwich (Felixstowe) in paragraph 4.16.

Sunk Pilots boarding station is situated in the NE part of Sunk Inner Precautionary Area and within the Sunk VTS area. Communication in the approaches and at the pilot boarding station will be conducted by Sunk VTS on VHF channel 14.

Vessels must confirm their ETA at the boarding station 3 hours (or as soon as possible before arrival) and 1 hour prior to arrival on VHF channel 9.

The following rules apply to vessels intending to embark a pilot at this boarding station:

1. Inbound vessels must approach from the Sunk Outer Precautionary Area.

2. Vessels must adhere to the pilot boarding turn order issued by Sunk VTS.

3. Vessels must avoid waiting in the vicinity of the boarding station.

4. Vessels must embark the pilot E of Storm Lighted Buoy unless informed otherwise by Sunk VTS.

5. Vessels must maintain a listening watch on the VTS working channel during boarding operations. VHF channel 6 may be used for direct communication with the pilot launch during the embarkation procedure.

London Vessel Traffic Service.—London Vessel Traffic Service (London VTS), a mandatory system, operates in the approaches to the Port of London. The VTS Area extends seaward from Teddington Lock (51°25.9'N., 0°19.5'W.), at the W end, to the Sunk Inner Precautionary Area to the N, to the South Knock and Falls Reporting Points to the E and NE, and to the Goodwin Reporting Point to the SE. This system consists of three VTS Sectors and is operated from the following two Control Centers:

London Vessel Traffic Service (VTS): London VTS comprises three VTS Sectors run from two control centers. The principal control center is the Port Control Center London at Gravesend from which the Estuary and River Sectors are managed and the secondary control center is the Thames Barrier Navigation Center at Woolwich from which the Barrier Sector is managed.

Inshore VTS Limit:

1. From Teddington Lock (51°26.1'N, 1°19.7'W.), down river following the N bank of the Thames and the Essex coast to Foulness Point (51°37.0'N, 0°57.3'E.).

2. From Teddington Lock (51°26.1'N, 1°19.7'W.) down river following the S bank of the Thames to the seaward limits of Medway VTS:

a. (51°28.5’N, 0°40.7’E.)
b. (51°29.1’N, 0°52.6’E.)
c. (51°24.9’N, 0°54.3’E.)

3. Then to Whitstable Breakwater Light (51°21.9’N, 1°01.5’E.).

4. Then along the N Kent coast to North Foreland Light Ho (51°22.5’N, 1°26.7’E).

Offshore VTS Limit (through the following points):

1. (51°37.0’N, 0°57.3’E.) (Foulness Point)
2. (51°48.5’N, 1°26.5’E)
3. (51°48.5’N, 1°29.5’E)
4. (51°44.9’N, 1°35.3’E)
5. (51°37.9'N, 1°25.6’E)
6. A 10 mile radius centered on (51°28.0’N, 1°24.0’E), and joining the following points:

a. (51°37.9'N, 1°25.6’E)
b. (51°20.4'N, 1°34.5’E)
7. (51°20.4'N, 1°34.5’E)
8. (51°22.5’N, 1°26.7’E), (North Foreland Lighted buoy).

VTS Sectors:

1. Port Control Centers:
   a. Estuary Sector: From the seaward limits of the VTS area to Sea Reach No. 4 Lighted buoys (N and S).
   b. River Sector: From Sea Reach No 4 Lighted buoys (N and S) to Crayford Ness (51°28.9’N, 0°12.7’E.).
2. Thames Barrier Navigation Center: Barrier Sector: From Crayford Ness to Teddington Lock (51°25.9’N, 0°19.5’W.).
3. Port Control Center Contact Details:
   a. Call sign: London VTS
   b. Facsimile: 44-1-474-352996
   c. E-mail: shipcon@pla.co.uk

Services:

1. Port Control Center—Estuary and River Sectors:
   a. Information Service
   b. Traffic Organization Service
   c. Navigational Assistance Service (Crayford Ness to Port Limits)
2. Thames Barrier Navigation Center - Barrier Sector:
   a. Information Service
   b. Traffic Organization Service (Crayford Ness to London Bridge)
   c. Navigational Assistance Service (Crayford Ness to Greenwich)
3. In accepting such services, mariners should take note that each VTS operator may be monitoring a number of vessels within the VTS Sector. Therefore, the VTS operator will not be able to devote the same level of attention to each vessel as an individual vessel is able to dedicate to its own ship domain. Operators will endeavor to provide a higher level of oversight should a Navigational Assistance Service (NAS) be requested or observed to be necessary, however, the ability to provide NAS on request will depend on the notice given and operator availability. Whenever possible, London VTS will also monitor the position of vessels anchored in designated anchorages that are identified as such within Port of London Authority Port Limits. Under all circumstances, it must, however, be clearly understood that decisions concerning the navigational safety and the maneuvering of the vessel can only be made by the Master, who remains at all times responsible for vessel safety.

Estuary Sector—Seaward limit of VTS Area to Sea Reach No 4 Lighted buoys (N and S)

Note: Margate Roads and Tongue anchorages are outside the Port of London Authority Limits: Margate Roads is frequently used for shelter by a number of vessels not bound to or from London. London VTS does not routinely monitor vessels within these anchorages.

Port Control Center:

1. Call sign: London VTS
2. Facsimile: 44-1-474-560311
3. E-mail: shipcon@pla.co.uk

Estuary Sector—Seaward limit of VTS Area to Sea Reach No. 4 Lighted buoys (N and S):

1. VHF: VHF channel 69 (Main)
   VHF channel 18 (Secondary)

River Sector—Sea Reach No 4 Lighted buoys (N and S) to Crayford Ness: VHF Channel: 68, 20.

1. VHF: VHF channels 20, 68
   VHF channels 16, 67 (emergency)

Chief Harbor Master, Telephone:

1. Telephone: 44-1-474-562268

Harbor Master (Lower Thames):

1. Telephone: 44-1-474-562212

Thames Barrier Navigation Center:

1. Call sign: London VTS
2. Telephone: 44-2-885-50315
3. Facsimile: 44-2-885-47422
4. E-mail: shipcon@pla.co.uk

Barrier Sector—Crayford Ness to Teddington Lock):

1. VHF: VHF channels 14, 22

Harbor Master (Upper Thames):

1. Telephone: 44-2-726-52656
2. AIS: London VTS operates an AIS Network of 5 active base stations and 1 passive base station. For AIS addressed messages, send to the group MMSI: 002320900.
3. E-mail: shipcon@pla.co.uk

Procedure—

1. Vessel Traffic Services (VTS) - Definition within the United Kingdom requires that "All vessels entering a VTS area are required to participate in and comply with the rules of that VTS".
2. For details of the Merchant Shipping (Traffic Monitoring and Reporting Requirements) Regulations 2004 see Pub. 180, Sailing Directions (Planning Guide) North Atlantic, Baltic Sea, North Sea, and Mediterranean Sea.
3. It is recommended that a "read receipt" be obtained for mandatory notifications transmitted by e-mail.
4. Anchorages in the Queens Channel are provided for the exclusive use of vessels engaged in bunkering with the permission of London VTS.
5. Margaret Ness to Blackwall Point: Vessels intending to navigate in the area between Margaret Ness and Blackwall Point should note the special provisions for the Thames Barrier Control.
6. Vessels with air draft of 45m or more: The area between Bulls Point and Ware Point encompasses the London City Airport glide path. All vessels including pontoons with mobile cranes embarked, having an air draft of 45m or more intending to navigate between Bulls Point and Ware Point should inform London VTS of their intention giving at least 24 hours notice.
7. Restrictions in overtaking exist upriver of Tilburyness and at any time when a specified vessel is involved. In these circumstances, vessels should obtain clearance from London VTS.
8. Channel Restrictions: To reduce risk to deep draft vessels, passage through Black Deep/Knock John Channel is normally restricted to vessels with a draft of over 6m. Vessels with a draft of less than 6m should normally use the Princes Channel or King's Channel unless access is limited by tidal or weather constraints. In these circumstances, clearance to use the Black Deep/Knock John Channel may be sought through London VTS. However, for piloted vessels of less than 7·5 draft, a surcharge may apply.
9. Communications: All vessels fitted with VHF radio anywhere within the Port of London Authority VTS area should maintain a continuous listening watch on the main frequency of the appropriate sector. The Master shall ensure that VHF channels utilized by London VTS are used only for reporting safety of navigation, emergency and urgent communications and for no other purpose. All such VHF communications shall comply with the guidelines contained within IMO resolution A.954/23 (proper use of VHF channels at sea).
10. AIS: Vessels mandated to carry AIS are to operate it at all times when underway or alongside in the Thames. London VTS is to be informed if it is required to be switched off for safety or security reasons. Vessels should ensure that the appropriate status is set within their AIS installation prior to navigating in the Thames. London VTS will verify that the appropriate AIS status is set prior to granting permission to proceed.

Thames AIS: In addition to those vessels required to carry AIS by international regulations, the following vessels are required to carry and operate Thames AIS upstream of Victoria Deep Water Terminal in accordance with local bylaws: (The AIS is to be operated when underway or alongside for short periods but switched off when unmanned or out of service):

1. Vessels of more than 40m LOA
2. Vessels having a gt of more than 50 tons (other than pleasure vessels having a gt of more than 50 tons, but which are under 40m LOA)
3. Tugs engaged in towing or about to tow one or more vessels
4. Class IV, V and Class VI passenger vessels.
5. Vessels carrying marine pollutants in bulk or other specified vessels.

AIS as an aid to navigation:

AIS, when fitted to select fixed and floating aids to navigation can provide information to the mariner such as:

1. Position
2. Status
3. Tide and current data
4. Weather and visibility conditions.

A future development of AIS will be the ability to provide safety related messages and also pseudo navigation marks. Mariners should be warned that the appearance of spurious AIS targets, and should beware of when an AIS target is not accompanied by a radar target. However it should also be noted

that the AIS will sometimes be able to detect targets which are in a radar shadow area.

The AIS is to be operated when underway or alongside for short periods but switched off when unmanned or out of service. In the event of a defect with a Thames AIS installation, vessels should inform London VTS of the nature of the defect immediately. As soon as possible after the initial notification of defect, vessels should provide London VTS with the detailed nature of the reported problem with their AIS. Vessels should also provide London VTS with details of the intentions for repair/rectification of the AIS within 24 hours of the defect being discovered.

Advice to AIS users at sea:

1. Ensure correct information on identity, position and movements, including voyage specific data.
2. Ships draft
3. Hazardous cargo
4. Destination and ETA (use UN/LOCODE) for destination names to avoid confusion.
5. Route waypoints
6. The correct navigation status of the vessel
7. Short safety related messages
8. Ensure AIS is operational at least 100 miles off the United Kingdom coast.

Reporting—

1. Vessels over 40m LOA, vessels over 50 gt and tugs engaged in towing are designated reporting vessels.
2. Non-reporting vessels over 13·7m LOA and those certified to carry more than 12 passengers are required to maintain a continuous VHF listening watch.
3. Pleasure craft are encouraged to participate.
4. Reporting Information. Details required by Port Control Center and as required by the Merchant Shipping (Traffic Monitoring and Reporting Requirements) EU Regulations 2004 should be sent using the standard "Port of London Authority - Movement, Pilotage and PEC Notifications" form which may be downloaded from the Port of London Authority website: (www.pla.co.uk). Reporting vessels should send the completed notification form to the Port Control center 24 hours in advance of arrival/departure/ shifting berth, or within 1 hour of departure from last port of call (which ever is closer), reporting any changes to Port Control Center, London.
5. Vessels bound for the Port of Tilbury should contact the Marine Coordinator (see Tilbury Docks Entrance Lock)
6. The Master of a reporting vessel intending to navigate in the Thames shall, on arrival at the outer limit of the VTS area, report to the Harbor Master through London VTS, that his vessel complies with the navigational safety requirements of PLA General Directions. This report will confirm if the following statements are true:
   a. Thames charts and associated navigational publications are up to date.
   b. A passage plan for the Thames has been prepared.
   c. The vessel is ISM (International Safety Management) compliant or, if not subject to the ISM code, the vessel has no deficiencies or defects in respect of its manning, navigational equipment, propulsion or maneuvering machinery.
   d. Appropriate arrangements for mooring assistance have been made.
7. Vessels within the VTS area should report when passing designated Reporting Points, when anchoring, on berthing, on entering a lock, before closing down on VHF, and on entering or leaving a VTS sector (NOTE: Leaving report is not necessary between River and Estuary sectors as VTS operators are co-located).

In addition, vessels should immediately report the occurrence of any of the following:

   a. Being involved in or sighting a collision, stranding, fire or other accident.
   b. Machinery, steering breakdown or navigational incident.
   c. Personal injury or recovery of a casualty from the river.
   d. Spillage of oil or oil mixtures.
   e. Restricted visibility or notification to the VTS of the actual visibility if the distance being reported by London VTS is in error.

8. Vessels need to obtain Permission to Proceed by notifying London VTS on the appropriate VHF Channel 10 minutes before the time at which they propose to start navigating the Thames; then again immediately before they expect to commence navigation in the Thames. If navigation has not commenced within 5 minutes of the time they have been granted permission to proceed, they should inform London VTS of their intentions.
9. Havens Safety Zone:
   a. Havens Safety Zone is comprised of the area of the Thames, E of Mucking No. 1 Lighted Buoy and W of Sea Reach No. 7 Lighted Buoy in the Yantlet Channel.
   b. All inbound vessels of 190m LOA or over and/or 10.5m draft or over shall, when passing either the Blacktail Spit Lighted Buoy, N Oaze Lighted Buoy, SE Mouse Lighted Buoy or the Shivering Sand Towers, inform London VTS of their ETA at Sea Reach No. 7 Lighted Buoy, the E limit of the Havens Safety Zone.
   c. All outbound vessels of 190m LOA or over and/or 10.5m draft or over shall, either at the Crayfordness Limit or when departing the berth if the berth lies to the E of the Crayfordness Limit, inform London VTS of their ETA at Mucking No. 1 Lighted Buoy, the W limit of the Havens Safety Zone.

Reporting Points—Vessels should report to the appropriate VTS sector operator at the following Reporting Points and obtain clearance for continued transit.

1. All inward-bound vessels should call London VTS on VHF Channel 69 on entering the VTS area (see above) for clearance and traffic routing information, stating intended route for transit.
2. A London arrival/departure reporting arc of 10 n mile radius centered on position (51°28.3'N 1°23.8'E) from Foulgers Gat to the CALDOVREP line (extending ESE from North Foreland Lt to position (51°16.0N 1°51.4'E), in the separation zone) has been established.
3. All vessels are also required to report to London VTS on VHF Ch 69 when passing the following Reporting Points:

4. Out-bound reporting vessels shall, on passing Sea Reach No 4 Lighted buoys (N and S) Reporting Point, or if leaving the Medway Ports, on passing the wreck of the Richard Montgomery (51°28.0’N 0°47.1’E), declare the channels which they intend to use for navigation beyond Sea Reach No. 1 Lighted buoys (N and S). Reports should be made to London VTS on VHF Ch 69.

5. **Knock John Channel and Fisherman's Gat:** Reporting vessels intending to navigate in the Knock John Channel shall advise London VTS of their agreed passage plan, ETA at the Knock John Channel entrance and intentions in respect of vessel priority in the expected traffic conditions at the Knock John Channel and Fisherman's Gat, as follows:

i. In-bound vessels shall report at, or before, the Sunk Head Tower Reporting Point or, if using Fisherman's Gat, on passing the London Arrival/Departure Reporting Arc (limit of VTS area) or the NE Spit Reporting Points, giving ETA at the Knock John No 1 Lighted buoy (51°33.8’N 1°10.7’E).

ii.In-bound vessels are to report again when passing Black Deep No 5 Lighted buoy or, if using Fisherman's Gat, on passing the Outer Fisherman Lighted buoy Reporting Points, giving an updated ETA at the Knock John No 1 Lighted buoy.

iii.Out-bound vessels shall report on passing Sea Reach No 1 Lighted buoys (N and S) or the Medway Lighted buoy Reporting Points giving an ETA at the Knock John No 4 Lighted buoy (51°32.3’N 1°07.9’E), and advise whether they intend to use Fisherman's Gat.

6. Princes Channel: Outbound vessels intending to use Princes Channel which, because of their draft, are constrained to the DW route, should inform London VTS of their intention to use Princes Channel DW route when declaring their intended out-bound route at Sea Reach No 4 Lighted buoys (N and S) or on passing the wreck of the Richard Montgomery.

7. Inshore Passages: Vessels using inshore passages should report to London VTS on VHF Channel 69 at S Whitaker and Maplin Lighted buoys, or at SE Margate and Spaniard Lt buoys, as appropriate.

8. Medway: Vessels entering or leaving the Medway, report at Medway Lighted buoy to London VTS on VHF Channel 69 (see MEDWAY).

9. All vessels are required to report to London VTS on VHF Ch 68 when passing the following Reporting Points:

10. Reporting vessels are required to inform London VTS on VHF Channel 14 when passing the Reporting Points below. In addition, reports on entering the Thames Barrier Control Zone at Margaret Ness (51°30.5’N 0°05.5’E) and Blackwall Point (51°30.3’N 0°00.2’E) are mandatory for all vessels, irrespective of size, equipped with VHF.

All inbound Reporting Vessels must send an ETA message, with appropriate details (as listed in the table titled **London VTS—Reporting Information**), to the Port Control Center 24 hours in advance or within 1 hour of departure from the last port of call (if nearer).

In the narrow fairway leading between Knock John Lighted Buoy No. 1 (51°34'N., 1°11'E.) and Knock John Lighted Buoy No. 4, 2.3 miles SW, the following regulations apply:

Information broadcasts, including state of traffic, visibility, tide heights, and other general marine bulletins are given by London VTS on VHF channel 69 at 15 minutes and 45 minutes past the hour, on VHF channel 68 on the hour and at 30 minutes past the hour, and on VHF channel 14 (Thames Barrier Navigation Center) at 15 minutes and 45 minutes past the hour.

London VTS—Reporting Information

Designator	Information Required
**A	Vessel’s name, nationality, call sign, IMO number, and MMSI number.
*F	Maneuvering and sea speed.
G	Last port.
**I1	ETA at pilot station or other position or berth (to be identified).
*I2	Name of berth on Port of London.
I3	If an anchorage is required.
I4	If shifting berth, location of new berth.
*J1	If a pilot is required and required pilot boarding station.
J2	If navigating under a Pilotage Exemption Certificate (PEC), name(s) and number(s) of holders.
K1	Next port.
**K2 or	ETD from berth and required pilot disembarkation station.
*K3	If shifting berth, ETD from present berth.
L	Intended approach or departure channel.
*O	Draft (meters) and list, if any.
P1	Cargo status (in ballast, loaded, cargo remaining on board etc.).
P2	Details of any hazardous or pollutant commodities on board.
Q	Details of any defects, damage, deficiencies, or other limitations in regard to crew, navigational equipment, propulsion or maneuvering machinery.
*U1	Gross registered tons.
*U2	Length (meters).
**W	Total number of persons on board.
Y	Confirmation Thames Port Passage Plan prepared and that charts and navigational publications are corrected and up to date.

* Denotes items mandatory for pilotage request messages.
** Denotes items mandatory for all Reporting Vessels.

Details of a major incident to seaward of Sea Reach No. 1 Lighted Buoy will be broadcast by the Port Control Center (London VTS) using the code word POLASEA.

1. One-way traffic will be imposed for vessels constrained to navigating within the buoyed channel by their size or draft.
2. Vessels navigating with the tide will normally have the right-of-way.
3. Passing and overtaking may be permitted subject to the agreement of the vessels involved (does not apply to LNG vessels).
4. Smaller vessels may navigate outside the buoyed channel but should inform London VTS and other vessels of their actions. In electing to navigate outside the buoyed channel, smaller vessels should be aware that depths are subject to frequent changes and surveying is carried out less frequently than within the main channel.

Details of a major incident (alongside or underway) in the river between Sea Reach Lighted Buoy No. 1 and Crayford Ness will be broadcast by the Port Control Center (London VTS) using the code word POLACAP.

Details of a major incident above Crayford Ness will be broadcast by London VTS (Thames Barrier Navigation Center) using the code word POLARIVER.

These code words signify that the Port of London has initiated a combined accident procedure. All vessels should maintain their present listening watch, minimize all radio broadcasts, and be prepared to receive specific traffic regulation instructions.

Note.—For details of Sunk Vessel Traffic Service and Harwich Vessel Traffic Service, see paragraph 4.15.

For details of Reporting Points in the River Thames above Sea Reach No. 4 Lighted Buoy and the Medway Vessel Traffic Service, see the table titled **London VTS Reports made on VHF channel 14** here and in paragraph 5.1.

Anchorage.—Vessels may anchor for an unlimited period in any of the designated anchorage areas. Information on berths available in these anchorages can be obtained from the appropriate VTS Control Centers. Vessels when anchored should always report to Sunk VTS or London VTS, as appropriate.

The following are the designated anchorages:

1. Tongue Deep Draft Anchorage (51°31'N., 1°29'E.).
2. Tongue Hazardous Anchorage (51°32'N., 1°29'E.).
3. Knob Deep Draft Anchorage (51°31'N., 1°04'E.).
4. Sunk Deep Draft Anchorage (51°54'N., 1°40'E.).
5. Black Deep Draft Anchorage (51°38'N., 1°21'E.).
6. Inner Sunk Anchorage (51°50'N., 1°30'E.).
7. Southend and Warp Deep Draft Anchorage (51°31'N., 0°56'E.).
8. East Spile Tanker Anchorage (51°29'N., 0°55'E.).
9. Oaze Small Ship Anchorage (51°31'N., 1°00'E.).
10. Great Nore Anchorage (51°29'N., 0°48'E.).
11. K3 Anchorage (51°30'N., 01°04'E.).

London VTS Reports made on VHF channel 14

Name	Position	Remarks
Crayford Ness	51°29.1'N 0°12.6'E	1. Mandatory reporting for both inbound and outbound vessels intending to enter Thames Barrier Control Zone. 2. Report ETA at Barrier or ETA destination within zone if not passing through Barrier. 3. All VHF fitted vessels leaving berth or locks within the Thames Barrier Control Zone should report 10 minutes before leaving and again, immediately prior to leaving, to obtain permission to proceed in accordance with general traffic clearance procedures for reporting vessels.
Ford Motor Works, Dagenham	51°30.5'N 0°09.5'E	1. Mandatory reporting for all inbound and outbound vessels.
Margaret Ness	51°30.7'N 0°05.5'E	1. Mandatory reporting for inbound VHF equipped vessels to request clearance to enter control zone. 2. Span allocation will be given with clearance to enter the Control Zone. 3. Small vessels under 13.7m not fitted with VHF radio should navigate the Thames Barrier though the span that lies furthest to the starboard side of the channel marked as open to navigation and having sufficient depth of water. Alternatively, they may report by mobile phone to London VTS (44-20-88550315). Vessels under sail between Woolwich Ferry terminal and Hook Ness should keep to the starboard side of the fairway and, if fitted with an engine, should use motor power to navigate through the Thames Barrier.

London VTS Reports made on VHF channel 14		
Name	Position	Remarks
Blackwall Point	51°30.3'N 0°00.0'E	1. Mandatory reporting for inbound VHF equipped vessels to request clearance to enter control zone. 2. Confirm ETA given at London Bridge. 3. Request clearance to enter control zone 4. Span allocation will be given with clearance to enter the Control Zone. 5. Small vessels under 13.7m not fitted with VHF radio should navigate the Thames Barrier though the span that lies furthest to the starboard side of the channel marked as open to navigation and having sufficient depth of water. Alternatively, they may report by mobile phone to London VTS (44-20-88550315). Vessels under sail between Woolwich Ferry terminal and Hook Ness should keep to the starboard side of the fairway and, if fitted with an engine, should use motor power to navigate through the Thames Barrier.
Surrey Entrance (Wapping)	51°30.3'N 0°03.1'W	1. Mandatory reporting for all inbound vessels.
Tower Bridge	51°30.2'N0°04.3'W	1. Mandatory for outbound reporting vessels only intending to enter Thames Barrier Control Zone. 2. Report ETA Barrier or ETA destination within zone if not passing through Barrier. 3. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 4. All VHF fitted vessels leaving berth or locks within the Thames Barrier Control Zone should report 10 minutes before leaving, and again, immediately prior to leaving, for permission to proceed in accordance with general traffic clearance procedures for reporting vessels. 5. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Waterloo Bridge	51°30.5'N 0°07.0'W	1. Mandatory for both inbound and outbound reporting vessels. 2. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 3. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Vauxhall Bridge	51°29.2'N 0°07.6'W	1. Mandatory for both inbound and outbound reporting vessels. 2. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 3. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Note: In addition, reports when entering the Thames Barrier Control Zone at Margaret Ness (51°30.5'N 0°05.5'E) and Blackwall Point (51°30.3'N 0°00.2'E) are mandatory for all vessels equipped with VHF, irrespective of size.		

London VTS—VHF Channel 69 Reporting Points			
Barrow Deep/Mouse/The Warp	**Black Deep/Knock John/ Oaze Deep**	**Fisherman's Gat/Knob/ Knock John**	**Princes Channel**
Sunk Head Tower Lighted Buoy	Sunk Head Tower Lighted Buoy	On arrival/departure at the Reporting Arc,	On arrival/departure at the Reporting Arc
Barrow No. 2 Lighted Buoy	Black Deep No. 5 Lighted Buoy	Outer Fisherman	Tongue Sand Tower Lighted Buoy
Barrow No. 6 Lighted Buoy	Black Deep No. 9 Lighted Buoy	Black Deep No. 9 Lighted Buoy	Shivering Sand Tower
Barrow No. 10 Lighted Buoy	SE Mouse Lighted Buoy	SE Mouse Lighted Buoy	Oaze Lighted Buoy (inbound only)
N Oaze Lighted Buoy (inbound only)	Oaze Lighted Buoy (inbound only)	Oaze Lighted Buoy (inbound only)	Sea Reach 1 (outbound only)
Sea Reach 1 (outbound only}	Sea Reach 1(outbound only)	Sea Reach 1 (outbound only)	Sea Reach 4
Sea Reach 4	Sea Reach 4	Sea Reach 4	—

London VTS—VHF Channel 68 Reporting Points		
Name	**Position**	**Remarks**
Sea Reach No.4 Lighted Buoy	51°29.6'N, 0°44.3'E	(N and S, inbound and outbound)
Mid Swatch Lighted Buoy.	51°28.7'N, 0°44.3'E	(inbound only)
Sea Reach No.7 Lighted Buoy (N and S),	51°30.1'N, 0°36.8'E	(inbound and outbound)
Shommead	51°27.3'N, 0°26.4'E	(inbound and outbound)
Gravesend	51°27.0'N, 0°22.6'E	(inbound and outbound)
West Thurrock Power Station	51°27.2'N, 0°17.1'E	(inbound and outbound)

The East Spile Tanker Anchorage is generally used by vessels up to 240m in length.

The Knob Deep Draft Anchorage is reserved for vessels nominated by the Port of London Authority and is generally used by VLCCs.

The K3 Anchorage has a radius of 0.26 mile and a safe depth of 12.6m (2005). This anchorage is to be used primarily by LNG vessels which have to abort their passage due to unforeseen circumstances. LNG vessels should not normally remain at this anchorage for more than one tide without the permission of the authorities. Other vessels may use this anchorage with permission and provided it is known that the anchorage will not required for an LNG vessel.

Caution.—Vessels should navigate with extreme caution in the vicinity of Sunk Center Light Float, the Sunk Inner Precautionary Area, and the approaches to Harwich Haven due to the high density of deep-draft vessels and crossing traffic that may be encountered.

Passage through the Themes Estuary requires an adequate underkeel clearance with respect to tidal ranges within the estuary and the possibility of negative surges. Vessels should maintain an underkeel clearance of at least 0.9m on the flood tide and 1.4m on the ebb tide.

It has been reported (August 2007) that Sunk VTS system is not operational until further notice. The Precautionary Areas and associated TSS areas at Sunk remain operational.

Approaches to the Thames Estuary

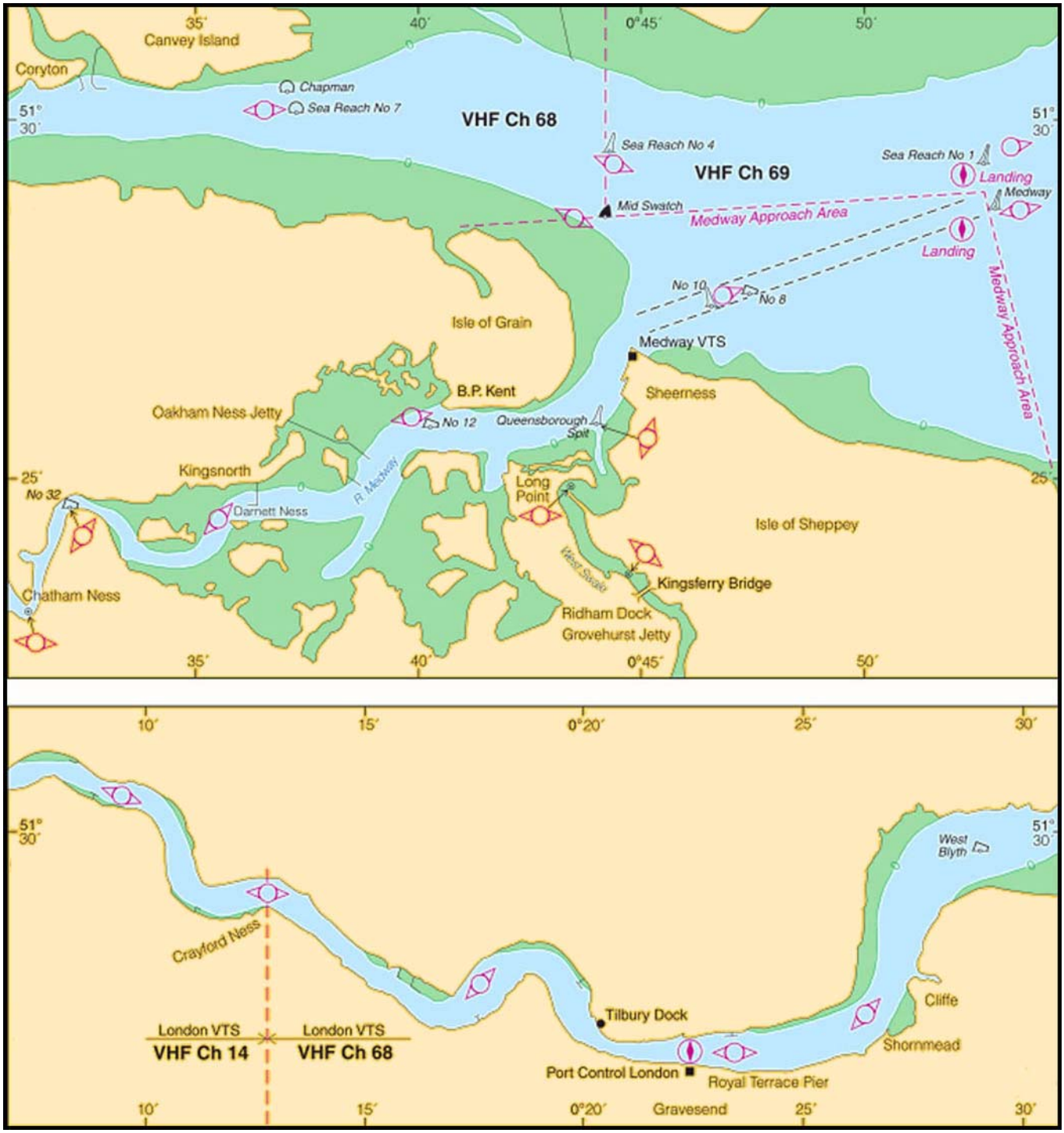
4.2 Outer Passage (51°55'N., 1°48'E.) is the channel which leads across the approach to the entrance of the Thames Estuary. It leads from a position about 9 miles E of Orford Ness to a position about 11 miles E of North Foreland, 43 miles S. Inner and Outer Gabbard, Galloper, North Falls, and South Falls banks lie on its E side; Shipwash, Long Sand, and Kentish Knock banks lie on its W side. The channel is 8 miles wide, free of dangers, and connects the coastal routes off the E coast of England to those in the Dover Strait (see Directions in paragraph 4.4).

The passage has a least depth of 18.1m (1998). However, several wrecks, with lesser depths, lie adjacent to the E and S sides of Shipwash.

Outer Gabbard (51°58'N., 2°03'E.), located 19 miles ESE of Orford Ness, has a least depth of 4.3m; a tide ripple shows over it in calm weather. Several shoal patches, with depths of 16.5 to 18m, lie off its N and S ends.

Outer Gabbard Lighted Buoy (51°58'N., 2°04'E.), equipped with a racon, is moored about 1 mile E of this shoal bank.

Inner Gabbard (51°54'N., 1°54'E.), the N end of which lies 14.5 miles ESE of Orford Ness, has a least depth of 3.6m. Lighted buoys mark the N and S ends of this bank; another shoal ridge, with a least depth of 10.6m, lies centered 4 miles

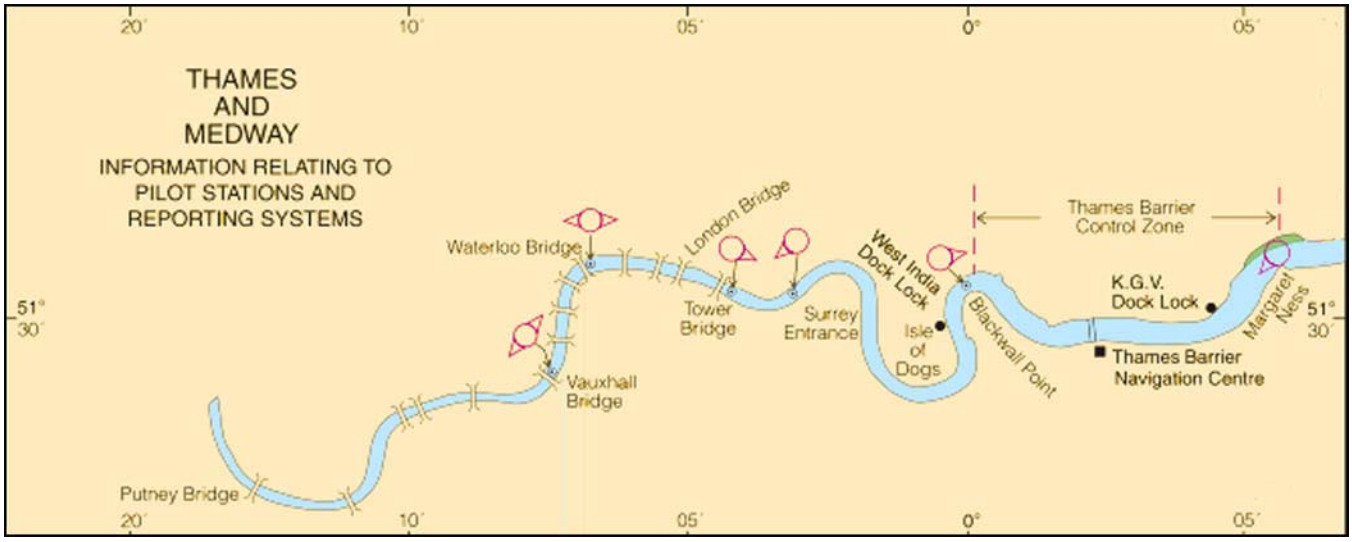


Thames River VTS lower parts

NNE of its N end. It is reported (2006) that a lighted mast, 80m high, stands near the N end of Inner Gabbard.

Galloper (51°47'N., 1°58'E.), located 23 miles SE of Orford Ness, has a least depth of 2.4m and is about 6 miles long. Its N end is marked by a lighted buoy and its S end is marked by a lighted buoy, equipped with a racon.

North Falls (51°39'N., 1°56'E.), located about 3 miles S of Galloper and 25 miles NE of North Foreland, is about 5.5 miles long. Four Mile Knolls or North Falls Head, the shallowest part of this shoal ridge, lies about 1 mile within its N end and has a least depth of 9.5m; North Falls Tail is the name given to the S end of this ridge.



Thames VTS Upper Part

South Falls (51°25'N., 1°49'E.), located about 13 miles E of North Foreland, lies on the same ridge as North Falls. From South Falls Head, its N extremity, this shoal extends SSW for about 14.5 miles to Tail of the Falls, its S extremity. South Falls has a least depth of 7m and is marked by lighted buoys moored at the N and S ends and along its E side.

Falls Gap (51°33'N., 1°53'E.), 8 miles wide, lies between North Falls and South Falls banks and is the principal channel through the outer chain of shoals to the Outer Passage. Vessels also may pass between the S end of Galloper and Four Mile Knolls.

Inter-Bank Lighted Buoy (51°17'N., 1°52'E.), equipped with a racon, is moored 6 miles NE of the S end of South Falls within a Traffic Separation Scheme.

Note.—For details of the Traffic Separation Scheme (TSS) and shoal banks lying to the E and SE of South Falls and S of North Foreland, see paragraph 6.5 and Pub. 191, Sailing Directions (Enroute) English Channel.

Caution.—It is reported (2005) that, due to the strong currents in the vicinity, vessels have frequently collided with and damaged the lighted buoy marking the S extremity of South Falls (Tail of the Falls).

Greater Gabbard Offshore Wind Farm, a project comprising 140 wind turbines, is under construction in the area of The Galloper (51º47'N., 1º58'E.) and Inner Gabbard (51º55'N., 1º56'E.) shoals. The project, which is in two parts, straddles Sunk TSS East; interconnecting submarine cables will be laid on the sea bed beneath the TSS. A submarine cable will be laid between Inner Gabbard shoal and Sizewell (52º13'N., 1º37'E.), on the Suffolk coast.

London Array Offshore Wind Farm, comprising 341 wind turbines, will be constructed in two phases. It encompasses the N part of Long Sand (51º40'N., 1º30'E.), Kentish Knock (51º38'N., 1º36'E.), and Knock Deep (51º38'N., 1º33'E.). Fisherman's Gat Channel will fall outside the S limit of the wind farm. The first phase, comprising 175 wind turbines and two offshore substations, is under construction (2011). It lies between the Black Deep Channel and Kentish Knock and is centered on position 51º37.0'N, 1º31.0'E. Submarine power cables will run SW from the wind farm to the shore N of Cleve Marshes (51º20.5'N., 0º56.3'E), close SE of The Swale.

4.3 Drill Stone (51°26'N., 1°42'E.), lying 9.5 miles ENE of North Foreland, has depths of 11 to 18m and is marked by strong ripples. A lighted buoy is moored close E of the shallowest part of this shoal.

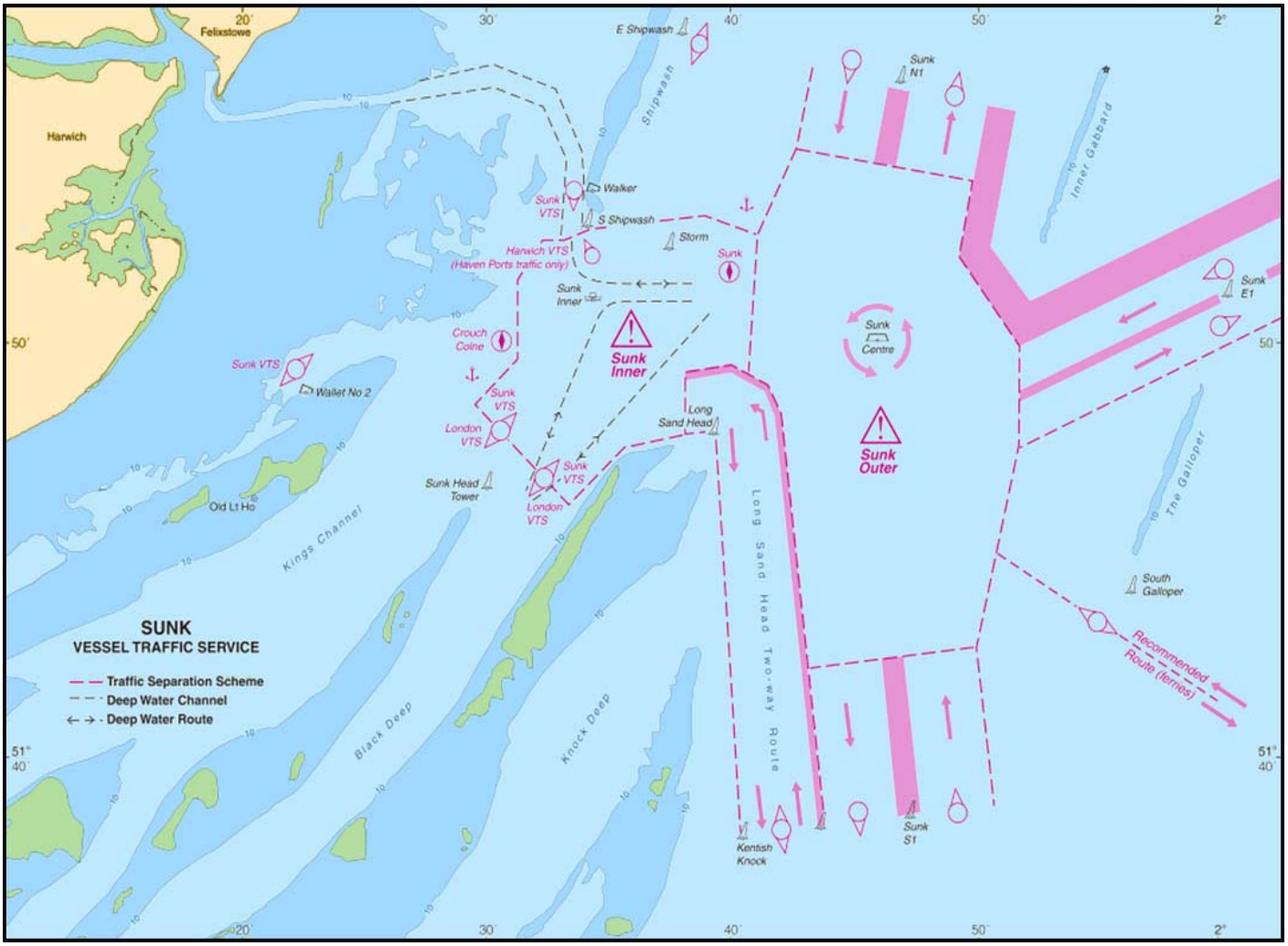
Shipwash (51°57'N., 1°37'E.), located at the N end of the W side of the Outer Passage, extends SSW for about 9 miles from a position 4.2 miles SSE of Orford Ness and almost dries in places. Lighted buoys are moored along the E and W sides of this shoal and at its S end. A lighted buoy, equipped with a racon, is moored at its N end.

Several dangerous wrecks lie in the vicinity of this shoal and may best be seen on the chart.

Long Sand (51°38'N., 1°26'E.), a bank about 19 miles long, is divided into two parts by Fisherman's Gat. Long Sand Head (51°46'N., 1°36'E.), the N extremity of the N part, lies about 7 miles SSE of the S end of Shipwash. Long Sand shoal dries in many places and is marked at its N end and along its NW side by lighted buoys. In addition, several beacons stand on this shoal and may best be seen on the chart.

Sunk (51°52'N., 1°38'E.) is the deep area lying between the S end of Shipwash and the N end of Long Sand. This area forms a common point of entry for vessels proceeding into the Thames Estuary to the SW and into the approach to Harwich to the NW. It forms a busy focal point for shipping.

Sunk Center Light Float (51°50'N., 1°46'E.) is moored about midway between Long Sand Head and the S end of Inner Gabbard, in the Sunk Outer Precautionary Area. It is painted red and equipped with a racon and an AIS system (see Regulations in paragraph 4.1).



Sunk VTS

Sunk Inner Light Float (51°51'N., 1°35'E.) is moored about midway between Shipwash and Long Sand, in the Sunk Inner Precautionary Area. It is equipped with a racon.

Storm Lighted Buoy (51°52'N., 1°38'E.) is moored about 2.5 miles NE of Sunk Inner Light Float, in the N part of the Sunk Inner Precautionary Area.

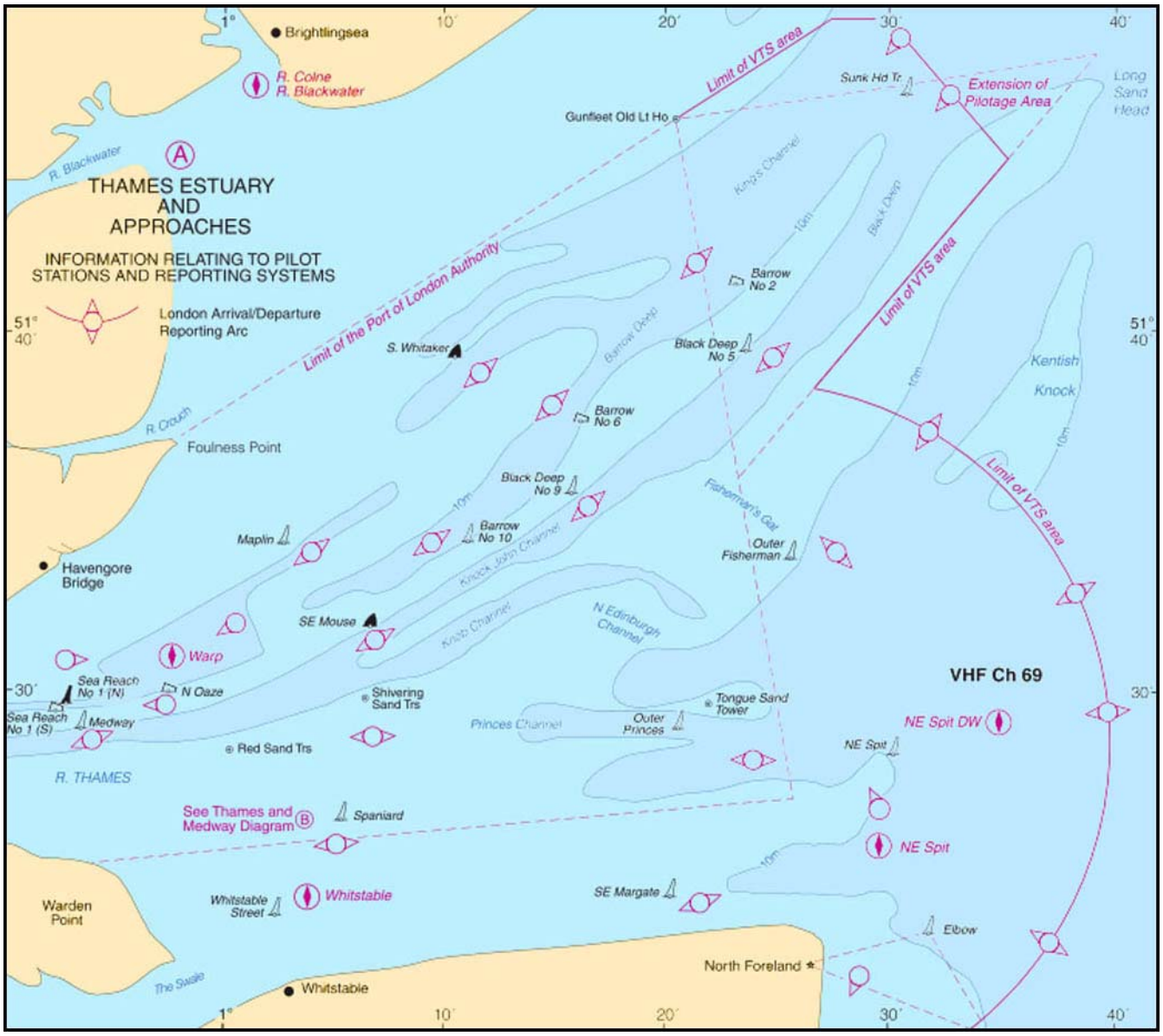
Kentish Knock (51°39'N., 1°37'E.), a shoal bank about 8 miles long, lies 3 miles E of Long Sand and is separated from it by Knock Deep. This bank dries in places and the sea breaks over the shallowest parts. It is marked on the S and E sides by lighted buoys.

Caution.—Several sand waves, which frequently change both in height and position, lie within areas extending 6 miles N from Long Sand Head and 2 miles SSE from Sunk Inner Light Float. These are of particular significance to deep-draft vessels, as depths up to 2m shallower than charted have been reported.

Numerous wrecks, some dangerous, lie in the vicinity of the Outer Passage and may best be seen on the chart.

4.4 Directions.—When navigating the Outer Passage, which is also known as the Through Route, across the Thames Estuary, the height of the tide and the state of the tidal currents are the most important factors to be considered and the tide tables and charts should be consulted. Near the edge of the shoal banks, the currents are reported to run obliquely over them. In addition, vessels should continuously sound the bottom.

Although the Outer Passage is wide, southbound vessels usually keep on its W side. From the N part of the North Sea vessels should pass E of Aldeburgh Napes (52°09'N., 1°42'E.), lying NE of Orford Ness. They should then proceed in a S direction into Sunk TSS North, which lies between the S end of Shipwash and Inner Gabbard. Vessels should continue in a S direction through the Sunk Outer Precautionary Area, passing E of the Sunk Pilots boarding position and W of Sunk Center Light Float (51°50'N., 1°46'E.). They should then proceed into Sunk TSS South, which lies E of Kentish Knock. Vessels should then steer in a SSW direction to keep W of South Falls Shoal, passing E of Drill Stone Lighted Buoy (51°26'N.,



Thames Estuary and Approaches, VTS and Pilot

1°43'E.) and E of NE Goodwin Lighted Buoy (51°20'N., 1°34'E.). They should then adjust course to enter the Dover Strait TSS (southbound lane), passing W of South Falls Lighted Buoy and E of East Goodwin Light Float (51°13'N., 1°36'E.). This route can also be used by vessels proceeding SSE through Falls Gap (51°33'N., 1°53'E.) in order to cross the Dover Strait TSS in the vicinity of Foxtrot 3 Lighted Buoy (51°24'N., 2°00'E.). See Pub. 191, Sailing Directions (Enroute) English Channel for further information.

Alternatively, vessels can proceed in a NNW direction from the vicinity of Foxtrot 3 Lighted Buoy and pass through Falls Gap. They may then steer in a N direction to enter the Sunk TSS South. Other vessels approaching from the E may use the Sunk TSS East (51°50'N., 1°56'E.), which lies between the S end of Inner Gabbard and the N end of The Galloper.

The Precautionary Areas and TSSs mentioned above are all IMO-adopted and may best be seen on the chart (see Regulations in paragraph 4.1).

Sunk Pilots boarding station, for the River Thames and Harwich Haven (Felixstowe), is situated about 3.5 miles WNW of Sunk Center Light Float (51°50'N., 1°46'E.), within the Sunk Inner Precautionary Area. All vessels approaching this boarding station must proceed through the Sunk Outer Precautionary Area and the associated TSS areas (see Pilotage and Regulations in paragraph 4.1).

Vessels can proceed W and NW from this boarding station into the entrance of the Harwich Deep Water Channel. The

recommended route may best be seen on the chart (see paragraphs 4.15 and 4.16).

Vessels can proceed in a SW direction from this boarding station into the N entrance of East Swin or King's Channel. In addition, two Deep-Water Routes, which may best be seen on the chart, lead from the vicinity of the boarding station into the N entrance of Black Deep.

Sunk Center Light Float

Trinity Deep Water Route leads directly SW and passes about 0.2 mile SE of Trinity Lighted Buoy (51°49'N., 1°36'E.). It has a least depth of 11.6m (2004).

Sunk Deep Water Route leads about 2.5 miles W and then SSW. It passes about 1.3 miles WNW of Trinity Lighted Buoy (51°49'N., 1°36'E.). This route has a least depth of 12.2m (2005).

A pilot boarding station for the Thames and Medway is situated in the vicinity of North East Spit (51°25'N., 1°30'E.).

Vessels proceeding from this boarding station to the entrance of Fisherman's Gat should steer in a N direction for about 6 miles and pass E of NE Spit Lighted Buoy (51°28'N., 1°30'E.) and E of the Tongue Deep Water Anchorage Area, which lies centered 1.5 miles ENE of Outer Tongue Lighted Buoy (51°31'N., 1°26'E.). They should then steer in a NW direction for about 5 miles toward the seaward entrance of the fairway channel.

Vessels proceeding from this boarding station to the entrance of Princes Channel should steer NNW for about 4 miles and then W toward the channel entrance, passing S of the remains of Tongue Sand Tower (51°30'N., 1°22'E.).

For regulations controlling the use of the above pilot boarding stations, see Pilotage in paragraph 4.1.

Caution.—A Precautionary Area, which may best be seen on the chart, has been established in the vicinity of the junction of Fisherman's Gat and Black Deep. Vessels should navigate with extreme caution in this area.

A Precautionary Area, the limits of which are shown on the chart, extends E from the vicinity of Sea Reach No. 1 Lighted Buoy and into Oaze Deep (see paragraph 4.7). Vessels entering this area should do so with extreme caution as large deep-draft vessels, with limited maneuverability, and a high density of other crossing traffic may be encountered. In addition, anchoring within this area is prohibited.

Note.—For Deep-Water Routes situated E of the Outer Passage, see the graphics in paragraph 6.1 and the remarks under Approach Routes to the German Bight in paragraph 8.2.

For additional directions in the North Sea, see paragraph 3.16, paragraph 3.17, paragraph 3.18, and paragraph 3.34.

Principal Channels

4.5 The Thames can be approached by any one of several passages which lead through the estuary. These passages, in general, lie between the many long and narrow shoals which run in NE to SW directions. The tidal currents generally set through these nearly straight channels and do not make navigation difficult. In the S part of the estuary, the shoals are much more complicated and broken up than those in the N part and, as a rule, they run in a direction parallel to the S shore.

From the NE, the two principal deep-water routes (Sunk and Trinity) lead in a SW direction into the entrance of Black Deep. This main route to the river via Black Deep then continues trough Knock John Channel, Oaze Deep, and the W end of The Warp. This route should only be used by vessels which, because of their draft or other special circumstances, are unable to use Barrow Deep or Fisherman's Gat.

An alternate main route, for vessels of less draft, leads from NE and is located NW of Black Deep. It leads through East Swin or King's Channel, Barrow Deep, Mouse Channel, and The Warp. This route then continues W to the entrance of the dredged channel at Sea Reach.

The passages to the W of the main routes should only be used by vessels with local knowledge. These include Middle Deep, West Swin, East Swin, and the SW continuation of East Swin or King's Channel.

From the E and SE, the most direct route is through Princes Channel and Oaze Deep. For vessels with deeper drafts, the other main route is through Fisherman's Gat, Black Deep, Knock John Channel, and Oaze Deep.

The S route passes through South Channel, Gore Channel, Horse Channel, and Four Fathoms Channel. Part of the fairway is not marked by lighted aids and should not be used at night. This route is described with the S shore, North Foreland to Whitstable.

Alexandra Channel, at the NW end of Princes Channel, and Queens Channel, at the SE end of Princes Channel, are both unmarked.

Depths—Limitations.—The following least charted depths are found in the main routes:

1. In Black Deep and Knock John Channel through Oaze Deep—A depth of 12.4m (2005).
2. In East Swin or King's Channel through Barrow Deep, Mouse Channel, and The Warp—A depth of 6.2m (2004).
3. In Fisherman's Gat, Black Deep, and Knock John Channel through Oaze Deep—A depth of 7.9m (2005).
4. In Princes Channel through Oaze Deep—A depth of 5.3m.

To reduce the risk of deep-draft vessels being involved in dangerous situations caused by traffic congestion, passage through Black Deep and Knock John Channel is normally restricted to vessels with a draft of over 6m.

Caution.—Depths are corrected from the latest surveys, but subsequent changes are often frequent and rapid. The Port Control Center (London VTS) should be contacted for the latest information.

Deep-draft vessels, in critical areas, should allow a sufficient underkeel clearance for the possibility of negative tidal surges, uncertainties of tidal predictions, and the problems associated with squat. Vessels should allow a minimum underkeel clearance of 0.9m on a flood tide and 1.4m on an ebb tide. Vessels with drafts over 10m should allow an underkeel clearance of 1.2m on a flood tide and 1.5m on an ebb tide.

Numerous wrecks and obstructions lie in the approaches and channels and may best be seen on the chart.

Designated signals for deep-draft vessels are in effect.

Vessels are cautioned not to anchor in the channels, except within the designated areas.

4.6 East Swin (King's Channel) (51°45'N., 1°25'E.) lies between Gunfleet Sand, on its NW side, and Sunk Sand, on its SE side. It is about 3 miles wide at its narrowest point and has a least depth of 12.6m (2001). It is one of the principal channels for vessels approaching from the NE and leads into Barrow Deep, a main channel, and the minor channels of Middle Deep, East Swin, and Whitaker. Tidal currents run, with rates up to 2.5 knots, in the direction of this channel. This passage, along with Barrow Deep, is marked by lighted buoys and presents no navigational difficulties by day or at night.

Sunk Sand (51°40'N., 1°22'E.) extends about 16 miles SW from a position 10 miles SE of The Naze. Its SW extremity joins Knock John and its NE extremity is known as Sunk Head. Several patches on this bank dry up to 2.1m and, from the N, are known as Great Sunk, Little Sunk, Middle Sunk, and South West Sunk. In addition to the lighted buoys marking this bank, several beacons stand on it and may best be seen on the chart.

The submerged remains of Sunk Head Tower lie about 1.3 miles NNE of Sunk Head and are marked by a lighted buoy.

Gunfleet Old Lighthouse

Gunfleet Sand (51°45'N., 1°15'E.) is the NE part of a shoal which extends SW from a position 6 miles ESE of The Naze. This shoal is about 14 miles long and mostly dries. It is steep-to on its SE and NW sides.

Gunfleet Old Lighthouse (51°46'N., 1°20'E.), a disused structure, is 13m high. It stands on the SE side of Gunfleet Sand and is conspicuous. The ruins of a beacon, awash at HW, stand on the shoal, 1.2 miles NNE of the above lighthouse.

Barrow Deep (51°38'N., 1°14'E.), the SW continuation of East Swin or King's Channel, lies between East Barrow and West Barrow, on its NW side, and the SW end of Sunk Sand, Knock John, and North Knob, on its SE side. At the SW end, this channel is separated from Oaze Deep by the Mouse and Oaze shoals. The fairway is about 16 miles long and is marked by lighted buoys. It leads into Mouse Channel at the SW end. There are depths greater than 12m in most parts of this channel, except in the vicinity of Knob Gat.

Barrow No. 3 Lighted Buoy (51°42'N., 1°20'E.), equipped with a racon, is moored close NE of the N end of N Middle Shoal and marks the N entrance to the channel.

Knob Gat (51°32'N., 1°05'E.), a very narrow side channel, connects Barrow Deep and Oaze Deep. It is unmarked and passes between the NE end of Mouse Shoal and the SE end of North Knob Shoal. It is reported (2004) that this channel is normally not used by commercial vessels.

Mouse Channel (51°32'N., 1°01'E.) leads WSW across a bar lying at the SW end of Barrow Deep into The Warp. It is marked by lighted buoys and has a least depth of 6.3m (2003).

The Warp (51°30'N., 0°55'E.) is a focal point for all routes leading into the River Medway and the River Thames. It is about 1.2 to 2 miles wide and has irregular depths. Mouse Channel and West Swin lead into the NE side. Oaze Deep leads into the SE side. The entrance to Yantlet Dredged Channel, marked by Sea Reach No. 1 Lighted Buoy, lies at the W side.

4.7 Black Deep (51°40'N., 1°25'E.) leads between Sunk Sand, on its NW side, and Long Sand, on its SE side. It is about 19 miles long and 1.5 miles wide, but the fairway narrows to almost 0.5 mile where it leads into Knock John Channel. There are generally least depths in this channel of 12.2 to 13.1m, but fluctuations on the sand and gravel ridges sometimes result in less depths than charted.

This channel should only be used by vessels which, because of their draft or other special circumstances, cannot use Barrow Deep or Fisherman's Gat.

Knock John Channel (51°33'N., 1°09'E.), which leads from Black Deep into Oaze Deep, lies between Knock John and North Knob, on its NW side, and Tizard Bank and Knob Shoal, on its SE side. The fairway is 0.2 mile wide and has a least depth of 12.3m.

This channel should only be used by deep-draft vessels which, because of their draft or other special circumstances, are unable to use Barrow Deep.

A Deep Water Route, which may best be seen on the chart, leads through this channel and into Oaze Deep.

Oaze Deep (51°30'N., 1°02'E.) lies between Mouse and Oaze shoals, on its N side, and Red Sand and The Cant, on its S side. This channel, which has general depths of 13 to 21m in the fairway, may be entered from Barrow Deep, Knock John Channel, or Knob Channel.

A Deep Water Route, which may best be seen on the chart, leads through Oaze Deep to the S part of The Warp and the entrance to the Rivers Thames and Medway. Most of this route lies within Oaze Precautionary Area.

This route passes SSE of Oaze (51°30.6'N., 1°00.5'E.), a narrow elongated shoal with Oaze Deep Lighted Buoy (51°30'N., 1°0'E.), moored off the SE side of the shoal, as seen on the chart.

East Barrow (51°38'N., 1°11'E.), a shoal marked by a beacon, dries over its greater part.

West Barrow (51°35'N., 1°08'E.) dries up to 2.6m. This shoal is separated from East Barrow by Barrow Swatchway, an unmarked narrow passage, which has a least depth of 5.5m (2001) in the fairway. Barrow Swatchway leads from Barrow Deep into South West Reach and should only be used by vessels with local knowledge.

Knock John (51°34'N., 1°09'E.), which dries up to 1.3m, and **North Knob** (51°33'N., 1°08'E.), which dries up to 0.5m, lie on the SE side of Barrow Deep and are a SW continuation of Sunk Sand. Both of these shoals lie on a ridge which extends SW from Sunk Sand and has depths of less than 5.5m.

Knock John Tower (51°34'N., 1°10'E.), a twin concrete fort structure, 18m high, stands off the SE side of Knock John shoal and is very conspicuous.

Knock John Tower

Mouse (51°32'N., 1°04'E.), a very narrow detached shoal, lies 2 miles SE of West Barrow and 3 miles WSW of North Knob. It has a least depth of 3.9m and is marked on the SE side by a lighted buoy.

Oaze (51°30'N., 1°00'E.), with a least depth of 3m, is a SW extension of Mouse. This narrow shoal is marked on the SE side by a lighted buoy (see Caution below).

Red Sand (51°29'N., 1°01'E.), lying on the S side of Oaze Deep, is a narrow tongue with drying areas at its center.

Red Sand Towers (51°29'N., 1°00'E.), consisting of a group of seven concrete towers, is situated about 1 mile NW of Red Sand and is conspicuous.

The Cant (51°28'N., 0°55'E.), with depths of less than 5.5m, is an extensive shoal which lies off the coast and forms the S limit of the main channel. It is marked by a beacon and numerous pieces of wreckage, some of which dry, that lie on this shoal.

Caution.—A Restricted Zone, the limits of which are shown on the chart, is situated at the SW end of Oaze shoal. Vessels, other than fishing or pleasure craft, are to avoid this zone.

4.8 Fisherman's Gat (51°35'N., 1°22'E.) leads NW for 4 miles across the S end of Long Sand and into Black Deep. This channel forms the main approach route from the E and SE. The fairway, which is marked by lighted buoys, is about 0.3 mile wide and has a least depth (2002) of 7.9m (see Caution below).

Outer Fisherman Lighted Buoy (51°34'N., 1°25'E) is moored 3.2 miles NNW of Outer Tongue Lighted Buoy and marks the seaward entrance of the channel. The inner limit of the channel is marked by Fisherman Inner Light Bouy (port hand),(51°36.1'N., 1°19.9'E).

Outer Tongue Lighted Buoy (51°31'N., 1°26'E), equipped with a racon, is moored about 8.2 miles N of North Foreland and marks the S approach to Fisherman's Gat.

Foulger's Gat (51°38'N., 1°26'E.), a narrow channel, leads N for about 3 miles across Long Sand and connects the S end of Knock Deep to Black Deep. This channel has a least depth of 4.6m and is only used by small craft. The N and S entrances are marked by lighted buoys. It connects Black Deep to Knock Deep and is marked by Long Sand Inner Lighted Buoy (safe water),(51°38.8'N., 1°25.4'E), at its N end, Long Sand Middle Lighted Buoy (51°35.6'N., 1°26.5'E) at its S end and long Sand Outer Lighted Buoy (51°34.6'N., 1°28.3'E), at its SE approach. It has depths of less than 4m in mid-channel.

Tizard Bank (51°33'N., 1°13'E.) and **Knob Shoal** (51°32'N., 1°10'E.) lie on the SE side of Knock John Channel and also form the NW side of Knob Channel. Tizard Bank, with a least depth of 0.8m, lies on a spit, with depths of 6.2 to 9.2m, which extends WSW from the W end of Long Sand. Knob Shoal is a narrow ridge which extends WSW for about 5 miles from Tizard Bank and has a least depth of 1.3m.

Middle Deep (51°40'N., 1°12'E.) leads between East Barrow, on its SE side, and The Middle, on its NW side. It is free from dangers except for a shoal depth of 3.9m lying at the NE end, 2 miles WSW of Barrow No. 3 Lighted Buoy. The W end of this channel leads S through a passage into the NE end of West Swin. This passage is marked by lighted buoys, but is obstructed by several wrecks swept to a least depth of 3.4m. Another shallow passage leads from the W end of Middle Deep between Maplin Spit and Barrow into South West Reach.

Middle Deep, which is not marked by buoys, should only be used by vessels with local knowledge.

The Middle (51°40'N., 1°10'E.), with a least depth of 0.4m, is a steep-to and narrow shoal which separates Middle Deep from East Swin. NE Middle is an extension of The Middle and has a least depth of 1.6m. North Hook is the name given to that part of this shoal which lies between The Middle and NE Middle.

Maplin Spit (51°36'N., 1°06'E.) is located on the S side of the SW end of Middle Deep. The NE part of this shoal dries and its SW part has depths of less than 1.8m.

Caution.—A Precautionary Area, which may best be seen on the chart, is situated in the vicinity of the junction of Fisherman's Gat and Black Deep. Vessels should navigate with extreme caution within this area.

4.9 West Swin (51°33'N., 1°01'E.), the SW continuation of Middle Deep, leads between Maplin Sands, on its NW side, and West Barrow, on its SE side. South West Reach is the NE part of West Swin. Shoe Hole, a small deep, lies between South West Reach and West Swin. The fairway through West Swin, which is marked by lighted buoys, has depths of 10 to 20m and leads into The Warp.

East Swin (51°40'N., 1°09'E.), a continuation of East Swin or King's Channel, leads between The Middle, on its SE side, and Whitaker Spit and Foulness Sands, on its NW side. A swatchway at the SE end of this channel leads into Middle Deep. There are least depths of 5.2m in East Swin and 4m in the swatchway. However, numerous shallow wrecks and

obstructions lie in the vicinity and make this passage dangerous to all vessels except small craft with local knowledge.

Whitaker Spit and Foulness Sands are described with Whitaker Channel and the approach to the River Crouch in paragraph 4.24.

Knock Deep (51°38'N., 1°32'E.), which forms an approach to Fisherman's Gat from the NE, leads between Long Sand and Kentish Knock. It is 10 miles long and 2.2 miles wide, with depths of 10 to 20m in the fairway. This channel may be used, but is not recommended as it is unmarked.

North Edinburgh Channel (51°33'N., 1°19'E.) leads WNW and W between Long Sand and Shingles Patch into Knob Channel. This channel is unmarked and is no longer used by commercial shipping.

South Edinburgh Channel (51°32'N., 1°15'E.) leads NW between Shingles Patch, on the E side, and North Shingles, on the W side. This channel is unmarked and is no longer used by commercial shipping.

Shingles Patch (51°32'N., 1°18'E), a shoal which forms the SW side of the North Edinburgh Channel, dries in places up to 0.8m.

Shingles (51°31'N., 1°13'E), an extensive drying shoal, lies W of the South Edinburgh Channel. It consists of North Shingles and West Shingles, which lie on the S side of Knob Channel, and South Shingles, which lies on the N side of Princes Channel and Alexandra Channel.

4.10 Knob Channel (51°31'N., 1°10'E.), which leads from the Edinburgh Channels into Oaze Deep, lies between Tizard Bank and Knob Shoal, on its NW side, and Shingles and Shivering Sand, on its SE side. The fairway, which is 0.5 to 0.7 mile wide, is marked by lighted buoys.

Shivering Sands (51°30'N., 1°04'E.), with depths of less than 10m, is the NE extension of Red Sand.

Shivering Sand Towers (51°30'N., 1°05'E.) consist of a group of seven conspicuous concrete towers which are 17m high and stand about 50m apart. Lighted buoys are moored close N and S of the group; a tide pole is situated at the N tower.

Princes Channel (51°29'N., 1°15'E.) lies between Shingles and Girdler, on the N side, and Tongue, Ridge, Pan Sand, and Kentish Flats, on the S side. It is the most direct route to the river for vessels approaching from the E and SE. Vessels which, because of their draft, cannot use this channel may use Fisherman's Gat.

The fairway, about 10 miles long, is marked by lighted buoys and has depths of 7 to 24m in its E part. A least depth of 5.3m lies in its W part. From the W end of this channel, vessels can pass either N into Knob Channel or W into Oaze Deep.

Princes Approach Lighted Buoy (51°28.6'N., 1°23.3'E) is moored about 4.2 miles W of NE Spit Lighted Buoy and marks the seaward approach to the channel. Outer Princes Lighted Buoy is moored about 1.8 miles WNW of this buoy and marks the fairway entrance.

Tongue Sand Tower (51°30'N., 1°22'E), in ruins, is situated on the N side of the E approach to Queens Channel and Princess Channel, 3 miles WSW of Outer Tongue Lighted Buoy. This structure is marked by lighted buoys moored close N and S of it.

North East Spit (51°27'N., 1°28'E), located in the SE approach to Princes Channel, is a curved ridge, which extends NE and N from the E end of Margate Sand. This ridge, which has depths of less than 10m, is reported to be moving slowly seaward at a rate of 20m each year.

NE Spit Lighted Buoy (51°28'N., 1°30'E), marking the NE extremity of North East Spit, is moored about 5.7 miles NNE of North Foreland. A pilot boarding station is situated about 3 miles S of this lighted buoy.

Alexandra Channel (51°30'N., 1°10'E.), which is unmarked, leads NNW from the W part of Princes Channel into Knob Channel. It passes over a shallow bar between Shingles and Girdler.

Girdler, which dries, lies about 2.5 miles E of Shivering Sand Tower.

Tongue and Ridge, located on the S side of Princes Channel, both dry. They are two parts of the same shoal which extends for about 4.5 miles.

Pan Sand (51°28'N., 1°10'E.), located W of Tongue and Ridge, dries 1.5m and is marked by a beacon. This shoal, along with Tongue and Ridge, also forms the N side of Queens Channel.

Caution.—It is reported (2004) that an offshore wind farm is being constructed on Kentish Flats, at the S side of Princes Channel. The farm, consisting of 30 turbine towers, is centered about 6.5 miles NNE of Whitstable (51°22'N., 1°02'E.). Three submarine power cables will extend in a S direction from the farm to the shore.

4.11 Queens Channel (51°28'N., 1°18'E.) is separated from Princes Channel by Tongue, Ridge, and Pan Sand shoals. It is not marked and is more in the nature of a bight within a group of shoals than a channel, as the W end terminates in Kentish Flats through which there are only shallow passages. Margate Sand, Wedge, and Woolpack lie on the S side of the channel. The fairway at the E entrance is about 1.5 miles wide and has depths of 10m which, though irregular, decrease towards Pan Sand Hole, 10 miles W.

A narrow and unmarked channel, with a least depth of 1.9m, leads NW from Queens Channel into Princes Channel between Ridge and Pan Sand. A passage, with a least depth of 2.7m, connects Pan Sand Hole, at the edge of Kentish Flats, to Four Fathoms Channel; it passes between East Middle Sand and East Spaniard. Another passage, with a least depth of 3m, connects Pan Sand Hole to the W end of Princes Channel; it passes SW of South Girdler Beacon (51°28'N., 1°07'E.), on Kentish Flats, before leading NNW.

Margate Sand (51°26'N., 1°20'E.) extends WSW for about 10 miles from a position 4.5 miles N of North Foreland and dries in places, up to 2.7m. It is marked by lighted buoys moored at the E, SE, and S sides. Last, a sand bank which dries, lies close to the SW end of Margate Sand. Woolpack, with a least depth of 0.3m, is located about 1.5 miles W of Last.

Good anchorage is available, in depths of 5 to 8m, in Pan Sand Hole, S of Pan Sand Beacon (S cardinal) (51º28'N., 1º10'E.).

Caution.—An obstruction (51º27.8'N., 1º10.0'E.), at a depth of 2.5m, lies 0.15 miles S of the beacon.

Queens Channel Bunkering Anchorages, established in the Queens Channel, comprise three designated anchorage berths, as follows:

1. Anchorage Q1 (51º27.3’N., 1º15.9’E.).
2. Anchorage Q2 (51º27.5’N., 1º17.7’E.).
3. Anchorage Q3 (51º27.7’N., 1º19.7’E.).

When a vessel over 180m LOA is anchored in Anchorage Q3, the maximum size of any vessel using Anchorage Q1 must not exceed 180m LOA and a draft of 9m. In this case, Anchorage Q2 is not used for anchoring as this allows room if a vessel drags anchor. A maximum draft of 14m is allowed in Anchorage Q3.

If all three berths are occupied simultaneously, the following maximum LOA and draft limitations apply:

1. Anchorage Q1—180m LOA and a draft of 9m.
2. Anchorage Q2—180m LOA and a draft of 10m.
3. Anchorage Q3—180m LOA and a draft of 10m.

The anchorage berths above are provided for the exclusive use of vessels engaged in bunkering operations, with the permission of London VTS.

Anchorage, sheltered from S winds, can also be obtained on the N side of Margate Sand.

For channels leading S of Margate Sand, see North Foreland to the Isle of Sheppey (paragraph 4.26).

Orford Ness to Harwich

4.12 Orford Ness (52°05'N., 1°35'E.), the N entrance point of the Thames Estuary, is low and rounded. A conspicuous unlit tower, 30m high, standing on the point. The lighthouse is disused.

Orford Ness Light

The conspicuous remains of a castle stand on a small mound, 1.8 miles WNW of the light.

Several conspicuous radio masts stand in groups from 1.2 to 1.8 miles N of the light.

The off-lying banks and shoals located S and SE of Orford Ness are described with the approaches to Harwich in paragraph 4.13.

Orford Haven (52°03'N., 1°28'E.), located 5 miles SW of Orford Ness, is formed at the mouth of the River Ore. This outlet at the SW end of Hollesley Bay lies within the SW extremity of a spit which extends 8.5 miles SW from Aldeburgh. This spit is very low in places and sometimes floods at HW. The shore on either side of the river entrance consists of shingle beach. Shingle Street, a small village, stands on the SW side of this entrance and is prominent. The River Ore runs inside the spit and parallel to it for 4.5 miles to Orford. Above Orford, the river becomes the River Alde.

Orford Haven is mainly used by small craft and yachts. The entrance, marked by an approach buoy moored 0.4 mile SSE of it, is dangerous because of shifting shingle banks and strong tidal currents, which can attain a velocity of over 6 knots at times. Depths over the bar change rapidly and frequently; a least depth of 0.2m was reported (1991). In the river there are general depths of 2.1 to 11m. Pilotage is unavailable but, with advance notice, persons with local knowledge can be obtained from Orford.

The prominent tower of a church stands at Hollesley, 1.3 miles WNW of the entrance; a conspicuous martello tower stands close S of the village of Shingle Street.

Bawdsey Cliff (52°00'N., 1°25'E.), centered 2.5 miles SW of Orford Haven, is 12 to 15m high, reddish in color, and about 1 mile long.

A very conspicuous lattice radio tower, 113m high, stands at the SW end of the cliff. A prominent martello tower stands close NE of the N end of the cliff.

Woodbridge Haven (51°59'N., 1°24'E.), formed by the outlet of the River Deben, is located close SW of the S end of Bawdsey Cliff. The river flows into the sea through shifting banks of shingle and is navigable as far as Woodbridge, 8.5 miles above its entrance. The town stands on the W bank of the river, but is not visible from seaward. Two prominent martello towers stand on the W side of the entrance. A ferry crosses the river close inside the mouth. The haven is only used by yachts, but vessels, with drafts up to 3.5m at springs and 2.7m at neaps, can reach the town.

An approach buoy is moored 0.4 mile SE of the entrance bar. As the entrance channel over the bar constantly varies in depth and position, the buoys and range beacons, which mark the fairway, are moved as necessary. Local knowledge is required; the harbormaster at the ferry terminal can be contacted on VHF and will act as a pilot.

Landguard Point (51°56'N., 1°19'E.), the E entrance point of Harwich Harbor, is located 3.8 miles SW of the entrance to Woodbridge Haven.

Approaches to Harwich

4.13 Rough Channel (51°56'N., 1°25'E.) is centered about 4.5 miles E of Landguard Point. Bawdsey Bank, Cutler, Felixstowe Ledge, Cork Knolls, Wadgate Ledge, Platters, and Andrews Spit lie on its N side; Rough Shoals, Cork Ledge, Cork Sand, and Ridge lie on its S side. The dredged entrance fairways leading to the port lie within this channel.

Threshold (51°54'N., 1°32'E.), a detached shoal ridge of broken ground, has a least depth of 6.8m. It lies 8 miles ESE of Landguard Point and about 1.5 miles WNW of the S end of Shipwash. Several other patches, with depths of less than 11m,

lie within 0.5 mile of the N end of this ridge.

A wreck, with a swept depth of 9.6m, lies off the E side of this shoal ridge. A wreck, with a swept depth of 3.5m, lies about 0.3 mile SE of the SE end of this ridge and is marked by lighted buoys moored E and W of it.

Rough Shoals (51°54'N., 1°28'E.), with general depths of less than 11m and a least depth of 4m, lie from 4.5 to 7.5 miles ESE of Landguard Point. They are scattered over an irregular area, about 3 miles in extent; the SW limit of these shoals is known as the Southwest Tail of Rough. Upper Rough and Lower Rough, near the middle of the area, both have depths of less than 5.5m.

Roughs Tower (51°54'N., 1°29'E.), a conspicuous twin concrete structure, 20m high, stands about 6.5 miles ESE of Landguard Point and is marked by lighted buoys moored close SE and NW of it.

It is reported (2002) that a light is shown from Roughs Tower. However, this light is not intended to be a navigational aid and must not be relied upon.

The NE part of Rough Shoals is marked by a lighted buoy moored 2.5 miles NE of the tower.

Roughs Tower

For historical information, it should be noted that Roughs Tower was constructed as an offshore fortress during WWII. A British subject occupied the abandoned structure in 1967 and declared it to be the Principality of Sealand, an independent micro-nation. This unofficial principality has not been recognized by any government and its legal status is still in debate.

Cork Knolls (51°56'N., 1°26'E), with a least depth of 6.4m, lie about 4 miles E of Landguard Point.

Cork Sand (51°54'N., 1°24'E.), marked by a lighted beacon, is located with its N extremity lying about 4 miles ESE of Landguard Point. It extends SSW for about 4 miles and has patches which dry up to 1.3m. Cork Ledge, a rocky patch, lies 1 mile W of the N extremity of Cork Sand and has a least depth of 4.3m.

Cork Hole (51°54'N., 1°25'E.), lying between Cork Sand and Rough Shoals, has depths of 11 to 19m.

Caution.—Experimental lighted buoys, which have no navigational significance, may sometimes be moored at the S end of Cork Hole.

4.14 Felixstowe Ledge (51°57'N., 1°23'E.), with depths of less than 5m, extends about 1.3 miles SE from a point on the coast, 2.5 miles NE of Landguard Point.

Wadgate Ledge (51°56'N., 1°22'E.), a patch of uneven ground formed by sand and stones, is located about 1.6 miles ENE of Landguard Point. A wreck, with a swept depth of 0.5m, lies on this shallow ledge.

Platters (51°56'N., 1°21'E.) is a tongue, with a least depth of 1.6m, which extends about 1.5 miles E from Languard Point. Andrews Spit, part of the same shoal, extends 0.5 mile E and ESE of Landguard Point and is marked by a beacon.

Shipway (51°58'N., 1°35'E.), a main approach channel from the N, lies between Shipwash and Bawdsey Bank and is marked by lighted buoys. It is 10 miles long, from 1.5 to 2.5 miles wide, and has depths of 11.2 to 21m. Detached sand wave patches, which extend from the N end of Bawdsey Bank, lie in the N part of the entrance. The tidal currents follow the direction of this channel and at springs set SW up to 1.8 knots and NE up to 2.2 knots.

Bawdsey Bank (52°00'N., 1°33'E.) extends about 6.5 miles SW from a position 3.2 miles SSE of Orford Ness. Its N end is known as Bawd Head. A ridge, near the middle of the bank, has a least depth of 1.4m and the sea breaks heavily over it during E swells and gales. The S part of this bank has detached patches with depths of 4.3 to 5.5m. Kettle Bottom, with a least depth of 6.8m, is a narrow tongue which extends about 2 miles N from the SW end of Bawdsey Bank.

Sledway (52°00'N., 1°30'E.) lies between Bawdsey Bank and Kettle Bottom, on its E side, and Whiting Bank and Cutler, on its W side. This channel is about 1.5 miles wide and has depths of 6.1 to 17m. The tidal currents follow the direction of this channel, and at springs set SW up to 1.7 knots and NE up to 2 knots.

Whiting Bank (52°03'N., 1°33'E.) extends about 4.5 miles SSW from a position 1.3 miles SSW of Orford Ness and is marked by lighted buoys. A least depth of 0.7m lies on a narrow ridge near the center of this shoal bank. Flagstone is the name given to the area lying close W of the S part of this bank. There are overfalls, during the ebb currents, in an area lying between the N end of this bank and Orford Ness.

Cutler (51°59'N., 1°27'E.), with a least depth of 1.5m, is a rocky shoal which lies about 2.3 miles E of the entrance to Woodbridge Haven and is marked by a buoy.

Hollesley Bay Channel (52°02'N., 1°30'E.) leads between Whiting Bank and the coast, from abreast Orford Ness to Orford Haven. It is 5 miles long, about 1 mile wide, and has depths of 6 to 12m. Tidal currents in this channel attain rates, in each direction, of up to 2 knots at springs.

Medusa Channel (51°53'N., 1°19'E.), with a least depth of 2.4m, is only used by small craft approaching from the S. Stone Banks and Ridge are located 3 miles S and 1 mile SSE, respectively, of Languard Point and lie on the E side of the channel. Halliday Rock Flats and Sunken Pye, located 1.4 miles SW of Landguard Point, lie on its W side. The channel passes over Naze Ledge, which is marked by a buoy, and should only be used by craft with local knowledge.

Pilotage.—See paragraph 4.1 and paragraph 4.16 for pilotage information.

Regulations.—See paragraph 4.1 and paragraph 4.16 for regulations.

Directions.—The principal approach to Harwich is via the Harwich Deep Water Channel, which is entered close W of South Shipwash Lighted Buoy (two buoys) (51°52.7'N., 1°34.2'E.). This deep-water channel extends 4.5 miles N, NNW, and NW to a position close S of Harwich Approach (HA) Lighted Buoy (51°56.7'N., 1°30.7'E.). It then leads 7.5 miles W to a position S of Landguard Point.

A harbor entrance channel rounds the point and leads N from the inner end of the deep-water channel toward the berths.

North Channel, an inbound traffic lane, lies N of the deep-water channel between Harwich Channel No. 1 Lighted Buoy (51°56.1'N., 1°27.2'E.) and Platters Lighted Buoy (51°55.6'N., 1°20.9'E.).

South Channel, an outbound traffic lane, lies S of the deep-water channel between Pitching Ground Lighted Buoy, moored 0.3 mile S of Platters Lighted Buoy, and Cork Sand Lighted Buoy (51°55.4'N., 1°25.9'E.).

After embarking the pilot at Sunk Pilots boarding area (see paragraph 4.1), deep-draft vessels should follow the recommended route, which may best be seen on the chart, and proceed W and NW into the entrance of the Harwich Deep Water Channel. Other vessels, after embarking the pilot, may proceed W and NW through the outer part of the deep-water channel. Those vessels, with suitable draft, may pass between Roughs Tower (51°54'N., 1°29'E.) and Threshold Shoals, 2.4 miles E. They may then pass E of Cross Lighted Buoy (51°56.2'N., 1°30.6'E.) and steer in a W direction toward the outer entrance of North Channel.

Vessels approaching from the N, NE, and E should pass through either Shipway or Sledway and then shape their course toward the pilot boarding station located about 2 miles ENE of Harwich Approach (HA) Lighted Buoy (51°56.7'N., 1°30.7'E.).

For restrictions, see Pilotage for Harwich (Felixstowe) in paragraph 4.16.

Yachts and pleasure craft are recommended to use a route, which is indicated on the chart, lying close S of the outbound traffic lane. They are advised, in the interest of safety, to avoid the deep-water channel and the traffic lanes.

Entry into the Harwich Deep-Water Channel is restricted from the E between South Shipwash Lighted Buoy (51° 52.7'N., 1°34.2'E.) and Walker Lighted Buoy, moored about 1 mile N. It is restricted from the S between Cross Lighted Buoy (51°56.2'N., 1°30.6'E.) and Harwich Channel No. 2 Lighted Buoy, moored about 2 miles W.

Deep-Water Routes, which may best be seen on the chart, lead SW from the vicinity of Sunk Pilots boarding station into the Thames approach channels. Pilots for the Port of London (River Thames) are also provided by this station. For further details, see Pilotage and Regulations in paragraph 4.1 and paragraph 4.15.

Anchorage.—Vessels may anchor, in depths of 6 to 7.7m, in Cork Anchorage Area, which lies on the N side of the inbound traffic lane. They may also anchor, in depths of 5.9 to 9.6m, in Platters Anchorage Area, which lies S of the W end of the outbound traffic lane.

Deep-draft vessels may anchor, in depths of 11 to 15m, in Bawdsey Anchorage Area, which lies about 1 mile NNE of Harwich Approach (HA) Lighted Buoy. They may also anchor, in depths of 15 to 25m, in Sunk Anchorage Area, which lies centered 5 miles NW of Sunk Center Light Float (51°50'N., 1°46'E.).

The limits of the above anchorage areas may best be seen on the chart.

Caution.—Precautionary Areas and associated TSS areas, which may best be seen on the chart, have been established in the vicinity of Sunk Center Light Float in order to minimize the risk of collision (see paragraph 4.1).

The area lying adjacent to the N side of the Deep Water Channel between the Harwich Approach (HA) Lighted Buoy (51°56.7'N., 1°30.7'E.) and the W side of Shipwash Shoalbank has been designated as a holding or turning area for Large or Ultra Large Vessels, which are compelled by circumstances to use it. In such an event, Harwich VTS will issue a warning. All other vessels must not maneuver or anchor in such a way as to impede these vessels.

Large Vessels and Ultra Large Vessels are defined as those exceeding 240m in length and 310m in length, respectively.

Harwich (Felixstowe) (51°57'N., 1°17'E.)

World Port Index No. 31530

4.15 Harwich, a city of great antiquity, stands on the N part of a peninsula which is formed between the coast and the SW side of the entrance to the River Stour. The city and Parkeston, a suburb, extend W from this peninsula along the S side of the river.

The town of Felixstowe extends along the NE side of the entrance and the River Orwell flows into the N side of the harbor.

Harwich Harbour is the only landlocked harbor between the River Humber and the River Thames which affords complete shelter from all winds. In addition to The Port of Felixstowe, situated on its NE side, the harbor provides access to Mistley and Manningtree, on the River Stour, and Ipswich, on the River Orwell.

Tides—Currents.—Tides rise about 4m at springs and 3.4m at neaps.

Within the harbor, the tidal currents generally run in near the direction of the fairway channel. The currents to and from the River Stour and the River Orwell separate or meet NE of Harwich. In mid-channel between Harwich and Shotley Point, the flood current attains a velocity of 1 knot at springs and the ebb current a velocity of 2.2 knots. In the fairway W of Felixstowe Dock, the ebb current sets SSE with a velocity of 1.2 knots at springs; the flood current sets NNW with a velocity of 1 knot.

Within the harbor, the height of tide may be affected by meteorological conditions. Winds between the SE and SW, or a high barometer, cause a decrease in height and winds between NW and NE, or a low barometer, cause an increase. The increase or decrease may, under exceptional conditions, be up to 0.6 to 0.9m above or below the predicted height.

Depths—Limitations.—The inbound and outbound traffic lanes have depths of about 7m.

It is reported that the Harwich Deep-Water Channel has been dredged as far as the main container berths and the entrance to the River Orwell. There are lesser depths in the approaches to the other berths.

A channel, dredged to a depth of 8m, leads W from the harbor channel up the River Stour to Parkeston Quay, situated about 0.5 mile above the entrance.

Generally, vessels up to 13.1m draft can enter the harbor at all stages of the tide; vessels up to 15m draft can enter at HW.

Harwich.—Parkeston Quay is 1,204m long. It is comprised of four ro-ro berths, each 100 to 180m long, and two container berths, with depths of 7.5 to 9.5m alongside. A coastal tanker berth, 150m long, with a depth of 7m alongside, is situated off the W end of the quay. There is also a trade car berth and a bulk ship berth.

Generally, vessels up to 57,000 gt and 152m in length can be accommodated alongside; special arrangements for longer vessels can be made. Vessels with drafts up to 6m can berth alongside without being restricted by the height of tide and vessels with drafts up to 8m can be accommodated at HW. There are extensive facilities for automobile ferries and passenger vessels.

The Navyard Wharf, situated at the river entrance, has five berths with facilities for ro-ro vessels. These are 42 to 160m long and have depths of 4.5 to 8.6m alongside.

It is reported that a new tanker berth, capable of accommodating vessels up to 10,000 dwt, is to be constructed. In addition, the container berth is to be extended to the E with reclamation work being carried out in Bath Side Bay.

Port of Felixstowe.—The port comprises several river berths situated at the NE side of the harbor.

The port has expanded (2011) from seven to nine container berths, replacing several ro-ro berths, the oil terminal jetty, and Felixstowe Dock with 1,350m of quay. The two new berths are designed to handle ships of more than 18,000 teu's with cranes that are among the largest in the world, having an outreach of 24 containers. These berths have dredged depths of 16m alongside.

Languard Container Terminal, situated S of Felixstowe Dock, is 439m long. It has alongside depth between 7 to 9.5m.

Aspect.—The Harwich Deep-Water Channel is marked by lighted buoys. Harwich Channel No. 1 Lighted Buoy (51°56.1'N., 1°27.2'E.) is equipped with a racon.

The harbor entrance lies between Landguard Point and Blackman's Head, 1 mile WNW. Vessels enter through a fairway which is marked by lighted buoys and leads W and N.

From Landguard Point, a low shingle beach extends for about 2.7 miles NE and is fringed by groins.

Conspicuous marks on the N side of the entrance include the spire of a church standing 2 miles NNE of Landguard Point, a radar scanner situated 0.4 mile E of the spire, a water tower standing 1.3 miles NNW of the spire, and a gas storage tank standing 1.3 miles N of Languard Point. A flare, easily distinguishable at night, is occasionally situated at a tall chimney which stands close NW of the gas storage tank. In addition, the gantries and cranes at the Port of Felixstowe are clearly visible from a considerable distance.

The coast extending SW of Blackman's Head is cliffy for about 0.5 mile and then it becomes low and embanked as far as the entrance to Hamford Water, 2.5 miles SSW. The shore is fronted by a sand flat and backed by gently undulating country.

Conspicuous landmarks on the SW side of the harbor entrance include a water tower standing 1.1 miles WSW of Blackman's Head and two disused light structures standing near the shore, 0.5 mile E of the water tower. Prominent landmarks include the spire of a church standing 0.5 mile N of Blackman's Head and the tower of a church, much obscured by trees, standing on the skyline, 1.3 miles WSW of Blackman's Head. In addition, the cranes situated at Parkeston Quay are visible from a considerable distance.

Harwich (Port of Felixstowe)

Shotley Point, on the N side of the harbor, is the SE extremity of a projection which separates the River Stour from the River Orwell. An extensive marina, consisting of a basin entered through a lock, is situated at the point. Conspicuous landmarks in the vicinity include a water tower, 40m high, standing on the W side of the marina; a signal tower, 40m high and surmounted by a flagstaff; a radar scanner, standing 0.3 mile SW of the marina; and the mast standing at the former Shotley Naval Base, close N of the signal tower. Prominent from several directions is a white water tower which stands about 1.5 miles WNW of Shotley Point.

Pilotage.—Pilotage is provided by Haven Pilotage Service and is compulsory for all vessels except the following:

1. HM vessels.
2. Vessels of less than 50m LOA unless carrying liquid bulk dangerous cargo of flammable or toxic properties.
3. Vessels of less than 100m LOA operating exclusively in the compulsory area and within the Haven Ports pilotage limits unless carrying liquid bulk dangerous cargo of flammable or toxic properties.
4. Vessels shifting berth within the enclosed dock at Ipswich unless carrying liquid bulk dangerous cargo of flammable or toxic properties.

Inbound vessels should send an ETA at the pilot boarding station at least 8 hours in advance. The ETA message should include the vessel's name, call sign, gt, maximum draft, last port, and destination. In the case of vessels engaged in short sea trade, the initial ETA may be passed at the time of leaving the last port of call, if passage time is less than 8 hours.

Vessels must confirm their ETA 3 hours in advance or as soon as practicable when within VHF range on VHF channel 9.

Outbound vessels or vessels shifting berth must give an ETD at least 2 hours in advance with a confirmation 30 minutes prior to departure. ETD will not be accepted more than 3 hours in advance. Vessels intending to depart or shift within the Port of Ipswich may give the 30 minute confirmation to Orwell Navigation Service on VHF channel 68.

The Haven Pilotage Service operates two pilot stations:

1. Sunk Pilot boarding station provides pilotage for Harwich, Felixstowe, Ipswich, and Mistley (Haven Ports). It also provides pilotage for the Port of London, the River Thames, and the River Medway.

Pilots board in an area centered on position 51°51.4'N, 1°40.5'E (3.5 miles WNW of Sunk Center Light Float).

Vessels must confirm their ETA at this boarding station 3 hours, or as soon as possible, and 1 hour prior to arrival on VHF channel 9.

Communication on the approach and at this pilot station will be conducted by Sunk VTS on VHF channel 14. For further information concerning pilotage, see Regulations.

2. Haven Pilot boarding station provides pilotage for Harwich, Felixstowe, Ipswich, and Mistley.

Pilots board vessels about 2 miles ENE of Harwich Approach (HA) Lighted Buoy (51°56.7'N., 1°30.7'E.).

This station should be used only by vessels of less than 180m in length and less than 8m draft.

Communication on the approach and at this pilot station will be conducted by Haven VTS on VHF channel 71 (see Regulations).

Vessels giving the 1-hour confirmation of ETA at this boarding station should call on VHF channel 9.

Haven Pilotage Service (Sunk Pilots) may be contacted by e-mail, as follows: sunk.pilot@hha.co.uk

Pilots for the River Colne and the River Crouch board vessels about 2.5 miles WSW of Sunk Inner Light Float (51°51'N., 1°34'E.), at the W side of Sunk Inner Precautionary Area.

See Approaches to Harwich—Directions (paragraph 4.15) for further information.

Regulations.—All vessels must maintain a continuous listening watch on VHF channel 71 while within the VTS area and report when anchoring or berthing.

All vessels must obtain permission before getting underway from an anchorage or leaving a berth. They must also report when clear of an anchorage or berth.

Vessels with a draft of 7.2m or over are required to exhibit the signals prescribed for vessels constrained by their draft when approaching and entering the harbor.

Only vessels constrained by their draft or specifically authorized may use the inner part of the Harwich Deep-Water Channel, which lies W of Harwich Approach (HA) Lighted Buoy (51°56.7'N., 1° 30.8'E.); other vessels of more than 50 gt must use the respective inbound or outbound traffic lanes and keep clear of the deep-water channel.

Vessels of more than 50 gt must have special permission from the harbormaster to enter or leave the port by the Medusa Channel.

Overtaking of or by a vessel carrying LNG is prohibited while within the harbor area.

Vessels shall not enter the deep-water channel so as to hazard or impede the movement of another vessel in that channel.

Anchoring and fishing are prohibited within the vicinity of the inner approach and entrance channels.

Speed limits are in force, as follows:

1. In all approach and departure channels between Harwich Channel No. 1 Lighted Buoy (51°56.1'N., 1°27.2'E.) and Platters Lighted Buoy (51°55.6'N., 1°20.9'E.)—17 knots.
2. In the Deep Water Channel between Platters Lighted Buoy and North West Beach Lighted Buoy (51°55.9'N., 1°18.9'E.)—12 knots.
3. In the area between North West Beach Lighted Buoy and the inner limits of the harbor—8 knots.

Vessel Traffic Service.—Sunk Vessel Traffic Service (Sunk VTS), controlled by Harwich Haven Authority, operates in the vicinity of Sunk Center Light Float (51°50'N., 1°46'E.) now has AIS on float, and covers Inner Sunk Precautionary Area, Outer Sunk Precautionary Area, and the TSS areas and other routes leading into these areas.

All vessels of 300 gt and over shall participate in and comply with Sunk VTS rules.

Vessels must maintain a listening watch when within the Sunk VTS area. They must report to Sunk VTS on VHF channel 14 when entering or departing the area and when passing the positions (Reporting Points) described in the tables titled **Sunk VTS Reporting Points** (Inbound or Outbound).

When initially reporting to Sunk VTS, vessels must state their name, call sign, position (reporting point), draft, destination, intended route, any deficiencies, and ETA at the pilot boarding station if applicable.

Sunk VTS may be contacted by e-mail, as follows: sunk.vts@hha.co.uk

Vessels must report to Sunk VTS any incident that effects the safety of navigation.

Vessels must maintain their listening watch on VHF channel 14 until finally clear of the Sunk VTS area or when transferring to a neighboring VTS system.

Vessels must report when anchoring within the Sunk VTS area and maintain a listening watch on VHF channel 14. They must also report when leaving the anchorage.

Vessels which are not proceeding to or departing from ports within the Thames Estuary or Harwich Haven must avoid Sunk Inner Precautionary Area.

Vessels navigating within Sunk Inner Precautionary Area must avoid impeding the passage of vessels constrained by draft or following a Deep-Water Route.

Fishing vessels engaged in fishing must report their intentions on entering or leaving Sunk Inner Precautionary Area.

Dredging vessels working within the VTS area must submit passage plans for approval by the Sunk VTS authority.

Vessels embarking pilots must adhere to the boarding turn order issued by Sunk VTS.

Special rules apply to vessels which are intending to embark or disembark pilots within the Sunk VTS area. For further information, see Pilotage and Regulations in paragraph 4.1.

Participation in this VTS system is mandatory for all vessels over 50 gt and all vessels certified to carry 12 or more passengers.

Sunk VTS Reporting Points (Outbound)		
Name	**Position**	**Remarks**
Orwell No. 4 lighted buoy	51°59.8'N., 1°14.4'E	R Orwell - preliminary
Orwell No. 2 lighted buoy	51°58.9'N., 1°16.6'E	R Orwell - transfer from Ipswich LPS
Erwarton lighted buoy	51°56.9'N., 1°13.3'E	R Stour
No. 8 lighted buoy	51°55.8'N., 1°22.8'E	—
Rough lighted buoy	51°55.7'N., 1°30.7'E	Southbound
Cross lighted buoy	51°56.5'N., 1°30.6’E	Advise if northbound or southbound
Walker lighted buoy	51°53.8'N., 1°33.9'E	Southbound (report to Sunk VTS on VHF channel 14)
Shore Banks lighted buoy	51°53.2'N. 1°18.92' E	Southbound (Inshore route)
Cutler lighted buoy	51°58.6'N., 1°28.0'E	Northbound (Inshore route)
Mid Bawdsey lighted buoy	51°59.0'N. 1°35.6'E	Northbound
N Shipwash lighted buoy	52°01.7'N., 1°38.3'E	Northbound

Sunk VTS Reporting Points (Inbound)		
Name	**Position**	**Remarks**
N Shipwash Outer Approach	52°03.7'N., 1°42.0'E	N approach
N Shipwash lighted buoy	52°01.7'N., 1°38.3'E	N approach
Mid Bawdsey lighted buoy	51°59.0'N., 1°35.6'E	N approach
Cutler lighted buoy	51°58.6'N., 1°28.0'E	N approach (Inshore route)
S Shipwash	51°52.0'N., 1°35.1'E	S approach (Haven Ports traffic only)
Stone Banks lighted buoy	51°53.2'N., 1°18.9’E	S approach (Inshore route)
HA lighted buoy	51°58.6'N., 1°30.7'E	—
Harwich Channel No. 7 lighted buoy	51°56.0'N. 1°22'.2'E	—
Fagbury lighted buoy	51°58.0'N., 1°16.8'E	Ipswich Approach - then transfer to Ipswich LPS on VHF channel 68

Harwich Vessel Traffic Service.—Harwich Vessel Traffic Service (Harwich VTS) operates in the approaches to Harwich and provides radar surveillance and marine information. The seaward limit of the VTS area covers an area bounded by the arc of a circle, with a radius of 4 statute miles, centered on position 51°55.96'N, 1°18.84'E, with an E extension defined by a line joining the following positions:

a. 51°57.4'N, 1°23.9'E.
b. 51°59.0'N, 1°37.1'E.
c. 51°53.8'N, 1°33.9'E.
d. 51°52.6'N, 1°33.9'E.
e. 51°52.6'N, 1°30.8'E.
f. 51°54.3'N, 1°30.8'E.
g. 51°55.3'N, 1°24.3'E.

Navigational information broadcasts are made by Harwich VTS on VHF channel 11 at 0415 and 1615. During periods of major operations, broadcasts are also made at 1015 and 2215.

In the event of a major incident, details will be broadcast by Harwich VTS using the code word HARWICHCAP. This code words signifies that Harwich has initiated a combined accident procedure. All vessels should maintain their present listening watch, minimize all radio broadcasts, and be prepared to receive specific traffic regulation instructions.

Harwich VTS may be contacted by e-mail, as follows: harwich.vts@hha.co.uk

All inbound vessels should send their ETA at the pilot boarding station to the Harwich VTS Operations Center at least 24 hours in advance or on leaving the last port of call, if later. The message should include the vessel’s name, call sign, gt, maximum draft, and destination.

Vessels must confirm their ETA 3 hours prior to arrival or as soon as practicable when within VHF range on VHF channel 9. All times should be given in local time.

All inbound vessels must obtain permission from Harwich VTS prior to entering the VTS area. They must also report on VHF channel 71 when passing the following positions (Reporting Points):

All vessels must obtain permission before getting underway from an anchorage or leaving a berth. They must also report when clear of an anchorage or berth.

All outbound vessels must give an ETD at least 2 hours in advance to Harwich VTS, with a confirmation 30 minutes prior

to departure (ETD will not be accepted more than 3 hours in advance). They must also obtain permission from Harwich VTS to leave. Permission to leave is valid for only 15 minutes. If the vessel has not cleared, new permission must be obtained.

Outbound vessels must report to Harwich VTS on VHF channel 71 when passing the following positions (Reporting Points): See table above.

All vessels must maintain a continuous listening watch on VHF channel 71 while within the VTS area and report when anchoring or berthing.

Anchorage.—Parkeston Anchorage Area, situated N of Parkeston Quay, has depths of 4.7 to 7.3m and is generally limited to vessels of less than 115m in length and 5.5m draft. Erwarton East and West Anchorages, situated close W of Parkeston Anchorage, have depths of 5.4 to 10m.

Shelf Anchorage Area, situated on the W side of the harbor channel, has depths of 3.2 to 5.5m and is generally limited to vessels of less than 90m in length and 3.7m draft.

Caution.—Precautionary Areas and associated TSS areas, which may best be seen on the chart, are situated in the vicinity of Sunk Center Light Float (51°50'N., 1°46'E.). For further information, see paragraph 4.1 and paragraph 4.3.

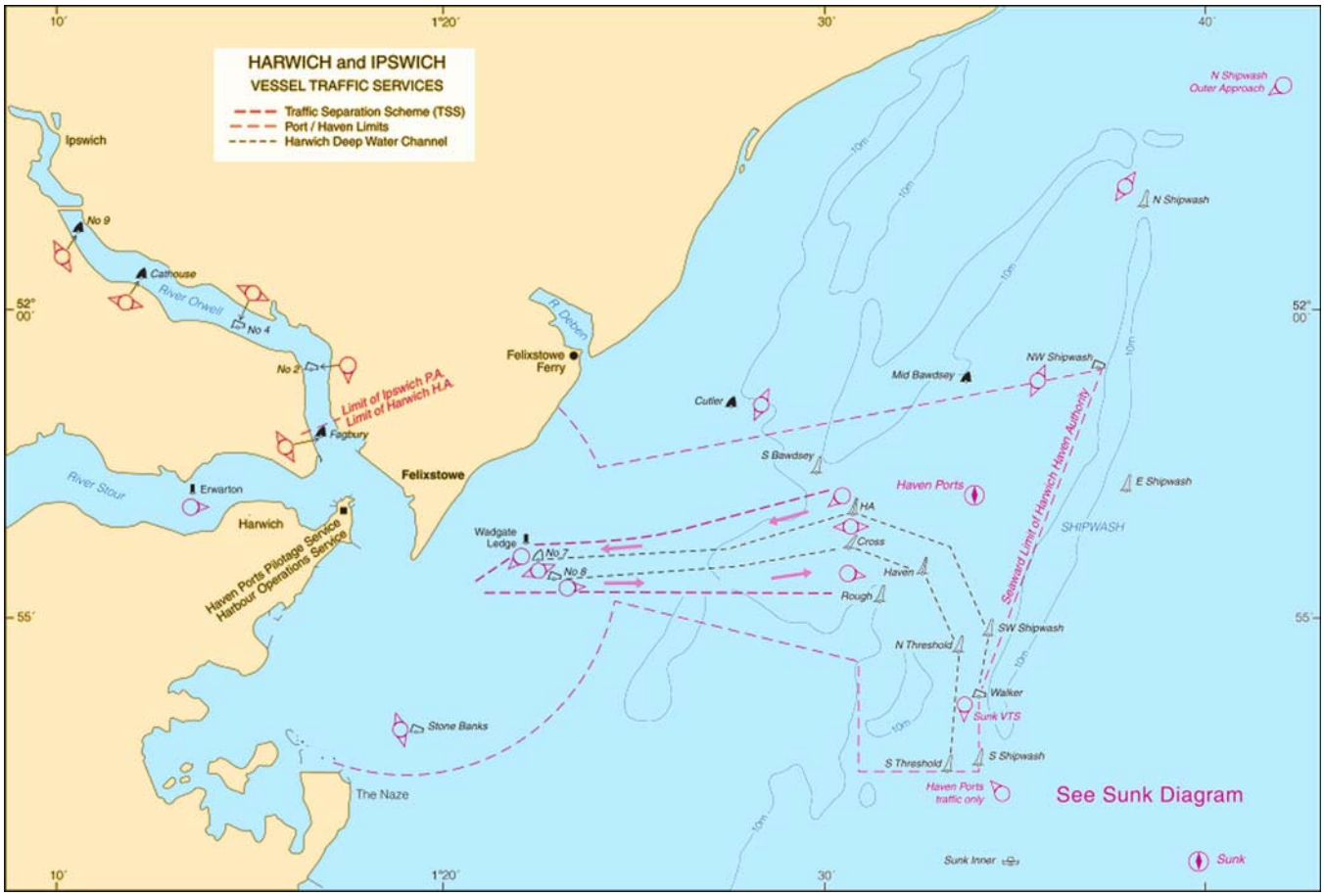
Numerous unlit mooring buoys are situated close to the fairway in the rivers.

The harbor is accessible under all weather conditions, but deep-draft vessels may be restricted as to the time of entry by tidal considerations.

High speed craft operate in the approaches to Harwich.

4.16 The River Stour provides access to Mistley and Manningtree, which are situated about 8 miles above Harwich. The depths in the river decrease rapidly to the W of Parkeston. Small vessels, with drafts up to 2m, can reach Manningtee at HW.

Mistley (51°56.7'N., 1°04.8'E.) is located on the S bank of the river and provides five berths. Baltic Wharf, the main berth, is 200m long and has a depth of 1.3m alongside. Vessels up to 3,500 dwt can be handled with drafts up to 5.3m at HWS and 4m at HWN. Vessels lie aground at LW. Local pilots for the river are available. At Cattawade, 0.5 mile above Manningtree, the river is closed by a barrage.



Harwich and Ipswich VTS

Ipswich (52°03'N., 1°10'E.)

World Port Index No. 31550

4.17 Ipswich stands on the banks of the River Orwell, about 7.5 miles above its entrance, which is located E of Shotley Point. The harbor consists of a wet dock and several riverside quays.

Tides—Currents.—Tides rise about 4.2m at springs and 3.4m at neaps.

Close within the entrance to the river, the tidal currents set NNW and SSE with spring velocities of up to 1.5 knots.

Depths—Limitations.—The navigable fairway has a dredged depth of 5.6m as far as Ipswich, but narrows to a minimum width of about 90m. In the approaches to Ipswich, a bridge, with a vertical clearance of 38m, and two overhead power cables, with vertical clearances of 46m, span the river.

The wet dock is entered through a lock, 91m long and 14.5m wide. It has depths over the sill of 7.1m at HWS and 6.3m at HWN. Vessels up to 80.76m in length can enter by using the lock. Vessels up to 114m in length, 13.8m beam, and 5.5m draft can enter the dock by way of the canal through the lock at HW. There is 1,750m of total berthage within the dock, with depths of 3.7 to 6.7m alongside. There are facilities for yachts at the N side of the dock.

Cliff Quay has 1,130m of total berthage and a depth of 8.2m alongside.

West Bank Terminal has 320m of total berthage and a depth of 6.5m alongside.

Power Station Jetty has 150m of total berthage and a depth of 8.4m alongside.

There are facilities for container, bulk, tanker, and ro-ro vessels within the port. Generally, vessels up to 140m in length and 7.5m draft can be handled. Vessels up to 148m in length and 8.4m draft have been handled at HWS.

Aspect.—The banks of the river run mostly parallel and are well-wooded. A marked channel leads up the river to the harbor. Several yacht marinas are situated along the river and a water-skiing area, marked by small buoys, lies adjacent to the navigable channel.

At Ipswich, a conspicuous power station, with three tall chimneys, stands on the E shore of the river.

Pilotage.—See Pilotage for Harwich in paragraph 4.15. Pilotage for the River Orwell is compulsory.

Regulations.—The Orwell Navigation Service operates a Port Control and Information Service within the river.

All vessels must maintain a VHF listening watch when underway as directed by the Orwell Navigation Service. Vessels without an operational VHF should make contact by telephone.

All inbound vessels should report to Ipswich Port Radio on VHF channel 68 on passing the following Reporting Points:

1. Fagbury Buoy (51°57.9'N., 1°16.9'E.).
2. Lighted Buoy No. 4.
3. Cathouse Lighted Buoy.
4. Lighted Buoy No. 9.
5. On berthing.

Local weather, visibility, tides, and general marine information are available upon request.

The Orwell Navigation Service may be contacted by e-mail, as follows: ipswich@abports.co.uk

Caution.—Several submarine cables lie across the entrance to the lock and the river and may best be seen on the chart.

Harwich to Shoebury Ness

4.18 **The Naze** (51°52'N., 1°17'E.), located 4 miles SSW of Landguard Point, is a cliff similar to Bawdsey Cliff. A conspicuous brick tower, 49m high, stands on a summit, close within the edge of the cliff.

The Naze Tower

Hamford Water, a narrow creek, is entered between Blackman's Head and The Naze. It is approached by crossing Halliday Rock Flats, which have a least depth of 1.2m. The depths increase within the entrance of the creek, but the entire area within 4 miles W of The Naze is broken up by islands, mud flats, and creeks, which dry. Several yacht marinas are situated within this area.

The NW shore of the Thames Estuary between The Naze and Shoebury Ness, 28 miles SW, is broken by the entrances to the River Colne, the River Blackwater, the River Crouch, and by several small creeks which are located S of the River Crouch. The shore in the N part consists mainly of cliffs, up to 10m high, with many buildings standing on them. It is backed by higher land. The shore in the S part is low and fringed by extensive mud flats and sands.

A pier extends SE for 0.4 mile from the coast at Walton-on-the-Naze, a small resort town, situated 1.3 miles SSW of The Naze.

Frinton-on-Sea (51°50'N., 1°15'E.), a resort town, stands 2.7 miles SW of The Naze, at the SW end of a row of cliffs. The turret of a hotel, standing at the W end of the town, is conspicuous. The southwestern most of two tall buildings, which stand 0.2 mile apart in front of the town, is prominent.

Holland-on-Sea, a small resort, is situated 2.5 miles SW of Frinton. A prominent radar mast, 60m high, stands at Holland Haven, at the NE end of the resort. A prominent church, with a square tower, stands on the highest part of the background, 1.2 miles N of the haven, and can be seen through the trees from seaward.

Caution.—Gunfleet Sands Wind Farm, located on Gunfleet Sand, comprises 48 wind turbines centered on position 51°44' N., 1°13' E. A submarine cable leads N from the wind farm to the vicinity of Holland-on-Sea (51°48'N., 1°11'E. On the perimeter, designated wind turbines exhibit red obstruction lights and flashing yellow lights.

Clacton-on-Sea (51°47'N., 1°09'E.), a resort town, is situated along the shore, 4 miles SW of Frinton. The coast in this vicinity is protected by groins, the seaward ends of some being marked by beacons. Several martello towers stand on the low coast between Clacton and Colne Point, 4 miles W. The town is fronted by a pier, 0.2 mile long, which small craft may berth alongside.

Caution.—An area, in which obstructions lie, is located about 1 mile SSE of the pier at Clacton and may be best seen on the chart.

Several outfall pipelines, which extend up to about 0.4 mile seaward, are located along this stretch of coast and may best be seen on the chart.

4.19 The Wallet (51°46'N., 1°13'E.) is a coastal channel leading from The Naze to Colne Point. The shoals fringing the coast lie on its NW side and Gunfleet Sand lies on its SE side. The latter shoal was previously described in paragraph 4.6 with East Swin or King's Channel. This channel, which is marked by lighted buoys, forms the approach to the River Colne and the River Blackwater, which discharge into its W end. Swire Hole is a pocket lying at the W end of The Wallet. Goldmer Gat, the N and main entrance into The Wallet is located 5.5 miles WSW of Sunk Light Vessel. (51°51'N., 1°35'E.). It lies between the NE extremity of Gunfleet Sand and West Rocks, 2 miles N. The greatest depths are found along the NW edge of Gunfleet Sand.

The shoals which fringe the coast have depths of less than 5.5m and extend up to 2 miles offshore. Tripod, a shingle patch, lies about 1 mile ESE of Clacton and has a least depth of 2.5m. Collier, a shoal with a least depth of 1.5m, lies 1.3 miles SSW of Clacton. Priory Spit, with a least depth of 1.8m, extends up to about 1.5 miles S from a point on the coast, 2 miles WSW of Clacton.

Buxey Sand, a shoal bank which dries, lies centered 5 miles S of Colne Point. Spitway, a channel for small craft, leads between the W end of Gunfleet Sand and the E end of Buxey Sand and has a least depth of 1.2m.

Anchorage.—During offshore SE or SW gales, there is well-sheltered anchorage in every part of The Wallet as the sands, forming its boundaries, act as breakwaters and the sea becomes comparatively smooth, even when the banks are not well-covered. A convenient berth is in a depth of 9m about 3.5 miles SSE of the tower on The Naze. Good anchorage is also available, in depths of 11 to 14m, in Swire Hole, about 3.8 miles SSE of Colne Point.

Caution.—Numerous wrecks, some dangerous, lie in the vicinity of The Wallet and may best be seen on the chart.

4.20 The River Colne and The River Blackwater.—The rivers are approached through a common estuary at the SW end of The Wallet. The entrance channels lie between the shoals which extend from both shores and are marked by buoys, beacons, and lighted buoys. The main fairway, with a least depth of 4.3m, leads between Eagle and Knoll Shoals. The N fairway, with a least depth of 4.1m, leads N of Eagle Shoal and S of Priory Spit and Colne Bar; it should only be used by vessels with local knowledge.

Close W of Eagle Shoal, the entrance channels divide. The fairway leading into the River Colne extends NNE and passes between Colne Bar and Bench Head Shoal. The fairway leading into the River Blackwater extends WNW and passes between Bench Head Shoal and Saint Peters Flats.

Colne Point (51°46'N., 1°03'E.), located on the E side of the entrance to the River Colne, is low and marshy and marked by two small beacons. Colne Bar, with depths of less than 1.8m, extends up to 1.5 miles S of the point. Eagle Shoal, with a least depth of 0.9m, lies about 2 miles SSE of Colne Point.

Sales Point (51°45'N., 0°56'E.), the S entrance point of the River Blackwater, is located 4 miles WSW of Colne Point and is low. A chapel stands 0.4 mile S of this point and is conspicuous. Several beacons, posts, and remains of targets stand near the shore, close S of Sales Point. Wave breaks, formed by sunken barges, lie close N and SSE of the point and are marked by lighted beacons.

The conspicuous building of Bradwell Nuclear Power Station, 45m high, stands on the S bank of the River Blackwell, 1.5 miles W of Sales Point.

Saint Peters Flats, which dry up to 3.5m, extend 2.7 miles from the shore, S of Sales Point. Knoll and Batchelor Spit are shoal areas, with depths of less than 1.8m, which extend E from St. Peters Flats.

Mersea Island (51°47'N., 0°57'E.), which forms the N shore between the rivers, is low and wooded. The prominent towers of churches, standing near the E and W ends of the island, can be seen through the trees from seaward.

Bench Head, with depths of less than 1.8m, lies at the extremity of the shoals which extend up to 2.5 miles SE from Mersea Island. Cocum Hills and Mersea Flats front the S shore of the island.

Pilotage.—Pilotage is compulsory for the River Colne and River Blackwater, with certain exceptions. Pilots are available from the Haven Ports Pilotage Service and will generally board vessels in the vicinity of Sunk Light Vessel. See Pilotage for Harwich in paragraph 4.15.

Caution.—Oyster beds occupy parts of the fairways within the rivers.

4.21 The **River Colne** (51°46'N., 1°02'E.) flows for 32 miles and enters the sea near Colne Point. Many obstructions exist within this river and the tidal influence is checked and retarded. In its lower part, the banks are broken up by several tributaries. Brightlingsea Creek and Alresford Creek are located on the E side; Pyefleet Channel and Geedon Creek are located on the W side. The fairway has a least depth of 3m as far as Brightlingsea.

Brightlingsea (51°48'N., 1°02'E.), a small port, stands on the N side of Brightlingsea Creek, which enters the river close N of the entrance. A quay, with 234m of total berthage, has a depth of 5.5m alongside at HWS. Vessels up to 3,600 dwt, 100m in length, and 5.2m draft can be accommodated. Vessels with bow thrusters up to 120m in length can be handled. The harbor can be contacted by VHF and is mostly used by coasters, yachts, and fishing vessels.

Pilotage.—Brightlingsea Harbour Commissioners are responsible for pilotage on the River Colne from Inner Bench Head Lighted buoy (51°46.0'N 1°01.8'E) upstream to the confluence of River Colne with Roman River.

Pilotage is compulsory for vessels over 60m LOA calling at the Port of Brightlingsea and is compulsory for vessels over 50m LOA proceeding upstream.

Pilot boards in position 51°46.92'N 1°01.15'E (close to No. 9 lighted buoy).

Contact Information.—The port can be contacted as follows (Services available from 0800-1700, or otherwise by arrangement.):

1. Call: Brightlingsea Harbour
2. VHF: VHF channel 68
3. Telephone: 44-1206-302200
4. Fax: 44-1206-308533
5. E-mail: mail@brightlingseaharbour.org
6. Website: www.brightlingseaharbour.org

Colchester (51°53'N., 0°55'E.) stands on the W bank of the river, 7 miles above Brightlingsea. The port provides about 500m of total commercial berthage. The harbor is mostly used by small coasters. Vessels up to 96m in length and 4.7m draft can be handled at HW.

Pilotage is compulsory for vessels over 60m in length proceeding to Brightling sea and for vessels over 50m in length proceeding upstream of this port. Requests for pilotage on the River Colne should be sent to the harbormaster at Brightlingsea 12 hours before arrival; the harbormaster can be contacted on VHF channel 68. Pilots can be contacted by VHF and board about 2.5 miles WSW of Sunk Light Vessel (see paragraph 4.16) or in the vicinity of No. 13 Lighted Buoy, close to the entrance of Brightlingsea Creek.

All commercial vessels must obtain permission from the harbormaster before entering, departing, or moving on the River Colne.

A flood barrier, equipped with traffic lights, is located at Wivenhoe. When the traffic lights (three vertical red lights) are displayed, vessels must contact the harbormaster before transiting through the barrier.

Caution.—A firing danger area is situated on the W shore of the river between Pyefleet Creek and Geedon Creek.

4.22 The **River Blackwater** (51°45'N., 0°55'E.), entered between Sales Point and the S side of Mersea Island, leads about 6 miles WSW to Osea Island, and then 4 miles NW to Maldon. There are depths of 5.5 to 20m in the entrance, but above Shinglehead Point, 2.2 miles NW of Sales Point, they become irregular. Depths of 2.3 to 3.5m lie in the fairway up to 4.5 miles above Shinglehead Point. At Maldon, the channel has a depth of 3.4m at HWS, but nearly dries out at LW. Several yacht marinas are situated along the river. A wharf at Maldon can handle small coasters up to 600 gt.

The banks of the river are broken by the entrances to numerous creeks and fringed by extensive mud flats. A detached breakwater, about 300m long, lies off the entrance to a creek, in the vicinity of the power station which stands 1.5 miles above the entrance to the river.

4.23 The **River Crouch** (51°37'N., 0°56'E.), after flowing between low and embanked lands, empties into the Thames Estuary between Holliwell Point, 6.5 miles S of Sales Point, and Foulness Point, 1.1 miles SSE. The river may be approached through Ray Sand Channel or Whitaker Channel. The former leads from the SW end of The Wallet over a bar, which dries up to 1.7m, and should only be used by vessels of light draft with local knowledge. Whitaker Channel, which is marked by lighted buoys, leads from the W end of East Swin or King's Channel to the river entrance.

Foulness Sand, which dries, extends up to 5.5 miles ENE from Foulness Point. Whitaker Spit, with depths less than 1m, extends about 3 miles NE from the NE end of Foulness Sand. This spit connects to another shallow spit, which extends ENE from Buxey Sand and forms a bar between Whitaker Channel and East Swin or King's Channel. It is reported (2000) that a buoyed channel, with a least depth of 3m, leads over this bar. It is also reported that this channel is no longer dredged.

Several marinas are situated within the river. A timber wharf is situated in the vicinity of Wallasea Island, 3 miles above the river entrance. It is 130m long and can handle small vessels up to 5.2m draft at HW.

4.24 **Burnham** (51°37'N., 0°50'E.), the principal yachting center of the SE part of England, is situated on the N shore, about 5 miles W of the river entrance. There are marinas and extensive facilities for boats and small craft.

Hullbridge is situated on the S side of the river, about 12 miles above Burnham and has a quay, which dries. Small vessels, with drafts up to 3.5m, can reach this quay at HWS.

Pilotage.—Pilotage is compulsory for all vessels over 50m LOA. Pilot ordering should be arranged through the agents.

Local pilots for the River Crouch are available from the Haven Ports Pilotage Service and will generally board vessels in the vicinity of Sunk Light Vessel. See Pilotage for Harwich in paragraph 4.15.

Pilot boards in position 51°50.0'N 1°31.0'E.

All commercial vessels over 50m LOA are required to report to Wallasea Jetty on VHF channel 11. Inbound and Outbound vessels shall report as described in the table titled **Burnham Reporting Procedures**. Additional information with regard to impending commercial movements can be obtained by calling Wallasea Jetty on VHF channel11.

Contact Information.—Port Authority can be contacted as follows:

1. VHF: VHF channels 11 and 16
2. Telephone: 44-1621-783602
3. Facsimile: 44-1621 783602
4. E-mail: info@crouchharbour.org.uk
5. Website: www.crouchharbour.org.uk

Wallasea Jetty can be contacted as follows:

1. Call sign: Wallasea Jetty
2. VHF: VHF channels 11

Baltic Wharf can be contacted by telephone (44-1702 258551).

4.25 **Foulness Point** (51°37'N., 0°57'E.), the S entrance point of the River Crouch and the NE extremity of Foulness Island, is low.

A conspicuous lattice radio tower stands 1 mile SW of the point. Another two conspicuous lattice radio towers, 76m high, stand 1.7 miles SW of the point. The spire of the church at

Churchend, 2.5 miles WSW of the point, is prominent from seaward.

Shoebury Ness (51°31'N., 0°47'E.), a low point, is located 8.7 miles SW of Foulness Point. The coast between consists of embanked marshland, broken only by the entrance to Havengore Creek, 3.2 miles NE of the point, which is used by yachts and small craft. A radio mast and a gas-holder tank, both conspicuous, stand close W and 0.7 mile N, respectively, of the point. The church at Great Wakering, 2.3 miles NNE of the point, can sometimes be identified from seaward. The town of Shoebury stands 0.5 mile NE of the point.

Maplin Sands (51°35'N., 0°58'E.), of which Foulness Sands forms the NE part, extends up to about 3 miles from this stretch of coast and form the N limits of East Swin Channel, West Swin Channel, and The Warp.

For the continuation of the River Thames W of Shoebury, see paragraph 5.2.

Caution.—Firing danger areas exist on Maplin Sands and Foulness Sands. Experimental firing is frequently carried out in all conditions of weather and tide.

Yachts and small craft proceeding to Havengore Creek must obtain permission from the Range Authorities prior to making the passage.

Obstructions to navigation, posts, and beacons of no navigational significance, some of which show lights, may be encountered throughout Maplin Sands.

Local knowledge is required for the passage through East Swin, which is only suitable for small craft. There are a number of unmarked wrecks SW of Maplin Spit, as best seen on the chart.

Burnham Reporting Procedures	
Reporting Point	**Additional information required**
Inbound Vessels	
20 minutes prior to arrival at Whitaker Lighted buoy or S Whitaker Lighted buoy if arriving from the Swin Channel	Inbound berth (Wallasea or Baltic) PEC holder's No. (if applicable) Draft Defects POB Intention to use Whitaker Channel or Swallowtail Channel
Whitaker Lighted buoy	Confirmation of Whitaker Channel or Swallowtail Channel being used
Crouch Lighted buoy	Intention to swing if applicable or if no swing required for berthing
Horse Shoal	Confirmation of intention to swing or if no swing required for berthing
Commencement of swing (if applicable)	—
Alongside (Wallasea Jetty or Baltic Wharf)	ETD if known
Outbound Vessels	
10 minutes notice of sailing from berth (Baltic Wharf or Wallasea Jetty)	PEC holder's No. (if applicable) Draft Defects POB Whether swing involved or not
Letting Go	Confirmation of swing if applicable
Swung (if applicable) and proceeding outward bound	—
Crouch Lighted buoy	Intention to use Whitaker Channel or Swallowtail Channel
Whitaker Lighted buoy	Details of return if known

North Foreland to the Isle of Sheppey

4.26 North Foreland (51°23'N., 1°27'E.), the SE entrance point of the Thames Estuary, is located at the NE end of the Isle of Thanet. It is formed of nearly perpendicular chalk cliffs, 18 to 37m high.

A light is shown from a conspicuous white tower, 26m high, standing on the rising ground close within the edge of the cliff. A prominent radio mast is situated close NNE of the light.

The coast in this vicinity consists of cliffs fringed by rocky ledges, which extend up to about 0.2 mile offshore. A very conspicuous building stands 1.5 miles WNW of the light and, from N, is the highest landmark in this area.

A conspicuous castle-type building, with a tower, stands on White Ness, 0.7 mile NNW of the light.

Elbow (51°22'N., 1°31'E.), a sandy ridge, forms the NE extremity of the shoal bank extending from North Foreland. It is marked by a lighted buoy which is moored about 3 miles ENE of North Foreland Light.

Caution.—Outfall pipelines extend up to 2 miles seaward from the coast in the vicinity of North Foreland and may best be seen on the chart.

Numerous submarine cables, some disused, extend seaward from the shore in the vicinity of North Foreland and may best be seen on the chart.

Note.—See Pub. 191, Sailing Direction (Enroute) English Channel for information concerning the waters to the S of North Foreland and the mandatory CALDOVREP reporting system for the approaches to the Dover Strait TSS.

North Foreland Light

The Reculvers (towers)

4.27 Margate (51°23'N., 1°23'E.), a resort town, stands 2.5 miles NW of North Foreland. There is a small harbor, which dries, formed by a curved pier. It is mostly used by yachts and pleasure craft. Vessels with drafts up to 3.5m can lie alongside at HWS. A light is shown from a prominent tower, 20m high, standing on the head of the pier.

A large and conspicuous building, 62m high, stands near the shore, 0.3 mile SSW of the head of the pier.

The ruins of a former pier lie about 0.3 mile N of the root of the harbor pier.

Good anchorage, sheltered from S winds, can be obtained in depths of 11 to 17m, in Margate Road, about 1.7 miles NE of the harbor.

Reculver (51°23'N., 1°12'E.), a village, is situated 7 miles W of Margate. The coast between is composed of cliffs in its E part, but is low and flat in the W part. The Minnies, a ledge of drying rocks, lie 0.2 mile offshore at the junction of the cliffs with the low coastline; this junction, located 3.7 miles W of Margate, is commonly called Cliff End.

Two very conspicuous towers, known as The Reculvers, stand at the site of a ruined church near the shore at Reculver. A church, with a very prominent spire, is situated at Birchington, 3 miles WSW of Margate.

Herne Bay, a resort town, extends for nearly 1 mile along the shore, 3 miles W of Reculver. The coast between is composed of cliffs, 30m high, fronted by drying sand banks and rocks. The ruins of a promenade pier project 0.6 mile NNW from the W end of the town, and a light is shown from the former pier head. A prominent clock tower stands on the shore near the center of the town, and a conspicuous water tower stands 0.5 mile SE of it. A prominent windmill stands on high land, 1.1 miles SSE of the clock tower.

Sand banks, rocks, and shoals fringe this stretch of coast. In the E part, they form the S sides of South Channel and Gore Channel. In the W part, they extend up to 2 miles offshore.

Caution.—Several outfall pipelines extend seaward from the shore along this stretch of the coast.

Oyster beds occupy a considerable area off this part of the coast and vessels grounding are liable for damages.

4.28 Whitstable (51°22'N., 1°02'E.) (World Port Index No. 31360), a small port, is the center of a declining oyster fishery. It stands 3.5 miles W of Herne Bay, on the E side of the entrance to The Swale.

Tides—Currents.—Tides in the approaches rise about 4.2m at springs and 3.3m at neaps.

Depth—Limitations.—The harbor is tidal and dries at LW. There is 482m of total commercial quayage, with depths alongside of 4.7m at HWS and 3.7m at HWN. In addition, there is 158m of berthage for fishing vessels. Vessels up to 3,270 dwt and 99m in length can be accommodated, with drafts up to 4.5m at HWS and up to 3.6m at HWN.

Aspect.—Whitstable Street Lighted Buoy is moored 2 miles N of the harbor. Whitstable Street is an ancient causeway, part of a submerged town, which is now a hard drying ridge. It extends 1 mile N from the shore, close E of the town. Vessels should approach the port on a SSE course, and then shape a course for the sector light, which leads into the harbor.

A church, with a square tower surmounted by a flagstaff, stands 0.7 mile SE of the harbor entrance and is prominent. A mill and a silo, both conspicuous, stand 1 mile S and at the N side, respectively, of the harbor.

Pilotage.—Pilotage is compulsory for vessels of 50m in length and over. Pilots are provided by the Medway Vessel Traffic Service (see paragraph 5.19) and board, as follows:

1. Vessels over 80m in length—In position 51°25'N, 1°30'E, between NE Spit Lighted Buoy and Elbow Lighted Buoy (see NE Spit pilot station under the Thames Estuary in paragraph 5.19).
2. Vessels between 50m and 80m in length—At Whitstable Lighted Buoy (51°23.9'N., 1°01.6'E.).

Vessels should send a request for pilotage and an ETA to the Medway Vessel Traffic Service at least 24 hours in advance. Vessels should also send an ETA to the port 12 hours in

advance. For further information see pilotage for the Thames Estuary in paragraph 4.1.

Anchorage.—Vessels can anchor off Whitstable and the E entrance of The Swale. The best berths are in depths of 3 to 5m, mud, 2.5 miles N of the harbor or, in depths of 3.5 to 5m, 3.7 miles NE of the harbor.

4.29 Inshore Passage.—South Channel (51°24'N., 1°21'E.), which includes Margate Road, is of little use except for vessels of light draft. It lies between Margate Sand, on the N side, and the shoals fringing the mainland coast, on the S side. There are depths of over 6m as far W as Cliff End Banks, where there is a tendency for a bar to form. Shoaling has also been reported within this channel. Cliff End Banks, with a least depth 4.2m, consists of patches which extend across the channel, 3.5 miles W of Margate.

Vessels can anchor, in a depth of 12m, sand and mud, in the narrow part of South Channel; the best berth, partially protected from N, is 2.3 miles WNW of Margate.

Gore Channel (51°24'N., 1°15'E.), a continuation of South Channel, lies between Margate Hook, on its N side, and the shoals fringing the coast, on its S side. Margate Hook, which dries, is marked by a beacon and a pocket, with depths of up to 14m, lies close off its S side. At the W end of Gore Channel, there are depths of 2.7 to 4.3m and isolated shoal patches, with depths of 1.5 and 1.8m.

Horse Channel (51°25'N., 1°10'E.), which is marked, leads WNW from Gore Channel and has a least depth of 2.2m. Copperas Channel, on the S side of Horse Channel, has a least depth of 1.8m and is unmarked.

Small vessels can anchor, in a depth of 7m, in Gore Channel, about 0.4 mile off the S side of Margate Hook.

Four Fathoms Channel (51°26'N., 0°58'E.) is the name given to the passage which leads across Kentish Flats to The Cant. It is now charted (1990) as lying between Spaniard and Middle Sand, and a position S of Spile (51°27'N., 0°57'E.). There is a least charted depth of 2.1m in this channel and the name, Four Fathoms, is no longer applicable, as there is now only a depth of 7.3m at HWS.

Middle Sand, lying 5 miles NNW of Whitstable, dries 0.6m and is marked by a beacon. S pile, which dries, lies about 2 miles farther W. East Spaniard, lying 4.5 miles N of Whitstable, dries, and Spaniard, about 1.7 miles W of East Spaniard, has a depth of 1.8m.

Overland Passage (51°25'N., 1°03'E.) extends from the W end of Horse Channel in a WNW direction across Kentish Flats to Four Fathoms Channel and through The Cant. The passage, which has a least depth of 2.4m, leads between East Spaniard, Spaniard, and Spile, on its N side, and the shoals extending from the Isle of Sheppey, on its S side.

Caution.—Numerous wrecks and obstructions lying in the vicinity of Overland Passage may best be seen on the chart.

4.30 Isle of Sheppey (51°24'N., 0°53'E.), located at the SW end of the Thames Estuary, is separated from the N coast of Kent by The Swale. The SE and NW parts of the island are low. Its S side is also low, with the exception of the elevations around the villages of Harty and Elmley. The N part of the island is the highest and rises to height of over 70m midway along its coast.

Shell Ness (51°22'N., 0°57'E.), the SE extremity of the island, is located 3 miles W of Whitstable and forms the NW entrance point of The Swale. Leysdown, a village and resort camp, stands 1.8 miles NW of this point and is prominent. A conspicuous church stands 0.5 mile W of the village.

Warden Point (51°25'N., 0°54'E.), formed by a steep clay cliff, is located 3 miles NW of Shell Ness and is 46m high. The coast between is low and fringed by an extensive mud and sand bank, which dries up to 2.4m.

Minster, a small town, stands 3.5 miles W of Warden Point. The coast between consists of clay cliffs, 6 to 48m high. An abbey, surmounted by a spire, stands in the town and is the most conspicuous object on the island, being visible from all directions.

Numerous wrecks and obstructions extend up to 1 mile from the shore in the vicinity of Minster and are marked seaward by a buoy.

The Cant, an extensive shoal area, lies off the Isle of Sheppey, between Warden Point and Garrison Point. The N edge of this shoal area, which is be seen on the chart, is steep-to.

The Swale (51°22'N., 0°57'E.), a narrow and tortuous channel, separates the Isle of Sheppey from the coast of Kent and is about 12 miles long. Its entrances are known as East Swale and West Swale. West Swale is described in paragraph 5.21.

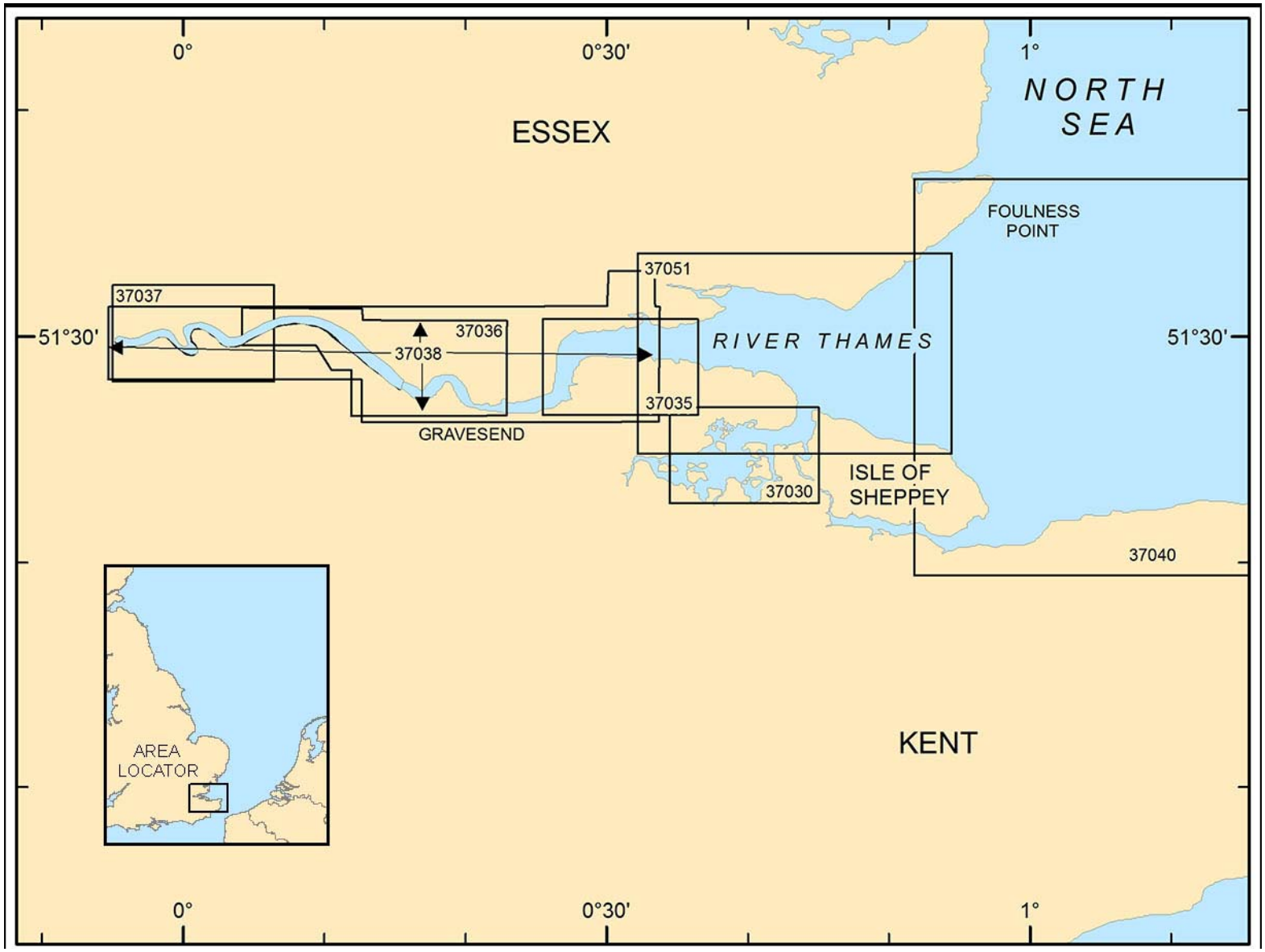
East Swale (51°22'N., 0°57'E.) is approached between Columbine Spit and Pollard Spit. The former, lying on the N side of the entrance, dries and extends about 2 miles NE from Shell Ness. Pollard Spit, which also dries, extends about 2 miles N from the coast of Kent and forms the W side of the approach to Whitstable.

The entrance channel is marked by lighted buoys, beacons, and buoys which are moved as necessary. Vessels should stay in the fairway channel as it is bounded, on each side, by oyster beds. Local knowledge is advisable and vessels should not attempt this passage at night.

There are several facilities for yachts and pleasure craft within the East Swale.

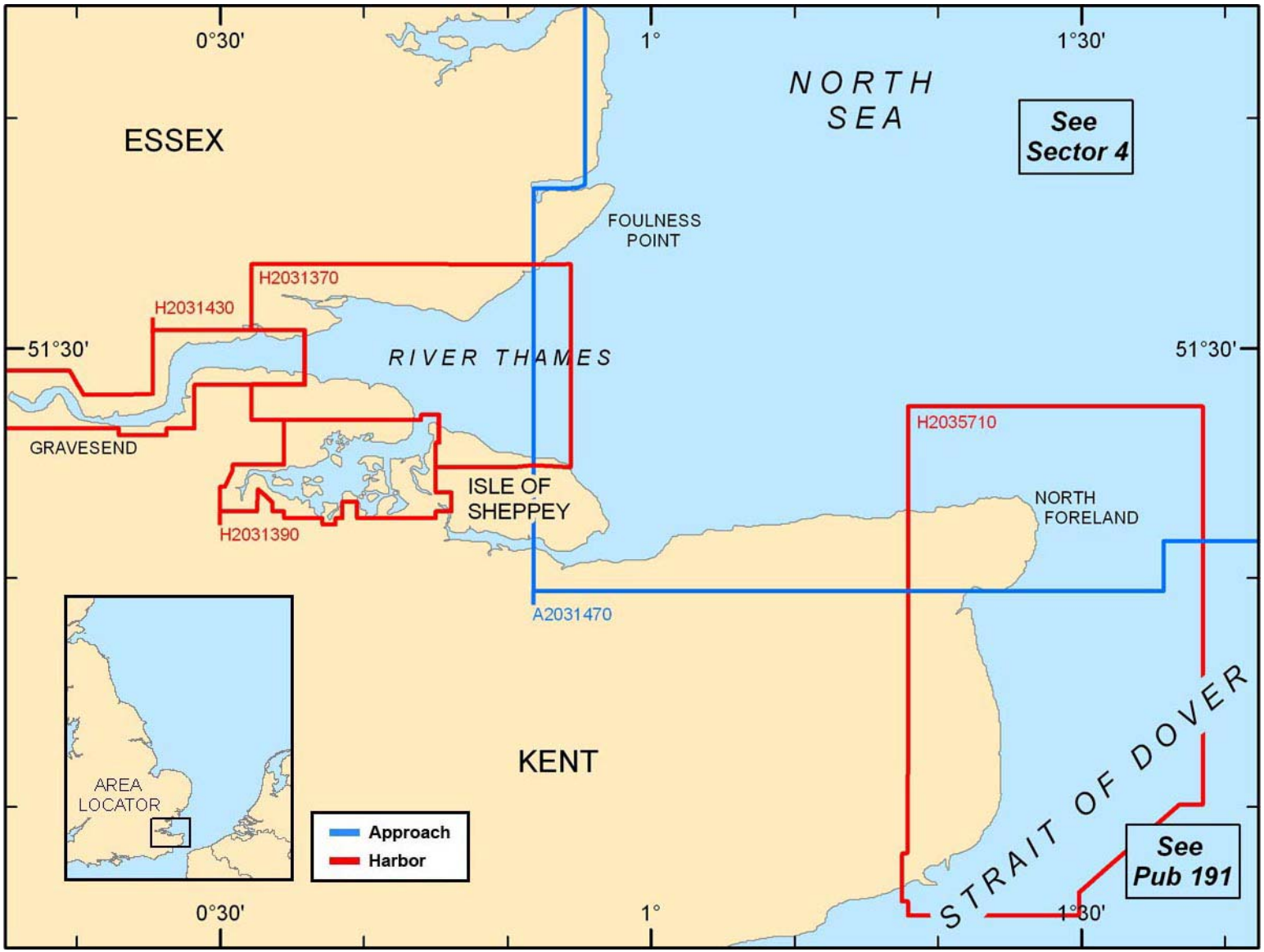
Garrison Point (51°27'N., 0°45'E.), the NW extremity of the Isle of Sheppey, is located 3 miles WNW of Minster and described in paragraph 5.19.

The Nore (51°29'N., 0°51'E.) is a name frequently used to refer to the area lying N of the Isle of Sheppey, where The Warp leads into the approach channels for the River Medway and Sea Reach.



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

SECTOR **5** — CHART INFORMATION



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SECTOR 5 — DNC LIBRARY INFORMATION

SECTOR 5

ENGLAND—THE RIVER THAMES

Plan.—This sector describes the River Thames from its entrance at The Nore to London Bridge. Also included within this sector is a description of the River Medway and the Port of Chatham. The general descriptive sequence is from seaward.

General Remarks

5.1 The River Thames, the most important though not the largest river in Great Britain, rises from three sources which unite near Lechlade (51°42'N., 1°41'W.), where the counties of Gloucester, Wiltshire, Berkshire, and Oxfordshire border on each other. Then, in a winding course and receiving several tributaries, the river takes a general E direction for about 180 statute miles to its estuary at The Nore (see Note), about 42 nautical miles below London Bridge, where it unites with the River Medway. The river is about 240m wide at London Bridge, 450m wide at Woolwich, and 1,300m wide at Gravesend.

The Thames, from London to The Nore, is in many places retained within its present limits by embankments. The surface of the river at HW is often up to 1m higher than the surrounding countryside.

A dredged and buoyed channel leads from The Nore to London Bridge. The least charted depths are stated with the description of each section of the fairway; however, these depths may vary. The Port Control Center (London VTS) will provide the latest information on depths within the river channels.

Between Gravesend and Tower Bridge (51°30'N., 0°04'W.), the only obstructions in the main fairway are the Thames Tidal Barrier in Woolwich Reach, where traffic is controlled, and the Queen Elizabeth II Bridge, which spans the river 10 miles below the barrier. Between Tower Bridge and Richmond Bridge, situated 14.5 miles upstream at the limit of tidal navigation, the river is spanned by 28 fixed bridges.

The Port of London (51°27'N., 0°21'E.) (World Port Index No. 31470) comprises all tidal waters of the River Thames and Tilbury Docks, excluding that part of the estuary under the jurisdiction of the Medway Ports Authority.

Note.—The Nore (51°29'N., 0°51'E.) is a name frequently used to refer to the area lying N of the Isle of Sheppey where The Warp leads into the approach channels for the River Medway and Sea Reach.

Tides—Currents.—Tides at Tilbury rise about 6.4m at springs and 5.3m at neaps.

Tides at Woolwich rise about 6.4m at springs and 5.4m at neaps. Tides at London Bridge rise about 7.1m at springs and 5.9m at neaps.

In the River Thames and the River Medway, the sea level is raised by strong and long continued N and NW winds; the opposite effect is caused by strong and long continued SSE and S winds.

Both the duration and the velocity of the ebb tidal current are increased during and after heavy rain; the flood current is correspondingly reduced.

At all bends in the river channel, the tidal currents, both on the ebb and the flood, set towards the outer bank; the current is weak and eddies may form behind the point on the inner sides of the bends.

In Sea Reach, the flood current is reported to attain a velocity up to 3 knots at springs and the ebb current up to 3.5 knots.

Pilotage.—See Pilotage for the Thames Estuary in paragraph 4.1.

Vessel Traffic Service.—A mandatory Vessel Traffic Service (VTS) operates in the approaches to the Port of London.

London VTS is comprised of three VTS Sectors run from two control centers. The principal control center is the Port Control Centre London at Gravesend from which the Estuary and River Sectors are managed and the secondary control center is the Thames Barrier Navigation Centre at Woolwich from which the Barrier Sector is managed.

The VTS sectors that report to each control center are as follows:

1. Port Control Centre:
   a. Estuary Sector: From the seaward limits of the VTS area to Sea Reach No. 4 lighted buoys (N and S)
   b. River Sector: From Sea Reach No. 4 lighted buoys (N and S) to Crayford Ness (51°28.9'N 0°12.7'E).
2. Thames Barrier Navigation Centre: Barrier Sector:
   a. From Sea Reach No. 4 lighted buoys (N and S) to Crayford Ness (51°28.9'N 0°12.7'E).

Inshore VTS Limit—Described by the following points:

1. From Teddington Lock (51°26.1'N 1°19.7'W) down river following the N bank of the Thames and the Essex coast to Foulness Point (51°37.0'N 0°57.3'E).
2. From Teddington Lock (51°26.1'N 1°19.7'W) down river following the S bank of the Thames to the seaward limits of Medway VTS:
   a. 51°28.5'N 0°40.7'E
   b. 51°29.1'N 0°52.6'E
   c. 51°24.9'N 0°54.3'E
3. From seaward limits of Medway VTS to Whitstable Breakwater Light (51°21.9'N 1°01.5'E).
4. From Whitestable Breakwater Light along the N Kent coast to North Foreland Light House (51°22.5'N 1°26.7'E).

Offshore VTS Limit—Described by the following points:

a. 51°37.0'N 0°57.3'E (Foulness Point).
b. 51°48.5'N 1°26.5'E
c. 51°48.5'N 1°29.5'E.
d. 51°44.9'N 1°35.4'E
e. 51°41.6'N 1°307'E (N limit London Array Wind Farm)
f. 51°40.5'N 1°327'E (N limit London Array Wind Farm)

g. 51°40.1'N 1°32.1'E (N limit London Array Wind Farm)
h. 51°39.4'N 1°33.4'E (N limit London Array Wind Farm)
i. 51°38.6'N 1°32.2'E (N limit London Array Wind Farm)
j. 51°37.5'N 1°34.3'E (N limit London Array Wind Farm)
k. A circle with radius 10 miles centered on 51°28'N 1°24'E and joining the following points:
   i. 51°20.6'N 1°33.9'E
   ii. 51°35.9'N 1°34.0'E
   iii. 51°22.5'N 1°26.7'E (North Foreland Light House)

The London VTS provides the following services in the two control areas as described below:

1. Port Control Center - Estuary and River Sectors:
   a. Information Service
   b. Traffic Organization Service
   c. Navigational Assistance Service (Crayford Ness to Port Limits).
2. Thames Barrier Navigation Centre: Barrier Sector:
   a. Information Service
   b. Traffic Organization Service (Crayford Ness to London Bridge).
   c. Navigational Assistance Service (Crayford Ness to Greenwich).

In accepting such services, mariners should take note that each VTS operator may be monitoring a number of vessels within the VTS Sector. Therefore, the VTS operator will not be able to devote the same level of attention to each vessel as an individual vessel is able to dedicate to its own ship domain. Operators will endeavor to provide a higher level of oversight should a Navigational Assistance Service (NAS) be requested or observed to be necessary, however, the ability to provide NAS on request will depend on the notice given and operator availability. Whenever possible, London VTS will also monitor the position of vessels anchored in designated anchorages that are identified as such within Port of London Authority Port Limits. Under all circumstances, it must, however, be clearly understood that decisions concerning the navigational safety and the maneuvering of the vessel can only be made by the Master, who remains responsible for the vessels safety at all times.

Note: Margate Roads and Tongue anchorages are outside the port of London Authority Limits: Margate Roads is frequently used for shelter by a number of vessels not bound to or from London. London VTS does not routinely monitor vessels within these anchorages.

London VTS Procedures and Regulations:

1. The London VTS requires that all vessels entering a VTS zone comply with the rules and provisions that apply for the port of London.
2. For details of the Merchant Shipping (Traffic Monitoring Requirements) see Publication 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.
3. It is recommended that a "read receipt" be obtained for mandatory notifications transmitted by e-mail.
4. Anchorages in the Queens Channel are provided for the exclusive use of vessels engaged in bunkering with the permission of London VTS.
5. Margaret Ness to Blackwall Point: Vessels intending to navigate in the area between Margaret Ness and Blackwall Point should note the special provisions for the Thames Barrier Control.
6. Vessels with air draft of 45m or more: The area between Bulls Point and Ware Point encompasses the London City Airport glide path. All vessels including pontoons with mobile cranes embarked, having an air draft of 45m or more intending to navigate between Bulls Point and Ware Point should inform London VTS of their intention, giving at least 24 hours notice.
7. Restrictions in overtaking exist upriver of Tilburyness and at any time when a specified vessel is involved. In these circumstances, vessels should obtain clearance from London VTS.
8. To reduce risk to deep draft vessels, passage through Black Deep/Knock John Channel is normally restricted to vessels with a draft over 6m. Vessels with a draft of less than 6m should normally use the Princes Channel or King's Channel unless access is limited by tidal or weather constraints. In these circumstances, clearance to use the Black Deep/Knock John Channel may be sought through London VTS. However, for piloted vessels with a draft less than 7.5m a surcharge may apply.
9. Communications: All vessels fitted with VHF radio anywhere within the Port of London Authority VTS area should maintain a continuous listening watch on the main frequency of the appropriate sector. The Master shall ensure that VHF channels utilized by London VTS are used only for reporting safety of navigation, emergency and urgent communications and for no other purpose.
10. AIS: Vessels mandated to carry AIS are to operate it at all times when underway or alongside in the Thames. London VTS is to be informed if it is required to be switched off for safety or security reasons. Vessels should ensure that the appropriate status is set within their AIS installation prior to navigating in the Thames. London VTS will verify that the appropriate AIS status is set prior to granting permission to proceed.
11. Thames AIS: In addition to those vessels required to carry AIS by international regulations, the following vessels are required to carry and operate Thames AIS upstream of Victoria Deep Water Terminal in accordance with local regulations:
    a. Vessels with LOA greater than 40m.
    b. Vessels with gt greater than 50 tons (other than pleasure vessels with gt greater than 50 tons, but less than 40m LOA).
    c. Tugs engaged in towing or about to tow one or more vessels.
    d. Passenger vessels of Class IV, V and Class VI.
    e. Specified vessels or vessels carrying marine pollutants in bulk.

The AIS is to be operated when underway or alongside for short periods but switched off when unmanned or out of service. In the event of a defect with a Thames AIS installation, vessel Masters should inform London VTS of the nature of the

defect immediately. Vessel Masters should subsequently provide London VTS with details of the intentions for repair/rectification within 24h of the defect being discovered.

Reporting Procedures:

1. Vessels over 40m LOA, vessels over 50 gt and tugs engaged in towing are designated reporting vessels.
2. Non-reporting vessels over 13.7m LOA and those certified to carry more than 12 passengers are required to maintain a continuous VHF listening watch.
3. Pleasure craft are encouraged to participate.
4. Reports should be sent using the standard "Port of London Authority - Movement, Pilotage and PEC Notifications" form which may be downloaded from the Port of London Authority website: http://www.pla.co.uk. Reporting vessels should send the completed notification form to the Port Control Centre 24 hours in advance of arrival, departure, shifting berth, or within 1 hour of departure from last port of call (if nearer), reporting any changes to Port Control Centre, London.
5. All vessels bound for Tilbury Docks should obtain docking instructions on VHF channel 4 when close to the lock. London VTS must be consulted regarding intended movements to the lock.
6. The Master of a reporting vessel intending to navigate in the Thames shall, upon arrival at the outer limit of the VTS area, report to the harbormaster through London VTS, that his vessel complies with the navigational safety requirements of PLA General Directions. This report will indicate that:
   a. Thames charts and associated navigational publications are up to date.
   b. A passage plan for the Thames has been prepared.
   c. The vessel is ISM compliant or, if not subject to the ISM code, the vessel has no deficiencies or defects with respect to vessel manning, navigational equipment, propulsion or maneuvering machinery.
   d. Appropriate arrangements for mooring assistance have been made. This report should be made as a component of the vessel's advance notification to London VTS by means of the web-based ordering system PISCES or via the vessel notification form. In addition, the vessel's ISPS security level and the number of persons onboard should be reported.
7. Reporting vessels within the area should report when passing designated Reporting Points, when anchoring, on berthing, on entering a lock, before turning off VHF, and on entering/leaving a VTS sector (a leaving report is not necessary between River and Estuary sectors as VTS operators are co-located). In addition, vessels should immediately report the occurrence of any of the following:
   a. Being involved in, or sighting, a collision, stranding, fire or other accident.
   b. Machinery, steering breakdown or navigational incident.
   c. Personal injury or recovery of a casualty from the river.
   d. Spillage of oil or oil mixtures.
   e. Restricted visibility or notify VTS of the actual visibility if the distance being reported by London VTS is in error.
8. Vessels should notify London VTS on the appropriate VHF channel, 10 minutes before the time at which they propose to start navigating the Thames in order to obtain permission to proceed. They should request and obtain permission to proceed immediately before they propose to start to navigate. If navigation has not commenced within 5 minutes of the initial advice, they should inform London VTS of their intentions.
9. There is Havens Safety Zone designated within the area of the Thames, E of Mucking lighted buoy No. 1 and W of Sea Reach lighted buoy No. 7 in the Yantlet Channel. The following requirements for inbound and outbound vessels must be followed:
   a. All inbound vessels with LOA 190m or over and/or 10.5m draft or over shall inform London VTS of their ETA at Sea Reach lighted buoy No. 7, the E limit of the Havens Safety Zone; when passing either the Blacktail Spit lighted buoy, N Oaze lighted buoy, SE Mouse lighted buoy or the Shivering Sand Towers.
   b. All outbound vessels with LOA 190m or over and/or 10.5m draft or over shall inform London VTS of their ETA at Mucking lighted buoy No. 1, the W limit of the Havens Safety Zone, either at the Crayfordness Limit or when departing the berth if the berth lies to the E of the Crayfordness Limit.

Reporting Points:

Vessels should report to the appropriate VTS sector operator as described in the table titled Reporting Points and other points as described below in order to obtain clearance for continued transit.

1. All inbound vessels should call London VTS on VHF channel 69 upon entry into the VTS area.
2. A London arrival and departure reporting arc with 10 mile radius centered on position 51°28'N 1°24'E from position 51°41.6'N 1°30.7'E to the CALDOVREP line (this line extends ESE from North Foreland Light to position 51°16.0'N 1°51.4'E in the separation zone) has been established.
3. In addition to reporting at the arrival and departure reporting arc other reports are required to be made by vessels to London VTS on VHF channel 69 when passing the points as described in the table titled Reporting Points.
4. Outbound reporting vessels shall, upon passing Sea Reach lighted buoys No. 4 (N and S) Reporting Point, or if leaving the Medway Ports, when passing the wreck of the Richard Montgomery (51°28.0'N 0°47.1'E), declare the channels which they intend to use for navigation beyond Sea Reach lighted buoys No. 1 (N and S). Reports should be made to London VTS on VHF channel 69.
   a. Knock John Channel and Fisherman's Gat: Reporting vessels intending to navigate in the Knock John Channel shall advise London VTS of their agreed passage plan, ETA at the Knock John Channel entrance and intentions with respect to vessel priority in the expected traffic conditions at the Knock John Channel and Fisherman's Gat, as follows:
      i. Inbound vessels shall report at, or before, the Sunk Head Tower Reporting Point or, if using Fisherman's Gat, when passing the London Arrival or Departure Reporting Arc or the NE Spit Reporting

Points, giving ETA at the Knock John lighted buoy No. 1 (51°33.7'N 1°10.7'E).

ii. Inbound vessels are to report again when passing Black Deep lighted buoy No. 5 or, if using Fisherman's Gat, when passing the Outer Fisherman lighted buoy Reporting Points, giving an updated ETA at the Knock John lighted buoy No. 1.

iii. Outbound vessels shall report when passing Sea Reach lighted buoys No. 1 (N and S) or the Medway lighted buoy Reporting Points giving an ETA at the Knock John lighted buoy No. 4 (51°32.3'N 1°07.9'E) and advise whether they intend to use Fisherman's Gat.

b. Princes Channel: Outbound vessels intending to use Princes Channel (because they need to use the deep water route because of their draft), should inform London VTS of this intention when declaring their intended outbound route at Sea Reach lighted buoys No. 4 (N and S) or when passing the wreck of the Richard Montgomery.

5. Vessels using inshore passages should report to London VTS on VHF channel 69 at S Whitaker and Maplin lighted buoys, or at SE Margate and Spaniard lighted buoys, as appropriate.

6. Vessels entering or leaving the Medway, report at Medway lighted buoy to London VTS on VHF channel 69.

7. All vessels are required to report to London VTS on VHF channel 68 when passing the following Reporting Points:

a. 51°29.6'N 0°44.3'E—Sea Reach lighted buoys No. 4 (N and S), both inbound and outbound.
b. 51°28.7'N 0°43.9'E—Mid Swatch lighted buoy, inbound only.
c. 51°30.1'N 0°36.8'E—Sea Reach lighted buoys No. 7 (N and S), both inbound and outbound.
d. 51°27.3'N 0°26.4'E—Shornmead, both inbound and outbound.
e. 51°26.9'N 0°22.6'E—Gravesend, both inbound and outbound.
f. 51°27.9'N 0°17.7'E—West Thurrock Power Station, both inbound and outbound.

8. Reporting vessels are required to inform London VTS on VHF Channel 14 when passing the Reporting Points, including all procedures described in the table titled London VTS Reports made on VHF channel 14.

Cable Car Reporting Requirements: To facilitate the safety of navigation in conjunction with the Cable Car operating across Bugsbys Reach, it is necessary for vessels to report as follows:

London VTS Reporting Points

Barrow Deep/Mouse Channel/ The Warp	Black Deep/Knock John/ Oaze Deep	Fisherman's Gat/Knob or Knock John Channels	Princes Channel
Sunk Head Tower lighted buoy	Sunk Head Tower lighted buoy	Arrival/departure reporting arc (see (2) above)	Arrival/departure reporting arc (see (2) above)
Barrow No. 2 lighted buoy	Black Deep No. 5 lighted buoy	Outer Fisherman	Tongue Sand Tower Lighted Buoy
Barrow No 6. lighted buoy	Black Deep No. 9 lighted buoy	Black Deep No 9 buoy	Shivering Sand Tower
Barrow No 10 lighted buoy	SE Mouse lighted buoy	SE Mouse lighted buoy	Oaze Lighted buoy, inbound only
N Oaze lighted buoy	Oaze lighted buoy, inbound only	Oaze lighted buoy, inbound only	Sea Reach No. 1 lighted buoys, outbound only (N and S)
Sea Reach No. 1 lighted buoys, outbound only (N and S)	Sea Reach No. 1 lighted buoys, outbound only (N and S)	Sea Reach No. 1 lighted buoys, outbound only (N and S)	Sea Reach 4 lighted buoys (N and S)
Sea Reach 4 lighted buoys (N and S)	Sea Reach 4 lighted buoys (N and S)	Sea Reach 4 lighted buoys (N and S)	—

Large Vessels—Defined as vessels over 130m LOA with an air draft of less than 55.1m, planning to pass underneath the Cable Car are required to report to London VTS as follows:

i. A provisional ETA at the Cable Car to be advised 24 hours in advance of the planned transit for inbound and outbound vessels. Where the departure berth is less than 24 hours away then a notice of at least 12 hours shall be provided.

2. A confirmed ETA at the Cable Car to be advised 30 minutes prior to arrival for inbound and outbound vessels, including those departing docks or berths. Changes to the declared ETA by more than 5 minutes must be notified to London VTS in order for the Cable Car control room to be notified. Updates can be accepted up to 15 minutes before the ETA at the Cable Car after which time the vessel's speed must be adjusted to maintain the declared ETA.

3. On receipt of the confirmed 30 minutes ETA, the Cable Car control room will maintain a listening watch on VHF channel 14 as an emergency communication link in event of telephone failure or occupancy.

High Air Draft Vessels—Vessels with an air draft over 55.1m to 60m, planning to pass underneath the Cable Car are required to report to London VTS as follows:

1. A provisional ETA at the Cable Car to be advised 24 hours in advance of the planned transit for inbound and outbound vessels. Where the departure berth is less than 24 hours away then a notice of at least 12 hours shall be provided.
2. A confirmed ETA at the Cable Car to be advised 1 hour prior to arrival for inbound and outbound vessels, including those departing docks or berths. Changes to the declared ETA by more than 5 minutes must be notified to London VTS in order for the Cable Car control room to be notified.

Updates can be accepted up to 30 minutes before the ETA at the Cable Car after which time the vessel's speed must be adjusted to maintain the declared ETA.

3. On receipt of the confirmed 1 hour ETA, the Cable Car control room will maintain a listening watch on VHF channel 14 as an emergency communication link in event of telephone failure or occupancy.

London VTS Reports made on VHF channel 14

Name	Position	Remarks
Crayford Ness	51°29.1'N 0°12.6'E	1. Mandatory reporting for both inbound and outbound vessels intending to enter Thames Barrier Control Zone. 2. Report ETA at Barrier or ETA destination within zone if not passing through Barrier. 3. All VHF fitted vessels leaving berth or locks within the Thames Barrier Control Zone should report 10 minutes before leaving and again, immediately prior to leaving, to obtain permission to proceed in accordance with general traffic clearance procedures for reporting vessels.
Ford Motor Works, Dagenham	51°30.5'N 0°09.5'E	1. Mandatory reporting for all inbound and outbound vessels.
Margaret Ness	51°30.7'N 0°05.5'E	1. Mandatory reporting for inbound VHF equipped vessels to request clearance to enter control zone. 2. Span allocation will be given with clearance to enter the Control Zone. 3. Small vessels under 13.7m not fitted with VHF radio should navigate the Thames Barrier though the span that lies furthest to the starboard side of the channel marked as open to navigation and having sufficient depth of water. Alternatively, they may report by mobile phone to London VTS (44-20-88550315). Vessels under sail between Woolwich Ferry terminal and Hook Ness should keep to the starboard side of the fairway and, if fitted with an engine, should use motor power to navigate through the Thames Barrier.
Blackwall Point	51°30.3'N 0°00.0'E	1. Mandatory reporting for inbound VHF equipped vessels to request clearance to enter control zone. 2. Confirm ETA given at London Bridge. 3. Request clearance to enter control zone 4. Span allocation will be given with clearance to enter the Control Zone. 5. Small vessels under 13.7m not fitted with VHF radio should navigate the Thames Barrier though the span that lies furthest to the starboard side of the channel marked as open to navigation and having sufficient depth of water. Alternatively, they may report by mobile phone to London VTS (44-20-88550315). Vessels under sail between Woolwich Ferry terminal and Hook Ness should keep to the starboard side of the fairway and, if fitted with an engine, should use motor power to navigate through the Thames Barrier.
Surrey Entrance (Wapping)	51°30.3'N 0°03.1'W	1. Mandatory reporting for all inbound vessels.

London VTS Reports made on VHF channel 14		
Name	Position	Remarks
Tower Bridge	51°30.2'N0°04.3'W	1. Mandatory for outbound reporting vessels only intending to enter Thames Barrier Control Zone. 2. Report ETA Barrier or ETA destination within zone if not passing through Barrier. 3. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 4. All VHF fitted vessels leaving berth or locks within the Thames Barrier Control Zone should report 10 minutes before leaving, and again, immediately prior to leaving, for permission to proceed in accordance with general traffic clearance procedures for reporting vessels. 5. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Waterloo Bridge	51°30.5'N 0°07.0'W	1. Mandatory for both inbound and outbound reporting vessels. 2. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 3. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Vauxhall Bridge	51°29.2'N 0°07.6'W	1. Mandatory for both inbound and outbound reporting vessels. 2. Vessels must have keying device onboard to activate isophase lights on the bridges (Tower and Wandsworth). 3. All reporting vessels navigating between Tower Bridge and Wandsworth Bridge are required to carry an electronic keying device to activate the isophase lights on these bridges. Such vessels should use bridge arches displaying these lights.
Note: In addition, reports when entering the Thames Barrier Control Zone at Margaret Ness (51°30.5'N 0°05.5'E) and Blackwall Point (51°30.3'N 0°00.2'E) are mandatory for all vessels equipped with VHF, irrespective of size.		

Bow Creek Navigation Regulations: The Bow Creek Area is defined as that area between the A13 Bridge to the entrances of Bow Locks and Three Mills Lock (Now known as the Area).

All navigation in the Area and through the tidal Bow Creek to its junction with the River Thames is subject to the following regulations:

Thames AIS:

The following power driven vessels, when navigating or working anywhere upstream of the entrance to Bow Creek shall carry and operate Thames AIS or Thames AIS A:

1. Vessels more than 40m LOA.
2. Vessels more than 50 gt (other than pleasure vessels of more than 50 gt but which are under 40m LOA).
3. Tugs engaged in towing, or about to tow, one or more vessels.
4. Class IV, V and Class VI passenger vessels
5. Specified vessels or vessels carrying marine pollutants in bulk.

Traffic Control: Vessel traffic will be monitored and regulated by London VTS based at the Thames Barrier Navigation Centre, Woolwich.

Traffic Clearance: Vessels that use VHF radio are to obtain traffic clearance from London VTS on VHF Channel 14, 10 minutes before the following positions:

1. Entering Bow Creek.
2. Leaving Bow Locks into the Area.
3. Leaving Three Mills Lock into the Area.
4. Moving from any alongside berth, mooring or anchorage in Bow Creek between the River Thames and Three Mills Lock.

All vessels referred to above should contact London VTS again before entering the River Thames when passing Leamouth Wharf.

Any recreational craft or vessels not subject to PLA General Direction 4 (use of VHF) shall contact London VTS by telephone, 10 minutes before entering or commencing

navigation in any part of Bow Creek, including the Area. Such vessels shall report again to London VTS once they have cleared Bow Creek and entered the River Thames or arrived at any lock or berth in Bow Creek.

The Tower Bridge - Transit of High Air Draft Vessels: Bridge lifts are available at no charge, 24 hours every day of the year, subject to the following procedures:

Booking Procedures:

1. Any vessel with an air draft of more than 9.1m above the waterline wishing to pass through Tower Bridge, may request a bridge lift.
2. Bookings must be made in writing, either by facsimile (44-207-9408396) or by letter to: Operations Manager, Main Office, Tower Bridge, London SE1 2UP. Bookings must be received at least 24 hours before the requested lift.
3. Bookings can be made by a vessel's agent, owner or Master. When a booking is made, Tower Bridge will issue a bridge lift order number to the person making the booking. The lift will also be published in the bridge lift program.
4. In order to minimize the impact on road traffic, vessels are to ensure that they arrive at the pre-arranged time. No more than 5 minutes leeway can be accommodated at peak traffic times.
5. Should vessels have to change their planned transit times, Tower Bridge must be told as soon as possible so that a revised time can be investigated, and that previous booking arrangements are canceled. Tower Bridge (security staff) are contactable by telephone H24 (44-207-9403975)).
6. Any changes requested within 24 hours of a lift can only be accepted after bridge staff have informed the relevant emergency services.
7. Lifts for tugs are to be booked by the tug operating company. Lifts must be more than 30 mins before or after the vessel transit time in order to allow delayed road traffic to clear the bridge. When arriving vessels are to be accompanied by tugs, the tug operator will make any additional booking necessary to facilitate tug departure on completion of the maneuver).

This Program is distributed regularly by facsimile and e-mail to the following:

1. PLA.
2. Capital Radio.
3. Other media outlets as appropriate.
4. Agencies and individuals by arrangement.

VTS Operational Procedures:

1. Vessels are to report their passage plan abort point to London VTS on passing Crayford Ness in-bound.
2. London VTS will check the vessel details against the latest bridge lift program. If not listed, they will check with the Tower Bridge security staff.
3. If no booking has been scheduled, London VTS will instruct the vessel not to proceed beyond its designated abort point.
4. If on the chance that a bridge lift is subsequently negotiated by the vessel and accepted by bridge staff, London VTS may authorize the vessel to complete its planned passage.
5. London VTS is to ensure that vessels do not proceed beyond their declared abort point until two-way communications between the vessel and Tower Bridge have been established.

The area between Bulls Point (Gallions Point) (51°30.0'N., 0°05.4'E.) and Ware Point, 0.6 mile NE, encompasses the London City Airport glide path. All vessels, including pontoons carrying mobile cranes, having an air draft of 45m or more and intending to navigate between Bulls Point and Ware Point are required to give 24 hours notice to London VTS.

Restrictions for overtaking exist above Tilburyness and at any time a large vessel or vessel carrying dangerous cargo is involved. In such circumstances, vessels must obtain clearance for overtaking from the appropriate control station.

Vessels, with an air draft over 45m, intending to pass under the Queen Elizabeth II Bridge, should contact the Port Control London (London VTS) in advance so that the lights indicating Tall Ships Navigation Channel can be switched on. This bridge spans Long Reach (51°28'N., 0°15'E.) and has a vertical clearance of 54m (see paragraph 5.9).

Information Broadcasts: Navigational information broadcasts about traffic, anchorages, visibility, and tidal heights as appropriate, are broadcast as shown in the table titled **Information Broadcast Times**.

Information Broadcast Times

Channel	Times	Station
69	H + 15 and H + 45	London VTS (Note 1)
68	H + 00 and H + 30	London VTS (Note 1)
14	H + 15 and H + 45	London VTS (Note 1, 2, 3))

Notes:

1. During fog, more detailed information will be broadcast
2. Spans open for navigation will be included.
3. Notification of actual or intended closure of the Thames flood defense barriers will be included when appropriate

It is mandatory for certain vessels to be equipped with AIS transponders when navigating above Victoria Deep Water Terminal (see paragraph 5.14). Such vessels include those more than 40m in length, vessels over 50 gt (other than pleasure craft exceding 50 gt but under 40m in length), tugs engaged in towing or about to tow one or more vessels, passenger vessels, and vessels carrying pollutants in bulk. AIS equipment may be loaned to vessels temporarily navigating in this area. For further information, vessels should contact the Port of London Authority (London VTS).

Contact Information.—See the table titled **London—Contact Information**.

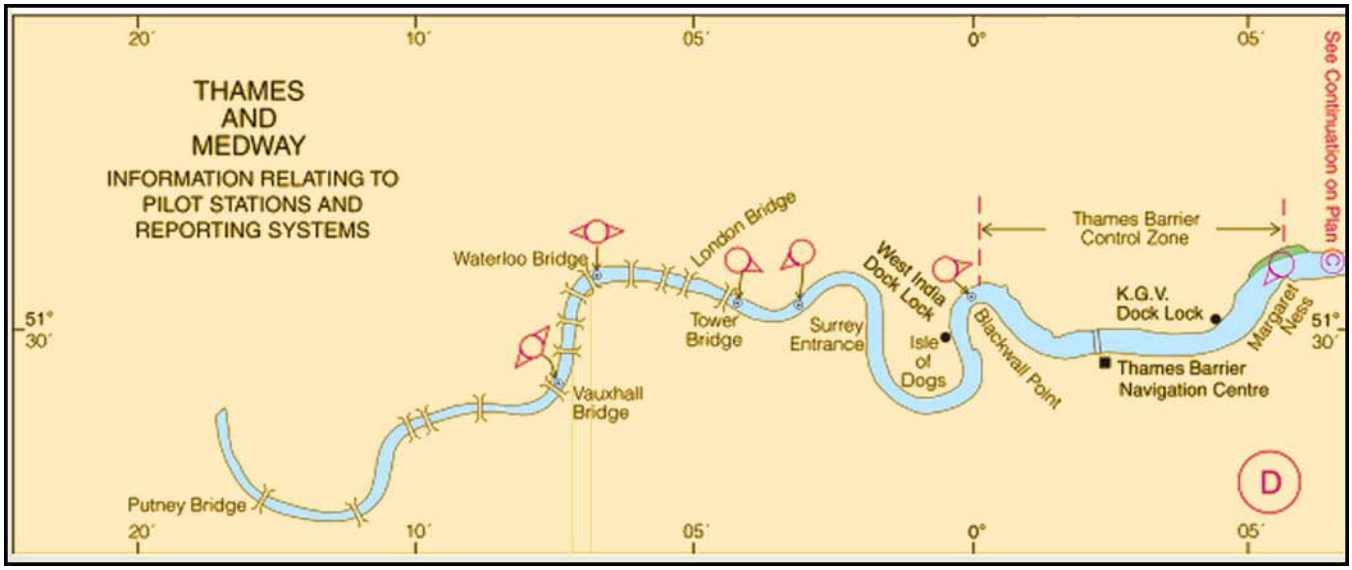
London—Contact Information	
Port Control Center	
Call sign	London VTS
Telephone	44-1474-560311 (3 lines)
Facsimile	44-1474-352996
E-mail	shipcon@pla.co.uk
Pilots	
Telephone	44(0)1474 560311 (3 lines)
Facsimile	44(0)1474 352996
E-mail	shipcon@pla.co.uk
Pilot Stations	
North East Spit Pilot Station (Ramsgate)	
Call sign	North East Spit Pilots
VHF	VHF channel 09 and 69
Telephone	44-1843-583786
Facsimile	44-1843-595664
Sunk Pilot Station	
Call sign	Sunk Pilots
VHF	VHF channel 9, 14
Telephone	44-1255-243111
Facsimile	44-1255-507177
E-mail	sunk.pilot@hha.co.uk
MMSI	002320025
Pilot vessel	VHF Channel 6, 14
Warp Pilot Station (Sheerness)	
Call sign	Sheerness Pilots
VHF	VHF channel 69
Telephone	44-1795-56-1207
Facsimile	44-1795-56-1309
River Pilot Station (Gravesend)	
Call sign	London Pilots
VHF	VHF channel 09
Telephone	44-1474-56-0311
Facsimile	44-1474-35-2996
Patrol Launches and Tugs	
Call Sign	Thames Patrol
VHF	VHF Channels 14, 13, 72
Tugs (Oil Refineries)	
VHF	VHF Channels 10, 36
Tugs (River Berths)	
VHF	VHF Channel 8, 13, 72
Tugs (North Fleet Hope Container Terminal)	
VHF	VHF Channel 77
Harbour Control Officer	
Telephone	44-23 927-23694
	44-23 927-23689
Pilots	
Call sign	Portsmouth Pilots
VHF	VHF channels 11 and 14
Telephone	44-23 928-55900
Facsimile	44-23 927-53029
E-mail	pilotseta@portsmouth-port.co.uk
Pilot Vessel	
VHF	VHF channels 9, 11 and 12
VTS Contact Information	
Estuary Sector (Seaward limit of VTS Area to Sea Reach No. 4 Lighted buoys (N and S).	
VHF	VHF Channels 69, 18
River Sector (Sea Reach No. 4 Lighted buoys (N and S) to Crayford Ness.	
VHF	VHF Channel 68, 20
Emergency	
VHF	VHF Channels 16, 67
Chief Harbor Master	
Telephone	44-1474-562212
Thames Barrier Navigation Center	
Call	London VTS
Telephone	44-20-8855-0315
Facsimile	44-20-8854-7422
Barrier Sector (Crayford Ness to Teddington Lock)	
VHF	VHF Channel 14, 22
Emergency Only	
VHF	VHF Channel 17, 67
Harbor Master (Upper Thames)	
Telephone	44-20-7265-2656
AIS	London VTS operates an AIS Network of 5 active base stations and 1 passive base station. For AIS addressed messages, send to the MMSI: 002320900
24 Hour Port	

Additional regulations are in force for vessels navigating in the River Thames and vessels are advised to acquire a copy of the Port of London River Bylaws.

Anchorages.—Designated anchorages within the River Thames are, as follows:

1. Great Nore (51°28'N., 0°49'E.), unlimited stay, ocean-going vessels. This anchorage is exposed to E and NW gales, which when combined with the tidal currents, cause a considerable sea. The best berth lies in depths of 14 to 16m, mud and sand, about 3 miles NE of Garrison Point.
2. Southend Small Ship (51°31'N., 0°44'E.)—unlimited stay.
3. Leigh Small Ship (51°31'N., 0°41'E.)—unlimited stay.
4. Yantlet Small Ship (51°30'N., 0°40'E.)—unlimited stay.
5. Thames Haven Anchorage (51°30'N., 0°30'E.)—tankers only, limited to a 12-hour stay.
6. Mucking (51°29'N., 0°27'E.)—explosives in an emergency only.
7. Highham Bight (51°27'N., 0°26'E.)—unlimited stay for ocean-going vessels.
8. Gravesend Lower (51°27'N., 0°24'E.)—ocean-going vessels limited to a 12-hour stay.
9. Gravesend Upper (51°27'N., 0°22'E.)—ocean-going vessels limited to a 12-hour stay.
10. St. Clement (51°28'N., 0°18'E.)—ocean-going vessels limited to 12-hour stay.
11. Long Reach (51°27'N., 0°15'E.)—ocean-going vessels limited to a 12-hour stay.
12. Off Greenhithe (51°27'N., 0°17'E.) and in the river above Long Reach, there are several anchorages, indicated on the chart, where vessels may stay for not more than 2 hours.

For further information, see Anchorage under the Thames Estuary in paragraph 4.1.



Upper Thames Pilot Stations and VTS

Caution.—A Precautionary Area, the limits of which are shown on the chart, extends E from the vicinity of Sea Reach No. 1 Lighted Buoy and into Oaze Deep. Vessels entering this area should do so with extreme caution as large deep-draft vessels, with limited maneuverability, and other crossing traffic, may be encountered. In addition, anchoring within this area is prohibited.

Several submarine gas pipelines lie across the river channel and may best be seen on the chart.

Several submarine cables lie across the river channel and may best be seen on the chart.

Ferries cross the river channel at several points and may best be seen on the chart.

Several foul and spoil ground areas lie within the river adjacent to the fairway and may best be seen on the chart.

Dredging is periodically carried out within the river channels; information on the latest depths should be obtained from Port Control London or Woolwich Radio.

Sea Reach to London Bridge

5.2 Sea Reach (51°29'N., 0°48'E.), at the entrance to the river, extends W for 12 miles from its entrance abreast Shoebury Ness to Lower Hope Point (51°29'N., 0°28'E.). It varies in width from about 4 miles at its E end to about 1 mile at its W end. However, the width of the navigable channel is reduced by sand banks and mud flats, which dry and extend from the shore on both sides of the river.

The centerline of the dredged channel is marked by the Sea Reach No.1 to Sea Reach No.7, lighted buoys. The boundaries of the dredged channel are marked by Sea Reach No. 1 N and S lighted buoys, and No. 7 N and S lighted buoys.

A major oil facility complex is situated at the NW end of this reach and includes Canvey Island, Holehaven, Coryton, and Thameshaven. This complex is commonly referred to in its entirety as "Shell Haven."

Yantlet Dredged Channel is entered from The Warp or Oaze Deep and leads through Sea Reach. It has depths of 12.5m at its E end and 10m at its W end.

Yantlet Secondary Channels are established on either side of the main channel (The Dredged Yantlet Channel); which lies between Sea Reach (No. 1 lighted buoy), and Shellhaven. The Yantlet Secondary Channels extend approximately 130m to the N and S of the charted main Yantlet Channel. These secondary channels provide a depth of at least 6m. Vessels that are not constrained by their draft should normally navigate in these charted secondary channels.

Leigh Channel, lying N of Yantlet Dredged Channel, leads W and WNW from The Warp to the promenade pier which extends S from Southend on Sea. This channel, which is not marked, lies between Southend Mud Flat and Leigh Middle and narrows at its W end. Ray Gut, with depths of 0.3 to 4m, leads from the W end of Leigh Channel to Leigh on Sea, situated 2.4 miles W of Southend.

Southend on Sea, situated 2.5 miles WNW of Shoebury Ness, is a resort town which is partly built on elevated ground and faced with cliffs. A promenade pier, which has a depth of 5.5m alongside its head, extends 1.4 miles S from about the middle of the town and is prominent. A conspicuous hotel stands near the root of the pier.

The coast between Southend and Leigh consists of cliffs, but they are not conspicuous because of the buildings. Leigh, a yachting and fishing boat center, stands on the side of a hill. A prominent water tower stands 3 miles W of the town.

Canvey Island, located 5 miles W of Southend, is low, marshy, and embanked. The coast between Southend and Scar's Elbow, the S extremity of the island, is fronted by Southend Mud Flat, Leigh Sand, Marsh End Sand, and Chapman Sand, which dry 0.3 to 4.9m. Flares from burning gases are visible at numerous chimneys, which stand about 0.5 mile N of the various oil jetties.

5.3 Isle of Grain (51°27'N., 0°42'E.), located on the S side of Sea Reach, is part of the main coast, and is low, flat, and embanked. Grain stands on its E end and Yantlet Creek empties into the river, 2 miles NW of this village. London Stone, a monument, and a beacon stand on either side of the entrance to the creek.

Prominent landmarks in this vicinity include the buildings of Whitehouse Farm and White Hall Farm near Grain; the water tower at Windhill Green, 3.2 miles WNW of Grain; and Lees Tower, standing on the coast, 1 mile NNW of Grain.

Conspicuous landmarks include the church tower at St. Mary's Hoo, 4.5 miles W of Grain, and the chimney, 244m high, standing at the power station, 0.5 mile SSW of Grain.

The N shore of the Isle of Grain is fronted by Grain Spit, Yantlet Flats, and Blyth Sands, which dry 0.3 to 3.6m and extend up to 0.7 mile offshore. Nore Sand, marked by a lighted buoy, lies 1.6 miles NE of Grain. This bank has a least depth of 2.5m and is separated from Grain Spit by a swatchway.

For a description of the terminals located at the S side of the Isle of Grain, see paragraph 5.23.

Canvey Island Terminal (51°31'N., 0°34'E.), which includes Holehaven, consists of five main berthing jetties extending from the S side of Canvey Island, with facilities for oil and gas tankers. Tankers up to 200m in length and gas carriers up to 300m in length, with drafts up to 11m, can be accommodated alongside.

Coryton Oil Terminal (51°31'N., 0°32'E.) is situated close W of Canvey Island Terminal and consists of five main berthing jetties, with depths up to 14m alongside. Vessels up to 310,000 dwt, 366m in length, and 13.7m draft can be accommodated alongside.

Thameshaven (Shell Haven) (51°31'N., 0°29'E.) is situated about 1.5 miles W of Coryton Terminal and consists of four main berthing jetties. Vessels up to 335m in length and 14.6m draft can be accommodated alongside.

It is reported (2002) that this terminal is no longer in use and is being developed into a container facility. Demolition and construction work are being carried out in the vicinity of this terminal.

Signals.—Traffic warning signal lights are shown from two stations situated in the vicinity of the above oil and gas terminals, and are visible both up and down the river. These powerful flashing white lights are shown by day and at night to warn shipping that the fairway may be obstructed by tankers of over 7,500 gt, berthing or unberthing. Both sets of lights are operated simultaneously and are shown from the time a tanker passes Sea Reach No. 6 Lighted Buoy until the vessel is berthed. When such tankers are leaving, the lights are shown from 15 minutes before departure until the vessel is steady on a course down the authorized channel.

Caution.—Vessels must exercise caution when navigating in the vicinity of the refineries at Coryton, Canvey Island, and Thameshaven. All vessels must maintain a minimum separation of 60m from berthed tankers or jetties serving the refineries.

5.4 Lower Hope Reach (51°28'N., 0°27'E.) extends SW for 3 miles from Lower Hope Point, at the SW end of Sea Reach, to Coal House Point. Its W bank is fronted by Mucking Flats and Ovens Flat, which both dry. The fairway channel has a least charted depth of 9.1m.

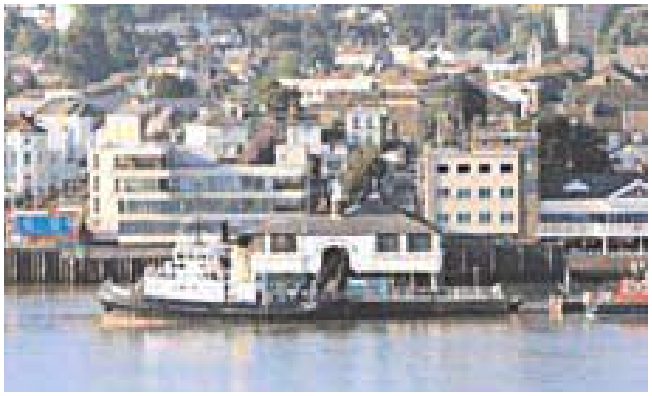
Three wharves are situated on the E side of Lower Hope Reach. Alpha Jetty, an ore berth, is 149m long and has a depth of 9.1m alongside. Jet Jetty, an oil berth, has a depth of 13.3m alongside. Clubb Jetty, situated at the S end, is an ore berth. It is 100m long and has a depth of 8m alongside.

Regulations.—A night petroleum limit line has been established in the vicinity of Coalhouse Point and is indicated on the chart. Ocean-going tankers may not proceed further upriver than this limit line at night.

5.5 Gravesend Reach (51°27'N., 0°23'E.) extends for 3.5 miles between Coal House Point and Tilbury Ness. Its N shore is embanked and fringed by a mud flat which dries. The fairway channel has a least charted depth of 7.6m.

Gravesend (51°27'N., 0°22'E.) (World Port Index No. 31420) stands on the S bank of this reach, 22.7 miles below London Bridge. This town is built on the declivity of a hill sloping down to the river and is fronted by the Royal Terrace Pier. The Port of London Harbor Master's Office and the London (Pilotage) Port Control Center stand near the root of the pier. See Pilotage for the River Thames in paragraph 4.1.

Conspicuous landmarks in this vicinity include two chimneys, 167m high, standing at Tilbury Power Station, 1.5



Gravesend (pilot station)

miles W of Coal House Point (51°27.6'N., 0°25.8'E.); and a chimney standing at the cement works 0.3 mile W of Bowaters Wharf.

The principal wharves on the S side of the reach are Denton Wharf, which is situated E of Gravesend, and Imperial Wharf; Red Lion Wharf; Bowater Northfleet Terminal Wharf; Bevans Wharf; and Bevans Jetty, which are situated W of Gravesend.

Denton Wharf is 145m long and has a depth of 5m alongside. Imperial Wharf provides two berths, 91m and 92m long, with a depth of 9m alongside. Red Lion Wharf is 240m long and has a depth of 7m alongside. Bowater Northfleet Terminal Wharf is 188m long and has a depth of 9.7m alongside. Bevans Wharf is 299m long and has a depth of 13m alongside. Bevans Jetty is 175m long and has a depth of 9m alongside.

The principal wharves on the N side of the reach are Tilbury Power Station Jetty; and London Cruise Terminal, which includes a ro-ro berth at its W end. London Cruise Terminal Wharf (51°27'N., 0°22'E.) is 343m long and has a depth 9.5m of alongside. It can handle vessels up to 200m in length and 10m draft at HW.

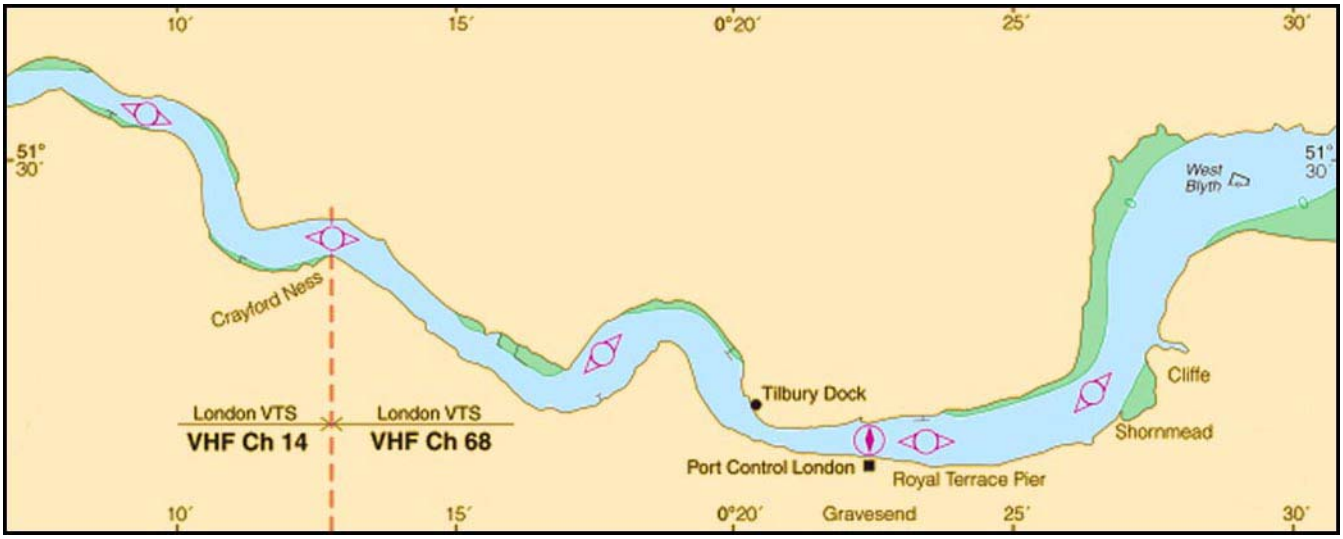
5.6 Northfleet Hope Reach (51°28'N., 0°20'E.) extends for 1.5 miles between Tilbury Ness and Broadness. Both its banks are low, marshy, and fringed by mud flats. The fairway has a least charted depth of 9m.

A conspicuous church, with a square tower and a pyramidal spire, stands in the town of Grays, at the NE end of the reach. Several conspicuous cranes stand at the container berths situated at the E side of the reach.

The principal wharf on the W side of this reach is Tower Wharf. It is 198m long and has a depth of 11.5m alongside. Vessels up to 40,000 dwt, 200m in length, and 10.5m draft can be handled.

Inbound and outbound vessels should maintain steerageway when transiting Northfleet Hope. Vessels maneuvering for berths in the area will normally turn to starboard, whatever the state of the tide.

Caution— There is a strong tidal sheer approximately along NE edge of the channel in Northfleet Hope. The sheer is particularly strong during the flood tide when there is a downriver flow along the shore off Northfleet Hope Container terminal and the Tilbury Lock Entrance.



Thames VTS near Tilbury

5.7 Tilbury Docks (51°27.3'N., 0°20.8'E.), a wet dock complex, is situated at the SE end of this reach and provides 45 berths. It is entered through a lock, 304.8m long and 33.5m wide, which has a depth of 7.3m over the sill. The berths have depths of 10.8 to 11.6m alongside. Vessels up to 262m in length, 32.3m beam, and 11.4m draft can be accommodated. There are extensive facilities for timber, container, bulk, and ro-ro vessels within the complex.

Dredging is frequently carried out in the approach to the lock and the latest information on depths should be obtained from London VTS. Vessels can contact the Tilbury Dock Entrance Station on VHF channel 4 to obtain berthing instructions.

Tilbury Wet Docks

Northfleet Hope Container Terminal

Northfleet Hope Container Terminal is situated on the E side of the reach, close N of the entrance to Tilbury Docks. The riverside quay is 611m long and has depths of 11.5 to 13m alongside. It can accommodate vessels up to 40,000 dwt.

Tilbury Grain Terminal is situated on the E side of the reach, 0.4 mile N of the container terminal. The main berth is 275m long and has a depth of 12.8m alongside. It can accommodate vessels up to 83,000 dwt.

5.8 St. Clement's Reach (Fiddler's Reach) (51°28'N., 0°18'E.) extends for 1.5 miles between Broadness and Stone Ness. Both of its banks are low, marshy, embanked, and fringed by mud flats. The fairway has a least charted depth of 8.6m.

An overhead power cable, with a vertical clearance of 76m, spans this reach 0.5 mile WSW of Broadness. It extends between two framework towers, 193 and 194m high, which are conspicuous. It is reported that this power cable appears as a contact on radar and may cause some confusion.

On the N side, two conspicuous chimneys 152m high, stand at a power station, close NW of the overhead cable tower. On the S side, several conspicuous chimneys, the highest with a height of 76m, stand at a cement works, about 1 mile SSW of Broadness. A prominent radar tower, 15m high, and a prominent lattice mast, 55m high, stand about 0.2 mile SSE of Broadness.

The principal wharves in this reach include White's Jetty and Empire Paper Mills' Jetty, on the S bank, and Grays Terminal and West Thurrock Jetty, on the N bank. Grays Terminal consists of two oil jetties with depths of 11.3m alongside. Tankers up to 228m in length and 10.6m draft can be handled. West Thurrock Jetty has a berth, 291m long, with a depth of 6.1m alongside and can handle vessels up to 40,000 dwt.

5.9 Long Reach (51°28'N., 0°15'E.) extends for 3 miles between Stone Ness and Crayford Ness. Both its banks are fringed by mud flats, which dry up to 4m. The fairway has a least charted depth of 8.2m.

The Queen Elizabeth II Bridge, with a vertical clearance of 54m, spans this reach, 0.9 mile above Stone Ness.

Long Reach (The Queen Elizabeth II Bridge)

The ventilation towers of the Dartford-Purfleet Tunnel, which lies under this reach, stand on both banks, about 1 mile above Stone Ness. They are conspicuous, elongated, inverted, cone-shaped structures.

A prominent radar tower, 23m high, and a prominent lattice mast, 38m high, stand at Crayford Ness, on the S bank.

The principal wharves on the NE side include Van Ommeren Tank Terminal, Van den Bergh Oils Jetty, Purfleet Thames Terminal, and Esso Terminal.

Van Ommeren Tank Terminal (Vopak), situated below the bridge, has thee berths and handles tankers and LPG vessels. It has a depth of 10.5m alongside and can accommodate vessels up to 228m in length and 11.2 draft at HW. Van den Bergh Oils Jetty with a depth of 8.5m alongside and can handle vessels up to 40,000 dwt and 200m in length. Purfleet Thames Terminal has two ro-ro berths, each 200m long with a depth of 8m alongside. Esso Terminal, consisting of two jetties, can handle vessels up 8,000 dwt, 117m in length, and 6.9m draft.

The principal wharves on the SW side include Littlebrook Power Station Jetty and Thames Europort Terminal. Thames Europort Terminal is situated at the SE end of the reach and has two ro-ro berths. It can accommodate vessels up to 236m in length, 32.2m beam, and 11.5m draft.

Regulations.—Crayford Ness (51°29.9'N., 0°12.7'E.) forms the boundary between the Barrier VTS Sector (Thames Barrier Navigation Center, Woolwich) and the River VTS Sector (Port Control Center, Gravesend). For further information, see Regulations in paragraph 4.1 and paragraph 5.1.

Vessels with a masthead light exceeding 45m intending to pass under the Queen Elizabeth II Bridge should contact Port Contol London in advance so the lights indicating the Tall Ships Navigation Channel can be switched on.

When an LPG vessel is discharging alongside the Van Ommeren Tank Terminal, an amber flashing light is shown from the berth. All vessels pasing in the fairway must reduce speed to 8 knots or less and remain at least 60m clear.

5.10 Erith Rands Reach (51°29'N., 0°12'E.) extends W for about 1 mile between Crayford Ness and Coldharbor Point. The fairway has a least charted depth of 7.5m.

The town of Erith, with several church spires, is situated at the SW side of this reach.

Erith Reach (51°30'N., 0°11'E.) extends N for 1.3 miles between Coldharbor Point and Jenningtree Point. The fairway has a least charted depth of 7.3m.

The conspicuous spire of a church stands at the SW side of the reach, 0.7 mile W of Coldharbor Point. Rainham Creek, located at the NE side of the reach, is closed to navigation by a dam.

Halfway Reach (51°31'N., 0°09'E.) extends for 1.5 miles between Jenningtree Point and Cross Ness (Leather Bottle Point). The fairway has a least charted depth of 7m.

A conspicuous chimney, 38m high, stands 0.4 mile WNW of Jenningtree Point. The prominent buildings of the Ford Motor Works at Dagenham stand on the N side of the reach.

The principal wharf is the Ford Motor Works Jetty, which is situated at the N side of the reach. It consists of a ro-ro berth, 241m long, with a depth of 6.4m alongside.

Barking Reach (51°31'N., 0°07'E.) extends for 1.5 miles between Cross Ness and Margaret Ness or Tripcock Point. The fairway has a least charted depth of 6.4m.

Barking Creek, which dries, is located at the NW end of the reach. A tidal barrier spans the entrance to the creek and red warning lights are shown when it is in the closed position.

Note.—Traffic warning lights for the Thames Tidal Barrier are shown from both banks of the reach near its W end (see paragraph 5.13).

Regulations.—A day petroleum limit line has been established at the W end of this reach and is indicated on the chart. Ocean-going tankers carrying low flash products may not proceed above this limit line.

5.11 Gallions Reach (51°30'N., 0°05'E.) extends for 0.9 mile between Margaret Ness or Tripcock Point, and Gallions or Bull's Point. The fairway has a least depth of 6.1m.

Extensive gas works, with numerous buildings, tanks, and chimneys, are situated on the NW side of this reach.

The Royal Docks, comprising King George V Dock, Albert Dock, and Victoria Dock, are situated on the W side of the reach and are closed to shipping. A STOL (Short Take Off and Landing) airport is situated on the quay within these docks.

Caution.—The area between Gallions Point and Ware Point encompasses the London City Airport glide path. All vessels, including pontoons with mobile cranes embarked, having an air draft of 30.5m or more intending to navigate between Gallions Point and Ware Point must, at the earliest opportunity, inform Woolwich Radio on VHF channel 14 or 16 of their intention. They must not enter the area until authorized to do so

Woolwich Reach—Tate and Lyle Jetty

5.12 Woolwich Reach (51°30'N., 0°03'E.) extends for 2 miles between Gallions or Bull's Point and Hook Ness. The fairway has a least charted depth of 5.2m.

North Woolwich and Silvertown stand on the N bank; and Woolwich and New Charlton extend along the S bank of the reach. The Royal Arsenal Woolwich is situated at the SE end of the reach.

A conspicuous radar tower, 43m high, stands near the NE end of the reach on the ferry terminal jetty.

The principal wharf is Tate and Lyle Jetty, which is situated on the N side of the reach close below the barrier. The berth is 161m long and has a depth of 10m alongside. Vessels up to 35,000 dwt, 190m in length, and 8.8m draft can be handled.

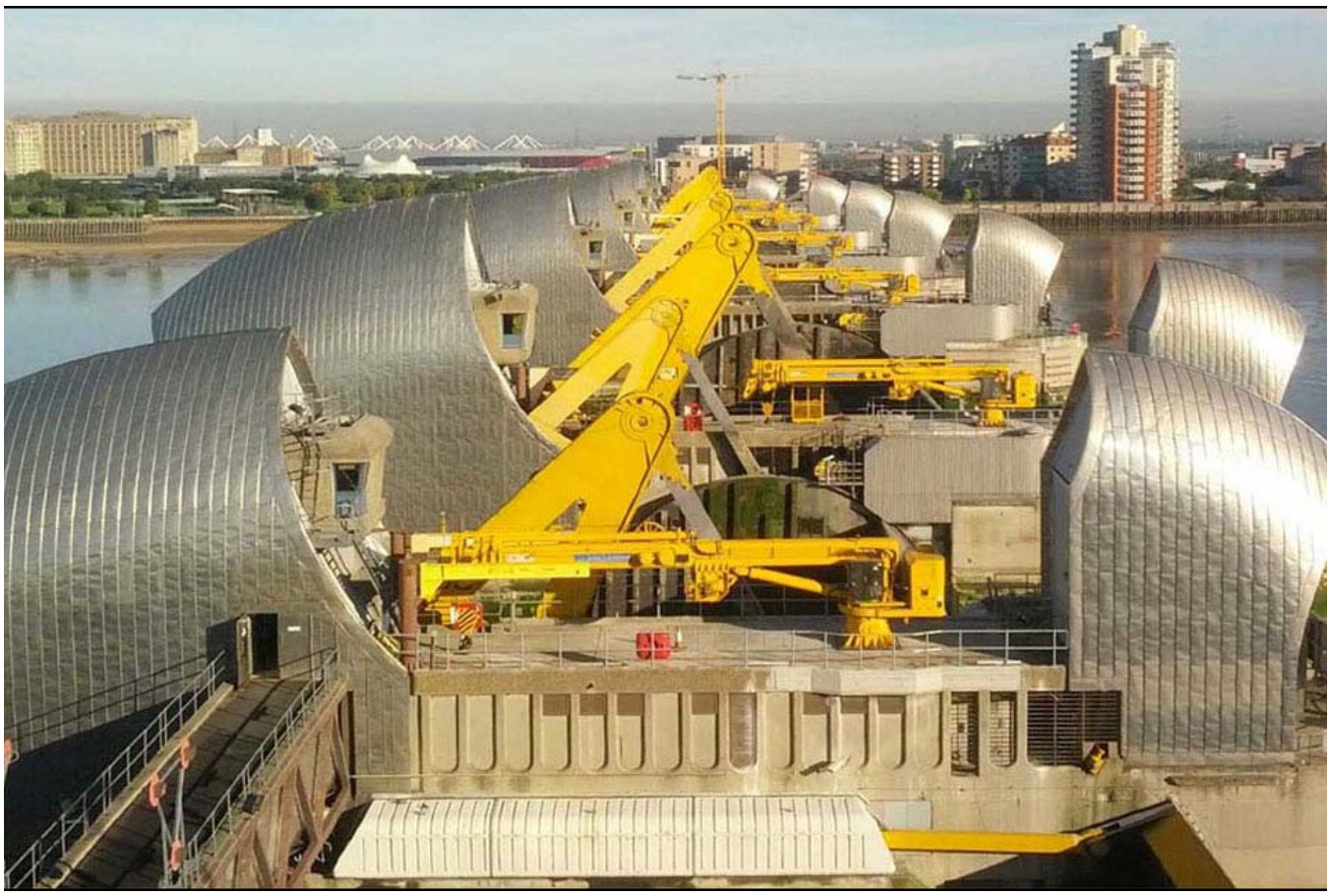
5.13 The **Thames Tidal Barrier** (51°30'N., 0°02'E.) is designed to protect the city and surrounding areas from flooding. It consists of nine piers, numbered from N to S, between which rotating gates can be operated to form a barrier when exceptionally high tides are expected. When in the open position, the rotating gates lie flush with the river bed sills.

The spans between the piers are designated A to K (omitting I) from S to N. Span A and Span H to Span K are crossed by walkways and are not navigable. Span B and Span G, adjacent to the fairway, are navigable but narrow, with only a charted depth of 1.2m over the gate. The main navigation spans are Span C, Span D, Span E, and Span F, which are each 61m wide and have a charted depth of 5.8m over the gate. Traffic through each span is one-way.

The Thames Barrier Control Zone extends from the vicinity of Margaret Ness (51°30'N., 0°06'E.) to the vicinity of Blackwell Point (51°30'N., 0°03'E.).

Information about the spans in use and warning of the closure of the barrier are broadcast by London VTS on VHF channel 14.

Pilotage— Vessels which are subject to compulsory pilotage W of Sea Reach No.1 lighted buoy, including vessels bound for River Medway, embark pilots in the Warp in position (51°30'N., 0°55.4'E.). Vessels for which pilotage is compulsory, to the W of the limit of the Thames Barrier Control Zone at Margaret Ness, embark the pilot at the Gravesend Pilot Station. Outbound vessels which are subject to compulsory pilotage W of Sea Reach No.1 lighted buoy disembark the pilot about 0.15 mile SSW of the buoy.



Thames Tidal Barrier (from E)

Thames Tidal Barrier (passage open)

Thames Tidal Barrier

Regulations.—For regulations concerning navigation in the vicinity of the Thames Barrier, see paragraph 5.1.

Extracts from the special restrictions include the following:

1. Vessels over 100m in length are required to secure a tug forward before proceeding through the Barrier.
2. Vessels over 131m in length are required, in addition to the first tug, to have a second tug in attendance.
3. Overtaking, anchoring, and maneuvering are prohibited in the vicinity of the Tidal Barrier between Woolwich Ferry Terminal and Gulf Oil Island Jetty.
4. Navigation through the Tidal Barrier is forbidden in visibility of less than 0.5 mile for vessels over 50m in length.

Blackwall Point—Millenium Dome

Canary Wharf Tower (center)

Signals.—Green lights, forming arrows, are situated on the piers at each side of the spans. The arrows, when shown pointing inwards from each side, indicate that the span is in use and clear for traffic.

Red lights, forming a St. Andrews cross ("X" shaped), shown on each side of a span, indicate that the span is closed to traffic either because a vessel is approaching from the other direction or is closed completely.

During low visibility, high intensity direction lights are shown, in addition to the green lights, from each side of the spans in use.

Three red lights, in the form of a triangle pointing down, are shown from the upriver and downriver sides of the walkways above Span A, Span H, Span J, and Span K.

Racons are fitted to both ends of the main piers to assist in identifying the navigable span during poor visibility. When visibility is reduced to 1 mile or less, the Racons on the piers located at each side of the navigable span are switched on. Warning lights are shown from notice boards on both sides of the river at Thamesmead (51°30'N., 0°07'E.) and Blackwell Point (51°30'N., 0°03'E.).

Yellow flashing lights indicate that vessels must proceed with extreme caution as the Tidal Barrier is about to be closed.

Red flashing lights indicate that the Tidal Barrier is being closed and all vessels should stop.

When visibility is reduced, a sound signal (Morse code K) is emitted from the notice board sites. Vessels equipped with VHF should contact the Thames Barrier Navigation Center (London VTS); other vessels should stop and listen to the loudhailer messages, which will be operated from the notice board sites.

Anchorage—There are two anchorages located just outside the entrance to West India Dock and the entrance to Regents Canal, between the Thames Tidal Barrier and Tower Bridge. Vessels are limited to a stay of two hours at either anchorage.

5.14 Bugsby's Reach (51°30'N., 0°01'E.) is a small section of the river, 0.8 mile long, lying between Hook Ness and Blackwall Point, which is low. The fairway has a least charted depth of 5.2m.

See paragraph 5.1 for detailed vessel reporting requirements for inbound and outbound traffic, including high air draft condition, in conjunction with the Cable Car operating across Bugsbys Reach.

Canary Wharf Tower and Millenium Dome from W

Blackwall Reach (51°30'N., 0°00'W.) extends for about 1 mile between Blackwall Point and the SE end of the Isle of Dogs, which forms the W bank. The fairway has a least charted depth of 4.7m.

East Greenwich is located along the E bank of this reach and is connected to Blackwall, on the N bank, by two tunnels. The entrances to the former West India and Millwall Docks, are situated on the NW side of this reach.

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

Port Authority

1. Telephone: 44-1474 562200
2. Facsimile: 44 -1474 562281
3. Website: www.pla.co.uk

King George V Dock Lock (51°30.1'N., 0°04.5'E.)

Operated by Royal Docks Management Authority Ltd.

1. Call sign: KG Control
2. VHF: VHF channel 13
3. Telephone: 44-2-7511-5086

4. All vessels bound for the King George V, Royal Albert and Royal Victoria Docks should obtain final docking instructions when close to dock.

West India Dock Lock (51°30.1'N., 0°00.5'W.)

1. Call sign: West India Dock Control
2. VHF: VHF channel 13
3. Telephone: 44-2-7987-7260

Reporting Points:

Vessels should report as follows-

1. Vessels bound up river:
   a. On passing Margaret Ness (51°30.5'N., 0°05.5'E.).
   b. Confirm docking instructions on clearing Thames Barrier (51°29.8'N., 0°02.2'E.).
2. Vessels bound down river:
   a. On passing Cuckold's Point (51°30.4'N., 0°02.2'W.).
   b. Confirm docking instructions when passing Saundersness (Greenwich) (51°29.0'N., 0°00.5'W.).

Canary Wharf Tower (51°30.3'N., 0°01.2'W.) is situated 0.8 mile W of Blackwall Point and is 244m high. This conspicuous building, along with two others standing nearby, can be seen from all directions.

The principal wharf is the Victoria Deep Water Terminal, which lies at the E side of the reach. The berth is 259m long and has a depth of 5.5m alongside (12.7m at HWS).

5.15 Greenwich Reach (51°29'N., 0°01'W.), about 1.3 miles long, is a horseshoe bend in the river which curves around the S side of the Isle of Dogs. The fairway has a least charted depth of 4.4m.

Cubitt Town and Millwall, consisting mostly of commercial buildings, occupy the N bank of the reach; and Deptford and Greenwich stand on the S bank. Greenwich Pier is situated near the middle of the S side of the reach. The conspicuous buildings of the National Maritime Museum and the former Royal Naval College, stand close E of Greenwich Pier. A foot tunnel, marked on each bank by a cupola, crosses the reach close W of the pier.

Maritime Museum and Old Royal Navy College

The Cutty Sark, a prominent sailing vessel, is situated close S of the pier. It was built in 1869 and is the only surviving tea clipper. It is reported (2007) that the vessel's masts have been temporarily removed for restoration.

Deptford Creek, which is the mouth of the Ravensbourne River, is entered at the SW end of the reach. The principal wharf is Convoys Jetty, which is situated on the S side of the reach. It has two ro-ro berths and can handle vessels up to 170m in length and 7.5m draft at HW.

Cutty Sark

Greenwich—Old Royal Observatory

Greenwich Tier, a group of mooring buoys, is situated on the S side of the reach off Deptford Creek and can be used by cruise liners between 128m and 208m in length.

Note.—The Old Royal Observatory, no longer in use, stands at an elevation of 44m about 0.5 mile SSE of Greenwich Pier, behind the museum. The Prime Meridian, from which longitude throughout the world is measured, passes through here.

5.16 Limehouse Reach (51°30'N., 0°02'W.) extends N for 0.8 mile from Greenwich Reach and then curves W into Lower Pool. The fairway has a least charted depth of 3.5m.

The former Surrey Commercial Docks at Rotherhithe, on the W side of the reach, are closed and mostly filled in. Regents Canal Dock is entered on the N side of the reach at the NW end and connects with the inland waterways canal system.

Lower Pool (51°30'N., 0°03'W.), a reach 1 mile long, extends between the entrance to Regents Canal Dock, at the NW end of Limehouse Reach, and Cherry Garden Pier, situated on its SW side. The fairway has a charted depth of 4.3m.

The former London Docks, situated on the NW side of the reach, are closed. Two tunnels cross the reach and are indicated on the chart.

The principal wharf in this reach is Bellamy's Wharf, on the S side.

Upper Pool (51°30'N., 0°04'W.), a reach 1 mile long, extends between Cherry Garden Pier, at the SW end of Lower Pool, and London Bridge. The fairway has a least charted depth of 4.7m up to the "Belfast," then less than 2m; outside the fairway, the depths are considerably less.

St. Katharine Yacht Haven, the former St. Katharine Docks, is entered through a lock situated on the N side of the reach. Vessels up to 27m in length and 3.6m draft can be accommodated.

Thames—Upper Pool

Upper Pool—The Tower of London

The conspicuous Tower of London stands on the N bank, close above Tower Bridge. The cruiser "Belfast," a warship museum, is moored permanently off the S bank between Tower Bridge and London Bridge.

London Bridge spans the river at the W end of Upper Pool and has a vertical clearance of not less than 8m at its center arch.

Tower Bridge Lower Tier, a group of mooring buoys, is situated in the middle of the river close E of the bridge. These buoys can be used by vessels between 55m and 160m in length. When a vessel is moored here, all other vessels must pass on the N side due to the presence of launches and service craft.

Cruiser "HMS Belfast" Warship Museum

Tower Bridge

Tower Bridge Upper Tier, a group of mooring buoys, is situated abreast the cruiser "Belfast" and can accommodate vessels up to 158m in length.

5.17 Tower Bridge (51°30'N., 0°04'E.) spans Upper Pool about 0.6 mile above Cherry Garden Pier and has four towers; the higher towers stand on piers in the river and are connected by two fixed foot bridges, with a vertical clearance of 42.5m. Two bascules, with a vertical clearance of 8.6m, carry the roadway; these can be raised to a vertical position, leaving a channel 61m wide.

Tower Bridge—Bridge lifts are available at no charge, 24 hours of every day of the year, subject to the following procedures:

1. **Booking Procedures:**

   a. Any vessel with an air draft of more than 9.1m above the waterline wishing to pass through Tower Bridge, may request a bridge lift.

   b. Bookings must be made in writing, either by facsimile (44-2-7940-8396) or by letter to: Operations Manager, Main Office, Tower Bridge, London SE1 2UP. Bookings must be received at least 24 hours before the requested lift.

c. Bookings can be made by a vessel's agent, owner or Master. When a booking is made, Tower Bridge will issue a bridge lift order number to the person making the booking. The lift will also be published in the bridge lift program.

d. This Program is distributed regularly by facsimile and e-mail to the following places:

i. PLA
ii. Capital Radio
iii. Other media outlets as appropriate
iv. Agencies and individuals by arrangement

e. In order to minimize the impact on road traffic, vessels are to ensure that they arrive at the pre-arranged time. No more than 5 minutes leeway can be accommodated at peak traffic times.

f. Should vessels have to change their planned transit times, Tower Bridge must be told as soon as possible so that a revised time can be arranged, and that previous booking arrangements are cancelled. Tower Bridge (security staff) can be contacted by telephone 24 hours a day at (44-2-7940-3975)

g. Any changes requested within 24 hours of a lift can be accommodated only after bridge staff have informed the relevant emergency services.

h. Lifts for tugs are to be booked by the tug operating company. Lifts must be more than 30 minutes before or after the vessel transit time in order to allow delayed road traffic to clear the bridge. When arriving vessels are to be accompanied by tugs, the tug operator will make any additional booking necessary to facilitate tug departure on completion of the maneuver.

2. **VTS Operational Procedures:**

a. Vessels are to report their abort point along their Passage Plan to London VTS on passing Crayford Ness inbound.

b. London VTS will check the vessel details against the latest bridge lift program. If not listed, they will check with the Tower Bridge security staff.

c. If no booking has been scheduled, London VTS will instruct the vessel not to proceed beyond its designated abort point.

d. Whenever a bridge lift is subsequently negotiated by exception between the vessel and the bridge staff, London VTS may authorize the vessel to complete its planned passage.

e. London VTS is to ensure that vessels do not proceed beyond their declared abort point until two-way communications between the vessel and Tower Bridge have been established.

Regulations.—Vessels intending to pass through the bridge and needing the bascules to be opened are required to give 24 hours notice. This normally applies to vessels with an air draft of more than 9.1m. Bookings for a bridge lift must be made in writing, either by letter (Operations Manager, Main Office, Tower Bridge, London SE1 2UP) or facsimile (44-207-9408396). Failure to provide such notice may result in delays to vessels. Bookings may be made by the vessel's master, owner, or agent. When a booking for the bascules to be lifted is made, Tower Bridge will issue an Order Number and the lift will be published in the Bridge Lift Program. This program is distributed regularly by facsimile and e-mail to the various appropriate authorities, individuals, and agencies.

Signals.—The following traffic signals are shown, both upstream and downstream, by day and at night, from the piers on each side of the bascule bridge:

1. One red light indicates that the bridge is closed, being closed, or being opened.
2. One green light indicates that the bridge is open.

If at any time the bascule bridge, from any unavoidable cause, cannot be opened for the passage of vessels, a disc, painted black and white in diagonal stripes, will be shown close to each end of the bascule bridge; the disc is illuminated at night and shown in addition to the above red light.NoteNnnn

In restricted visibility, a high frequency repetitive note of 820 cycles per second will be transmitted for a period of about 10 seconds, followed by a silent period of the same duration. This signal is given in addition to the above green light over a loudhailer system from the N pier of the bridge, while the bascule bridge is open for river traffic.

If it is not possible, due to an electrical failure, to give the above sound signal, hand-beaten gongs will be sounded every 30 seconds from the N pier while the bascule bridge is open for transit.

Navigational Information Broadcast Times for Traffic, Anchorages, Visibility, Tidal heights are made as follows:

VHF channel	Time of Broadcast	Station
69	15 and 45 minutes after the hour.	London VTS (see note 1)
68	on the hour and the half hour.	London VTS (see note 1)
14	15 and 45 minutes after the hour.	London VTS (see notes 1,2, and 3)

Notes:
1. During fog, more detailed information will be broadcast.
2. Spans open for navigation will be included.
3. Notification of actual or intended closure of the Thames flood defence barriers will be included when appropriate.

Unless the signal for the failure of the bridge to open is given, the bascule bridge will be opened in reduced visibility at the ETA time. A sound signal (Morse code X) should be made when the vessel concerned is ready and in position to pass through.

The following navigational marks have been established to assist vessels passing under the bridge:

1. A conspicuous white vertical stripe is situated on each bascule at both sides of the bridge. There is a distance of 17m between each pair of stripes.

2. Headway gauge boards are situated on the downriver dolphin at Cherry Garden Pier and on the upriver dolphin at Tower Pier, about 300m above the bridge. These boards indicate the tide level and amount of headway, in feet, below and between the white vertical stripes on the bascules.

Caution.—There is a delay of about 2 minutes after the bridge has been cleared of traffic before the bascules can commence to open.

Vessels are warned against anchoring within 45m of the bridge piers because of the erosion of the river bed in the vicinity.

5.18 In addition to the principal wharves listed above with the reaches, numerous other wharves and jetties are situated on both sides of the River Thames, between Gravesend Reach and London Bridge. These wharves and jetties are owned and/or operated by private manufacturing and service industries and may best be seen on the chart. For information concerning the depths alongside, vessels should contact the Port Control Center London.

The River Thames winds in a general WSW direction for 14 miles between London Bridge and Richmond Bridge (51°28'N., 0°18'W.), the limit of tidal navigation. This stretch of river is spanned by 28 bridges, including those at London and Richmond, with a minimum vertical clearance of 3.7m, at Hammersmith Bridge (51°29'N., 0°14'W.). Depths in the fairway between London Bridge and Richmond Bridge are generally 2m or less, with some deeper patches in places.

The River Medway

5.19 The **River Medway** (51°26'N., 0°44'E.), which rises in the county of Sussex, flows NE across the county of Kent and passes Maidstone, Rochester, and Chatham. It is about 60 miles long and joins the River Thames between the Isle of Sheppey, on the E side, and the Isle of Grain, on the W side. Below Chatham, the river widens into an estuary which is intersected on either side by numerous creeks, their banks being formed by low and marshy islands surrounded by mud flats.

The distance, following the winds of the river, from Garrison Point (51°27'N., 0°45'E.) to Rochester Bridge (51°23'N., 0°30'E.), the limit of navigation except for small craft, is 11.8 miles and there are 12 bends or reaches between these positions.

Depths—Limitations.—The approach channel to the River Medway, which lies between Sheerness Middle Sand and the edge of The Cant, has a least charted depth of 11m in the dredged fairway. The river has depths of 12.8 to 21m as far as Oakham Ness.

Aspect.—Medway Lighted Buoy, moored 5.5 miles ENE of Garrisin Point, marks the seaward entrance of the buoyed approach channel.

Garrison Point (51°27'N., 0°45'E.), the E entrance point of the river, is rounded and formed of shingle. A conspicuous fort, a radio mast, and a signal station stand on the point.

The W side of the entrance to the river is bordered by the E side of the Isle of Grain. The landmarks on the NE part of the isle are described with Sea Reach in paragraph 5.2.

The fairway channel through the reaches is marked by lighted buoys and beacons and, in places, indicated by lighted ranges, which may best be seen on the chart.

Pilotage.—Information concerning pilotage through the Thames Estuary is given in paragraph 4.1.

Pilotage for the River Medway is compulsory for vessels of 50m and over in length. Inbound vessels requiring a pilot should send their ETA message to Medway Vessel Traffic Service 24 hours and 8 hours in advance, including the pilot boarding position, gt, length, draft, destination, number of people aboard, identify any dangerous cargo on board, and vessels last port of call.

Any changes to the vessel's ETA should be sent to Medway Vessel Traffic Service or NE Spit Pilot Station. Vessels required to anchor with a pilot on board should send their ETA at the anchorage to Medway Vessel Traffic Service as soon as practicable.

Vessels exempt from pilotage should send their ETA message 24 hours in advance including the vessel name; gt; length; draft; destination; last port of call; and the name, initials, and exemption certificate number of the master or first mate who will be piloting the vessel.

Pilots board vessels with a draft of less than 6m between NE Spit Lighted Buoy and Elbow Lighted Buoy. Pilots board vessels with a draft of 6m or more about 3 miles E of Sunk Light Vessel. For details of these pilot boarding positions, see pilotage for the Thames Estuary in paragraph 4.1.

Vessels exempt from pilotage through the Outer Area of the estuary can embark a pilot in the vicinity of Medway Lighted Buoy (51°28.6'N., 0°51.7'E.), at the entrance to the approach channel.

The pilot boarding position depends on the vessel and it's draft and maneuvering requirements:

Vessels bound to or from Medway shall board and disembark at the NE Spit in the general vicinity of the NE Spit buoy and the Elbow Lt. buoy at position (51°25.0'N., 0°30.0'E.).

Vessels requiring more depth than found in the NE Spit boarding area can use the Tongue boarding area at position (51°29.0'N., 1°34.0'E.).

Vessels requiring the deep draft route that is offered by the Sunk DW routes should use the Sunk boarding area at (51°51.5'N., 1°40.5'E.).

When a pilot vessel is not on station, information will be broadcast by the appropriate pilot station or through Pilotage Information Messages broadcast by coast radio stations. At such times, vessels may request, from Port Control Center London (London VTS), to embark or disembark the pilot at Medway Lighted Buoy.

Regulations.—For procedures in the Thames Estuary, see paragraph 4.1.

Regulations similar to those for the Port of London Authority are in force with respect to vessels carrying or loading petroleum or dangerous cargo.

The following are extracts from the River Medway By-laws:

1. No vessel shall navigate at a speed or in a manner which might be expected to cause damage to any other vessel, buoy, moorings, or property within the River Medway Port or Approach Area. No vessel shall exceed the speed of 6 knots when W of Folly Point, or 8 knots when in Queenborough Harbor between a line joining Swale Ness

and Queenborough Point, and a line extending W from Long Point to the shore, or when S of Kingsferry Bridge.

2. Vessels carrying a greater quantity than 100 pounds of any explosive or petroleum must fly a red flag at the masthead by day and show an all-around red light at the masthead at night.

3. Between sunset and sunrise, vessels over 130m in length navigating the buoyed channel must not pass or overtake any other vessels between No. 4 Lighted Buoy (51° 28'N., 0°50'E.) and a line extending W from Garrison Point.

For special regulations applying to LNG vessels proceeding to Grain LNG Terminal, see paragraph 5.23.

Vessel Traffic Service.—Medway Vessel Traffic Service)Medway VTS) is operated by The Medway Ports Authority and serves shipping in the river and its approaches.

Medway VTS provides traffic, tidal, and general marine information. Radar advice is available on request. The service will also pass berthing and/or anchorage information to vessels.

Inbound vessels over 50 gt or over 40m in length should send an ETA to Medway VTS at least 24 hours in advance, stating the quantity and nature of any dangerous cargo carried or to be loaded. In addition to reporting vessels underway within the Medway port area should maintain a continuous listening watch on VHF channel 74 and vessels at anchor should maintain a continuous watch on VHF channels 16 and 74. Special accident procedures will be implemented in the event of a major incident in the Medway. For details see accident procedures later in this paragraph.

Vessels should establish contact with Medway Vessel Traffic Service when within VHF range, but not less than 2 hours 30 minutes before arrival at Medway Lighted Buoy (51°28.8'N., 0°52.9'E.). Vessels should report their name, nationality, last port of call, last port and destination, draft, list if any, if a pilot is required, and ETA at Medway Lighted Buoy. Changes to ETA should be reported immediately. The vessel's Master shall give the Harbor Master notice of not less than one hour, of the time at which he proposes to navigate in the port or Medway approach area. Permission to proceed must then be requested and approval received by the Master immediately before the navigation is due to commence.

The Master of a reporting vessel intending to navigate in the Medway should report to the Harbor Master through the Medway VTS center, that his vessel complies with the navigational safety requirements of General Directions for Navigation in the Medway Ports and in the General Directions for Navigation in the Port of London prior to arrival at the outer limit of the VTS area, This report shall be made as a component of the advance vessel notification to Medway VTS who will relay the information to London VTS. The report will indicate the following information:

1. The vessel’s charts for the voyage and associated navigational publications are corrected and up to date.

2. The Master has prepared an appropriate Port Passage Plan for use during the vessel’s passage in the Thames and Medway area.

3. The vessel is ISM compliant or, if not subject to the ISM code, the vessel has no deficiencies or defects in respect of its manning, navigational equipment, propulsion or maneuvering machinery.

Vessels outbound or shifting berth should send ETD and draft at least 1h in advance and immediately before commencement of maneuver. Permission to proceed must then be requested and approval received by the Master immediately before the navigation is due to commence.

Vessels must then notify Medway VTS not less than 1 hour before the time they propose to navigate the port approach area. Permission to proceed must be requested and received immediately before navigation is due to commence.

Inbound and outbound vessels over 50 gt or over 40m in length must report to Medway VTS when passing the following reporting points:

1. Medway Lighted Buoy (also report to London VTS on VHF channel 69).

2. Position 51°27.76'N, 0°47.17'E (between No. 8 Lighted Buoy and No. 10 Lighted Buoy). Outbound vessels only (also report passing Richard Montgomery wreck to London VTS on VHF channel 69).

3. No. 12 Lighted Buoy (51°25.7'N., 0°40.3'E.).

4. Darnett Ness (51°24.4'N., 0°35.7'E.).

5. No. 32 Lighted Buoy (51°24.6'N., 0°32.1'E.).

6. Chatham Ness (51°23.2'N., 0°31.1'E.).

Vessels entering or leaving West Swale (see paragraph 5.21) should report when approaching Medway Lighted Buoy and at the following reporting points:

1. Queenborough Spit Lighted Buoy (51°25.8'N., 0°43.9'E.).

2. Long Point (51°24.9'N., 0°43.3'E.).

3. Kingsferry Bridge (51°23.4'N., 0°45.0'E.).

Within the river area, vessels should report when passing the reporting points, before anchoring, and on berthing. In addition, vessels underway should keep a continuous listening watch on VHF channel 74 (VHF channel 16 while at anchor).

Outbound vessels or vessels shifting berth should report their ETD and draft to Medway VTS at least 1 hour in advance and immediately before commencement of the maneuver.

Midway Secondary Channel:

1. Medway Secondary Channel is limited to vessels of 160m LOA or less (or 130m LOA or less if a LNG vessel is transiting the Medway Approach Channel).

2. The Medway Secondary Channel is one way at any time and the traffic in the channel is controlled by Medway VTS.

3. Vessels must request clearance from Medway VTS prior to entry into this channel, either when passing Garrison Point or Medway lighted buoy, preference will be given to vessels navigating with the tide.

4. Outbound vessels must report to London VTS on VHF channel 69 (report "Richard Montgomery Outward") when passing between lighted buoys 10A and 8A. This report should be followed with the details of which VHF channel in the Outer Thames a vessel intends to use.

Incident Reports:

1. Vessels should report the occurrence of any of the following incidents:

a. A collision, stranding, breaking adrift or other accident

b. Machinery or steering breakdown

c. Personal injury or recovery of a casualty from the river, requiring treatment beyond resources of vessel

d. Oil pollution; in all cases, whether by spillage, accident, sightings etc., report direct to Medway VTS on VHF channel 74 or via telephone number: 44-1795-663025.

2. Details of all incidents should be reported by the quickest possible means, normally by VHF to Medway VTS using VHF channels 9, 11, 16, 22, 73 or 74.

3. Helicopter assistance (for offshore incidents) can be requested by calling the Thames CG (using telephone number 999, VHF channel 16 or through Medway VTS).

4. In an emergency the decision to close the port and restrict all movements will be made by the Harbor Master in the light of prevailing circumstances.

Accident Procedures:

1. Details of a major incident in the Medway will be broadcast by Medway VTS on VHF channels 16 and 74 as follows:
   a. "Medway Emergency" broadcast three times.
   b. Position of, and type of, emergency.
   c. Special directions to vessels.

2. Vessels directly involved in the incident should establish watch on a VHF channel to be designated by Medway VTS. Other vessels should continue to watch VHF channel 74.

Signals.—Traffic warning signals are shown from the signal station at Garrison Point when the movements of vessels over 130m in length are about to take place and while they are in progress. The warning signal consists of a powerful white light flashing for 2 seconds every 7 seconds. The lights are visible from seaward or from upriver depending on whether the vessel is inbound or outbound. The signal is shown when a vessel is underway in the buoyed channel between Medway Lighted Buoy and Darnett Ness (51°24'N., 0°36'E.), and remains showing until the vessel has berthed or cleared the channel.

Anchorage.—Vessels may anchor for an unlimited period in the anchorages established for vessels entering the River Medway. Information on berths within these anchorages should be obtained from Medway VTS.

Little Nore Anchorage Area (51°27'N., 0°45'E.), situated 0.4 mile N of Garrison Point, lies close N of the approach channel. Vessels using this anchorage must avoid swinging into the fairway under the influence of wind or tide.

Sheerness Small Ships Anchorage is situated 1 mile NE of Garrison Point and close SE of the channel.

Vessels anchored on either side of the approach channel may not get underway or enter the channel without first informing Medway VTS and ascertaining that it is safe to do so.

Vessels awaiting the tide may also anchor in Kethole Reach (51°25'N., 0°39'E.), clear of the fairway and the designated foul area.

For additional anchorages, see paragraph 5.1.

Caution.—A prohibited area has been established around the stranded wreck of the SS Richard Montgomery, which sunk in 1944 and is filled with a cargo of dangerous explosives. The wreck, which shows masts and superstructure at HW and is marked by lighted buoys, lies 2 miles NE of Garrison Point and close N of the main channel.

Several submarine cables cross the entrance channel and reaches of the river and may best be seen on the chart.

Several yacht clubs, operating small craft piers and marinas, are situated within the river. In addition, numerous small craft moorings lie at the sides of the channel fairways.

Sheerness (51°27'N., 0°45'E.)

World Port Index No. 31370

5.20 Sheerness is located at the NW end of the Isle of Sheppey; the port facilities extend S from Garrison Point.

Tides—Currents.—Tides at Sheerness rise about 5.8m at springs and 4.7m at neaps.

The velocities of the tidal currents in the river vary between about 2.5 knots at springs to 1.5 knots at neaps; however, the velocities also vary considerably within each reach. The maximum velocity is generally encountered off Garrison Point where, during the flood, eddies may be formed.

Depths—Limitations.—The entrance channel has a depth of 11m. The port has a total of about 900m of dock space which provide six main berths. There are extensive facilities for reefer fruit, ro-ro, automobile, and continental ferry vessels. Generally, vessels up to 230m in length and 11m draft can be accommodated.

Caution.—Extensive reclamation of an area located close S of the port has been carried out.

West Swale

5.21 **West Swale** (51°25'N., 0°44'E.) is the W entrance of The Swale, the narrow and tortuous channel which separates the Idle of Sheppey from the coast of Kent. East Swale, the E entrance to the channel, is described in paragraph 4.30.

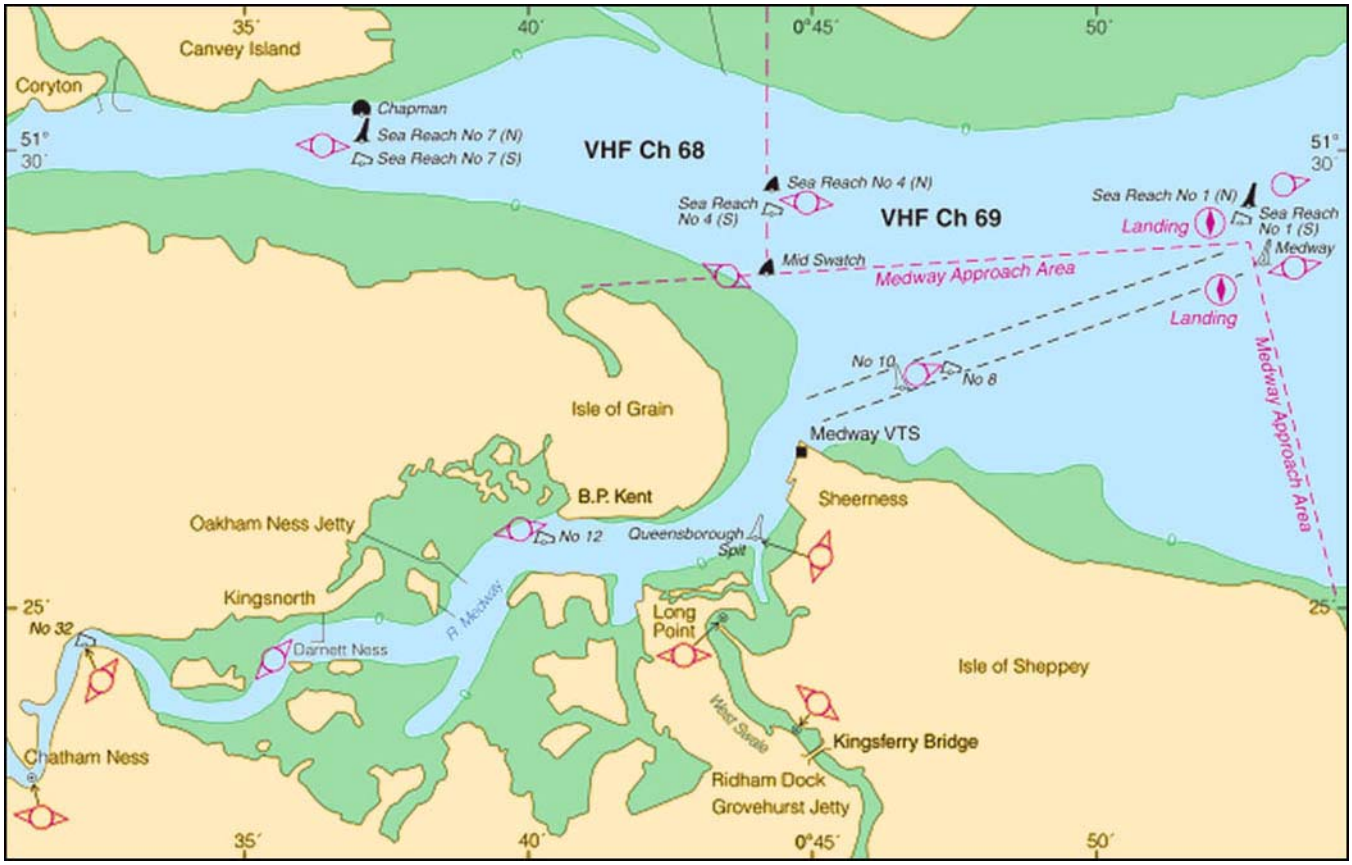
The entrance channel, located 1.5 miles SSW of Garrison Point, leads across Lapwell Bank and between The Lappel, on its E side, and Queenborough Spit, on its W side. The channel continues in a S direction for about 0.5 mile and then curves NW for 0.5 mile before turning S again around Long Point. This NW stretch is known as Loden Hope. From Long Point, the channel continues in a SSE direction for 2 miles through Long Reach and Horse Reach to Kingsferry Bridge.

Sector lights and lighted buoys mark the channel; however, the best time for navigating is when the mud flats are visible.

Tides—Currents.—The tidal currents in The Swale are subject to considerable variation. The incoming and outgoing currents at both entrances are strongest soon after they begin, but decrease as the banks cover. The greatest spring velocities, about 3.5 knots, are attained near Kingsferry Bridge.

Depths—Limitations.—There is a least depth of 3.2m in the approach channel which leads across Lapwell Bank. A depth of 5.5m can be carried as far as West Point, located about 0.9 mile S of the entrance. There are depths of 3.3 to 5.5m near the center of the fairway up to Long Point, 0.4 mile W of West Point. The least depth in the fairway from Long Point, through Long Reach and Horse Reach, to Kingsferry Bridge is reported to be 3.2m. Between Kingsferry Bridge and Grovehust Coal Jetty, about 0.3 mile NNW of Milton Creek, the least charted depth in the fairway is reported to be 2.2m.

Pilotage.—Pilots for The Swale, including Ridham Dock, are available and are provided by the River Medway Authority at Garrison Point.



Thames VTS Sheerness

Sheerness

Caution.—The River Swale is an important ornithological area and many parts, where landing is prohibited, are designated as Special Scientific Sites of Interest.

Queenborough (51°25'N., 0°45'E.) stands on the W side of the Isle of Sheppey at the E side of West Swale. The harbor, which dries, is entered through The Creek, a buoyed narrow channel. Small commercial vessels can be handled. In addition, there are numerous yacht moorings on both sides of the harbor.

Washer Wharf, used for loading scrap metals, has a berth 110m long with a depth of 8m alongside at HWS.

Mooring buoys are also available adjacent to the fairway off Queenborough.

5.22 The **Kingsferry Bridge** (51°23'N., 0°45'E.) spans The Swale nearly 1.8 miles SSE of Long Point. The bridge has a rising center span with a vertical clearance of 28m when fully open. The maximum beam allowed through is 16.8m.

The A249High Level Bridge, a new road bridge, spans The Swale close NW of the Kingsferry Bridge and has a vertical clearance of 29m, with a width of 75.5m between the main piers.

Vessels can communicate with the Kingsferry Bridge Control by VHF. A directional light, which may best be seen on the chart, indicates the fairway in the vicinity of the bridges.

Signals.—Control lights are exhibited from the two buttresses of the Kingsferry Bridge for both upstream and downstream traffic, as follows:

1. No lights shown indicates that the bridge is down.
2. Red and green quick flashing lights (vertically disposed) indicate that the center span is lifting.
3. A green fixed light indicates that the bridge is open.

4. A red quick flashing light indicates that the bridge is unable to lift and vessels should keep clear.

5. The inner faces of the four buttresses are marked by red fixed lights to indicate span width.

The center of the navigable passage below the A249 Bridge is indicated by a pair of flashing white lights.

Caution.—A submarine cable and a submarine pipeline cross the channel close SE of the bridge. Another submarine cable crosses the channel 0.8 mile NW of the bridge.

Two overhead power cables, with vertical clearances of 30m, span the channel close SE of the bridges.

The Kingsferry and A249 Bridges

Ridham Dock (51°23'N., 0°46'E.), a small tidal basin, is situated on the SW side of The Swale, about 0.5 mile SE of the Kingsferry Bridge. Vessels up to 102m in length, 16.8m beam, and 6.7m draft can be accommodated. Vessels usually dock on HW and take the soft mud ground at LW.

The River Medway (continued)

5.23 Saltpan Reach (51°26'N., 0°42'E.), the W continuation of the river from Sheerness, lies between the S side of the Isle of Grain and the marshy outlines of Deadman's Island and Burntwick Island.

The depths within this reach are somewhat irregular and vary from 4.8 to 20m. An obstruction, lying near the middle of the reach, has a least depth of 8.8m and is marked by a lighted buoy.

It is reported that deep-water mooring buoys are situated in the S part of this reach and are used by LASH vessels.

Thamesport (51°26'N., 0°42'E.) (World Port Index No. 31376), an extensive container terminal, is situated on the S side of the Isle of Grain at the site of the former oil terminal. The conspicuous gantry cranes standing on the wharf are visible from seaward. The terminal has 650m of berthage, with a depth of 13.5m alongside. Large container vessels up to 115,000 dwt and 11m draft can be accommodated.

The former oil terminal has seven jetties. No. 1 Jetty and No. 2 Jetty are located at the W side of the container terminal. No. 1 Jetty, which can accommodate tankers up to 250m in length, has a depth of 11m alongside. No. 2 Jetty is no longer used.

No. 6 Jetty, No. 7 Jetty, No. 8 Jetty, and No. 9 Jetty are located at the E side of the container terminal. No. 6 Jetty is used by bulk carriers, but No. 7 Jetty, No. 8 Jetty, and No. 9 Jetty are no longer in use.

Thamesport Container Terminal

Grain LNG Terminal (51°26'N., 0°42'E.), a new facility, is situated on the S side of the Isle of Grain at No. 10 Jetty. It is reported (2005) to have a depth of 12.5m alongside.

Regulations.—The following regulations apply when an LNG vessel is berthed, arriving at, or departing the terminal:

1. An area within which entry is prohibited to all unauthorized vessels is centered on the terminal cargo transfer arms and has a radius of 150m.

2. An area within which navigation is restricted is centered on the terminal cargo transfer arms and has a radius of 250m. When an LNG vessel is berthed, no vessel of 50m or more in length shall enter this area. Vessels of less than 50m in length may, if it is deemed necessary for safe navigation by the pilot or master of such vessel, pass within the area but not less than 100m from the LNG vessel at the berth. While within the area, the vessel's speed must not exceed 7.5 knots through the water.

3. When an LNG vessel is inbound or outbound between the terminal and Medway Lighted Buoy (51°28.8'N., 0°52.9'E.), the following rules are in force:

   a. No vessel shall proceed in the opposite direction to an LNG vessel if the latter is in the Medway Approach Channel between a line extending W from Garrison Point and No. 2 Lighted Buoy (51°26.8'N., 0°44.6'E.).

   b. Vessels navigating in the same direction as an LNG vessel shall maintain a distance of at least 1 mile ahead or 0.5 mile astern of such a vessel.

   c. Subject to the specific agreement of both the LNG vessel and the Medway VTS, vessels of 130m in length and less may proceed in the same or opposite direction to the LNG vessel provided that they can navigate safely outside the main approach channel. Such vessels should navigate with caution and at slow speed. It should be noted that LNG vessels will normally pass S of Medway Lighted Buoy, both inbound and outbound. Where such interactions are likely to occur in the vicinity of the Medway Lighted Buoy, the intention to navigate outside the channel and details of the planned track should be sent by the vessels of 130m in length and less to the Medway VTS, London VTS, and the LNG vessel involved.

d. Vessels shall not cross less than 1 mile ahead or 0.5 mile astern of the LNG vessel.

e. When an inbound LNG vessel is maneuvering in Saltpan Reach to the W of the Kent Buoys (51°26.1'N., 0°43.5'E.), no other inbound vessels of 50m or more in length shall pass the Kent Buoys and no outbound vessels of 50m or more in length shall pass No. 12 Lighted Buoy (51°25.7'N., 0°40.3'E.) until Medway VTS advises that it is safe to do so.

Anchorage.—An LNG anchorage area, designated K3, is situated in the approaches to the River Thames; for further information see paragraph 4.1.

5.24 Kethole Reach (51°25'N., 0°39'E.), about 1 mile long, leads SSW from the W end of Saltpan Reach to Long Reach. Its NW side is formed by Stoke Ooze, a drying mud flat, across which two causeways lead to river berths. The SE side of the reach consists of saltings. A wreck, with a depth of 2.2m, lies on the W side of the reach and is marked by a buoy.

Bee Ness Jetty (51°25.3'N., 0°39.0'E.), situated at the NW side of the reach, has a berth at the end of a causeway which has a depth alongside of 13m at HWS. East Hoo Creek, entered close S of the jetty head, leads to a small inner spur berth. It was reported (2000) that this jetty is no longer in use.

Oakham Ness Jetty (51°24.9'N., 0°38.7'E.), situated at the SW side of the reach, has a tanker berth at the head of a causeway. There are depths alongside of 16.7m at HWS and 11m at LWS. Vessels up to 55,000 dwt and 229m in length can be handled. This jetty primarily serves a power station.

Otterham Creek is entered from Half Acre Creek, which leads SSW from the junction of Long Reach and Kethole Reach. Otterham Quay (Rainham) is situated at the head of the creek and has 192m of quayage; however, due to siltation, these berths are no longer used by commercial shipping.

Long Reach (51°24'N., 0°37'E.)continues W for 2 miles from the vicinity of Oakham Ness Jetty between saltings, marshes, and mud banks, which dry. A conspicuous chimney, 198m high, stands at the power station which is situated on the N side of the W end of this reach. Several prominent oil storage tanks are situated 0.3 mile ENE of the chimney. There is a least charted depth of 5.8m in the channel through Long Reach.

Kingsnorth Jetty(51°24.7'N., 0°36.4'E.), an L-shaped jetty, extends about 600m S from the power station into the reach and is mainly used for the import of coal. The main berth is 306m long and has depths alongside of 10m at LWS and 13.2m HWS.

Caution.—A foul area, the limits of which are shown on the chart, lies in the N part of Kethole Reach; wreckage possibly exists in the river bed within this area.

5.25 Pinup Reach (51°24'N., 0°36'E.), also known as Folly Reach, is a short leg in the channel which connects Long Reach and Gillingham Reach. It lies between Darnett Ness and Folly Point, about 0.5 mile SW. Derelict circular forts stand on both these points. Hoo Flats and the E end of Hoo Island are located on the NW side of the reach, and Bishop Marsh and Nor Marsh lie on the SE side. The fairway has a least charted depth of 6m through this reach.

Gillingham Reach (51°24'N., 0°34'E.) extends 0.8 mile W from Folly Point and leads between Hoo Island, on the N side, and Copperhouse, Cinque Port, and Gillingham Marshes, on the S side. The entrances to Chatham Docks are situated at the W end this reach and the town of Gillingham stands along the shore to the E of the port.

Two piers and an extensive marina are situated close SE of the entrance to the port. The marina is comprised of a tidal basin, on the W side, and a wet basin, on the E side. Craft up to 22m in length and 2.5m draft can be accommodated in the tidal basin. Craft up to 20m in length and 5m draft can enter the wet basin through a lock at HW.

Chatham Docks (51°24'N., 0°33'E.)

World Port Index No. 31390

5.26 Chatham Docks, the former Naval Dockyard, comprises three wet basins and five drydocks situated on St. Mary's Island.

Tides—Currents.—Tides rise at Chatham Docks is about 6.1m at springs and 4.8m at neaps.

Depths—Limitations.—The dock complex is entered through two locks situated on the W side of Gillingham Reach.

South Lock is 145.9m long, 28.6m wide at the coping level, and has a depth on the centerline over the sill of 4.2m. North Lock is 145.2m long, 26.6m wide at the coping level, and has a depth on the centerline over the sill of 4.7m. There is a maintained depth of 5.2m in the approach to the North Lock and 4.7m in the approach to the South Lock. However, it is reported (1999) that there may be less water at times in the approaches and locks due to silting.

Commercial facilities for shipping are only situated within one basin. These consist of eight berths, 122 to 168m long, with depths of 8.5m alongside. It is reported that the other basins are being developed into a marina.

Generally, vessels up to 143m in length, 25m beam, and 8m draft can be accommodated. Vessels of greater length than the locks can be handled by canaling through at HW. There are facilities for container, ro-ro, and vehicle ferries.

Courtesy of the Port of Chatham

Chatham Docks

5.27 The River Medway above Chatham Docks—Short Reach (51°24'N., 0°33'E.) extends NW for about 0.5 mile from the entrance of the wet docks between the walled bank of St.

Mary's Island and the drying mud flat lying NW of Hoo Island. Several mooring buoys and a yacht marina are situated on the NE side of this reach. There is a least charted depth of 3.7m in the fairway.

Cockham Reach, a bend in the river, extends 0.5 mile WNW from Short Reach. The N bank is fringed by shingle and the S bank by a mud flat. Yacht moorings lie adjacent to each side of the fairway. There is a least charted depth of 2.7m in the fairway.

Upnor Reach extends 0.6 mile SSW from Cockham Reach. Its banks are mostly walled and fringed by drying mud flats. There is a least charted depth of 3.3m in the fairway. Upnor Jetty, an L-shaped jetty, is situated on the W side of the reach and has a depth of 5m alongside. Royal Engineers Jetty, with mooring buoys close SSW, is situated 0.4 mile SSW of Upnor Jetty. St. Mary's Wharf and a pontoon berth, with depths of 2 to 4m alongside, are situated on the E side of the reach.

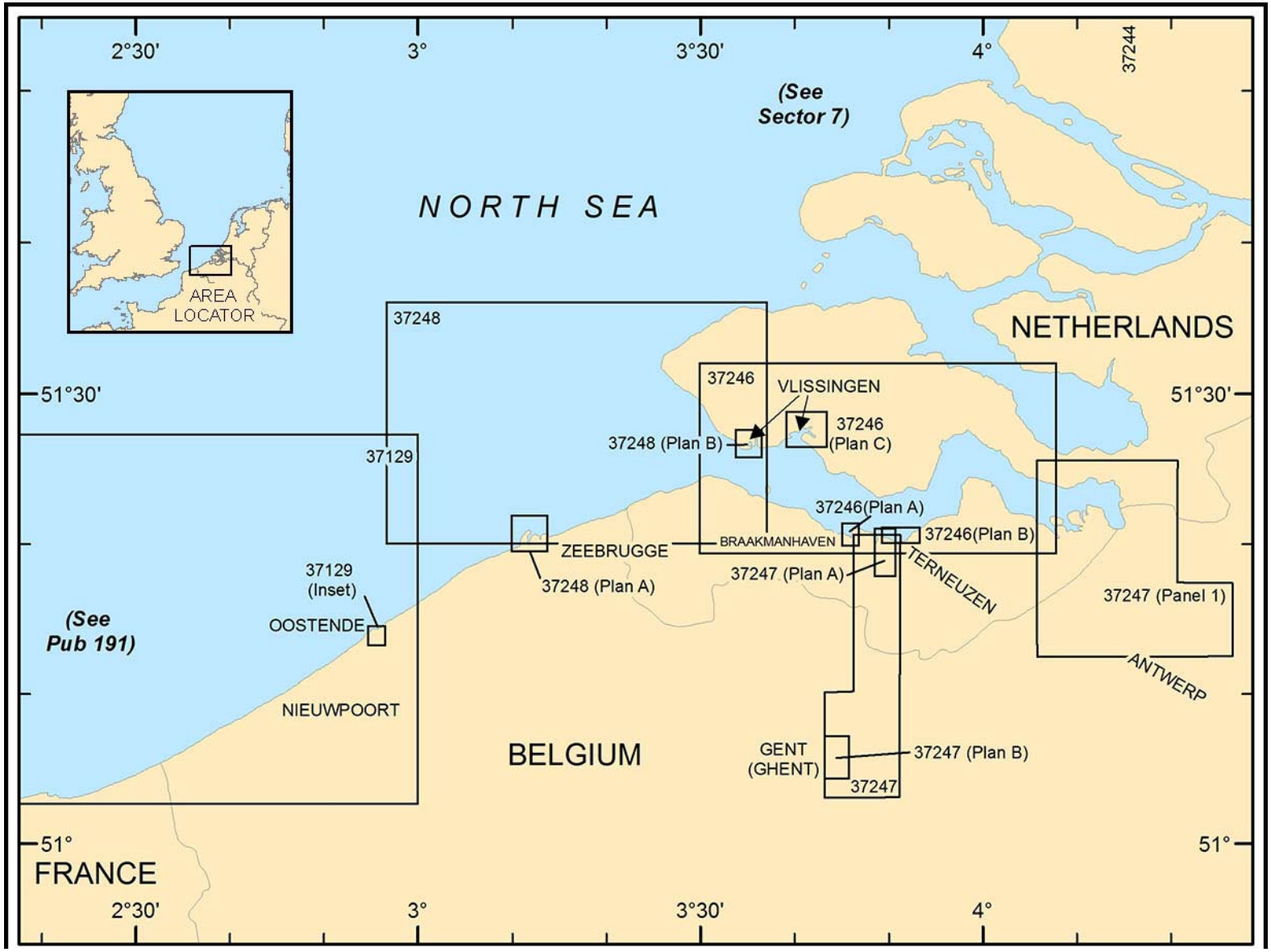
Chatham Reach, about 1 mile long, is the S continuation of Upnor Reach. There is a least charted depth of 2.4m in the fairway. The W bank consists of marshland which terminates at Chatham Ness (51°23'N., 0°31'E.), a low and rounded point formed of reclaimed land. Several piers, wharves, and dry docks are situated at the E side of the reach and are mostly all disused. The town of Chatham stands at the S end of this reach. Brompton and Rochester stand, respectively, NE and NW of Chatham.

Limehouse Reach, the NNW continuation of Chatham Reach, extends between Chatham Ness and Gashouse Point, 0.5 mile NW. The S part of the NE bank consists of marshland fronted by a drying flat; the N part is mostly walled and bordered by the ruins of a cement works. The SW bank is fronted by wharves, which dry alongside, and numerous mooring buoys used by barges, are situated within the reach. The charted depths in the reach vary from 2.1 to 8.2m, with the greatest depths lying in the SE part, close to the SW bank.

Bridge Reach, 0.3 mile long, is the SW turn of the river leading to the Rochester Bridge. The N bank is walled and backed by the town of Strood. The charted depths in the channel are very irregular and vary from 0.3 to 7.8m. Several wharves and mooring buoys are situated within the reach and are mainly used for lightering operations. In addition, three private industry wharves are situated within the area and have depths alongside of 4 to 9m at HWS and 3 to 7.3m at HWN. Vessels up to 120m in length and 7.6m draft can be accommodated.

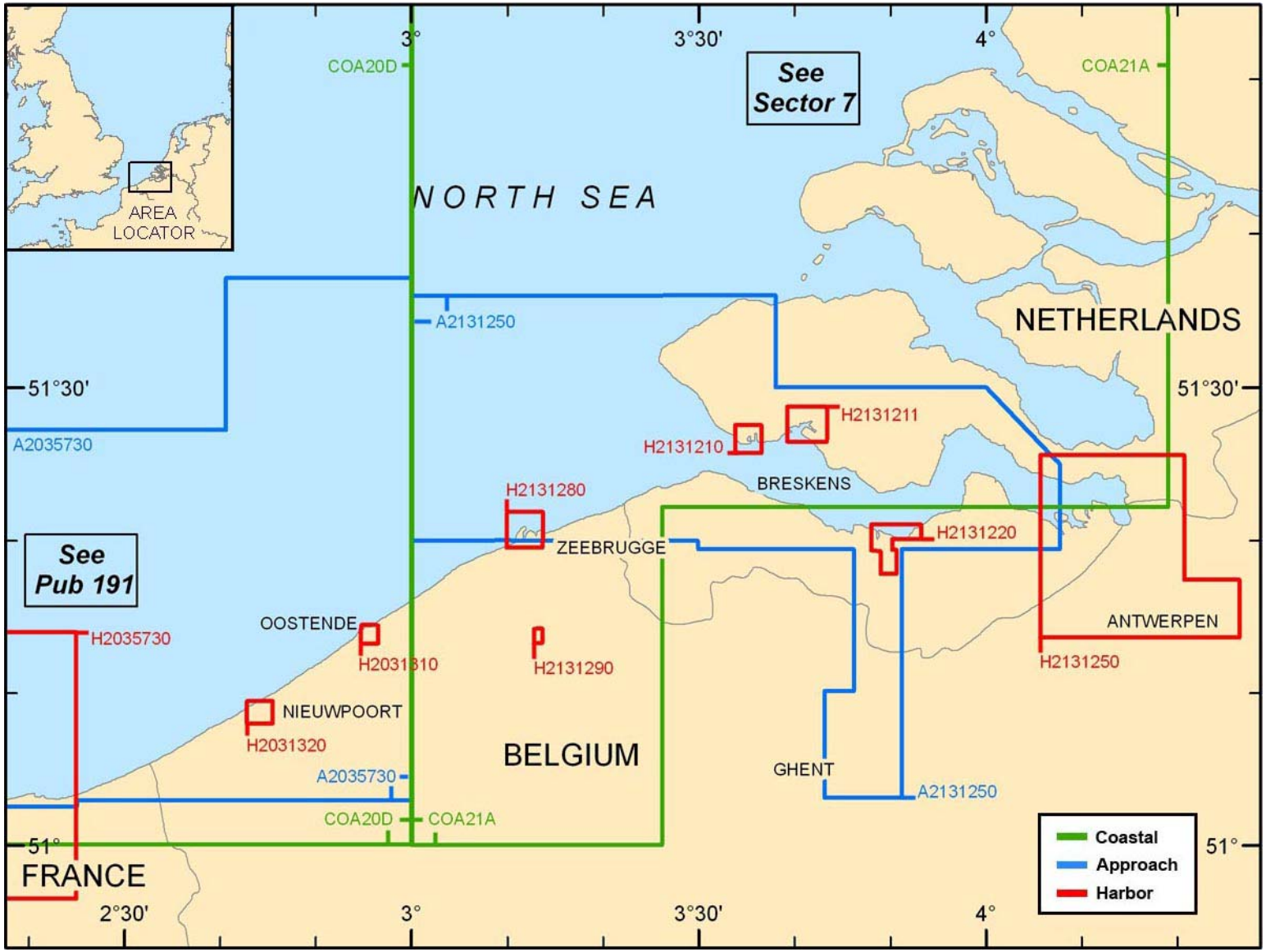
The **Rochester Bridge** (51°23'N., 0°30'E.) consists of three bridges, one being an arched bridge, with two metal bridges standing close NE of it. The center span of the bridge, which is marked by lights, has a vertical clearance of 5.9m at MHWS and a least charted depth of 0.6m under it; the greatest depth, 2.1m, lies under the N span.

Tower Reach leads above the bridge and shoals rapidly. Several marinas and yacht club facilities are situated along its banks.



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

SECTOR **6** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC's 20 and 21 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 6 — DNC LIBRARY INFORMATION

SECTOR 6

BELGIUM AND THE NETHERLANDS—NIEUWPOORT TO WESTKAPELLE (INCLUDING THE SCHELDE)

Plan.—This sector describes the coasts of Belgium and the Netherlands, from the French frontier to Westkapelle, the W extremity of Walcheren. It includes the extensive Flanders Banks and the other detached offshore banks which lie in the W and N approaches to these coasts and the Westerschelde. This sector also describes the Schelde as far SE as the ports of Antwerpen and Bruxelles. The descriptive sequence is NE along the coastal area and then SE into the Schelde and towards its head.

General Remarks

6.1 The S shore of the North Sea described within this sector consists of the coast of Belgium and that part of the Netherlands coast which borders the approaches to the Westerschelde and the Schelde.

The Belgian coast extends for 36 miles between the French frontier and the Netherlands boundary, the latter situated 6 miles W of the mouth of the Westerschelde. The entire area is fronted by an extensive series of shoal banks, both detached and contiguous to the shore.

The shoals lying on the coastal bank are known as Flanders Banks, which in their entirety also encompass the shoals off the French coast between Calais and the Franco-Belgian boundary.

The coast of Belgium is low and formed of sand dunes near the shore. Except for the conspicuous landmarks situated in the vicinity of the harbors and sea resorts, the coast affords few identifiable features.

Nieuwpoort, Oostende, and Zeebrugge are the main ports situated along the Belgian coast. In addition, the port of Brugge is accessible through a canal which is entered within Zeebrugge.

These main ports can be approached through channels, which lie between the various shoals on Flanders Banks, and by a coastal route which leads from Dunkerque. However, the principal approach is through the channel which leads between Flanders Banks and the other off-lying banks.

Westerschelde, the name given to the W part of the Schelde, can be approached through three main channels which lead between the off-lying banks. Schuer, the principal deep-water approach channel, leads E from the Wandelaar Pilot Station; Wielingen, the southernmost channel, leads close to the coast, E of Zeebrugge; and Oostgat, the approach channel from the N, lies close to the SW side of Walcheren. Deurloo, a secondary channel, is available to small vessels and leads over the shoals which lie between the other two channels. It joins Oostgat near the S end of Walcheren.

The Schelde, which forms the approach from the North Sea to the Netherlands ports of Vlissingen (Flushing) and Terneuzen, extends SE to the Belgian ports of Antwerpen and Bruxelles. The W part of the Schelde, which passes through Netherlands territory, is known as the Westerschelde.

Winds—Weather.—Fog may be encountered along this stretch of coast during practically any month of the year, but it shows considerable variations from place to place. August and September are months of comparatively little fog. The maximum density occurs, both offshore and in the coastal areas, during January to June.

At Oostende, fog is most frequent (4 to 7 days per month) from October to February and less frequent (1 day or less per month) from May to July.

At Vlissingen, fog is most frequent (4 to 6 days per month) from October to March and less frequent (2 days per month) from June to August.

Pilotage.—Compulsory pilotage in the Netherlands depends on the destination, the fairway, and the size, the cargo, and if exemption/dispensation has been given to the vessel.

Vessels should send a request for pilots to the appropriate pilot station at least 6 hours in advance with the following information:

ID	Information Required
A	Name, call sign, and flag.
B	Date and time (state difference from UTC).
I	Port of destination.
J	Cargo product(s) carried. Technical name of any dangerous cargo.
O	Agent.
P	gt and length.
T	Additional remarks concerning damage, injury, navigability, equipment, or list.
U	Length, beam (in meters and centimeters) and gross tons.
X	Any other information.

If the original ETA changes more than 1.5 hours (30 minutes for Den Helder, LJmuiden, or Amsterdam), a revised ETA should be reported.

Vessels should send their ETD 1 hour in advance unless stated otherwise in the port entry.

Details of amendments to the Netherlands Pilotage Service can be obtained from the appropriate VTS Center.

Vessels required to use the “mandatory route for tankers from the German Bight and vice versa” are referred to IMO resolution A.486(xii), adopted on the 19th November 1981, concerning the “Recommendation on the use of adequately qualified Deep Sea Pilots in the North Sea, English Channel and Skagerrak”. For further information, see Pub. 140, Sailing

Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

Deep Sea Pilotage is not compulsory. but should be ordered 48 hours in advance.

Regulations.—Traffic Separation Schemes (TSS) and Deep-Water Routes (IMO-adopted) are situated in the waters of Dover Strait and the North Sea. The positions of the various schemes and routes, including the relevant navigation aids, may best be seen on the charts.

For regulations and restrictions concerning these schemes and routes in Dover Strait, see Pub. 191, Sailing Directions (Enroute) English Channel (Sector 6).

Deep-Draft Tracks have been established within the Traffic Separation Schemes and Deep-Water Routes mentioned above. The tracks are for the use of large vessels and take advantage of the best water available; however, these tracks are not to be considered recommended tracks as certain portions of each track pass through areas which may be subject to change.

Reporting Codes		
ID	**Information**	**Details**
A	Vessel	Vessel name, call sign, IMO No. or MMSI, and flag
B	Date and time of event (UTC)	A six-digit group giving day of month for the first two digits and hours and minutes for the last four digits.
C	Position	A four-digit group giving latitude in degrees and minutes suffixed with N and S and a five-digit group for longitude in degrees and minutes suffixed with E and W.
D	Position	True bearing (in whole degrees, three digits) and distance in miles from a clearly identified landmark.
G	Port of departure	Name of last port of call.
H	Date, time, and point of entry into system	Planned route, including date and time of entering the approach area as expressed in B and the position of entering area as expressed in C or D.
I	Destination and ETA	Destination (i.e. pilot station, port) date and time as expressed in B.
J	Pilot	State whether a deep sea or local pilot on board or if one is requested.
K	Date, time, and point of exit from system	Exit time as expressed as in B.
L	Route information	Intended track.
O	Maximum present static draft (in meters)	A four-digit group in meters and centimeters.
P	Cargo on board	Nature of cargo and, if cargo consists of harmful and dangerous substances, details of technical names and UN identification numbers, and if applicable, the IMO danger classification in accordance with IMDG, IBC and IGC codes. The Vessel class in accordance with the INF code. The quantity of dangerous goods, their location on board and their identification numbers if they are located in transport units suitable for cargo transport, except tanks. Confirmation that a list, manifest or an appropriate loading plan is on board, containing detailed information regarding the dangerous and noxious goods carried and their location on board. Confirmation that a list, manifest, or cargo plan is on board, accurately specifying the harmful or dangerous goods the vessel is carrying and their location on board. If the hold has been fumigated with a gaseous fumigant, also report the nature of the cargo, the chemical name of the fumigant, the disinfected spaces or the place of stowage of the disinfected cargo, the date of treatment with disinfecting agents, spaces that have been ventilated with air after treatment with the disinfecting agents, the presence of appropriate inboard gas detectors for measuring concentrations of disinfecting gasses and whether spaces have been checked before arrival for the presence of disinfecting gasses, mentioning the spaces and measured value in parts per million.
Q	Defects, damage, deficiencies, or limitations	Brief details of defects, damage, and deficiencies or other limitations.
T1	Vessel representative	Name, address, and telephone number of Vessel agent, master, or operator.
T2	Vessel representative	Name of customer.

Reporting Codes		
ID	**Information**	**Details**
U	Vessel size and type	Details of length, beam, gross tons, and type.
W	Total number of persons on board	Total number of crew on board and total number of person on board.
X1	Miscellaneous	Presence of bow/stern thruster including capacity in KW, radar, gyro compass, VHF with VTS channels for areas to be passed, and manoeuvring speed in knots.
X2	Miscellaneous	Report any changes to previous port.
X3	Miscellaneous	Required tugs or linesmen.
X4	Miscellaneous	Purpose of visit.
X5	Miscellaneous	Any other important information.
X6	Miscellaneous	Does vessel posses a valid international ship security certificated/N)? Current security level, name of vessels's security officer, and the authority that issued the ISPS Certificate. Last 10 ports of call—Name of port, dates of arrival and departure. Security level. Special or additional security measures taken by vessel. Appropriate security measures maintained by vessel were also maintained during ship-to-ship activities during last 10 ports of call (Y/N)? Any security measures required at the port facility? Other practical or security-related information (including ship-to-ship operations). Is vessel capable of executing ship security plan (Y/N)?
X7	Miscellaneous	A copy of the international Oil Prevention Certificate (IOPP Certificate).

The Mariners Routing Guide, British Admiralty Chart 5500, contains Passage Planning Chartlets which indicate the routes through the English Channel, Dover Strait, and the S part of the North Sea. Information concerning regulations, pilotage, and radio reporting systems is also included.

A recommendation has been adopted by the IMO that all vessels navigating in the vicinity of the English Channel, Dover Strait, and North Sea should have on board the latest edition of Chart 5500 (British Admiralty) or other equivalent guide.

For details of waypoints and under keel clearances concerning the Deep Water Routes within the Dover Strait TSS and Noord Hinder South TSS, see Pub. 191, Sailing Directions (Enroute) English Channel (Sector 6).

The West Hinder TSS extends between position 51°20'N, 2°10'E, located 5 miles WSW of the S end of Fairy Bank, and position 51°22'N, 2°43'E, located 3 miles NNW of the N end of Middle Kerkebank.

This TSS is the principal approach to the main channel which leads to the Westerschelde (see paragraph 6.11). At its W end, the TSS joins those of the North Hinder and Dover Strait. The westbound traffic lane lies to the N of the eastbound lane and an anchorage area is situated to the N of the traffic lanes at the E end of the scheme. Westbound vessels leaving the TSS and crossing the northeast bound traffic lane of the Dover Strait TSS should keep to the NE of the Northeast Limit Line of the Deep-Water Route.

For details of traffic regulations and IMO restrictions concerning the Deep Water Routes and TSS leading N through the North Sea and into the German Bight, see paragraph 8.4 and paragraph 8.5, as well as the directions under individual Belgian ports.

Masters of vessels that are loaded or have or have been emptied of hazardous substances, as defined in Annex 1 of the Westerschelde Shipping Regulations 1990, shall report this to the Joint Nautical Authority (GNA). These notifications must be provided as follows:

1. At least 24 hours before arrival inside the zone managed by the GNA, or
2. No later than the time at which the vessel departs from its previous part of call, in the event that the destination was already known upon departure from the previous port of call and the duration of the voyage is less than 24 hours, or
3. As soon as the destination is known, but no later then the point at which the vessel enters Dutch territorial waters, if the destination was not known upon departure from the previous port of call or was changed during the course of the voyage.

Notification must take place by means of the notification form available from the GNA, The completed form must be sent to the GNA by facsimile (31-118-472503) or by e-mail (imolading@vts-scheldt.net).

Vessel Traffic Services.—The **WETREP (Western Europe Tanker Reporting System)** is a VTS system, under SOLAS regulations, which operates in the W approaches to Spain, Portugal, France, Belgium, the United Kingdom (including the Shetland Islands), and Ireland. This system is mandatory for all oil tankers over 600 dwt carrying heavy crude oil, heavy fuel oil, or bitumen and tar and their emulsions. It does not apply to warships, naval auxiliary, or other vessels owned or operated

by a contracting government and used, for the time being, only on government non-commercial service. For further details, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

The WETREP (Western Europe Tanker Reporting System) operating areas have also been designated (2005) by the IMO as Particularly Sensitive Sea Areas (PSSA). For further details of PSSA, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

The **Dover Strait Reporting System (CALDOVREP)** is a mandatory reporting system under SOLAS regulations which operates in the Dover Strait Traffic Separation Scheme (TSS). For further details concerning CALDOVREP, see Pub. 191, Sailing Directions (Enroute) English Channel (Sector 6).

The **Ship Movement Reporting System (MAREP)** is a voluntary reporting system operating in the English Channel and Dover Strait. Vessels are requested to report to the appropriate shore station when approaching the following:

1. The TSS off Ile d'Ouessant.
2. The TSS off Casquets.
3. The TSS within Dover Strait.

For further details of MAREP, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

Due to the CALDOVREP reporting system being mandatory in the area of the Dover Strait TSS, vessels are advised that this system takes precedence over the Ship Movement Report System (MAREP), which is voluntary.

Signals.—International traffic signals, which are displayed at the majority of ports described within this sector, are, as fol lows:

1. Three red lights, vertically disposed—Vessels shall not proceed.
2. Three red flashing lights, vertically disposed—There is an emergency and all vessels must stop or divert according to instructions.
3. Three green lights, vertically disposed—Vessels may proceed in one-way traffic.
4. Three lights, vertically disposed, with the two upper lights being green and the lower one being white—Vessels may proceed in two-way traffic.
5. Three lights, vertically disposed, with the upper and lower lights being green and the center light being white—Vessels may proceed only when they have obtained specific instructions to do so.

Caution.—Ferries, jet foils, hovercraft, and high-speed catamarans may be encountered within the waters described in this sector.

Numerous submarine cables lie in the vicinity of the coast and off-lying banks; they may best be seen on the chart.

Several gas pipelines lie in the vicinity of the coast and off-line banks and may best be seen on the chart.

Belgian fishing vessels, when fishing for sprat, make use of a trawl net which is towed between two vessels up to 120m apart. These vessels by day fly International Code Flag D and by night direct searchlights so that the beams cross each other ahead, astern, or between both vessels. In the event of an emergency to warn approaching ships, the light beams may be quickly swept horizontally.

Numerous wrecks, some dangerous, lie off this coast and may best be seen on the chart.

Off-lying Banks and Navigational Aids

6.2 Several detached shoal banks, which are long and narrow, lie offshore and are of concern to vessels bound for ports in the SE part of the North Sea. These include Fairy Bank, West Hinder Bank, East Hinder Bank, North Hinder Bank, Blush Bank, Thereinto Bank, and Rabs Bank. In addition, several unnamed banks lie in this same offshore vicinity. The above banks and the principal passages leading between them are marked by lighted buoys and lighted beacons, which may best be seen on the chart.

For offshore banks and shoals, which form Flanders Banks, lying SW of the above named shoals, see Pub. 191, Sailing Directions (Enroute) English Channel (Sector 6).

Fairy Bank (51°24'N., 2°20'E.) extends NE for 9 miles and has a least depth of 5.5m near its center. A similar bank, with a least depth of 8.5m, lies close N of Fairy Bank and joins it at the NE end. Another bank, with a least depth of 14.3m, lies 5 miles W of the N end of Fairy Bank.

West Hinder Bank (51°27'N., 2°30'E.) lies about 4.5 miles E of the S end of Fairy Bank and extends NE for 14 miles. An isolated patch, with a depth of 13.4m, lies about 1 mile SSW of the S end of this bank. Depths of less than 5m exist on the N part of this bank and it may be discerned by tide rips.

West Hinder Light (51°23'N., 2°26'E.), equipped with a racon, is shown from a platform, 23m high, standing at the S end of the shoal bank. Strong tidal currents are reported to exist in the vicinity of this light platform.

Oostdyck Radar Tower (51°16'N., 2°27'E.) stands about 7 miles S of West Hinder Light at the SE side of Dyck Oriental (Oost Dyck). It is 15m high, lighted, and equipped with a racon. Another tower supporting a helicopter landing deck is situated alongside the radar tower and is connected to it by a walkway.

Oostdyck Radar Tower

A narrow bank, with a least depth of 11m, lies between the N part of Fairy Bank and the N part of West Hinder Bank. A

similar bank, with a least depth of 10m, lies about 3 miles NE of the S end of West Hinder Bank.

North Hinder Bank (51°37'N., 2°34'E.), a dangerous and narrow sand bank, lies with its S end located about 1 mile WNW of the N extremity of West Hinder Bank. It extends NNE for 7.5 miles and is steep-to with a least depth of 8.2m.

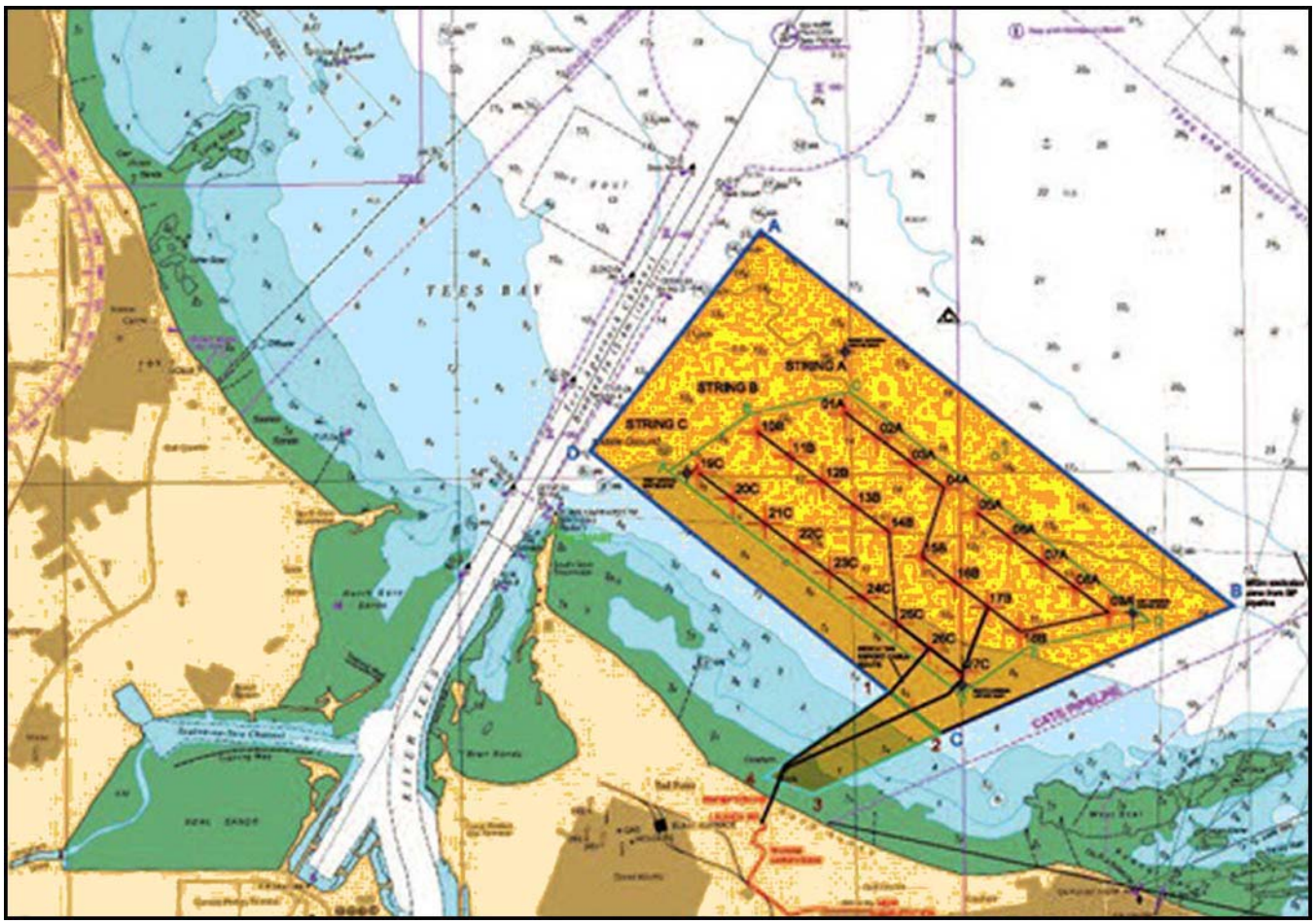
East Hinder Bank (51°33'N., 2°39'E.) lies 3 miles E of North Hinder Bank and has a least depth of 7.3m.

Bligh Bank (51°36'N., 2°46'E.), a narrow sand bank, lies about 3 miles E of East Hinder Bank and has a least depth of 8.8m.

Bligh Bank Offshore Wind Farm comprises 55 wind turbines centered on position 51º40.3'N, 2º48.0'E. A submarine cable leads generally SSE from the wind farm to a position close W of Zeebrugge. A 500m safety zone, in which navigation is prohibited, is established around the wind farm installations.

Caution—A wreck with a depth of 11m, marked by four lighted buoys (cardinal), lies in position 51º51.3'N, 2º54.3'E.

6.3 Thornton Banks (51°35'N., 3°00'E.) lie with their SW end 2 miles SE of the S end of Bligh Bank. They extend NE for 13.5 miles and have a least depth of 4.6m. It is reported that, in clear weather, by day, the W end of Walcheren Island can be seen and, at night, Westkapelle Light is visible from a position at the NE end of these banks.



Thorntonbank Wind Farm

Thorntonbank Wind Farm (51º33'N., 2º59'E.), is comprised of 54 wind turbines. Vessels are prohibited from entering the wind farm area including a distance of 500m from any installation. Wind turbines on the perimeter exhibit flashing lights.

Goote Bank (51°27'N., 2°50'E.), with a least depth of 10m, lies 3 miles S of the SW end of Thornton Banks and extends for 11 miles. A shoal patch, with a least depth of 12.4m, lies about 1.5 miles SW of the SW end of this bank.

Akkaert Bank (51°23'N., 2°50'E.), with a least depth of 9.4m, lies 3 miles SSE of Goote Bank. A detached shoal, with a least depth of 9.4m, lies about 3 miles E of the center of this bank.

Rabs Bank (51°36'N., 3°08'E.), with a least depth of 7.9m, lies 4 miles NE of the shallowest part of Thornton Banks. Two detached banks, with least depths of about 14m, lie in the central part of the comparatively deep water located between this bank and Bligh Bank.

Thorntonbank Wind Turbines

Schaar (51°41'N., 3°15'E.) lies about 2 miles NNW of Rabs Bank and has a least depth of about 10m.

Buitenbanken (51°49'N., 3°08'E.) lies with its W part located 6 miles N of Schaar and has a least depth of 12.5.

6.4 Buiten Ratel (51°15'N., 2°32'E.), a bank with depths of 2.7 to 8.9m, lies about 10 miles NW of Nieuwpoort. Binnen Ratel, lying 2 miles SW of this bank, has a least depth of 3.6m.

Kwinte Bank (51°16'N., 2°38'E.) lies 1.5 miles E of the N part of Buiten Ratel and has a least depth of 4.4m. Kwinte, a deep and unmarked passage, leads between this shoal bank and Buiten Ratel.

Middle Kerkebank (51°18'N., 2°44'E.), with a least depth of 4.1m, lies 1.5 to 2 miles E of Kwinte Bank.

Negenvaam (North Channel) (51°16'N., 2°40'E.), a deep passage, lies between Kwinte Bank and Middle Kerkebank.

Oostende Bank (51°18'N., 2°48'E.) extends about 8 miles NE from its junction with the S end of Middle Kerkebank and has very irregular depths. A least depth of 4m lies near its SW end. Ravelingen are shoal patches, with depths of 3.8 to 5m, which lie at the S end of Oostende Bank. It is reported that these patches may change position and depth during N gales which form heavy breaking seas in this vicinity.

Uiydiep (51°17'N., 2°44'E.), a channel, leads between Oostende Bank and Middle Kerkebank.

Wenduine Bank (51°19'N., 2°59'E.), a narrow shoal bank, extends 12 miles ENE from a position 3 miles NNW of Oostende and joins the coastal bank off Blankenberge and Zeebrugge.

Stroom Bank (51°14'N., 2°52'E.), a narrow and ridged sand bank, lies 1.5 miles offshore between Nieuwpoort and Oostende and has depths of 2 to 4m.

Smal Bank and Nieuwpoort Bank lie W of Stroom Bank and inshore of the above-described shoal banks. Several roadsteads lie between these three banks and access may be gained through various channels which may best be seen on the chart.

Westdiep (51°10'N., 2°36'E.) has depths of 5.5 to 14.6m and lies S of Smal Bank and the W end of Nieuwpoort Bank. This roadstead is approached from the N through Noordpas (51° 12'N., 2°38'E.), which leads between Smal Bank and Nieuwpoort Bank. It may also be approached from the W through Passe de Zuydcoote.

Grote Rede (51°15'N., 2°51'E.), the outer road-stead off Oostende, has general depths of 5.5 to 11.9m, but is obstructed by several wrecks and shoal areas. This road-stead is connected to Westdiep by Noordoostpas, which leads between Nieuwpoort Bank and Stroom Bank. Kleine Rede, the inner road-stead, has general depths of 5.5 to 9.8m and lies W of the entrance to Oostende. It has a least charted depth of 5m.

Wandelaar (51°23'N., 3°03'E.) is an area of irregular depths lying between 4 and 6 miles NW of Blankenberge. Numerous dangerous wrecks lie in this general vicinity.

Bol van Heist (51°23'N., 3°13'E.), an area with depths of 5.4 to 9.4m, lies in the middle of Ribzand, 2.5 miles N of the entrance to Zeebrugge.

Lighted tide gauge platforms designated MOW 0 (51°24'N., 3°03'E.), MOW 1 (51°22'N., 3°07'E.), MOW 2 (51°22'N., 3°17'E.), MOW 3 (51°23'N., 3°12'E.), and MOW 4 (51°25'N., 3°18'E.), stand in the approaches to Zeebrugge. Racons are situated at MOW 0 platform and MOW 3 platform.

The French Border to Zeebrugge

6.5 The Belgian coast between the French border and Nieuwpoort, 7.5 miles ENE, consists of a wide belt of sand dunes of moderate height. Several resorts with sea walls and promenades stand along this section of the coast.

De Panne, a coastal resort town, is situated 2 miles ENE of the frontier and has numerous large buildings which stand near the beach. In addition, a prominent water tower stands about 1 mile inland from the town. Koksijde Bad, another resort, is situated about 2 miles farther ENE. A conspicuous steep sand dune, used for tobogganing by vacationers, stands between these resorts.

Oostduinkerke Bad, a small resort with a brick-faced promenade, is situated between Koksijde Bad and the entrance to Nieuwpoort.

Pilotage.—It is reported (2002) that all boarding of pilots in the roads of the Belgium ports of Nieuwpoort, Oostende, and Zeebrugge has ceased.

All vessels over 80m in length and 2.2m draft bound for a Belgian coastal port, except those with a pilotage exemption, must embark a pilot at the Wandelaar Pilot Station (51°22.5'N., 2°43.0'E.) For details of the Wandelaar Pilot Station, see Pilotage under the Westerschelde in paragraph 6.13.

6.6 **Nieuwpoort** (51°08'N., 2°45'E.) (World Port Index No. 31320) is a small port used by fishing vessels, small coasters, and yachts. It is connected to the inland canal system. The town is situated 2.3 miles within the mouth of the Yzer River.

Tides—Currents.—Tides rise about 5.3m at springs and 4.3m at neaps.

Depths—Limitations.—The entrance channel has a depth of 3m at MLWS. There is a commercial wharf, 1,200m long. In addition, there is a basin for fishing vessels and extensive facilities for yachts. Vessels up to 1,540 dwt, 82m in length, and 5.3m draft can be accommodated at HWS.

Aspect.—The entrance channel leads into the harbor between two pile piers. A resort, with conspicuous tall buildings and blocks of apartments, is situated on the W side of the entrance. A light is shown from a prominent tower standing on a dune, 0.5 mile ESE of the entrance.

Several large resort buildings, towers, and masts stand near the shore between the harbor and Oostende, 9 miles NE, and are conspicuous from seaward.

Pilotage.—Pilots must be embarked at the Wandelaar Pilot Station (see paragraph 6.13).

Pilotage through Flanders Banks is advisable for vessels without local knowledge. Pilots for this route are available from Dunkerque.

Regulations.—Vessels over 75m in length, and up to a maximum length of 82m, should request permission to enter from the port authorities 24 hours in advance, stating draft and any special means of maneuvering. Such vessels must arrive in the roads 6 hours prior to HW at the port.

Vessel Traffic Service.—Vessel Traffic Service Scheldemond (VTS-SM) operates in the W approaches to the estuary of the Westerschelde, N of Nieuwpoort. The Wandelaar Pilot Station is situated within the Traffic Area Wandelaar of this system. For complete details of the VTS-SM procedures, see Regulations (Traffic Control) under the Westerschelde in paragraph 6.13.

Anchorage.—Vessels may anchor, in depths of 5 to 7m, about 1 mile NW of the port entrance.

Directions.—Approach from the SW can be made through Zuydcoote Pas and Westdiep; the least depth in Zuydcoote Pas is reported to be 3.3m. There is also a passage from the W, suitable for small craft with local knowledge, over Broers Bank and Den Oever. This passage should only be used in calm weather when the tidal currents are slack as, at other times, dangerous seas break over these banks.

Approach from the N can be made through Negenvaam and Noordpas; the least depth in Noordpas is reported to be 6.5m.

Approach from the NE can be made through the channel which leads between Ravelingen and Wenduine Bank into Grote Rede, 2 miles NW of Oostende. Vessels should then pass to the N of Stroom Bank.

Approach from the E can be made by passing through Kleine Rede, which lies close offshore and has a least reported depth of 5m.

Oostende (51°14'N., 2°55'E.)

World Port Index No. 31310

6.7 Oostende, a resort town, is a commercial port, fishing center, and a terminus for cross-channel ferries. It is also a Belgian Navy base and is connected to the inland canal system.

Tides—Currents.—Tides at Oostende rise about 5.1m at springs and 4.2m at neaps.

The tidal currents generally set along the coast, except near the end of the E and the beginning of the W currents, when they tend to set away from the coast. The E tidal current has a spring rate of about 2.5 knots and the W current a rate of 1 knot.

Winds—Weather.—Southwest and W winds predominate throughout the year. During the winter, fog occurs about 7 days per month; during the summer, fog occurs 1 day per month.

Depths—Limitations.—The harbor consists of a narrow dredged channel, wet docks, and basins. It is entered between piers, which are for most of their length 120m apart. The entrance fairway from Grote Rede has a dredged depth of about 6m on the range line.

Montgomery Basin, situated on the NW side of the harbor, leads to Handels Dokken (Mercator Dock), a wet dock used by yachts. The entrance lock is 38m long and 12m wide; a depth of 2.5m is maintained in the dock. Visserhaven, a wet dock, is situated on the NE side of the harbor and used by fishing vessels. The entrance lock is 91m long, 16.5m wide, and has a depth of 4.2m on the sill; a depth of 3.7m is maintained in the dock. Tidok, a tidal basin, and the Naval Basin, which is entered through a turn lock, are also situated on the NE side of the harbor.

Voorhaven is situated on the SE side of the harbor. A deep-water quay, 360m long, is situated on its S side and has a depth of 7.7m alongside. Government and naval berths are situated along its N side. A complex of three wet docks is situated in the in the SW corner of the harbor and entered through a lock, 130m long and 17.2m wide, which has a depth of 4.2m on the sill. The main wharves within the complex include West Quay,

696m long; East Quay, 668m long; and Timber and Sway Dock Quay, 582m long. Generally, vessels up to 124m in length and 7.3m draft can be accommodated in the port at HW. There are facilities for ro-ro, container, and tanker vessels. In addition, there are two-level disembarkation services for ferries discharging passengers and vehicles.

The Oostende-Ghent Canal is navigable throughout the year, by vessels up to 3.8m draft in summer and 3.3m draft in winter, from Oostende to Brugge; then to Ghent, it is navigable by vessels up to 2m draft.

The Oostende-Brugge Canal, part of the Oostende-Ghent Canal, is navigable by vessels up to 6m draft in summer and 5.5m draft in winter to Zandvoorde (51°12'N., 3°00'E.).

Aspect.—A light is shown from a prominent tower, 58m high, standing on the E side of the harbor. A lighted range indicates the entrance fairway and may best be seen on the chart. A conspicuous tower block, 116m high, stands 0.4 mile SSW of the harbor entrance. A conspicuous radar tower is situated near the root of the E pier. Numerous prominent buildings stand near the shore, on the W side of the harbor entrance.

Oostende Light

Pilotage.—Pilots must be embarked at the Wandelaar Pilot Station (see paragraph 6.13).

Pilotage through Flanders Banks is advisable for vessels without local knowledge. Pilots for this route are available from Dunkerque.

Regulations.—Vessels must request permission to enter the port from Oostende Port Control on VHF channel 9 or by telephone.

Vessel Traffic Service.—Vessel Traffic Service Scheldemond (VTS-SM) operates in the W approaches to the estuary of the Westerschelde, N of Oostende. The Wandelaar Pilot Station is situated within the Traffic Area Wandelaar of this system. For complete details of the VTS-SM procedures, see Regulations (Traffic Control) under the Westerschelde in para-graph 6.13.

Signals.—International port traffic signals, which control entry and departure, are displayed in the pretties paragraph 6.1).

When it is necessary to keep the channel between the entrance and the locks clear for large ferries, an orange quick flashing light is shown, by day or at night, in addition to traffic signals from the head of the E pier and at the pilot station on the S side of the entrance to Montgomery Basin.

Two black cones, points together, shown by day or a blue flashing light shown at night from the pilot station indicate that all craft under oars and all pleasure craft under 6m in length are prohibited from leaving the harbor when there is an onshore wind of force 3 or more, or an offshore wind of force 4 or more.

Anchorage.—Grote Rede affords ample anchorage, with good holding ground, mud and sand, in depths of 8 to 10m. Kleine Rede affords only temporary anchorage, in depths of 6 to 7.5m, as the holding ground is poor, particularly near the harbor entrance.

Directions.—The deepest route leading to Grote Rede, 2 miles NW of the harbor entrance, is through Negenvaam and then between Nieuwpoort Bank and Oostende Bank. Vessels from the N may also pass between Oostende Bank and Wenduine Bank and then proceed through the passage lying between Wenduine Bank and Ravelingen. Vessels from the W may approach through Grote Rede or Kleine Rede.

Vessels from the E may approach through East Pass, which leads over the coastal bank, ENE of the entrance. However, this route should only be used by vessels with local knowledge.

Caution.—Vessels are advised not to enter the harbor with strong winds from NW through N to NE. Northwesterly winds send in a heavy swell into the harbor.

Under normal conditions, vessels enter or leave the harbor between 2 hours before and until HW. During this time, the tidal current generally sets E and vessels are advised to favor the W side of the entrance fairway to avoid being swept onto the E pier.

The lock entrance to the Oostende-Brugge Canal is opened at intervals to maintain a constant water level. This may result in a strong discharge of water and currents up to 1 knot in the inner part of the harbor. An orange light shown from the bridge at the entrance to the canal indicates that the discharge is to be expected; a red light indicates that the discharge is in progress.

Numerous wrecks, some dangerous, lie in the approach channels and may best be seen on the chart.

6.8 The coast between Oostende and Blankenberge, 8.5 miles NE, is marked by several steep sand dunes. De Haan, situated 4.7 miles NE of Oostende, and Wenduine, situated 2.3 miles farther NE, are coastal resorts. A church and two water towers stand in the vicinity of Wenduine and are conspicuous from seaward.

Blankenberge (51°19'N., 3°08'E.), a large coastal resort, has a small harbor which is mainly used by yachts. It dries and is entered between two stone piers by a channel with depths of about 1m. There is a yacht basin at the head of the harbor and facilities for fishing boats at the W side. The harbor may be approached from either Grote Rede or the main channel which leads S of Wandelaar.

A light is shown from a prominent tower, 30m high, standing on the NE side of the harbor. The entrance fairway is indicated by a lighted range which may best be seen on the chart. Several large buildings stand near the beach on the W side of the harbor entrance. A promenade pier, with a conspicuous cupola, fronts the town, 1 mile ENE of the harbor entrance.

Blankenberge Light

Tides—Currents.—Between Oostende and Zeebrugge, the tidal currents set in about the direction of the coast. Off Blankenberge, the E current begins about 3 hours 30 minutes before HW at Vlissingen, and the W current begins about 2 hours 45 minutes after HW at Vlissingen. At a position about 1 mile offshore, the E current attains a rate of 2 knots at springs and the W current about 1.5 knots.

Caution.—A submarine gas pipeline, which may best be seen on the chart, extends seaward from a point on the shore 1.7 miles ENE of Blankenberge, about 0.4 mile W of the W breakwater of Zeebrugge.

Zeebrugge (51°20'N., 3°12'E.)

World Port Index No. 31280

6.9 Zeebrugge is a cross-channel and North Sea ferry terminal, a major commercial port, and the sea terminus of the Baudouin Canal (Brugge-Zeebrugge).

Tides—Currents.—Tides rise about 4.8m at springs and 3.9m at neaps.

Off the breakwaters, the E tidal current begins to set about 3 hours 40 minutes before HW at Vlissingen. East of the breakwaters, the current is reported to set more towards the shore. At first the current is weak but, at springs, it increases to a maximum rate of 4 knots, about 1 hour before HW. At neaps, the maximum rate is about 2 knots.

The W tidal current begins to set about 2 hours 40 minutes after HW at Vlissingen. The maximum rate of the W current is about 3 knots at springs and 2 knots at neaps.

Depths—Limitations.—The approach channel is 500m wide and dredged to a depth of 13.5m over a width of 300m. The port consists of two parts; Outer Harbor, a tidal area, which is protected by two breakwaters and Inner Harbor, a controlled level area, entered through locks.

The following main wharves are situated within the Outer Harbor:

1. An LNG terminal is situated at the E side. It has a berth, 320m long, with a depth of 13m alongside. Vessels up to 280m in length and 11.8m draft can be accommodated.
2. The Leopold II Dam extends from the W side and has 1,571m of total berthage on its S side, with depths of 7.2 to 10.5m alongside. There are facilities for ferries and ro-ro vessels.
3. A car ferry terminal, with facilities for ro-ro vessels, is situated near the root of Leopold II Dam and has a depth of 7m alongside.
4. Ocean Container Terminal Hessenatie Zeebrugge, situated at the NW side, provides 2,230m of quayage. There are five berths, with depths of 15m alongside.
5. Flanders Container Terminal, situated close S of Ocean Terminal, provides 900m of quayage. There are two berths with depths of 12m alongside.
6. The Western Peninsula, situated at the SW side, is a container and ro-ro terminal. It provides 1,770m of quayage. There are seven main berths with depths of 15m alongside.
7. Brittaniadok, a tidal basin, is situated at the SE side and has pontoon ro-ro berths, with depths of 5 to 8m alongside.
8. Zweedse Kaai (Swedish Quay), close W of Brittaniadok, has 825m of berthage with a depth of 18m alongside.

Vessels up to 350m in length, 55m beam, and 14m draft can be handled in the Outer Harbor.

The Inner Harbor may be entered from the Outer Harbor through two locks.

The Pierre Vandamme Lock (E lock) is 500m long and 57m wide, with a depth of 15m on the sill at LWS. It leads into Connection Dock, which has depths of 18.5m and connects with the Baudouin Canal. Northern Inlet Dock, entered from the N side of Connection Dock, has about 2,000m of quayage, with depths of 14m alongside. Southern Canal Dock, entered from the S side of Connection Dock, has 810m of quayage, with a depth of 18.5m alongside. There are facilities for container, ro-ro, bulk, reefer, and general cargo vessels.

The Old Sea Lock (Visart Lock) (the W lock) is 210m long, 19.7m wide, and has a depth of 5.5m on the sill at LWS. It leads to a turning basin and two docks with depths of 8m.

Vessels up to 400m in length, 48m beam, and 15.9m draft can enter the Inner Harbor.

Zeebrugge

Aspect.—The entrance channel is indicated by a lighted range and marked by lighted buoys. A light is shown from a prominent tower, 20m high, standing at the outer end of the Leopold II Dam. A conspicuous radar tower is situated about 0.3 mile WSW of the light.

The container gantry cranes, standing on the W side of the harbor, are conspicuous. Several tanks standing at the LNG terminal are prominent. Several prominent wind generators stand along the E breakwater.

Pilotage.—Pilots must be embarked at the Wandelaar Pilot Station (see paragraph 6.13).

LNG vessels embark pilots about 1 mile E of the A-Zuid Lighted Buoy (51°21'N., 2°37'E.).

Pilotage through Flanders Banks is advisable for vessels without local knowledge.

Regulations.—Special rules are in force concerning the movement of LNG vessels in the approaches and within the port (see Signals).

Vessel Traffic Service.—Vessel Traffic Service Scheldemond (VTS-SM) operates in the W approaches to the estuary of the Westerschelde, N of Zeebrugge. The Wandelaar Pilot Station is situated within the Traffic Area Wandelaar and the port is located within Traffic Area Zeebrugge of this system.

For complete details of VTS-SM procedures, see Regulations (Traffic Control) under the Westerschelde in paragraph 6.13.

Signals.—International port traffic signals, which control entry and departure, are displayed from the head of the W breakwater and from the tower at the head of the Leopold II Dam (see paragraph 6.1).

The following signals are shown when LNG vessels are entering or departing:

1. A green light over a white light over a green light is shown to seaward and three red lights are shown to landward when an LNG vessel is inbound. Entry is only with definite permission and all departures are prohibited.
2. Three red lights are shown to seaward and a green light over a white light over a green light is shown to landward when an LNG vessel is outbound. Departure is only with definite permission and entry is prohibited.
3. Three yellow lights, displayed vertically, are shown alongside each of the above signals.

Contact Information.—The port may be contacted by e-mail, as follows:

mbz@unicall.be

Directions.—The main approach from NW is through a passage, marked by lighted buoys, known as Pas van Het Zand. It starts in the vicinity of the Wandelaar Pilot Station, about 12 miles W of the entrance, and leads through the Scheur Channel to the roadstead. An approach channel, marked by lighted buoys and indicated by a lighted range, leads into the entrance between the outer breakwaters.

Caution.—Depths in the approach and the harbor are subject to change due to silting; dredging is frequently in progress. The authorities should be contacted for the latest depths in the entrance channel.

Submarine gas pipelines, which may best be seen on the chart, extends seaward from a point on the shore near the root of the E breakwater and from a point on the shore about 0.4 mile W of the W breakwater.

It is reported (2000) that the inner lighted ranges within the harbor may be obstructed, at times, by stacks of shipping containers.

6.10 Brugge (Bruges) (51°14'N., 3°13'E.) (World Port Index No. 31290), a small port, is situated 5 miles S of Zeebrugge. It is connected to the Inner Harbor by the Baudouin Canal (Boudewijnkanaal), which has a minimum width of 70m and a depth of 6.3m (2000).

The port consists of three basins, which provide about 1,600m of commercial berthage, with depths of 6.1 to 8m alongside.

The canal is spanned by two lifting rail bridges, about 3 miles S of Zeebrugge, which have navigable passage widths of 40m and 30m. The canal is available to vessels up to 2,000 tons and 6m draft.

A lock connects the port with the Oostende-Ghent Canal and the whole of the international inland waterway system. It is 115m long and 11.9m wide, with a depth of 4m on the sill.

The Westerschelde

6.11 The approaches to the Westerschelde lie between the Belgian/Netherlands coast, E of Zeebrugge, and the SW coast of Walcheren. The outer sea area is known to the Dutch as Zeegat van Vlissingen (Flushing Channel). The Westerschelde is the name given to that part of the Schelde River which passes through Netherlands territory.

An extensive shoal bank encumbers the greater part of these approaches and is an extension the Flanders Banks. The main parts of this bank are Raan, Rassen, and Kaloo, named in that order from S to N.

South side.—The coastal resorts of Heist, Duinbergen, and Knokke-Zoute are situated 1, 2, and 3.5 miles, respectively, ENE of Zeebrugge. Prominent tall buildings stand near the beach at each of these places. A conspicuous water tower stands in the vicinity of Duinbergen.

Paardenmarkt, a narrow shoal ridge, extends about 4 miles E from Zeebrugge. It projects up to 1.5 miles from the shore and has depths of less than 5m.

Wielingen Sluis (51°22'N., 3°23'E.), located 3 miles ENE of Knokke-Zoute, is a gap in the coastal dike caused by the discharge of sluice into Wielingen. A conspicuous hotel building is reported to stand in this vicinity.

The Belgian/Netherlands border reaches the coast at a small indentation, called Sluissche Gat, 0.7 mile WSW of Wielingen Sluis. The land to the E of the boundary is known as Land van Kadzand. It is low and protected by a coastal dike.

Kruishoofd (51°24'N., 3°28'E.), situated 3.5 miles ENE of Wielingen Sluis, is a prominent part of the coastal dike. A disused light tower, 6m high, stands near the shore here.

Nieuwe Sluis Light (51°25'N., 3°31'E.) is shown from a prominent tower, 22m high, standing 2 miles ENE of Kruishoofd.

Nieuwe Sluis Light

Noorderhoofd Light

6.12 North Side.—Westkapelle (51°32'N., 3°26'E.), the W end of Walcheren, is the N entrance point of the approaches. A light is shown from a conspicuous tower, 52m high, standing about 0.5 mile inshore.

The W end of Walcheren is protected by a large dike known as Westkapelsche Dijk.

Westkapelle Light

Noorderhoofd Light (51°32'N., 3°26'E.) is shown from a tower, 16m high, standing on the N part of the dike, 0.7 mile NW of Westkapelle Light.

Molenhoofd Light is shown from a mast, 7m high, standing on the dike, 0.5 mile WSW of Westkapelle Light.

Zoutelande Light (51°30'N., 3°29'E.) is shown from a tower, 13m high, standing 1.7 miles SSE of Westkapelle Light. A tower, with a short spire visible above the sand dunes, stands 0.4 mile SE of this light. Several villas and a windmill stand in this vicinity.

Numerous stone dams and wooden groins extend from the shore along the W coast of Walcheren.

Middelburg (51°30'N., 3°37'E.) is situated in the center of Walcheren. A conspicuous tall steeple stands in the town and is visible from the seaward approaches.

Fort de Nolle (51°27'N., 3°33'E.), a prominent point, is located 4 miles SE of Zouttelande. A light is shown from a column, 6m high, standing on the point. Range lights are shown from Kaapduinen, 2 miles NW.

6.13 The Estuary.—The extensive shoal bank which occupies the greater part of the sea area extends up to about 17 miles W from the S coast of Walcheren and about 4.5 miles W and NW from Westkapelle.

Various parts of this shoal bank are identified by name. The more important ones are Raan, which forms the S part of the bank; Kaloo and Botkil, which form the N part of the bank; Rassen, which forms the central part of the bank; and Droogte van Schooneveld, which forms the W part of the bank.

Bol van Knokke, Carolusbankje, and Sluissche Hompels are dangerous shoals which lie to the S of the large shoal bank and on the N side of Wielingen.

Vlakte van de Raan (51°27'N., 3°13'E.), along with Droogte van Schooneveld at its SW end, forms the W part of Raan and has depths of 3.3 to 5.5m. Schooneveld, an extension W of these banks, has a least depth of 6.1m and general depths of 11 to 18m.

Bol van Knokke (51°25'N., 3°18'E.) and Carolusbankje form a shoal bank which is 3 miles long. Bol van Knokke, the W part of the bank, has a least depth of 3.2m and Carolusbankje has a least depth of 3.8m.

Sluissche Hompels (51°26'N., 3°26'E.), lying E of Carolusbankje, has a least depth of 3.4m. Walvischstaart and Elleboog, two narrow ridges, lie near the E end of Raan and have depths of less than 1.8m.

Nolleplaat, with a least depth of 0.3m, lies at the E extremity of Raan. Spleet, a shallow and narrow channel, leads W of Elleboog and Nolleplaat.

Kaloo (51°34'N., 3°21'E.), a shoal bank, lies with its N end located 4.5 miles NW of Noorderhoofd and has depths of less than 5m. Botkil, which has a least depth of 1.9m, lies SE of Kaloo and forms the W side of the N approach to Oostgat.

Kueerens (Domburger Rassen) (51°36'N., 3°26'E.), a shoal bank, extends 4 miles N from the vicinity of Noorderhoofd and has a least depth of 3.3m. During periods of continuous W winds, there is a heavy swell over this bank and W gales cause the sea to break heavily in places on it.

Schouwenbank Lighted Buoy (51°45'N., 3°14'E.), equipped with a racon, is moored 15 miles NW of Westkapelle and marks the N outer approach to the estuary.

A1 Lighted Buoy (51°22'N., 2°53'E.) is moored in the W approaches, about 8 miles N of Oostende.

Oostende Bank N Lighted Buoy (51°21'N., 2°53'E.) is moored 1.2 miles SSW of A1 Lighted Buoy.

West Hinder TSS (51°23'N., 2°30'E.), which may best be seen on the chart, leads from the North Hinder TSS and the Dover Strait TSS, at its W end, to the Westerscheld approaches, at its E end.

A Precautionary Area, which may best be seen on the chart, is situated at the E end of the West Hinder TSS, about 6 miles W of A1 Lighted Buoy, in the vicinity of the Wandelaar Pilot Station.

KB Lighted Buoy (51°21'N., 2°43'E.), equipped with a racon, is moored near the S part of the Precautionary Area at the N end of Kwinte Bank.

MBN Lighted Buoy (51°21'N., 2°46'E.) is moored 2.2 miles E of KB Lighted Buoy and at the SE limit of the Precautionary Area.

SWA Lighted Buo (51°22'N., 2°46'E.) is moored 2.5 miles NE of KB Lighted Buoy and at the NE limit of the Precautionary Area.

GZ Lighted Buoy (51°24'N., 2°44'E.) is moored about 3.4 miles NNE of KB Lighted Buoy.

VG2 Lighted Buoy(51°26'N., 2°48'E.) is moored about 2.8 miles NE of GZ Lighted Buoy. It is reported (2006) that this buoy is equipped with a racon.

VG Lighted Buoy (51°23'N., 2°46'E.) is moored about 0.7 mile N of SWA Lighted Buoy.

is moored about 2.5 miles NNE of SWA Lighted Buoy.

Kaloo (K) Lighted Buoy (51°35'N., 3°23'E.) is moored about 4 miles NNW of Westkapelle, in the NE approaches.

Pilotage.—Pilotage is compulsory for all seagoing vessels, including all vessels carrying oil, gas or chemicals (fully or partially loaded) or empty but not gas-free, irrespective of length.

Pilotage is not compulsory for the following:

1. Vessels of less than 80m in length.
2. Vessels less than 80m LOA (or vessels of more than 80m LOA but with maximum 75m London Length) and a draft of maximum 5.5m if using the estuaries of the Scheldt from the Magneboei, via the Oostgat, the Galgenput, the Sardijngeul and Vlissingen-Rede to the harbors of Vlissingen Oost (Flushing East).
3. Barges E of Flushing Roads.
4. Vessels on an estuary or fluvial maritime trade.
5. Vessels at anchor.
6. Vessels equipped to carry, and carrying, sand, gravel or dredged elements.
7. Vessels with pilotage exemption.
8. Military vessels.
9. Vessels owned or managed by the Dutch, Belgian or Flemish authorities.
10. Vessels owned or managed by the Flemish or Dutch pilotage Service.

Pilot Ordering.—For vessels inbound (including taking on a Pilot for Rede Van Vlissingen):

1. The initial request for Pilots should be sent via the agent no later than 6h in advance of the Pilot order time (the time at which the Pilot is required onboard), using the appropriate electronic ordering system for the port of destination:
   a. APICS/LIS21 - Antwerpen, Bovenzeeschelde, Zeekanaal.
   b. ENIGMA - Gent
   c. LIS21 - Nieuwpoort, Terneuzen, Vlissingen, Middelburg, Hansweert, Walsoorden
2. Confirmation of the Pilot order time should be sent 1 hour before arrival by the vessel's Master or agent.
3. The Pilot order should contain the following information:
   a. Vessel's name
   b. Call sign
   c. Flag
   d. IMO No
   e. Port of destination
   f. Mooring berth
   g. Vessels preferred side for mooring
   h. Date, time and Pilot boarding position (dd:mm:hh:mm LT)
   i. Vessels which are exempt from pilotage: State desired Pilot course.
   j. Name of agent
   k. LOA
   l. Beam
   m. Current maximum draft in decimeters
   n. Special remarks concerning maneuverability, damage to vessel or delay at the Pilot Station
4. Vessels bound for Gent or Antwerpen that have ordered Pilots more than 24 hour in advance must re-confirm the request via the vessel's Master or agent between 12 hour and 6 hour in advance of the Pilot order time.
5. Amendments to the original Pilot order time must be made to the appropriate Pilot service by the vessel's Master or agent, as follows:
   a. Delays of more than 1h must be notified 6 hour in advance of Pilot order time.
   b. If the Pilot order time is brought forward the amendment must be notified no later than 6 hour in advance of the new Pilot order time.
   c. Cancellation of Pilots must be notified immediately.
6. Vessels not using the electronic ordering system (via the agent) to notify changes or cancellation to Pilot orders should report the following information to the relevant Pilot service by facsimile, telephone or e-mail:

a. Vessel's name and IMO No.
b. Mooring berth or port of destination.
c. Pilot boarding position.
d. Amended Pilot time or Pilot order time to be canceled (dd:mm:hh:mm LT).

Pilot Ordering.— For vessels outbound (or shifting berth within a Flemish Port):

1. The initial request for Pilots should be sent via the agent no later than 3 hour in advance of the Pilot order time (the time at which the Pilot is required onboard), using the appropriate electronic ordering system for the port of departure:
   a. APICS/LIS21 - Antwerpen, Bovenzeeschelde, Zeekanaal.
   b. ENIGMA - Gent
   c. LIS21 - Nieuwpoort, Terneuzen, Vlissingen, Middelburg, Hansweert, Walsoorden
2. Confirmation of the Pilot order time should be sent 1 hour before arrival by the vessel's Master or agent.
3. The Pilot order should contain the following information:
   a. Vessel name
   b. Call sign
   c. Flag
   d. IMO No.
   e. Berth at which vessel is currently moored.
   f. Pilot boarding point or other port in the region with statement of mooring berth and mooring side.
   g. Date and time of pilot order and ETD at mooring berth (behind locks) (dd:mm:hh:mm LT)
   h. Vessels which are exempt from pilotage: State desired pilotage course.
   i. Name of agent
   j. LOA
   k. Beam
   l. Current maximum draft in decimeters.
   m. Special remarks concerning maneuverability, damage to vessel or delays.
4. Vessels berthed behind the locks must notify the Harbormaster in good time of the vessel's ETD. The Harbormaster will then inform the appropriate Pilot service at least 3 hours in advance of the vessel's requested time of departure from the locks
5. The Pilot order should contain the following information:
   a. Delays of more than 1h must be notified 3h of advance of the Pilot order time.
   b. If the Pilot order time is brought forward the amendment must be notified no later than 3h in advance of the new time of departure.
   c. Cancellation of Pilots must be notified immediately.
6. The Pilot order should contain the following information:
   a. Vessel's name and IMO Number.
   b. Destination (Pilot boarding station, other port or berth).
   c. Amended Pilot order time (dd:mm:hh:mm LT).
7. Vessels moored behind the locks: Changes to the reported time of departure should be made to the harbormaster.
8. Vessels canceling Pilot orders which are not made via the electronic ordering system, must advise the appropriate Pilot service of the following:
   a. Name of vessel and IMO Number.
   b. Pilot order time to be canceled (dd:mm:hh:mm LT)

Pilotage procedure—for Wandelaar (Belgium) Pilot Station (51°22'N., 2°52'E.)

1. Vessels should contact Wandelaar Approach on VHF channel 60 or Traffic Centre Wandelaar on VHF channel 65 no later than 1 hour before arrival at the pilot boarding position with the following information available:
   a. What is the full maneuvering speed of vessel in still water?
   b. Is the vessel fitted with a Pilot door in the vessel's hull? If yes, what is the height of the door above the waterline?
   c. What is your freeboard?
   d. If your freeboard is more than 9m, can you rig the lower platform of the gangway more than 7m above the water?
   e. Is the vessel fitted with fenders on the hull?
   f. Is the vessel fitted with stabilizing fins?
2. After identification by the Traffic Center, the pilot vessel (or Traffic Centre Wandelaar when pilotage is suspended) will provide procedural information on VHF channel 65.
3. Interruption or resumption of the pilotage service will be announced in the Navigational Warnings broadcast by Oostende CRS.
4. Vessels intending to anchor in the Westhinder anchorage area should inform Traffic Centre Wandelaar and maintain a listening watch on VHF channel 65 when anchored.
5. Pilot boards in the following positions:
   a. Wandelaar Pilot Station: (51°22.2'N, 2°43.0'E).
   b. In case of bad weather: (51°22'N, 2°52'E) (near A1 lighted buoy)
   c. Large LNG vessels (defined as vessels over 200m LOA): 51°21.1'N, 2°38.6'E (1 mile E of A-S lighted buoy)
   d. Small LNG vessels (defined as vessels under 200m LOA): Wandelaar Pilot Station (51°22.2'N, 2°43.0'E).

Note: Also provides pilotage for the ports of Nieuwpoort, Oostende, Zeebrugge.

Pilotage Procedure.—for Steenbank Pilot Station (Netherlands)(51°45'N., 3°12'E.)

1. Vessels should contact Traffic Centre Steenbank on VHF channel 64 at least 30 minutes before ETA at the pilot boarding position with the following information:
   a. Full maneuvering speed of vessel in still water.
   b. Confirm if the vessel is fitted with a pilot door, and if so, also advise the height of that door above the waterline.
   c. Vessel freeboard.

d. Confirm if the freeboard exceeds 9m, and if so, also advise if the lower part of the gangway can be rigged more than 7m above the water.
e. Advise if vessel fitted with fenders on the hull.
f. Confirm if vessel fitted with stabilizing fins.

2. After identification by the VTS-SM the pilot will provide procedural information on VHF channel 64. Interruption or resumption of the Netherlands Pilotage Service will be announced in the navigational warnings.

3. Vessels intending to anchor in the charted anchorage, about 3.5 miles NE of Schouwenbank lighted buoy, should inform Traffic Centre Steenbank and maintain a listening watch on VHF Channel 64 when anchored.

4. Pilot boards in the following positions:
a. 51°44.96'N, 3°12.62'E. (vicinity of Schouwenbank Light buoy).
b. In case of bad weather—vicinity of Westkapelle (51°32.5'N, 3°26.0'E.)

Description and Pilotage Procedure—for Shore based vessels.

1. A remote radar controlled Shore Based Pilotage (SBP) service is available from the Wandelaar and Steenbank Pilot boarding positions for vessels bound to and from Belgian and Netherlands ports on the Westerschelde.

2. In the event of pilot Stations at Wandelaar and Steenbank being suspended due to bad weather, Masters of vessels subject to compulsory pilotage will be notified of the following options available prior to entering the VTS area:
a. Pilotage with an alternative Pilot Station (e.g. Swath vessel).
b. Shore Based Pilotage (SBP).
c. Waiting or anchoring offshore.

3. Recommended pilotage in Wandelaar Approaches (Scheur/Wielingen Fairway) for the following situations:
a. Vessels less than 175m LOA and/or drawing 8m draft or deeper and not carrying dangerous cargo.
b. Vessels carrying dangerous cargo less than 125m LOA, and/or drawing 6m draft or deeper should contact the Traffic Center Wandelaar on VHF channel 65, 30 minutes before entering the VTS-SM area for advice on the possibility of obtaining Shore Based Pilotage.
c. Vessels will then be requested to transfer to Radar Zeebrugge on VHF channel 4, to receive procedural information. Subsequent control is maintained consecutively by Traffic Center Wandelaar, Traffic Center Zeebrugge, and Centrale Vlissingen.

4. Recommended pilotage in the following situations for Steenbank Approaches (Oostgat Fairway):
a. Vessels not carrying dangerous cargo less than 115m LOA and drawing 6.4m draft or deeper.
b. Vessels carrying dangerous cargo less than 85m LOA, drawing 4.5m draft or deeper should contact the Traffic Centre Steenbank on VHF channel 64, 30 minutes before entering the VTS-SM area for advice on the possibility of obtaining Shore Based Pilotage.

Contact Information—Pilotage as follows.

Nederlands Loodswezen Vlissingen BV (via Steenbank)
1. Telephone: 31-118-489501 (Sea Pilotage)
31-118 489506 (River Pilotage)
31-118 489502 (Gent-Ternuezen Canal Pilotage)
31-118 412321
2. E-mail: scheldepilot@loodswezen.nl (Masters only)
3. Website: www.loodswezen.nl

Gent Coordination Centre (via Wandelaar)
1. Telephone: 32-9 2505711/12/13/14
2. Fax: 32-9 2516321
3. E-mail: orderpilot@loodswezen.be (Masters only)
4. Website: www.loodswezen.be

Antwerpen, Bovenzeeschelde and Zeekanaal (outbound)
1. Telephone: 32-3 2220865
32-3 2320229
32-3 2318952
32-476 580149 (mobile)
2. Facsimile: 32-3 2322085
3. E-mail: orderpilot@loodswezen.be (Masters only via Wandelaar)
4. E-mail: scheldepilot@loodswezen.nl (Masters only via Steenbank)
5. Website: www.loodswezen.be

Wandelaar (Belgium) Pilot Station (24 hours)
1. Call sign: Wandelaar Pilot
2. VHF: VHF channel 65

Steenbank (Netherlands) Pilot Station (24 hours)
1. Call sign: Steenbank Pilot
2. VHF: VHF channels 6 and 64

Vessel Traffic Service Scheldemond (VTS-SM)

1. Reporting is compulsory for all commercial traffic when entering the VTS Scheldemond Traffic (VTS-SM) Areas both inbound and outbound. Use Dutch or English language only.

2. It is compulsory for all vessels to maintain a continuous listening watch on the VHF channel for the appropriate Traffic Area (including vessels at anchor).

3. Each Traffic Area provides traffic link up, traffic information, traffic instructions, pilotage advice and recommendations. Additional traffic information, radar information and harbor information can be obtained on the specified VHF channel.

4. See the following Traffic Areas (below) for contact details and additional procedures:
a. Traffic Area Wandelaar Approach.
b. Traffic Area Wandelaar.
c. Traffic Area Zeebrugge.
d. Traffic Area Steenbank.
e. Traffic Area Vlissingen (Flushing).
f. Traffic Area Terneuzen.
g. Traffic Area Gent/Terneuzen (Terneuzen-Gent Canal).
h. Traffic Area Hansweert.
i. Traffic Area Zandvliet (Antwerpen).

5. VTS-SM website (http://www.vts-scheldt.net)

VTS-SM Reporting Procedures:
Vessels should report as follows:

1. To the appropriate Traffic Center 30 minutes before entering the VTS-SM operational area, including the following information:
   a. Vessel name.
   b. Position.
   c. Draft.
   d. Destination.
   e. ETA at the pilot boarding position.
2. When entering a VTS-SM Area to the appropriate Traffic Center (vessels will receive voyage instructions) stating:
   a. Vessel's name.
   b. Position.
   c. Destination (vessels inbound should include ETA, vessels outbound should indicate ETA if destination is within VTS-SM operational area).
3. To the appropriate Traffic Center when entering or leaving a port, lock or the traffic flow, mooring, casting off, anchoring or weighing anchor and any other specific maneuver or maneuvering problem.
4. For full details, see the tables titled **VTS—SM Reporting Procedures for (Inbound/Outbound) Vessels.**

Contact information—

Traffic Centre Wandelaar
1. Call sign: Traffic Center Wandelaar
   Radar Pilot Wandelaar
2. VHF: VHF channel 65

Traffic Center Zeebrugge
1. Call sign: Traffic Center Zeebrugge
   Radar Pilot Wandelaar
2. VHF: VHF channel 69

Centrale Vlissingen
1. Call sign: Centrale Vlissingen (Flushing)
   Radar Pilot Vlissingen (Flushing)
2. VHF: VHF channel 14

Traffic Center Steenbank
1. Call sign: Traffic Center Steenbank
   Radar Pilot Steenbank
2. VHF: VHF channel 64

VTS—SM Reporting Procedures for Inbound Vessels

Reporting Point	Information Required	Traffic Center	VHF Channel
30 minutes before entering the VTS-SM Area	Vessel name, position, draft, destination and ETA at the Pilot boarding position	Relevant Traffic Center for the area which vessel will enter the system	see graphic titled **Pilot Stations, VTS Zones, and Checkpoints**
On entering the VTS-SM Area	Vessel name, position, planned route and destination.	Relevant Traffic Center for the area being entered.	see graphic titled **Pilot Stations, VTS Zones, and Checkpoints**
A line connecting the following: position 51°26.0'N 2°27.5'E/ OostdyckBk Lighted buoy (51°21.4'N 2°31.1'E)/ Middelkerkebank Lighted buoy (51°18.2'N 2°42.8'E)/Westende water tower (51°10.6'N 2°47.6'E)	Vessel name, position and planned route.	Traffic Centre Wandelaar.	65
A line connecting the following: Lighted buoy OBST 14 (51°15.6'N 2°58.0'E)/ Lighted buoy A1 bis (51°21.7'N 2°58.0'E)/ Lighted buoy S2 (51°23.4'N 2°58.1'E)/VG6 Lighted buoy (51°25.1'N 2°57.9'E)/position 51°28.8'N 2°56.0'E	Vessel name, position, ETA Rede van Vlissingen and approach route.	Traffic Center Zeebrugge	69
Vessels bound for the port of Zeebrugge, passing the following: Lighted buoy S5 (51°23.7'N 3°06.3'E) Lighted buoy SZ (51°23.3'N 3°08.6'E Lighted buoy Z (51°22.5'N 3°09.9'E)	Vessel name and position (permission to enter Zeebrugge Port should be requested when passing Lighted buoy S5)	Port Control Zeebrugge	71
Entering Zeebrugge (Roads area)	Vessel name and position	Traffic Center Zeebrugge	69

VTS—SM Reporting Procedures for Inbound Vessels			
Reporting Point	**Information Required**	**Traffic Center**	**VHF Channel**
When passing the breakwater and on completion of berthing in Zeebrugge Harbor.	Vessel name and position.	Radar Control Zeebrugge	19
A line connecting the following: Position 51°34.6'N 3°08.4'E/Westpit Lighted buoy (51°33.7'N 3°09.9'E)/ Lighted buoy W4 (51°24.9'N 3°24.4'E)	Vessel name, position and planned route.	Traffic Center Zeebrugge (vessels bound for Zeebrugge)	69
		Traffic Center Steenbank (vessels entering the Steenbank zone)	64
Lighted buoy W5 (51°24.3'N 3°24.5'E)/Lighted buoy W4 (51°24.9'N 3°24.4'E)/Lighted buoy OG17 (51°29.0'N 3°29.5'E)/Lighted buoy OG 8 (51°29.5'N 3°29.5'E)	Vessel name, position and planned route (if necessary include name of anchorage destination)	Centrale Vlissingen	14
Rede van Vlissingen (Flushing Roads) (changing Pilot)	Vessel name, ETA destination and approach route	Centrale Vlissingen	14
Entering Vlissingen Harbour	Vessel name and position	Centrale Vlissingen	14
On leaving Sloehaven, before entering traffic flow	Vessel name, position and departure route	Radar Vlissingen	21
Lighted buoy 15A (51°22.8'N 3°42.9'E)/Lighted buoy E2A (51°24.4'N 3°44.5'E)	Vessel name, position and planned route	Centrale Terneuzen	03
Leaving the traffic flow for DOW Jetty (51°21.0'N 3°47.3'E)	Vessel name and position	Centrale Terneuzen	03
Leaving DOW Jetty, Terneuzen Lock or Terneuzen Harbour	Vessel name, position and planned route	Centrale Terneuzen	03
Lighted buoy 35 (51°23.1'N 3°57.2'E)/Lighted buoy 32 (51°23'.2N 3°56.7'E)/Lighted buoy MG2 (51°23.8'N 3°54.3'E)	Vessel name, position and planned route	Centrale Hansweert	65
		Centrale Zandvliet	12
Lighted buoys 32-35 (only for sea-going vessels)	Vessel name, position and ETA Zuid Saeftinge	Centrale Zandvliet	12
Entering Hansweert at Lighted buoy 45 (51°25.9'N 3°58.9'E)	Vessel name, position and planned route	Centrale Hansweert	65
Entering the traffic flow at buoy MG 17 (51°26.6'N 3°58.3'E)	Vessel name, position and planned route	Centrale Hansweert	65
Leaving Hansweert Harbour	Vessel name, position and planned route	Centrale Hansweert	65
Lighted buoy 55 (51°24.1'N 4°018'E)/Lt buoy 46 (51°24.1'N 4°02.3'E)	Vessel name, position and planned route	Centrale Zandvliet	12
Lighted buoy 65 (51°22.1'N 4°07.1'E)/Lighted buoy 60 (51°22.3'N 4°07.3'E)	Vessel name and position	Centrale Zandvliet	12

VTS—SM Reporting Procedures for Inbound Vessels			
Reporting Point	**Information Required**	**Traffic Center**	**VHF Channel**
Zuid Saeftinge Lighted (51°21.9'N 4°13.1'E)/ Lighted buoy 76 (51°22.0'N 4°13.4'E)	Vessel name and position	Centrale Zandvliet	12
Lighted buoy 116 (51°14.3'N 4°21.5'E)	Vessel name and position	Report presence to other vessels (no active monitoring carried out by the VTS Center)	10

VTS—SM Reporting Procedures for Outbound Vessels			
Reporting Point	**Information Required**	**Traffic Center**	**VHF Channel**
Point of departure	Vessel name, position, draft, destination and relevant maneuvers	Centrale Zandvliet	12
		SID Antwerpen	85
Entering the Schelde from the Sealock Wintam	Vessel name and position	Report presence to other vessels (no active monitoring carried out by the VTS Center)	10
Lighted buoy 111 (51°12.7'N 4°23.0'E)	Vessel name and position	Report presence to other vessels (no active monitoring carried out by the VTS Center)	10
Leaving Royerssluis	Vessel name and position,	Report presence to other vessels (no active monitoring carried out by the VTS Center)	10
Light buoy 100 (51°15.5'N 4°18.1'E)	Vessel name, position and planned route	Centrale Zandvliet	12
Lighted buoy 55 (51°24.1'N 4°01.8'E)/Lighted buoy 46 (51°24.1'N 4°02.3'E)	Vessel name, position and planned route	Centrale Hansweert	65
Entering Hansweert at Lighted buoy 42A (51°25.3'N 4°02.0'E)	Vessel name, position and planned route	Centrale Hansweert	65
Leaving Hansweert Harbour	Vessel name, position and planned route	Centrale Hansweert	65
Lighted buoy 35 (51°23.1'N 3°57.2'E)/Lighted buoy 32 (51°23.2'N 3°56.7'E)/Lighted buoy MG2 (51°23.8'N 3°54.3'E)	Vessel name, position and planned route	Centrale Terneuzen	03
On leaving the traffic flow, Lighted buoy 22 (51°20.9'N 3°50.7'E)	Vessel name, position and planned route	Centrale Terneuzen	03
Leaving DOW Jetty, Terneuzen Lock or Terneuzen Harbor	Vessel name, position and ETA Rede van Vlissingen	Centrale Terneuzen	03
Lighted buoy 15A (51°22.8'N 3°42.9'E)/Lighted buoy E2A (51°24.4'N 3°44.5'E)	Vessel name and position	Centrale Vlissingen	14
On leaving Sloehaven, before entering traffic flow	Vessel name, position and planned route	Radar Vlissingen	21
		Centrale Vlissingen	14
On leaving Vlissingen Harbour before entering traffic flow	Vessel name, position and departure route	Radar Vlissingen	21
		Centrale Vlissingen	14

VTS—SM Reporting Procedures for Outbound Vessels			
Reporting Point	**Information Required**	**Traffic Center**	**VHF Channel**
Rede van Vlissingen (Flushing Roads) (changing Pilot)	Vessel name, position and departure route	Centrale Vlissingen	14
Lighted buoy W4 (51°24.9'N 3°24.4'E)/Lighted buoy OG17 (51°29.1'N 3°29.5'E)/ Lighted buoy OG 8 (51°29.5'N 3°29.6'E)	Vessel name, position and planned route	Traffic Center Steenbank	64
A line connecting the following: Position 51°34.6'N 3°08.4'E/Westpit Lighted buoy (51°33.7'N 3°09.9'E)/ Lighted buoy W4 (51°24.9'N 3°24.4'E	Vessel name, position and planned route	Traffic Center Zeebrugge	69
Lighted buoy W4 (51°24.9'N 3°24.4'E)/Lighted buoy W5 (51°24.3'N 3°24.5'E)	Vessel name, position, ETA Wandelaar Pilot Station and departure route.	Traffic Centre Zeebrugge	69
Leaving the berth and when passing the breakwater in Zeebrugge Harbor	Vessel name, draft, cargo and Pilot's name	Radar Control Zeebrugge	19
Leaving Zeebrugge (Roads area)	Vessel name and position	Traffic Center Zeebrugge	69
A line connecting the following: Lighted buoy OBST 14 (51°15.6'N 2°58.0'E)/ Lighted buoy A1 bis (51°21.7'N 2°58.0'E)/ Lighted buoy S2 (51°23.4'N 2°58'·07E)/VG6 Lighted buoy (51°25.1'N 2°57.9'E)/position 51°28.8'N 2°56.0'E	Vessel name and position	Traffic Center Wandelaar	65
A line connecting the following: Position 51°26.0'N 2°27.5'E/ OostdyckBk Lighted buoy (51°21.4'N 2°31.1'E)/ Middelkerkebank Lighted buoy (51°18.2'N 2°42.8'E)/Westende water tower (51°10.6'N 2°47.6'E	Vessel name, position and destination	Wandelaar Approach	60

Information Broadcasts—

1. Shipping Reports containing visibility reports, meteorological and tidal data, anchoring positions and movements of vessels (particularly those with dangerous cargoes) are broadcast (H = on the Hour) as follows:
   a. H+00 on VHF channel 11 by Terneuzen (in Dutch)
   b. H+10 on VHF channel 69 by Zeebrugge (in Dutch)
   c. H+15 on VHF channel 04 by Radar Zeebrugge (in English)
   d. H+30 on VHF channel 12 by Zandvliet (in Dutch)
   e. H+50 on VHF channel 14 by Centrale Vlissingen (in Dutch) and then H+55 on VHF channel 21 by Radar Vlissingen (in English).
2. Additional Shipping Reports are broadcast for urgent matters.

Contact information for traffic areas—Note that all traffic areas are open at all times:

Traffic Area Wandelaar Approach Traffic Center
1. Call sign: Wandelaar Approach
2. VHF: VHF channel 60
3. Telephone: 32-50-550801
   32-50-550802
4. Facsimile: 32-50-547400
5. E-mail: vts-zeebrugge@vts-scheldt.net

Traffic Area Wandelaar Approach Radar Center
1. VHF: VHF channel 4

Traffic Area Zeebrugge
1. Call sign: Traffic Centre Zeebrugge
2. VHF: VHF channel: 69
3. Telephone: 32-50- 550801
   32-50-550802
4. Facsimile: 32-50-547400
5. E-mail: vts-zeebrugge@vts-scheldt.net

Traffic Area Zeebrugge Radar Center

1. Call sign: Radar Zeebrugge
2. VHF: VHF channel 4
3. E-mail: radartorenzeebrugge@vlaanderen.be

Radar Control Zeebrugge
1. VHF: VHF channel 19

Traffic Area Steenbank
1. Call sign: Traffic Centre Steenbank
2. VHF: VHF channel 64
3. Telephone: 31-118-424790
4. Facsimile: 31-118-472503

Traffic Area Vlissingen (Flushing)
1. Call sign: Centrale Vlissingen
2. VHF: VHF channel 14
3. Telephone: 31-118-424790
4. Facsimile: 31-118-472503
5. E-mail: vts-vlissingen@vts-scheldt.net

Traffic Area Vlissingen Radar Center
1. Call sign: Radar Vlissingen
2. VHF: VHF channel 21

Traffic Area Terneuzen
1. Call sign: Centrale Terneuzen
2. VHF: VHF channel 3
3. Telephone: 31-115-682400
4. Facsimile: 31-115-630699
5. E-mail: vts-terneuzen@vts-scheldt.net

Traffic Center Terneuzen Radar Center
1. Call: Radar Terneuzen
2. VHF: VHF channel 3

Traffic Area Gent/Terneuzen (Terneuzen-Gent Canal)

Zelzate Observation Post (Uitkijk Zelzate)
1. Call sign: Uitkijk Zelzate
2. VHF: VHF channel 11

Havendienst Gent
1. Call sign: Havendienst Gent
2. VHF: VHF channels 5, 11, and 78

Havendienst Terneuzen
1. Call sign: Havendienst Terneuzen
2. VHF: VHF channel 11

Reporting Points for Vessels Inbound to Terneuzen-Gent

Reporting Point	Traffic Centre Call Sign	VHF Channel
Terneuzen Locks Sluiskil Bridge Driekwart	Havendienst Terneuzen	11
Sas van Gent Bridge	Uitkijk Zelzate	11
After mooring in a Netherlands harbor and before departure from a Netherlands harbor (include draft)	Havendienst Terneuzen	11
Zelzate Bridge Passing Sifferdok	Havendienst Gent	11
After mooring in the Port of Gent	Havendienst Gent and Uitkijk Zelzate	11

Procedure for Vessels Inbound to Terneuzen-Gent

1. Vessels should report their name, position and other information as stated to the appropriate station on VHF when passing the designated Reporting Points (see the table titled **Reporting Points for Vessels Inbound to Terneuzen-Gent** for details:
2. Vessels wishing to obtain mooring information may, once they are located in the Terneuzen Lock Complex, call the Gent Harbor Master on VHF channel 5.
3. The Sluiskil Bridge report is primarily intended for other vessels using the canal. Havendienst Terneuzen may not confirm receipt of this report.
4. Uitkijk Zelzate will call the vessel if an ETA for Zelzate is required.
5. When passing the Sas van Gent Bridge, Uitkijk Zelzate will advise the following information:
   a. Status of the bridge
   b. Other information regarding the canal and vessel movements.
6. Following passage under Zelzate Bridge, vessels should report to Havendienst Gent to obtain mooring and harbor information. If necessary, vessels will be transferred to another VHF channel.
7. The report on passing Sifferdok is primarily intended for vessels arriving from the Ringvaart.
8. After reporting the vessel's mooring in the Port of Gent, Havendienst Gent will respond first, followed by Uitkijk Zelzate. If Uitkijk Zelzate does not confirm receipt, vessels should repeat the call.

Note: Vessels navigating the inland waterways should report to Havendienst Gent on VHF channel 78.

Procedure for Vessels Outbound from Terneuzen-Gent

1. Vessels should report their name, position and other information as stated to the appropriate station on VHF when passing the designated Reporting Points (see the table titled **Reporting Points for Vessels Outbound from Terneuzen-Gent** for details:
2. Prior to departure, vessels should report the following information to Havendienst Gent and Uitkijk Zelzate:
   a. Ready for departure from berth (give berth name and confirm if vessel swinging or not).
   b. Draft.
   c. Destination (to Havendienst Gent, and the sea passage (N or W) to Uitkijk Zelzate)
   d. The name and number of the person holding a PEC (pilotage exemption certificate), if any.

3. Havendienst Gent will respond first, followed by Uitkijk Zelzate.
4. Havendienst Gent will issue information regarding the canal and vessel movements, which may be supplemented by Uitkijk Zelzate.
5. If Uitkijk Zelzate does not confirm receipt, vessels may report draft and sea passage information when making the next report. If a vessel fails to do so, Uitkijk Zelzate will request this information.
6. When entering the VTS-SM area, vessels should inform Uitkijk Zelzate of the following information:
   a. Position.
   b. ETA Zelzate.
7. Uitkijk Zelzate will issue bridge information.
8. Vessels should report to Havendienst Terneuzen at Zelzate Bridge, to receive latest lock information.
9. The Sas van Gent Bridge report is primarily intended for other vessels; Havendienst Terneuzen may not confirm receipt of this report.
10. The reports at Driekwart and Sluiskil Bridge should be made to receive latest lock information.
11. Vessels should maintain a continuous listening watch on VHF channel 11.

Note: Vessels navigating the inland waterways should report to Havendienst Gent on VHF channel 78.

Reporting Points for Vessels Outbound from Terneuzen-Gent		
Reporting Point	**Traffic Centre Call Sign**	**VHF Channel**
Before leaving berth in the port of Gent (include draft, destination (port and sea passage) and PEC name and number, if any.	Havendienst Gent and Uitkijk Zelzate	11
When entering the VT S-SM area (include ETA Zelzate)	Uitkijk Zelzate	11
Sidmar Zuid	—	—
Zelzate Bridge	Havendienst Terneuzen	11
Sas van Gent Bridge		
After mooring in a Netherlands harbor		
Before departure from a Netherlands harbor (include draft, destination (port and sea passage) and PEC number (include name of PEC holder)		
Driekwart		
Sluiskil Bridge		

Procedure.—(for vessels departing the Centrale Hansweert area and when entering or departing the locks)
1. Vessels should report to Centrale Zandvliet on VHF channel 12 when leaving the Centrale Hansweert area and when entering or departing the following locks:
   a. Walsoorden
   b. Zandvlietsluis/Berendrechtsluis
   c. Boudewijnsluis/Van Cauwelaertsluis
   d. Kallosluis
2. Essential nautical information for vessels and agreements between users of the fairway take place on VHF channel 12.
3. Vessels navigating S of Lighted buoy No. 100 are not required to report to Centrale Zandvliet, but they must report their intentions to other traffic on VHF channel 10 when crossing or entering the fairway.
4. It is compulsory for all vessels to maintain a continuous listening watch on VHF channel 10 when S of Lighted buoy No. 100.
5. Vessels that occupy or vacate a commercial mooring berth or sail into or out of a tidal dock on the Schelde downstream of Royerssluis must report to Meldepunt Schelde Noord on VHF channel 60 as follows:
   a. When proceeding to container terminals in Deurganckdok, Europa Terminal and North Sea Terminal.
   b. In Deurganckdok (also when not mooring).
   c. On all commercial Schelde landing stages down stream of Royerssluis.
6. For the mooring berths upstream of Royerssluis (Schelde quays and Petroleum Pier South), communication should take place on VHF channel 22 (Royerssluis)

Notes:
1. The Port Operations service on VHF channel 85 is operational from Lighted buoy No. 55 to the Wintamsluis, and is used for all operational information.
2. HF channel 10 is used specifically for ship-to-ship communication. No communication with Central Zandvliet is possible on this channel.

Contact Information.—Traffic Area for Hansweert can be contacted follows:
1. Call sign: Centrale Hansweert
2. VHF: VHF channel 65
3. Telephone: 31-113-382751
4. Facsimile: 31-113-383311
5. E-mail: vts-hansweert@vts-scheldt.net

Traffic Center Hansweert Radar Center

1. Call: Radar Hansweert
2. VHF: VHF channel 65

Directions.—There are three main buoyed approach channels leading into Westerschelde; Wielingen, Scheur, and Oostgat. In addition, Deurloo leads across the banks, which lie between Wielingen and Oostgat, but is seldom used except by fishing boats.

Scheur (51°24'N., 3°10'E.), the main deep-water approach channel, leads in an E direction for about 20 miles from N of the MOW 0 (51°24'N., 3°03'E.) lighted tide gauge platform to Vlissingen (Flushing) Roads. It is marked by lighted buoys and separated on the S side from the outer part of Wielingen by Ribzand and Bol van Heit. The fairway has a dredged depth of 12.5m (2000).

Two routes, which are marked by lighted buoys, lead from the Wandelaar Pilot Station (51°22'N., 2°52'E.), at the E end of the West Hinder TSS, to the outer entrance of the Scheur.

The route, known as Vaargeul 1, leads 5 miles NE and 9 miles ESE. It is entered between the GZ Lighted Buoy (51°24.2'N., 2°44.6'E.)and the VG Lighted Buoy, moored 1.7 miles SE, and passes N of Akkaert Bank.

The other route leads 13 miles ENE and passes S of Akkaert Bank. It is entered between the SWA Lighted Buoy (51°22.3'N., 2°46.4'E.) and the MBN Lighted Buoy, moored 1.5 miles S. This route passes between the A1 Lighted Buoy (51°22'N., 2°53'E.) and the Oostendebank N Lighted Buoy (51°21'N., 2°53'E.).

A main route, known as the West Circuit, extends from the Steenbank Pilot Station (51°45'N., 3°12'E.), situated about 1 mile W of the Schouwenbank Lighted Buoy (51°45'N., 3°14'E.), to the vicinity of the outer entrance of Scheur. It leads 9 miles SSW and 14 miles SW. This route passes between Schaar and Schouwenbank, between Rabs Bank and Middelbank, and through Westpit (51°32'N., 3°10'E.). Depending on the precise route, depths in excess of 15m can be maintained on the West Circuit.

For directions within Rede van Vlissingen (Flushing Road), see paragraph 6.15.

Wielingen (51°23'N., 3°13'E.), the southernmost channel, leads along the coast from the vicinity of Zeebrugge. Bol van Knokke, Carolusbankje, and Sluissche Hompels lie on its N side. This channel may be used by vessels with drafts of less than 8m. It joins Scheur in the vicinity of the SW Lighted Buoy (51°24'N., 3°18'E.).

Oostgat (51°23'N., 3°13'E.), the northernmost channel, leads along the W coast of Walcheren between Kaloo, on its W side, and Kueerens, on its E side. Galgeput and Sardijngeul are continuations of Oostgat, which lead along the SW coast of Walcheren and into the roadstead off Vlissingen (Flushing). A least depth of 8.8m was reported (1985) to lie in mid-channel in Galgeput. A least depth of 7m was reported (1985) to lie in the fairway of Sardijngeul, which narrows to a width of only 90m.

Oostgat may be entered by a route which leads over Steenbanken and has a least depth of 6.3m. It is marked by Kaloo Lighted Buoy (51°35'N., 3°23'E.) and indicated by a lighted range (Noordehoofd Westkapelle).

Oostgat may also be entered by a route which avoids Steenbanken. Vessels should proceed S from the vicinity of the Steenbank Pilot Station and pass E of Rabsbank Lighted Buoy (51°38'N., 3°10'E.). Vessels should then steer SE and E to pass S of ZSB Lighted Buoy (51°37'N., 3°15'E.) and N of OG1 Lighted Buoy (51°36'N., 3°20'E.). Vessels may then shape a SE course for Kaloo Lighted Buoy and the channel entrance.

Deurloo (51°30'N., 3°24'E.), a secondary channel lying between Rassen and Raan, leads ESE and SE into Galgeput. It is mainly used by fishing vessels and has a least depth of 2.5m. Geul van Rassen, an alternate route, leads 2 miles S into Deurloo and passes close E of Rassen.

Caution.—Numerous wrecks lie in the approaches to the Westerschelde estuary and may best be seen on the chart. Those wrecks situated in the vicinity of the fairways are generally marked by lighted or unlighted buoys.

Several spoil ground areas lie in the approaches to the Westershelde estuary and may best be seen on the chart.

A Mine Laying Practice Area, with a radius of 4 miles, lies centered 7 miles NNW of A1 Lighted Buoy (51°22'N., 2°53'E.). Additional Mine Laying Practice Areas lie centered about 3.7 miles GZ Lighted Buoy (51°24.2'N., 2°44.6'E.)and 3 miles ESE of Oostende Bank N Lighted Buoy (51°21'N., 2°53'E.). The limits of all these areas may best be seen on the chart.

Vessels are advised to ascertain the latest channel depth information from Vlissingen (Flushing) Radio Station or the pilot stations.

With a falling tide, the ebb current is reported to set across the S entrance of Sardijngeul. Vessels are advised to take precautions against being set onto the lighted buoys in this vicinity.

Large vessels, which are navigating with a favorable current, should wait to allow those vessels stemming the current to pass through Sardijngeul.

A rough sea is raised in the outer approaches off Westkapelle when the current is in opposition to a strong wind.

The positions of navigational aids in the approaches are continually adjusted due to the frequent changes of the shoals and depths.

Extensive crossing traffic may be encountered within the Scheur near Scheur 3 Lighted Buoy (51°24'N., 3°03'E.) due to ferries entering and leaving the fairway in this vicinity.

The Schelde

6.14 The **Schelde** (51°26'N., 3°35'E.) rises in N France, crosses Belgium, and enters the Netherlands about 12 miles below Antwerpen. It then flows in a general W direction between Zeeuwsch Vlaanderen, on the S side, and Zuid Beveland and Walcheren, on the N side, to enter the North Sea off Vlissingen (Flushing). That part of the river between Vlissingen and Antwerpen, which passes through Netherlands territory, is known as the Westerschelde.

Extensive drying banks and shoals occupy a large part of the river from its mouth to Antwerpen and both banks are lined by dikes. The main channel follows a winding course and is very narrow in places. There are several tributary (secondary) channels which can be used during daylight; however, vessels must have a suitable draft and local knowledge. The depths, limits, and directions of both the main and tributary channels are subject to frequent changes and constant surveying and dredging are necessary. Critical depths in the main channel are

found in the NW part of Zuidergat, in Overloop van Valkenisse, in Nauw van Bat, and in several places between Bat and the main locks at Antwerpen.

Because of frequent changes in the channel depths and shoals, no directions for the navigation of the river can be given. Critical parts of the fairways in the main channel are marked by lights and lighted beacons and indicated by directional sector lights and lighted ranges. Changes to these aids and the channel buoys are frequently carried out at very short notice and local knowledge is required.

The principal ports described below are Vlissingen, Terneuzen, Gent, and Antwerpen. In addition, minor ports described include Breskens, Braakmanhaven, Hansweert, and Bruxelles, which is connected with the Schelde above Anwerpen by the River Rupel and the Brussels Maritime Canal.

Depths—Limitations.—A continual dredging program is carried out along the river. The maximum size of vessel allowed to enter is dependent on tidal conditions.

The distance from Wandelaar pilot station through Wielingen or Scheur to Vlissingen (Flushing) is about 33 miles. From Flushing to Antwerpen, the distance through the main channels is about 45 miles. At present, the main fairway to Antwerpen passes through Honte, Pas van Terneuzen, Gat van Ossenisse, and Zuidergat.

It is reported (1999) that a least depth of 12m exists between the river entrance and the main locks at Antwerpen. Between the locks and the city river berths, a dredged depth of 8.6m is maintained.

Vessels with drafts up to 15.2m can reach Antwerp on two tides and those with drafts up to 14.6m on one tide. Vessels with drafts up to 11.6m can usually reach the port independent of the tide.

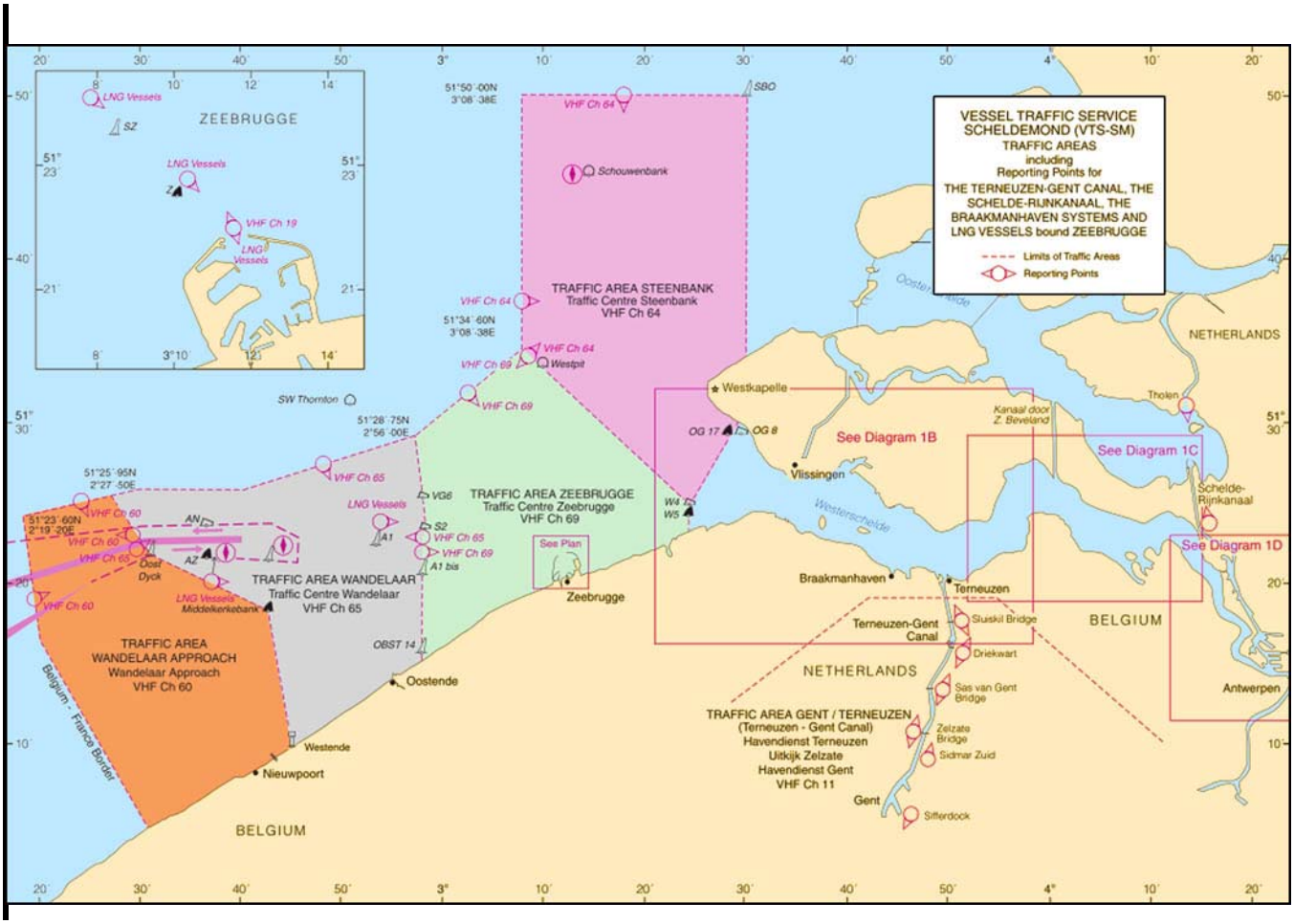
It is reported (2010) that the first phase of deepening the lower Scheldt estuary is completed. Ships with a draft of between 13.4m and 15.0m have a wider navigation window. The window is expected to improve further as dredging work continues.

Overhead power cables, with a vertical clearance of 69m, span the channel close W of Antwerp.

Caution.—Several submarine pipelines cross the river at various places and may best be seen on the chart.

Several submarine cables cross the river and may best be seen on the chart.

Because of the heavy traffic on the river at Antwerpen, which includes numerous crossing barges, it is advisable to take a tug. Tugs may also be required by larger vessels for the bend at Nauw van Bat (51°24'N., 4°12'E.).



Pilot Stations, VTS Zones, and Checkpoints

Rede Van Vlissingen (Flushing Road)

6.15 Rede van Vlissingen (51°26'N., 3°35'E.), the outermost part of the Schelde, is bounded on the S side by Hoogeplaten (51°24'N., 3°40'E.), an extensive drying bank which is separated from the S shore of the river by a narrow channel. The W end of this bank is known as Plaat van Breskens and the E part as Hooge Springer. Spijkerplaat, portions of which dry, lies in the middle of the river, N and NNW of Hooge Springer. Hompels, a series of ridges, extends WNW from the N part of Spijkerplaat to the E side of Rede van Vlissingen.

Tides—Currents.—The flood current begins about 5 hours before HW Vlissingen and has a mean rate of 1.5 knots. The ebb current begins about 1 hour after HW Vlissingen and has a mean rate of 2.5 knots. The flood current is strongest during its fourth and fifth hour and is known locally as "De Run." There are tide rips off the W part of Vlissingen (Flushing) during the last of the ebb, when the outgoing current meets the incoming current from Sardijngeul.

Regulations.—The following rules apply within the Precautionary Area (see Directions):

1. The area shall be considered a "main channel" within which crossing vessels shall give way, fishing vessels shall not hinder other vessels, and small vessels shall give way to larger vessels.
2. Anchoring is prohibited except in the designated anchorage areas.
3. Outgoing vessels requiring a change of pilot shall maintain the order in which they passed Schone Waardin Light (51°27'N., 3°38'E.) and no attempt should be made to alter this order by overtaking another vessel.
4. A yellow flashing light is exhibited from the Netherlands pilot station lookout tower (51°26'N., 3°34'E.) whenever incoming vessels are in Sardigngeul between Fort de Nolle Light and SG-W Lighted Buoy. An outbound vessel wishing to turn while the yellow flashing light is exhibited must avoid going W of Roeiershoofd during the turning maneuver.

Directions.—A Precautionary Area is situated within Rede van Vlissingen (Flushing Road) and comprises the main channel and its approaches. Scheur, the main deep-water approach channel, leads into the W side of this area and Oostgat, the NW leads into its N part.

A Traffic Separation Scheme (TSS) is situated within the Precautionary Area and may best be seen on the chart. This scheme has not been adopted by the IMO.

The TSS separation zone is centered about 0.7 mile SSE of Vlissingen Light (Flushing Light) (51°26.3'N., 3°34.5'E.). The westbound traffic lane is situated to the N of the separation zone and the eastbound lane is situated to the S of it.

Anchorage.—Wielingen North Anchorage Area is situated N of the fairway, about 3.6 miles WSW of Vlissingen. It is about 1.5 miles wide, marked by buoys, and may best be seen on the chart. This area is generally used by vessels carrying dangerous goods.

Wielingen South Anchorage Area is situated S of the fairway and centered about 3 miles SW of Vlissingen. It is marked by buoys and the limits may best be seen on the chart.

Flushing Road (Vlissingen) Anchorage Area is situated on the S side of the fairway, S of Vlissingen. It is marked by buoys and the limits may best be seen on the chart. This area is reported to be not safe during strong winds.

Generally, anchorage berths are assigned by the pilot service. During strong W winds, which make these berths unsafe, vessels can obtain good anchorage off Terneuzen.

Caution.—Vessels must exercise extreme caution when navigating within Rede van Vlissingen. In addition to the regular inbound and outbound traffic, large double-ended ferries ply between Breskens, on the S side of the river, and Vlissingen (Flushing). Vessels also maneuver to change pilots or enter the nearby anchorages in this area. On occasion, large vessels departing the anchorages in Everingen (51°23'N., 3°47'E.) need to turn in Rede van Vlissingen prior to continuing their passage upriver.----------

Vlissingen (Flushing) (51°27'N., 3°36'E.)

World Port Index No. 31210

6.16 Vlissingen is a commercial port and the terminal of the Kanaal door Walcheren. The harbor consists of three main parts; Outer Harbor (Buitenhaven), a large tidal basin; Inner Harbor (Binnenhaven), a wet dock; and Vlissingen Oost (East Harbor), which is entered 3 miles E of the town and is also known as Sloehaven. Koopmanshaven, a small basin used by the pilot vessels, fronts the town. In addition, a riverside tanker terminal is situated at Borssele, 3 miles SE of the entrance to Vlissingen Oost (East Harbor).

Winds—Weather.—The prevailing winds are from the SW and W. Winds from the E occur most often during the spring. Fog occurs on an average of about 32 days per year and is most prevalent during the winter. Ice does not hinder navigation in the port or in its sea approaches.

Tides—Currents.—Tides at Vlissingen rise about 4.7m at springs and 3.8m at neaps.

Depths—Limitations.—Outer Harbor (Buitenhaven), a large tidal basin, is entered between two breakwaters, 274m apart. The quay on the W side is 350m long with a depth of 11.5m alongside. An oil jetty, with a depth of 9.5m alongside, is situated on the E side. A ro-ro terminal, with depths of 6 to 8m alongside, is situated at the N end.

Inner Harbor (Binnenhaven), comprised of two wet basins, can be entered by two locks. These basins have about 390m of berthage, with depths of 6.4 to 7.3m alongside. The largest lock is 138m long, 22.5m wide, and has a depth of 5.4m on the sill at LW. The small lock is 65m long, 8m wide with a depth of 3m on the sill. A marina and a shipyard are situated at the E end of the Inner Harbor.

East Harbor (Sloehaven), a large complex, is entered through a channel which leads between two moles. The fairway is about 200m wide and dredged to a depth of 12.5m.

Quarleshaven, a basin, extends NE for 2 miles from the harbor entrance. The main container quay, with facilities for ro-ro vessels, is 900m long and has depths of 12.5 to 13m alongside. Pechiney Quay, at the S side of the entrance, is 130m long and has a depth of 12.5m alongside.

An LPG terminal, with four jetties, is situated at the NE end of Quarleshaven. Vessels up to 295m in length, 44m beam, and 13.5m draft can be accommodated.

Bijleveldhaven is located at the NW end of Quarleshaven. This basin has 1,200m of total berthage, with a depth of 10.5m alongside.

Cittershaven, a narrow basin, extends SE for 1.5 miles from the E side of Quarleshaven. Kaloothaven, a coal facility, is situated on the S side. The wharf is 650m long and has a depth of 17.5m alongside. In addition, there are several private ore and chemical quays, with depths of 5.5 to 11.5m alongside.

Vessels up to 150,000 dwt, 310m in length, and 15.2m draft can be handled in the harbor.

Borssele Tanker Terminal (Total) is situated 3 miles SE of East Harbor. It consists of a T-headed jetty and several mooring dolphins. Vessels up to 100,000 dwt, 280m in length, and 15m draft can be accommodated, but are subject to the HW depth limits in the approach channels.

A repair yard in the NW part of Vlissingen Oost provides two dry docks and a floating dock. The largest dry dock can handle vessels up to 45,000 dwt. It is 215m long and 29.7m wide. The floating dock can handle vessels up to 90.000 dwt.

Vlissingen (Flushing)

Vlissingen Oost (Sloehaven)

Aspect.—Old fortifications line the sea front of the port. Prominent objects in the town include the tall spire of St. Jacob's Church, standing at the W end; a windmill standing 0.3 mile ESE of the church; and a water tower standing 0.4 mile NW of the church. Conspicuous objects include the tall cranes of the shipyard in the old section of the port and two chimneys, 125m high, standing 1 mile NE of the church.

Vlissingen Light (Flushing Light) is shown from a prominent framework tower, 11m high, standing on the inner end of the W pier at Koopmanshaven (51°26'N., 3°35'E.).

At East Harbor, the entrance and fairways through the basins are indicated by lighted ranges. Several gantry cranes, standing at the container berths, are conspicuous and 13 wind generators, standing on the E side of the entrance, are prominent. Two prominent chimneys stand at the head of Cittershaven, 2 miles E of the entrance. In addition, two conspicuous chimneys stand at the nuclear power station building, 2 miles ESE of the entrance. The buildings of several chemical works situated in the vicinity of Cittershaven are also prominent.

Pilotage.—Harbor pilotage is compulsory for merchant vessels. Pilots are available 24 hours and may be contacted on VHF channel 9. See Pilotage and Traffic Control for Westerschelde (paragraph 6.13).

Signals.—Sluicing signals are shown at the harbor locks when sluicing is taking place, as follows:

1. By day—A blue flag bearing the word "Spuien."
2. At night—Three red lights in the form of a triangle, point up.

6.17 Kanaal door Walcheren (51°27'N., 3°35'E.), about 7 miles long, is entered through a lock in the Inner Harbor at Vlissingen (Flushing). It extends to Veere (51°33'N., 3°40'E.), a small harbor on the NE coast, and connects the Westerschelde with Veerse Meer and the Oosterschelde. The lock, in the Inner Harbor, is 35m wide and has a depth of 4.8m on the sill. There are two locks at Veere; the larger lock is 135m long, 19.3m wide, and has a depth of 7.2m on the sill. The canal is maintained at a least depth of 6.3m, and vessels up to 130m in length, 18m wide, and 5.5m draft may enter. Pilotage is compulsory.

Middelburg (51°30'N., 3°37'E.), a small port, is located on the canal, 3.5 miles NNE of Vlissingen. There is 1,330m of total quayage with depths of 2.7 to 5.4m alongside. There are five bridges situated between Vlissingen and Middelburg, with a maximum clearance of 19m.

6.18 Breskens (51°24'N., 3°34'E.), a small port, is located on the S side of the river, 2.5 miles WSW of Vlissingen. It consists of a commercial harbor and a ferry basin. The ferry basin has a depth of 6.5m and is entered between two breakwaters, 150m apart.

The commercial harbor is entered between two breakwaters, 99m apart, and formed by two tidal basins. A channel, 15m wide, leads from the entrance into the W basin and has a depth of 4.4m. A wharf on the W side of the basin has 200m of berthage with a depth of 4.4m alongside. A prominent grain silo stands between the basins. The E basin has depths of 2.5 to 4.5m and is used by fishing vessels and yachts.

The basins are liable to silt and depths may be less than charted.

Braakmanhaven (51°21'N., 3°46'E.), a large tidal basin, is located on the S side of the river and the W side of Nieuw Neuzenpolder. The entrance channel is 225m wide and dredged to a depth of 12.4m.

Braakman Wharf, consisting of a T-headed jetty, is situated on the NE side of the basin and can accommodate vessels up to 140m in length.

Ocean Dock, 350m long, is situated on the SE side of the basin and has a depth of 14.5m alongside at LLW. Vessels, including LPG tankers, up to 100,000 dwt, 280m in length, and 15.2m draft can be accommodated at HW.

Pilotage into the basin is compulsory. The entrance and the approaches are indicated by lighted ranges, which may best be seen on the chart. Numerous prominent chimneys and flares are situated close E of the basin in the vicinity of a chemical works complex.

Anchorage.—Springergeul Anchorage Area is situated on the S side of Pas van Terneuzen, 1.5 miles NW of the entrance to Braakmanhaven. It is marked by buoys and the limits may best be seen on the chart. In addition, five designated anchorage berths (A through E) are situated in Everingen, 2.2 miles N of the entrance to Braakmanhaven.

Terneuzen from S

Terneuzen (51°21'N., 3°49'E.)

World Port Index No. 31220

6.19 The port of Terneuzen derives its importance mainly from its position at the entrance to the canal (Kanaal Terneuzen-Ghent), which leads to the Belgian port of Ghent. The harbor consists of three basins, namely West Harbour, East Harbour, and Veerhaven, and a riverside jetty.

Tides—Currents.—Tides rise about 4.9m at springs and 4.2m at neaps.

Off Terneuzen, the tidal currents attain velocities of 2.2 to 2.7 knots and are strongest on the S side of the fairway.

Depths—Limitations.—Veerhaven, the outer and former ferry harbor, is now used by fishing vessels and yachts.

East Harbor provides access to the canal through a lock; it is mainly used by inland waterway traffic (tugs and barges).

West Harbor, the largest basin, is used by ocean-going vessels. It provides access to the inner harbor and the canal through two locks.

Vessels up to 256m in length, 34m beam, and 12.3m fresh water draft can enter the canal through Westsluis, a lock at the S end of the basin. Vessels up to 115m in length, 16m beam, and 7.3m fresh water draft can enter the canal through Middensluis, a lock at the E side of the basin.

Four basins are located on the E side of the canal at Terneuzen, about 1 mile S of the locks, and form an inner harbor. They provide facilities for general cargo, bulk, ro-ro, and container vessels. There is about 3,700m of total quayage with depths of 5 to 13.5m alongside. Vessels up to 87,000 dwt and 12.3m draft can be accommodated.

Schelde Jetty (Dow Chemical) is situated on the S side of the main channel, about 1 mile WNW of the entrance to West Harbor. Vessels up to 22,500 dwt and 200m in length can be accommodated alongside. Drafts are only limited by the depths in the main channel.

Pilotage.—Pilotage in the harbor and canal is compulsory. See Pilotage and Traffic Control for the Westerschelde in paragraph 6.13.

Regulations.—Terneuzen Port Control Station provides berthing information for vessels bound for Terneuzen Harbor and locking information for vessels bound for the Kanaal Terneuzen-Ghent.

Vessels in Terneuzen Harbor should send ETD 3 hours in advance when leaving or shifting berth.

Signals.—When one or more ocean-going vessels are about to proceed into the river from West Harbor or East Harbor, a flashing orange light is shown from the breakwater of West Harbor to warn other traffic.

Vessels with a draft of 8m or more are considered to be constrained by their draft and should exhibit the appropriate lights and signals when in the basins, locks, and canal.

Navigation information for vessels in the outer basins and on the Kanaal Terneuzen-Ghent, including visibility, wind force and direction, positions of large vessels, and pilotage details, are broadcast every hour on the hour from the following locations:

1. Westsluis (Terneuzen West)—VHF channel 6.
2. Middensluis (Terneuzen Central)—VHF channel 6.
3. Oostluis (Terneuzen East)—VHF channel 18.

Contact Information— Terneuzen Port Control can be contacted, as follows:

1. VHF: VHF channel 11
2. Telephone: 31-115-647500
3. Facsimile: 31-115-647500
4. E-mail: port@zeeland-seaport.com

The locks can be contacted by telephone (31-115-612279).

Anchorage.—Two designated deep-water anchorage berths are situated on the S side of the main channel, about 1.2 miles E of the entrance to West Harbor.

Directions.—The principal route leads from Vlissingen (Flushing) through the main channels of Honte, on the N side of the river, and Pas van Terneuzen, on the S side.

Schaar van Spijkerplaat, Everingen, and Zuid Everingen are tributary (secondary) channels in this part of the river. Schaar van Spijkerplaat leads S of Honte into Pas van Terneuzen and is used by pleasure craft and small vessels. Everingen lies on the N side of the river and is used by medium-sized vessels, inland vessels, and pleasure craft. Designated anchorage berths and a naval exercise area lie in this channel and may best be seen on the chart. Zuid Everingen leads from the E part of Everingen into Pas van Terneuzen and is used mostly by inland vessels and pleasure craft.

Caution.—It is reported that vessels are not passed through Westsluis lock if the river water level is more than 2m above the MHW level.

It is reported that ocean-going vessels entering West Harbor usually require a tug because of the strong tidal currents on the S side of the channel.

Anchors may not be used during docking, in the vicinity of Schelde jetty due to submarine pipelines and cables.

6.20 Kanaal Terneuzen-Ghent (51°20'N., 3°49'E.) provides access for ocean-going vessels to the port of Ghent. In addition, it gives Ghent and the inland waterways of Belgium and France access to the waterway systems of the Rhine and the Maas by way of the Westerschelde, Kanaal door Zuid Beveland, and the Oosterschelde.

Vessels up to 265m in length, 34m beam, and 12.25m draft can transit the canal by day and at night. These maximum permitted dimensions are the same as for the Westsluis at Terneuzen. Vessels up to 80,000 dwt have made the transit.

The canal, between Terneuzen and Ghent, is 17 miles long and has a depth of 13.5m; about half is in the Netherlands and the remainder in Belgium. The Netherlands section is 150m wide, with a bottom width of 62m. The Belgian section is 200m wide, with a bottom width of 100m. The passage for ocean-going vessels generally takes about 2 hours 30 minutes.

The canal is spanned by three swing bridges, which provide navigable passages 60m wide. Due to heavy road traffic, the bridges are closed to shipping between certain rush hour periods on weekdays. They are reported not to open until a vessel approaches within 500m.

A power cable, with a vertical clearance of 48m, spans the canal about 5.5 miles S of Zelzate.

No vessel may enter the canal unless equipped with VHF. See Traffic Control for the Westerschelde in paragraph 6.13. Speed restrictions are in force along the canal.

Draft restrictions of 3.5 to 5m are in force for vessels entering the branch canals at Sluiskil, Driekwart, and Sas van Ghent.

Sluiskil is situated 3 miles S of the lock at Terneuzen. There is a quay, with facilities for coal, which is 395m long and has a depth of 10m alongside.

Sas van Ghent is situated 3 miles S of Sluiskil. There is a quay 210m long with a depth of 7.2m alongside.

Zelzate is situated 2.5 miles S of Sas van Ghent, There is a quay, fronting the steel works, which is 1,050m long and has a depth of 13.5m alongside. It can accommodate the largest vessels permitted to enter the canal. A turning basin is situated close S of this quay; at this point the canal is 400m wide.

Ghent (Gent) (51°04'N., 3°44'E.)

World Port Index No. 31270

6.21 This inland port is connected with the Westerschelde by Kanaal Terneuzen-Ghent, through which ocean-going vessels transit. It is also connected to the Belgian canal system and the whole of the European inland waterway system.

The harbor consists of several basins and also includes a section of the Kanaal Terneuzen-Ghent.

Depths—Limitations.—Vessels up to 265m in length, 34m beam, and 12.25m draft can be accommodated.

That section of the canal, which extends S of Zelzate, lies within the port limits. Petroleum refineries, storage depots, factories, and other industrial establishments stand along the sides of this stretch. Private wharves, with about 1,900m of total berthage, are situated on the sides of the canal and have depths of 7.5 to 13.5m alongside.

The principal basins, of which there are seven, are located at the S end of the canal on the NE outskirts of the city. Four older basins, with depths of 3.5 to 7.5m, lie to the S of these basins and are used mainly by canal barges.

Sifferdok, a basin 300m wide, branches SSE from the canal. It has 4,440m of total quayage, with depths of 13.5m alongside, and facilities for ro-ro and bulk vessels. A conspicuous grain silo building, known as the Euro Silo, stands at the head of this basin.

Grootdok, a basin 2,124m long and 165m wide, opens S from the canal, 0.7 mile SSW of the entrance into Sifferdok. Three parallel basins known as Noorddok, Middendok, and Zuiddok indent the E side of Grootdok. These basins have depths of 8.8 to 13.5m and facilities for ro-ro and bulk vessels.

Petroleumdock, entered close NE of Sifferdok, has depths up to 13.5m alongside. This basin is reported (1993) to be closed to tanker vessels and to have new facilities for general cargo and reefer vessels.

Rodenhuizedok, entered 2 miles NE of Petroleumdock, has 790m of total quayage with depths of 12.3 to 13.5m alongside. This basin has facilities for tanker and grain vessels.

Vessels up to 80,000 dwt can be accommodated by the port.

The Schelde (Terneuzen to Antwerpen)

6.22 The Schelde above Terneuzen is 1.5 to 3.2 miles wide as far as Bath. The river then narrows gradually to Antwerpen, where it is less than 0.3 mile wide in places.

Although the main channels of the river are well-marked, the numerous shifting banks, which partially dry, the critical channel depths, the strong tidal currents, and the heavy shipping traffic make navigation difficult in this part of the river. In addition, the navigational aids are subject to quick and frequent changes.

The main channel between Terneuzen and Bath (51°24'N., 4°12'E.) comprises the E part of Pas van Terneuzen, Overloop van Hansweert, Zuidergat, Overloop van Valkenisse, and Nauw van Bath. Tributary (secondary) channels branching from the main fairway include Schaar van Waarde, Schaar van Valkenisse, and Schaar van de Noord.

Middlegat, the former and now alternate main channel, lies NW of Overloop van Hansweert. It is still marked by buoys, but is little used due to silting at the S entrance.

Vessels of suitable draft, with local knowledge, should use the tributary (secondary) channels, which are marked, during daylight only. Such vessels, when entering the main channel, must give way to other vessels.

Numerous small harbors and piers are situated along both sides of the river and are used by small local vessels, ferries, and pleasure craft.

Between Bath and Antwerpen, only one area of middle ground lies in the river, but shallow and drying banks extend from both shores and occupy more than half the width of the river.

Pas van Rilland is entered close above Bath and runs SSE towards Antwerpen. A partly drying middle ground, known as Plaat van Doel, lies from 3 to 4.5 miles above Bath. The main channel passes NE and E of this middle ground. Schaar van Ouden Doel, a tributary channel, passes SW of the middle ground and is only suitable for small craft with local knowledge.

The N entrance to the Port of Antwerpen is situated E of Plaat van Doel. The buildings and cooling towers of a nuclear power station stand on the W side of the river, 1.5 miles SSW of the port entrance, and are very conspicuous from down river.

The boundary between the Netherlands and Belgium is situated 2 miles above Bath on the E side of the river, and 3 miles above Bath on the W side.

Caution.—The bend in the main channel off Bath is reported to be difficult for long and deep-draft vessels, especially if traffic is proceeding in the opposite direction.

Ferries ply between the small harbors of Kruiningen, located 1 mile ESE of Hansweert, and Perkpolder, located 2.5 mile SSE of Hansweert.

It has been reported that vessels have experienced difficulty in steering when passing Bath and Hansweert at the change of the tide due to shallow water and tide rips. Passage down the river should be planned against the flood, adjusting the sailing time to give adequate clearance in the higher reaches.

An overhead cable spans the main channel and the N entrance to the port. It has vertical clearances of 68m over the channel and 74m over the entrance.

6.23 Hansweert (51°26'N., 4°01'E.), a small port, is situated on the N side of the river, about midway along the main channel between Terneuzen and Bath. It is the S terminus of Kanaal door Zuid Beveland, which connects with the inland waterway system giving access to Oosterschelde and Rotterdam.

Tides—Currents.—Tides at Hansweert rise about 5.2m at springs and 4.4m at neaps.

The tidal currents off the entrance are strong, but there are no eddies.

Depths—Limitations.—The entrance fairway leads between two breakwaters, 79m apart. Two locks provide access to the canal, which has a depth of 6.5m, and both are 180m long and 24m wide. A quay, 220m long, is situated on the W side of the canal at Hansweert.

Vessels up to 140m in length, 14.5m beam, and 4.8m draft can enter and transit the canal as far as Wemeldinge, 4 miles N.

At Wemeldinge, there are three locks giving access to the harbor. The largest is 152m long and 16m wide.

The canal is crossed by several bridges, all of which have drawspans, and by an overhead cable with a vertical clearance of 33m.

Pilotage.—Pilotage through the canal is compulsory. Vessels approaching or leaving the port should report to Radar Hansweert on VHF channel 65. See Traffic Control for the Westershelde in paragraph 6.13.

Antwerpen (Antwerp) (51°13'N., 4°24'E.)

World Port Index No. 31250

6.24 Antwerpen, also known as Anvers, is the most important port in Belgium and one of the principal ports in Europe. It is located along the E bank of the Schelde, 48 miles above Vlissingen (Flushing).

The port is connected to the Belgian inland waterways system which provides access to most of the principal inland waterways of the Netherlands, France, Switzerland, and Germany.

The harbor consists of river quays which border the city, at the E side of the river; a complex of wet docks situated on the E bank of the river and entered through several locks; and a new extensive industrial dock area, entered through a lock, on the W bank of the river.

Winds—Weather.—The prevailing winds are SW and W. Fog occurs frequently on the river, but does not generally affect the movement of vessels or working of cargo.

Ice.—During very severe winters, ice may impede traffic to some extent, but icebreakers keep the port open.

Tides—Currents.—Tides rise about 5.8m at springs and 4.8m at neaps.

Depths—Limitations.—The riverside quays fronting the city are divided into two sections, known as the Old River Quays and the New River Quays. They are used mainly by vessels which maintain regular service to and from the port.

The Old River Quays extend for almost 2 miles above the entrance to Kattendijk Lock. The New River Quays extend for 1 mile above the upper end of the Old River Quays. These quays have depths of 5 to 12m alongside.

Several large petroleum installations are situated along the W side of the river above the upper end of the New River Quays. The main berthing facilities for ocean-going tankers at these installations are formed by an offshore wharf, which is 305m long and has depths of 7.5 to 9m alongside.

Europa Container Terminal is situated along the E side of the river, close S of Berendrecht Lock. The quay is 1,500m long and has depths of 13.1 to 13.5m alongside.

The extensive wet dock complex on the E bank of the river can be entered through the following locks, listed from N to S, as follows:

1. Zandvliet Lock, 500m long and 57m wide, has a depth on the sill of 13.1m (17.8m at HW).
2. Berendrecht Lock, 500m long and 68m wide, has a depth on the sill of 13.5m (17.8m at HW).
3. Boudewijn Lock, 360m long, 45m wide, has a depth on the sill of 9.9m (14.5m at HW).

4. Van Cauwelaert Lock, 270m long and 35m wide, has a depth on the sill of 9.4m (14m at HW).
5. Royers Lock, 180m long and 22m wide, has a depth on the sill of 5.9m (10.6m at HW).
6. Kattendijk Lock, 110m long and 24.8m wide, has a depth on the sill of 3m (7.6m at HW). This lock is reported (2000) to be no longer used.

This wet dock complex includes the following main basins, which are used by ocean-going vessels:

Basin	Quayage	Depths
Kanaaldok B1	3,249m	16.7m
Kanaaldok B2	800m	16.7m
Kanaaldok B3	2,549m	15.2m
Delwaidedok	4,660m	16.7m
Churchilldok	5,037m	15.2m
Grain Dock	1,213m	6.2 to 10.2m
Hansadok	5,243m	12.0 to 15.2m
Hansadok 2	1,680m	10.7m
Havendok 3	2,110m	11.6 to 14.7m
Havendok 4	2,350m	12.0 to 13.2m
Havendok 5	4,495m	12.0m
Havendok 6	3,785m	15.2m
Leopoldok	1,000m	11.3m
Industriedok	1,640m	12.0m
Albertdok	5,124m	9.5 to 12.0m
Amerikadok	2,355m	7.5 to 14.6m
Marshalldok	3,656m	12.0m

The extensive wet dock complex on the W bank of the river serves a large industrial area. It can be entered through the Kallo Lock, which is 360m long, 50m wide, and has a depth on the sill of 11.4m (16m at HW).

A power cable crosses the river about 0.3 mile W of the central pier with a safe vertical clearance of 67m.

Two cooling towers (with Red Lights), at (51°19.5'N., 4°15.7'E.) are part of the Doel Nuclear Power Station.

This wet dock complex includes the following main basins, which all have projected depths of 18m, as follows:

Basin	Quayage
Waaslandkanaal	2,680m
Zuidelijk Insteekdok	1,500m
Noorddelijk Insteekdok	2,020m
Vrasenedok	4,400m
Doeldok	1,200m

Other docks within this complex are under construction.

It is reported (2005) that Deurganck Dock, a new tidal container dock, has been constructed on the W bank. It provides over 3,000m of dock space and is entered about 2.5 miles S of the entrance to Berendrecht Lock.

An extensive marina for yachts is situated on the W side of the river, 0.4 mile SW of Kattendijk Lock.

There are also several drydocks within the port. The largest is 313m long and 50m wide. It can handle vessels up to 200,000 dwt.

The port has extensive facilities for passenger, auto ferries, bulk, container, ro-ro, chemical, tanker, and LPG vessels.

It is reported (2000) that a vessel of 275,000 dwt, 335m in length, 52m beam, and 15m draft was able to enter the port, partly loaded. However, drafts are limited by the depths in the river and the maximum draft allowed is 15.2m (2000).

Zandvliet Lock

Boudewijn Lock

Pilotage.—Pilotage is compulsory within the harbor. Vessels should report to the Traffic Area Zandvliet on VHF channel 12, when approaching or leaving the port.

Vessels should also maintain a VHF listening watch on VHF channel 74 when in the docks. See Pilotage and Traffic Control for the Westerschelde (Schelde). Deep-sea pilots for the English Channel and the North Sea may be ordered from Antwerpen.

Regulations.—The pilotage building and river navigation offices are situated about 0.3 mile S of Kattendijk Lock. The War Memorial to Seamen stands in front of these buildings and it is customary for vessels to dip their ensigns when passing it.

Anchorage.—Anchorage berths in the vicinity of the port are subject to regulation by the maritime police who communicate instructions and information to the river pilots.

If it is necessary for a vessel to anchor before passing through the locks, a berth along the W side of the river, below No. 99 Lighted Buoy, will be designated.

Special anchorage areas, reserved for government vessels and pleasure craft, border the W bank of the river.

Caution.—Several submarine pipelines extend across the river in the vicinity of the port and may best be seen on the chart.

A road tunnel extends across the river about 3.2 miles above the entrance to Berendrecht Lock.

6.25 Bruxelles (Brussels) (50°52'N., 4°21'E.) (World Port Index No. 31260) can be reached by way of the Schelde, above Antwerpen. Vessels enter the Rupel River, 5.5 miles above the upper river quays at Antwerpen, and then proceed for 1.5 miles to Wintham, at the entrance to the Brussels Maritime Canal. This canal extends for 16 miles to the port.

Depths—Limitations.—The canal has a depth of 6.5m and is 60 to 100m wide. It is divided into three sections which are connected by locks. The largest lock for each section is 114.1m long and 16m wide.

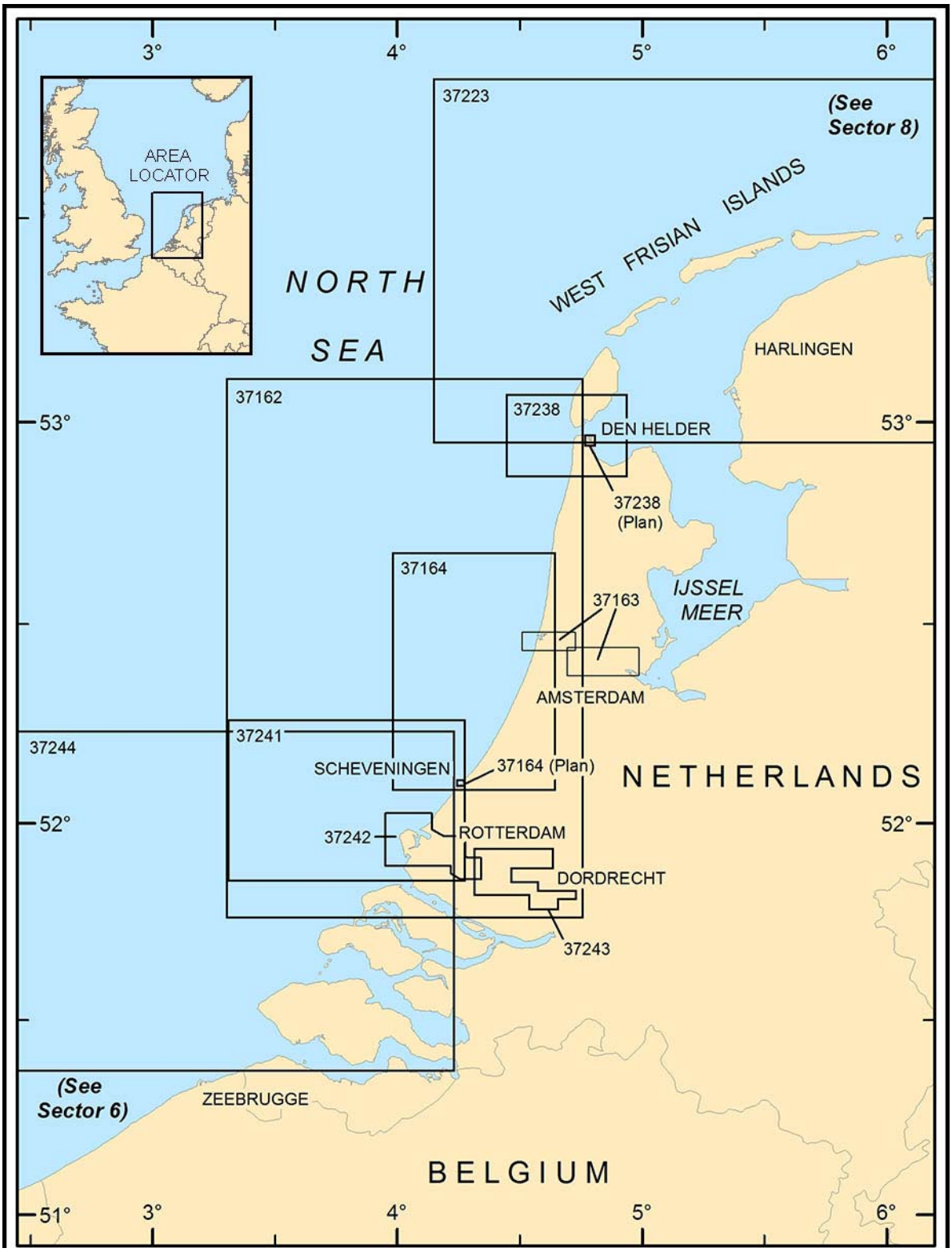
Several lift and swing bridges span the canal and have a minimum vertical clearance of 30.5m.

The harbor is comprised of three basins; Avant Port, Beco Dock, and Vergote Dock. These have 5,000m of total dock space, with depths of 3.5 to 6.5m alongside. Vessels up to 106m in length, 14.8m beam, and 5.8m draft can enter the canal and reach the port.

Aspect.—The fairway of the Schelde above Antwerpen is not marked, but lies roughly in the center of the river. The entrance to the River Rupel is indicated by a lighted range and its fairway, as far as the canal entrance, is marked by beacons.

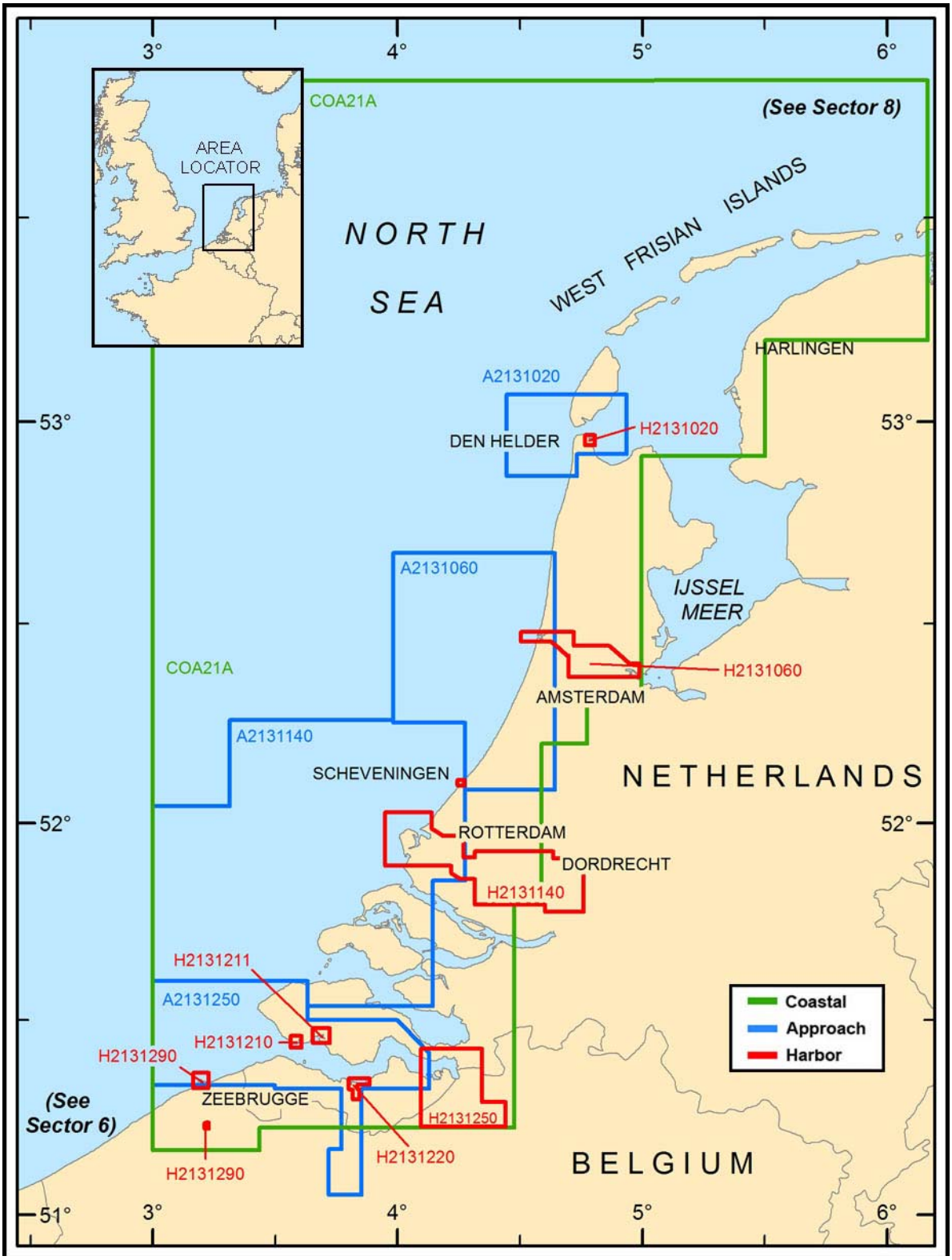
Pilotage.—River pilots are available at Antwerpen and canal pilots board at Wintham. See Pilotage for the Westerschelde (Schelde). It is reported that passage time, due to locks and bridges, is between 5 and 9 hours. Ocean-going vessels have priority over barges and northbound ocean-going vessels have priority over southbound ocean-going vessels.

Caution.—Numerous barges are generally encountered. Vessels are normally accompanied by tugs which hold them in mid-channel when waiting for the locks and bridges.



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

SECTOR **7** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 7 — DNC LIBRARY INFORMATION

SECTOR 7

THE NETHERLANDS—WESTKAPELLE TO TERSCHELLING

Plan.—This sector describes the coast of the Netherlands between Westkapelle, the W extremity of Walcheren, and the Hoek van Holland and the waterway to the port of Rotterdam. It includes the off-lying banks and deeps which front this part of the coast. In addition, the coast between Hoek van Holland and Terschelling is described including the ports of IJmuiden and Amsterdam. The descriptive sequence is S to N.

General Remarks

7.1 Winds—Weather.—Fog may be encountered at anytime, but is most prevalent from January to June in the areas off the coast. It has a relatively high frequency during the months of May and June, but there is little fog in August and September. Inland, near the ports, the foggiest period is October to March; the least foggiest period is May to July.

Pilotage.—The following information pertains to all ports in the Netherlands.

1. Compulsory pilotage in the Netherlands depends on the destination, the fairway, the vessel's measurements, the cargo, and if exemption/dispensation has been given to certain vessels.
2. Vessels should send request for pilots to the appropriate Pilot Station at least 6 hours in advance including some or all of the following information unless previously stated.
3. If the original ETA becomes more than 1.5 hours in error (or 30 minutes in the case of Den Helder, Ijmuiden or Amsterdam), a revised ETA should be reported.
4. All vessels should send ETD one hour in advance unless stated otherwise in the port entry.
5. Details of amendments to the Netherlands Pilotage Service can be obtained from the appropriate VTS Center.

Deep Sea Pilotage.—

1. Vessels required to use the "mandatory route for tankers from North Hinder to the German Bight and vice versa" are referred to IMO resolution A.486 (xii), adopted on the 19th November 1981, concerning the "Recommendation on the use of adequately qualified Deep Sea Pilots in the North Sea, English Channel and Skagerrak".
2. Deep Sea Pilotage is not compulsory.
3. Vessels may order Deep Sea Pilotage 48 hours in advance via any of the Pilot organizations listed for the ENGLISH CHANNEL AND NORTH SEA, including Skagerrak.

The European Council Directive 2002/59/EC (as amended) relates to vessels over 300 gt and any vessel carrying dangerous or polluting goods bound for or leaving European Union (EU) ports. Such vessels should report to the relevant Port Authority at least 24 hours in advance.

Netherlands Table of Information Required	
ID	**Information Required**
A	Vessel name, call sign and flag
B	Date and time (state difference from UTC)
I	Port of destination
J	Request for pilot and ETA boarding position
O	Draft in meters and centimeters
P	Cargo, including description of any dangerous cargo
T	Name of Agent or owner
U	Length, beam (in meters and centimeters) and gross tons
X	Any other information

Netherlands Standard Reporting Codes		
ID	**Information**	**Details**
A	Vessel	Vessel name, call sign, IMO No. or MMSI, and flag
B	Date and time of event	A 6-digit group giving day of month (first 2 digits), hours and minutes (last 4 digits), in UTC
C	Position	A 4-digit group giving latitude in degrees and minutes suffixed with N or S, and a 5-digit group giving longitude in degrees and minutes suffixed with E or W
D	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark)
G	Port of departure	Name of last port of call
H	Date, time and point of entry into system	Planned route, date & time of entering the approach area, (as expressed in (B)), position of entering the area as expressed in (C) or (D)

Netherlands Standard Reporting Codes		
ID	**Information**	**Details**
I	Destination and ETA	Destination (i.e. Pilot Station, port), date time group expressed as in (B)
J	Pilot	State whether a deep sea or local pilot is on board or one has been requested
K	Date, time and point of exit from system	Exit time as expressed as in (B) State whether a deep sea or local pilot is on board or one has been requested
L	Route information	Intended Track
O	Maximum present static draft (in meters)	A 4-digit group in meters and centimeters
P	Cargo on board	1. Nature of cargo and, if cargo consists of harmful and dangerous substances, details of technical names and UN identification numbers, and if applicable, the IMO danger classification in accordance with IMDG, IBC and IGC codes. 2. Vessel class in accordance with the INF code. 3. The quantity of dangerous goods, their location onboard and their identification numbers if they are located in transport units suitable for cargo transport, except tanks. 4. Confirmation that a list, manifest or an appropriate loading plan is onboard, containing detailed information regarding the dangerous and noxious goods carried and their location onboard. 5. Confirmation that a list, manifest or cargo plan is onboard, accurately specifying the harmful or dangerous goods the vessel is carrying and their location onboard. 6. If the hold has been fumigated with a gaseous fumigant, also report the following information: a. Nature of the cargo. b. Chemical or technical name of the fumigant, the disinfected spaces or the place of stowage of the disinfected cargo. c. Date of treatment with disinfecting agents. d. Spaces that have been ventilated with air after treatment with disinfecting agents. e. Confirm the presence of appropriate onboard gas detectors for measuring concentrations of disinfecting gases and whether spaces have been checked before arrival for the presence of disinfecting gases, mentioning the spaces and measured value in parts per million. f. Defects, damage, deficiencies or limitations, including brief details of any such problems as well as any other deficiencies or limitations.
Q	Defects, damage, deficiencies or limitations	Brief details of defects, damage, deficiencies or other limitations.
T1	Vessel representative	Name, address and telephone number of vessel's agent, Master or operator.
T2	Vessel representative	Name of customer.
U	Vessel size and type	Details of length, beam, gt and type.
W	Total number of persons onboard	Total number of crew on board plus the total number of persons on board.
X1	Miscellaneous	Confirm presence of bow/stern thruster including capacity in kW, radar, gyrocompass, VHF with channels of VTS areas to be passed, and maneuvering speed in knots.
X2	Miscellaneous	Report any changes to previous report.
X3	Miscellaneous	Required tugs or linesmen.

Netherlands Standard Reporting Codes		
ID	**Information**	**Details**
X4	Miscellaneous	Purpose of visit (e.g. loading, discharging or repair).
X5	Miscellaneous	Any other information which may be important.
X6	Miscellaneous	1. Does vessel possess a valid International Ship Security Certificate: (Y/N). 2. Current security level, name of Vessel Security Officer, and authority that issued ISPS Certificate. 3. Last 10 ports of call, including the following items: a. Name of port, dates of arrival and departure. b. Vessel security level. c. Special or additional security measures taken by vessel. d. Were appropriate security measures maintained by vessel maintained during ship-to-ship activities during the last 10 ports of call: (Y/N). e. Confirm if any security measures required at the port facility. f. Advise any other practical or security-related information (including ship-to-ship operations). g. Advise if vessel capable of executing Ship Security Plan: (Y/N).
X7	Miscellaneous	Place on the attached list a copy of the International Oil Pollution Prevention Certificate (IOPP Certificate)

PARTICIPATING EC COUNTRIES	
Belgium	Latvia
Bulgaria	Lithuania
Cyprus	Malta
Denmark	Netherlands
Estonia	Norway
Finland	Poland
France	Portugal
Germany	Romania
Greece	Slovenia
Iceland	Spain
Ireland	Sweden
Italy	United Kingdom

Port State Notifications.—

1. Under EU Directive 2009/16/EC, the EU has introduced a reporting system to be complied with for all vessels arriving or leaving a port or anchorage within the EU Region.

2. The operator, agent or Master shall notify, 72 hours in advance of arrival in port, if vessels are eligible for an expanded inspection (3 days pre-arrival notification).

3. Vessels subject to expanded inspections are:
   a. All vessels with a high risk profile
   b. Any passenger vessel, oil tanker, gas or chemical tanker or bulk carrier, older than 12 years of age

4. Directive 2009/16/EC also recalls the obligation to notify, 24 hours in advance, for vessels bound for a Member States port (24 hours pre-arrival notifications) or at the latest, at the time the vessel leaves the previous port, if the voyage time is less than 24 hours or if the port of call is not known or it is changed during the voyage, as soon as this information is available. This obligation falls under Directive 2002/59/EC establishing a common vessel traffic monitoring and information system throughout European Community (EC) waters.

5. The reports shall be sent to the Port Authorities.

6. Failure to report the requested information is an offense and may also cause a vessel to be targeted for inspection.

7. A list of participating EC countries is shown in the following table:

1. Further details of the legislation may be found at www.emsa.eu.

Caution.—Numerous production platforms, wells, and gas and oil pipelines lie in the waters off the Netherlands coast and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Rijn Oil and Gas Field (52°18'N., 3°47'E.).
2. Helder Oil Field (52°56'N., 4°09'E.).
3. Helm Oil Field (52°52'N., 4°08'E.).

For locations of oil and gas fields lying in the vicinity of the offshore Deep Water Routes, see paragraph 8.6.

Walcheren to the Hoek van Holland

7.2 The coastal area between Westkapelle, on Walcheren, and the Hoek van Holland, 36 miles NE, consists of a number of low islands and off-lying banks. A complex network of waterways, through which the Oosterschelde and the River

Maas discharge into the sea, extends between these islands. With the exception of the Nieuwe Waterweg, which leads to the ports of Rotterdam and Dordrecht, these waters are navigated by small inland vessels and are of little interest to ocean-going vessels.

The outer islands, named from S to N, are Schouwen, Goeree, Voorne, and Rozenburg. Sand dunes, up to 27m high, stand on their W sides, but elsewhere the islands are generally protected by dikes. The E parts of Schouwen, Goeree, and Voorne are known, respectively, as Duiveland, Overflakkee, and Putten.

The principal inner islands are Noord Beveland, Zuid Beveland, Tolen, Beijerland, and IJsselmonde. They are all low and surrounded by dikes.

The off-lying banks are found within 9 to 18 miles of the W sides of the above named outer islands. These banks are elongated in a NE/SW direction and are separated by deeps, which are used by coastal vessels bound for the Westerschelde or the Hoek van Holland. The principal banks are Schouwenbank, Schaar, Middlebank, and Steenbanken. Bollen van Goeree is part of the coastal bank which lies in the approaches to the Hoek van Holland.

Zeegat van Zieriksee, the entrance to the Oosterschelde, lies between Walcheren and Schouwen.

The inner estuary of the River Maas is accessible through the Zeegat van Goeree, which lies between Goeree and Voorne, and the Nieuwe Waterweg, which is entered at the Hoek van Holland.

In addition to the large ports of Rotterdam and Dordrecht, there are numerous small harbors and loading places amongst the islands within this area. There are also several canals. The principal one is Kanaal door Zuid Beveland (described in paragraph 6.20), which cuts across the island of Zuid Beveland. This canal may be entered at Wemeldinge, on the N coast of Zuid Beveland, and provides access to the Westerschelde. Kanaal door Walcheren (described in paragraph 6.17), which is entered at Veere, passes through Middelburg and connects with Vlissingen (Flushing).

Aspect.—Prior to the implementation of the delta program, three main waterways lead through the islands which lie between Walcheren and the Hoek van Holland. These were the Oosterschelde and the two branches of the Maas which entered the sea through Zeegat van Brouwershaven and Zeegat van Goeree. In 1970, Zeegat van Brouwershaven was completely closed by a dam constructed between Schouwen and Goeree. Zeegat van Goeree was closed by a similar dam which extends from Goeree to Voorne, but access is provided to small vessels through a lock situated near its SW root. Oosterschelde is closed by a storm surge barrier; a lock, located at the S end, provides access to small vessels.

Oosterschelde lies with Walcheren, Noord Beveland, and Zuid Beveland on its S side and Schouwen and Tholen on its N side. This waterway no longer has any natural connections with the Westerschelde or the Schelde, because it terminates at the Noord Brabant coast, 28 miles within the entrance. However, there is access from the Oosterschelde to the Westerschelde through the Kanaal door Zuid Beveland. The Oosterschelde is connected with the estuary of the Maas by a waterway which leads between Duiveland, on the W side, and Saint Philipsland and Tholen, on the E and SE sides. Hence, Oosterschelde can

West Schouwen Light

West Schouwen Light (51°43'N., 3°42'E.) is shown from a prominent tower, 50m high, standing on the N side of the entrance to the Oosterschelde. The tower is reported to be difficult to identify in some conditions of light.

The main inland water route between Antwerpen and Rotterdam leads from Wemeldinge, the N terminal of the Kanaal door Zuid Beveland, through the waters E of Duiveland and Overflakkee into Hollandsch Diep. It then continues N through Dordsche Kil to the Oude Maas and the ports of Dordrecht and Rotterdam.

Oosterschelde is comprised mainly of an outer part, called Zeegat van Zieriksee, and an inner part, which leads to the Noord Brabant coast. Two principal channels, Roompot and Oude Roompot, lead into Zeegat van Zieriksee. The main approach to the lock at the S end of the Oosterschelde barrier is through Westgat and Oude Roompot. An alternate channel through Roompot runs along the N coast of Walcheren. Inside the waterway, there are numerous detached shoal banks and flats, some of which dry. Several channels meander between these banks and flats and the navigable ones are marked by buoys.

There are many small ports and loading places in these waters. However, the facilities at these places can only accommodate small inland vessels and ferry boats. Although Dordrecht can be reached through these waters, ocean-going vessels approach this port through the Nieuwe Waterweg and the Oude Maas.

Pilotage.—Pilotage is compulsory for vessels over 40m in length and all vessels carrying oil, gas, or chemicals (fully or partially loaded). Pilots for the Oosterschelde are available at the Steenbank pilot vessel, which is stationed 1 mile W of Schouwenbank Lighted Buoy (51°45'N., 3°14'E.). Vessels should send a request for pilot and ETA at least 6 hours in advance. For details of the pilot station and traffic control, see Pilotage for the Westerschelde in paragraph 6.13.

Caution.—Several dangerous wrecks lie in the vicinity of the off-lying banks and may best be seen on the chart.

The depths off this coast are constantly changing; vessels are advised to take frequent soundings when navigating in this area.

Several submarine cables and pipelines extend seaward from the islands and may best be seen on the chart.

Local knowledge is required to navigate within the Oosterschelde and approaches.

Off-lying Banks

7.3 The sea area within 20 miles NW of Westkapelle and 4 miles W of the Hoek van Holland consists of an extensive coastal bank and several fairly large detached banks, which have shoal ridges with depths of less than 9m.

Steenbanken is the innermost bank and Schouwenbank is the outermost. Numerous patches, with depths of 14 to 18m, lie seaward of the latter.

Schaar (51°41'N., 3°10'E.), the westernmost of the off-lying banks, lies N of Rabs Bank and near the SW end of Schouwenbank. It has depths of 10 to 18m, with the least depth lying about 15 miles NW of Westkapelle.

Schouwenbank (51°46'N., 3°24'E.) is about 0.5 mile wide and generally steep-to on both sides. Two detached ridges, with general depths of less than 11m, lie on this bank. The N ridge has a least depth of 7m and the S ridge a least depth of 6.4m.

Schouwendiep lies between Schouwenbank and Middelbank. It is 1 to 1.8 miles wide and has depths of 18 to 32m.

Middelbank (51°42'N., 3°21'E.), the longest of the off-lying banks, runs parallel to Schouwenbank and is steep-to on both sides. Its NE end joins the coastal bank and the SW end almost reaches Rabs Bank. Three detached ridges, with general depths of less than 11m, lie on this bank. The N ridge has a least depth of 6.6m, the S ridge has a least depth of 7.3m, and the central ridge has a least depth of 9.1m.

Middeldiep lies between Middelbank and Steenbanken and is about 2 miles wide. It has depths of 18 to 29m and is marked by buoys on its S side.

Steenbanken (51°40'N., 3°24'E.), steep-to on its NW and SE sides, curves to join Middelbank at its SW end. A ridge, with general depths of less than 11m, extends almost along the entire length of this bank. The NE part of this ridge has a least depth of 3.8m and the SW part has a least depth of 4.9m.

Steendiep, with depths of 18 to 27m, lies between the SE side of Steenbanken and the coastal bank which extends from Walcheren. This channel is marked by buoys on its NW side.

Bollen van Goeree (51°51'N., 3°40'E.) and Buitenbank are two long spurs of the coastal bank which front the islands of Schouwen, Goeree, and Voorne. Both these spurs extend in a WSW direction. Buitenbank, the outer spur, has a least depth of 11m lying 9.8 miles NW of the W extremity of Goeree. Bollen van Goeree extends almost to the NE end of Schouwenbank and has two detached depths of 7.9 and 8.8m lying near its SW end.

Approaches to Nieuwe Waterweg (Europoort and Rotterdam)

7.4 **Hoek van Holland** (51°59'N., 4°07'E.) is the N entrance point of Nieuwe Waterweg. A breakwater extends WNW for 2 miles from the point and protects the entrance of the waterway from N.

Noord Hinder Lighted Buoy (52°00'N., 2°51.1'E.), equipped with a racon (T), is moored near the middle of the Noord Hinder Junction Precautionary Area.

Goeree Light (51°55'N., 3°40'E.) is shown from a prominent tower on a platform standing on the S side of the approaches, 16 miles WSW of Hoek van Holland. A racon is situated at the platform.

Europlatform (51°59.6'N., 3°16.5'E.) a lighted structure with a horn and AIS is located about 1.6 miles ESE of No. 3 anchorage in Maas Outer West. It is also a prominent weather observation and light tower, stands 31 miles W of Hoek van Holland.

Euro Lighted Buoy (51°57'N., 3°10'E.) is moored at the outer entrance to the deep-water dredged channel, 34 miles W of Hoek van Holland.

NHR-SE Lighted Buoy (51°45'N., 2°40'E.), equipped with a racon, is moored at the S side of the Noord Hinder Junction Precautionary Area, at the N end of the Noord Hinder South TSS.

NHR-N Lighted Buoy (52°11'N., 3°05'E.), equipped with a racon, is moored about 14 miles NE of Noord Hinder Lighted Buoy and marks the Noord Hinder North TSS.

Maas Center Lighted Buoy (52°01'N., 3°54'E.), equipped with a racon, is moored 6 miles WNW of the head of the N breakwater.

Maasvlakte Light (51°58'N., 4°01'E.) is shown from a prominent tower, 62m high, standing on the S side of the entrance to Nieuwe Waterweg, 2 miles SSW of the head of the N breakwater.

Maasvlakte Light

Westhoofd Light (51°49'N., 3°52'E.) is shown from a prominent tower, 52m high, standing 11 miles SE of Maasvlakte Light.

Depths—Limitations.—Traffic Separation Schemes (TSS) and Deep-Water Routes (Channels), which are IMO-adopted, are situated in the approaches to Nieuwe Waterweg as depicted on the graphics in paragraph 6.1. The positions of the various TSS schemes and routes, including the relevant navigation aids, may best be seen on the charts.

The Mariners Routing Guide, British Admiralty Chart 5500, contains Passage Planning Chartlets which indicate the routes

Westhoofd Light

through the English Channel, Dover Strait, and the S part of the North Sea. Information concerning regulations, pilotage, and radio reporting systems is also included.

A recommendation has been adopted by the IMO that all vessels navigating in the vicinity of the English Channel, Dover Strait, and North Sea should have on board the latest edition of Chart 5500 (British Admiralty) or other equivalent guide.

The combined traffic lanes lead about 130 miles in a general SW direction from the Noord Hinder Junction Precautionary Area to the vicinity of the Greenwich Light float (50°24'N., 0°00').

Deep-Draft Tracks have been established within the Traffic Separation Schemes (TSS) and Deep-Water Routes situated in the English Channel, Dover Strait, and the S part of the North Sea. The tracks are for the use of large vessels and take advantage of the best water available; however, these tracks are not to be considered recommended tracks as certain portions of each track pass through areas which may be subject to change.

The controlling depth in the northeast bound Deep Draft Track is reported to be 27.3m. The controlling depth in the southwest bound Deep Draft Track is reported to be 23m, which is found over a swept wreck lying close SE of The Varne (50°58'N., 1°20'E.).

Vessels with drafts up to 22m, 22.55m in favorable conditions, can use the northeast bound track. The maximum draft for the southwest bound track is not stipulated; however, specific under keel clearances are advised.

For details of waypoints, under keel clearances concerning the Deep Water Routes within the Dover Strait TSS and Noord Hinder South TSS, and additional navigational information, see Pub. 191, Sailing Directions (Enroute) English Channel (Sector 6).

The Noord Hinder Junction Precautionary Area is centered (51°57'N., 2°50'E.) and extends SW-NE and 18 miles SE-NW. A dredged deep water (DW) leads NE through the area to the No. 2 anchorage and Eurogeul Approach area.

The precautionary area is the focal point for the following traffic schemes:

1. Maas West Outer and Inner TSS. The Eurogeul leads through the separation zones of Maas West Outer and inner TSS which are intended for vessels with a draft of 17.4m or less. The Maas West Outer TSS (51°58.6'N., 3°13.0'E.), extends about 6 miles E from the E side of North Hinder Junction Precautionary Area. Maas West inner TSS (52°00.3'N., 3°30.0'E.) is about 6 miles W of Maas Center Precautionary Area. The two TSSs are separated by Maas Junction Precautionary Area.
2. Maas North Inner TSS (52°15'N., 3°50'E.), reaches N about 15 miles from the N boundry of the Maas Center Precautionary Zone. The traffic lane is not recommended for vessels with a deep drafts of 14.3m or more.
3. Maas North West TSS (52°07'N., 3°34'E.), extends about 3.5 miles NW from the NW boundary of the Maas Central Precautionary Area. This area is not recommended for vessels with a deep draft of 17.4m or more.
4. Maas Center Precautionary Area (52°02'N., 3°48'E.), is the focus of routes which converge on Maasmond, the common entrance to Europoort and Nieuwe Waterweg. This area is comprised of a rough rectangular shape extending about 10 miles N and S, and roughly 16 miles E and W. Vessels within the Maas Center Precautionary Area should proceed through this area with caution and maneuvering speeds to accommodate traffic flow and merges. The southbound traffic lane is situated on its W side and the northbound traffic lane is situated on its E side.
5. Maas Junction Precautionary Area (51°59.5'N., 3°22'E.), lies between Maas West Outer and Maas West Inner TSSs. Mariners are warned that within this area, crossing vessels tracking between Texel TSS and Westerschelde may be encountered, and vessels from these locations may also be joining Maas West Inner TSS.

The S limits of the TSSs are marked by MW1, MW3, and MW5 lighted bouys on the starboard side. The N limits of the TSSs are marked by MW2, MNW3, and MW4 lighted bouys on the port side. Vessels with a draft of 17.4m or more embark their pilots by helicopter in the Aerogels W end.

In the area lying between the Maas West Outer TSS and the Maas West Inner TSS, shipping routes cross each other and converge. Such routes include the Texel TSS to Westerschelde and Maas to Westerschelde.

The inbound and outbound lanes of the Maas TSS have depths in excess of 17m.

7.5 Eurogeul Approach Area (51°58'N., 3°06'E.) lies on the E side of the Noord Hinder Junction Precautionary Area and has a least depth of 25m. It is entered from the Deep Water Route. Vessels with only a short wait for the tide may remain underway in the W part of this area.

Eurogeul (52°00'N., 3°32'E.) is a deep water dredged approach channel. It is entered at the E side of the Eurogeul Approach Area, close N of Euro Lighted Buoy. This channel extends ENE to Maas Center Lighted Buoy, passing through the separation zones of the Maas West Outer TSS and the Maas West Inner TSS. The center fairway, which is 600m wide, has depths of 24 to 24.5m. It is bordered on both sides by dredged areas, 300m wide, which have depths of 22m.

Three dredged turning spaces, each with a diameter of 2,700m, are located along Eurogeul and may best be seen on the chart. The first lies within the separation zone of Maas West Outer TSS, the second lies S of the channel and close W of Maas West Inner TSS, and the third lies close ENE of Maas Center Lighted Buoy (52°00.9'N., 3°48.8'E.).

Anchorage.—There are two emergency anchorages for deep draft vessels along Eurogeul, each with a diameter of 2,700m. The first is midway along the length of the channel centered on (51° 59.5'N., 3°34.0'E.), and the second is at the junction with Maasguel centered on (52°01.8'N., 3°55.9'E.).

Maasgeul (52°00'N., 4°00'E.), an inner deep water channel, leads ESE for 6 miles from the E end of Eurogeul, at Maas Center Lighted Buoy, into Maasmond, S of the head of the N breakwater. This channel is 600m at the W end and narrows to a width of 500m at the E end. It has a dredged depth of 23.4m.

Maasmond (51°59'N., 4°03'E.), an entrance channel, leads ESE for about 1.5 miles from the head of the N breakwater. It has a depth of 22.8m and divides into two branches. The N branch leads into Nieuwe Waterweg and the S branch leads into Calandkanaal and Europoort.

The above channels are marked by lighted buoys or lighted ranges, which may best be seen on the chart.

Vessels with drafts up to 22.55m can transit these approach channels, in favorable conditions, and reach Europoort. Vessels with drafts up to 20m can normally transit at any time (see Regulations—General described below).

Pilotage.— Vessels without local knowledge of the approaches should obtain a deep-sea pilot. Vessels bound for the waterway through the English Channel, with drafts of 20.7m and over, should request a sea pilot to board by helicopter off Cherbourg. Such vessels should send a request for pilot at least 24 hours in advance to the Central Traffic Control (HCC) Rotterdam through Scheveningen (PCH).

The message should include the following information:

1. Vessel name.
2. Call sign.
3. Gross registered tons.
4. Salt water draft.
5. ETA at pilot boarding position off Cherbourg (13 miles N of Cap de la Hague).
6. A request for Euro Channel pilot to board by helicopter.
7. A confirmation that gyro, radar, and VHF are functioning or whether an expert is required for this equipment.
8. A request for information after passing Cherbourg.

This message should be amended or confirmed at least 12 hours in advance.

After passing Cherbourg, the above vessels will be provided with information by the HCC concerning sea and/or depth conditions at the critical areas along their intended track, including the vicinity of Twin Lighted Buoy (51°32'N., 2°23'E.). They should not pass the abort point (50°29'N., 0°53'E.) unless conditions in the vicinity of Twin Lighted Buoy are normal, nor enter the Dover Strait TSS if their radar is not working.

Pilotage in the waterway is compulsory for all vessels over 90m in length, all vessels between 70m and 90m in length unless an exemption has been issued, and all vessels carrying dangerous cargo.

Vessels with drafts of less than 17.4m should send a request for pilotage at least 6 hours in advance through Scheveningen (PCH) or Maas Approach (see Regulations) on VHF channel 1. The message should include the words "Pilot Station" in addition to the vessel's name, call sign, gt, draft, destination, and ETA. An updated message should be sent if the ETA changes by over 1 hour.

Vessels with drafts of 17.4m and over should send a request for pilotage and ETA message at least 8 hours in advance. They are considered to be channel-bound and must approach via Eurogeul and Maasgeul (see Regulations—General).

Pilots board in the following positions:

1. Vessels with a draft of less than 14.3m:
   a. By pilot vessel, in position 51°59.0'N, 3°47.3'E (4 mile SW of Maas Center Lighted Buoy).
   b. By helicopter for vessels arriving from N, in the southbound lane of Maas North TSS where the exact position will be advised by VTS.
   c. By helicopter for vessels arriving from W, in the eastbound lane of Maas West Inner/Outer TSS where the exact position will be advised by VTS.
2. Vessels with drafts between 14.3m and 17.4m, by pilot vessel or helicopter in the vicinity of E13 Lighted Buoy (52°01'N., 3°44'E.) in the Eurogeul. The decision on whether the pilot embarks by pilot vessel or helicopter is made by the pilot.
3. Vessels with drafts of over 17.4m and up to 22.55m, by helicopter in position 52°00'N, 3°00'E.

It is reported (2011) that the pilot boarding point for LNG carriers is in position 52°00.5'N, 3°37.0'E.

All vessels requiring a pilot to embark by helicopter should include this request in their ETA message and state their direction of approach.

When the helicopter has arrived within VHF range, it will contact the vessel by VHF on the appropriate VTS Sector channel. This generally takes place when the helicopter is between 20 and 40 miles from the vessel. The call sign of the helicopter will be the word "Pilot Helicopter" followed by its registration letters as quoted by the VTS Traffic Center, Hoek van Holland.

As soon as VHF contact has been established, the vessel should advise the helicopter of its position, course, and speed; the actual wind direction and wind speed across the deck; and any pitching or rolling conditions. The helicopter will then confirm acceptance of the conditions or will request the vessel to change course and/or speed.

Generally, helicopters operate in winds up to 55 knots (Force 10) and when the visibility is in excess of 0.75 mile by night and 0.5 mile by day at a height of 46m (150 feet). However, severe turbulence or icing below 46m may cause the service to be withdrawn.

All inbound vessels must report to Pilot Maas on VHF channel 2, giving their name and call sign, when leaving the Maas Approach Sector (see Regulations—Traffic Control).

The pilot station can be contacted by e-mail, as follows:

rotterdam@dirkzwager.com

Regulations.—Vessels with drafts of 17.4m and over must use the Eurogeul and Maasgeul channels (see Depths—Limitations in paragraph 7.4).

Vessels with drafts of between 14.3m and 17.4m are strongly recommended to use the Eurogeul and Maasgeul channels. Such vessels may enter the channels at the W end of Eurogeul, 4.5 miles WSW of the Europlatform (52°00'N., 3°17'E.), or about 14 miles E between the E7 and E9 Lighted Buoys.

Vessels with drafts of less than 14.3m should use the normal traffic lanes of the Maas West Outer TSS and Maas West Inner TSS. Such vessels join or leave Maasgeul to the E of the MO Lighted Buoy (52°01'N., 3°58'E.).

Vessels with drafts of 17.4m and over are considered to be constrained by their draft and must display the appropriate lights or signals.

Vessels with drafts of over 20m are considered to be constrained by the tide. Such vessels, when inbound, are issued a set of tidal window tables, which indicate the time that they may pass the entrance to Eurogeul (51°58'N., 3°10'E.). The tidal window depends on the vessel's dwt, cargo, and draft. It also takes into account the expected wave and tidal levels during the passage. The table is calculated so that the vessel may navigate safely in the channel within certain speed limits, which have been observed to be 8 to 11 knots in Eurogeul and 6.5 to 8 knots in Maasgeul.

Such vessels, when outbound, are given a tidal window, which depends on their draft. It allows for an underkeel clearance of 15 per cent of the draft in Maasgeul and 20 per cent in Eurogeul. This calculation allows for the reduction in available depth due to low frequency waves.

Crossing vessels should avoid the Maas Precautionary Area. Vessels proceeding N should cross Eurogeul, at right angles, between E5 Lighted Buoy (51°59.0'N., 3°25.5'E.) and E7 Lighted Buoy, 3 miles ENE. Vessels proceeding S should cross Eurogeul between E5 Lighted Buoy and E3 Lighted Buoy, 3 miles WSW. (See Regulation—Traffic Control, previously described above).

Small craft requiring to cross Maasgeul should do so by passing W of a line joining MV Lighted Buoy (51°57.5'N., 3°58.5'E.), MV-N Lighted Buoy, 2.5 miles NNE, and Indusbank Lighted Buoy, 4 miles NNE. It should be noted that large vessels constrained by their draft to the deep-water channel, which are displaying the appropriate signals or lights, cannot give way to other vessels.

All vessels are prohibited from anchoring in the vicinity of Maasgeul and the entrance fairway. In addition, vessels are recommended not to anchor within the Maas Precautionary Area, except in an emergency.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates in the approaches to Nieuwe Waterweg. It is managed by the Harbor Coordination Center (HCC) Rotterdam and provides navigational information as required.

Vessel reporting requirements to the VTS are, as follows:

1. Vessels with drafts of 17.4m and over should report to Traffic Center, Hoek van Holland (VCH) through Scheveningen (PCH) at least 6 hours before arrival at the pilot boarding position in the approaches to the waterway. The message should include the following information:
   a. Vessel name.
   b. Call sign.
   c. Gross registered tons.
   d. Draft.
   e. ETA at pilot boarding position.
   f. A confirmation that gyro, radar, and VHF are functioning.

   Such vessels should establish contact with Mass Approach on VHF channel 1 when near the NHR-SE Lighted Buoy (51°45'N., 2°40'E.).
2. Vessels with drafts less than 17.4m but 250m or more in length should report as above at least 4 hours before arrival at the pilot boarding place in the approaches to the waterway, giving the following information:
   a. Vessel name.
   b. Call sign.
   c. Gross registered tons.
   d. Draft.
   e. ETA at pilot boarding position.
3. All vessels carrying dangerous cargo should report to the Central Traffic Control (HCC) Rotterdam at least 24 hours before arrival at the pilot boarding place in the approaches to the waterway. The message should include the following information:
   a. Vessel name.
   b. Call sign.
   c. Nationality.
   d. Gross registered tons.
   e. Draft.
   f. Nature and quantity of dangerous cargo.
   g. Name of agent.
4. All vessels should report to Maas Approach on VHF channel 1, 3 hours before arrival in the vicinity of Maas Center Lighted Buoy. They should state the following information:
   a. Vessel name.
   b. Call sign.
   c. Nationality.
   d. Gross registered tons.
   e. Length.
   f. Draft.
   g. Destination.
   h. ETA at Maas Center Lighted Buoy.
   i. Any special details

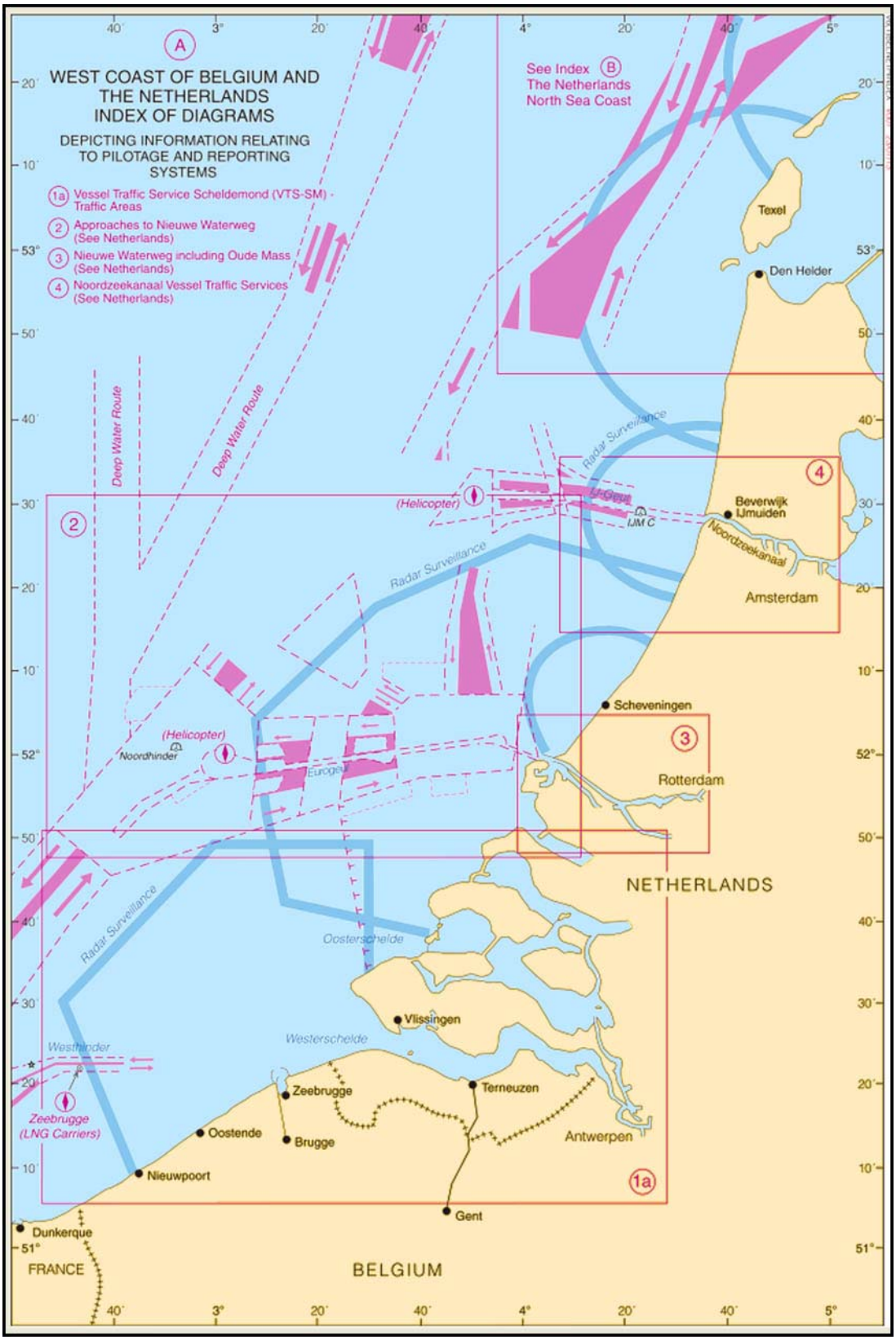
   In addition, vessels should report upon entering the area of radar coverage, which is within about 20 miles of position 52°02.3'N, 3°31.6'E.

Inbound vessels should also report at the following appropriate calling-in-points, which are indicated on the chart:

1. Point A (51°52.9'N., 3°08.9'E.)—VHF channel 1.
2. Point C (51°57.7'N., 3°35.5'E.)—VHF channel 1.
3. Point D (51°59.4'N., 3°46.5'E.)—VHF channel 2.
4. Point E (52°00.7'N., 3°58.1'E.)—VHF channel 3.
5. Point I (52°14.8'N., 3°56.6.'E.)—VHF channel 1.
6. Point J (52°05.5'N., 3°52.7'E.)—VHF channel 2.
7. Point O (51°58.2'N., 3°10.2'E.)—VHF channel 1.

Outbound vessels should report at the following appropriate calling-in-points, which are indicated on the chart:

1. Point F (52°01.5'N., 3°58.7'E.)—VHF channel 2.
2. Point G (52°04.8'N., 3°57.2'E.)—VHF channel 1.
3. Point H (52°14.0'N., 4°01.4.'E.)—VHF channel 1.
4. Point K (52°04.2'N., 3°45.4'E.)—VHF channel 1.



VTS West Coast of Netherlands and Belgium

5. Point N (52°02.9.'N., 3°09.1'E.)—VHF channel 1.
6. Point O (51°58.2'N., 3°10.2'E.)—VHF channel 1.

Crossing vessels should report at the following appropriate calling-in-points, which are indicated on the chart:

1. Point B (51°53.4'N., 3°29.9'E.)—VHF channel 1.
2. Point M (52°09.0'N., 3°20.5'E.)—VHF channel 1.

The approaches and waterway are divided into Sectors. While navigating within these Sectors, vessels should maintain a continuous listening watch and use the assigned VHF channels for communication with shore stations, as follows:

1. VHF channel 1 (Maas Approach)—The outer approaches from the limit of radar coverage to the W boundary of the Maas Precautionary Area.
2. VHF channel 2 (Pilot Maas)—The outer part of the Maas Precautionary Area, W of a line extending 194° from MN3 Lighted Buoy.
3. VHF channel 3 (Maasmond/Maas Entrance)—Inner part of the Maas Precautionary Area, and entrance channel W of Hoek van Holland (VCH) Traffic Center (51°59.0'N., 4°06.7'E.)
4. VHF channel 65 (Rozenburg)—Nieuwe Waterweg from Km 1030 to Km 1028 and Calandkanaal from a line between Hr No 6313 (Ertskade) and Hr No 6316 (Splitslingsdam) to Rozenburgse Sluis.
5. VHF channel 80 (Maasluis)—Nieuwe Waterweg from Km 1028 to Km 1017.
6. VHF channel 61 (Botlek)—From Km 1017 to Km 1011 on Nieuwe Maas and up to Km 1005 on Oude Maas, including Botlek and adjoining harbors.
7. VHF channel 63 (Eemhaven)—Nieuwe Maas from Km 1011 to Km 1007 (Werkhaven) with the adjoining harbors.
8. VHF channel 60 (Waalhaven)—Nieuwe Maas and adjoining harbors from Km 1007 (Werkhaven) to Km 1003 (Schiehaven).
9. VHF channel 81 (Maasbruggen)—Nieuwe Maas and adjoining harbors from Km 1003 (Schiehaven) to Km 993 (E limit of VTS area).
10. VHF channel 21 (Brienenoord)—Km 993 to Km 998.
11. VHF channel 66 (Europoort).
12. VHF channel 5 (Hartel)—Hartelkanaal W of Geervliet.
13. VHF channel 62 (Oude Maas)—Oude Maas from Km 1005 to Km 998, also Hartelkanaal E of the bend at Geervliet (4º16.0' E.).

English is the primary language used on VHF channel 1 (Maas Approach), VHF channel 2 (Pilot Maas), and VHF channel 3 (Maas Entrance), with Dutch as the secondary language.

Traffic Center Hoek van Holland (VCH) broadcasts marine information, including visibility reports, on request. Marine information may also be obtained by vessels at sea through Maassluis Radio Dirkzwager on VHF channel 12 and through Maas Approach on VHF channel 1.

All vessels within the port areas of Rotterdam not covered by a VTS sector should maintain a listening watch on VHF channel 10.

Caution.—Numerous wrecks, some dangerous, lie in the approaches to Nieuwe Waterweg. Those which lie close adjacent to the TSS or recommended approach channels are generally marked by lighted buoys.

Currents in the vicinity of Eurogeul and Maasgeul can have a strong cross-channel component.

Several submarine cables and pipelines lie in the approaches and may best be seen on the chart.

Production platforms and wells may be encountered in the approaches; extreme caution is advised when navigating in the vicinity of these facilities.

A firing danger area exists approximately centered on Goeree Light (51º55.5'N., 3º40.2'E.). Extreme caution is advised when navigating in this vicinity.

Anchorage.—The following designated anchorage areas have been established in the approaches to the waterway and may best be seen on the chart:

1. Area No. 1 (52°06.3'N., 2°46.5'E.) is situated on the NW side of the Noord Hinder Junction Precautionary Area. This area may be used long term (more than 24 hours), by deep draft vessels (up to 22.5 meters) and they may remain under the most extreme conditions.
2. Area No. 2 (51°56.1'N., 2°56'E.) is situated within the Noord Hinder Junction Precautionary Area. This area may be used short term (less than 24 hours), by deep-draft vessels (up to 22.5 meters), waiting for the tide or a pilot. This area lies in the center of the North Hinter Junction Precautionary Area and is marked by lighted buoys at its NE and SW corners.
3. Outer Anchorages: No. 3 North (52°00.5'N., 3°10.5'E.), No. 3 South (52°56.0'N., 3°10.0'E.), are located on either side of Eurogeul in the separation zones of Maas West Outer TSS. They both have depths in excess of 22 meters and are for vessels with drafts between 14.3 and 17.39m who are too deep to use No. 4 West and 4 East anchorages. No. 3 East (52°01.0'N., 3°30.0'E.), is located N in the separation zones of Maas West Outer TSS. It has depths in excess of 21m and is used exclusively for LNG vessels. The swell conditions during NW gales are the worst. The minimum under keel clearance (UKC) for tankers up to 305m in length, 46m in width, and a draft of 17.5m is 3.2m, in these anchorages.

The N anchorage is preferable to the S anchorage due to the possibility of dragging anchors into the Eurogeul during SW winds.

4. No. 4 West (51°55.0'N., 3°32.0'E.) and 4 East (51°56.0'N., 3°45.0'E.) lie within the in-shore traffic zone (ITZ) to the SW of Maas West Inner Traffic Separation Zone (TSS) and Maas Center Precautionary Area, on either side of Goeree Light. Anchorage Area No. 4 West has the least depths between 15m and 24m. Anchorage Area No. 4 East has least depths of 11.6m. Both anchorages have numerous fouls and obstructions. In Area No. 4 West, berths A-G are for vessels 180m or more LOA. Berths H-U are for vessels less than 180m LOA. In Area No. 4 East, berths A-D are for vessels of 180m LOA or more and berths E-R are for vessels less than 180m LOA. The worst swell condition for these anchorages occur during NW gales. The minimum UKC can be found in the table titled **Draft allowance table for Anchorages.**
5. Area Maas Noord 5A (52°09.0'N., 3°39.0'E.) is situated on the N side of Maas Center Precautionary Area.

This Anchorage area has a least depth of 18 meters, and contains a small number of fouls. Berths A-H are for vessels of 180m LOA or more and berths I-W are for vessels less than 180m LOA. The table titled **Draft allowance table for Anchorages** also apply for this anchorage as well.

6. Anchorage No 6 (52°10.7'N., 3°04.2'E.) is situated on the E side of Maas N Traffic Separation Zone (TSS). The W boundary of the anchorage is adjacent to the N traffic lane of the TSS. This Anchorage area has a least depth of 18.8 meters. A foul exists in the center and E part of the anchorage. During NW gales when the worst swells can be experienced, the recommended UKC for various types of vessels where their maximum dimensions are the same as for No 5A and are expressed in the table titled **Draft allowance table for Anchorages.**

During an emergency, vessels may also anchor within the dredged turning area situated ENE of Maas Center Lighted Buoy.

Draft Allowance Table for Anchorages.

Type of vessel	Length	Beam	Draft	UKC
Tankers	250m	43m	14.5m	2.8m
Bulk carriers	190m	23m	10.0m	4.0m
Container vessels	180m	25m	10.0m	5.9m
Container vessels	350m	43m	14.5m	3.6m

Caution.—When winds approach force 9 or above, especially from the NW, vessels are advised to weigh anchor and get underway from any of the anchorage areas listed above, except for Areas No. 1 and No. 2.

The Nieuwe Waterweg

7.6 The Nieuwe Waterweg leads from Hoek van Holland to the port of Rotterdam, a distance of about 18 miles. The fairway between the junction with the Oude Maas, about 10 miles above the entrance, and Rotterdam is known as Nieuwe Maas. The Oude Maas leads in a SE direction to the port of Dordrecht.

Tides—Currents.—At Europlatform (52°00'N., 3°17'E.), situated about 30 miles W of the entrance to Nieuwe Waterweg, the tidal rise is about 2m at springs and about 1.6m at neaps. At Hoek van Holland, the tidal rise is about 1.8m at springs and 1.5m at neaps.

Entrance to the Nieuwe Waterweg

Strong winds from W through N may generate a heavy sea off the entrance of the waterway, particularly about the time of LW. When such conditions exist, it is not advisable to enter. The sea generally moderates when the outgoing current in the waterway and the SW offshore current lose their strength; this occurs about 3 hours before HW. Therefore, vessels should find the best time to enter is from 2 hours before to 2 hours after HW.

With strong SW winds, vessels should wait until 1 to 2 hours after HW to enter as the strength of the incoming current will have decreased by then.

The water level of the rivers upstream and the direction of the wind greatly influence the duration of the water flow in the waterway. When the rivers are in flood and the wind is from the E or S, it is possible during neap tides to have practically no incoming current at the entrance. Farther up the waterway, between Maassluis and the Oude Maas, there is an incoming current, but its duration and rate are decreased. These same conditions may reduce the height of tide.

The incoming tidal current is at its greatest strength about 30 minutes before HW and attains rates of about 3.5 knots during springs and 2 knots during neaps in the outer part of the waterway; in the inner part, its rates are about 1 knot less.

The outgoing tidal current is at its greatest strength about 5 hours after HW and attains rates of about 4 knots during springs and 2.5 knots during neaps in the outer part of the waterway; in the inner part, its rates are about 1 knot less.

In the outer part of the waterway, the rate of the tidal current at certain depths is greater than at the surface; the current at certain depths also changes direction sooner than at the surface.

At a depth of about 7m, the tidal current may attain a rate of 5.5 knots. This undercurrent flows into the waterway even before the water begins to rise, while on the surface the outgoing current is still running. It stops before HW, sometimes up to 2 hours before, while a strong incoming current continues on the surface. At Maassluis, this undercurrent changes direction approximately 30 minutes later than the surface current. However, off Vlaardingen, where the water is completely fresh, the movement of the current is uniform throughout its depth.

Off the entrance during the outgoing current, the division between the muddy water of the waterway and the clear North Sea is plainly visible. It is usually indicated by a line of ripples which extends W, NW, and N from the head of the N breakwater. This line, depending upon the winds and currents, may extend for only a short distance or up to 7 miles seaward.

Depths—Limitations.—Vessels with drafts up to 13.4m can transit Nieuwe Waterweg as far as Botlek (51°54'N., 4°18'E.). Vessels with drafts up to 12.2m can transit the waterway as far as Waalhaven (51°54'N., 4°26'E.) at Rotterdam.

Aspect.—Prominent landmarks include the light structures, with helicopter platforms, standing at the head of the N breakwater and on Zuiderdam, at the S side of the entrance; the signal station standing 0.5 mile ESE of the root of the N breakwater; a tower standing 0.8 mile NNE of the signal station; and the buildings of the ferry terminal standing close E of the signal station. Conspicuous landmarks include several buildings standing at the oil terminal, on the S side of the entrance; and two conspicuous chimneys, 175m high, standing at a power station, 1 mile SSE of Maasvlakte Light (51°58'N., 4°01'E.).

Splitsingsdam, an elongated central mole, is situated close inside the entrance and divides the waterway. The Nieuwe Waterweg extends along the N side of this mole and Calandkanaal, leading to Europoort, extends along its S side. Lighted ranges, which may best be seen on the chart, indicate Maasgeul and the entrance fairways.

The waterway is marked by lights and beacons and indicated by lighted ranges.

Regulations.—Vessels underway within the waterway, with drafts of 9m and over, must display the appropriate signals for vessels constrained by their draft. Dredges in the waterway will keep out of the way of such vessels.

Vessels carrying explosives, dangerous cargo, or not gas free, must display, by day, flag B of the International Code of Signals and, at night, exhibit two red lights, disposed horizontally.

There are no restrictions on the movement of dry cargo vessels, in view of radar coverage, during fog. However, tugs do not operate in dense fog and tanker movements are not permitted if the visibility is less than 500m.

Caution.—Numerous submarine cables, pipelines, and tunnels lie across the waterway and may best be seen on the chart.

Several ferries cross the waterway at various places which are indicated on the chart.

The waterway has been stabilized in places by underwater dams and embankments, which are marked by dolphins and beacons.

Prohibited anchorage areas are situated along the waterway and may best be seen on the chart.

7.7 Hoek van Holland Harbor (51°59'N., 4°08'E.) (World Port Index No. 31080), a small harbor, is located on the N side of the waterway, 1.2 miles ESE of the root of the N breakwater. It consists of Berghaven, a small basin, and several riverside quays for ocean-going vessels. Berghaven is only suitable for small craft and is used exclusively by government vessels.

Harwich Quay (Harwichsteiger), situated close ESE of the basin, is the terminus of the Harwich/Hoek van Holland ferry service. It has three ro-ro berths with depths of 6.6 to 9m alongside. Vianda Quay, situated 0.6 mile ESE of Harwich Quay, is used by the Royal Netherlands Navy.

Europoort (51°57'N., 4°08'E.)

World Port Index No. 31085

7.8 Europoort, a deep-water harbor complex, is located on the S side of the waterway, close within the entrance. It is designed for the accommodation of very large vessels and the storage and transshipment of various cargoes. This complex is considered to be a part of the port of Rotterdam. The W section of the complex, located at the W side of Beerkanaal (51°58'N., 4°05'E.), is known as Maasvlakte. Land was being reclaimed W of Maasvlakte in 2011.

Depths—Limitations.—Calandkanaal, with a depth of 21.7m, extends for about 6 miles along the S side of Splitsingsdam and provides access to the following main basins and quays at Europoort:

1. EECV Bulk Quay, with depths of 18.7 to 23.7m.
2. Beneluxhaven, with a depth of 21.7m.
3. Petroleumhaven No. 4, with a depth of 17.7m.
4. Petroleumhaven No. 5, with a depth of 21.7m.
5. Kuwait Oil Jetties, with depths of 12.8 to 20.7m.
6. Petroleumhaven No. 7, with a depth of 22.7m.
7. Brittaniahaven, with a depth of 12.7m.
8. Seinehaven, with a depth of 6.7m.

Beerkanaal, with a depth of 22.7m, leads S from Calandkanaal, close within its entrance, and provides access to the following main basins at Maasvlakte and Europoort:

1. Petroleumhaven No. 8, with a depth of 24m.
2. Maasvlakte Oil Terminal, with a depth of 24m.
3. Europahaven, with depths of 13.6 to 15.7m.
4. Amazonehaven, with a depth of 21.7m.
5. Mississippihaven, with a depth of 23.7m.
6. Petroleumhaven No. 6, with a depth of 22.5m.

Hartelkanaal leads along the S side of the harbor for about 12 miles and can be entered from Oude Maas or through a lock from Calandkanaal. It is used by inland vessels, small coasters, and barges.

Breeddiep, located about 1.5 miles above the outer end of Splitsingsdam, connects Nieuwe Waterweg to Calandkanaal and may only be used with prior permission. Due to being narrow and the strong tidal currents in its vicinity, passage through this channel is not recommended.

There are facilities for general cargo, tanker, LPG, ro-ro, container, chemical, ore, bulk, and automobile carrier vessels within the port complex. Vessels up to 350,000 dwt and 500,000 dwt, partly loaded, with drafts up to 22.55m, can be accommodated.

7.9 Maassluis (51°55'N., 4°15'E.) (World Port Index No. 31100), a small harbor, is located on the N side of the waterway, about 5.5 miles above Hoek van Holland Harbor. A church, with a conspicuous conical tower, stands in the town. The harbor consists of two narrow basins, separated by a bridge and a lock, 13m wide. The basins have depths of 3 to 4.7m and are used as bases for ocean-going tugs and pilot vessels.

Botlek (51°53'N., 4°18'E.), an industrial harbor complex, is located on the S side of the waterway, 3 miles above Maassluis and close W of the entrance to Oude Maas. It consists of the following main basins:

Europoort

1. Chemiehaven, with a depth of 12.7m.
2. St. Laurenshaven, with a depth of 14.5m.
3. Petroleumhaven No. 3, with a depth of 12.7m.
4. Botlek Main Basin, with a depth of 14.5m.
5. Torontohaven, with a depth of 13.7m.

There are facilities for ore, bulk, oil, and chemical vessels and also a shipyard basin and a tanker cleaning installation. Generally, vessels up to 270m in length and 13.4m draft can be accommodated; however, it is reported that vessels with drafts up to 13.7m have been handled. Vessels between 270 and 300m in length normally lighten to a draft of 12.8m at Europoort or Maasvlakte prior to berthing here.

7.10 Vlaardingen (51°54'N., 4°21'E.) (World Port Index No. 31120) is located on the N side of the waterway, 4 miles above Maasluis. This small port is operated by the local municipality. Vlaardingen Vaart, the W part of the harbor, consists of two narrow basins separated by a lock and a bridge. The basins have depths up to 3.7m and are mostly used by yachts.

The W part of the harbor consists of Koningin Wilhelminahaven, a basin with depths up to 5m. It has an entrance, 75m wide, and is used by inland vessels and coasters.

Vulcaanhaven, a basin located 0.4 mile above Koningin Wilhelminahaven, has depths up to 12.7m. It can accommodate vessels up to 85,000 dwt, 260m in length, and 11.9m draft.

Nieuwe Matex Terminal is situated on the N side of the waterway, close below the entrance to Vulcaanhaven. It provides five berths for ocean-going tankers and chemical carriers, with drafts up to 12.2m.

Schiedam (51°54'N., 4°24'E.) (World Port Index No. 31130) is located on the N side of the waterway, close above Vlaardingen. This small port, although near to Rotterdam, is operated by the local municipality. Wiltonhaven, entered at the W side of the harbor, is an extensive repair basin with floating docks and workshops. Vessels up to 160,000 dwt can be handled.

Wilhelminahaven, at the E side of the harbor, has depths up to 7.2m at HW. The workshops of the Nieuwe Waterweg Shipbuilding Company are situated in this basin and there are facilities for tank cleaning and gasfreeing. In addition, there are several private berths up to 150m long.

Pernis (51°53'N., 4°22'E.) is located at the S side of the waterway, 1.5 miles above the entrance to Botlek. The harbor consists of two main basins. Petroleumhaven No. 1 has a depth of 12.7m and Petroleumhaven No. 2 has a depth of 12m. Tankers up to 50,000 dwt, 247m in length, and 12m draft can be accommodated.

Rotterdam (51°54'N., 4°29'E.)

World Port Index No. 31140

7.11 Rotterdam, an extensive port, is situated on both sides of the Nieuwe Maas, about 16 miles above Maasmond. It is connected to the inland waterway system and provides access via canals to Germany, France, and Switzerland.

Tides—Currents.—Tides rise about 1.8m at springs and 1.5m at neaps.

Depths—Limitations.—The port extends for about 4.5 miles above Schiedam (51°54'N., 4°24'E.) but access to the upper part, about 1 mile long, is limited by bridges. The river is spanned by a fixed road bridge, with a bascule section at the SE end, located close SW of the island of Noordereiland (51°55'N., 4°30'E.). The fixed section of this bridge has a navigable width of 200m, with a vertical clearance of 11m; the bascule section has a navigable passage 50m wide.

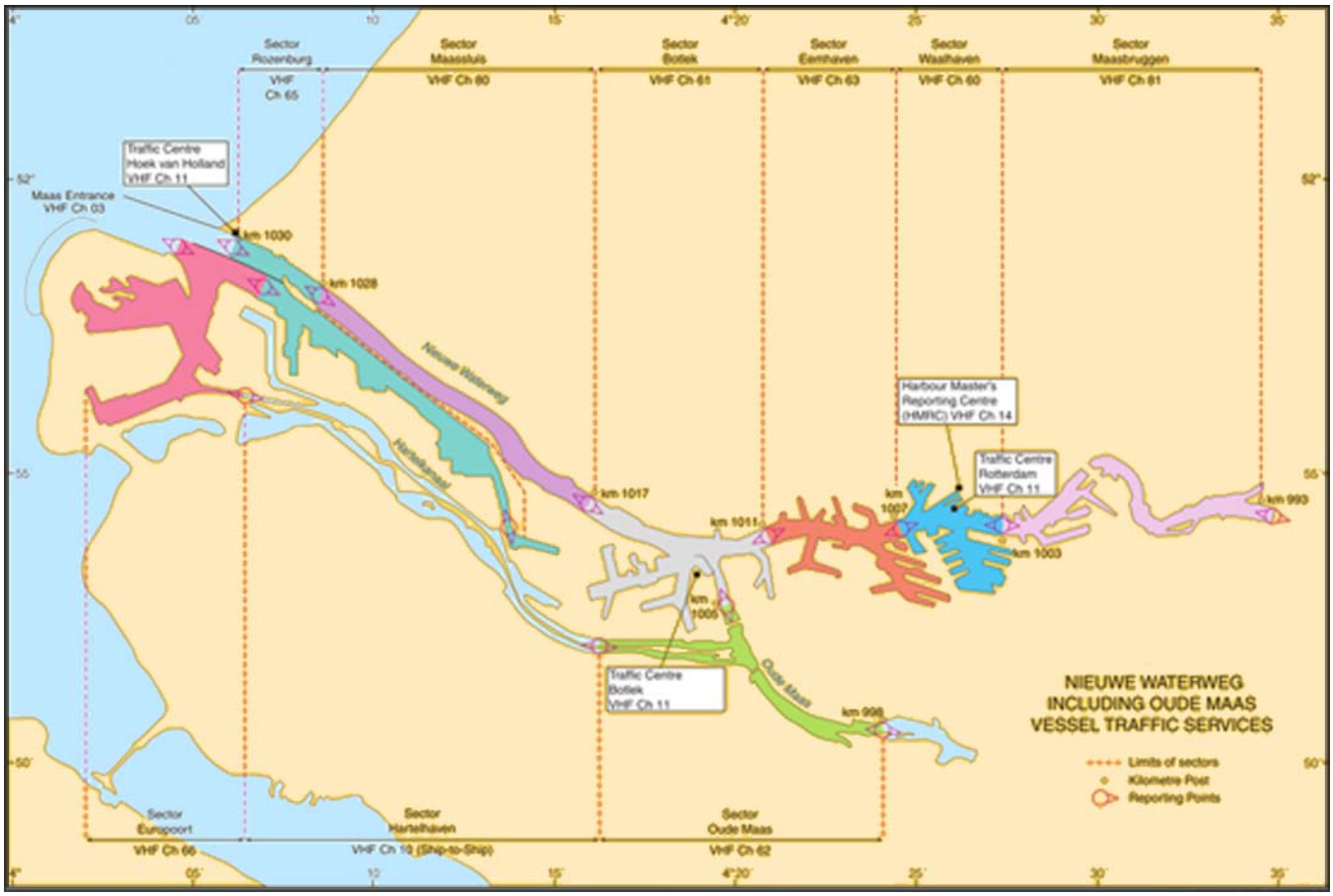
Fixed road and fixed rail bridges, with a minimum vertical clearance of 8m, span the channel leading between the N side of Noordereiland and the N bank of the waterway. A bascule road bridge and a lifting rail bridge span the channel leading between the S side of Noordereiland and the S bank of the waterway. The bascule bridge provides a navigable passage 50m wide; the lifting bridge has a vertical clearance of 45m over a depth of 6m.

The following main harbor basins and quays are situated on the N side of the waterway and are described from W to E:

1. Merwehaven, with a depth of 10.7m. It has container, ro-ro, and reefer facilities.
2. Keilehaven, with a depth of 4.7m. It is mostly used by inland vessels.
3. Lekhaven, with a depth of 10.7m. It has general cargo and bulk facilities.
4. Ijselhaven, with a depth of 10.9m. It has general cargo facilities.
5. Schiehaven, with a depth of 9.1m.
6. St. Jacobshaven, with a depth of 8.7m.
7. Parkhaven, with a depth of 8.7m.
8. Lloydkade, a river berth, is situated close W of Parkhaven and has a depth of 9.2m alongside.

The following main harbor basins and quays are situated on the S side of the waterway and are described from W to E:

1. Eemhaven Main Basin, with a depth of 13.5m.
2. Prins Johan Frisohaven, with a depth of 10.7m. It has general cargo and ro-ro facilities.
3. Prinses Beatrixhaven, with a depth of 10.7m. It has general cargo, container, and ro-ro car ferry facilities.
4. Prins Willem Alexanderhaven, with a depth of 12.7m. It has extensive container facilities.
5. Waalhaven, a large basin, has eight piers and a depth of 14m It has container and ro-ro facilities, and several mooring buoy berths for LASH vessels.



VTS for Nieuwe Waterweg to Rotterdam

6. Maashaven, with a depth of 11.7m.

The basins and quays situated above Parkhaven are used exclusively by inland vessels, barges, and small craft.

Within the harbor complex, there are facilities for general cargo, bulk, oil, ro-ro, container, LASH, automobile ferry, and reefer vessels. Vessels with drafts up to 12.2m can transit the waterway and enter Waalhaven.

In addition, several dry docks and floating docks are situated within the port (including Maasvlakte, the Europoort complex, and Botlek). The largest, which is 405m long and 90m wide, can handle vessels up to 500,000 dwt.

Pilotage.—Pilotage is compulsory in the Nieuwe Waterweg for the following:

1. Tankers loaded with mineral oil, gas, chemicals in bulk, or empty but not cleaned.
2. Vessels bound for petroleum berths.
3. Vessels of 75m loa or above.
4. Vessels shifting inside a port area with tug assistance.

Pilotage may become compulsory for all vessels when the following conditions occur:

1. Wind speed is Beaufort Force 8 or over.
2. Visibility is less than 700m at any point along the intended route.
3. Available maneuvering space is restricted due to accident or traffic density.

Pilotage is not compulsory for the following types of vessels.

1. Vessels shifting in harbor basins.
2. Dutch-registered fishing, dredging, pilot or naval vessels.
3. Vessels less than 75m loa.
4. Small vessels exempt from pilotage.
5. Vessels exempt from pilotage for the intended route.
6. Vessels shifting within a port area without tugs.

Cancellation of pilots can only be requested by Master or agent. If cancellation is requested more than 1.5 hours before pilot has been scheduled to be on board, no charges will be made.

The method of pilot boarding (by helicopter or via pilot vessel) will be determined by the pilots according to the information given below:

1. For vessels with draft less than 17.39m:
   i. By pilot vessel, in position 51°59'N 3°47'E (2 miles SSW of Maas Center Lighted buoy)
   ii. By helicopter, for vessels coming from the N: In the southbound lane of Maas North TSS. The exact position will be advised by the VTS.

iii. By helicopter, for vessels coming from the W: In the eastbound lane of Maas West Inner/Outer TSS. The exact position will be advised by the VTS.

2. For vessels with draft between 17.4m and 22.5m it will be by helicopter, in position 51°59'N 3°00'E.

3. For LNG carriers it will be by pilot vessel, abeam the E9 lighted buoy (51°59.8'N 3°35.0'E).

Special Notes.—In the event that pilotage cannot be provided from the pilot vessel, the following options apply:

1. Pilotage will be provided by helicopter as follows:
2. Daytime for vessels over 125m in length.
3. Nighttime for vessels over 150m in length.
4. Shore based pilotage (SBP) will take place.
5. Pilots also provide pilotage for SCHEVENINGEN.

Pilots should be ordered as indicated in the table titled **Pilot Ordering Procedures.**

Vessel Traffic Service.—The VTS area extends for 38 miles seaward from the Eurogeul to 3 miles from the Van Brienoord Bridge.

Pilot Ordering Procedures

Type of vessel	Information required	Method	Time	Remarks
All vessels 17.4m draft and over	A, B, O, and Q (see Note)	To Harbormaster Rotterdam via the following methods: 1. Facsimile: 31-1-592-5767 2. Telex: 44-21058 DIRK NL 3. Email: rotterdam@dirkzager.com	24, 12, and 3 hours before ETA at the rendezvous point (51°59.0'N., 3°00.0'E.)	Noxious and dangerous goods that have already been reported need only be reported on request. (Changes of more than 30 minutes to be reported)
All vessels less than 17.4m draft except those of less than 300 gt and LNG vessels	A, B, I, O, and Q (see Note)		24 and 6 hours before ETA at Maas Center Lighted Buoy (52°00.0'N., 3°48.8'E.)	

Note.—See the table titled Netherlands Standard Reporting Codes in paragraph 7.1.

Reporting—All seagoing vessels over 20m LOA

Location	Message	To
On entering, leaving, and all special maneuvers inside a circular area with a radius of 12 miles off the pierheads, and the fairways W of the North Sea locks including the harbors inside this area.	Vessel's name, call sign or identification sign (MMSI number or IMO identification number), flag, and position.	Ijmuiden Port Control VHF channel 61.
1. On entering or leaving sector areas and when docking or undocking procedures have been commenced or completed. 2. When intending to make a special maneuver (crossing the fairway, entering or leaving a harbor or basin, or any maneuver that deviates from the usual traffic flow). 3. When passing arrangements have to be made with others vessels.	Vessel's name, call sign, draft, position, destination, and any other particulars.	1. Traffic Service North Sea Canal VHF channel 3. 2. Amsterdam Port Control VHF channel 4. 3. Traffic Center Schellingwoude VHF channel 60.

Note.—See the table titled Netherlands Standard Reporting Codes in paragraph 7.1.

The VTS area is split into two regions and operated from two Traffic Center:

1. Traffic Center Hoek Van Holland.
2. Traffic Center Rotterham.

The VTS is subdivided into sectors, each having it's own dedicated VHF channel as described in the table titled VTS channel assignment by Sector.

The VTS compliance is mandatory for all seagoing vessels. Other vessels must maintain a continuous listening watch and only report maneuvers that deviate from the usual traffic flow.

Reporting points have been established for vessels inbound to Nieuwe Waterweg and outbound from the same. The details of making these reports can be found in the table titled Reporting Points (To/From Nieuwe Waterweg).

Supporting VHF Channels in the North Sea Canal Area:

1. Traffic Information—VHF channel 68 may be used to obtain additional information on the following:
   a. Current voyage through the region.
   b. Berth information.

c. Infrastructure information (works in progress on fairway, constructions etc.).

d. Reports on vessel's particulars and intentions during the voyage (entering oil harbors or passing Reporting Points etc.).

e. Completing formalities after traffic incidents.

2. Port Information—VHF channel 14 is for use by vessels moored in the port and for administration tasks and making reports imposed by the Harbor Master and the Regional Port Legislation North Sea Canal Area, such as:

a. Commencing and terminating activities for which permission was required.

b. Commencing and terminating bunkering, waste collection, cleaning etc.

c. Questions concerning the provision of port services

d. Request for exemptions or reporting breakdowns on-board.

e. Completing formalities concerning (surface) pollutions and incidents.

VTS Channel Assignment by Sector

Call sign	VHF channel	Area covered
Maas Approach	1	Outer approaches from the limit of radar coverage to the W boundary of the Maas Precautionary Area.
Pilot Maas	2	Maas Precautionary Area.
Maasmond/Maas Entrance	3	Entrance channel W of Hoek van Holland Traffic Center.
Europoort	66	Calandkanaal (W entrance and lighted buoy CA8) and Hartelkanaal (Suurhoffbrug).
Rozenburg	65	Nieuwe Waterweg from lighted buoy NW15 and Calandkanaal from lighted buoy CA8 to Rozenburgse Sluis.
Hartelhaven	10	Hartelkanaal (Suurhoffbtug) to lighted buoy No. 25.
Maassluis	80	Nieuwe Waterweg from marker 1028km to 1017km.
Botlek	61	Nieuwe Waterweg from marker 1017km to 1011km on Nieuwe Maas and up to marker 1005km on Oude Maas, including Botlek, and adjoining harbors.
Oude Maas	62	Oude Maas from marker 1005km to 998km, including Hartelkanaal E of the bend at Geervliet (4°16'E).
Eemshaven	63	Nieuwe Maas from marker 1011km to 1007km (Werkhaven), including adjoining harbors.
Waalhaven	60	Nieuwe Maas and adjoining harbors from marker 1007km (Werkhaven) to 1003 (Schiehaven).
Maasbruggen	81	Nieuwe Maas and adjoining harbors from marker 1003 (Schiehaven) to 993km (E limit of VTS area).

ETA Reporting Requirements (by telephone, fax or e-mail) stating information required as follows:

Who	Required information	To/How	When
Pre Arrival Notification: All sea-going vessels bound for Ijmuiden, Nootfzeekanal or Amsterdam	A, B, C, G, I, O, P, Q, T, U, and X (see Note 1)	VTS Amsterdam	48 hours prior to ETA, or as soon as possible if last port is less than 48 hours distance, but at the latest before entering Netherlands territorial waters.
All sea-going vessels bound for Noordzeekanaal with a draft greater than 13.1m and less than 13.75m in salt water or a draft greater than 13.1m and the same or less than 14.05m in fresh water or a beam greater than 42m and the same or less than 45m with a maximum length of less than 325m.	A, B, H, O, Q, T1, U, and X1 (see Note 1)	VTS Amsterdam	48 hours prior to ETA for locking through Ijmuiden Locks (Request for exemption for locking through Ijmuiden Locks)

ETA Reporting Requirements (by telephone, fax or e-mail) stating information required as follows:			
Who	**Required information**	**To/How**	**When**
All sea-going vessels with a draft greater than 14.1m and the same or less than 17.8m	A, C, G, J, O, P, Q, and T1 (see Note 1)	VTS Amsterdam VHF channel 7 Traffic Center Ijmuiden Amsterdam Pilots	24, 8, and 3 hours prior to arrival at the helicopter pilot rendezvous position (52°29.4'N., 3°47.4'E.)
All sea-going vessels with a draft greater than 8.0m and the same or less than 14.1m	A, C, G, J, O, P, Q, and T1 (see Note 1)	VTS Amsterdam VHF channel 7 Traffic Center Ijmuiden Amsterdam Pilots	12, 6, 3, and 1 hour prior to arrival at Lighted Buoy IJMC (52°28.5'N., 4°23.7'E.)
All sea-going vessels with a draft less than 8.0m.	A, C, G, J, O, P, Q, and T1 (see Note 1)	VTS Amsterdam VHF channel 7 Traffic Center Ijmuiden Amsterdam Pilots	6 hours, 3 hours, and 1 hour prior to arrival at the Lighted Buoy IJMC (52°28.5'N., 4°23.7'E.)
ETD: Vessels should advise ETD (by telephone, fax or email) stating required information below			
All sea going vessels with a draft over 14.1m, and the same or less than a draft of 17.8m.	A,C,G,J,O,P,Q,andT1	VTS Amsterdam on VHF channel 7 on Ijmuiden Approach	24 hours, 8 hours, and 4 hours prior to ETD and on departure or shifting berths
All sea going vessels with a draft over 8m, and the same or less than a draft of 14.1m.	A, C, G, J, O, P, Q, and T1	VTS Amsterdam on VHF channel of appropriate Traffic center	8 hours, and 4 hours prior to ETD and on departure or shifting berths
All sea going vessels with a draft less than 8m.	A, C, G, J, O, P, Q, and T1	VTS Amsterdam on VHF channel of appropriate Traffic center	4 hours prior to ETD and on departure or shifting berths
Notification of Dangerous Cargo			
All sea going vessels carrying noxious and dangerous goods bound for Ijmuiden, Nootfzeekanal and Amsterdam	A, B, G, H, I, L, O, P, U, and W (see Note 1)	Port of Amsterdam, Team Dangerous Goods and Environment (see vessel Traffic Service, contact details section.	48 hours prior to ETA, or as soon as possible if last port is less than 48 hours distance, but at the latest before entering Netherlands territorial waters.
Weather Advice Center (Meteo advice center)			
All sea going vessels with a draft greater than 14.1m and the same or less than 17.8m.	Displacement (mt.) Center of gravity (m) Slack tank correction (m) Rolling (seconds)	To: marine weather advice center Ijmiuden via E-mail: vtssupervisor@portofamsterdam.nl	48 hours prior to ETA.

Notes:

1. See table titled Netherlands Standard Reporting Codes in paragraph 7.1.
2. Vessels should advise all relevant information to the local agent who will transfer the details into an electronic date interchange (EDI) standard message prior to forwarding.
3. Any changes to ETA of more than 30 minutes must be reported immediately.
4. Any changes to ETA of more than 30 to the 24 hour and 8 hour ETD notices must be reported immediately.
5. Changes to the 4 hour ETD notice must be reported immediately.

Reporting Points (To/From Nieuwe Waterweg)			
Position	**Call Sign**	**VHF Channel**	**Information required**
Inbound Vessels			
1. W entrance for Maas West Outer TSS 2. W entrance Eurogeul 3. W entrance for Maas West Inner TSS 4. S and N entrance Maas Junction 5. Entering VTS area elsewhere	Maas Approach Telephone: 31-10-2522803	1	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.

Reporting Points (To/From Nieuwe Waterweg)			
Position	**Call Sign**	**VHF Channel**	**Information required**
1. E exit Maas West Outer TSS 2. SE exit Maas NW TSS 3. S exit Maas N TSS Inner TSS	Pilot Maas	2	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Entering Maas Entrance sector	Maas Entrance	3	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Calandkanaal (W entrance)	Sector Europoort	66	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Nieuwe Waterweg (lighted buoy NW15) 2. Calandkanaal (lighted buoy CAB)	Sector Rozenburg	65	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Hartelkanaal (Suurhoffbrug)	Sector Hartelhaven/ Dintelhaven	10	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Waterweg (Distance mark 1028)	Sector Maasssluis	80	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark 1017)	Sector Botlek	61	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Hartelkanaal (Light near 25) 2. Oude Maas (Distance mark 1005)	Sector Oude Maas	62	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark 1011)	Sector Eemshaven	63	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark 1007)	Sector Waalhaven	60	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Dordtsche Kil (Light near 9) 2. Oude Maas (Distance mark 998)	Sector Heerjansdam	04	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark 1003)	Sector Maasbruggen	81	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.

Reporting Points (To/From Nieuwe Waterweg)			
Position	**Call Sign**	**VHF Channel**	**Information required**
Noord (Distance mark 978)	Sector Dordrecht	79	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Outbound Vessels			
1. Dordtsche Kil (Light near 9) 1. Oude Maas (Uilenhaven)	Sector Heerjansdam	04	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Oude Maas (Uilenhaven) 1. Noord (distance mark 978)	Sector Dordrecht	79	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark (993)	Sector Maasbruggen	81	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark (1003)	Sector Waalhaven	60	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark (1007)	Sector Eemshaven	63	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark (998)	Sector Heerjansdam	62	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Nieuwe Maas (Distance mark 1011) 1. Oude Maas (Distance mark 1005)	Sector Botleg	61	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark (1017)	Sector Maassluis	80	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Nieuwe Maas (Distance mark 1028)	Sector Rozenburg	65	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. Calandkanaal (lighted buoy CAB) 2. Hartelkanaal (Suurhoffbrug)	Sector Europoort	66	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Hartelkanaal (Light near 25)	Sector Hartelhaven/ Dintelhaven	10	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.

Reporting Points (To/From Nieuwe Waterweg)			
Position	**Call Sign**	**VHF Channel**	**Information required**
Nieuwe Waterweg (lighted buoy NW 15)	Maas Entrance	3	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
Leaving W boundry sector Maas Entrance	Pilot Maas	2	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.
1. W exit Maas West Outer TSS 2. W exit Eurogeul 3. E entrance Maas West Inner TSS 4. SE entrance Maas Northwest TSS 5. SE entrance Maas North TSS	Maas Approach	1	1. Vessel name and call sign 2. Position 3. Draft 4. Any particulars.

Vessel	Information required	Method	Time
IOPP: Vessels should advise the information stated in the following table:			
All oil tankers of 150gt and over.	X7	Gemeenteljijk Havenbedrijf Amsterdam via EDI message format.	24 hours before ETA at Pilot Station.
Transit vessels: Vessels should advise the information stated in the following table:			
All vessels except vessels with a length of 20m or less which are in the VTS area.	A, D	Relevant Traffic Center	When crossing a VTS sector boundary.
Note: Vessels should advise all relevant information to the local agent who will transfer the details into an Electronic Date Interchange (EDI) standard message prior to forwarding.			

Vessel Traffic Service—Contact Details			
Sector or Area	Call Sign	VHF Channel	Telephone, email
IJ-Geul Approach Area	Ijmuiden Approach	7	———
IJmuiden Port Control Sector	Ijmuiden Port Control	61	———
North Sea Canal Sector	Traffic Service North Sea Canal	3	———
Amsterdam Sector	Amsterdam Port Control	4	———
Schellingwoude Sector (E of Oranjesluizen)	Amsterdam Port Control	60	———
Traffic Information	Traffic Information	68	———
Port Information	Port Information	14	———
Port of Amsterdam Team Dangerous Goods and Environment	———	—	31-20-6239130 31-20-5234762 31-20-6266215 (Fax) email: gsm@portofamsterdam.nl
Port Authority	———	—	31-20-5234500 31-20-6209821 (Fax) email: vtsadmin@porttofamsterdam.nl website: http//www.portofamsterdam.nl
IJmuiden Locks	———	22	———
Oranjesluizen	———	18	———

Dordrecht (51°49'N., 4°39'E.)

World Port Index No. 31150

7.12 Dordrecht is located at the junction of four important inland waterways: the Oude Maas; the Merwede, leading to the Rhine; the Noord, leading to Rotterdam; and Dordsche Kil, leading to Belgium. The port lies about 15 miles above the entrance into Oude Maas and 26 miles above Hoek van Holland.

Tides—Currents.—Tides at the entrance to Oude Maas rise about 2.2m at springs and 2m at neaps. Tides at Dordrecht rise about 1.2m at springs and 1m at neaps.

Strong tidal currents are usually encountered in the entrance to Oude Maas and in the vicinity of the bridge openings, especially during the ebb and with HW levels in the upper rivers.

Winds—Weather.—The harbor basins usually freeze during severe winters and drift ice in the waterways may impede the navigation of small vessels.

Depths—Limitations.—The channel is spanned by two lift bridges, Botlekbrug and Spijkenisserbrug, which are situated close N and S of the entrance to Hartelkanaal, 1.5 miles above the entrance to Oude Maas. Botlekbrug has a vertical clearance of 44m, when opened, and a navigable passage 54m wide. Spijkenisserburg has a vertical clearance of 44m, when opened, and two navigable passages, each with a width of 80m. In addition, an overhead power cable, with a vertical clearance of 44m, spans the channel 1.7 miles above Spijkenisserburg.

The fairway, which has a least depth of 9.6m on the centerline, is generally 100m wide. However, waiting areas, 900m long and 200m wide, are situated above and below the bridges.

Generally, ocean-going vessels transiting the Oude Maas require the services of three or four tugs.

The port consists of the following main basins:

1. Wilhelminahaven, the largest basin, has a depth of 9.5m; several mooring buoys are situated within it.
2. Julianahaven consists of three smaller basins, which have depths of 8 to 9m. It is mainly used for handling mineral oils and chemicals. Numerous oil storage tanks stands on the W side of this basin.
3. Mallegat North Basin has a depth of 9.5m.
4. Mallegat South Basin has a depth of 7.3m.

In addition, there is 3,010m of riverside berthage, with depths up to 5m, and several small basins, with depths of 2.4 to 5m, which are used by small coasters and inland vessels. Above the basins used by most ocean-going vessels, the fairway is spanned by two bridges. The road bridge, with a double bascule opening, has a passage 44m wide, and the railway bridge, with a lifting section, has a vertical clearance of 44m.

The harbor has facilities for ro-ro, general cargo, passenger, bulk, oil, container, LPG, and chemical vessels. Generally, vessels up to 175m in length, 25m beam, and 9.4m draft can be accommodated in the port.

Regulations.—Vessels underway in Oude Maas, with drafts of 7m and over, must display the appropriate signals or lights for a vessel constrained by their draft.

Vessels exceeding 135m in length or 17.5m beam must request and obtain permission to navigate in Oude Maas at least 24 hours before entering the fairway. The message should be sent to Central Traffic Control (HCC) Rotterdam and include the vessel name, call sign, nationality, length, beam (in meters), draft, and ETA at Hoek van Holland.

When in the Dordrecht harbor area, above Oude Maas Km 979.3 (51°48.2'N., 4°38.4'E.), vessels should maintain a listening watch on the relevant VHF channel for that sector of the river.

Signals.—Vessels entering Oude Maas from the waterway should sound three long blasts followed by one short blast when approaching from seaward and three long blasts followed by two short blasts when approaching from the direction of Rotterdam.

For maritime questions, messages, reports and other traffic; and to report ETA/ETD tidal window requests, mooring and emergency requests, note the Contact Information listed below.

Contact Information.—Harbor Coordination Center can be contacted for, as follows:

1. VHF: VHF channel 14
(0800-1640 local time only during ice breaking season)
2. Telephone: 31-1-252-1000
3. Facsimile: 31-1-252-1600
4. E-mail: hcc@portofrotterdam.com

Traffic Center Rotterdam can be contacted, as follows:

1. VHF: VHF channel 11.
2. Telephone: 31-1-252-2601

Traffic Center Hoek van Holland can be contacted, as follows:

1. VHF: VHF channel 11.
2. Telephone: 31-1-252-2801

Patrol vessels can be contacted as follows:

1. VHF: VHF channel 11.

Tugs can be contacted as follows:

1. VHF: VHF channels 6 and 8.

Intraship can be contacted as follows:

1. VHF: VHF channels 15 and 17.

Caution.—Several submarine cables and pipelines lie across the Oude Maas in the vicinity of the bridges and may best be seen on the chart.

Hoek van Holland to IJmuiden

7.13 The coast between Hoek van Holland and Scheveingen, 9 miles NE, is backed by low sand dunes and fronted by numerous protective groynes. Prominent church towers stand at Monster and Ter Heijde, located about 3.5 and 4 miles, respectively, NE of the Hoek van Holland and several conspicuous buildings stand on the dunes at Kijkduin, 2.5 miles SW of Schevengen.

Scheveningen (52°06'N., 4°16'E.) (World Port Index No. 31070), a resort town, is fronted by a small port.

Tides—Currents.—Tides rise about 2.1m at springs and 1.7m at neaps.

Depths—Limitations.—The harbor is entered between two outer breakwaters and consists of three main basins. The entrance is 70m wide and has a depth of 7.3m. First Harbor Basin has a depth of 7.3m; Second Harbor Basin has a depth of 2.8m and is entered through a narrow channel; and Third

Harbor Basin has a depth of 5m. There are facilities for general cargo vessels, ro-ro ferries, fishing boats, and pleasure craft. Vessels up to 163m in length and 6.5m draft can be accommodated.

Scheveningen Light

Aspect.—A light is shown from a prominent tower, 30m high, standing 0.5 mile E of the entrance. The approach channel is indicated by a lighted range and a fairway lighted buoy, which is moored about 2 miles NW of the entrance.

Numerous conspicuous buildings and hotels stand in the town and several conspicuous radio masts stand on the SW side of the harbor. The congress building and Peace Palace, standing at ‘s-Gravenhage (The Hague), 1.4 miles inland, are also prominent from seaward.

A promenade pier, 335m long, extends NW from the shore, 1.3 miles NE of the entrance and a conspicuous tower, 33m high, stands on its outer end.

Pilotage.—Pilotage is compulsory for vessels over 120m in length. Pilots may be obtained from Nieuwe Waterweg (Hoek van Holland) stations.

Vessels over 60m in length intending to enter the port or anchor in the roadstead should send a pre-entry report 48 hours in advance. The report should be in writing and may be sent by facsimile or via the agent to the Traffic Center. The report must include the name, call sign, date and time, last port of call, ETA, destination, request for pilotage, draft, cargo, type of vessel, and any defects.

Vessels should then contact the Traffic Center on VHF channel 21 and report their name, call sign, draft, position, and ETA 1 hour prior to arrival.

Anchorage.—Designated anchorage areas, which may best be seen on the chart, lie centered about 0.5 mile E and 4 miles N of the fairway lighted buoy (52°07.8'N., 4°14.2'E.).

Caution.—Several submarine pipelines and cables extend seaward from the coast in the vicinity of the port and may best be seen on the chart.

A restricted area, within which anchoring and fishing are prohibited, extends up to 2 miles seaward from the vicinity of the port and may best be seen on the chart.

A tidal current, with a rate of up to 2.5 knots, may set NE across the entrance near the time of HW and large vessels are advised to enter at slack water.

7.14 Katwijk aan Zee (52°12'N., 4°24'E.), a small resort, is located 8 miles NE of Scheveningen. Two churches, one with a prominent tower, and two conspicuous high buildings stand in the vicinity of the town.

Noordwijk aan Zee (52°15'N., 4°26'E.), a resort, is located 3 miles NE of Katwijk aan Zee. It may be recognized by a conspicuous group of large hotels which stand along the shore. A light is shown from a tower, 33m high, standing in the town.

Noordwijk aan Zee Light

A lighted survey platform, 41m high, stands offshore, 5.5 miles WNW of Noordwijk aan Zee.

Zandvoort (52°23'N., 4°32'E.) is located 8.5 miles NE of Noordwijk aan Zee. Several radio masts stand along the coast between these two resorts and are prominent from seaward. Several large buildings, a water tower, and two churches stand in the vicinity of Zandvoort and are all conspicuous.

Caution.—A submarine cable, which may best be seen on the chart, extends seaward from the vicinity of Zandvoort.

An ammunition dumping area, marked by Muntie Lighted Buoy (52°13'N., 3°49'E.), lies centered 18 miles WNW of Scheveningen and may best be seen on the chart. In addition, another area centered about 2 miles NNE of Muntie Lighted Buoy is reported to contain munitions and explosives.

Numerous wrecks lie in the waters off this stretch of coast and have been swept to the depths indicated on the charts. Those wrecks, with depths of less than 11m, which lie in the vicinity of the coastal routes or in the approaches to the ports, are usually marked by lighted buoys.

Numerous production platforms, wells, and submarine pipelines (gas and oil) lie in the waters off this stretch of coast and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities.

Rijn Oil and Gas Field (52°18'N., 3°48'E.), centered 19 miles NW of Scheveningen, is the principal exploration facility in this area. It consists of several platforms, one of which is equipped with a racon.

Approaches to IJmuiden and the Noordzeekanaal (Amsterdam)

7.15 IJmuiden, a small port, is located 34 miles NE of Hoek van Holland. It is also the gateway to the Noordzeekanaal, which extends 13 miles ESE to the extensive port of Amsterdam.

IJ1 Lighted Buoy (52°30'N., 3°52'E.) is moored about 25 miles W of the port entrance.

IJM C Lighted Buoy (52°29'N., 4°24'E.), formerly designated as IJmuiden Lighted Buoy, is moored about 5 miles W of the port entrance and equipped with a racon.

IJ-Geul Approach Area (52°30'N., 4°00'E.), which may best be seen on the chart, is entered about 30 miles W of the port entrance. Its S side is marked by A-NE Lighted Buoy (52°28'N., 3°49'E.).

IJ-Geul (52°29'N., 4°24'E.), which may best be seen on the chart, is a channel leading from the E end of the IJ-Geul Approach Area to the port entrance. This channel extends in an ESE direction for about 12.5 miles.

Depths—Limitations.—Vessels may approach the port from the S by proceeding in a NE direction from the Maas North TSS. Vessels may approach the port from the N by proceeding in a SSE direction from the Off Texel TSS. Vessels from the W may approach directly from the Noord Hinder North TSS.

All vessels approaching the port with drafts of 14.1m or over (salt water), up to maximum of 16.5m, are considered to be constrained by their draft and are referred to as being channelbound. Such vessels must approach the port via an IMO-approved Deep Water Route, which leads through the IJ-Geul Approach Area and the IJ-Geul channel (see Pilotage below).

Vessels with drafts of less than 14.1m may also approach from the W via the IJ-Geul Approach Area and the IJ-Geul channel (see Pilotage below).

The IJ-Geul Approach Area has controlling depth of 21.4m. The IJ-Geul channel is marked by lighted buoys on the S side. It is dredged to a depth of 19.2m over a least width of 450m inwards of IJ-9 LightedBuoy(52°29.8'N., 4°12.0'E.). The fairway leading through Buitenhaven, the outer harbor area lying between the breakwaters, has a dredged depth of 17.5m.

An emergency turning area is situated on the N side of the IJ-Geul channel, about 5.5 miles W of the port entrance. It has a depth of 19m and may best be seen on the chart.

Pilotage.—Pilotage is compulsory for the following vessels:

1. All vessels carrying dangerous cargo.
2. All vessels over 75m loa.
3. All vessels between 75m and 95m loa, unless an exemption has been issued.

London length is approximately the length between the stem and the stern times 96 per cent, which is approximately the length between perpendiculars.

Vessels must send their ETA and request for pilotage at least 6 hours in advance. The message should be sent through Traffic Centre IJmuiden and must include the following:

Designator	Information
A	Name and call sign.
I	Destination port/berth.
J	ETA at pilot station.
O	Maximum draft.
U	Length and gt.

A confirmation message must be sent 3 hours and 1 hour prior to arrival. Deviations of more that 30 minutes must be reported. Traffic Center IJmuiden may be contacted on VHF channel 7.

To order pilots, contact may be made by e-mail, as follows:

pilots.amsterdam@loodswezen.nl

Pilots embark by launch within 3 to 8 miles W of the breakwaters, but the exact place depends on the size and draft of the vessel and also the weather conditions. Generally, pilots board, as follows:

1. Vessels with drafts of less than 8m are boarded 3 miles WNW of the entrance.
2. Vessels with drafts of 8 to 10m are boarded 4 miles WNW of the entrance.
3. Vessels with drafts of 10 to 13.1m are boarded 6 miles WNW of the entrance.
4. Vessels with drafts of 13.1 to 14.1m are boarded in position 52°29.5'N, 4°19.4'E.

Pilots may be also transported by helicopter. Pilots transported by helicopter will generally board or depart from vessels within a circular area, with a radius of 5 miles, centered on position 52°28'N, 4°15'E.

Vessels requiring the pilot to be transported by helicopter should send their ETA messages as specified above and also include this request and state their direction of approach.

Vessels constrained by their draft (channel bound), which are obliged to use the Deep Water Route (IJ-Channel), must send their ETA at the helicopter boarding area 24 hours in advance. They must then send a confirmation message 8 hours prior to arrival. Such vessels, if not having a sea pilot onboard, must embark the pilot by helicopter in the W part of the IJ-Geul Approach Area near the rendezvous point (52°30'N., 3°50'E.). The exact place will be agreed upon by the helicopter and the vessel. It is reported that such vessels are generally boarded by two pilots. Before approaching this rendezvous point, vessels are advised, depending from which direction they came, to pass through a way point (52°30'N., 3°45'E.).

When the helicopter has arrived within VHF range, it will contact the vessel on VHF channel 7. This generally takes place when the helicopter is between 20 and 40 miles from the vessel. All communication between the helicopter and the vessel will be carried out on a designated VHF channel; however, if necessary, the helicopter may request the vessel to transfer to another channel. The call sign of the helicopter will be the word “Helicopter” followed by its registration letters as quoted by the Port Traffic Center. As soon as VHF contact has been established, the vessel should advise the helicopter of its position, course, and speed; the actual wind direction and wind speed across the deck; and any pitching or rolling conditions. The helicopter will then confirm acceptance of the conditions or will request the vessel to change course and/or speed.

Regulations.—Vessels approaching the port, with drafts of over 13.7m, are considered to be constrained by their draft (channel bound) and must show the appropriate lights and shapes. These vessels are obliged to use the Deep Water Route.

Due to the narrow fairway, vessels are prohibited from meeting or overtaking within the IJ-Geul channel.

For additional information, see Regulations under the Noordzeekanaal in paragraph 7.17.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates in the approaches to the port and within the Noordzeekanaal. Vessels should maintain a continuous VHF listening watch on the following assigned frequencies:

1. VHF channel 7 (Traffic Center IJmuiden)—W of IJmuiden Lighted Buoy.
2. VHF channel 61 (Port Control IJmuiden)—IJmuiden Lighted Buoy to the locks.
3. VHF channel 22 (IJmuiden Sluices)—Within the locks.
4. VHF channel 3 (Traffic Service Noordzeekanaal)—From the locks to Km 11.2.
5. VHF channel 68 (Amsterdam Port Control)—From Km 11.2 to Amsterdam.

For ETA message procedures, see Pilotage. Vessels carrying dangerous cargo must also include their nationality, the nature and quantity of dangerous cargo, manner of packing for any IMCO class 1 cargo, and the name of the agent in their initial ETA message.

Radar assistance can be provided, on request, to vessels within about 13 miles of IJmuiden Lighted Buoy.

Anchoring.—Vessels constrained by their draft (channel bound) may anchor in a designated area, which may best be seen on the chart, situated on the S side of the IJ-Geul Approach Area, about 28 miles W of the port entrance. This anchorage area may only be use with permission from the VTS Center at IJmuiden.

A designated anchorage area, which may best be seen on the chart, is situated on the N side of the IJ-Geul channel, about 10 miles WNW of the port entrance.

Caution.—Anchoring is prohibited within an area, which may best be seen on the chart, extending 3 miles WNW from the breakwater heads. Anchoring is not recommended in an area, which may best be seen on the chart, extending about 2.7 miles WNW from the seaward end of the anchoring prohibited area.

An explosives dumping area, marked by the MSP Lighted Buoy (52°34'N., 4°04'E.), lies centered about 18 miles WNW of the port entrance and may best be seen on the chart. A circular restricted area, with a radius of 3 miles, is centered on this explosives dumping area. Underwater operations are prohibited within this area.

Submarine pipelines, which may best be seen on the chart, extend seaward from points on the shore located about 0.3 mile S of the S breakwater and 1.2 miles N of the N breakwater.

During storms, with a strong flood current, a confused sea with heavy breakers may be observed near the port entrance.

IJmuiden (Ymuiden) (52°28'N., 4°35'E.)

World Port Index No. 31040

7.16 IJmuiden is located at the entrance to the Noordzeekanaal. In addition to its cargo facilities, the port is a supply base for the offshore oil and gas industry and a fishing center.

Tides—Currents.—Tides rise about 2m at springs and 1.6m at neaps; however, the direction of the wind has a strong influence on the height of tide.

At a position about 3 miles W of IJmuiden, the NE current begins about 2 hours before HW at IJmuiden and continues until about 3 hours after HW. It attains a maximum rate of 1.7 knots at about the time of HW. The SW current begins about 4 hours after HW at IJmuiden and continues until about 3 hours before HW. It attains a maximum rate of 1.3 knots at about 5 hours 30 minutes after HW.

Off the entrance to the port, the tidal currents commence about 50 minutes earlier than offshore. The NE current runs until about 3 hours after HW at IJmuiden. It attains a maximum rate of 1.8 knots at about the time of HW. The SW current runs until about 3 hours before HW. It attains a maximum rate of 1.2 knots at about 5 hours after HW. These rates may increase slightly during springs and decrease during neaps. However, during stormy weather, the current may attain a rate up to 5 or 6 knots in the vicinity of the breakwaters.

Winds—Weather.—Ice normally presents no problems at the port, except during very severe winters. At such times, an icebreaker is used to keep the harbor open.

IJmuiden North Breakwater Light

Depths—Limitations.—The port consists of an outer harbor area, which is located W of the locks and tidal, and an inner harbor area, situated within the canal, close E of the locks.

IJ-Geul channel, with a dredged depth of 18.7m, leads between the breakwaters into Buitenhaven, the outer harbor area, which has a dredged depth of 18.2m in the fairway.

Forteiland, a small island, lies about 1.3 miles inside the breakwater heads and divides the fairway into two branches. Noorder Buitenkanaal, with a depth of 17.5m, leads N of this island and Zuider Buitenkanaal, with a depth of 9.4m, leads S of it.

Vissershaven and Haringhaven, with depths of 6 to 10m, are two quay-lined basins located on the SE side of the outer harbor which are accessed via Zuider Buitenkanaal. These basins have facilities for ro-ro ferry, offshore exploration support, and fishing vessels.

Hoogovenkanaal, located on the N side of the outer harbor, is accessed via Noord Buitenkanaal. It provides a bulk quay, 550m long, with depths of 14.2 to 18m alongside.

Hoogovenhaven, the main tidal basin, is located on the NE side of the outer harbor. It is accessed via Noord Buitenkanaal and Hoogovenkanaal. This basin provides 665m of quayage with depths of 9.4 to 11.3m alongside.

Vessels up to 150,000 dwt, 350m in length, and 17.8m draft can be accommodated in the outer harbor at HW. However, vessels over 300m in length requiring to swing within Buitenhaven are restricted to a maximum draft of 12.1m.

Access to the inner harbor, located close within the Noordzeekanaal, is provided by three locks (see paragraph 7.17).

IJmuiden Range Lights

Aspect.—The port is entered between two breakwaters. The entrance fairway is indicated by a lighted range shown from two prominent towers, 24m and 43m high, standing on the S side of the harbor. Additional lighted ranges indicate the various channels leading to the harbor basins and the locks.

Several basins and quays, with depths of 3.5 to 9.9m, are situated on the N side of the canal within the inner harbor area. There are facilities for general cargo, bulk, and chemical vessels in addition to an offshore exploration supply base. Vessels up to 6,000 dwt, 11,000 dwt partly loaded, with drafts up to 6.4m can be accommodated.

A prominent signal station (harbor operations center) stands on the S side of the harbor close NNE of the front range tower.

The town of IJmuiden is situated on the S bank of the entrance. The N bank is occupied by an industrial complex. Several conspicuous chimneys, the tallest being 166m high, stand in the vicinity of the steel works on the N side of the harbor and at the power station, 1.5 miles E. On the S side of the canal, a conspicuous water tower, with a red roof, stands 1.7 miles ESE of the port entrance.

Forteiland, a small island, is located W of the locks and divides the harbor fairway into two branches.

Pilotage.—See Approaches to IJmuiden and the Noordzeekanaal (paragraph 7.15).

Regulations.—See Approaches to IJmuiden and the Noordzeekanaal (paragraph 7.15.).

Caution.—The approach and entrance channels require frequent dredging and the authorities should be contacted for the latest information in regard to minimum depths.

7.17 Midden Sluiseiland Island (52°28'N., 4°36'E.), Works are in progress on the artificial island of Midden Sluiseiland. The work should be completed in 2019.

The Noordzeekanaal

7.18 The **Noordzeekanaal** (52°28'N., 4°38'E.), which is 13 miles long, connects Amsterdam with the North Sea. Its water level is maintained by the locks which are situated at IJmuiden and close E of Amsterdam. The passage generally takes about 2 hours.

Several branch canals, called “Zijkanalen” and designated by letters, may be entered from the main canal. Most of these lead to smaller canal systems which connect with the inland waterway system.

Velsen Terminal (52°28'N., 4°40'E.) is located at the entrance to Zijkanaal A, 2 miles E of the locks. It provides 620m of quayage, with depths of 8.5 to 11.5m alongside.

Beverwijk Terminal (52°28'N., 4°40'E.) is located within Zijkanaal A, about 0.5 mile N of Velsen Terminal. It provides 720m of quayage, with a depth of 7m alongside, and can accommodate vessels up to 135m in length and 6.4m draft.

Buskruithaven (52°27'N., 4°41'E.), an explosives terminal, is situated on the S bank of the canal, about 3.5 miles above the locks. This terminal, which is used by ocean-going vessels, consists of several small jetties and a number of dolphins. It has a depth of 9.5m alongside.

Zaandam (52°26'N., 4°50'E.) (World Port Index No. 31050), a small harbor, is situated on the N side of the canal, 4.2 miles W of Amsterdam, and consists of three main basins.

Isaac Baarthaven provides 370m of berthage, with depths of 5 to 9m alongside; Dirk Metselaarhaven provides 180m of berthage, with a depth of 10m alongside; and Wim Thomassenhaven provides 200m of berthage, with a depth of 10.5m alongside. There are facilities for tanker, general cargo, and bulk vessels. Vessels up to 15,000 dwt, 200m in length, and 10m draft can be accommodated.

Tides—Currents.—Tides at IJmuiden rise about 2m at springs and 1.6m at neaps.

Depths—Limitations.—Three locks located at IJmuiden provide access to the canal. Middensluis and Zuidersluis are accessed via Zuider Buitenkanaal and Noordersluis, the northernmost, is accessed via Noorder Buitenkanaal (see paragraph 7.16).

Zuidersluis is 100m long and 18m wide. It has a depth of 8m on the sill and can be used by vessels up to 95m in length, 17m beam, and 7.8m draft.

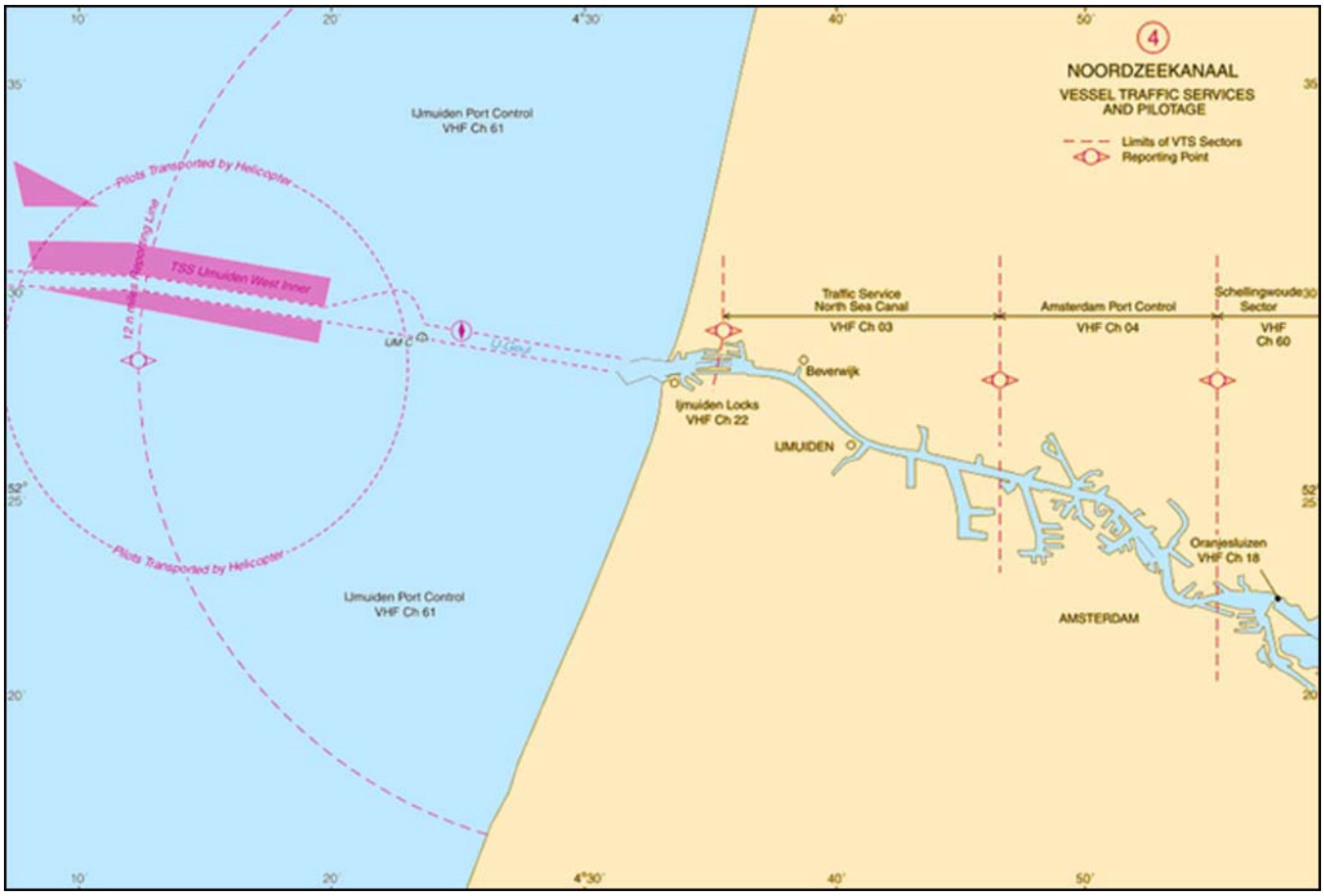
Middensluis is 202m long and 25m wide. It has a depth of 10m on the sill and can be used by vessels up to 100m in length, 15.4m beam, and 4m draft. Vessels with bow thruster: 125m in length, 19m in beam, 6m draft.

Noordersluis, the largest lock, is 400m long, 43.7m wide, and has a depth of 15m on the sill. The entrance fairway leading from the E end of Noorder Buitenkanaal to this lock is dredged to a depth of 14.4m.

The canal has a depth of 15m. Vessels up to 325m in length, 42m beam, and 13.1m draft may pass through Noordersluis and proceed to Amsterdam without special permission.

Vessels up to 45m beam and 14m draft may be allowed to transit the canal with special permission. Vessels over 42m beam and 13.1m draft must apply in writing for special permission 7 days in advance.

Pilotage.—See Approaches to IJmuiden and the Noordzeekanaal (paragraph 7.15).



Noordzeekanaal VTS boundaries and Pilot Station

Pilot ordering:

1. Call sign: IJmuiden Port Control
2. VHF VHF channel 61
3. Telephone: 31-255 564500
4. Facsimile: 31-255 532535
5. E-mail: pilots.amsterdam@loodswezen.nl

Shore Based Pilotage (Used only when Pilots cannot embark due to adverse weather conditions):

1. Call sign: IJmuiden Pilots
2. VHF: VHF channel 19

Locks:

1. Ijmuiden Locks: VHF channel 22
2. Oranjesluizen: VHF channel 18

Also provides pilotage for DEN HELDER.

Regulations.—Within the canal, vessels with drafts of less then 4.5m are limited to a maximum speed of 9 knots, vessels with drafts of 4.5 to 8m are limited to a maximum speed of 7 knots, vessels with drafts of over 8m are limited to a maximum speed of 6.5 knots, and vessels in tow are limited to a maximum speed of 5 knots.

Vessels with drafts of 8m or more are considered to be constrained by draft and must display the appropriate signals.

A Vessel Traffic Service (VTS) has been established for the port of Ijmuiden and is the Amsterdam VTS. See paragraph 7.18 for details.

Procedure:

1. Pilotage is compulsory in IJmuiden Approach and the Noordzeekanaal for the following:
   a. All vessels carrying dangerous cargo.
   b. All vessels over 75m LOA
2. ETA/ETD: For details see paragraph 7.11.
3. Pilot Ordering: Vessels should send request for Pilot when notifying ETA.
4. Shore Based Pilotage (SBP): SBP is available for certain inbound/outbound vessels. The limit for SBP is 3 miles W of the outer breakwaters.
5. Pilot boards between 3 to 8 miles W of the harbor entrance. The exact pilot boarding place depends on the vessel's draft and size and also the prevailing weather conditions:. Pilot boarding positions as a function of the vessel draft are as follows:
   a. Draft of less than 8m: 3 miles W of the harbor entrance.
   b. Draft of 8 to 10m: 4 miles W of the harbor entrance.

c. Draft of 10 to 13.1m: 6 miles W of the harbor entrance.
d. Draft of 13.1 to 14.1m: 8 miles W of the harbor entrance.

Contact Information for Pilots Transported by Helicopter:

Ijmuiden Approach

1. Call sign: IJmuiden Approach
2. VHF: VHF channel 7

Helicopter:

1. Call sign: Helicopter
2. VHF: VHF channel 7

Procedure for Pilots Transported by Helicopter:

1. Vessels with a draft exceeding 14.1m are considered to be channel bound.
2. Pilots will always board channel bound vessels by helicopter unless they have already been boarded elsewhere.
3. Channel bound vessels are advised to approach the waypoint position (52°30'N, 3°45'E.) before approaching the rendezvous position (52°29.4'N, 3°47.4'E.).
4. Pilots can also be transferred by helicopter to and from non-channel bound vessels (see No. 10 in this list).
5. IJmuiden Approach will inform the helicopter of the vessel's position.
6. IJmuiden Approach will inform the vessel of the helicopter's time of departure and arrival above the vessel.
7. The helicopter will contact the vessel within a range of 3 miles. As soon as VHF communication has been established between the helicopter and the vessel, the vessel should inform the helicopter pilot of the following:
   a. Vessel position.
   b. Vessel course and speed.
   c. Actual wind direction speed across the deck.
   d. Vessel's pitch and/or roll.
   e. Conditions on deck (dry, spray or wet).
8. The pilot will confirm whether he accepts the conditions as stated or will ask for the vessel to change course and/or speed.
9. The exact boarding position will be arranged after consultation between the helicopter pilot and the vessel.
10. Pilot boards as follows:
    a. Channel bound vessels in the rendezvous position, approximately 52°29.4'N 3°47.4'E.
    b. Non channel bound vessels in an area of radius 5 miles centred on position 52°28.1'N 4°14.0'E.

Contact Information.—For reporting ETA/ETD information the Amsterdam VTS can be contacted as follows:

1. Call sign: Ijmuiden Port Control
2. VHF: VHF channel 61
3. Telephone: 31-20-523-4778 (pre-arrival only)
   31-20-523-3934 (ETA/ETD only)
4. Facsimile: 31-20-523-4800
5. E-mail: pivts@portofamsterdam.nl
   vstadmin@portofamsterdam.nl

Caution.—Ferries cross the canal at several places.

Numerous submarine pipelines and cables lie across the canal in places and may best be seen on the chart.

Several tunnels cross under the canal and may be seen on the chart; it was reported that the magnetic compass may be deflected when in the vicinity of these tunnels.

During sluicing operations, a noticeable current in the canal may be experienced.

Amsterdam (52°22'N., 4°54'E.)

World Port Index No. 31060

7.19 The main port of Amsterdam, located at the E end of the Noordzeekanaal, is formed by a complex of large basins and quays, which lie S and E of Zaandam. In addition, numerous smaller basins and several shipyards are located along the N side of the canal.

The port is connected to the extensive inland waterway system. The Noordhollandsch Kanaal leads N for 43 miles to Den Helder; the Schinkel Gouw Kanaal leads to Rotterdam. The Amsterdam Rijnkanaal leads S and, by way of the Merwedekanaal, provides access to the S part of the country and the industrial area of the Rhine River. Oranjesluizen, a lock located at the E end of the port, provides access to IJsselmeer, an inland and mostly man-made sea.

Port of Amsterdam Home Page
http://www.amsterdamports.nl

Depths—Limitations.—The port can handle large numbers of ocean-going vessels, either alongside the quays or at mooring buoys within the basins. In addition, numerous other berths are available for barges and inland vessels. Vessel are generally limited to a length of 325m, a beam of 42m, and a draft of 13.1m by the dimensions of the canal and the entrance locks (see paragraph 7.16). It is reported that vessels up to 100,000 dwt and 170,000 dwt, partly loaded, have been accommodated.

There are facilities for bulk, chemical, general cargo, container, ro-ro, tanker, LPG, automobile ferry, and passenger ferry vessels. There are also several repair yards, dry docks, and floating docks. The largest, which is 250m long and 36m wide, can handle vessels up to 85,000 dwt.

The canal has a dredged depth of 15m as far as Mercuriushaven at the W end of the Het IJ channel. The Het IJ channel has a dredged depth of 11m for most of its length through the port, decreasing to 7m at the E end.

The principal berthing facilities and basins within the port, described from W to E, are, as follows:

1. Afrikahaven, entered from the canal, has 1,900m of berthage, with a depth of 15m alongside (under construction 2001).
2. Amerikahaven, entered from the canal, has 2,890m of berthage, with a depth of 15m alongside.
3. Australiehaven has 1,300m of berthage, with a depth of 15m alongside.
4. Aziehaven has 980m of berthage, with a depth of 12m alongside.
5. ADM Dokhaven, entered from the canal, has 310m of berthage, with depths of 7 to 9m alongside.
6. Westhaven, entered from the canal, has 2,650m of berthage, with depths of 14 to 15m alongside.

7. Sonthaven has 830m of berthage, with a depth of 10 to 13m alongside.
8. Suezhaven has 750m of berthage, with a depth of 10m alongside.
9. Hornhaven has 640m of total berthage, with a depth of 12.5m alongside.
10. Beringhaven has 330m of total berthage, with a depth of 9m alongside.
11. Jan van Ribeeckhaven, entered from the canal, has 850m of berthage, with a depth of 12.5m alongside.
12. Adenhaven has 200m of berthage, with depths of 5 to 10m alongside.
13. Usselincxhaven, entered from the canal, has 950m of berthage, with depths of 12.5 to 14.5m alongside.
14. Petroleumhaven, entered from the canal, has 850m of berthage, with depths of 9 to 10m alongside.
15. Coenhaven, entered from the canal, has 3,800m of berthage, with a depth of 10m alongside. This includes Amerika, Africa, Azie, and Europa Quays, which are situated at its SW side.
16. Mercuriushaven, entered from the canal, has 1,250m of berthage, with depths of 10 to 15m alongside.
17. Vlothaven has 1,170m of total berthage, with a depth of 15m alongside.
18. Neptunushaven has 255m of berthage, with a depth of 10.5m alongside.
19. Nieuwe Houthaven has 90m of berthage, with a depth of 6.5m alongside.
20. Minervahaven has 350m of berthage, with a depth of 6.5 to 7m alongside.
21. Amfert is situated on the S side of the canal, close E of the entrance to Coenhaven. It has 310m of berthage, with a depth of 10.2m alongside.
22. De Ruyterkade has 220m of berthage, with a depth of 6m alongside.
23. Java Quay, on the N side of IJ Haven, has 1,150m of berthage, with a depth of 7.7m alongside.
24. Oostelijke Handelskade, on the S side of IJ Haven, has 1,995m of berthage, with depths of 5 to 9.8m alongside.

Numerous small basins and branch canals can be entered on the N side of the Het IJ channel, at the E end of the port. This part of the harbor is lined with industrial plants and shipyards. The Noordhollansch Kanaal is entered through locks situated at about the center of this area.

Pilotage.—Pilotage is compulsory in lJmuiden and the Noordzeekanaal for the following vessels:
1. All vessels carrying dangerous cargo.
2. All vessels over 70m loa.
3. All vessels between 70m and 90m loa unless dispensation has been granted.

Vessels should send request for pilotage when notifying their ETA.

Shore Based Pilotage (SBP) is available for certain inbound/outbound vessels. The limit for SBP is 3 miles W of the outer breakwaters.

Pilot board between 3 to 8 miles W of the harbor entrance. The exact boarding place depends on the vessel's draft and size and also the prevailing weather conditions, as follows:
1. Vessels with a draft of less than 8.0m—3 miles W of the harbor entrance.
2. Vessels with a draft of 8.0m to 10.0m—4 miles W of the harbor entrance.
3. Vessels with draft between 10.0m to 13.1m—6 miles W of the harbor entrance.
4. Vessels with draft between 13.1m to 14.1m:—position 52°29.5'N, 4°19.4'E.
5. Also provides pilotage for Den Helder.

Regulations.—The vessel's ETA should be sent as specified in the table titled **ETA Reporting Requirements** in paragraph 7.11.

Amsterdam—ETD Reporting Requirements

Vessel	Information Required	To and How	When to send
All vessels with a draft of at least 14.1m but less than 17.8m	A, C, G, J, O, P, Q, T1 (see Note 1)	1. VTS Amsterdam 2. Ijmuiden Port Control via VHF channel 61 3. Amsterdam pilots	1. 24, 8, and 4 hours prior to ETD 2. Upon actual departure 3. Upon shifting berth
All vessels with a draft of at least 8.0m but less than 14.1m	A, C, G, J, O, P, Q, T1 (see Note 1)	1. VTS Amsterdam 2. VHF channel of appropriate Traffic Center 3. Amsterdam pilots	1. 8 and 4 hours prior to ETD 2. Upon actual departure 3. Upon shifting berth
All vessels with a draft less than 8.0m	A, C, G, J, O, P, Q, T1 (see Note 1)	1. VTS Amsterdam 2. VHF channel of appropriate Traffic Center 3. Amsterdam pilots	1. 4 hours prior to ETD 2. Upon actual departure 3. Upon shifting berth

Notes:
1. See Table titled Netherlands Standard Reporting Codes in paragraph 7.1.
2. Any changes to ETA of more than 30 minutes must be reported immediately.
3. Any changes of more than 30 minutes to the ETD advised at the 24, 8, and 4 hour advance notices must be reported immediately.

The vessel's ETD information should be sent as specified in the table titled **Amsterdam—ETD Reporting Requirements** in this paragraph.

Vessels may use VHF channel 68 to obtain additional information on the following:

1. A current voyage through the region.
2. Berth information.
3. Infrastructure information (works in progress on a fairway, construction, etc.).
4. Reports on vessel particulars and intentions during the the voyage (entering oil harbors, passing reporting points, etc.).
5. Completing formalities after traffic incidents.

Vessels moored in the port may use VHF channel 14 for administration tasks and making reports imposed by the harbormaster and the Regional Port Legislation North Sea Canal Area, such as:

1. Commencing and terminating activities for which permission was required.
2. Commencing and terminating bunker, waste collection, cleaning, and other similar tasks.
3. Questions concerning the provision of port services.
4. Request for exemptions or reporting breakdowns onboard.
5. Completing formalities concerning (surface) pollutions and incidents.

IJmuiden to Den Helder

7.20 Between IJmuiden and Zeegat van Texel, 30 miles NNE, almost the entire coast is lined with sand dunes. The Hondbossche Zeewering is a massive sea wall, which fronts the shore between Kamperduin, 16 miles NNE of IJmuiden, and Petten, 3 miles farther NNE.

Two prominent churches stand at Wijk aan Zee, 2 miles N of IJmuiden, and a hotel, situated on a dune close N of them, is conspicuous.

Egmond aan Zee (52°37'N., 4°37'E.), a small resort town, is situated 8 miles NNE of Wijk aan Zee. A light is shown from a prominent tower, 28m high, standing near the shore. The prominent steeple of a church can be seen behind the light. A prominent water tower is situated 1.3 miles inland at Castricum aan Zee, 3.7 miles S of Egmond aan Zee. Several conspicuous resort villas stand on the dunes at Bergen aan Zee, 2.5 miles N of Egmond Light.

Petten (52°46'N., 4°40'E.), a small village, is situated 9 miles N of Egmond aan Zee. A church, with a prominent spire, stands at a wide gap in the dunes and several houses and windmills are situated close S of it. Two prominent wind generators are reported to stand about 3 miles S of the village.

Two conspicuous chimneys, 45m high, stand at a nuclear research facility located about 1.5 miles N of Petten.

Pettemerpolder (52°47'N., 4°37'E.), a shoal bank extending up to about 3 miles NW of Petten, has a least depth of 4.3m.

Caution.—In thick or hazy weather, vessels should proceed with caution when approaching this part of the coast, as the depths are fairly uniform throughout the area.

Submarine cables, which may best be seen on the chart, extend seaward from the vicinity of Egmond aan Zee and Castricum aan Zee.

Egmond aan Zee Light

An outfall submarine pipeline extends 2.3 miles W across Pettemerpolder from the power station located N of Petten. It is marked near the seaward end by a lighted buoy.

7.21 Off-lying dangers.—Brown Ridge (52°38'N., 3°19'E.), a bank, lies 46 miles WNW of IJmuiden and extends in a N to S direction for about 12 miles. It has depths of 15 to 17m, but they frequently vary due to shifting sand.

Numerous production platforms, wells, and gas and oil submarine pipelines lie in the waters off this stretch of coast and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities.

The principal oil/gas fields in the area are Helder Field (52°56'N., 4°08'E.)and Helm Field (52°52'N., 4°08'E.), which are situated within the separation zone of the Off Texel TSS (see paragraph 8.2), about 22 miles WNW of Petten.

Numerous wrecks lie in the waters off this stretch of coast and have been swept to the depths indicated on the charts. Those wrecks, with depths of less than 11m, which lie in the vicinity of the TSS and the coastal routes, are usually marked by lighted buoys.

A wreck, with a swept depth of 10.8m, lies about 16 miles W of Petten and is marked by three lighted buoys, one of which is equipped with a racon.

An extensive wind generator farm, which may best be seen on the chart, lies centered about 7 miles W of Egmond aan Zee Light (52°37'N., 4°37'E.).

It is reported that an extensive wind generator farm is being constructed in an area centered about 15 miles WSW of Egmond aan Zee Light. Submarine cables will extend in a SE direction between this farm and Wijk aan Zee, which is located 3 miles NE of the entrance to IJmuiden.

Zeegat van Texel

7.22 Zeegat van Texel (52°58'N., 4°44'E.) is the passage which leads between Kaap Hoofd, the NW extremity of the Netherlands mainland, and the island of Texel, to the N. It provides access to the port of Den Helder and also to the

Waddenzee, the tidal part of the former Zuider Zee. The IJsselmeer, the non-tidal part of the former Zuider Zee, may be reached through locks which are situated on the S side of the Waddenzee.

Haaksgronden (52°58'N., 4°40'E.), a group of shoals, lie in the entrance to Zeegat van Texel and extend over 5 miles from the shore. Three channels run through these groups; Schulpengat leads along the shore of Noord Holland, Molengat leads along the SW coast of Texel, and Westgat leads across the center of the banks.

Zuider Haaks is that portion of Haaksgronden which lies between Schulpengat and Westgat. The depths on this portion of the banks are very irregular. Noordrug, the W side of Zuider Haaks, has a least depth of 3.7m and is steep-to on its seaward side. Bollen van Kijkduin, the E side of Zuider Haaks, is steep-to on both its E and N sides. This part of the bank and Boterug, a spur jutting to the SW, have patches with depths of 1.7 to 5m.

Noorder Haaks is that portion of Haaksgronden which lies between Westgat and Molengat. Drying patches lie on its E and central parts, and the remainder is very shallow, with depths of less than 2m. Razende Bol, the E part of Noorder Haaks, is steep-to on its S side. Keizerbult, a spur projecting SW from Noorder Haaks, forms the N side of Westgat and has a least depth of 1m.

Fransche Bankje lies between Schulpengat and the coast of Noord Holland, and has a least depth of 3m.

Zanddijk Grote Kaap Light (52°53'N., 4°43'E.) is shown from a prominent tower, 17m high, standing 5 miles S of Kaap Hoofd, the NW extremity of the Netherlands mainland. A disused framework light structure stands close WNW of this light.

Kijkduin Light

Kijkduin Light (52°57.3'N., 4°43.7'E.) is shown from a prominent tower, 55m high, standing about 0.5 mile SSW of Kaap Hoofd.

Huisduinen Light (52°53'N., 4°43'E.) is shown from a prominent tower, 18m high, standing about 0.3 mile SSW of Kijkduin Light and a church, with a conspicuous tower, is situated close NE of it.

Schilbolsnol Light (53°00.5'N., 4°45.8'E.) is shown from a prominent structure, 21m high, 3 miles NNE of Kaap Hoofd. It was reported (2010) that it is clearly visible at the Schulpengat Entrance Buoy.

Caution.—Several dangerous wrecks lie in the vicinity of the above banks and may best be seen on the chart.

An unmarked dangerous wreck lies within the DW route in approximate position 53°05.7'N, 3°23.0'E.

Several submarine gas pipelines, which may best be seen on the chart, extend seaward from the vicinity of Zanddijk Grote Kaap Light.

Schibolsnol Light

7.23 Schulpengat (52°55'N., 4°40'E.) is the deepest channel leading through Haaksgronden. It is also the most favorable, as the current runs almost directly in line with the channel and the landmarks on the shore are nearly always visible. However, it was reported (2010) that many of the towers and lights are not conspicuous during the day. The channel is 0.7 mile wide at the entrance, but narrows to about 0.3 mile farther in. The fairway has controlling depth of 9.9m. It is marked by lighted buoys and indicated by a lighted range, which may best be seen on the chart.

Breewijd, the NE extension of Schulpengat, leads in deep water close around Kaap Hoofd and into Marsdiep.

SG Lighted Buoy (52°53'N., 4°38'E.), equipped with a racon, is moored 3 miles W of Zanddijk Grote Kaap Light and marks the seaward entrance to Schulpengat.

Molengat (53°00'N., 4°42'E.) leads between Noorderhaaks and the SW side of Texel. In clear weather, this channel is easy to approach because of its wide seaward entrance and gently sloping bottom. The fairway has controlling depth of 5.6m in mid-channel but depths of less than 5m were found on both sides of the channel MG3 and MG5 lighted buoys. During severe gales, major changes in depth may occur and position of the fairway is subject to change. For latest information on channel depths, contact the pilots for advise.

MG Lighted Buoy (53°04'N., 4°39'E.) is moored 6.7 miles NNW of Kaap Hoofd; the seaward entrance to Molengat lies about 1.5 miles SE of it.

Westgat (52°57'N., 4°38'E.) leads over the shallow ridge, which connects the outer parts of Zuider Haaks and Noorder Haaks, and then joins Schulpengat at the SW end of Breewijd. It should only be used during favorable weather conditions as strong breezes raise a rough sea within it. This channel has a depth of 2.7m over the ridge. The fairway is not marked and it should only be used by small vessels with local knowledge.

Marsdiep (52°58'N., 4°45'E.), a deep channel, leads in an E direction between Texel and the coast to the S, from the junction of Breewijd and Molengat into the Waddenzee. The fairway is marked by buoys and, at its E end, divides into two main channels; Texelstroom continues to the NE and Malzwin continues to the ENE.

Caution.—It was reported that the lighted range indicating the Schulpengat fairway is often difficult to see. In addition, due to the shifting banks, the range may be slightly inaccurate in relation to the positions of the fairway buoys, which are continually revised. Vessels entering the channel are advised to pass SE of SG Lighted Buoy. It was reported (2010) that the low, sandy surface of south Texel and of Noorde Haaks make poor surfaces for radar returns.

Den Helder (52°58'N., 4°47'E.)

World Port Index No. 31020

7.24 Den Helder is the principal base of the Royal Netherlands Navy. It is located on the NW end of the Netherlands mainland, 2 miles E of the entrance to Zeegat van Texel. The harbor lies in an inlet on the S side of Marsdiep. This commercial port is also a fishing center and a supply base for vessels and structures servicing the offshore oil and gas industry.

Tides—Currents.—Tides rise about 1.8m at springs and 1.6m at neaps.

The incoming tidal current generally starts to set off Den Helder about 5 hours before HW water and continues until HW. The outgoing tidal current starts to set about 1 hour 30 minutes after HW and continues until about 6 hours 30 minutes after HW. The incoming current attains its maximum rate of 3.5 knots at about 3 hours before HW. The outgoing current attains its maximum rate of about 3.4 knots about 5 hours after HW. Winds from the W can prolong the incoming tidal current and increase the water level. Winds from the E can prolong the outgoing tidal current and decrease the water level.

Winds—Weather.—During very severe winters, the port may be closed periodically. Continued E winds may cause drift ice to accumulate in the harbor. Normally, the harbor tugs are able to keep the port open.

Depths—Limitations.—The entrance channel, which is 240m wide, leads directly from Marsdiep into Marinehaven Willemsoord, the main harbor basin. It has a dredged depth of 7.6m.

The facilities and berths within the main harbor basin are for the use of naval vessels only and have dredged depths of 6.3 to 8.3m alongside. It is reported that naval vessels up to 200m in length can be accommodated.

Commercial facilities include Riijkszeehaven Het Nieuwe Diep, a basin, which is entered at the W side of Marinehaven Willemsoord. This basin extends 0.8 mile SSE and has depths of 6 to 7m alongside. Moormanbrug, a double bascule bridge, spans the middle of this basin and has a navigable passage, 18m wide. Commercial vessels up to 150m in length and 7.5m draft have been handled at HW.

In addition, an inner commercial harbor, which is used by small vessels and yachts, is situated at the W side of the port. This inner harbor is entered through Koopvaardersschut Lock, which is situated at the S end of Riijkszeehaven Het Nieuwe Diep. Vessels up to 85m in length, 14m beam, and 4.5m draft can be handled. The inner harbor also provides access to the Noordhollandsch Kanaal, Alkmaar, and Amsterdam.

Wierhoofd, a small basin, lies close W of the entrance to the main basin and is entered directly from Marsdiep. It has a depth of 5.5m and is used by local ferries.

Aspect.—Within the dike, which fronts the N part of Den Helder, the buildings of the observatory, with a small tower; the town hall; the church; and a water tower are all visible from seaward. The buildings situated in the vicinity of the dockyard are also prominent. A conspicuous tower, 60m high, stands on the E side of the harbor entrance. The fairway leading into the main harbor basin is indicated by a lighted range which may best be seen on the chart.

For additional marks in the approaches, see paragraph 7.21 and paragraph 7.22.

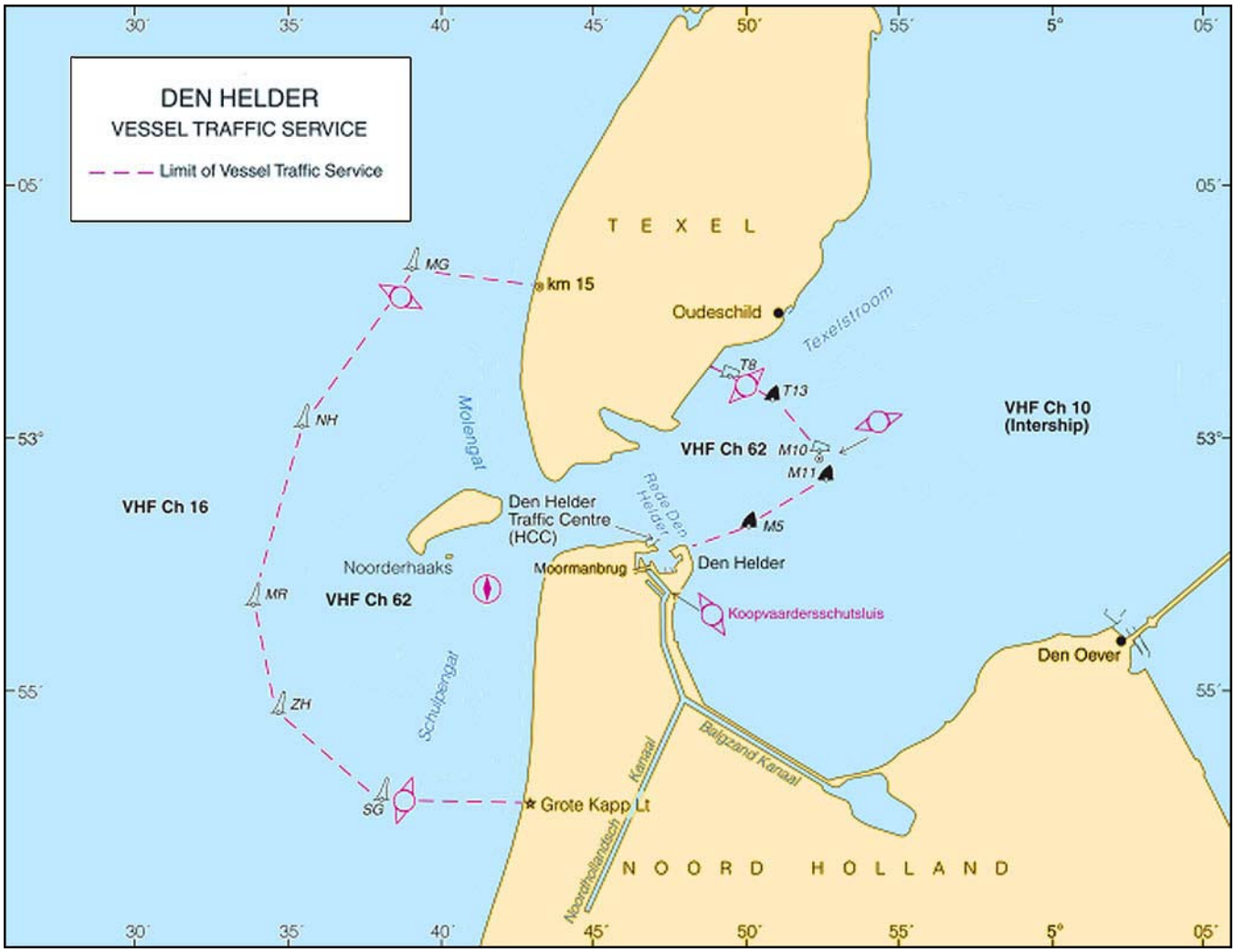
Pilotage.—Pilotage is compulsory, as follows:

1. Texel Roads to Den Helder:
   a. Nieuwe Diep—Vessels over 95m loa and 5m draft.
   b. Koopvaardersbinnenhaven—Vessels over 95m loa or 4m draft.
2. Den Helder to Kornwerderzand—Vessels over 65m loa or 4m draft.
3. Fairway (Den Helder to Den Oever) and other harbors in the Waddenzee—Vessels over 65m loa or 2.5m draft.

Inbound vessels subject to compulsory pilotage should send a pilot request to VTS Ijmuiden at least 6 hours in advance at the ETA for the pilot boarding position (52º38.0’N., 4º30.0’E.). Pilotage requests should be confirmed 3 hours and 1 hour prior to arrival; deviations of more than 30 minutes must be reported.

Vessels not subject to compulsory pilotage should send an ETA to Traffic Center Den Helger 2 hours before arrival at pilot boarding position (52º58.4’N., 4º44.2’E.)

Outbound vessels subject to compulsory pilotage should send a pilot request to VTS Ijmuiden at least 4 hours in advance of their ETD, with a confirmation sent 2 hours before



Den Helder VTS and Pilot Station

departure. Vessels not subject to compulsory pilotage shouold send their ETD to Traffic Center Den Helger 1.5 hours before departure.

All pilot requests should contain the Reporting Codes A, I, O, and U. The Reporting Codes are described in the table titled **Reporting Codes** in paragraph 6.1

Den Helder Traffic Center may be contacted on VHF channel 62; Traffic Center IJmuiden may be contacted on VHF channel 7.

To order pilots, contact may be made by e-mail, as follows:

pilots.amsterdam@loodswezen.nl

Pilots may be contacted by VHF and board, as follows:

1. For vessels proceeding to Rede Den Helder and adjacent ports for which pilotage is compulsory or for vessels which pilotage is not compulsory but still require a pilot—position 52º57.0’N., 4º41.5’E.
2. For all vessels requiring pilotage through the Schulpengat—position 52º38’N., 4º30’E (off Egmond aan Zee).

Because the pilot boarding position off Egmond aan Zee is situated within the area of the Noordzeekanaal Vessel Traffic Service VTS), vessels must also report to VTS IJmuiden on VHF channel 7 (see paragraph 7.15).

It was reported (2010) that, when sea state 2-4 is expected, pilot pickup in not conducted at the Schulpengat Channel Entrance Buoy (52º53’N., 4º38’E.).

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates in the approach area and is managed by the Traffic Center Den Helder. The seaward boundary of the area is formed by a line joining the following points:

1. Zanddijk Grote Kapp Light.
2. SG Lighted Buoy.
3. ZH Lighted Buoy (52°55'N., 4°35'E.).
4. MR Lighted Buoy (52°57'N., 4°34'E.).
5. NH Lighted Buoy (53°00'N., 4°35'E.).

6. MG Lighted Buoy.
7. Texel (53°04'N., 4°44'E.).

All vessels within the VTS area should maintain a listening watch on VHF channel 62 and carry out all communication with the Traffic Center on this channel. All ocean-going vessels should report to the Traffic Center when entering the VTS area and when berthing. All ocean-going vessels, with the exception of local fishing vessels, must obtain permission to enter the harbor. Vessels outside the VTS area may contact the Traffic Control on VHF channels 16 and 12.

Anchorage.—Vessels may only anchor within Marsdiep and Texelstroom at the designated berths, which may best be seen on the chart. These berths are protected from all except W winds, which raise a heavy swell.

Directions.—A radar reference line, which may best be seen on the chart, indicates the route leading into the main basin and is used by naval vessels. Guidance by radar is occasionally given, but only to naval vessels.

Caution.—A prohibited anchorage area is situated in the vicinity of the breakwater and may best be seen on the chart.

Several submarine cables and pipelines lie within the port and may best be seen on the chart.

When approaching Den Helder, a good lookout should be kept for submarines which exercise in these waters. In addition, firing and torpedo exercise areas are situated within Marsdiep and Texelstroom.

Oil drilling rigs and platforms may be encountered in the approach fairways leading to the port.

Texel and Vlieland

7.25 Texel (53°05'N., 4°48'E.), a low and sandy island, is 13 miles long and about 5 miles wide in its central part. Except for the S end, the entire W coast of Texel is lined by sand dunes. To the E of the dunes, the island is mostly flat.

Loodsmansduin, a high dune, stands about 2 miles N of the S end of the island and is a conspicuous landmark. A beacon mast, 10m high, stands about midway along the W side of the island. Other prominent landmarks include Schildbolsnol Light (see paragraph 7.21) and the churches standing at De Hoorn, 1.2 miles NNW of the light, and at Den Koog, 4.5 miles N of Den Hoorn.

A light is shown from a conspicuous tower, 52m high, standing at Eierland, the N extremity of Texel.

Vlieland (53°16'N., 4°58'E.), 10.5 miles long and 1.5 miles wide in places, is separated from Texel by Engelschmangat. The SW half of this island is low and sandy, whereas the NE half is marked by dunes. Vuurduin, the highest dune on the island, rises near the NE end. A light is shown from a prominent metal tower, 17m high, standing on Vuurduin.

Zeegat van Terschelling

7.26 Zeegat van Terschelling (53°19'N., 5°08'E.) is the channel lying between the NE end of Vlieland and the SW end of Terschelling. It provides access to the Waddenzee, IJsselmeer, and the port of Harlingen.

The shoals in the approach to the channel extend up to 3 miles seaward of the islands and include several detached patches. All of these shoals are steep-to on their W and NW sides, with very irregular depths elsewhere. The shallowest depths and some drying heights are generally found on the central and NW parts of these shoals. The names of these shoals are Gronden van Stortemelk, Wester Gronden, Noordwest Gronden, and Noorder Gronden.

Zuider Stortemelk, the main entrance channel for commercial traffic, leads close N of the N end of Vlieland. This channel has considerable depths in places but the bar, which lies at its E end, is subject to frequent change. It was reported that the least depth in mid-channel over the inner bar was 6m.

The channel is marked by buoys. ZS Lighted Buoy (53°19.7'N., 4°55.9'E.), equipped with a racon, is moored about 5 miles W of Vuurduin Light and marks the outer entrance.

Vliestroom, a broad channel, is marked by buoys and leads from the inner end of Zuider Stortemelk into the Waddenzee. It extends SE for 3 miles and passes between Vlieland and Terschelling. Then it trends S for 3 more miles, where it divides into two smaller channels.

There is a VTS operating in the fairways of Zuider Stortemelk, Noordgat, West Meep, Vlieree, Vliestroom and Vliesloot. This system is mandatory for all vessels entering or leaving the VTS area, all vessels mooring or casting off in harbors and vessels anchoring or leaving anchor within this area. Brandaris Traffic Center is open 24 hours a day.

All vessels in the area must keep a continuous listening watch on VHF channel 2. The VTS Traffic Center provides weather information on this same channel at 30 minutes past every odd hour.

When to Report to the VTS:

Vessels must report to Brandaris VTS on VHF channel 2 as follows:

1. Upon entering or leaving the VTS area.
2. Upon entering or departing harbors directly adjoining the VTS area.
3. Upon anchoring or weighing anchor or upon commencing any other special maneuvers within the VTS area.

What to Report to the VTS:

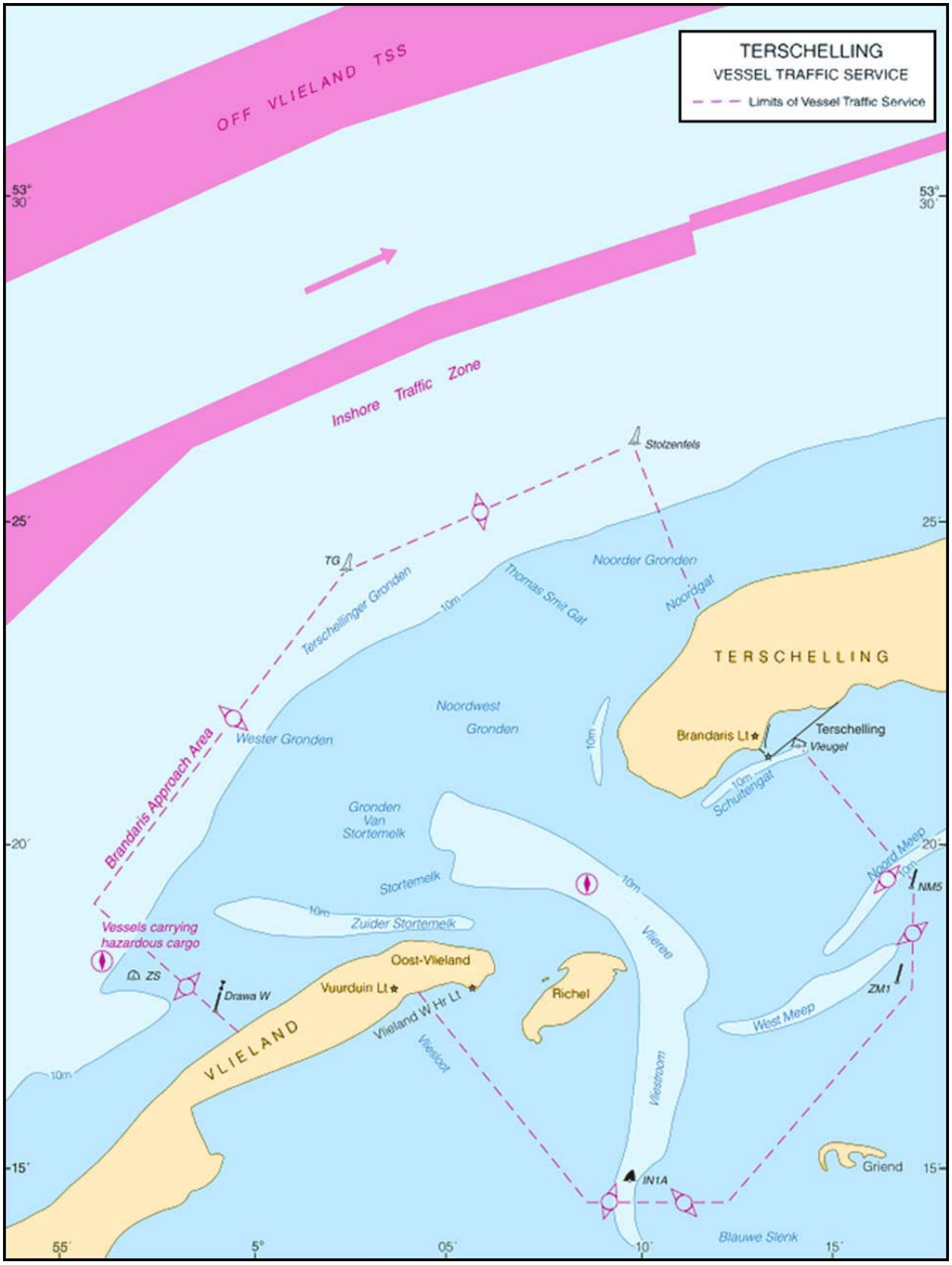
Vessels must advise the following information when making reports to the VTS:

1. Vessel's name and call sign.
2. Type of vessel.
3. LOA according to the Certificate of Registration, beam and draft.
4. Position.
5. Port of destination and port of departure.
6. Dangerous cargo using the IMO Code or ADNR classification.

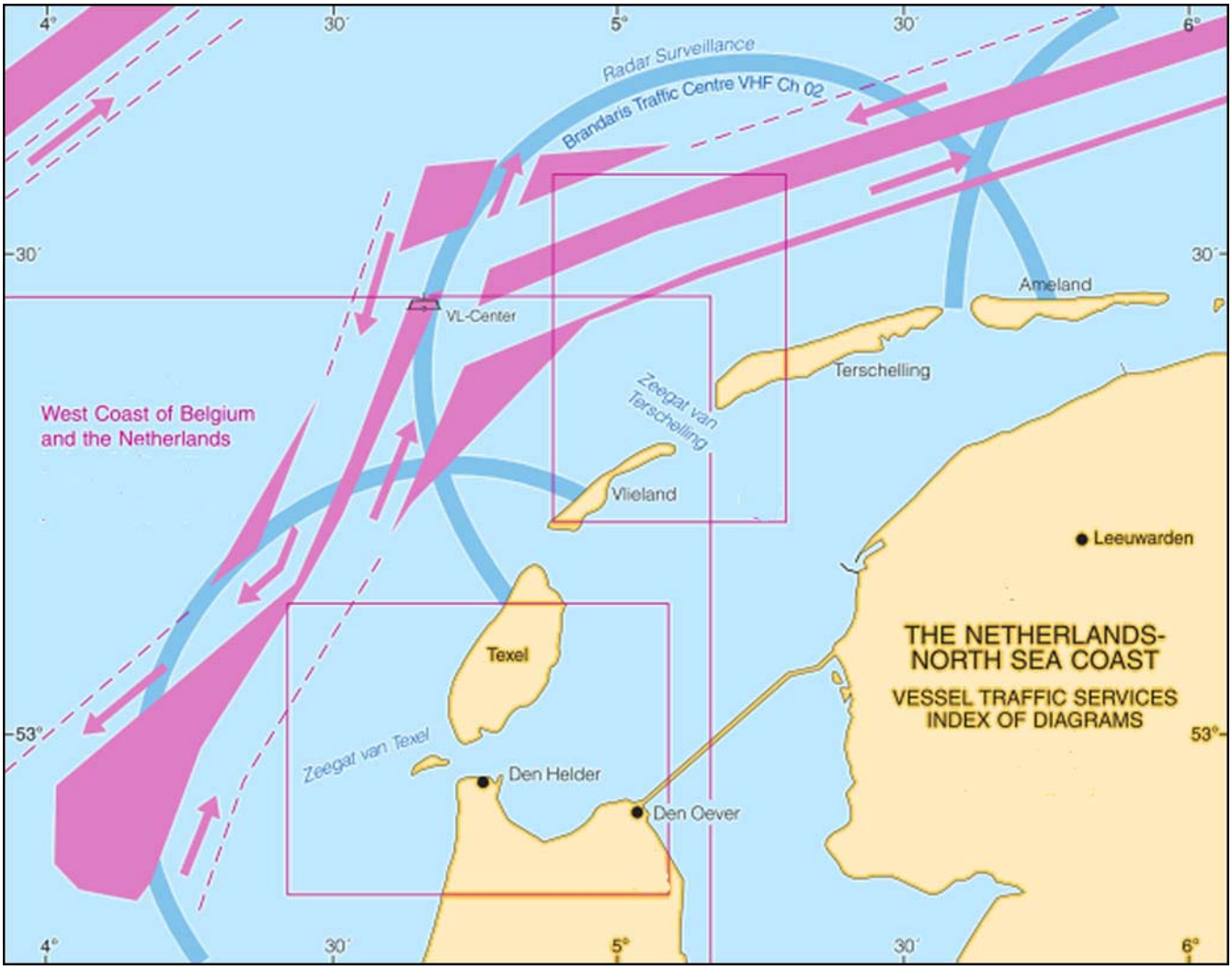
Contact Information for the VTS:

1. Call sign: Brandaris Traffic Centre
2. VHF: VHF channel 2
3. Telephone: 31-562-442341
4. Facsimile: 31-562-442355

Note: All vessels within the VTS area must maintain a continuous listening watch on VHF channel 2. In special cases the Traffic Center will authorize the use of another VHF channel.



Terschelling VTS



Netherlands North Sea Coast VTS

VTS provides weather information 30 minutes after every odd Hour on VHF channel 2.

The Waddenzee

7.27 The **Waddenzee** (Wadden Sea) (53°13'N., 5°13'E.) is bounded on the W side by the islands of Texel, Vlieland, and Terschelling. It is bounded on the E and S sides by Friesland, the Afsluitdijk, and the coast of Noord Holland. The S part of the Waddenzee may be entered through Zeegat van Texel and the N part through Zeegat van Terschelling; the latter providing the main approach to Harlingen. Texelstroom and Vliestroom, the principal channels, are entered from Zeegat van Texel and Zeegat van Terschelling, respectively. Numerous smaller channels branch off from the main ones and lead to various small places in the Waddenzee.

The Afsluitdijk, which is also known as the Great Enclosure Dam, connects Wieringen (52°55'N., 5°00'E.), a former island, to Friesland, 15 miles NE. It separates the S part of Waddenzee from IJsselmeer.

Texelstroom, the widest and deepest channel, leads NE from Marsdiep along the coast. About 8 miles NE of Den Helder, it trends away from the coast of Texel and leads in ESE for 4 miles. This channel is deep throughout and marked by lighted and unlighted buoys and beacons.

Scheurrak, along with its continuations of Omdraai and Oude Vlie, forms a narrow winding channel, 10 miles long. It branches off from Texelstroom at the W end and leads NE to Inschot, in the N part of the Waddenzee. The fairway has a least depth of 3.6m in mid-channel.

Malzwin, with its extension Wierbalg, leads from Texelstroom to Den Oever. The channel has a least depth of 1.2m and is marked by buoys.

Vliesloot, a small channel, branches off Zuider Stortemelk and leads around the E end of Vlieland to Oost Vlieland. There is a depth of 2.9m in this channel, but it is subject to frequent change because of constant silting. In addition, a swift current runs through this channel.

Schuitengat, a channel marked by buoys, branches off Boomkensdiep and leads around the SW end of Terschelling. It

has a least depth in mid-channel of 3.2m. West Meep branches off Vliestroom, about 3 miles within the entrance. It flows E and NE and then finally divides into small channels which lead to the W shores of Friesland. Slenk is a narrow winding channel which leads from the N side of West Meep into Schuitengat and then to West Terschelling.

Blauwe Slenk leads E and SE from the S end of Vliestroom to Harlingen. The SE end of this channel, which is named Vaargeul langs de Pollendam, leads S of Pollendam, a training wall about 2 miles long.

Inschot leads S from the S end of Vliestroom for 5 miles where it is joined by Oude Vlie, which leads to the S part of the Waddenzee. Zuidoostrak leads SE from the S end of Inschot and, at its S end, joins Doove Balg. An extension of this channel leads to Kornwerderzand.

Mok, a shallow inlet, is located on the E coast of Texel near its S end, but is closed to general shipping.

Waddenzee Central Reporting Station (CMW)—is responsible for coordinating the relevant maritime authorities with regard to all incidents within the Waddenzee area.

Contact Information for CMW.

1. VHF: VHF channel 4
   VHF channel 16 (Search and Rescue)
2. Telephone: 31-562-443153
3. Facsimile: 31-562-442921

Den Oever (52°56'N., 5°02'E.), located at the SW end of the Afsluitdijk, has a lock through which small vessels may obtain access to IJsselmee. The lock, which is 129m long and 14m wide, has a depth of 3.1m over the sill. It can handle vessels up to 100m in length, 12m beam, and 2.8m draft.

Kornwerderzand (53°04'N., 5°20'E.), located at the NE end of the Afsluitdijk, has two sets of locks through which vessels may pass from the Waddenzee to the IJsselmeer. The largest lock is 127.6m long, 14m wide, and has a depth of 3.1m over the sill. It can handle vessels up to 100m in length, 12m beam, and 2.8m draft.

Kornwerderzand locks

Harlingen (53°11'N., 5°25'E.)

World Port Index No. 31010

7.28 Harlingen, a commercial port, is located on the E side of the Waddenzee, 21 miles above the entrance to the Zeegat van Terschelling. A secondary route leads to the port through the Zeegat van Texel. It is 53 miles long and passes through narrow, winding, and shallow fairways.

Vlieland (Vuurduin) Light

Texel Light (Eierland)

Tides—Currents.—Tides rise about 2.1m at springs and 1.9m at neaps.

With a rising tide, the tidal current sets NE across the harbor entrance and may attain a rate up to 2 knots. With a falling tide, the tidal current sets SW across the harbor entrance and may attain a rate up to 1 knot.

Winds—Weather.—Ice may appear in the approaches to the port from mid-December to the early part of March, the normal period being during January and February. Icebreakers are normally used for about 10 days per year, but during severe winters, the port may be closed for several weeks.

Depths—Limitations.—Vaargeul langs Pollendam, a narrow dredged approach channel, leads to the port from the vicinity of the Zeegat van Terschelling. The fairway has a least depth of 3.7m.

The main harbor, entered through two converging breakwaters, is divided into five tidal basins. These basins provide about 1,800m of quayage with depths of 3.2 to 7m alongside. There are facilities for general cargo, tanker, container, and ro-ro vessels. Generally, vessels up to 7,300 dwt, 130m in length, and 6.5m draft can be accommodated at HWS.

There are also facilities for offshore oil and gas support vessels, fishing boats, and yachts.

Two locks within the port provide access to a canal which leads to Groningen (55°28'N., 8°23'E.). The largest lock is 127m long, 12m wide, and has a depth of 3.1m over the outer sill. Vessels up to 79m in length, 9.5m beam, and 2.6m draft can enter this lock.

Afsluitdijk Dam

Pilotage.—Pilotage is compulsory between Zeegat van Terschelling and Harlingen for vessels over 70m in length or 6m draft. Pilotage is compulsory between Harlingen and Kornwerderzand (and other ports within the Waddenzee) for vessels over 60m in length or 2.5m draft.

Vessels should send an ETA and request for pilotage at least 6 hours in advance of their arrival at the pilot boarding position, with a confirmation 2 hours prior to arrival.

Pilots board vessels carrying hazardous cargo at (53°18.5'N., 4°56.0'E.) and all other vessels in the vicinity of SM7/ZS16 Lighted Buoy (53°19.7'N., 5°08'E.).

Vessels should report to the port (Havendienst Harlingen) on VHF channel 11 about 30 minutes prior to arrival at the harbor.

To order pilots, contact may be made by e-mail, as follows: lodicon@loodswezen.nl

Afsluitdijk Dam location in the Netherlands

Anchorage.—Vessels with drafts up to 4.3m can anchor off the harbor entrance if the height of tide permits.

Caution.—The positions of the buoys and lighted ranges, which mark the channels, should not be relied on as they are constantly altered to conform to depth changes in the fairways.

Allowance should be made for possible differences in sea level due to the prevailing wind as well as the tide.

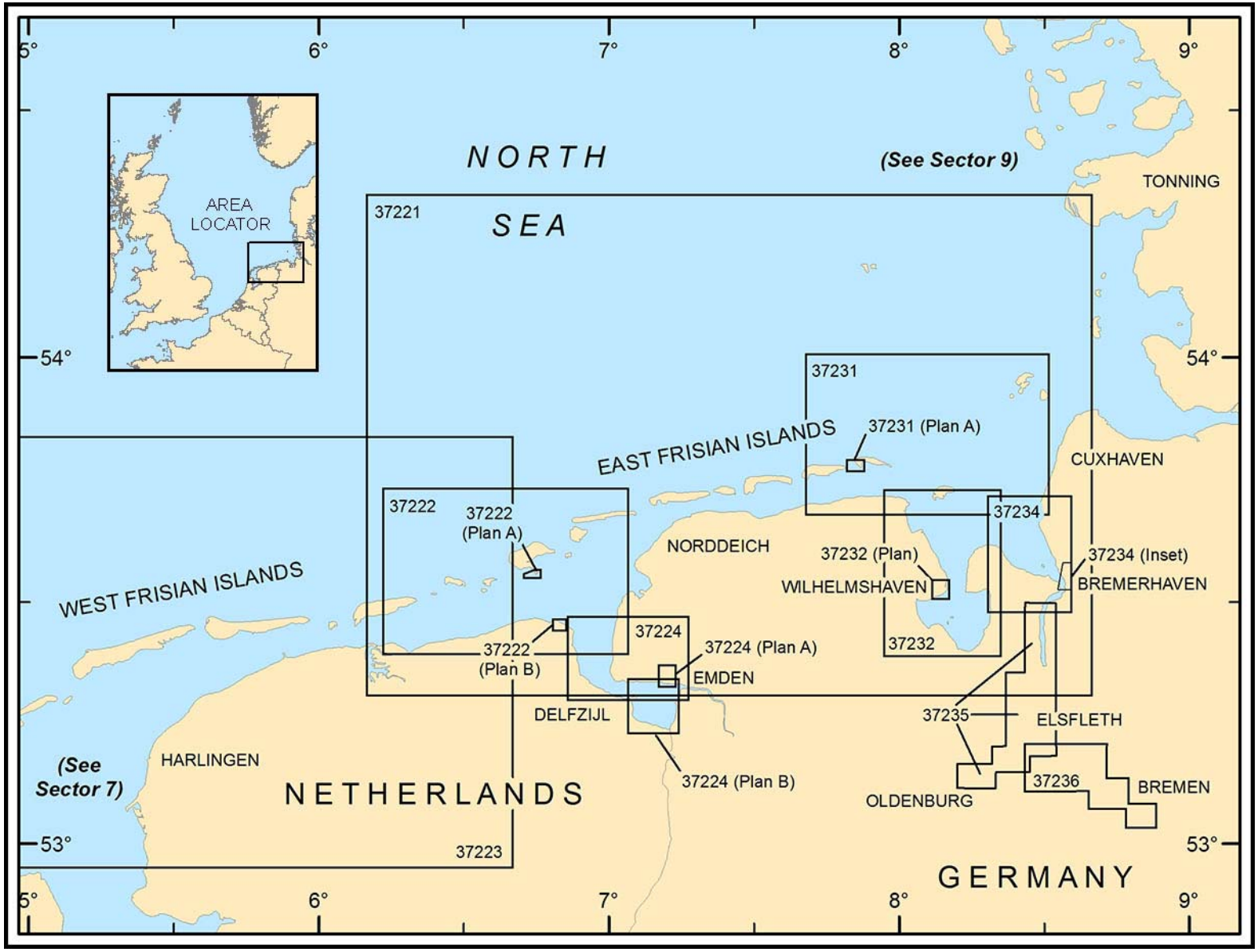
Local ferries may be encountered within the inner channels.

IJsselmeer

7.29 IJsselmeer (52°52'N., 5°12'E.) lies S of the Waddenzee and is separated from it by the Afsluitdijk, a large dam. Vessels are able to enter the IJsselmeer via the locks at Den Oever and Kornwerderzand and also through the Oranjesluizen, at Amsterdam.

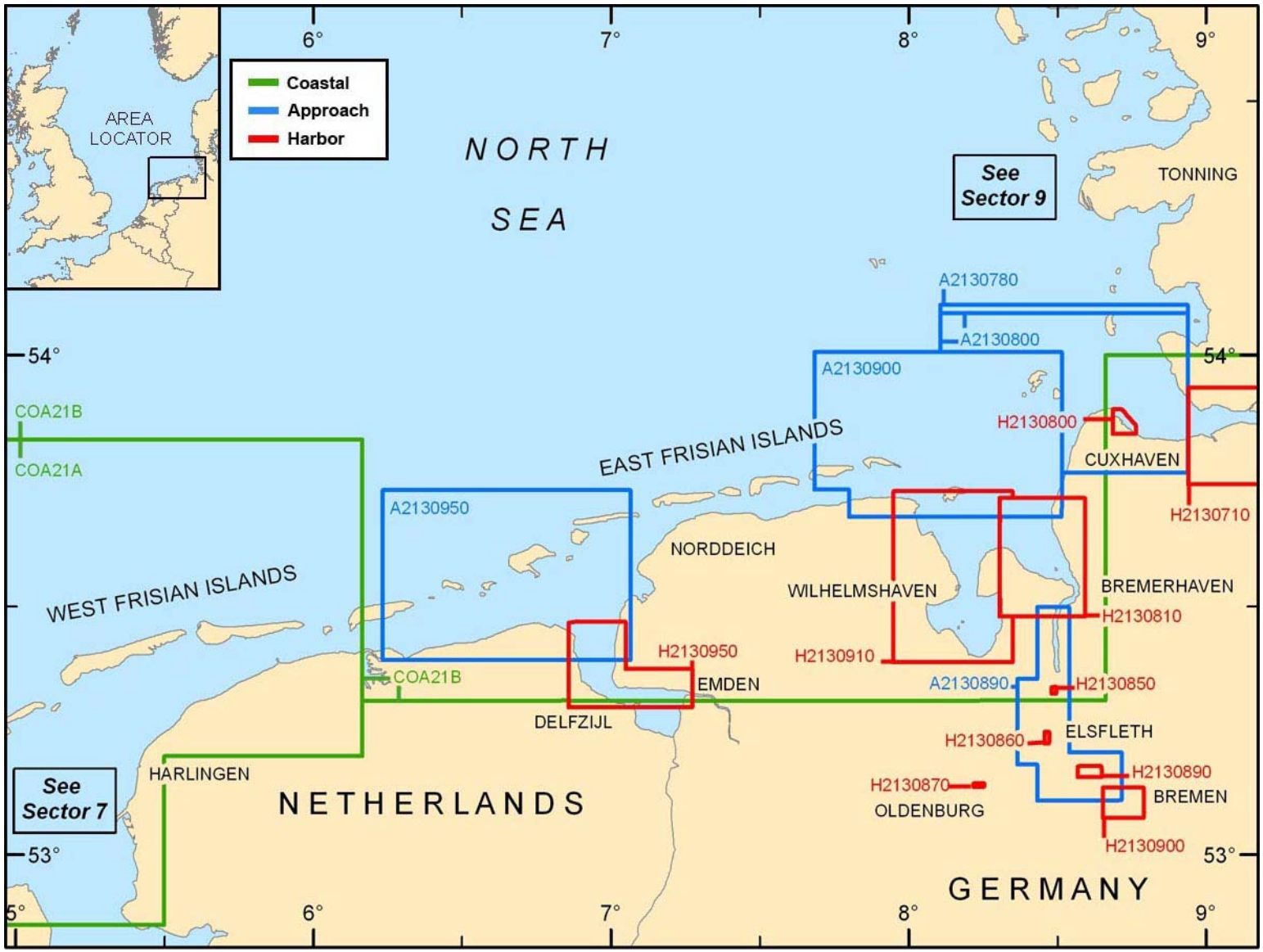
Extensive areas of the IJsselmeer have been reclaimed and further reclamation is projected, including practically the entire S part. There are depths of over 4m in the center of the IJsselmeer, but the depths decrease towards the shores. The harbors and channels within IJsselmeer are shallow.

Medemblik, Enkhuizen, and Hoorn are small harbors located on the W side of the IJsselmeer. Hindeloopen, Stavoren, Lemmer, Urk, and Harderwijk are small harbors located on the E side.



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

SECTOR **8** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 8 — DNC LIBRARY INFORMATION

SECTOR 8

THE NETHERLANDS AND GERMANY—TERSCHELLING TO THE RIVER JADE AND THE RIVER WESER

Plan.—This sector describes the Netherlands and German coasts, including the off-lying islands and the River Ems, between Terschelling and the estuary of the River Jade and the River Weser. The descriptive sequence is from W to E and then N to S in the rivers.

General Remarks

8.1 The coastal area between Terschelling and the estuary of the River Jade and the River Weser is fronted by the Frisian Islands, a fairly low chain of detached islets and islands. The group which lie off the Netherlands coast are known as the West Friese Eilanden group while those lying off the German coast are known as the Ostfriesiche Inseln group.

Between this chain and the mainland, the waters are shallow and mostly consist of drying flats. The only maritime activity of any significance is centered on the River Ems, which contains the Netherlands port of Delfzijl and the German port of Emden. The small German port of Norderney, located on the island of the same name, may be approached through the Norderney Seegat, which leads between the islands of Juist and Norderney.

Terschelling, Ameland, and Schiermonnikoog, the larger islands of the West Friese Eilanden, have sandy beaches backed by dunes. The smaller islands are generally very low.

The Ostfriesiche Inseln group consists of Borkum, Juist, Norderney, Baltrum, Langeoog, Spiekeroog, and Wangerooge. These islands also have sandy beaches backed by dunes. In general, the elevations on each of these islands becomes progressively lower from the W to E. Small villages and vacation resorts, with hotels, are situated on all of these islands.

Numerous wrecks, some marked by buoys, lie seaward of the chain and in the approaches to the River Jade and the River Weser.

The estuary through which the River Jade and the River Weser reach the sea is located between the islands of Wangerooge and Scharhorn. The River Jade, a fairly deep and wide river, leads to the port of Wilhelmshaven, 23 miles above the entrance. The River Weser, one of the most important German rivers, leads to the ports of Bremerhaven, Nordenham, Brake, and Bremen. In addition, this river provides access to the extensive inland waterway system of Germany.

Tides—Currents.—The tidal current setting NE from the S part of the North Sea and the tidal current setting WSW or SW from the German Bight (Deutsche Bucht) meet in the offing, abreast of Texel, where they both join and set NW towards the middle of the North Sea. In the opposite situation, the tidal current setting SE from the North Sea splits into two branches in about the same place; one branch sets SW towards the S part of the North Sea and the other sets NE or NNE towards the German Bight.

Off the off-lying chain of islands and islets, the tidal current is rectilinear and sets with the trend of the coast. An E current is associated more with a rising tide and a W current is associated more with a falling tide. As the coast is approached, the tidal currents are more and more affected by the local tidal currents which flow in and out of the numerous channels within the chain.

In a position about 10 miles NW of the entrance to the Zeegat van Terschelling, the E current begins to set 4 hours 45 minutes after HW at Helgoland and the W current begins to set 1 hour 30 minutes before HW; both currents may attain a rate of 1.8 knots at springs.

In a position about 15 miles N of the entrance to the Friesche Zeegat, the E current begins to set 6 hours after HW at Helgoland and the W current begins to set at HW; at springs, the E current may attain a rate of 1.5 knots and the W current a rate of 1.2 knots.

Pilotage.—Vessels required to use the mandatory route for tankers extending between Noord Hinder (51°57'N., 2°53'E.) and the German Bight (see paragraph 8.4) are recommended by the IMO to employ the services of a deep-sea pilot. Other vessels may also employ the services of a deep-sea pilot. Such pilots may be ordered through the agent. Vessels in German North Sea ports should request a deep-sea pilot 6 to 8 hours prior to departure; vessels in other continental North Sea ports should request a deep-sea pilot 24 hours prior to departure; and vessels in United Kindom North Sea and English Channel ports should request a deep-sea pilot 48 hours prior to departure.

For rules and regulations concerning the pilotage of large vessels (including tankers and bulk carriers) navigating in the German Bight (Inner Deutsche Bucht) and proceeding to the River Ems, the River Jade, the River Weser, or the River Elbe, see Pilotage under Approach Routes to the German Bight (paragraph 8.3).

For pilotage rules and procedures concerning all other vessels navigating in the German Bight and proceeding to the River Ems, the River Jade, the River Weser, or the River Elbe, see Pilotage under the description of each individual estuary.

Regulations.—Particularly Sensitive Sea Areas (PSSAs) are areas that need special protection through action by the IMO because of their ecological, socio-economic, or scientific significance and which may be damaged by maritime activities. The Waddenzee coastal area of the Netherlands, Germany, and Denmark has been designated a PSSA. The main shipping routes leading to coastal ports in the region are excluded from the PSSA.

Special Areas in the North Sea have been designated under MARPOL 73/78 because of their sensitive oceanographic and ecological conditions and their marine traffic. These areas are provided with a higher level of pollution protection than other regions of the sea.

For further information concerning PSSAs and Special Areas in the North Sea, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

Below are extracts from the Traffic Regulations applying to all German waterways which are of particular significance to the waters described in this sector.

Extraordinary Large Vessels are those exceeding the normal maximum dimensions (length, beam, and draft) which have been announced for entry into a waterway. Such vessels require a special permit from the local authorities prior to entering. For more information, see Regulations under the description of each river.

The starboard side of the fairway is that which is on the starboard side of a vessel when entering from seaward. Where a fairway connects two parts of the sea or two bodies of water separated from one another by shallows, the starboard side of the fairway is deemed to be on that side of the fairway which a vessel arriving from the W (any direction from S to N through W) passes on its starboard side. Where doubt may exist, due to the tortuous nature of a channel, the northernmost entrance into such a fairway is to be used as the means for determining the starboard side of the fairway.

Generally, vessels should navigate on the right side of the fairways. In specified places within the waterways, certain vessels, with permission, are authorized to navigate on the left side. Overtaking is normally carried out on the left side.

Vessel Traffic Service.—German VTS Centers request that vessels have their Automatic Identification System (AIS) switched on and tuned before entering the areas of AIS coverage. They also require vessels to transmit the mandatory VTS reports by AIS.

Caution.—The Alpha Ventus Wind Farm lies 24 miles N of Borkum. The wind farm is centered on position 54º00.6’N, 6º36.4’E and comprises 12 wind turbines. The area is enclosed within a prohibited area as shown on the chart. A submarine cable leads generally SE from the wind farm via Norderney and thence to the mainland.

Numerous gas and oil installations are situated both on the surface and on the seabed in the waters through which the main routes lead to the German Bight.

Approach Routes to the German Bight

8.2 The Deep-Water Routes and Traffic Separation Schemes (TSS) described below are all IMO-adopted and Rule 10 of the International Regulations for Preventing Collisions at Sea (1972) applies. They may best be seen on the charts.

A Deep-Water Route, the limits of which are shown on the chart, leads N from the vicinity of the Noord Hinder Junction Precautionary Area (51°57'N., 2°38'E.) and separates into E and W branches.

The W branch leads N to DR1 Lighted Buoy, which is equipped with a racon, then, in conjunction with the Off Botney Ground TSS, NE and ENE to the W end of the Friesland Junction Precautionary Area (54°00'N., 4°20'E.); the least depth in this branch was reported to be 27m.

Undefined routes, used occasionally by deep-draft vessels bound for the Dover Strait from the Shetland Islands or Scandinavia, join the W branch in the vicinity of the Off Botney Ground TSS.

The E branch, in conjunction with the Off Brown Ridge TSS and the West Friesland TSS, leads NNE and NE to the S side of the Friesland Junction Precautionary Area; the least depth in this branch was reported to be 23m.

The Deep-Water Route then continues E from the E end of the Friesland Junction Precautionary Area and, in conjunction with the East Friesland TSS and the German Bight Western Approach TSS, leads into the Jade and Weser approaches.

GB Lightfloat (54°11'N., 7°26'E.), equipped with a racon, is moored close E of the inner end of the German Bight Western Approach TSS.

GW/Ems Lightfloat (54°10'N., 6°21'E.), equipped with a racon, is moored within the TSS. It marks a N/S linking route which crosses the separation schemes and leads via GW/TG Lighted Buoy (53°59'N., 6°22'E.) and Borkumriff Lighted Buoy (53°47'N., 6°22'E.), equipped with a racon, to the entrance of the River Ems.

The Off Texel TSS extends NNE for 21 miles from a position about 30 miles NW of IJmuiden to VL South Lighted Buoy (53°09'N., 4°26'E.).

The Off Vlieland TSS extends 20 miles NNE from VL South Lighted Buoy to VL Center Lanby (53°27'N., 4°40'E.), which is equipped with a racon. It then leads 18 miles ENE to the junction with the Off Tershelling-German Bight TSS at TE1 Lighted Buoy and TE2 Lighted Buoy (53°37'N., 5°07'E.).

The Vlieland North TSS extends NNE for 9 miles from the VL Center Lanby. Vlieland Junction, a precautionary area, has been established where the NNE bound traffic lane of the Vlieland North TSS crosses the WSW bound traffic lane of the Off Vlieland TSS.

The Off Terschelling-German Bight TSS extends ENE for about 90 miles from the E end of the Off Vlieland TSS to Jade/Weser Lighted Buoy (53°58'N., 7°37'E.), which is equipped with a racon. Borkumriff Lighted Buoy (53°47'N., 6°22'E.), equipped with a racon, is moored midway along this TSS.

The Jade Approach TSS extends SE from GB Lightfloat (54°11'N., 7°26'E.) to the E end of the Off Terschelling-German Bight TSS.

An Inshore Traffic Zone lies between the SE and S limits of the Off Vlieland TSS and Off Terschelling-German Bight TSS and the adjacent coasts.

An approach TSS is situated in the vicinity of Elbe Lighted Buoy (54°00'N., 8°07'E.). Inbound vessels for the River Elbe should pass to the S of Elbe Lighted Buoy; outbound vessels should pass to the N of it.

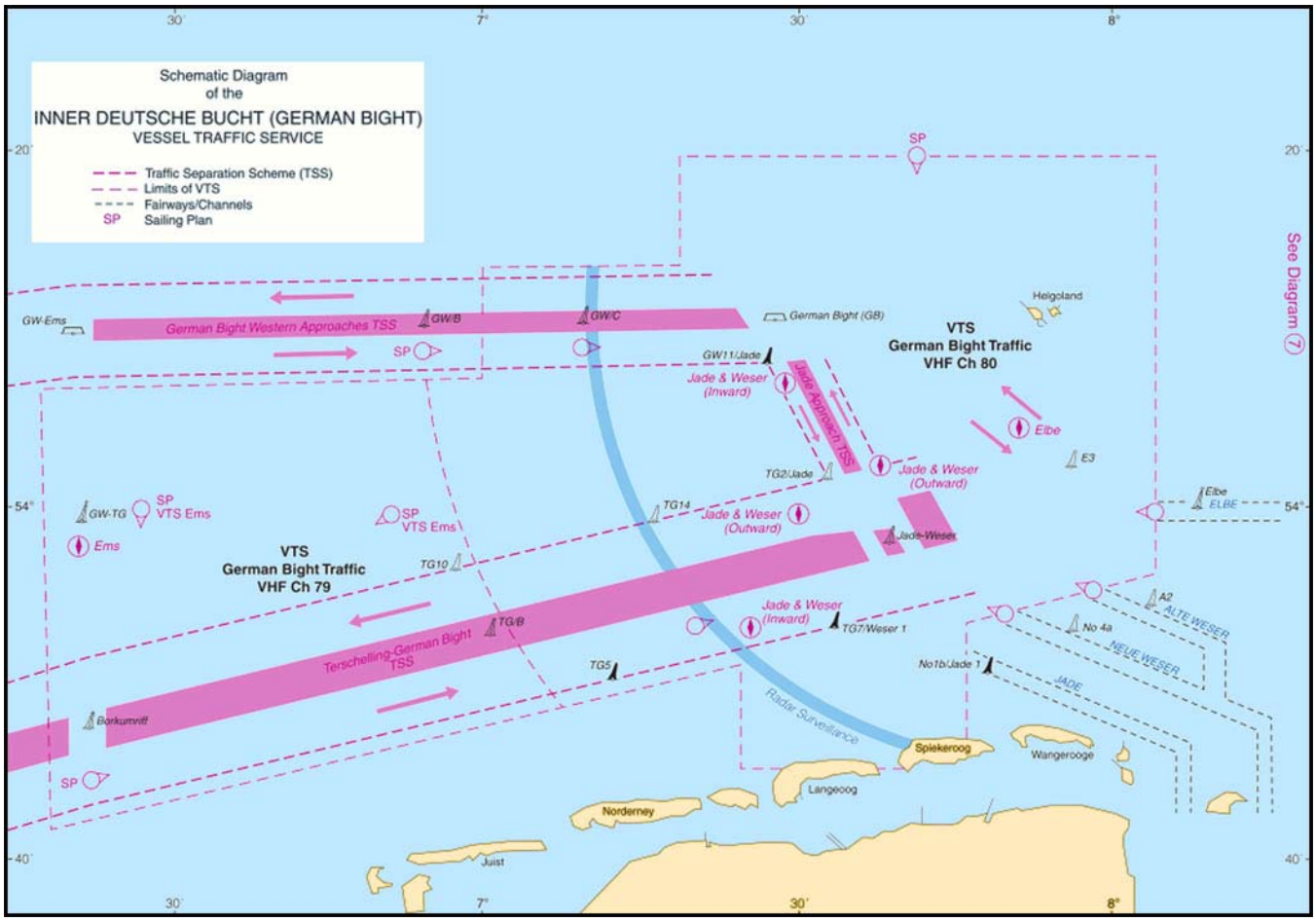
Caution.—For passage planning along the above routes, vessels are recommended to carry such charts as Netherlands No. 1970 (Routing Guide for the Southern North Sea) and Germany No. 2910 (Routing Guide for the German Bight).

Pilotage

8.3 The North Sea Pilot Association, located in Hamburg, provides pilotage for the following ports and areas:

1. Brunsbuttel
2. Cuxhaven
3. Gluckstadt
4. Hamburg
5. Stadersand Elbe Port
6. the North Sea and English Channel.

Requests for German Deep Sea Pilots should be made as follows:



German Bight Traffic Scheme

1. 6-8 hours before ETD for vessels berthed in German North Sea ports:
2. 24 hours before ETD for vessels berthed in Continental North Sea ports.
3. 48 hours before ETD for vessels berthed in UK North Sea and Channel ports.

Contact Information.—North Sea Pilot Association can be contacted as follows:

1. Telephone: 49-40-7237-0171
2. Facsimile: 49-40-7237-0170
3. E-mail: germannorthseapilot@t-online.de

Pilotage is compulsory for the following vessels in normal weather conditions:

1. Tankers with LOA 150m and longer or beam of 23m or more, proceeding to or from the Rivers Ems, Jade, Weser or Elbe, carrying gas, chemicals, petroleum, and petroleum products in bulk.
2. Unloaded tankers, if not cleaned, degassed, or completely inerted, after having carried petroleum, petroleum products or chemicals with a flashpoint below 35°C, proceeding to or from the Rivers Ems, Jade, Weser, or Elbe.
3. Bulk carriers with LOA 220m and longer or beam of 32m or more, proceeding to or from the River Elbe.
4. Bulk carriers with LOA 250m and longer or beam of 40m or more, or draft 13.5m or deeper, proceeding to or from the Rivers Weser or Jade.
5. Other vessels with LOA 350m and longer, or beam 45m or more, proceeding to or from the Rivers Jade, Weser or Elbe.

Pilotage is compulsory for the following vessels in adverse weather conditions between normal position and sheltered position of pilot vessel for Rivers Ems, Jade, Weser or Elbe:

1. Tankers covered by compulsory pilotage requirement in normal weather conditions.
2. Car carriers and Ro-Ro vessels with LOA 140m and longer or beam of 23m or more, on the River Ems.
3. Other vessels with 170m LOA and longer or beam of 28m beam or more.

Pilot Boarding:

Pilots will preferably be boarded by the pilot vessel, unless they cannot be used owing to adverse weather conditions, a pilot vessel is not available, or boarding by a Pilot Vessel is unsuitable for the vessel being served. In exceptional cases transfer of pilot may be carried out by helicopter. This service

can only be performed if a helicopter area is available on board the vessel which complies with the requirements for landing or winching areas. Such transfers can be done at wind speeds of up to 55 knots (Force 10) relative to vessel.

For adverse weather conditions pilots board between normal position and sheltered position of pilot vessel for Rivers Ems, Jade, Weser or Elbe.

Vessels having requested a Pilot to be transferred by helicopter must maintain a continuous listening watch on VHF Channel 16 (working VHF channels 9 or 72), from 30 minutes before arrival at the pilot boarding position so that the helicopter can contact the vessel.

Pilot boards in the following positions:

1. Vessels proceeding to and from the River Ems: 53°59.0'N., 6°21.4'E.
2. Vessels proceeding to and from the Rivers Jade and Weser:
   a. Inbound: 54°07.0'N., 7°28.4'E and 53°53.0'N., 7°25.0'E.
   b. Outbound: 54°02.8'N., 7°37.4'E and 53°59.0'N., 7°30.0'E.
3. Vessels proceeding to and from the River Elbe: 54°04.4'N., 7°51.5'E.

ETA reporting and pilot ordering:

Vessels should send a request for pilotage and their ETA, at the appropriate boarding place, at least 24 hours in advance. The message must include the following:

1. vessel name, length, beam and gt.
2. pilot boarding position.
3. ETA/ETD at/from pilot boarding position.
4. Destination of pilotage required.
5. Actual draft on arrival/departure (in decimeters).
6. Indication whether transfer by pilot vessel or helicopter.

Further ETA messages must be sent as follows:

1. River Elbe: 6 and 2 hours in advance, addressed to the Pilot Station for the River Elbe.
2. Rivers Ems, Jade and Weser: 3 hours in advance addressed to the appropriate Pilot Station for the Rivers Ems, Jade or Weser.

Confirmation or correction reports must be sent to the pilot station for the River Elbe 6 hours and 2 hours prior to arrival.

Vessels preparing for departure that are required to take pilots shall send the above message at least 3 hours before departure. Vessels that will depart between the hours of 1900 and 0800 must request a pilot before 1700.

Confirmation or correction reports must be sent to the appropriate pilot station for the River Ems, the River Jade, or the River Weser 6 hours and 3 hours prior to arrival.

Vessels bound for the River Ems should send their request for pilotage to Ems Pilot, Eden; vessels bound for the River Jade or the River Weser should send their request for pilotage to Weser Pilot, Bremerhaven; and vessels bound for the River Elbe should sent their request for pilotage to Elbe Pilot, Brunsbuttel. Pilots for the River Elbe, the North Sea, and the English Channel may also be requested from the North Sea Pilot Association.

Tankers over 300m in length or 16.5m draft approaching the German Bight must embark two pilots beyond the boarding positions within the Jade Approach TSS.

Pilots are normally embarked from pilot vessels. In exceptional cases, pilots may transfer by helicopter. This service can only be performed if a designated area on the vessel, which complies with all regulations, is available for landing or winching. Such helicopter transfers can be carried out at wind speeds up to 55 knots (force 10) relative to the vessel.

Information concerning helicopter pilotage operations can be found in Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

In the case of transfers from a helicopter from Helgoland (Helgoland Pilot), a continuous VHF listening watch should be kept on channel 16 for 30 minutes prior to arrival. After radio contact has been established, the helicopter should be informed of the vessel's position, course and speed, the relative wind force and direction over the winching or landing area, the air temperature, the visibility, any roll and pitch, and the condition of the deck (whether wet or dry, etc.).

The German authorities have pointed out that, during the transfer operation, vessels are restricted in their ability to maneuver and may exhibit the lights and shapes prescribed in Rule 27 of the International Regulations for Preventing Collisions at Sea.

For pilotage information concerning vessels not included in these instructions and regulations, see the Pilotage section listed under the description of each river.

Regulations

8.4 The E branch of the Deep-Water Route is recommended by the IMO as a two-way route for the following:

1. Tankers of 10,000 gt and over transporting oils listed in Annex I of Marpol 73/78.
2. Vessels of 5,000 gt and over transporting noxious liquid substances in bulk listed as Categories A or B in Annex II of Marpol 73/78.
3. Vessels of 10,000 gt and over transporting noxious liquid substances in bulk listed as Categories C or D in Annex II of Marpol 73/78.
4. Vessels of 10,000 gt and over transporting liquified gases in bulk.

The IMO recommends that the Off Brown Ridge TSS, the West Friesland TSS, and the German Bight Western Approach TSS should be used by these vessels in continuation with the two-way route.

The IMO recommends that the above vessels should not use the Texel TSS, the Off Vlieland TSS, nor the Off Terschelling-German Bight TSS.

In addition, such vessels should avoid the sea area lying between the mandatory route and the Frisian Islands, except when joining or leaving the route at the nearest point to the port of destination.

The above vessels must use the mandatory route, or part of it, under the following circumstances:

1. When sailing from Noord Hinder (51°57'N., 2°53'E.) to the Baltic Sea or to North Sea ports in Norway, Sweden, Denmark, Germany, or the Netherlands N of latitude 53°N.
2. When sailing between North Sea ports in the Netherlands and/or Germany.

3. When sailing between the United Kingdom or Continental North Sea ports S of latitude 53°N and ports in Scandinavia or the Baltic Sea.

4. When sailing between Noord Hinder, the United Kingdom, or Continental North Sea ports S of latitude 53°N and oil loading facilities (offshore or shore-based) in the North Sea area. However, this does not apply to vessels sailing between ports on the E coast of the United Kingdom, including the Orkney Islands and the Shetland Islands.

Vessels which cannot safely navigate the mandatory route because of their draft are exempted from the requirement to use the S part of it. Such vessels are strongly recommended to use the W branch of the Deep Water Route and proceed via DR1 Lighted Buoy and the Off Botney Ground TSS.

Sailing vessels and small craft under 20m in length should use the Inshore Traffic Zone. Other vessels may use this zone when bound to or from a port, offshore installation, pilot station, or when seeking shelter.

Germany has promulgated regulations pertaining to vessels navigating in an area extension to its territorial sea located within the German Bight (Deutsche Bucht). This area extension lies in the vicinity of the Jade Approach TSS and may best be seen on the chart.

Deep-draft vessels constrained by the tide in the waterways into which they are proceeding are deemed to be right-of-way vessels when navigating inbound on the routes leading between GB Lightfloat (54°11'N., 7°26'E.), or the deep water anchorage located close S of the light float, and the River Jade, the River Weser, or the River Elbe.

In this case, a right-of-way vessel is defined as “a vessel restricted in its ability to maneuver” as per Rule 3(g) of the International Regulations for Preventing Collisions at Sea (1972). Such vessels should display the appropriate lights and signals as per Rule 27(b).

In practice, this regulation applies especially to vessels proceeding E within the Off Terschelling-German Bight TSS. Such vessels must not in any way impede those large ships, especially tankers, which are heading from the German Bight Western Approach TSS towards the entrances to the River Jade, the River Weser, or the River Elbe.

Vessel Traffic Service

8.5 A Vessel Traffic Service (VTS) operates in the approaches to the German Bight (Inner Deutsche Bucht). Participation in this VTS is mandatory for the following vessels:

1. Vessels over 50m in length, including pushed or towed composite units.
2. Vessels carrying dangerous goods (gas, chemicals, petroleum, or petroleum products) in bulk.
3. Nuclear-powered vessels.

Vessels entering the VTS area must maintain a continuous listening watch on VHF channel 80 (in the E part of the VTS), on VHF channel 79 (in the W part of the VTS), or on VHF channel 16.

A Sailing Plan (SP) must be sent before entering the VTS area or before leaving a berth within the VTS area.

The SP must be sent to the VTS Center German Bight Traffic on VHF channel 79 or 80, as follows:

1. On passing Lighted Buoy GW/B (54°10.4'N., 6°54.0'E)—Vessels approaching the German Bight through the German Bight Western Approaches TSS.
2. On passing TG13 Lighted Buoy—Vessels approaching the German Bight through the Terschelling-German Bight TSS.
3. Upon crossing latitude 54°20'N—Vessels approaching the German Bight from the N.
4. Upon crossing the longitude of GW/B Lighted Buoy (6°54'E.)—Vessels approaching the German Bight from the W.
5. Before leaving a port within the VTS area.
6. 6.In addition, when approaching VTS Ems from the N or the E, an SP must be sent to VTS Center Ems Traffic on VHF channel 18, as follows:
   a. When crossing latitude 54°00'N.
   b. When crossing the longitude through Lighted Buoy GW/TG (6°21.4'E).
   c. When crossing the longitude through Lighted Buoy TG/B (7°00.3'E).

The SP must contain the following information:

Designator	Information Required
A	Vessel name and call sign.
D	Position.
U	Length (in meters), beam (in decimeters), and type.
O	Draft (in decimeters).
G	Port of departure.
I	Port of destination.
P	Indication if liquefied gases, chemicals, petroleum, or petroleum products are or were carried in bulk. If yes, type, quantity, and UN number and whether tanks are uncleaned or completely inerted.
Q	Deficiencies or restrictions on maneuverability.
T	Name of vessel’s owner or agents.

A Position Report (PR) must be sent when passing certain reporting points in the VTS area. The PR must contain the following information:

A PR must be sent to VTS Center German Bight Traffic on VHF channel 80, as follows:

1. On passing GW/C Lighted Buoy (54°10.6'N., 7°10.9'E.).
2. On passing TG17/Weser 1 Lighted Buoy.
3. On passing No. 4a (Neue Weser) Lighted Buoy for vessels leaving the Neue Weser.
4. On passing No. A2 (Alte Weser) Lighted Buoy for vessels leaving the Alte Weser.
5. On passing Elbe Lighted Buoy (54°00'N., 8°06'E.) for vessels leaving the River Elbe.

Incident Reports (IR) and Deviation Reports (DR) must be sent to the VTS Center German Bight Traffic as necessary.

Radar assistance is provided on request or by order of the VTS Center on VHF channel 80. For vessels under mandatory, or voluntary pilotage between the Inner Deutsche Bucht (German Bight) and Jade 2 Lighted Buoy (53°52'N., 7°47'E.) when visibility is less than 2,000m. The pilot boarding position is (2 miles NW of E3 Lighted Buoy) The request should be made to German Bight Traffic on VHF channel 80, stating the vessel name, call sign, and position. The information is given in German or, on request, in English.

Information broadcasts are given every hour on the hour, in German and English, on VHF channel 80, concerning details relevant to the safe passage through the VTS area. These broadcasts include general fairway and traffic situation information.

For information concerning local VTS systems within the River Ems, the River Jade, the River Weser, and the River Elbe, see Regulations—Traffic Control under the description of each river.

Contact Information— The VTS Center can be contacted, as follows:

1. Call sign: German Bight Traffic
2. VHF: VHF channel 79 (western part)
   VHF channel 80 (eastern part)
3. Telephone: 49-21-489282
4. E-mail: vz_gbt@whv.wsdnw.de

Off-lying Dangers

8.6 Numerous production platforms, wells, and gas and oil pipelines lie in the waters within the approaches to Terschelling and the German Bight, and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Nam Gas Field (53°30'N., 3°22'E.).
2. Noordwinning Gas Field (53°15'N., 3°10'E.).
3. Placid Gas Field (53°26'N., 4°14'E.).
4. Petroland Gas Field (53°35'N., 4°12'E.).
5. Wintershall Gas Field (53°35'N., 4°28'E.).
6. Mobil Field (52°45'N., 3°45'E.).
7. Helder Oil Field (52°56'N., 4°09'E.).
8. Helm Oil Field (52°52'N., 4°08'E.).
9. Rijn Oil Field (52°18'N., 3°47'E.).
10. Sean Gas Field (53°11'N., 2°52'E.).
11. Orwell Gas Field (53°08'N., 3°02'E.).
12. Davy Gas Field (53°00'N., 2°55'E.).
13. Welland Gas Field (53°00'N., 2°45'E.).
14. Horne and Wren Gas Field (52°54'N., 2°36'E.).
15. Yare Gas Field (53°02'N., 2°35'E.).
16. Thames Gas Field (53°05'N., 2°32'E.).
17. Indefatigable Gas Field (E part) (53°17'N., 2°35'E.).
18. Brigantine Gas Field (53°27'N., 2°42'E.).
19. Corvette Gas Field (53°14'N., 2°37'E.).
20. Chiswick Gas Field (53°56'N., 2°45'E.).
21. Windermere Gas Field (53°50'N., 2°46'E.).
22. Markham Gas Field (53°52'N., 2°55'E.).
23. Grove Gas Field (53°42'N., 2°52'E.).
24. Carrack Gas Field (53°34'N., 2°47'E.).

For locations of oil and gas fields lying N and W of the above fields, see paragraph 9.1 and paragraph 3.1, respectively.

Numerous wrecks, some swept, lie in the vicinity of the approaches to the German Bight and may best be seen on the chart. Generally, shallow depth wrecks are marked by buoys.

A complex of towers connected by submarine cables is situated within 15 miles of a central tower (53°44'N., 2°33'E.), which stands about 40 miles N of the DR1 Lighted Buoy.

A firing exercise area, used by aircraft, is located between the East Friesland TSS and the Off Terschelling-German Bight TSS.

Terschelling to the Ems Estuary

8.7 **Terschelling** (53°22'N., 5°10'E.) is the longest island of the West Friese Eilanden group. Its W and E ends are formed by large sand flats which, during stormy weather, are mostly submerged. In the central part of the island, there are sand dunes which mostly stand 9 to 12m high, but a few attain heights up to 24m.

Several wrecks, some dangerous, lie on the coastal bank in this vicinity and may best be seen on the chart.

The village of West Terschelling, with a small harbor, stands on the E side of the SW part of the island. Terschelling Light is shown from Brandaris Tower, which stands in the village (see paragraph 7.25).

The islands of Terschelling, Ameland, and Schiermonnikoog lie off this section of coast. The distance between the W end of Terschelling and the E end of Schiermonnikoog is about 45 miles.

Between these islands, navigable passages lead to the inner waters. Zeegat van Ameland passes between Terschelling and Ameland, and Friesche Zeegat passes between Ameland and Schiermonnikoog. However, most of the inner waters are not navigable, even by small vessels.

Terschellinger Wad is the area of water lying between Terschelling and the coast. Other areas include Friesche Wad, which lies between Ameland and the mainland, and Groninger Wad, which lies between Schiermonnikoog and the coast.

Friesland is the mainland province fronted by Terschelling and Ameland; Groningen, the adjoining province, is fronted in part by Schiermonnikoog. Lauwerszee, the only place of any significance in the inner waters, is a bight which lies between Friesland and Groningen. It is accessible from the sea through Friesche Zeegat. The sluice harbors of Zoutkamp and Nieuwezijlen, which are sea outlets for the inland canals, are located within this bight.

Several villages are situated on Ameland, and one village is situated on Schiermonnikoog.

Numerous wrecks, some of which are stranded, lie in the vicinity of this section of the coastal bank and may best be seen on the chart. Several wrecks, some swept, lie to seaward of the coastal bank and up to 20 miles offshore. Depths in the zeegats and in the inner waters are shallow.

Winds—Weather.—Ice appears along this coast almost every year. During mild winters, there may be only several days with ice on the mainland coast and none along the shores of the islands. During a very severe winter, ice may be recorded for over 80 days on the N sides of the islands, for over 90 days on the S sides of the islands, and for up to 100 days in

Lauwerszee; navigation in the inner waters has been reported closed for 50 to 80 days.

Ice generally makes its first appearance in the middle of December and remains until the latter part of March.

Tides—Currents.—The tide on the seaward sides of the islands rises 2.4 to 2.6m at springs and 1.8 to 2.3m at neaps.

As the coast is approached, the tidal currents are more and more affected by the currents setting into and out of the zeegats and the Ems.

8.8 Zeegat van Ameland (53°28'N., 5°35'E.), lying between Terschelling and Ameland, is of little importance to commercial vessels and provides no safe anchorage in bad weather; shoals and drying banks extend up to 3.3 miles offshore from the two islands. In addition, Bornrif, a steep-to drying bank, extends up to 4.7 miles NW from the W end of Ameland. Kofmansbult, a shallow bank, lies close W of Bornrif. Westgat, the principal entrance channel, is approached from the W and leads between Kofmansbult and the Terschelling coast into Borndiep; the bar, which fronts the entrance to this channel, has a least depth of 3.7m. Akkepollegat, another shallow channel, leads between Bornrif and Kofmansbult, but is not used.

Ameland Light

Borndiep, a deep channel, passes between Terschelling and Ameland and is marked by buoys. Shallow branch channels lead into Terschellinger Wad and Friesche Wad from its inner end.

Friesche Wad consists mostly of drying flats with several intersecting small channels. It is only at HW that navigation by small craft is possible. Buoyed channels branch off from Borndiep and lead to Nes, on the S side of Ameland, and Holwerd, on the Friesland coast. Two other buoyed channels branch off from Borndiep and lead to Harlingen; one channel favors the Terschelling coast and the other favors the coast of Friesland.

Ameland (53°27'N., 5°47'E.) is bordered at its W end by dunes which continue along the N coast to within 1.5 miles of its E end, which is very low.

A light is shown from a conspicuous tower, 55m high, standing near the W end of this island. Nesserduin, the highest of the dunes, stands 3.5 miles ENE of the light and has a conspicuous white patch on its E side. Prominent marks include church towers standing at Hollum and Nes, a bathing pavilion situated close N of Nes, and a beacon standing 1.8 miles W of the E end of the island.

8.9 Friesche Zeegat (53°28'N., 6°04'E.), leading between Ameland and Schiermonnikoog, provides access to the Lauwerszee and the waters lying between the two islands and the mainland. These waters can only be entered during fine weather when the surf is not breaking on the banks at the entrance. Local knowledge is essential for entering; however, no pilots are available and the channel is only used by local fishing boats and small coasters.

Vessels must report to the Traffic Station Schiermonnikoog on VHF Channel 5 in position (53°31.9'N., 6°01.4'E.), inbound only.

Engelsmanplaat (53°27'N., 6°03'E.), lying abreast the E end of Ameland, is a bank of sand which does not quite cover at HW. A lighted beacon and a refuge hut stand near the N end of this bank.

Friesche Zeegat is obstructed by drying patches and shoal banks, with hard sandy bottoms, which lie between Ameland and Schiemonnikoog. Some of these banks extend up to 3.5 miles offshore. Rif, steep-to with a least depth of 0.9m, is the outermost bank in the zeegat.

Westgat, the only usable entrance channel leading into the zeegat, is marked by a fairway lighted buoy, which is moored about 3 miles N of Schiermonnikoog Light. This channel leads S into Zoutkamperlaag and is marked by buoys, but is subject to continuous changes. The fairway is reported to have a least depth of 3.2m.

Zoutkamperlaag (53°23'N., 6°10'E.), which is marked by buoys, is a continuation of the main channel of the zeegat. Smaller channels, marked with buoys and perches, branch off from Zoutkamperlaag and lead S into Lauwerszee, W into the Friesche Wad, towards the Ameland Dam, and E into Gronginger Wad. At HW, small craft can reach the ferry stage at Oosterburen through one of these channels.

The coasts of Friesland, Groningen, and part of the SW side of Schiermonnikoog are protected by dikes. Several towers stand on the mainland coasts and are prominent; lights are shown at Oostmahorn and Zoutkamp.

Lauwerszee (53°23'N., 6°10'E.), which is roughly 5 miles in extent, dries over its greater part. This bight is enclosed by a dam and access is obtained through a lock situated at the harbor of Oort, 4 miles SE of the SW end of Schiermonnikoog; however, only small vessels can be handled.

Schiermonnikoog (53°30'N., 6°15'E.), an island located 5.5 miles E of Ameland, has sand dunes standing on its W and N sides.

A light is shown from a prominent tower, 43m high, standing at the W end of the island. A water tower, formerly a light tower and similar in appearance to the one presently in use, and a large resort hotel stand in the vicinity of the light. The E part of the island is formed by a sandbank on which stands a beacon with a diamond topmark.

Schiermonnikoog Light

The village of Oosterburen, with a small tower, stands on the SW end of the island. A landing stage is situated here for the ferry boat which runs to Oostmahorn.

Schiermonnikoog Radar Surveillance Station (53°29'N., 6°08'E.) provides radar surveillance services for the Terschelling-German Bight Traffic Separation Scheme. The station also functions as a Search and Rescue Operations Center with overall responsibilities of the Netherlands Coastguard Rescue Coordination Center as Den Helder. Inbound vessels must report to the Traffic Station Schiermonnikoog on VHF channel 5 when passing position 53°32.0'N, 6°03.2'E,). This requirement is for inbound vessels only.

Caution.—Several platforms and submarine pipelines are situated in the vicinity of the approaches to Frieshe Zeegat and may best be seen on the chart.

The Ems Estuary

8.10 The **River Ems** (53°36'N., 6°21'E.), the westernmost of the German rivers, discharges into the sea through a wide estuary which lies between the island of Schiermonnikoog, on the W side, and the island of Juist, 21.5 miles ENE.

The estuary is fronted by extensive shoal banks which extend up to about 6 miles seaward from the outer islands. Its outer part is divided into the Westerems and the Osterems by the German island of Borkum and Randzel, a large drying flat.

The principal entrance channel, Westerems Channel, lies within the Westerems.

The channels from both sides of the estuary meet and enter the river proper between the Netherlands coast of Groningen and the German coast of Ostgriesland. Der Dollard, a large drying bay, lies in the Ems, 21 miles SE of Borkum. The river above Der Dollard narrows to a width of less than 0.5 mile.

The Netherlands ports of Eemshaven and Delfzijl are located on the Groningen coast and the German port of Emden is located on the Ostfriesland coast, at the N side of Der Dollatd. Both ports are connected to the extensive inland waterway system. In addition, the small German ports of Leer and Papenburg are located in the narrow part of the river, 16 and 22 miles, respectively, above Emden.

The border between Germany and the Netherlands lies close SW of Borkum and in the SE part of Der Dollard.

Borkum Riffgrund (53°53'N., 6°15'E.), an extensive bank with depths of 18 to 36m, lies between 8 and 45 miles NW of Borkum. This bank is not to be confused with Borkumriff, the shore bank which fronts the NW side of Borkum and separates the channels of the Westerems from the Osterems. Borkum Riffgrund can be distinguished from the inshore banks by the nature of its bottom which consists of very coarse pebbly sand, spreckles, gravel, and shells. Soundings on this bank are very useful in ascertaining the position of a vessel.

Westerems Channel, the main approach into the estuary, lies between Borkumriff and the easternmost islands of the West Friese Eilanden group. Above the confluence of the Westerems Channel and Hubertgat Channel, off the W side of Borkum, the main fairway in the estuary leads SE through the channels of Randzelgat and Dukegat into Ostfriesisches Gatje and then to the ports of Delfzijl and Emden.

Alte Ems, lying nearly parallel to and SW of Randzelgat, and Emshorn Fahrwasser, lying nearly parallel to and NE of Dukegat, are deep secondary channels which lead towards Ostfriesisches Gatje.

The outer end of the extensive drying flats, which front the Groningen coast, lies between the E end of Schiermonnikoog and a position 2.5 miles SW of Borkum. On this outer end are the sandy islands of Simonszand, Rottumerplaat, Boschplaat, and Rottumeroog, located in that general order from W to E. Sand dunes stand on Rottumerplaat and Rottumeroog, the two larger islands. Boschplaat, which lies close S of Rottumerplaat, has a refuge shelter and a beacon standing on it. A house and a prominent framework beacon, 25m high, stand on Rottumeroog.

The shore bank, which fronts the seaward side of Rottumerplaat and Rottumeroog, is steep-to and forms the S side of Hubertgat. It extends 0.5 to 1.5 miles from these islands.

Several shallow channels, suitable only for small craft with recent local knowledge, lead between these islands to the inner waters. The fairways within these channels are marked, in places, by buoys and perches.

8.11 **Borkum** (53°35'N., 6°40'E.), the westernmost island of the Ostfriesische Inseln, has sand dunes up to 18m high standing on its N and W sides, but is low in its central part. The town of Borkum, a resort, is situated at the W end of the island. In addition to the light, the town can be identified by its large hotel buildings, a church, a water tower, and two disused light towers.

Borkum Great Light (Borkum Grosser Light) (53°35'N., 6°40'E.), a light providing directional sectors for the Westerems Channel, is shown from a prominent brick tower, 60m high, standing on the W coast of Borkum. A disused light tower is located 0.3 mile E of this light.

A conspicuous disused light tower, 27m high, stands 0.6 mile S of Borkum Great Light. This tower (Borkum Little) formerly provided directional sectors for the Hubertgat Channel.

Borkum Great Light

Borkum Little Disued Light Tower

A number of prominent beacons also stand on the island and may best be seen on the chart.

Borkumriff (53°36'N., 6°37'E.) extends up to 4.5 miles NW and 9 miles WNW from this island. Irregular depths and some drying patches may be found on this shore bank.

Borkum Hafen (53°34'N., 6°45'E.), a small harbor, is located at the SE end of the island and has a projected depth of 7m at HW. It consists of two basins, Schutzhafen and Kleinbahnhafen, and is entered from Randzelgat through Fischerbalje, a narrow entrance channel, marked by buoys.

Schutzhafen, the larger of the two basins, has an entrance 70m wide and provides berths for coastal vessels and fishing boats with drafts up to 5m. Berths on the E side of the basin are reserved for navy vessels with drafts up to 7.3m.

It is reported that depths at the entrance and within Schutzhafen may be less than charted due to silting and irregular dredging.

Kleinbahnhafen has an entrance 65m wide and can be used by vessels with drafts up to 3m. This basin is used principally by small coastal vessels ferrying passengers and freight to the light railroad which runs to Borkum.

Fischerbalje Light (53°33.2'N., 6°43.0'E.) is shown from a prominent structure, 16m high, standing on the extremity of the training wall which extends along the N side of the channel.

Fischerbalje Light

Caution.—Caution must be observed when entering the entrance channel and harbor of Borkum Hafen with a strong SW wind and a flood tide.

8.12 Westerems Channel (53°38'N., 6°24'E.), the main entrance fairway, is entered 7.5 miles N of the E end of Schiermonnikoog. It leads ESE to the N part of Randzelgat where it is joined by Hubertgat. Borkumriff lies on the N side of this channel and Rottumer Bult, Ballon Plate, and Hubert Plate lie on the S side. Several wrecks and areas of foul ground lie in the vicinity of the fairway, but have swept depths in excess of 10m.

Westerems Fairway Lighted Buoy (53°39.3'N., 6°16.3'E.) is moored 10 miles NE of Schiermonnikoog Light and marks the entrance to this channel.

The fairway, which is marked by lighted buoys, has a dredged depth of 13.1m, which is reduced to 12.9m at the E end, near the junction with Randzelgat. However, lesser depths may be encountered due to temporary silting.

Hubertgat (53°35'N., 6°20'E.), a secondary channel, lies about 4.5 miles N of Schiermonnikoog. It leads between the coastline fronting Rottumerplaat and Rottumeroog, on the S side, and the detached coastline comprised of Rottumer Bult, Ballon Plate, and Hubert Plate, on its N side. Horsborn Plate, a detached shoal bank, lies at the E end of this channel. Numerous unmarked wrecks lie in the vicinity of this channel, but those lying within or near the fairway have formerly been swept to depths in excess of 10m. The fairway, which is marked by buoys, leads E for about 12 miles. It then passes over Horsborn Plate into the N part of Randzelgat.

Hubertgat Fairway Lighted Buoy (53°35'N., 6°14'E.) is moored about 6.5 miles NE of Schiermonnikoog Light and marks the entrance to this channel.

It is reported that the fairway is no longer maintained by dredging and severe silting has taken place. A least depth of 8.3m is reported to lie in the fairway in the vicinity of Horsborn Plate. Vessels are advised to contact the Ems Traffic VTS Center for the latest information concerning depths.

Riffgat (53°39'N., 6°28'E.), a secondary channel which leads into the Westerems Channel, is entered about 5 miles N of the central part of Rottumerplaat. It is marked by buoys and leads between Brokumriff and a shoal patch, known as Geldsack Plate, lying close W. The entrance to this channel is marked by Riffgat Lighted Buoy (53°39'N., 6°27'E.), which is moored 9.5 miles NNE of the E end of Schiermonnikoog. The fairway is reported to have a least depth of about 6m, but the depths over the outer bar are subject to frequent large changes and deep-draft vessels are advised against using this channel.

Osterems (53°38'N., 6°47'E.), the E approach channel, is marked by buoys and entered between Borkum and the islands of Juist and Memmert. It is of little importance and suitable only for small vessels with local knowledge. Although there are depths of 4 to 18m within the channel, the fairway leading to the Ems is restricted by a bar at its S end, which has a depth of only 0.9m. The channel does provide access, through several small branches, to the small harbors of Greetsiel and Norden, which are located on the Ostfriesland coast. The entrance to the channel is marked by a fairway lighted buoy, which is moored 7 miles NNW of Borkum Great Light.

Ice.—The channels in the estuary seldom freeze over completely, but during severe winters, there is a considerable amount of drift ice in these waters. The winds and tidal currents have a great effect on the formation and movement of this ice. Generally, winds drive the ice to the leeward side of the channels and the windward sides are occasionally completely free. The wind influence usually prevails over that of the currents and it is only during gentle breezes that the currents can move the ice against the direction of the wind.

In Emshorn Plate, the greatest packing of drift ice occurs at LW. With a rising tide, the ice is carried into the Ostfriesisches Gatje and forms, especially with W winds, a solid pack which can be an obstacle to navigation. At this time, it is advisable not to enter the estuary without the help of icebreaker vessels which are normally available on request. During severe winters, vessels enter through the ice in convoys with the help of icebreakers; however, the lighted fairway buoys are removed and navigation is possible only during daylight hours.

The estuary is free of ice for about 30 per cent of winters. In the Westerems and the Randzelgat, the first ice may appear as early as the third week of December or as late as the latter part of January. In these same waters, the ice may disappear as early as the middle or latter part of January or as late as the latter part of March; on the average, it is gone by the middle of February. In extreme cases, the first ice was observed as early as the first week of December and the last ice as late as the third week of March.

During severe winters, the ice formation may impede low-powered vessels, but seldom does it prevent navigation on the river.

Tides—Currents.—Normally, the tides rise, at the entrance of the Hubertgat Channel, about 2.6m at springs and 2.2m at neaps. Off Knock (53°20'N., 7°01'E.), the tides rise about 3.3m at springs and 3m at neaps.

The direction, force, and duration of the winds greatly affect the direction and rate of the tidal currents and the rise and fall of the water level. With winds from the S to E, particularly SE winds, the rise of the tide may be reduced; whereas, with winds from W to N, particularly NW winds, the rise of the tide may be increased. At Emden, the highest reported HW was 3.9m above the MHW level and the lowest reported HW was 2.6m below the MHW level.

Seaward of the banks lying in the entrance of the estuary, the E current sets from about 5 hours 30 minutes before HW at Delfzijl to about 30 minutes after HW. It increases in force gradually and, under normal conditions, attains a maximum rate of about 1 knot, at about 3 hours before HW, before diminishing gradually. During stormy weather, this current attains a rate of 2 knots. Slack water lasts until about 1 hour after HW, at which time the W current begins to set. This current increases to a maximum rate of about 1 knot, at about 4 hours 30 minutes after HW, and then gradually diminishes again. During stormy weather, it attains a maximum rate of 1.8 knots.

In the Hubertgat channel, the E or incoming current first sets towards the openings between the islands E of Schiermonnikoog; however, when it gains strength it sets more in the direction of the channel.

In the Westerems channel, the E current sets generally in the direction of the channel and is strongest in the deepest depths. Both currents join off Borkum and set SE through Randzelgat and up the Ems, taking the direction of the channels. Generally, the W or outgoing current sets in the opposite direction to the incoming current.

Within Hubertgat and the Westerems channels, the mean rate of the currents, in both directions, is 1 to 1.5 knots. In the Dukegat channel, in the N entrance to Bocht van Watum, and near the harbor of Emden, the currents may attain rates of 2 to 3 knots at springs.

Depths—Limitations.—Vessels with draft up to 13.7m can reach the anchorage at Dukegat Reede at HW. It is reported that vessels up to 92,600 dwt, 258m in length, 36m beam, and 13.7m draft have used this lightening anchorage area prior to proceeding to Emden.

Pilotage—Pilotage is compulsory for the following:

1. River Ems (German section):
   a. Tankers carrying gas/chemicals/petroleum/petroleum products in bulk, or unloaded tankers, if not cleaned, degassed or completely inerted after having carried petroleum/petroleum products or chemicals with a flashpoint below 35°C.
   b. Other vessels of 90m LOA and over, or 13m beam and over, or 6m draft and over.
2. River Ems (Netherlands section):
   a. Tankers carrying gas/chemicals/petroleum/petroleum products in bulk, or unloaded tanker, if not cleaned, degassed or completely inerted.
   b. Vessels carrying certain dangerous goods.
   c. Other vessels: Westerems to Borkum: Over 150m LOA (car ferries over 120m LOA), or over 25m beam (car ferries over 20m beam), or over 7m draft.
   d. Other vessels: Borkum to Eemshaven: Over 90m LOA or over 13m beam or over 7m draft.
   e. Other vessels: Borkum to Delfzijl: Over 90m LOA or over 13m beam or over 6m draft.

Pilot ordering Procedures:

1. Inbound vessels should send requests for pilots at least 12 hours before arrival at the pilot boarding position

2. Outbound vessels should send requests for pilots as follows:
   a. At least 4 hours before departure from ports or berths in the Ems.
   b. For all departures between 2100 and 0700 requests should be sent before 1800.
3. Requests should include the following information:
   a. Vessel name, call sign, length, beam and gt.
   b. Pilot boarding position.
   c. ETA/ETD at/from Pilot boarding position.
   d. Destination of pilotage required.
   e. Actual draft on arrival/departure (in decimeters).
   f. Indication whether transfer by PV (pilot vessel) or by helicopter.
   g. Port of destination.
   h. Port of departure.
   i. Freeboard and distance from pilot door to the waterline.

Pilot boards in the following positions:

1. At Lighted buoy GW/TG (53°59.26'N 6°21.35'E). Vessels should state whether helicopter or Pilot Vessel boarding is required.
2. At position 53°39'.3N., 6°16'.3E.).

The German pilot vessel (Kapitan Bleeker) is painted black with the word "LOTSE" in white letters on both sides of the hull. The vessel has a yellow stack with a black rim and flies the German pilot flag (national flag with a white border) from the fore mast. At night, for identification, this vessel shows a long flash by searchlight every few minutes.

The Netherlands pilot vessel is painted black with the word "PILOT" in white letters on both sides of the hull. The vessel has a black stack and flies a blue flag with a white letter "L" from the aft mast. At night, for identification, this vessel shows short flashes for periods of 20 seconds at intervals not exceeding 5 minutes.

See the table titled **Ems—Pilot Contact Information** for pilot contact information. Contact is available 24 hours.

Regulations.—Extraordinarily Large Vessels on the River Ems are defined as those exceeding 290m in length, 45m beam, and 13.72m draft inbound, or 13.41m outbound, transiting from sea to Dukegat; those exceeding 260m in length, 40m beam, and 10.67m draft inbound, or 10.36m outbound, transiting between Dukegat and Emden; those exceeding 160m in length, 21m beam, and 5.9m draft inbound, or 5.5m outbound, transiting between Emden and Leerort; and those exceeding 120m in length, 18m beam, and 5.9m draft inbound, or 5.5m outbound, transiting between Leerort and Papenburg.

Such vessels are tide dependent and entry is allowed only if the maintained projected depths exist.

Ems—Pilot Contact Information

	Pilot Station (Inbound)	Pilot Station (Outbound)	Pilot Office
Call sign	Emden Pilot	Emden Pilot	—
VHF	VHF channel 9	VHF channel 12	—
Telephone	49-4922-92358936	49-4921-24000	49-4921-5821110
Facsimile	49-4922-92358937	49-4921-32919	49-4921-5821119
E-mail	borkumstation@emspilots.de	pilotstation@emspilots.de	—

All Extraordinarily Large Vessels, high speed vessels, air cushion vehicles, and unusually large tug formations must obtain permission from the Water Police Authority at Emden 24 hours in advance of arrival at the pilot boarding position.

Oil, gas, and chemical tankers (including towed units), which are carrying hazardous goods in bulk or have done so but are not certified gas-free, are permitted to enter the River Ems only when the visibility is 1,000m or more and navigate the river only when the visibility is 500m or more. Such vessels may enter with permission of the Ems VTS.

See Regulations under the River Ems in paragraph 8.13 for additional requirements applying to liquid gas tankers.

Vessel Traffic Service.—See Vessel Traffic Service (paragraph 8.5) under Approach Routes to the German Bight for information concerning the Vessel Traffic Service (VTS) system applying to vessels navigating within the approaches to German Bight and proceeding to the River Ems, the River Jade, the River Weser, or the River Elbe.

Die Ems Vessel Traffic Service (Die Ems VTS) operates in the River Ems and is mandatory for the following:

1. Vessels of 50m in length and over inbound from the German Bight.
2. Vessels of 40m in length and over within the local VTS area.
3. Vessels carrying dangerous cargo in bulk (gas, chemicals, petroleum, or petroleum products).
4. Nuclear-powered vessels.

Vessels must send reports, as follows:

1. An ETA must be sent to VTS Center Ems Traffic at least 24 hours before transiting the river or on departure from the last port.
2. A Sailing Plan (SP1) must be sent to VTS Center Ems Traffic on VHF channel 18 when approaching The Ems from N or E, as follows:
   a. Crossing latitude 54°00'N.
   b. Crossing the longitude of GW/TG Lighted Buoy (6°21.4'E.).
   c. Crossing the longitude of TG/B Lighted Buoy (7°00.3'E.).
3. A Sailing Plan (SP2) must be sent to VTS Center Ems Traffic on the appropriate VHF channel, if not already reported by an SP1 to German Bight VTS Center (see paragraph 8.5), as follows:
   a. Before entering the local VTS area from sea.

b. Before entering the VTS area from a harbor or berth within the VTS area.

4. Deviation Reports (PR) or Incident Reports (IR) must be sent as necessary to VTS Center Ems Traffic on the appropriate VHF channel.

5. Position Reports (PR) must be sent to VTS Center Ems Traffic on the appropriate VHF channel (see below) when entering the VTS area, when entering or leaving a lock or berth, and, on VHF channel 15, when passing the following reporting points (RP):

a. RP 1—No. 72 Lighted Buoy.

b. RP 2—Papenburg.

The format for the SP and RP can be found under Vessel Traffic Servicel (paragraph 8.5) under Approach Routes to the German Bight.

Vessels should also report on the appropriate VHF channel when intending to use one of the following roadsteads:

1. Emden Roads—VHF channel 21.
2. Dry cargo unloading area in Alte Ems—VHF channel 18.
3. Alte Ems Tanker Roadstead—VHF channel 18.
4. Gas Tanker Roadstead—VHF channel 20.

Other vessels may also use the Alte Ems Tanker Roadstead and the Gas Tanker Roadstead with prior permission of Emden Traffic Control, through VTS Ems on VHF channel 18 or 20.

Vessels over 50m in length bound for Emskai or Emden Harbor may navigate on the port side of the channel from No. 68 Lighted Buoy and No. 69 Lighted Buoy as long as Ems Traffic Control is informed immediately on VHF channel 21. Exceptions to the right-of-way prohibition requires agreement by the Traffic Center on VHF channel 20 or 21.

Vessels entering the local VTS area must use and maintain a continuous listening watch on the appropriate VHF channel of VTS Center Ems Traffic, or on VHF channel 16, as follows:

1. No. 1 Lighted Buoy to No. 35 Lighted Buoy (Westerems/Randzelgat)—VHF channel 18.
2. H1 Lighted Buoy to A5 Buoy (Hubertgat)—VHF channel 18.
3. A5 Buoy to No. 35 Lighted Buoy (Alte Ems)—VHF channel 18.
4. No. 35 Lighted Buoy to No. 57/Oterdum-Reed Buoy—VHF channel 20.
5. No. 57/Oterdum-Reed Buoy to No. 86 Buoy—VHF channel 21.
6. No. 86 Buoy to Papenburg—VHF channel 15.

Radar advice is provided on request or if instructed by the VTS Center (in German or English) on the appropriate VHF channel. The request should include the name of the vessel, call sign, and position. The service is provided when visibility is less than 2,000m, when the pilot vessel is located in a sheltered position, when buoys are withdrawn due to ice, when required by a traffic situation, and when requested.

Borkum radar station covers the area from No. 1 Lighted Buoy to No. 35 Lighted Buoy and can be contacted on VHF channel 18; Knock radar station covers the area from No. 35 Lighted Buoy to No. 57 Lighted Buoy and can be contacted on VHF channel 20; and Wybelsum radar station covers the area from No. 57 Lighted Buoy to Emden and can be contacted on VHF channel 2.

Traffic information is broadcast at 50 minutes past every hour on VHF channels 15, 18, 20, and 21.

Die Ems VTS may be contacted, as follows:

1. Telephone: 49-4927-1877281
   49-4927-1877282
2. Facsimile: 49-4927-1877287
3. E-mail: vts-ems@emd.wsv.bund.de

A local Vessel Traffic Service (VTS) system also operates within the roadsteads of Eemshaven and Delfzijl harbors. This system is mandatory for all ocean-going vessels. It is managed by the Harbor Coordination Center (HCC), which has a direct line of communication with the River Ems VTS (Die Ems VTS).

For more information, see paragraph 8.15.

Directions.—See Approach Routes to the German Bight in paragraph 8.4 for information concerning the Traffic Separation Schemes (TSS) and Deep-Water Routes situated in the approaches to the River Ems estuary.

When approaching from the N, vessels may pass through the TSS by way of Borkumriff Lighted Buoy (53°47'N., 6°22'E.), which is moored 11 miles N of the entrance to Westerems.

The main fairways within the River Ems are marked by lighted buoys, sector lights, and lighted ranges which may best be seen on the chart. Radar lines, which indicate the mid-channel tracks through the main fairways, are also shown on the chart.

Caution.—Numerous wrecks lie in the approaches and entrance to the estuary and may best be seen on the chart. Generally, wrecks lying in the vicinity of the entrance channels have been swept to depths in excess of 9m; most are marked by buoys.

Several National Park Wildlife Sanctuaries, the limits of which are shown on the chart, are situated along the banks adjacent to the estuary. Entry into these areas is restricted.

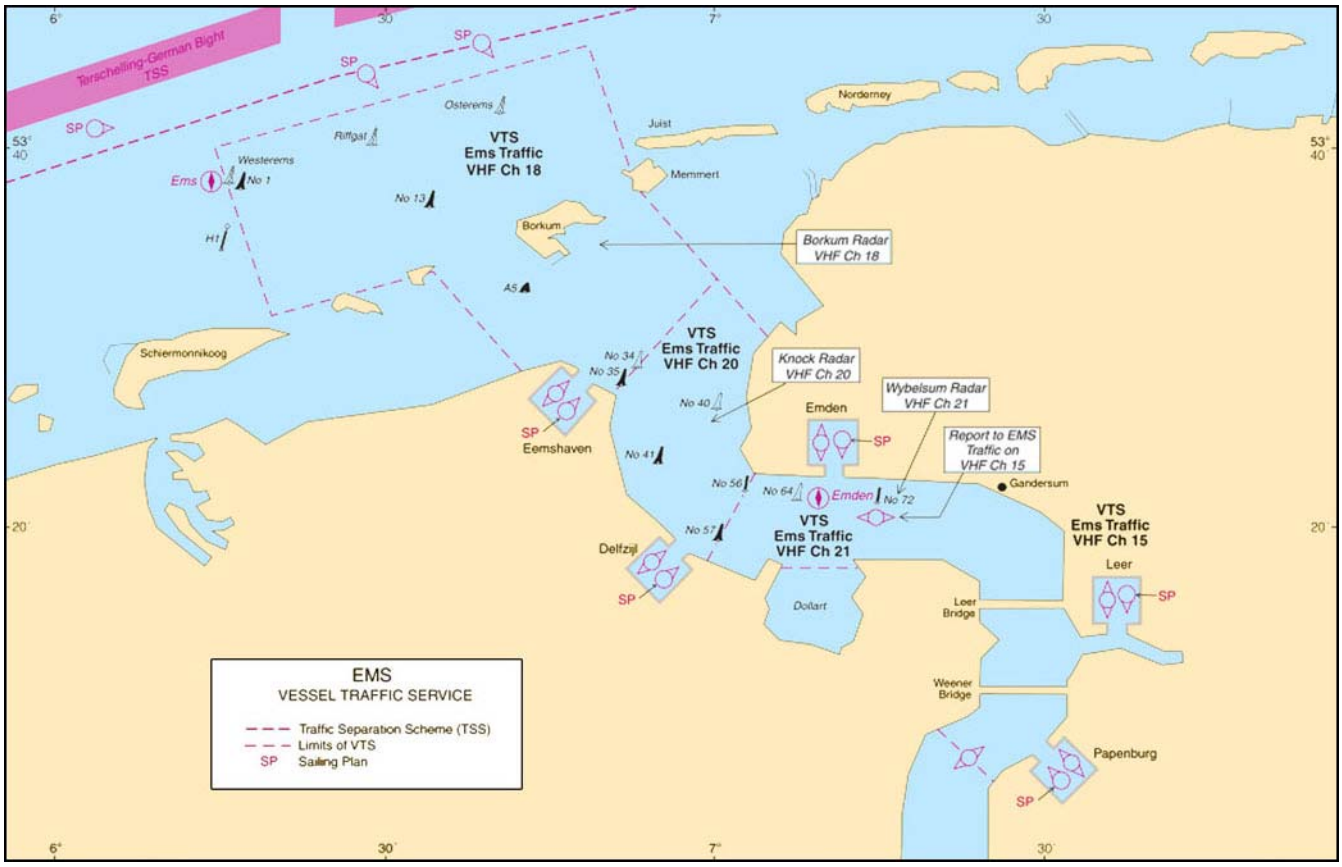
Several submarine pipelines and cables lie in the approaches and within the estuary and may best be seen on the chart.

Due to the existence of ground mines within Westerems, which were disarmed but not cleared, caution is necessary when anchoring or fishing.

Not all water areas in the approaches have been swept for mines; however, the mine danger for surface navigation is currently not considered to be greater than other dangers to marine traffic.

During gales from W to NW and especially with a falling tide, heavy seas may be encountered within the Westerems Channel. In addition, during onshore winds, breakers may occur on the shoal areas in the vicinity.

The Trianel Wind Farm lies about 23.8 miles NW of Juist Island, and about 24.3 miles NE of Friesian Island of Borkum.The German Hydrographic Agency has extended the common safety Zones to 500m away from the center of the Trianel Windpark Borkum wind farm, the DolWin Alpha Platform, and the DolWin Gamma converter platform. These are located within the German Exclusive Economic Zone (EEZ) in the North Sea. While only the first 40 windmills have been established to this point, the second instillation phase has plans for another 40 windmills to be added. These windmills are anchored in the mud to a depth of about 25 to 35m.



Ems VTS Zones and Pilot Stations

Campen Light

The River Ems

8.13 Randzelgat (53°34'N., 6°40'E.) is the continuation of the main fairway up the river. It leads SE from the confluence of Hubergat and the Westerems Channels, off the W side of Borkum, to the junction with Dukegat. The extensive drying bank of Randzel lies on the NE side of this channel and the shoal bank of Mowensteert lies on the SW side.

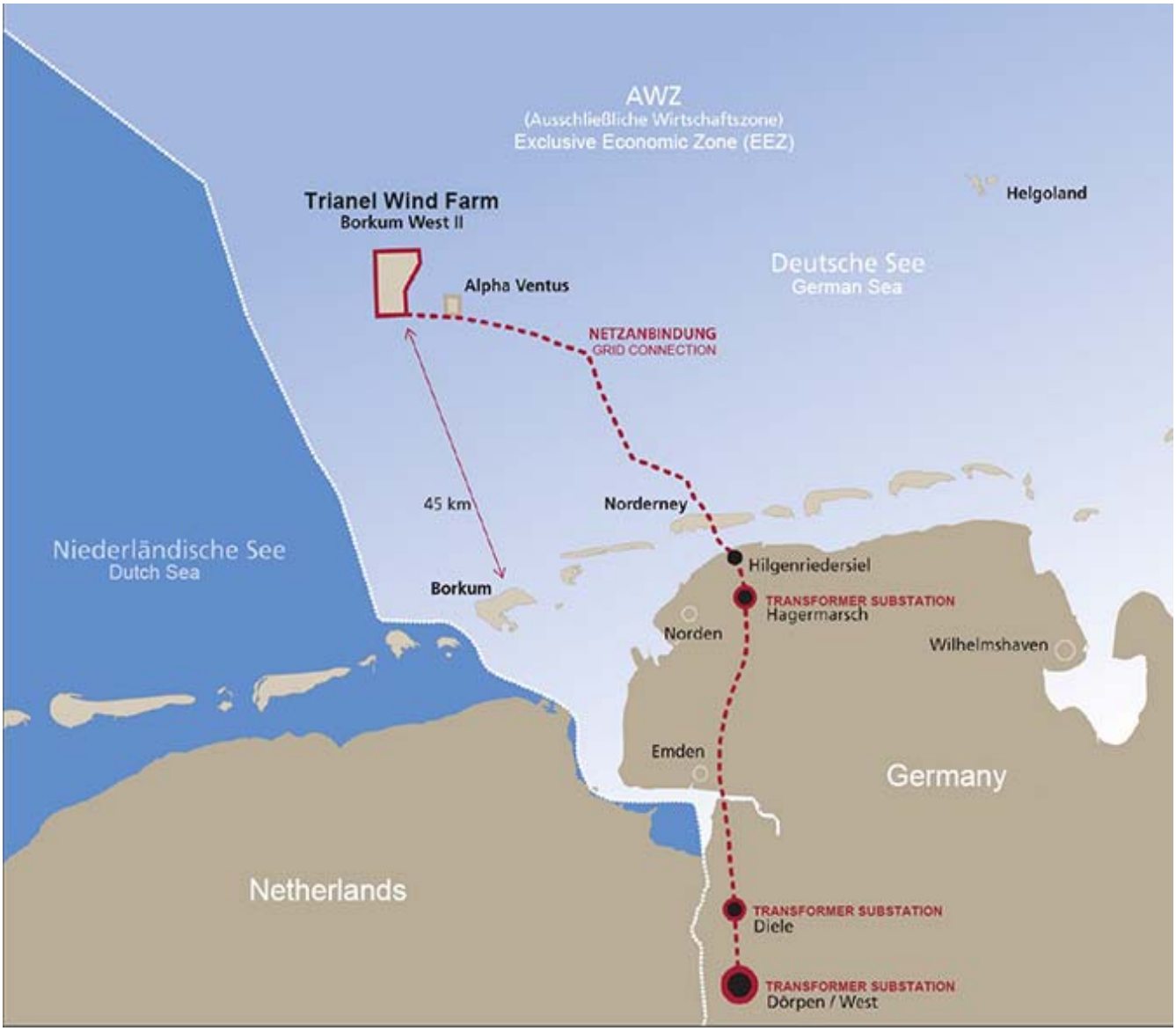
The fairway in the channel, which is marked by lighted buoys, has dredged depths of 12.8m at the W end and 10m at the SE end.

Alte Ems (53°31'N., 6°41'E.), a secondary channel, is marked by buoys and is separated from Randzegat by Mowensteert, a shallow shoal bank. This channel, which was formerly the main channel, is entered from the N part of Randzelgat and leads SE into Dukegat. The fairway is fairly deep, but is subject to frequent depth changes. Anchorage berths lie within this channel.

Caution.—Two hazards (mines) marked by buoys have been located near the N edge of the channel. One is marked by a lighted buoy (S cardinal) (53°35.8'N., 6°36.7'E.) and is NW of No 16 lighted buoy. The second mine is ESE of No 22 lighted buoy (53°31.4'N., 6°45.9E.) and is marked by a lighted buoy (W cardinal).

Dukegat (53°28'N., 6°52'E.) leads SE from Randzelgat between Emshorn Plate, on its NE side, and Robben Plate and Hundsteert, on its W and S sides. It is divided by Dukegat Plate, a narrow shoal area which lies in mid-channel. The main fairway, which is marked by lighted buoys, leads SW of this shoal area and has a dredged depths of 10m at the N end and 9m at the S end. This channel leads into the N part of Ostfriesisches Gatje.

Ostfriesische Gatje (53°23'N., 6°58'E.), dredged to a depth of 9m, leads SSE from the S end of Dukegat to a position close S of Knock (53°20'N., 7°01'E.). From here, vessels may proceed SSW into the port of Delfzijl or E, through Emder Fahrwasser, to the port of Emden. Within this main fairway, deep-draft vessels have the right of way over light-draft vessels.



Trianel Windpark Borkum

Aspect.—Campen Light (53°24'N., 7°01'E.), a directional light, is shown from a framework tower, with a central column, standing on the E side of the channel. The tower is 65m high and very conspicuous.

A conspicuous burn-off flare surmounts a chimney, 74m high, which stands in the vicinity of a gasworks, 2.7 miles S of Campen Light.

A prominent disused light tower, 11m high, stands at Pilsum, 5.6 miles N of Campen Light.

Regulations.—Below are extracts from the German river special regulations concerning navigation of liquid gas tankers in the River Ems.

An escort by the Water Police is required by the following liquid gas tankers:

1. Vessels with load capacity between 5,000 and 20,000m3 from No. 44 Lighted Buoy to Emden.
2. Tide dependent vessels with cargo exceeding 20,000m^3 from No. 26 Lighted Buoy to Emden.

The following rules apply to liquid gas tankers exceeding a load capacity of 2,500 cubic meters:

1. Vessels must enter and depart through Westerems Channel.
2. Two VHF radios must be operable and capable of communications with Ems radar stations and other ships.
3. Vessels with the right-of-way and oil, gas, and chemical tankers proceeding in the same direction must not enter a safety zone extending 2 miles ahead or astern of the liquid gas tanker.

The following rules apply to liquid gas tankers exceeding a load capacity of 30,000 cubic meters:

1. Two pilots must be employed and the vessel must accept radar assistance from the radar stations.

2. In addition to the two previously-mentioned VHF radios, the vessel must be equipped with two radars, one electric log, and one engine revolution indicator, which are all serviceable.
3. Between No. 10 Lighted Buoy and No. 30 Lighted Buoy, speed is limited to a maximum of 14 knots; then to No. 57 Lighted Buoy, speed is limited to a maximum of 12 knots.
4. A minimum of two tugs must be secured for the passage between No. 57 Lighted Buoy and Emden.
5. Entry into Emden is prohibited during the first 3 hours and 30 minutes of the incoming tidal current.

The following additional rules apply to liquid gas tankers loaded with a cargo exceeding 30,000m3:

1. The draft must not exceed 10.22m.
2. Tugs must be secured at No. 30 Lighted Buoy.
3. A vessel inbound must have passed No. 57 Lighted Buoy at least 1 hour before HW at Emden.

Additional traffic regulations apply to liquid gas tanker proceeding above No. 46 Lighted Buoy and No. 47 Lighted Buoy (Gatjebogen).

Pilsum Disued Light Tower

Anchorage.—Borkum Reede (53°33'N., 6°41'E.), a designated anchorage area, lies on the S side of the main fairway in Randzelgat and has depths of 15 to 19m.

Vessels with drafts suitable to enter Osterems may anchor, in depths of 13 to 18m, within an area lying on the N side of Borkum, in Voorentief.

A large designated anchorage area lies in Alte Ems (53° 30'N., 6°45'E.) and has depths of 10 to 13m. The NW section, known as Alte Ems Reede, is a general anchorage; the central section is an explosives anchorage; and the SE section is a tanker anchorage. The SE section may be used on request by vessels other than tankers.

Dukegat Reede, a designated anchorage area, lies in the SE part of Alte Ems and has depths of 11 to 15m. It is used as a transshipment and lightening anchorage.

Due to the changeable depths in the N part of Alte Ems, vessels generally approach the anchorages in this vicinity from S via Westerems Channel and the main fairway in Randzelgat. This route has a least depth of 12.5m as far as the designated anchorages in Alte Ems.

Vessels with draft up to 13.7m can reach Dukegat Reede at HW. It is reported that vessels up to 92,600 dwt, 258m in length, 36m beam, and 13.7m draft have used this lightening anchorage area prior to proceeding to Emden.

Gas Tanker Anchorage (53°25'N., 6°57'E.), a designated area, lies on the E side of the main fairway in Ostfriesische Gatje. It has depths of 8 to 11m and is used by gas tankers with a length less than 230m and a draft less than 7m.

The limits of the above anchorage areas are marked by buoys and may best be seen on the chart.

Caution.—High speed craft operate between Borkum and Emden.

Depths within the channel outside of the main fairway change frequently.

Between Emden and Leerort (53°13'N., 7°26'E.), numerous fishing nets are placed between stakes, clear of the main fairway, from the middle of March to May, annually.

A ferry crosses the river near Ditzum (53°20'N., 7°16'E.).

8.14 Eemshaven (53°27'N., 6°50'E.) (World Port Index No. 30985) is located on the S shore of Dukegat channel. The harbor consists of an entrance channel and three tidal basins.

Tides—Currents.—Tides rise about 3m at springs and 2.7m at neaps.

Depths—Limitations.—Doekgatkanaal, the entrance fairway, leads between two breakwaters and has a dredged depth of 8.7m.

Wihelminahaven, the basin on the E side of the harbor, is 600m long and has depths of up to 15m. Julianahaven, the basin on the W side, is 1,200m long and has depths up to 13.1m. Emmahaven, another basin on the W side, is 500m long and has depths up to 8.1m.

There are facilities for tanker, LPG, chemical, ro-ro, passenger, bulk, container, general cargo, ferries, and offshore oil and gas exploration support vessels. Vessels up to 40,000 dwt, 250m in length, and 10.5m draft can be accommodated. An underkeel clearance of 10 per cent is required.

Aspect.—The entrance fairway is indicated by lighted ranges which may best be seen on the chart.

A conspicuous chimney, 128m high, stands on the shore at a power station, about 2 miles SE of the harbor entrance.

A prominent radar tower, 38m high, stands on the S breakwater of a small intake basin, close N of the above chimney.

Eemshaven

Pilotage.—See Pilotage for the River Ems (paragraph 8.12).

Regulations.—Vessels over 230m in length and/or with a draft of 10m or more, when navigating in the approaches of the port, are required to display the appropriate shape or lights for vessels constrained by their draft as per Rule 28 of the International Regulations for Preventing Collisions at Sea (1972).

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates in the roadstead approaches and main fairways of Eemshaven and Delfzijl harbors. For more information, see Regulations for Delfzijl in paragraph 8.15.

Caution.—The dredged entrance fairway has sides which shoal steeply and vessels are recommended to remain strictly on the alignment of the lighted ranges.

Depths within the harbor basins may be less than charted due to irregular dredging.

Delfzijl (53°20'N., 6°56'E.)

World Port Index No. 30990

8.15 The port of Delfzijl is located on the SW side of the Ems and provides access, via a lock, to Eemskanal, which leads 14 miles WSW to Groningen. Coasters and small craft can enter the inland waterway system at Groningen and reach the S part of the Netherlands and the Rhine.

Tides—Currents.—Tides rise about 3.5m at springs and 3.2m at neaps.

The tidal currents frequently set strongly near the harbor and squarely across the entrance.

Delfzijl

Depths—Limitations.—The main harbor consists of two basins which are situated 2.7 miles W of the entrance. Paapsund Sud leads from the main river fairway into Zeehavenkanaal. This short channel has a least depth of 7.3m. Zeehavenkanaal, protected by a breakwater on its N side, then leads to the basins. This narrow channel has a least depth of 10m.

Several private factory jetties are situated along the S side of Zeehavenkanaal. They have depths up to 9.9m alongside and can handle vessels up to 200m in length. Handelshaven has depth of 7 to 8.9m alongside. This basin provides 570m of berthage at its W side and has a main quay, 650m long, at its NE side. There are also facilities for offshore oil and gas exploration support vessels.

Damsterhaven is entered from the W side of Handelshaven. The entrance is spanned by a movable bridge and can be used only by vessels with a beam of 10.5m or less. The basin has 140m of berthage with a depth of 4.4m alongside.

Vessels up to 220m in length and 9m draft can be accommodated within the harbor. An underkeel clearance of 10 per cent is required.

The locks providing access to the Eemskanaal are situated on the S side of harbor. Vessels up to 120m in length, 16m beam, and 5.2m draft may enter and transit the canal to Groningen.

Oosterhornhaven, an inner harbor at Delfzijl, is entered from the canal and contains a number of private industrial berths. It can handle vessels up to 75m in length, 12.5m beam, and 4.5m draft.

Aspect.—The entrance fairway is indicated by a lighted range which may best be seen on the chart.

A very conspicuous silo, with a conveyor, stands on the S side of Zeehavenkanaal, 1 mile W of the port entrance.

A light is shown from Knock Radar Tower, which stands on the N side of the Ems, 1.5 miles NNE of the port entrance. This conspicuous tower is 55m high and is surmounted by a spherical scanner.

Knock Radar Tower (Light)

Pilotage.—Pilotage is compulsory for the following:

1. Tankers carrying gas, chemicals, petroleum, petroleum products in bulk, or unloaded tanker, if not cleaned, degassed or completely inerted.
2. Vessels carrying certain dangerous goods.
3. Other vessels from Westerems to Borkum: over 150m in length (car carriers over 120m in length), or over 25m beam (car carriers over 20m beam), or over 7m draft.
4. Other vessels from Borkum to Eemshaven: over 90m in length or over 13m beam or over 7m draft.
5. Other vessels from Eemshaven to Delfzijl: Over 90m in length or over 13m beam or over 6m draft.

Notice of ETA: Vessels should send ETA at least 12, 6, 4 and 2 hours prior to arrival at Westerems Light buoy (53°37.0'N., 6°19.5'E.).

1. The 4 hour ETA should be confirmed to Delfzijl Pilot Station using VHF channel 19.

2. The 2 hour ETA should be confirmed with the pilot vessel using VHF channel 6.
3. Any change of ETA greater than 1 hour should be reported at least 6 hours prior to arrival.
4. ETA messages should contain IMO Reporting Codes: A, B, I, J, O, T, U, and X (see Sectors 8.3 and 8.6 for tables on Code definition).
5. Vessels should request a pilot at least 4 hours prior to departure.
6. ETD message should contain IMO Reporting Codes: A, B, I, O, T, U, and X.
7. Pilot boards in the following positions:
   a. 53°39'.3'N., 6°16.3'E.
   b. In bad weather, off Borkum, between lighted buoys No. 13 (53°35.7'N., 6°35.3'E) and No. 19 (53°33.2'N., 6°41.0'E.).

Pilot and Pilot Vessel Contact Information.—
1. Call sign: Delfzijl Pilot Eemshaven Pilot
2. VHF: VHF channel 19
3. Telephone: 31-596-618188
4. Facsimile: 31-596-618583
5. E-mail: noord@loodswezen.nl
6. Website http://www.loodswezen.nl
7. Pilot vessel: VHF channels 6 and 16

Pilot Ordering Contact Information:
1. Telephone: 31-596-613672
2. Facsimile: 31-596-610306
3. E-mail: lodicon@loodswezen.nl

See Pilotage for the River Ems (paragraph 8.12) for additional information.

Vessel Traffic Service.—A Vessel Traffic Service (VTS) operates within the road steads and main fairways of Eemshaven and Delfzijl harbors. This system, which has both English and Dutch as official languages, is mandatory for all ocean-going vessels. It is managed by the Harbor Coordination Center (HCC), which has a direct line of communication with the River Ems VTS (Die Ems VTS) (see paragraph 8.12).

All vessels within the VTS area sectors must keep a continuous listening watch on the appropriate VHF channel. Such VHF channels are displayed on sector notice boards along the fairways.

Ocean-going vessels should send a report to the HCC at least 24 hours prior to arriving at the port entrance. The report must state the vessel's name, type, position, and destination. All vessels must report when passing each sector boundary, entering or leaving a harbor, crossing a fairway, leaving a berth, turning, or swinging.

Radar assistance is available on request. Weather and tidal information is available on request on VHF channel 66. A general message for shipping is broadcast at 10 minutes past every even hour on VHF channel 66.

Below are extracts from the port regulations:
1. Inbound traffic in Paapsund Sud has priority over outbound traffic.
2. Ocean-going vessels navigating in Zeehavenkanaal are prohibited from overtaking.
3. When ocean-going vessels navigating in Zeehavenkanaen are likely to meet on opposite courses within 100m of a berthed vessel W of No. 5 Lighted Beacon, the vessel having the berthed vessel on its starboard side shall give way to the other vessel.
4. Ocean-going vessels over 130m in length or having a draft of 7.5m or more, when navigating in Zeehavenkanaal, must display the appropriate shape or lights for a vessel constrained by its draft.

Emden (53°20'N., 7°11'E.)

World Port Index No. 30950

8.16 Emden, the westernmost port of Germany, is located on the Ems, 39 miles above Westerems Fairway Lighted Buoy. It is one of the most important transshipment ports for bulk cargo, which is imported to and exported from the Ruhr via the Dortmund-Ems Kanal. In addition, the port is also connected to the River Jade and the River Weser via Wilhelmshaven and the Ems-Jade Kanal.

Tides—Currents.—The tide at the port entrance rises about 3.6m at springs and 3.3m at neaps.

Strong winds, particularly from WNW and NW, raise the water level and winds from the SE lower it.

The tidal currents set in the direction of the approach channel and across the harbor entrance. In the W part of the approach channel, the incoming current begins to set about 5 hours 45 minutes before HW at Emden and attains a maximum rate of 2.3 knots at springs. The outgoing current begins to set at about the time of HW and attains a maximum rate of 2.5 knots at springs.

Emden Ro-Ro Terminal

Depths—Limitations.—The port is approached through a dredged entrance channel, with a controlling depth of 8.1m, and consists of an outer harbor and an inner harbor.

Aussenhafen, the outer harbor basin, is tidal. The inner harbor consists of an extensive wet dock complex, which is formed by several interconnected basins. Overhead power cables, with a vertical clearance of 43m, span these harbors.

Emskai, a general cargo quay with a ro-ro ramp at the E end, is situated on the N side of the bank, close W of the entrance to the outer harbor basin. It is 272m long and has a depth of 8.5m alongside.

Aussenhafen, the outer harbor basin, provides about 1,100m of main commercial quayage, with depths of 8.5 to 9m alongside.

The inner harbor wet dock complex can be entered through two locks. Nesserland Lock is situated at the N end of Aussenhafen and leads into the S end of Binnenhafen. It is 110m long, 14.3m

wide, and has a depth of 3.5m over the sill. A lifting road bridge spans the S end of the lock. In addition, two bascule bridges span Binnenhafen, about 1 mile NNE of the lock. They both have a navigable width of 17.3m.

Vorhafen, a basin, branches NE from close inside the harbor entrance and forms the approach to Grosse Lock, which leads into Neuer Binnenhafen. This main lock is 260m long, 40m wide, and has a depth of 10m over the sill. Generally, vessels up to 255m in length, 35.5m beam, and 10.7m draft can be handled. However, vessels over 240m in length and 33m beam require special permission.

The main quays within Neuer Binnenhafen include Sudkai, 932m long, and Nordkai, 480m long, which have depths of 11.9m and 11.5m alongside, respectively.

Industriehafen, another main basin, has 1,000m of total berthage with depths up to 10.5m alongside. Stichkanal, a basin, is entered from the N side of Industriehafen. It has 350m of berthage with depths of 7m alongside.

The port has facilities for general cargo, bulk, container, ro-ro, ferry, tanker, LPG, timber, fishing, and automobile carrier vessels. Vessels up to 10.67m draft can be handled at HW. It is reported that vessels up to 11.25m draft can be handled at HWS.

After lightening at the Dukegat Reede in Alte Ems (paragraph 8.13), vessels up to 92,600 dwt, 258m in length, 36m beam, and 10.7m draft have entered the port at HW.

There is a dry dock in the port which can handle vessels up to 55,000 dwt, 218m in length, 29m beam, and 6.9m draft.

Aspect.—The entrance to the harbor is indicated by a lighted range which may best be seen on the chart.

Wybelsum Radar Tower, which shows a light, stands about 2.5 miles W of the harbor entrance and is conspicuous.

Wybelsum Radar Tower (Emden)

Several prominent chimneys, masts, and wind generators stand in the vicinity of the harbor wet docks.

Pilotage.—See Pilotage for the River Ems (paragraph 8.12).

Regulations.—Vessels entering the harbor from the main river fairway during the flood tidal current have precedence over all other vessels.

Vessels departing through Vorhafen have precedence over those departing through Aussenhafen.

Vessel Traffic Service.—For details of the River Ems VTS, see Vessel Traffic Service under the Ems Estuary (paragraph 8.12).

8.17 Der Dollard (Der Dollart) (53°18'N., 7°10'E.), a large and shallow bay, indents the S bank of the river, S of Emden. With the exception of a small harbor lying at the head, which provides access to the inland waterway system, the bay is of little importance to general shipping as it is almost entirely obstructed by drying flats. The border between the Netherlands and Germany is situated in the E part of this bay.

The River Ems is navigable by small ocean-going vessels as far as the port of Papenburg, 22 miles from Emden. The port of Leer is situated on the Leda River, which joins the Ems at Leerort (53°13'N., 7°26'E.), 15 miles above Emden. The Dortmund-Ems Kanal is entered from the river through a lock at Oldersum (53°19'N., 7°20'E.), 6 miles above Emden. The small port of Weener is situated on the W bank of the river, 3.5 miles above Leerort.

The fairway in the river is narrow and tortuous and is marked by buoys as far as Leerort. Above Leerort, beacons, fitted with reflectors, stand on the banks and indicate the course of the fairway.

A flood barrage is situated on the River Ems about 4 miles above the entrance to Emden. The main opening for shipping is 60m wide and has a depthof 9m over the sill. A secondary opening, for barges bound upriver only, is 50m wide and has a depth of 7m over the sill. It has a vertical clearance of only 5.75m.

Overhead cables span the river 0.8 mile NE and 1.5 miles S of Weener (53°10'N., 7°22'E.). The have a minimum vertical clearance of 50m.

A bascule road bridge, with two passages, spans the river 0.4 mile below Leerort. The E passage has a navigable width of 40m and the W passage has a navigable width of 43m.

A bascule rail bridge spans the river 0.4 mile above Weener. It has a navigable width of 24m.

The fairway has a controlling depth of 3.8m as far as Papenburg. The water level of the river above Emden is affected by freshets and the wind. Strong W winds sometimes cause the water to rise almost 0.6m above the normal level; strong E and SE winds cause a noticeable lowering of the water level. The tidal influence is felt as far as Papenburg; at springs, the tide rises up to 3m at Leerort and up to 2m at Papenburg.

Ditzum (53°19'N., 7°17'E.) is located on the S bank of the river, 4 miles above Emden. It has a small tidal harbor which provides 150m of berthage, with a depth of 3.5m alongside at HWS. Vessels up to 30m in length can be handled.

Leer (53°14'N., 7°27'E.) (World Port Index No. 30960), a small port, is entered via a lock, spanned by a drawbridge, from the Leda River. The lock is 192m long, 26m wide, and has a depth of 7m on the sill at HW. Vessels up to 3,000 dwt and 5m draft can enter. The harbor, which consists of two wet basins, provides 500m of berthage with depths of 4 to 6m alongside.

Weener (53°10'N., 7°22'E.), a small town, stands on the W bank of the river, 4 miles above Leerort. The small harbor is mostly used by inland waterway vessels and pleasure craft. It has a depth of 2.2m alongside at HWS and is entered through a lock which is only 10m wide.

Papenburg (53°06'N., 7°23'E.) (World Port Index No. 30970) is located at the head of a short canal which leads from the E bank of the river, 22 miles above Emden. The harbor consists of a wet basin complex which is entered through two

locks. The main entrance lock is 152m long, 26m wide, and has a depth of 6m over the sill. The other lock is 45m wide and has a depth of 7m over the sill. It has no chamber and is used for large vessels. The harbor provides 3,000m of total berthage with depths of 3 to 6m alongside. There is also a large shipbuilding yard. Vessels up to 250m in length, 43m beam, and 5.5m draft can be accommodated.

The Ems Estuary to the River Jade and the River Weser

8.18 The Ostfriesland coast between the Ems Estuary and the Jade Estuary is fronted by Juist, Norderney, Baltrum, Langeoog, Spiekeroog, and Wangerooge. All of these islands, with the exception of Juist, lie within 5 miles of the mainland. Shallow banks lie off the seaward sides of these islands and drying flats and shallow channels occupy the water areas to the S of them; only small craft can navigate through these areas.

All of the islands are composed of fairly high and bare sand dunes which makes it difficult to identify them. A village stands on the W end of each of the islands and there are small harbors fronting the villages on Norderney and Langeoog. Several radio masts stand on Norddeich and are visible from seaward. The church at Esens, on the mainland, is also visible from seaward on some bearings.

The channels lying between the islands provide access to the small harbors on the islands and also to the shallow fairways which lead to several small harbors on the mainland. These harbors include Norddeich, Nessmersiel, Dornumersiel, Westerackumersiel, Bensersiel, Neuharlingersiel, and Carolinsiel. The islands are popular resorts and many small ferries run between them and the mainland.

Ice.—On the seaward sides of the Ostfriesische Inseln, ice forms on the shallow coastline during severe winters, but it does not extend far enough seaward to affect the coastal traffic. However, in the channels lying between the islands and on the flats, enough ice occasionally forms to close the area to navigation for extended periods of time.

Tides—Currents.—The tide rises in these waters 2.7 to 3m at springs and 2.4 to 2.7m at neaps.

In the waters N of the Ostfriesische Inseln, the tidal currents set in an E and W direction. The times at which the currents begin and the directions in which they set are subject to considerable variations and are perhaps affected by the currents setting into and out of the channels lying between the various islands.

About 9 miles NW of Norderney Light, the E tidal current sets about 4 hours and 1 hour before HW at Helgoland (the reference port). Its rate at springs varies between 0.7 and 1.5 knots. The W current sets from about 2 to 6 hours after HW and attains a rate at springs up to 1.3 knots. These currents in turning from an E to a W set follow a counterclockwise rotary direction; at such times the rate of the current may be up to 0.5 knot. Slack water occurs at about 5 hours 30 minutes before HW and at about 30 minutes after HW.

In all the channels lying between the islands, the incoming currents set S and the outgoing currents set N; these currents are strongest in the deepest channels.

After passing between the islands, the incoming current from each entrance channel spreads out and sets S and then E and W behind the islands. At first, these currents set through the channels, but as the tide rises they set across the flats.

Caution.—A large ammunition dumping ground area lies 6.5 miles N of Spiekeroog and may best be seen on the chart.

Numerous shoal patches and shallow depths lie within 2.5 miles of the shore.

Numerous wrecks and several isolated foul areas lie offshore and may best be seen on the chart. Most of the wrecks have been swept and some are marked by buoys.

Several submarine pipelines and cables extend from the shore along this section of coast and may best be seen on the chart. Extreme caution should be exercised when navigating in the vicinity of gas pipelines.

Many parts of the islands and drying banks fronting the Ostfriesland coast are designated as nature reserves.

8.19 **Memmert** (53°38'N., 6°53'E.), an island covered by sand dunes, lies 2.5 miles NE of the E end of Borkum. A prominent disused light tower stands on its SW coast.

Juister Riff, a large shelving coastline, extends up to 6.5 miles WNW from Memmert and merges with Borkumriff in the S part of the entrance channel.

Juister Balje, a shallow channel, leads along the W and N sides of Memmert to a pier situated on the S side of Juist. It then continues E to Norderneyer Seegat.

Juist (53°40'N., 6°52'E.), a long and narrow island, is marked by sand dunes which stand on its W and central parts and rise to a height of 20m. Several villages, with prominent buildings, are situated near the central part of this island, to the S of the dunes. Conspicuous beacons stand near the E and W ends. A conspicuous round water tower stands near the center of the island and a prominent hotel stands close W of it. An aeronautical light is shown near the airfield, which is situated in the E part of the island.

Norderney (53°43'N., 7°15'E.), the largest of the Ostfriesische Inseln, is the principal beach resort in the islands.

A chain of sand dunes, up to 21m high, stretches across the N side of the island, except at the E end which is low. The highest group of dunes stands near the center and is known as Weisse Dune because of their whitish color.

A light is shown from a conspicuous red brick tower, 54m high, standing near the center of the island.

A town, with a small harbor close S of it, is situated at the W end of the island. Prominent landmarks in the town include several buildings, a square water tower, the chimney of the power station, the church tower, and a school with a conical turret. Norderney Beacon, 12m high, stands on a dune, 15m high, close W of the town and is conspicuous. Several other beacons stand on the island including a prominent one, 10m high, at the E end.

Norderneyer Seegat, a buoyed channel, leads between Juist and Norderney, and provides access to the small harbor at the W end of Norderney and to Norddeich, situated on the mainland. Schluchter and Dove Tief, two entrance channels, lead over the shoals in the zeegat to a deep lying off the W end of Norderney. From this deep, Buse Tief leads S to Norddeich and Riff Gat leads E past the harbor on Norderney and over the flats on the S side of this island. Both of these entrance channels are shallow, subject to frequent changes, and at times silt up completely. Dove Tief has depths of less than 2m and

Norderney Light

Schuchter has depths of 0.3 to 2m. Buoys and ranges, which mark the fairways, are removed when the channels occasionally silt up. The entrances to the channels are marked by lighted buoys which may best be seen on the chart.

The harbor at Norderney consists of an enclosed basin, with dredged depths of 2.5m, which is used by fishing boats, small passenger vessels, and coasters. It usually silts up to a depth of 2m. A berth at the head of a pier outside the harbor has a depth of 5m alongside and can be used by larger vessels.

Norddeich (53°38'N., 7°10'E.), a small port, is located on the mainland, S of Norderney. It is approached through Buse Tief and then entered through a channel, 1.2 miles long and 50m wide, contained between two stone training walls. These walls are covered at HW and marked by stakes. The fairway is indicated by lighted ranges. Prominent landmarks in the town include the water tower and the railroad station. Several conspicuous radio masts stand close S of the town.

Small coasters up to 60m in length and 4m draft can be accommodated in the harbor at HW.

Baltrum (53°44'N., 7°24'E.), the smallest of the island group, is separated from Norderney by Wichter Ee. The W and middle parts of this island are marked by sand dunes, 15m high, whereas the E end is low. A village stands near the W end of the island and another stands near the middle, along the S side. Prominent beacons stand 0.5 mile W of the E end of the island and near the middle. A pier, with a berth 200m long, extends from the SW shore and has a depth of 3m alongside at HW. Wichter Ee, the shallow passage, is available only to small craft.

8.20 Langeoog (53°45'N., 7°32'E.) has a chain of sand dunes, 15 to 20m high, standing along its N shore. They are grouped in such a manner that, from seaward, they appear to be three islands. A small harbor is located 1 mile S of the main village which stands on the W end of the island. It is well-sheltered, but the depths alongside the berthing facilities are very shallow. The church tower, the water tower, and a framework mast standing in the village are all prominent from seaward. In addition, a prominent beacon stands on the E end of the island. The high church steeple at Esens, on the mainland S of the E end of the island, is also visible from offshore.

Ackumer Ee (53°43'N., 7°27'E.), a narrow channel, leads between Baltrum and Langeoog and provides access to the small harbors on the latter island and on the mainland. This shallow channel is used principally by fishing boats and small coasters with local knowledge.

Spiekeroog (53°46'N., 7°44'E.) has sand dunes up to 20m high standing on its W part, but is low elsewhere. A village is situated near the W end of the island and a prominent beacon stands on the dunes close NE of it. A wind gauge stands on the W extremity of the island and a beacon stands at the E extremity. A pier extends from the S shore of the island and has a depth of 4m off the head at HW.

Otzumer Balje (53°46'N., 7°38'E.), a channel marked by buoys, leads between Langeoog and Spiekeroog and provides access to the pier on the latter island and to the small mainland harbor of Neuharlingersiel. The buoys are frequently moved to conform to the shifting channel.

Wangerooge (53°47'N., 7°54'E.), the easternmost island of the group, is located on the S side of the entrance to the Jade estuary. The dunes on this island do not exceed a height of 15m and change shape frequently. The island is a resort; several large buildings stand on it. A small airfield is situated near the center. Strand Beacon stands near the E end of the island, on the S side. It is 16m high and prominent.

Wangerooge Light (53°47'N., 7°52'E.), a light with directional sectors for the approach to the River Jade, is shown from a conspicuous tower, 64m high, standing near the W end of the island.

Wangerooge West Tower, 52m high, is situated 0.3 mile S of this light and is prominent from seaward.

A conspicuous disused light structure (Wangerooge) stands near the center of the island, 1.5 miles E of the light; a prominent signal station is situated 0.3 mile NNW of it.

Harle (53°47'N., 7°50'E.), a channel marked by buoys, leads between Spiekeroog and Wangerooge and provides access to the branching channels S of these two islands. These branching

Wangerooge Light (new)

Wangerooge West Tower

Wangerooge Disused Light Tower

channels lead E to join the Jade estuary, S to the small harbor at Harlesiel, and W to join the fairway S of Spiekeroog. The approach channel leading over the shallow bar at the entrance is marked by a lighted buoy, which is moored about 2.3 miles NW of Wangerooge Light. Several groins extend into the channel from the shore at the W side of the island and act as breakwaters. The channel is used only by small coasters and fishing vessels. Local knowledge is required.

Caution.—Foul areas (explosives) lie centered 3 and 7 miles NW of the W end of Wangerooge in the approaches to the Jade estuary and may best be seen on the chart.

Radar returns are good from the coast of Wangerooge but use of shipborne radar in the close approach to and in the Outer Weser requires local knowledge and experience owing to the irregular returns from sandbanks, breakers and tide-rips. Hohe Weg Light is normally clearly displayed at 6-7 miles. The sides of the Outer Weser do not normally appear on radar until arrival in Hohewegrinne (53°46.6'N., 8°10.0'E.), and even then they are faintly seen.

The River Jade and the River Weser Estuary

8.21 The estuary, through which the River Jade and the River Weser reach the sea, is contained between the islands of Wangerooge and Scharhorn. The latter island lies on the S side of the entrance to the Elbe, 18 miles NE of Wangerooge. The greater part of this water area is occupied by large coastal flats and extensive shoals.

The two rivers are approached through the W part of this estuary, all entrance channels being within 8 miles of Wangerooge. The E part of the estuary is comprised largely of shallow waters which extend up to 22 miles from the mainland, and which are navigated only by small vessels with local knowledge; Norder Grunde and Scharhorn Riff form the outer shoals of these shallow waters. The entrance to the River Elbe is described in paragraph 9.2.

The River Jade, a fairly deep and wide waterway, is entered N of Wangerooge and provides access to the port of Wilhelmshaven, which is located on the W side of the river, 23 miles above the entrance. Above Wilhemshaven, the Jade leads into a large bay, known as Jade Busen, which is for the most part, very shallow.

The River Weser leads to the ports of Bremerhaven, Nordenham, Brake, Elsfleth, Oldenburg, Vegesack, and Bremen. In addition, this river is connected to the extensive inland waterway system. This river has two entrance fairways; Neue Weser, formerly known as the Alte Jade, is the W entrance fairway and is entered 5 miles N of Wangerooge. Alte Weser, the N entrance fairway, is entered 8 miles N of Wangerooge. The River Weser is separated from the Jade by the extensive sands and shoals which extend NW from the peninsula of Butjadingen, located E of the port of Wilhelmshaven.

GB Lightfloat (54°11'N., 7°28'E.), equipped with a racon, is moored 14 miles NNW of Jade/Weser Lighted Buoy.

Jade/Weser Lighted Buoy (53°58'N., 7°39'E.), equipped with a racon, is moored 13.2 miles NW of Wangerooge Light.

Jade 2 Lighted Buoy (53°52'N., 7°47'E.), equipped with a racon, is moored 5.2 miles NNW of Wangerooge Light.

GB Lightfloat

Alte Weser Light

Tegeler Plate Light

Schlusseltonne Lighted Buoy (53°56'N., 7°55'E.) is moored about 9 miles NW of Alte Weser Light.

Alte Weser Light (53°52'N., 8°08'E.) is shown from a prominent tower, 33m high, which has a broad overhanging gallery and is surmounted by a radar scanner.

Tegeler Plate Light (53°48'N., 8°11'E.) is shown from a prominent tower, 24m high, which has a projecting gallery.

Mellumplate Light (53°46'N., 8°06'E.) is shown from a prominent square tower, 30m high, which is surmounted by a helicopter platform. At night, the fixed directional light indicates the entrance leading line. Flashing lights, shown from the same tower, indicate narrow sectors on each side of the line.

Mellumplate Light

Roter Sand Tower

Roter Sand Tower (53°31'N., 8°05'E.), a disused light structure, stands 1.8 miles WSW of Alte Weser Light. It is 28m high and conspicuous.

Winds—Weather.—Strong winds from the NW quadrant increase the water level and those from the SE quadrant lower it. In exceptional instances, the water level has been raised as much as 3.5m above MHW.

Fog occurs throughout the year, but is most prevalent from November through February.

Ice.—Drift ice may be encountered only during severe winters in the approaches to the River Jade and the River Weser. Ice conditions in the approaches generally consist of mainly new ice and ice cakes with some small floes. In the rivers, thick pack ice can accumulate; however, large vessels are generally not affected. The first ice appears about the middle or latter part of December

and remains until the latter part of February. The navigable fairway channels never freeze over completely, but the hindrance to navigation is generally caused by floating ice which has broken away or which has been driven in by winds and currents.

Tides—Currents.—The tide off the entrance to the estuary rises about 2.8m at springs and 2.5m at neaps.

From a position located 12.5 miles N of Wangerooge, the tidal current begins to set E at 5 hours 15 minutes before HW at Helgoland (the reference station) and attains a rate of 0.7 to 1 knot at springs. The W current begins between 1 hour and 1 hour 15 minutes after HW and attains a rate of 0.5 to 0.7 knot at springs.

Closer to the entrance of the estuary, the tidal currents set in a general ENE and WNW direction and attain rates of up to 1.3 knots at springs.

Off the N side of Norder Grunde, the direction and rates of the tidal currents vary greatly. Rates between 0.5 and 2.3 knots have been observed. Directions between 024° and 085° and between 270° and 321° have been observed.

Pilotage.—Pilotage is compulsory for the following vessels:

1. Tankers carrying gas, chemicals, petroleum, petroleum products in bulk, or unloaded tankers, if not cleaned, de-gassed or completely inerted after having carried petroleum/petroleum products or chemicals with a flashpoint below 35°C.
2. Other vessels of 90m LOA and over, or 13m beam and over, or 8m draft and over.

Pilot Request Procedures:

1. Inbound vessels should send request at least 12 hours before arrival at pilot boarding position.
2. Outbound vessels should send request at least 3 hours before departure. For all departures between 1900-0800 local time the request should be sent before 1700.

Requests for pilots should state the following information:

1. Vessel name, length, beam and gt.
2. Pilot boarding position
3. ETA/ETD at/from Pilot boarding position
4. Destination of pilotage required
5. Actual draft on arrival/departure (in decimeters)
6. Indication of whether transfer by pilot vessel or helicopter.
7. Port of destination
8. Port of departure
9. Freeboard and distance from Pilot door to the waterline

Pilot boards in the following positions:

a. 53°52.8'N., 7°46.5'E.
b. 53°53.0'N., 7°25.0'E.
c. 54°07.0'N., 7°28.4'E.

Pilot disembarks in the following positions:

a. 53°59.0'N., 7°30.0'E.
b. 54°02.8'N., 7°37.4'E.

Inbound vessels bound for the River Jade should send a request for pilotage, stating port of destination and ETA at the pilot boarding position, 12 hours in advance or on departure from their last port to Jadelotse, Wilhelmshaven.

Vessels bound for the River Weser should send their request 24 hours in advance to Weserlotse II, Bremerhaven through Norddeich (DAN).

The requests should be confirmed 6 hours and 2 hours prior to arrival. Vessels 300m or more in length and with a draft of 16.5m or greater are obligated to employ two pilots.

The pilot station may be contacted by e-mail, as follows:

dispo@weserjade.pilot.de

In bad weather, the pilot vessel shelters within the Neue Weser, between No. 17/H-Reede Lighted Buoy and No. 19/H-Reede Lighted Buoy. The pilot vessel is a swath type (twin-hulled) and is reported to be painted orange.

Deep-sea pilots for the North Sea and English Channel are also available. See Pilotage (paragraph 8.3) under Approach Routes to the German Bight for additional information.

Vessel Traffic Service.—See Vessel Traffic Service (paragraph 8.5) under the Approach Routes to the German Bight for information concerning the Vessel Traffic Service (VTS) applying to vessels navigating within the approaches of the German Bight and proposing to enter the River Ems, the River Jade, the River Weser, or the River Elbe.

See Vessel Traffic Service under The River Jade (paragraph 8.23) or The River Weser (paragraph 8.27) for information concerning local VTS systems operating within the approaches and fairways of each river.

Anchorage.—A Deep-Water Anchorage Area, the limits of which are shown on the chart, lies close W of the Jade-Approach TSS. It is reported that the holding ground is poor.

Norde Reede (53°54'N., 7°50'E.), a designated anchorage area, lies centered 2.4 miles NNE of Jade 2 Lighted Buoy (53°52'N., 7°47'E.) and has depths of 16 to 21m.

Neue Weser Reede (53°51'N., 7°51'E.), a designated anchorage for large and deep-draft vessels, lies centered 2.4 miles ESE of Jade 2 Lighted Buoy (53°52'N., 7°47'E.). It is marked by buoys and has depths of 12 to 20m.

The limits of the above anchorage areas may best be seen on the chart.

Directions.—Vessels from the NW bound for the River Jade or the River Weser should approach the pilot boarding area via the GB Lightfloat (54°11'N., 7°28'E.), the Jade Approach TSS, and the Precautionary Area. Vessels from N or NE should make for the Jade 2 Lighted Buoy (53°52'N., 7°47'E.). Vessels from the W should approach via the Off Terschelling-German Bight TSS and the Precautionary Area.

Caution.—Within the waters in the vicinity of the outer pilot boarding station, vessels should navigate with caution, having special regard for those vessels restricted in their ability to maneuver or constrained by their draft or size.

Large vessels approaching the River Jade are often escorted through outer approaches by Wasserschutzpolizei (marine police) craft, which exhibit a blue flashing light.

Several spoil ground areas lie in the approaches to the estuary and may best be seen on the chart.

Numerous wrecks lie in the approaches to the estuary and may best be seen on the chart.

Due to the constant changes in depths within the approach channels, the navigational aids are frequently moved.

Several National Park Wildlife Sanctuaries, the limits of which are shown on the chart, are situated along the banks of the rivers and adjacent to the estuary. Entry into these areas is restricted.

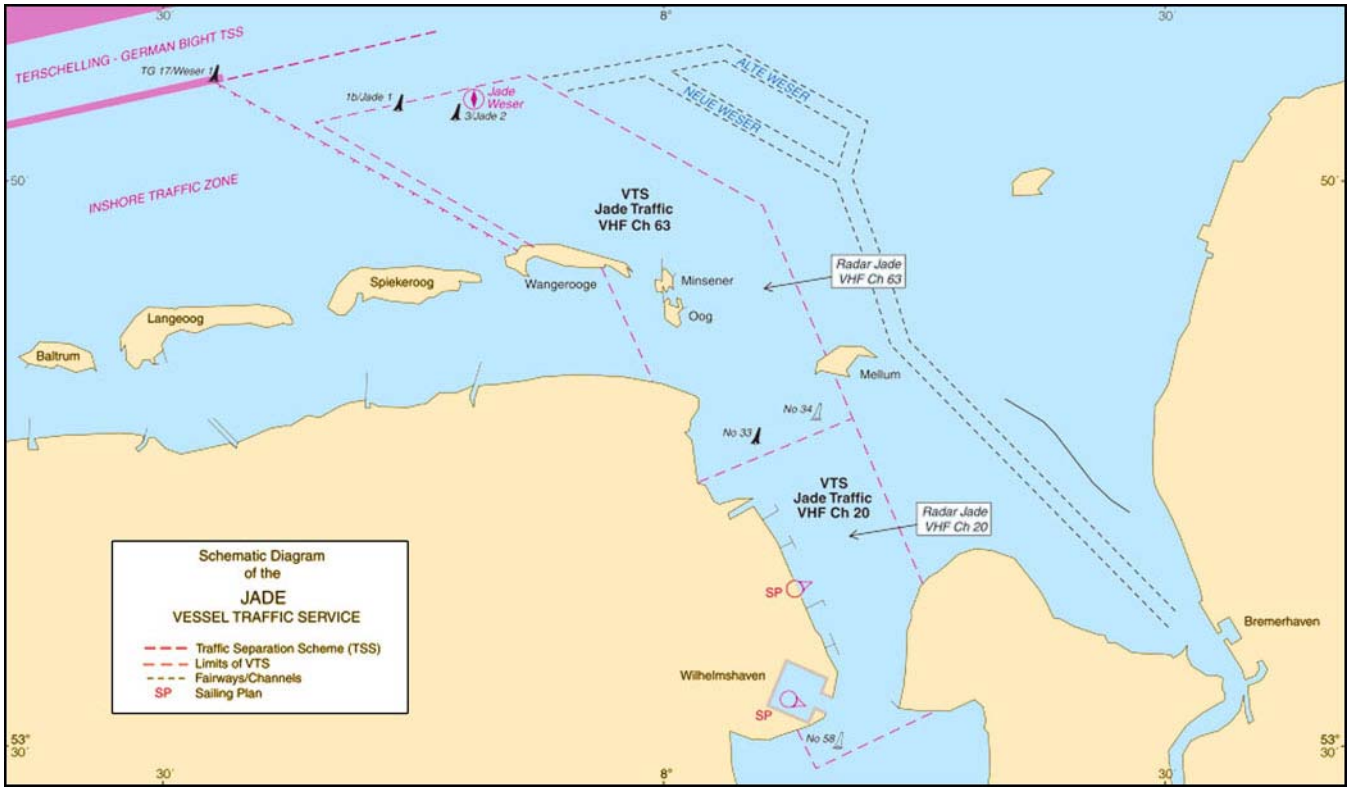
It is reported that a small area, within which navigation is prohibited, lies centered about 8 miles NW of Wangerooge Light (53°47'N., 7°52'E.). It is located close S of the main approach to the River Jade and is marked by a lighted buoy.

The River Jade

8.22 The fairway leading to Wilhelmshaven is entered N of Wangerooge and leads E and S to its termination in the bay known as Jade Busen. The islands of Wangerooge and Minsener Oog and the coast of Jeverland lie on the W side of this fairway. On the E side of the fairway and separating it from the Weser is the island of Alte Mellum and the peninsula of Butjadingen, between which is an extensive drying flat known as Hohe Weg.

The River Jade is divided into three parts known as the Aussenjade, Innenjade, and the Jade Busen.

Aussenjade is that part of the river which lies between the entrance and Schillig Reede, the roadstead situated off the NE point of Jeverland. There are two entrance channels in Aussenjade; the principal one is Wangerooger Fahrwasser, which with Oldoogrinne, its continuation, leads into Schillig Reede. The other channel is Mittel Rinne, which is used by coastal vessels with local knowledge.



Jade VTS

Innenjade is comprised of Schillig Reede and the waterway S to abreast the port of Wilhelmshaven. Southward of this roadstead, the navigable waters of the Innenjade are not as wide, but still have substantial depths. The drying banks and shoals on both sides of Innenjade are generally steep-to.

Jade Busen, the large bay lying S of Wilhelmshaven, is occupied mainly by drying flats, but has a narrow channel which reaches into its central part. Varel, the only place of any importance within this bay, has a small harbor which is used by small craft and fishing boats.

The islands and other dangers which lie adjacent to the various reaches of the fairway are marked by lighted buoys and beacons. During the winter, when ice is expected, these lighted buoys are often replaced by unlighted buoys.

The main fairways within the Jade are marked by lighted buoys and are indicated by lighted ranges and leading lines which may best be seen on the chart. In addition, radar lines, which may best be seen on the chart, indicate the center of each fairway.

8.23 Wangerooger Fahrwasser (53°49'N., 7°57'E.), the main entrance channel, is entered 5 miles NNW of the W end of Wangerooge and leads in a general ESE direction between the coastline fronting Wangerooge, and the middle grounds of Wangerooger Plate and Strand Plate. To the N of Minsener Oog, this channel turns SE and joins Oldoogrinne.

Oldoogrinne, in which the fairway becomes considerably wider, lies between the E side of Minsener Oog and Oldoogplate, another middle ground.

Minsener Oog Tower (53°47'N., 8°00'E.), a disused light structure, stands at the N head of Buhne A. It is square, 17m high, and prominent.

Minsener Oog Disused Light Tower (Buhne A)

Minsener Oog (53°46'N., 8°01'E.), an island of sand and an extended sand bar, which often dries, lies on the S side of the channel, 1.5 miles E of Wangerooge. A series of groins and embankments extend in various directions from the island and serve to divert the tidal currents. The groins Buhne A, Buhne B, and Buhne C extend from the N and E sides of the island towards the channel.

Oldoog Radar Tower stands near the root of Minsener Oog Buhne C, 2 miles SSE of Minsener Oog Tower, and a refuge hut on piles is situated adjacent to it. The tower is 53m high and very conspicuous.

Oldoog Radar Tower (Minsener Oog Buhne C)

Schillig Old Light Tower (53°42'N., 8°01'E.) stands 3.3 miles S of Oldoog Radar Tower. It is 35m high and prominent. A disused light structure is situated near the shore, 0.3 mile SE of this tower. It consists of a framework tower, 16m high.

Mittel Rinne (53°49'N., 8°00'E.), a narrow channel, leads between Wangerooger Plate and Strand Plate, on the W side, and Jade Plate and Oldoogplate, on the E side. It then joins the main fairway. This alternate entrance channel may be used by vessels with drafts of less than 6m.

Die Innenjade (53°40'N., 8°05'E.), consisting of three reaches, extends S for 14 miles from the vicinity of the S end of Minsener Ooog to the port of Wilhelmshaven. The N reach passes through

Schillig Old (Disused) Light Tower

Schillig Reede; the middle reach passes through the central part of the Innenjade; and the S reach then leads through the roadstead lying off Wilhelmshaven to the entrance into Jade Busen.

The projected dredged depths of the fairways through Die Innenjade are 19.4 to 18m.

Hooksiel Plate (53°39'N., 8°09'E.), which consists of several shoals with a least depth of 3.5m, lies on the E side of the channel, 3 miles S of Alte Mellum.

Hooksielplate Radar Tower (53°40'N., 8°09'E.) is 55m high and prominent. It is connected at the E side to a helicopter platform.

Hookseilplate Radar Tower

Genius Bank (53°36'N., 8°09'E.), long and narrow, has a least depth of 3.8m and lies on the W side of the channel, 2.5 miles S of Hooksiel Plate.

Hooksiel (53°38'N., 8°02'E.), a small harbor and yacht center, is entered through a lock situated on the W side of the river, 2.8 miles SW of Hooksielplate Radar Tower. The lock is 70m long and 8m wide.

A prominent mast, 131m high, stands 1.8 miles SW of the lock at Hooksiel. A number of wind generators, the tallest being 92m high, are situated in the vicinity of this mast. Two conspicuous chimneys, 202m high, stands near a refinery, 1.8 miles S of the lock at Hooksiel.

Voslapp Rear Range Light (53°35'N., 8°08'E.) is shown from a prominent tower, 60m high, standing about 4 miles SSE of the lock at Hookseil.

A conspicuous chimney, 275m high, stands near a power station located about 1 mile SSE of Voslapp Rear Range Light.

Voslapp Light (Rear Range)

Tossens Light (Rear Range)

Tossens Radar Tower

On the E side of the river, prominent churches stand at Eckwarden and Langwarden, situated 3.7 miles E and 6.2 miles NE, respectively, of the locks at Wilhelmshaven.

Tossens Rear Range Light (53°33'N., 8°14'E.) is shown from a prominent tower, 53m high, standing about 4.5 miles SE of Voslapp Rear Range Light.

Arngast Light

A conspicuous radar tower, 43m high, stands 1.5 miles N of Tossens Rear Range Light.

A conspicuous radar tower, 115m high, stands 1 mile SSW of the locks at Wilhelmshaven, on the S side of the wet dock.

Arngast Light (53°29'N., 8°11'E.) is shown from a prominent tower, 36m high with two galleries, standing 3 miles SSE of the locks at Wilhelmshaven.

Tides—Currents.—In the entrance to Wangerooger Fahrwasser, the tide rises about 4m at springs and 2.8m at neaps.

In Wangerooger Fahrwasser, the incoming current generally follows the direction of the channel. Abreast the E end of Wangerooge, a branch of this current sets S between Wangerooge and Minsener Oog, but the main current continues ESE into Oldoogrinne.

In Oldoogrinne, the incoming current is diverted to a SSE direction by Buhne A (the northernmost of the groins on Minsener Oog) and then to a S direction by Buhne B.

In the SE part of Wangerooger Fahrwasser, the incoming current may set vessels towards the S side of the fairway; in Oldoogrinne, vessels may be set towards the E side of the fairway.

The outgoing current generally sets in the opposite directions.

In Wangerooger Fahrwasser, abreast the E end of Wangerooge, the incoming current begins to set at 5 hours 15 minutes after HW at Wilhelmshaven (the reference station). It attains rates up to 3.3 knots at springs and 3 knots at neaps.

The outgoing current begins to set 1 hour 15 minutes before HW. It attains rates up to 2.5 knots at springs and 2 knots at neaps.

During W to NW gales, there are heavy ground swells in Wangerooger Fahrwasser, particularly with an outgoing current and at LW. During strong to gale winds, especially from a WNW direction, and with an outgoing current, there are rough, confused seas in the turn of the channel N and NE of Buhne A.

In the fairway through Schillig Reede, the incoming and outgoing currents attain maximum rates of 3 knots at springs and 2.5 knots at neaps. To the S of Schillig Reede, the currents follow more or less the direction of the fairways at slightly reduced rates.

Depths—Limitations.—The projected dredged depths extending through Wangerooger Fahrwasser and Oldoogrinne are 20.1m and 19.4m, respectively.

Pilotage.—See Pilotage under The River Jade and The River Weser Estuary (paragraph 8.21).

Regulations—Large tankers bound for the River Jade are escorted through the Jade Approach TSS by Water Police patrol vessels, which display blue flashing lights.

Extraordinarily Large Vessels on the Jade are defined as those exceeding 350m in length, 52m beam, and 20m draft inbound or 19m draft outbound. Such vessels are tide dependent and entry is allowed only if the maintained projected depths exist.

All Extraordinarily Large Vessels, high speed vessels, air cushion vehicles, and unusually large tug formations must obtain permission from the Water Police Authority at Wilhelmshaven immediately prior to entering the Jade.

On specified fairway sections of the River Jade there are prohibitions on meeting or overtaking other vessels. These prohibitions apply to vessels carrying liquid gases, vessels over 250m in length or 13.5m draft, and unusual tug formations. In order to enforce the regulations, Jade VTS coordinates the movements of all vessels.

Oil, gas, and chemical tankers (including towed units), which are carrying hazardous goods in bulk or have done so but are not certified gas-free, are permitted to enter the Jade only when the visibility is 1,000m or more. In special circumstances, when the visibility is 500m to 1,000m, such vessels may enter with permission of the Jade VTS.

All vessels with drafts over 16.5m are tide dependent and are required to follow a predetermined entry plan.

Vessel Traffic Service.—See Regulations (paragraph 8.4) and Vessel Traffic Service (paragraph 8.5) under Approach Routes to the German Bight for information concerning the Vessel Traffic Service (VTS) applying to vessels navigating within the approaches to German Bight and proceeding to the River Ems, the River Jade, the River Weser, or the River Elbe.

A local Vessel Traffic Service (VTS) system operates in the River Jade and is mandatory for the following:

1. Vessels over 50m in length, including towed or pushed composite units.
2. Vessels carrying dangerous cargo (gas, chemicals, petroleum, or petroleum products) in bulk.
3. Vessels carrying dangerous cargo (gas, chemicals, petroleum, or petroleum products) in bulk. Unloaded tankers if not cleaned, degassed, or completely inerted after carrying petroleum or petroleum products with a flashpoint below 35°C.
4. Nuclear-powered vessels.

Vessels entering the VTS area must maintain a continuous listening watch on VHF channel 16 or the local VHF channel of VTS Center Jade Traffic, as follows:

1. From 1b/Jade 1 Lighted Buoy to Nos. 33/34 Lighted Buoys (including vessels entering the VTS area from inland waterways)—VHF channel 63.
2. From Nos. 33/34 Lighted Buoys to No. 58 Lighted Buoy—VHF channel 20.

Vessels must send mandatory reports, as follows:

1. Sailing Plan (SP)—An SP must be sent to VTS Center Jade Traffic on VHF channel 63 or 20, as appropriate to the VTS area, if not already reported by an SP to VTS Center German Bight (see paragraph 8.5), as follows:
   a. Before entering the local VTS area from sea.
   b. Before entering the VTS area from a harbor or berth within the VTS area.
2. Deviation Report (PR) or Incident Report (IR)—DR and IR reports must be sent as necessary to VTS Center Jade Traffic on VHF channel 63 or 20, as appropriate to the VTS area.

The format for the SP can be found in Traffic Control (paragraph 8.5) under Approach Routes to the German Bight

Radar advice is provided on request or if instructed by VTS Center Jade Traffic (in German, or on request, in English). The request should include the vessel's name, call sign, and position for identification.

This service is provided when the visibility is less than 3,000m; when the pilot vessel is in a sheltered position; when lighted buoys are withdrawn due to ice; when required by the traffic situation: or when requested by a vessel.

The radar stations, VHF channels, and respective areas are, as follows:

1. Jade Radar I—VHF channel 63—From 1b/Jade 1 Lighted Buoy to Nos. 33/34 Lighted Buoys.
2. Jade Radar II—VHF channel 20—From Nos. 33/34 Lighted Buoys to No. 58 Lighted Buoy.

The VTS Center Jade Traffic broadcasts information (weather, traffic, dredging, and depths) on request and at 10 minutes after the hour on VHF channel 63 and 20, in German.

Anchorage.—For anchorages in the outer approaches, see the River Jade and the River Weser Estuary (paragraph 8.21).

An anchorage area for tankers not exceeding 250,000 dwt and/or 13.5m draft lies on the E side of the fairway, about 3.2 miles NNE of Schillig Old Light Tower (53°42'N., 8°01'E.).

An anchorage area for general cargo vessels, with drafts up to 13.5m, lies on the E side of the fairway, about 2.3 miles NE of Schillig Old Light Tower (53°42'N., 8°01'E.).

An explosives anchorage area lies on the W side of the fairway, about 1.5 miles E of Schillig Old Light Tower (53°42'N., 8°01'E.). If unoccupied, this area may be used by vessels carrying gas or inflammable liquids.

A quarantine anchorage area lies on the W side of the fairway, about 1.5 miles ENE of Schillig Old Light Tower (53°42'N., 8°01'E.). If unoccupied, this area may be used by vessels carrying gas or inflammable liquids.

Anchorage areas for tankers lie on the E side of the fairway, 3 miles SSE of Hooksielplate Radar Tower (53°40'N., 8°09'E.) and 0.5 mile E of the entrance to Neuer Vorhaven.

Wilhelmshaven Reede, a general anchorage area, lies on the E side of the fairway, 0.9 mile SSE of the entrance to Neuer Vorhaven.

The limits of the above anchorage areas are marked by buoys and may best be seen on the chart.

Caution.—A seaplane landing area, which may best be seen on the chart, lies on the W side of the fairway, about 2 miles ESE of Shillig Old Light Tower (53°42'N., 8°01'E.). It is reported to be only used occasionally.

A former ammunition dumping ground area lies on the E side of the fairway, close W of Hooksielplate Radar Tower (53°40'N., 8°09'E.) and may best be seen on the chart.

Wilhelmshaven (53°32'N., 8°10'E.)

World Port Index No. 30910

8.24 Wilhelmshaven is located on the W bank of the Innenjade, at the entrance to the Jade Busen. The harbor consists of a complex of wet basins, which are entered through two locks, and several tidal berths situated along the W side of the channel. The port is also a naval base.

Tides—Currents.—The tides rise about 4.3m at springs and 3.7m at neaps.

Off the harbor entrance, the incoming current generally begins 6 hours before HW at Wilhelmshaven, sets in a 230° direction, and attains a maximum strength of 1.8 knots at springs. The outgoing current begins 15 minutes before HW, sets in a 065° direction, and attains a maximum strength of 1.5 knots at springs. It has been reported that currents up to 4 knots have been experienced off the Nord-West Oelleitung Terminal.

Depths—Limitations.—A dredged channel leads from the main river fairway into Neuer Vorhaven, an outer basin, and extends to the entrance of Inner Harbor, the wet dock complex. It is 200m wide and has a dredged depth of 8m. The berths within Neuer Vorhaven are reserved for naval vessels.

Two lock chambers, situated side by side, provide entry to the wet dock complex. The chambers, equipped with sliding gates, are 350m long, 57m wide, and have depths of 11.47m over the outer sill. Vessels up to 11.5m draft can enter at HW.

The main facilities within the Inner Harbor include the following:

1. Ausrustungshafen is a basin used for laying up vessels. It has a depth of 10m and can accommodate vessels up to 20,000 dwt at two dolphin berths.
2. Nordhafen, a basin entered from the locks, provides 785m of total berthage, with a depth of 10m alongside.
3. Verbindungshafen, a basin, provides 720m of total berthage, with depths of 7 to 12m alongside.
4. Grosser Hafen, a basin, provides 500m of total berthage, with depths of 6 to 10m alongside.
5. Handelshafen, a basin, provides 980m of total berthage, with depths of 4 to 5m alongside.
6. Kanalhafen, a basin, provides 600m of total berthage, with depths of 4 to 5m alongside.

Grosser Hafen provides access to the Ems-Jade Kanal via a lock which is 50m long and 7.5m wide. The canal leads to Emden, with a connection to the Dortmund-Ems Kanal, and is used by small craft and barges.

The Outer Harbor consists of the following river facilities:

1. The ICI Terminal, situated 6 miles NNW of the entrance to the Inner Harbor, is formed by an L-shaped jetty extending 1,346m from the shore with a pier, 675m long. Vessels up to 12,000 dwt, 137m in length, and 9m draft can be accommodated alongside the inner berth. It is reported that the seaward berth is presently not operational.
2. The WRG Refinery Terminal, situated 5 miles NNW of the entrance to the Inner Harbor, is formed by an L-shaped jetty and a sea island pier. The main jetty berth has a depth of 7.5m alongside and can accommodate tanker vessels up to 8,000 dwt and 6.5m draft. The sea island pier main berth has a depth of 17m alongside and can accommodate tankers up to 250,000 dwt, 350m in length, and 16.5m draft.
3. The Niedersachsenbrucke Bulk Terminal, situated 2.5 miles NNW of the entrance to the Inner Harbor, is formed by an L-shaped jetty with two berths, each 300m long. The main outer berth has a depth of 15m alongside and can accommodate vessels up to 190,000 dwt and 14.3m draft.
4. The Nord-West Oelleitung Terminal, situated 1 mile NNW of the entrance to the Inner Harbor, is formed by a T-head pier which has depths of 16 to 20.8m alongside. Vessels up to 260,000 dwt and 20m draft can be accommodated. It is reported that a partly-laden vessel of 413,000 dwt, 366m in length, 70m beam, and 18.7m draft has been handled at this terminal.

Generally, vessels navigating the River Jade should have an underkeel clearance of at least 8.5 per cent of draft. Vessels entering the river are limited to a draft of 20m and vessels departing are limited to a draft of 19m. In addition, vessels navigating the river with a length of over 350m or a beam of over 52m must apply for a special permission.

Pilotage.—See Pilotage under The River Jade and The River Weser Estuary (paragraph 8.21).

Wilhelmshaven pilot boards near Lighted Buoy 3/Jade 2.

Departing vessels must request a pilot at least 3 hours before departure, except when departing from 1900 to 0800, when the request must be placed before 1700.

8.25 **Jade Busen** (53°28'N., 8°12'E.), the large bay lying S of Wilhelmshaven, is for the most part obstructed by drying shoals, flats, and banks. The small harbor at Varel, 6.5 miles above Wilhelmshaven, is the only place of any commercial importance and the River Jade proper discharges into the bay near the entrance to this harbor.

Vareler Fahrwasser, a fairly deep channel, passes along the E side of Schweinsrucken, an extensive bank, and leads S to join Vareler Tief, a shallow channel, which continues to the harbor at Varel. There are depths in the entrance channel of less than 0.9m, but at HW, small vessels, with drafts up to 3m, can use it. The harbor is entered through a lock and is used by fishing vessels and small coasters. Several marinas are situated along the shores of Jade Busen.

The River Weser

8.26 That part of the River Weser, from its entrance to the port of Bremerhaven, a distance of about 32 miles, is known as the Aussenweser. From Bremerhaven to Bremen, it is known as the Unterweser. The distances from the seaward entrance to Nordenham (53°29'N., 8°29'E.) and Bremen are about 38 miles and 64 miles, respectively.

There are two entrance channels leading into the River Weser; Neue Weser and Alte Weser are entered 5.7 miles NNE and 9 miles NE, respectively, of the W end of Wangerooge. Roter Sand and Roter Grund, two large and irregularly shaped shoal banks, lie between these two entrance channels.

To the SE of Roter Grund and in the vicinity of Tegeler Plate Light (53°48'N., 8°11'E.), the two entrance channels unite and form one main channel. Sections of this main channel are known as Hoheweg Rinne, Fedderwarder Fahrwasser, and Wremer Loch. Both sides of the channel are bordered by steep-to shoals and sand banks, some of which dry up to 2.1m. Numerous training walls and groins have been erected on both

Wilhelms WRG Terminal

sides of the waterway, particularly in the inner part of the Aussenweser.

On the W and S sides of the waterway are the extensive shoal areas of Mellum Plate, Hohe Weg, and Langlutjen Sand; the former two areas separate the Weser from the Jade and the latter area fronts the low and diked NE coast of Butjadingen.

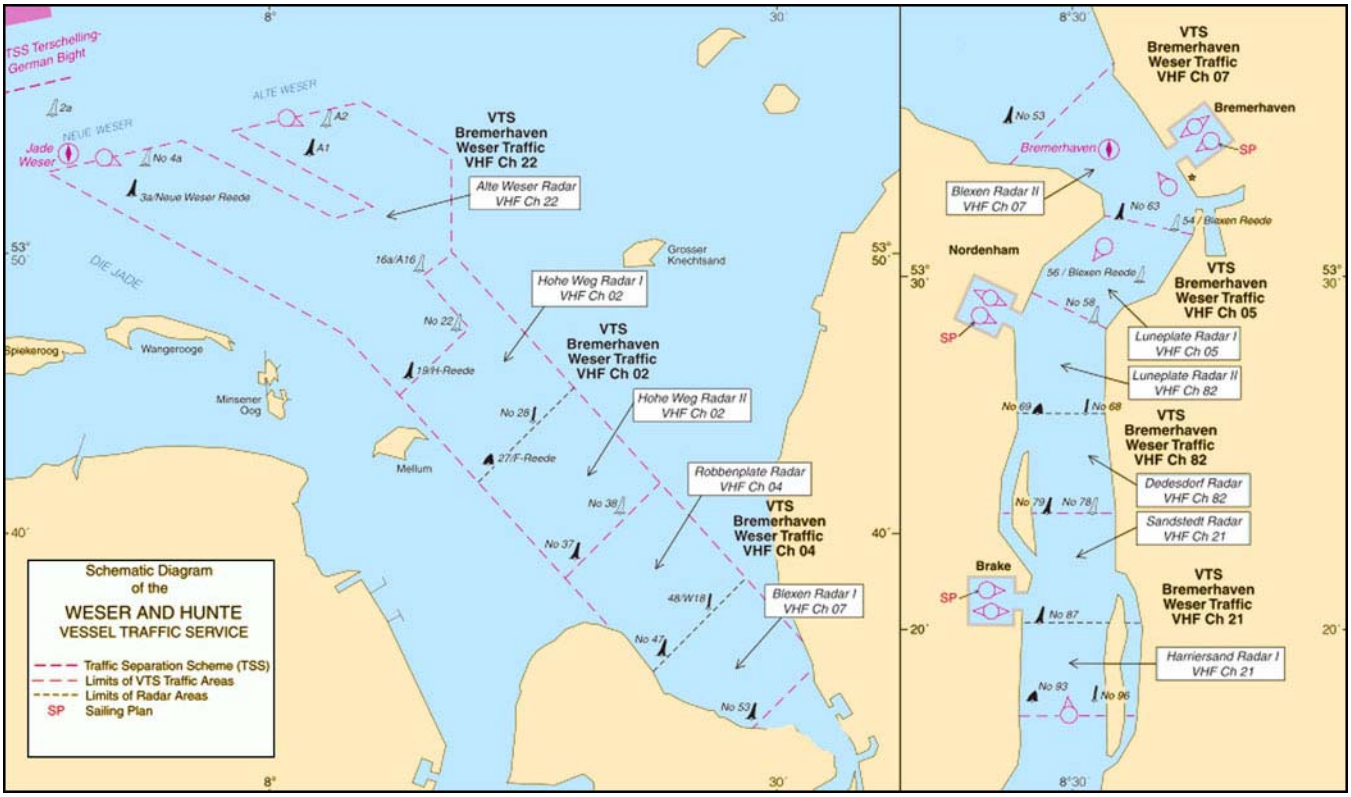
On the E and N sides of the waterway is a large coastline, which fronts the low and diked coast stretching between Bremerhaven and Cuxhaven. This bank terminates at its seaward end in Norder Grunde and Scharhorn Riff. Tegeler Plate and Robben Plate are the principal drying banks on this side of the waterway and both of these banks are joined by shoals. In addition, shoals extend NW from Tegeler Plate, the outer drying bank, and SE from Robben Plate.

Shallow channels lead across the large shoal bank between the River Weser and the River Elbe; however, they are only used by small vessels and fishing boats with local knowledge. A channel, accessible from seaward, is entered between Norder Grunde and Scharhorn Riff and follows a rather circuitous course to the small harbor on the island of Neuwerk.

The Hunte River, a tributary of the River Weser, is entered 4.5 miles above Brake and leads to the small ports of Elsfleth and Oldenburg.

The islands and other dangers, which lie adjacent to the various reaches of the fairway, are well-marked by lighted buoys and beacons. During the winter, when ice is expected, these lighted buoys are often replaced by unlighted buoys.

The main fairways within the River Weser are marked by lighted buoys and indicated by lighted ranges and sectors which may best be seen on the chart. In addition, radar lines, which may best be seen on the chart, indicate the center of each fairway.



Weser and Hunte VTS

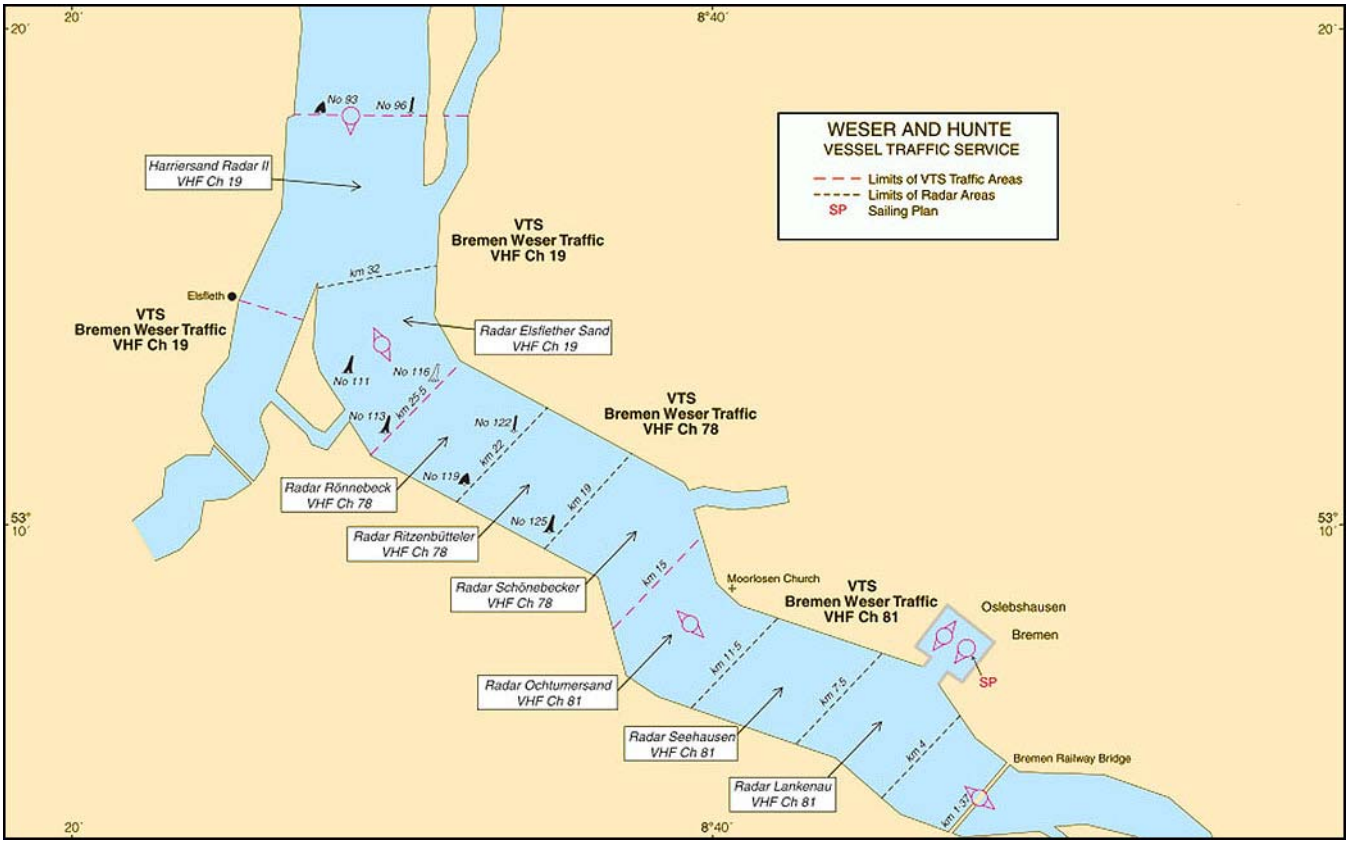
8.27 Neue Weser (53°52'N., 7°52'E.), the principal entrance channel leading into the Aussenweser, is entered about 4 miles E of Jade 2 Lighted Buoy (53°52'N., 7°47'E.). The channel leads ESE and SE between Jade Plate, on the S side, and Roter Grund, on the N side.

The fairway in this channel has a projected dredged depth of 13.9m.

Alte Weser (53° 55'N., 7°58'E.), the secondary entrance channel leading into the Aussenweser, is entered about 9 miles NW of Alte Weser Light (53°52'N., 8°08'E.). This channel leads SE and S to a position located NW of Tegeler Plate Light (53°48'N., 8°11'E.), where it joins the main channel. It crosses a sand bar extending SE from Roter Grund. The entrance to this channel is marked by Schlusseltonne Lighted Buoy (53° 56'N., 7°55'E.).

The fairway in this channel has a least depth of 9m, but is not maintained by dredging.

Hohewegrinne, a main channel, leads inward and SE for 6.5 miles from the junction of the Neue Weser and Alte Weser. Fedderwarder Fahrwass and Wremerloch, two main channels, then lead inward to Bremerhaven.



Weser and Hunte VTS

Hohe Weg Light (53°42.8'N., 8°14.6'E.), a directional light, is shown from a prominent tower standing on the W side of the channel. The tower is 36m high and surmounted by a radar scanner.

Obereversand Tower (Upper Eversand Tower) (53°45'N., 8°21'E.) stands 4.3 miles NE of Hohe Weg Light. It is located on the SW side of Sud Eversand, an extensive drying flat, and is conspicuous.

Untereversand Tower (Lower Eversand Tower) stands 0.7 mile SE of Obereversand Tower and is prominent.

Robbenplate Light (53°41'N., 8°24'E.), a rear range light, is shown from a prominent tower, 37m high, standing on the E side of the channel, 5.8 miles ESE of Hohe Weg Light.

Robben Radar Tower (53°40'N., 8°26'E.) stands on the E side of the river. It is 52m high and prominent.

Several conspicuous container gantry cranes stand in the vicinity of the Stromkaje Quay river berths at Bremerhaven.

A conspicuous radio tower, 112m high, stands on the E side of the river at Bremerhaven, on the N side of the entrance to the River Geeste.

Weddewarden Airport Aero Light (53°35'N., 8°34'E.) is shown from a prominent framework tower, 77m high, standing close N of the wet docks at Bremerhaven.

A prominent chimney, 153m high, stands on the W side of the river at a factory, 1 mile WSW of the entrance to the River Geeste. A prominent radar tower, 52m high, stands on a ruined fort, 2 miles NW of the chimney.

Bremerhaven Neuer Hafen Light (53°32.8'N., 8°34.2'E.), a rear range light, is shown from a conspicuous brown tower, 37m high, standing on the E side of the channel, 0.7 mile N of the entrance to the River Geest. The front range light is shown from a prominent conical tower, 26m high, standing close S.

Unterweser (Esenshamm) Nuclear Power Station (53°26'N., 8°29'E.), with a conspicuous chimney 101m high, stands on the W side of the river.

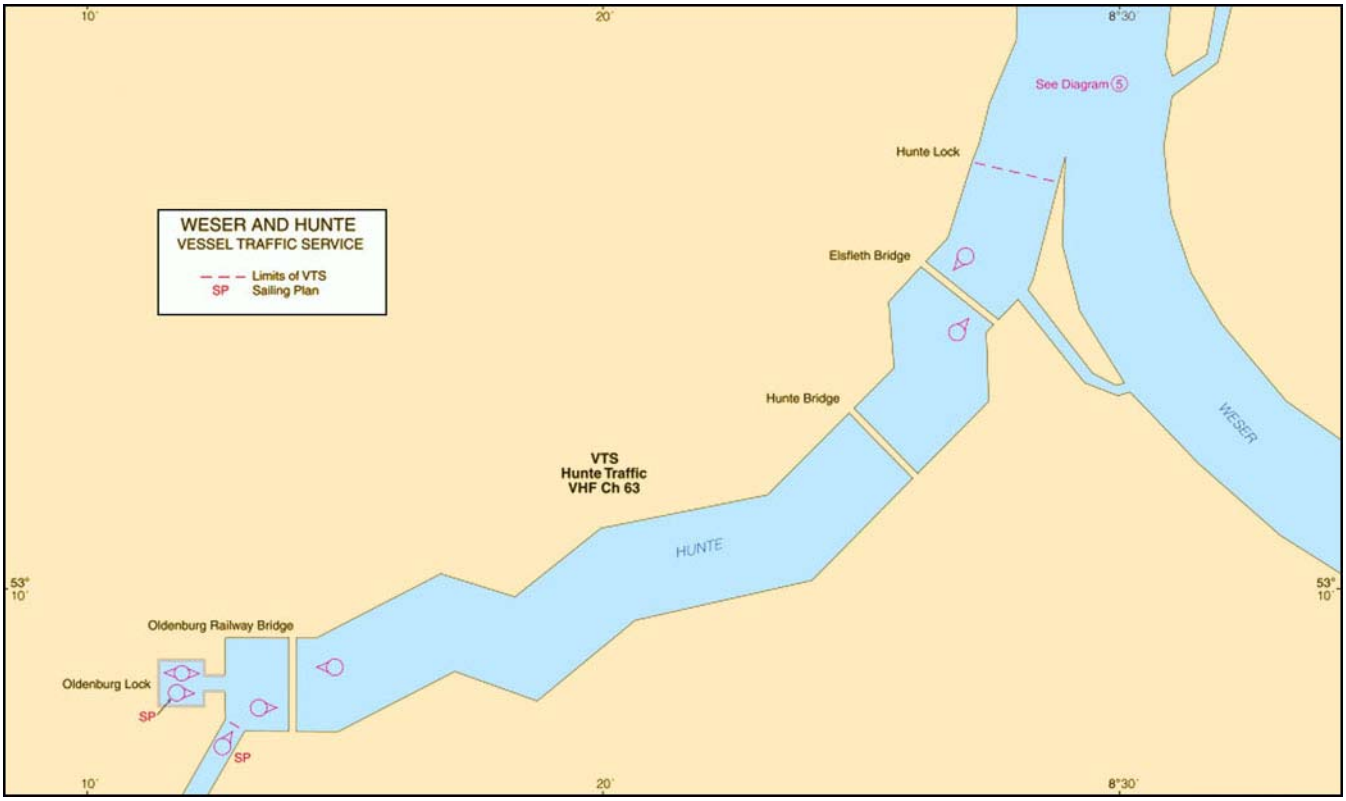
Farge Power Station (53°12'N., 8°31'E.), with a conspicuous chimney, stands on the E side of the river. Two prominent pylons, which support an overhead cable, are situated on each side of the river, close NW of the power station.

Bremen Harbor Power Station (53°08'N., 8°44'E.) stands on the N side of the river. Its chimney, the tallest in the port, is 250m high and conspicuous.

Tides—Currents.—In the vicinity of Roter Sand Disused Light Tower (53°51'N., 8°05'E.), the tide rises about 3m at springs and 2.9m at neaps.

Winds from between the WNW and NNW generally raise the water level, and winds from a SE direction lower it.

The tidal currents in the river do not always follow the bed of the channel, but tend to set along one side of the main channel. The depths in the various reaches of the main channel and the



Weser and Hunte VTS

Hohe Weg Light

Obereversand Tower

Untersand Tower

limits and shapes of the numerous sandbanks are frequently changed by these currents, at times quite considerably.

In a position about 1.2 miles S of Roter Sand Disused Light Tower, the incoming SE current begins to set at about 6 hours after HW at Bremerhaven (the reference station) and attains a maximum rate of 2.3 knots at springs and 1.5 knots at neaps. The outgoing NW current begins to set a short while before HW and attains a maximum rate of about 2.3 knots at springs and 1.8 knots at neaps.

In a position off the NW end of the shoals extending from Tegeler Plate, the currents set E and W and attain rates of 2

Robbenplate Light

Bremerhaven Neuer Hafen Range Lights

Unterweser (Esenshamm) Nuclear Power Plant

knots. During strong N winds, heavy surf often forms on Tegeler Plate, particularly at LW.

In a position abreast the middle of Robben Plate, the incoming current begins to set 5 hours 15 minutes before HW and attains a maximum rate of 3 knots at springs. The outgoing current begins to set at about the time of HW and attains a maximum rate of 4 knots at springs.

During W to NW gales, there are heavy ground swells in the outer part of Neue Weser, particularly with an outgoing current and at LW.

Depths—Limitations.—The main fairways in Aussenweser have projected dredged depths of 13.9m as far as Bremerhaven, 11m as far as Nordenham, and 9m as far as Bremen. The fairway as far as Bremerhaven is 300 to 220m wide.

On normal tides, vessels, at HW, can reach Bremerhaven, with drafts up to 14.5m (fresh water); Nordenham, with drafts up to 13m; Brake, with drafts up to 11.3m; and Bremen, with drafts up to 10.7m.

It is reported (2011) that approval has been given to deepen the River Weser, allowing ships with drafts of up to 13.8m to access the container terminals at Bremerhaven at all tide levels. The tide window for vessels with drafts of up to 15.5m will also be larger. Work may be completed in early 2012.

Pilotage.—See Pilotage under The River Jade and The River Weser Estuary (paragraph 8.21).

Regulations.—Extraordinarily Large Vessels on the Weser are defined as those exceeding 350m in length and 14.5m fresh water draft transiting from sea to Bremerhaven; those exceeding 13m fresh water draft transiting between Bremerhaven and Nordenham; those exceeding 11.9m fresh water draft inbound, or 11.6m outbound, transiting between Nordenham and Brake; and those exceeding 190m in length or 6.05m fresh water draft transiting between Brake and Bremen. Such vessels are tide dependent and entry is allowed only if the maintained projected depths exist.

All Extraordinarily Large Vessels, high speed vessels, air cushion vehicles, and unusually large tug formations must obtain permission from the Water Police Authority at Bremerhaven immediately prior to entering the Weser.

Oil, gas, and chemical tankers (including towed units), which are carrying hazardous goods in bulk or have done so but are not certified gas-free, are permitted to enter the Weser only when the visibility is 1,000m or more. In special circumstances, when the visibility is 500m to 1,000m, such vessels may enter with permission of the Weser VTS.

Deep-draft right-of-way vessels, which are constrained by the tide, are prohibited from meeting or overtaking between Buoy No. 39 (53°40'N., 8°23'E.) and No. 43 Lighted Buoy (53°38'N., 8°25'E.) and in the vicinity of the bend in the channel adjacent to Bremerhaven.

Deep-draft right-of-way vessels, which intend to enter Nordschleuse, the northernmost lock at Bremerhaven, may receive permission to navigate on the port side of the fairway in an area extending up to about 1.8 miles N of the lock. Such vessels must remain on the port side until they have entered the lock approach basin. Other vessels proceeding N must allow these vessels to pass on their starboard side.

Vessels with a combined width of 65m or more and, in visibility of less than 1,000m, vessels over 140m in length may not pass each other between the mouth of the Hunte River and the entrance to Neustadterhafen (Bremen).

Vessel Traffic Service.—See Vessel Traffic Service (paragraph 8.5) under Approach Routes to the German Bight for information concerning the Vessel Traffic Service (VTS) applying to vessels navigating within the approaches to the German Bight and proceeding to the River Ems, the River Jade, the River Weser, or the River Elbe.

Weser Vessel Traffic Service (Weser VTS) operates in the River Weser and is mandatory for the following:

1. Vessels over 50m in length, including towed or pushed composite units.
2. Vessels carrying dangerous cargo (gas, chemicals, petroleum, or petroleum products) in bulk.
3. Unloaded tankers if not cleaned, degassed, or completely inerted after carrying petroleum or petroleum products with a flashpoint below 35°C.
4. Nuclear-powered vessels.

The Weser VTS is divided into three operating areas, as follows:
1. Bremerhaven Weser Traffic.
2. Bremen Weser Traffic.
3. Hunte Traffic.

Vessels entering the VTS area of **Bremerhaven Weser Traffic** must maintain a continuous listening watch on the local VHF channel of VTS Center Bremerhaven Weser Traffic or on VHF channel 16, as follows:
1. From No. 3a/Neue Weser Reede Lighted Buoy to No. 19/H Reede Lighted Buoy (inbound only) (Neue Weser)—VHF channel 22.
2. From No. 19/H Reede Lighted Buoy to No. 4a Lighted Buoy (outbound only) (Neue Weser)—VHF channel 22.
3. From A1 Lighted Buoy to No. 16a/A16 Lighted Buoy (inbound only) (Alte Weser)—VHF channel 22.
4. From No 16a/A16 Lighted Buoy to No. 2 Lighted Buoy (outbound only) (Alte Weser)—VHF channel 22.
5. From No. 19/H Reede Lighted Buoy to No. 37 Lighted Buoy—VHF channel 2.
6. From No. 37 Lighted Buoy to No. 5 Buoy—VHF channel 4.
7. From No. 53 Buoy to No. 63 Lighted Buoy—VHF channel 7.
8. From No. 63 Lighted Buoy to No. 58 Lighted Buoy—VHF channel 5.
9. From No. 58 Lighted Buoy to No. 79 Lighted Buoy—VHF channel 82.
10. From No. 79 Lighted Buoy to No. 93 Buoy (Kaseburg)—VHF channel 21.

Vessels must send mandatory reports, as follows:
1. Sailing Plan (SP)—An SP must be sent to VTS Center Bremerhaven Weser Traffic on the appropriate VHF channel, if not already reported by an SP to an adjacent VTS center, as follows:
   a. Before entering the VTS area of Bremerhaven Weser from sea.
   b. Before entering the VTS area of Bremerhaven Weser from a harbor or berth within the VTS area.
2. Position Report (PR)—A PR must be sent to VTS Center Bremerhaven Weser Traffic on the appropriate VHF channel when entering the VTS area, when leaving a harbor or berth, and when passing the following reporting points (RP):
   a. RP 1A—No. 3a/Neue Weser Reede Lighted Buoy (Neue Weser)—VHF channel 22.
   b. RP 1B—The A1 Lighted Buoy (Alte Weser) (inbound only)—VHF channel 22.
   c. RP 2—Bremerhaven Front Light (outbound only)—VHF channel 7.
   d. RP 3—No. 56 Blexen-Reede Lighted Buoy (outbound only)—VHF channel 5.
   e. RP 4—No. 93 Buoy (Kaseburg) (outbound only)—VHF channel 21.

Note.—Outbound vessels must report to German Bight Traffic on VHF channel 80 on passing No. 4a Lighted Buoy (Neue Weser) or A2 Lighted Buoy (Alte Weser).

Vessels entering the VTS area of **Bremen Weser Traffic** must maintain a continuous listening watch on the local VHF channel of VTS Center Bremen Weser Traffic or on VHF channel 16, as follows:
1. From No. 93 Buoy (Kaseburg) to No. 113 Buoy—VHF channel 19.
2. From Hunte Entrance to Elsfleth (Km 24.3)—VHF channel 19.
3. From No. 113 Buoy to Lemwerder Airfield (Km 15)—VHF channel 78.
4. From Lemwerder Airfield (Km 15) to Bremen Railway Bridge (Km 1.5)—VHF channel 81.

Vessels must send mandatory reports as follows:
1. Sailing Plan (SP)—An SP must be sent to VTS Center Bremen Weser Traffic on the appropriate VHF channel, if not already reported by an SP to an adjacent VTS center, before entering the VTS area of Bremen Weser Traffic from a harbor or berth within the VTS area.
2. Position Report (PR)—A PR must be sent to VTS Center Bremen Weser Traffic on the appropriate VHF channel when entering the VTS area of Bremen Weser Traffic, when leaving a harbor or berth, and when passing the following reporting points (RP):
   a. RP 1—No. 93 Buoy, Kaseburg (inbound only)—VHF channel 19.
   b. RP 2— Entrance to Hunte—VHF channel 19.
   c. RP 3—Elsfleth Nautical School (Km 24.3) (outbound only)—channel 19.
   d. RP 4—No. 111 Buoy, Farge—VHF channel 19.
   e. RP 5—Moorlosen Church (Km 12.5)—VHF channel 81.
   f. RP 6—Bremen Railway Bridge (Km 1.5)—VHF channel 81.

Vessels entering the VTS area of **Hunte Traffic**, from Elsfleth (Km 23.2) to Oldenburg-Drielake (Km 1.8), must maintain a continuous listening watch on VHF channel 63 or 16.

Vessels are also required to maintain a listening watch on VHF channel 73 during the voyage on the Hunte. Vessels are recommended to give position reports on VHF channel 73, stating the vessel's name and direction of travel, before passing restricted areas and opening bridges, as well as before passing narrows in channels or bends which cannot be seen.

Vessels must send mandatory reports, as follows:
1. Sailing Plan (SP)—An SP must be sent to VTS Center Hunte Traffic on VHF channel 63, if not already reported by an SP to an adjacent VTS center, before entering the VTS area of Hunte Traffic from a harbor or berth.
2. Position Report (PR)—A PR must be sent to VTS Center Hunte Traffic on VHF channel 63 when entering the VTS area of Hunte Traffic, when leaving a harbor or berth, and when passing the following reporting points (RP):

a. RP 1—Elsfleth (Km 24.3) (inbound only)—VHF channel 63.

b. RP 2—Oldenburg-Drielake (Km 1.0)—VHF channel 63.

Vessels over 160m in length must obtain information on the traffic situation and developments in this area from Bremen Weser Traffic 2 hours before entering the mouth of the Hunte.

Deviation Reports (DR) or Incident Reports (IR) must be sent as necessary to the appropriate VTS center.

The format for the SP and RP can be found in Vessel Traffic Service (paragraph 8.5) under Approach Routes to the German Bight.

Radar advice is provided on request or if instructed by the VTS Center (in German, or on request, in English). The request should include the vessel's name, call sign, and position for identification.

This service is provided when the visibility is less than 3,000m by Bremerhaven Weser (2,000m by Bremen Weser); when the pilot vessel is in a sheltered position; when lighted buoys are withdrawn due to ice; when required by the traffic situation; or when requested by a vessel.

The radar stations, VHF channels, and respective areas in the approaches and entrance are, as follows:

1. Alte Weser Radar—VHF channel 22—No. 3a/Neue Weser Reede Lighted Buoy (Neue Weser) to No. 19H/Reede Lighted Buoy and A1 Lighted Buoy (Alte Weser) to No. 16a/A16 Lighted Buoy.
2. Hohe Weg Radar I—VHF channel 2—No. 21 Lighted Buoy to No. 27 Lighted Buoy.
3. Hohe Weg Radar II—VHF channel 2—No. 27 Lighted Buoy to No. 37 Lighted Buoy.
4. Robbenplate Radar I—VHF channel 4—No. 37 Lighted Buoy to No. 47 Lighted Buoy.
5. Robbenplate Radar II—VHF channel 4—No. 47 Lighted Buoy to No. 53 Lighted Buoy.

Bremerhaven Weser Traffic broadcasts navigational and meteorological information (in German) at 20 minutes past every hour on VHF channels 2, 4, 5, 7, 21, 22, and 82.

Bemen Weser Traffic broadcasts navigational and meteorological information (in German) at 30 minutes past every hour on VHF channels 19, 78, and 81.

Hunte Weser Traffic broadcasts navigational and meteorological information (in German) at 30 minutes past every hour on VHF channel 63.

Anchorage.—For anchorages in the outer approaches, see the River Jade and the River Weser Estuary (paragraph 8.21).

Hoheweg Reede, a general anchorage area, with depths of 13 to 17m, lies on the SW side of the fairway, about 1.7 miles NE of Mellumplate Light (53°46'N., 8°06'E.).

Fedderwarden Reede, an anchorage area for laden tankers (excluding gas carriers) and vessels carrying explosives, lies on the SW side of the fairway, about 0.8 mile NE of Hohe Weg Light (53°43'N., 8°15'E.).

Blexen Reede (53°31'N., 8°33'E.) lies at the SE side of the fairway. This anchorage area is divided into three parts for general cargo vessels, tankers and vessels carrying explosives, and small craft.

Nordenham Reede (53°29'N., 8°29'E.), a designated anchorage area, lies at the E side of the fairway.

The limits of the above anchorage areas are marked by buoys and may best be seen on the chart.

Caution.—Due to silting, the depths in the fairways of the river are subject to constant change and charted depths cannot always be relied on. Consequently, the navigational aids are frequently shifted to reflect these changes. The authorities should always be contacted to ascertain the latest depths in the fairways.

In addition, the ranges indicating the fairways of the various reaches do not always mark the exact middle of the channel. They should be interpreted freely in order that vessels remain mostly to the right side of the channel; in some places, the fairways are quite narrow and, for this reason, strict attention should be given to oncoming traffic.

Underwater obstructions exist on the sand banks and flats lying outside of the buoyed fairways.

Several submarine cables lie within the river and may best be seen on the chart.

Ferries cross the river at several points which are indicated on the chart.

Although returns from the coast of Wangerooge are good, the use of radar in the close approaches to and within Aussenweser requires local knowledge due to the irregular returns formed by sand banks, breakers, and tide rips.

Overhead power cables, with a vertical clearance of 62m, span the river in the vicinity of Farge (53°12'N., 8°31'E.), at Km 26, and close W of Bremen, at Km 11.

Weser Tunnel (53°26'N., 8°30'E.) passes under the river near Kleinensiel at Km 53. Anchoring is prohibited in the vicinity of the tunnel and deep-draft vessels must reduce speed when passing over it.

Bremerhaven (53°32'N., 8°35'E.)

World Port Index No. 30810

8.28 The port of Bremerhaven is located on the E bank of the Weser and is divided into two parts by the Geeste River. The main commercial harbor lies N of the Geeste and consists of a complex of wet basins, which may be entered via two locks, and a number of riverside berths. South of the Geeste, there are a number of wet basins which may be entered through the mouth of the Geeste and via a double lock; these basins are used principally by an extensive fishing fleet.

Winds—Weather.—Winds from the W and SW predominate throughout the year and frequently reach gale force, but do not generally affect port operations. With continued strong E winds, sufficient water is sometimes withdrawn from the river so that vessels can only enter or depart at HW.

Tides—Currents.—The tide rises about 4m at springs and 3.6m at neaps.

The tidal current off the port begins to set inward at about 5 hours before local HW and attains a maximum rate of 2.3 knots at springs. The outgoing current begins about 45 minutes after local HW and attains a maximum rate of 3 knots at springs. The currents set diagonally across the port entrance and vessels are advised to guard against them.

Depths—Limitations.—The main river fairway has a least depth of 13.9m as far as the port.

Bremerhaven—Stromkaje Terminal

Bremerhaven—Nordschleuse (North Lock)

The principal riverside facilities include Columbuskaje and Stromkaje. Columbuskaje, situated between the lock entrances, is 1,020m long and has a depth of 9.8m alongside. This quay is used principally by passenger and large ferry vessels.

Stromkaje, a container terminal quay, is situated close N of the entrance to Nordschleuse, the northernmost lock. It is 3,000m long and has a depth of 14.6m alongside.

The principal wet basin complex, located N of the Geeste River, is entered via two locks. The Nordschleuse lock is 372m long, 45m wide, and has a charted depth of 10.8m over the sill. It has a depth of 14.3m over the sill at MHW and can handle vessels with drafts up to 13m (fresh water).

Vessels up to 315m in length and 41m beam can use the Nordschleuse lock. The maximum draft for entry varies with the beam. Vessels with a maximum draft of 13m (fresh water) are limited to a beam of 38m. Vessels with a maximum beam of 41m are limited to a draft of 11.6m.

Kaiserschleuse, the S lock, is 223m long, 27m wide, and has a charted depth of 6.8m over the sill. It has a depth of 10.5m over the sill at MHW and can handle vessels up to 185m in length, 25m beam, and 8.5m draft.

The main basins in the complex are described below.

Nordhafen, with facilities for ro-ro cars and containers, has 1,230m of total quayage, with a depth of 11m alongside.

Osthafen has 595m of total quayage, with a depth of 14m alongside.

Verbindungshafen has 1,290m of total quayage, with a depth of 10.8m alongside. Several shipyards, drydocks, and repair facilities are situated along the E side of this basin.

Kaiserhafen I has 2,010m of total berthage, with depths of 8.8 to 10.8m alongside.

Kaiserhafen II has 1,070m of total berthage, with a depth of 10.8m alongside.

Kaiserhafen III has 1,420m of total berthage, with a depth of 10.8m alongside.

Fischereihafen, the complex situated S of the Geeste River, has five wet basins and is accessible through two locks. The W lock is 106.5m long and 11.1m wide; and the E lock is 181m long and 32.5m wide. Both locks have a charted depth of 5.8m over the sill. Vessels up to 170m in length, 27m beam, and 7m draft can be handled. The complex provides 7,000m of total quayage, with depths of 5 to 7.5m alongside, and is used mostly by fishing vessels and coasters.

The port has facilities for general cargo, passenger, ferry, ro-ro, reefer, vehicle carrier, tanker, container, bulk, fishing, and LASH vessels. In addition, there are several drydocks, the largest being 335m long and 40m wide, which can handle vessels up to 110,000 dwt.

It is reported that vessels up to 350m in length and 14.5m draft (freshwater) can be accommodated at the riverside facilities at HW.

Pilotage.—See Pilotage under The River Jade and The River Weser Estuary (paragraph 8.21).

Pilot boards in the following positions:

1. Weser estuary and Bremerhaven—53°52.8'N., 7°46.5'E.
2. Weser and Jade—53°53'N., 7°25'E. and 54°07'N., 7°28.4'E.
3. River Pilots for ports S of Bremerhaven: off Bremerhaven.

Pilot disembarks in the following positions:

1. 53°59'N., 7°30'E.
2. 54°02.8'N., 7°37.4'E.

Regulations.—Vessels berthed at the riverside facilities may display a red cylinder by day and show a red light vertically between two white lights at night as a warning to passing vessels to reduce speed.

Speed regulations are in force within the fairways located adjacent to Bremerhaven.

8.29 The **Geeste River** (53°32'N., 8°35'E.) meanders through the city of Bremerhaven and discharges, between two high moles, into the Weser. The entrance is 95m wide and has a maintained depth of 5.3m; however, the depth is usually reduced by considerable deposits of silt.

About 0.4 mile above the entrance, a flood barrage, spanned by a bascule bridge, crosses the river. The barrage is closed

when the water level rises to 1m or more above MHW. The barrage provides a navigable width of 24m. The bridge has a vertical clearance of only 5.5m when closed.

Several swing bridges span the river above the flood barrage. The river is tidal as far as a lock, situated about 2.7 miles above the entrance, which connects with the inland waterway system.

Bremerhaven to Bremen

8.30 That part of the River Weser, between Bremerhaven and Bremen, a distance of 36 miles, is known as the Unterweser. The river flows through an area of shallow marshland and in places its direction is maintained by training walls and groins. Nordenham is situated 4 miles above Bremerhaven. Between Nordenham and Brake, a distance of 10 miles, several small towns stand along the banks of the river and are fronted by berthing facilities. However, these facilities are of little commercial importance and used only by small coastal vessels, inland craft, and pleasure boats.

The Hunte River flows into the W side of the River Weser, about 18 miles above Bremerhaven; the Lesum River flows into the E side of the Weser at Vegesack, 26 miles above Bremerhaven. The small harbors of Elsfeth and Oldenburg are situated on the Hunte River 2 and 14 miles, respectively, above its mouth.

The fairways in the various reaches of the Unterweser are marked by buoys and indicated by lighted ranges as far as Vegesack; above Vegesack, the channel is marked by successive pairs of lighted beacons standing on the river banks. In addition, distances along the river are indicated on both sides by kilometer marks which commence near Bremen.

Tides—Currents.—The duration of the incoming tidal current becomes shorter the farther up the river it goes. It sets for 5 hours 45 minutes at Bremerhaven and only for 1 hour 45 minutes at Bremen. The duration of the outgoing current becomes longer. It sets for 8 hours 30 minutes at Bremen and only 6 hours 45 minutes at Bremerhaven.

Before the current begins to set outward, a SW period progresses upstream. There is no noticeable current for 40 minutes at Vegesack, but at Bremen, there is no noticeable current for 2 hours 15 minutes.

In addition, the maximum rate of the current is sustained for longer periods.

About 1 mile above Nordenham, the incoming current begins 4 hours 30 minutes before HW at Bremerhaven and attains a maximum rate of 3.2 knots at springs. The outgoing current begins 1 hour 15 minutes after HW and attains a maximum rate of 3.7 knots at springs.

Close below Brake, the incoming current begins at 3 hours 45 minutes before HW at Bremerhaven and attains a maximum rate of 1.8 knots at springs. The outgoing current begins at 1 hour 30 minutes after HW and attains a maximum rate of 2.7 knots at springs.

Vessels over 230m in length may proceed above the mouth of the Hunte River only when the wind force is less than force 6 and visibility is more than 1,000m.

Depths—Limitations.—Vessels up to 270m in length are permitted to proceed upriver as far as Brake. Vessels are limited to a maximum length of 250m between Brake and Bremen.

The projected dredged depths in the main fairway are 11m as far as Nordenham and 9m as far as Bremen, where they decrease rapidly.

Caution.—Numerous ferries cross the fairway at various places which are indicated on the chart.

Several submarine pipelines and cables lie across the fairways and may best be seen on the chart.

The Unterweser, like the Aussenweser, is subject to frequent changes in depths and the navigation aids are frequently moved accordingly.

8.31 **Nordenham** (53°29'N., 8°29'E.) (World Port Index No. 30840), an important bulk and chemical port, is located on the W bank of the river. The area along this bank between Blexen, located close above Bremerhaven, and Nordenham, 4 miles above Bremerhaven, is the site of numerous industrial plants. These installations are fronted by a number of quays and piers, some private, which form the port.

Tides—Currents.—The tide rises 4m at springs and 3.6m at neaps.

The water level at the port is greatly affected by strong winds. A rise of 0.9m and a fall of 0.6m may be expected during NW and E gales, respectively. The tidal currents off the port set at maximum rates of 2 knots on the flood and 3 knots on the ebb.

Depths—Limitations.—The fairway leading to the port has a dredged depth of 11m. The main quays and piers provide about 1,800m of total berthage with depths of 4 to 13.5m alongside. There are facilities for tanker, bulk, timber, and chemical vessels. Generally, vessels up to 270m in length and 13m draft can be handled at HW. Vessels up to 80,000 dwt and 125,000 dwt, partly laden, have been accommodated in the port.

Brake

8.32 **Brake** (53°20'N., 8°29'E.) (World Port Index No. 30850) is located on the W bank of the river, 47 miles above the entrance and about midway between Bremerhaven and Bremen.

Tides—Currents.—Tides rise about 4m at springs and 3.5m at neaps.

The water level off the port is affected by strong winds from the NW and SE and rises and falls of the water level up to 0.9m

are not uncommon. The tidal currents here may attain rates up to 5 knots on the ebb and 3 knots on the flood.

Depths—Limitations.—The river fairway leading to the port has a projected dredged depth of 9m. The harbor consists of a wet dock complex and several riverside berths.

The lock providing access to the wet dock complex is 95m long, 16m wide, and has a depth of 6m over the sill. The basins in the complex provide 1,100m of total berthage and can accommodate vessels up to 3,000 dwt and 5.5m draft.

The main riverside quays provide about 1,800m of total berthage with depths of 10.4 to 12.5m alongside. There are facilities for tanker, bulk, and container vessels. Vessels up to 270m in length and 11.3m draft can be handled at HW.

Aspect.—Several conspicuous large silos stand in the vicinity of the river berths.

Caution.—Anchoring and fishing are prohibited within an area, the limits of which are shown on the chart, along the W side of the river adjacent to Brake.

Brake (riverside berths)

8.33 The **Hunte River** (53°15'N., 8°29'E.) is entered 4.5 miles above Brake and leads to the small ports of Elsfleth and Oldenburg, lying 2 and 14 miles, respectively, above its entrance. The river fairway is about 130m wide at the entrance, 95m wide at Elsfleth, and only 25m wide at Oldenburg.

A flood barrage is situated 0.5 mile within the mouth of the river and is closed when the water level rises to 0.8m or more above MHW. The barrage provides two passages, each with a navigable width of 25.8m.

Four bridges span the river between the entrance and Oldenburg. The limiting width of the navigable passages is 19.3m and the limiting vertical clearance is 26.9m. In addition, several overhead cables span the river and have a minimum vertical clearance of 26 m.

A speed limit of 5.4 knots is in force within the river.

The fairway has a projected dredged depth of 3.8m as far as the flood barrage. Above the barrage, the fairway has a projected dredged depth of 3.9m extending to close above Elsfleth and 2.3m as far as Oldenburg.

Elsfleth (53°14'N., 8°28'E.) (World Port Index No. 30860) consists of several riverside facilities. A prominent nautical school, with a mast, stands in the vicinity of the small town. The port provides 480m of total quayage with depth of 3 to 4.9m alongside. Vessels up to 2,700 dwt, 90m in length, and 5m draft can be accommodated at HW.

Oldenburg (53°07'N., 8°13'E.) (World Port Index No. 30870) is the terminus of the Hunte-Ems Kanal (Der Kustenkanal). The harbor provides about 1,900m of total riverside berthage with a depth of 3m alongside. There are facilities for general cargo, bulk, tanker, and LPG vessels. Vessels up to 1,500 dwt, 85m in length, 10m beam, and 4m draft can be accommodated at HW.

8.34 Close above the junction with the Hunte River, the River Weser narrows to a width of about 150m. A power station is situated at Farge (53°12'N., 8°31'E.), on the E bank of the Weser, 3 miles above this junction. It is fronted by a quay, 550m long, with depths of 7 to 9.7m alongside. Vessels up to 200m in length, 25m beam, and 9m draft can be accommodated alongside.

Between Farge and Vegesack, a distance of 4 miles, the channel gradually narrows. Several shipyards, fitting-out berths, dry docks, and floating docks are situated along the banks of the river and there are numerous industrial plants fronted by small quays, with depths of 2.6 to 5.5m alongside.

The largest dry dock is situated in Bremer Vulcan Shipyard at Vegesack. It is 331.5m long, 57.3m wide, and can handle vessels with drafts up to 8.18m.

Tides—Currents.—Close above Vegesack, the incoming current sets for only about 2 hours 45 minutes. It begins at 3 hours before HW at Bremerhaven and lasts until 15 minutes after HW with a maximum rate of 1 knot. After a period of slack water, lasting 40 minutes, the outgoing current begins and lasts for about 9 hours with a maximum rate of 2 knots.

Bremen (53°08'N., 8°46'E.)

World Port Index No. 30900

8.35 The port of Bremen is situated along both banks of the Weser, 36 miles above Bremerhaven. In addition to its extensive cargo handling facilities, it is also a large shipbuilding center. The harbor encompasses the river area between Mittelsburen and Grossen Weserbrucke, a distance of 5.5 miles, and consists of three parts.

A large wet dock complex, entered through a lock at the NE side of the river, forms the central part of the harbor. Several tidal river berths, along with a number of oil and ore installations, occupy about 1.5 miles of the river below the entrance to the wet dock and form the outer part of the harbor. Several large tidal basins, situated above the entrance to the wet dock, form the inner part of the harbor.

Tides—Currents.—The tides rise about 4.1m at springs and 3.6m at neaps.

Winds from the S quadrant tend to lower the water level.

On the S side of the channel off the entrance to the lock, the incoming current begins about 5 hours before HW at Bremen and flows for 1 hour 45 minutes, attaining a maximum rate of 0.5 knot. After a period of slack water, lasting for 2 hours 15 minutes, the outgoing current begins about 1 hour before HW and lasts for 8 hours 30 minutes, attaining a maximum rate of 1.5 knots.

Depths—Limitations.—The main river fairway leading to Bremen has a projected dredged depth of 9m.

Oslebshausen Schleuse, a lock, provides access to Industriehafen, the wet dock complex. It is 248m long and 34.1m wide, with a depth of 7.8m over the sill.

The main riverside facilities of the outer harbor include Klocknerport Ore Terminal Quay, 300m long, and Frisia Oil Terminal Quay, 265m long, both of which have depths up to 11.5m alongside and can accommodate vessels up to 250m in length and 10.7m draft at HW.

The complex, which forms the central part of the harbor, consists of the following main basins:

1. Olhafen, which has 190m of berthage, with depths of 5 to 9.7m alongside.
2. Huttenhafen, which has 960m of berthage, with depths of 8 to 10.2m alongside.
3. Kalihafen, which has 500m of berthage, with depths of 9.8 to 10.2m alongside.
4. Kohlenhafen, which has 900m of berthage, with depths of 9.8 to 10.2m alongside.
5. Hafen E, which has 450m of berthage, with depths of 8.8 to 10.2m alongside.
6. Hafen F, which has 280m of berthage, with depths of 5 to 9.7m alongside.
7. Hafen A, which has 550m of berthage, with depths of 8.6 to 10.2m alongside.

The inner harbor consists of the following principal tidal basins:

1. Kap Horn Hafen, which has 250m of berthage, with a depth of 9m alongside.
2. Werfthafen, which has 1,360m of berthage, with a depth of 7.2m alongside.
3. Getriedehafen, which has 725m of berthage, with a depth of 11.5m alongside.
4. Holz und Fabrikenhafen, which has 2,280m of berthage, with a depth of 10.5m alongside.
5. Europahafen, which has 2,690m of berthage, with a depth of 8.5m alongside.
6. Neustadterhafen, which has 2,600m of berthage, with depths of 10.5 to 11.5m alongside.

The port has facilities for general cargo, bulk, tanker, ro-ro, container, passenger, car carriers, reefer, and LASH vessels.

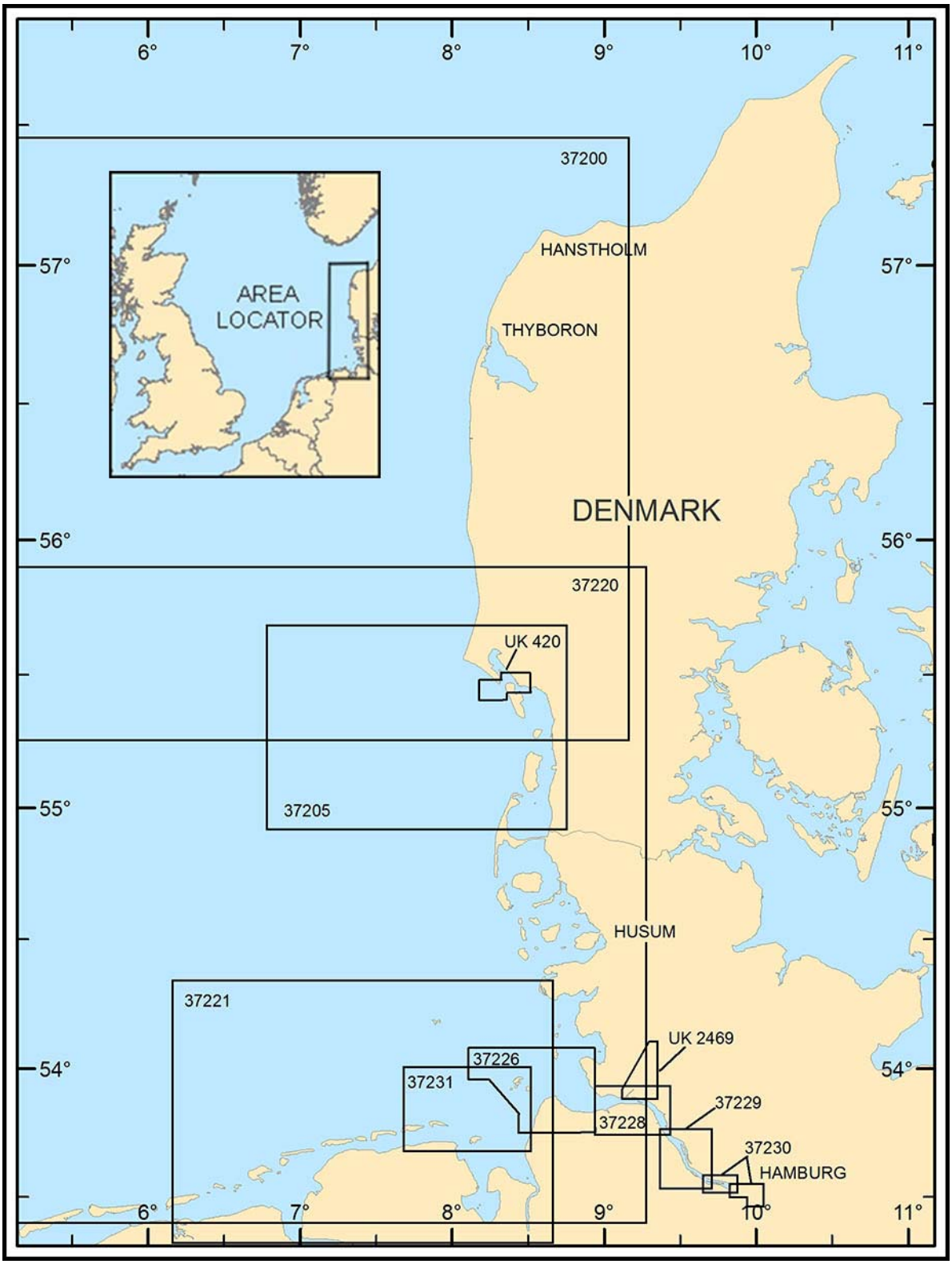
Vessels up to 230m in length, 32.3m beam, and 9.4m draft can enter the wet dock complex at HW. Vessels up to 250m in length and 10.7m draft can be accommodated in the port.

Pilotage.—See Pilotage under The River Jade and The River Weser Estuary (paragraph 8.21).

Regulations.—Vessels over 220m and over 50m in lengths may not meet between the entrances to Neustadterhafen and Europahafen.

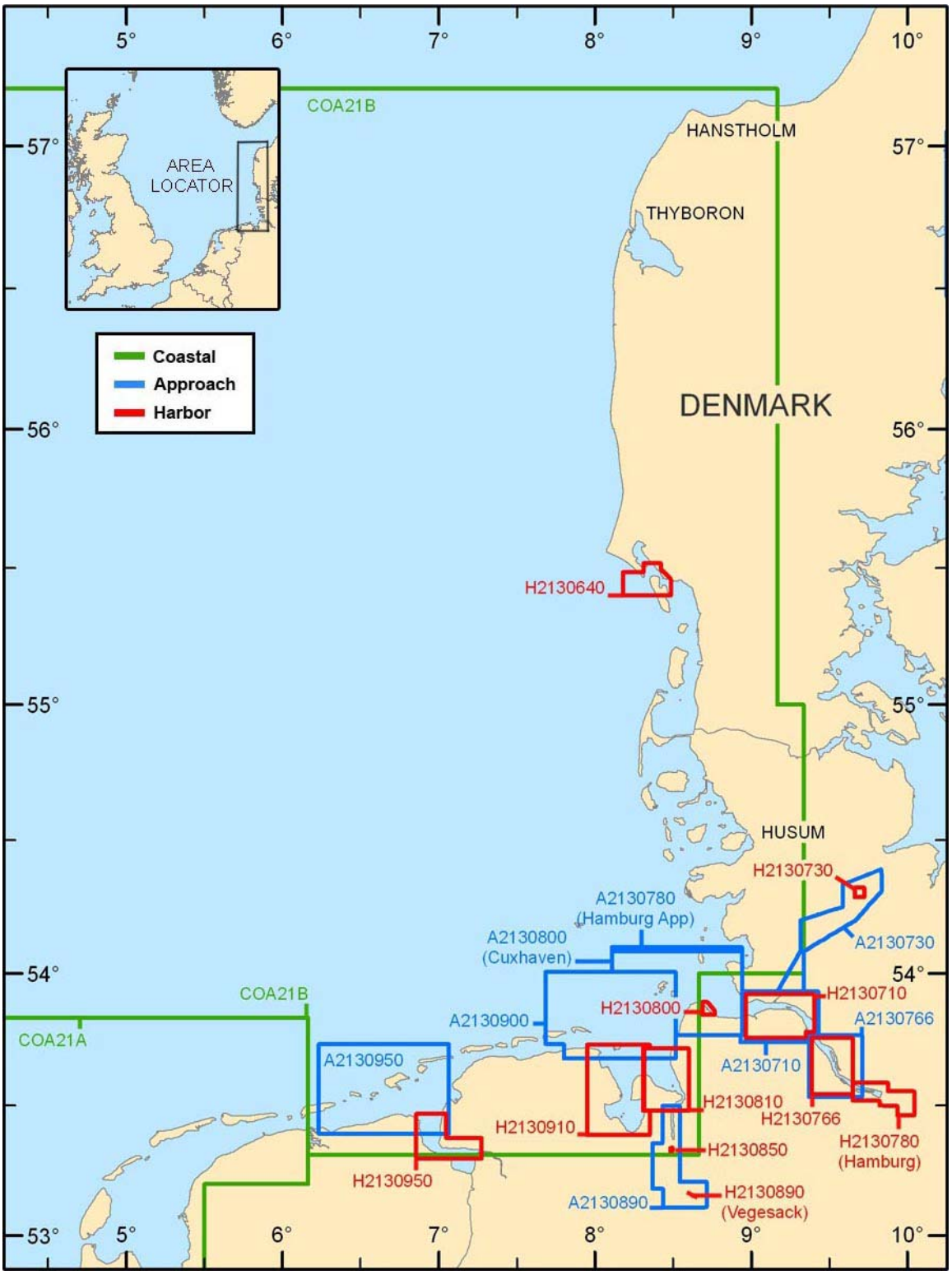
Before taking a berth in a basin, vessels must be turned with bows towards the entrance, unless special permission to act otherwise has been authorized by the harbormaster.

At times, both lock gates are opened for the purpose of equalizing the water level in the wet dock complex with that in the river. At such times, vessels must only enter or depart against the current and with the assistance of a tug or tugs.



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

SECTOR **9** — CHART INFORMATION



Additional DNC library coverage may be found in NGA DNC 21 (Limited Distribution) disc within the README\GRAPHICS folder.

SECTOR 9 — DNC LIBRARY INFORMATION

SECTOR 9

GERMANY AND DENMARK—THE RIVER ELBE TO HANSTHOLM

Plan.—This sector describes the River Elbe from its entrance to the Nord Ostsee Kanal, including the ports of Cuxhaven and Hamburg. The North Sea coasts of Germany and Denmark lying between the River Elbe and Hanstholm are described next, together with the islands of Helgoland and the other Nordfriesische Inseln. The descriptive sequence is SE through the approaches to the River Elbe and then N along the coasts of Germany and Denmark

General Remarks

9.1 The River Elbe is the most important river in German maritime commerce and provides access to the inland waterway system and the Nord Ostsee Kanal.

From this river, the coast extends 95 miles NNW to Horns Rev. The land is mostly low and is protected by dikes and sand dunes. The coast is irregular and several peninsulas extend W from its S part; however, there are no outstanding landmarks along this part of the mainland. The German/Danish border is situated about 70 miles N of the entrance to the River Elbe.

The entire coast is fronted by extensive shoals which extend a considerable distance from the shore. The Nordfriesische Inseln, a chain of islands, lie, with the exception of Helgoland, on this large shoal area. These shoals partly dry and numerous channels run between them, but there are mostly narrow, shallow, winding, and subject to frequent changes. They are used almost exclusively by fishing vessels and small craft with local knowledge.

Helgoland, one of the Nordfriesische Inseln, lies more than 22 miles from the coast. The remainder of the islands lie between 3 and 18 miles offshore. With the exception of Helgoland, these islands are generally low and consist of sand dunes and fertile marsh land. The shores of some of the islands are protected by sand dunes and others are diked to prevent erosion, but many of the smaller islands have neither.

The part of the North Sea that fronts this section of coast is relatively shallow and in general the depths decrease gradually towards the shore. Numerous wrecks lie throughout the area and may be found far offshore.

From Blavands Huk, on the mainland, to the E of Horns Rev, the coast extends about 100 miles N to Hanstholm. The coast in general is low and backed by sand dunes, but there are areas, particularly near the headlands, where cliffs attain heights of over 65m. Much of this coast has no outstanding landmarks except for several beacons.

The part of the North Sea that fronts this section of coast is relatively shallow and has two off-lying banks. The depths decrease gradually toward the shore and the bottom consists mainly of sand, although there are small areas of sand mixed with shells and stones.

Lille Fisker Banke, with a least depth of 31m, lies 63 miles W of Thyboron. A rather extensive bank, with a least depth of 27m and several 31m patches, lies close S and SW of Lille Fisker Banke.

Jyske Rev, with depths of 17 to 36m, lies 25 miles W and WNW of Thyboron.

Limfjorden, entered about 70 miles N of Blavands Huk, extends about 90 miles ENE to Hals, on the W side of the Kattegat. This fjord, which consists of a series of lakes with interconnecting channels, cuts through the N part of Jylland and converts the N part of that peninsula into an island.

There are no large ports situated along this N section of the coast. Ringkobing and Thyboron, both used by fishing vessels, are the only commercial harbors; however, several small local harbors and marinas are situated throughout Limfjorden.

Tides—Currents.—As a general rule, the currents in the coastal area covered by this sector set E along the N part of the Netherlands coast into the German Bight off the entrance to the Elbe and then set N along the Danish coast to Hanstholm. Winds between the SW and N usually increase the rate of the current and those between NE and S decrease its rate. If strong and long lasting prevailing winds continue, the direction of the current may be reversed.

The main offshore current has a mean rate of 0.5 knot and a rate up to 1.5 knots near the coast. At times, with a favorable strong wind, the current can attain a rate near the coast up to 4 knots, but be much less farther offshore.

Regulations.—For extracts from the Traffic Regulations applying to all German waterways and details of Extraordinary Large Vessels, see paragraph 8.1.

For information concerning right-of-way vessels in the approaches to the River Elbe, see Regulations under Approach Routes to the German Bight in paragraph 8.4.

Particularly Sensitive Sea Areas (PSSAs) are areas that need special protection through action by the IMO because of their ecological, socio-economic, or scientific significance and which may be damaged by maritime activities. The Waddenzee coastal area of the Netherlands, Germany, and Denmark has been designated a PSSA. The main shipping routes leading to coastal ports in the region are excluded from the PSSA.

Special Areas in the North Sea have been designated under MARPOL 73/78 because of their sensitive oceanographic and ecological conditions and their marine traffic. These areas are provided with a higher level of pollution protection than other regions of the sea.

For further information concerning PSSAs and Special Areas in the North Sea, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean and Adjacent Seas.

Caution.—Numerous production platforms, wells, and gas and oil pipelines lie in the waters off the coast of Denmark and may best be seen on the charts. Extreme caution is advised when navigating in the vicinity of such facilities. Some of the production platforms are equipped with racons.

The principal oil and gas fields in the area are listed below:

1. Regnar Oil Field (55°23'N., 5°12'E.), with an SPM.
2. Dan Oil Field (55°29'N., 5°07'E.).
3. Halfdan Oil Field (55°33'N., 5°05'E.).
4. Hanze Oil Field (54°57'N., 4°35'E.).

5. Kraka Oil Field (55°24'N., 5°06'E.).
6. Skjold Oil Field (55°32'N., 4°55'E.).
7. Gorm Oil Field (55°35'N., 4°46'E.).
8. Dagmar Oil Field (55°35'N., 4°38'E.).
9. Rolf Oil Field (55°36'N., 4°30'E.).
10. Tyra Gas Field (55°44'N., 4°47'E.).
11. Roar Gas Field (55°46'N., 4°39'E.).
12. Valdemar Oil Field (55°50'N., 4°34'E.).
13. Syd Arne Gas Field (56°05'N., 4°14'E.).
14. South Arne Oil Field (56°05'N., 4°14'E.).
15. Svend Gas Field (56°10'N., 4°10'E.).
16. Harald Gas Filed (56°21'N., 4°16'E.).
17. Cecilie Oil Field (56°24'N., 4°46'E.).
18. Siri Oil Filed (56°29'N., 4°55'E.).
19. Stine Oil Field (56°31'N., 5°04'E.).
20. Nini Oil Field (56°38'N., 5°19'E.).
21. DolWin Beta Platform (53°58.7'N., 6°55.4'E).

For oil and gas fields located in the North Sea and lying W and NW of the above fields, see paragraph 1.4.

The River Elbe

9.2 The River Elbe is 730 miles long and a major waterway. It is navigable by inland vessels and connected to the extensive European inland waterway systems. The principal ports of Cuxhaven and Hamburg are situated 26 and 78 miles, respectively, above the entrance of the river.

The River Elbe also provides access to the Nord Ostsee Kanal at Brunsbuttel, 42 miles above the entrance.

The outer part of the river reaches the sea through a broad estuary situated at the SE head of the German Bight. Extensive shoal banks and drying sands front the mainland in the vicinity of the estuary. They extend up to 20 miles offshore on the N side and up to 15 miles offshore on the S side.

Neuwerk Light

Norder Grunde (53°55'N., 8°08'E.), lying on the S side of the estuary, extends far out to sea and its outer part is very steep-to. It is reported that soundings do not give any early warning when approaching this large shoalbank. During periods of heavy seas, the N side of Norder Grunde is indicated very clearly by breakers and its shallow areas are easily noticeable through the surf.

Grosser Vogelsand (54°01'N., 8°25'E.), lying on the N side of the estuary, is constantly shifting. Drying flats extend along the SE side of this shoal. Gales from the W and N form heavy surf on this shoal, particularly on its NW part.

Elbe Lighted Buoy (54°00'N., 8°07'E.), equipped with a racon, is moored in the outer approaches, 11 miles WNW of Scharhorn.

Grosser Vogelsand Tower (54°00'N., 8°29'E.), 45m high with two overhanging stories and a helicopter platform, stands 2.5 miles NNE of Scharhorn. It is prominent and floodlit at night.

The main river entrance lies between Grosser Vogelsand, the outermost shoal bank on the N side, and Scharhorn Riff (53° 58'N., 8°20'E.), the outermost shoalbank on the S side. The entrance channel extends E for 8 miles and then ESE and SE to the port of Cuxhaven. The river channel then follows a general E direction for 13 miles to Brunsbuttel.

The islands of Scharhorn (53°57'N., 8°26'E.) and Neuwerk (53°55'N., 8°30'E.) form the outer land features and stand on an extensive sand flat at the S side of the river entrance.

The mainland on both sides of the river is low and diked; it is reported that the landmarks on the mainland are not visible until vessels are fairly close to the shore.

Neuwerk Light (53°55'N., 8°30'E.) is shown from a conspicuous brick tower, 38m high, standing on the S side of the island. A prominent white radar tower, 60m high, is situated on the NW side of the island, 0.6 mile NNW of the light. A conspicuous beacon (North Beacon) stands 0.3 mile NW of the radar tower.

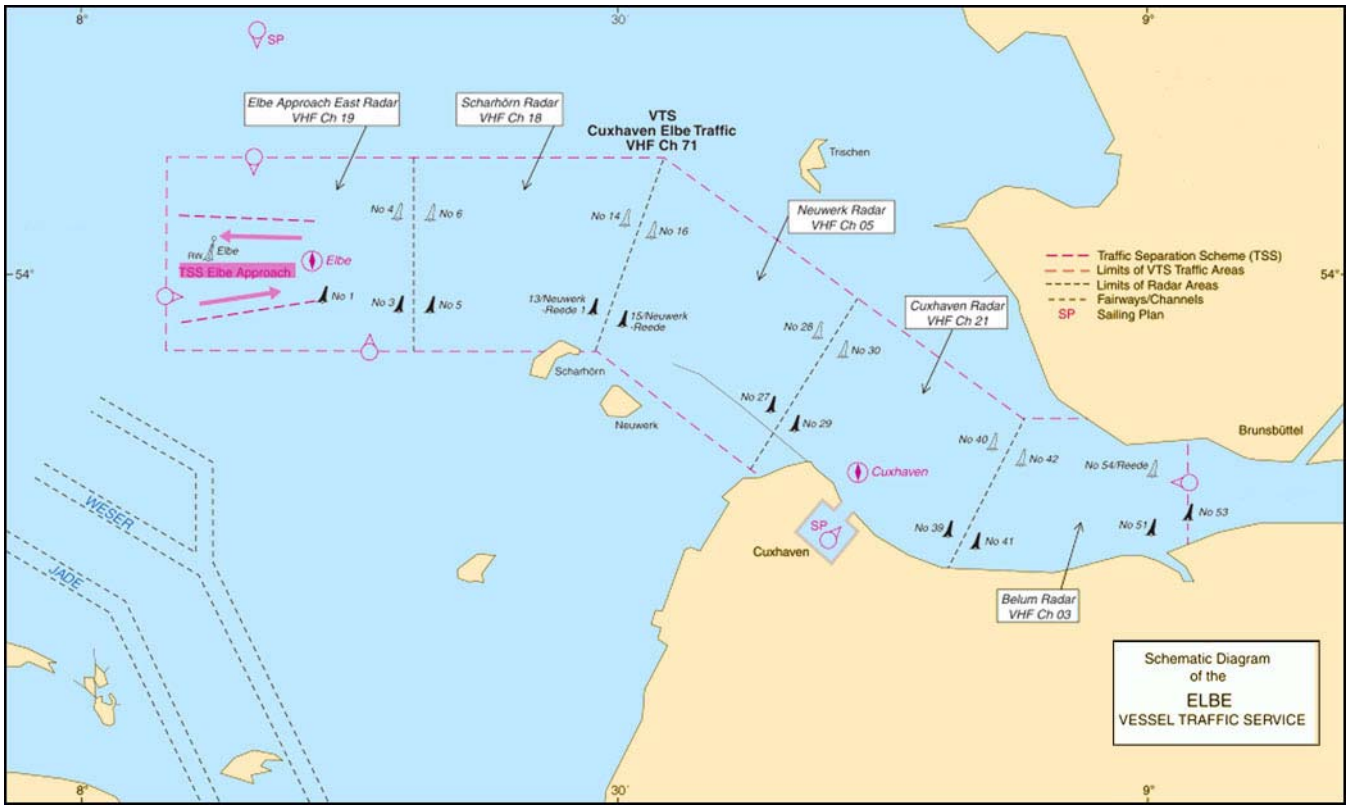
A long training wall, marked by beacons, extends from the mainland in the vicinity of Cuxhaven (53°52'N., 8°43'E.). It projects in a general NW direction for about 5 miles to Mittelgrund (53°57'N., 8°35'E.), a drying shoal area.

Kugel Beacon

9.3 Neuer Leuchtergrund (53°59'N., 8°31'E.), a detached shoal, has a least depth of about 6m. It lies 1.7 miles NE of Scharhorn and divides the main channel into two fairways.

Mittelrinne (53°58'N., 8°33'E.), the main fairway, passes S of Neur Leuchtergrund and is maintained by dredging.

Norderrinne (53°59'N., 8°33'E.), a secondary fairway, passes N of Neuer Leuchtergrund and is used by departing vessels (see Regulations in paragraph 9.1). This fairway has a least depth of about 7m; however, it is reported to be not



Elbe Western Entrance VTS

Cuxhaven Radar Tower

maintained by dredging and subject to frequent changes. It rejoins the main fairway about 1.7 miles SE of the E end of Neuer Leuchtergrund.

Kugel Beacon (53°54'N., 8°41'E.) stands at the N extremity of the mainland, NNW of Cuxhaven. This prominent landmark is 30m high and illuminated at night.

Cuxhaven Radar Tower (53°52'N., 8°43'E.), a tall building with a semicircular front, stands in the N part of the port. It has a flat top surmounted by a radar scanner and is very prominent. A conspicuous radio mast, 130m high, is situated 0.2 mile SSW of this tower.

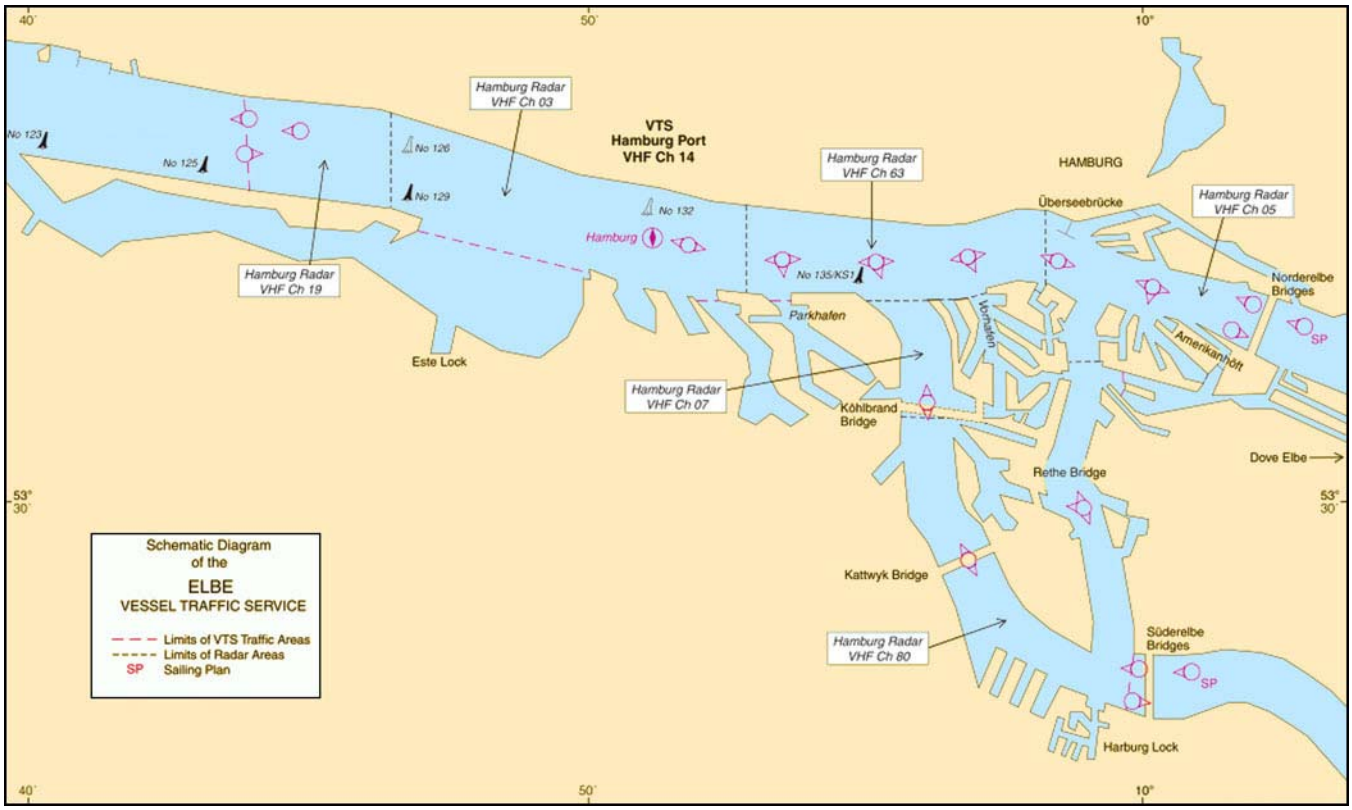
The approach and main entrance fairways are marked by lighted buoys and indicated by sector lights. The fairways within the river are also indicated by lighted ranges. In addition, radar conspicuous beacons have been established at the entrance to the river; these are situated close outside the main fairway and many are floodlit.

The small and minor channels that lead among the shoal banks in the estuary are marked by perches and beacons. These passages should only be used small vessels with local knowledge.

All of the above aids may best be seen on the chart.

Ice.—In general, ice is found in the river in most winters, but it is only during severe winters that it forms in sufficient quantity to be of any concern. Icebreakers are used, and from the sea to Hamburg, the fairways are kept open. In severe winters, ice may cause difficulties within the seldom visited small harbors and inlets along the river, but the major ports may be entered with no trouble.

The first ice forms in the upper river near Hamburg and then spreads downstream towards the sea. The earliest ice generally appears at Hamburg about the middle of December and in the vicinity of Neuwerk about 2 weeks later. However, during severe winters, ice has been observed at Hamburg as early as the first week of November.



Elbe VTS

The ice generally disappears about the same time at Neuwerk as at Hamburg. It generally remains as long as the beginning of March and, during severe winters, may last until late March. During rainy weather, the ice disappears very quickly.

The river never freezes over completely as the ice is, more or less, kept in motion by the tidal currents. With the incoming current, the ice is heaped together and may come to rest at the bends in the river. With the outgoing current, which lasts longer than the incoming current, the ice is driven seaward.

Tides—Currents.—In the vicinity of the island of Scharhorn, the tide rises about 3.3m at springs and 2.9m at neaps.

Winds from the W to NW raise the water level and those from the E to SE lower it. Winds from the SSE and NNW do not appreciably affect the water level. Continued E winds can maintain the abnormally low water level for some time and, in exceptional cases, the water level has been reported to rise as much as 4m above the MHW and drop as low as 3m below the MLW. At Hamburg, rises of 1.9 to 2.5m may be caused by heavy storm floods.

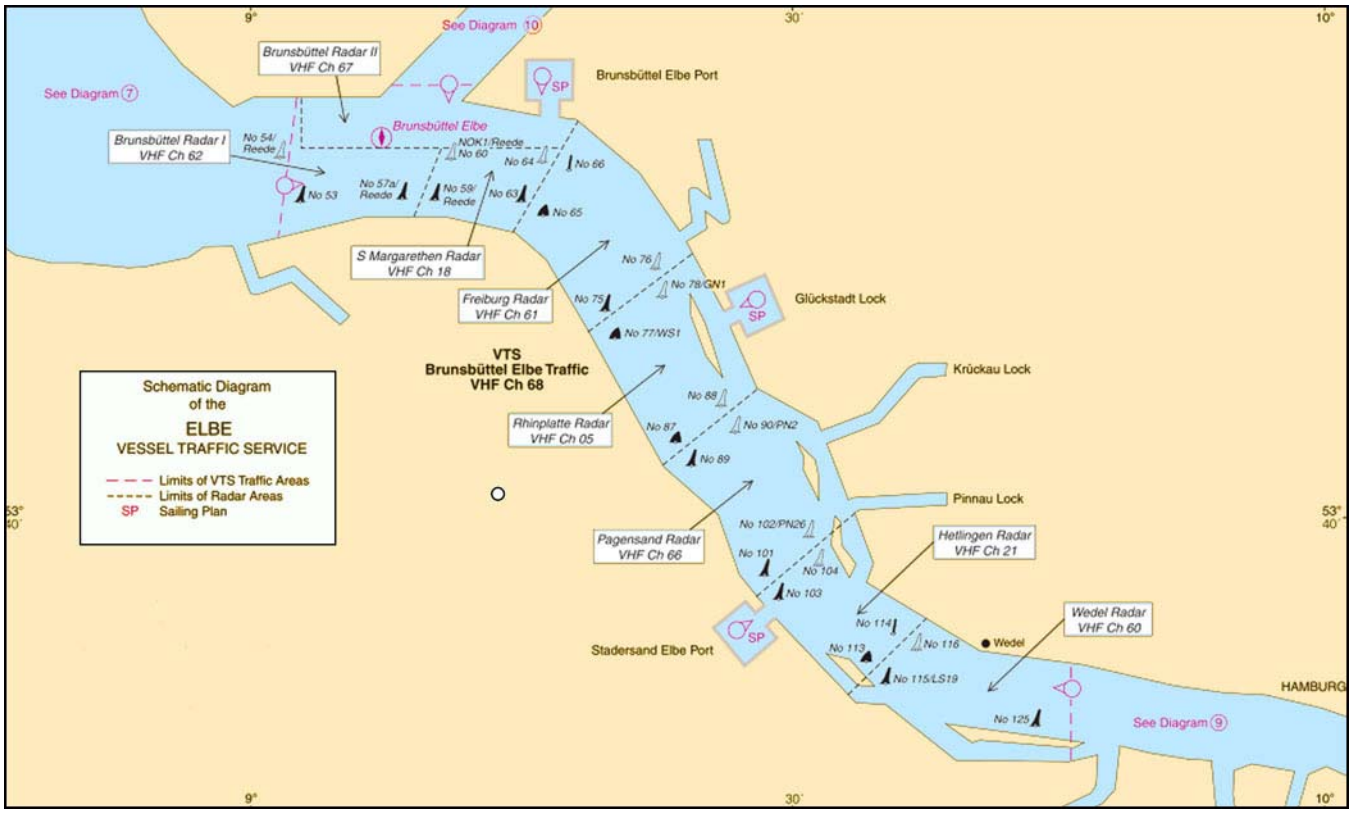
The presence of heavy ice tends to reduce the tidal range, particularly that of the HW; reductions up to 1m have been observed.

In the approach to the river, the tidal currents set in an E and W direction. On nearing the entrance, they gradually assume a SE and NW direction. In general, the E or incoming current begins to set 30 minutes to 1 hour 30 minutes after LW at Helgoland. The W or outgoing current begins to set 1 hour to 2 hours after HW. Between the changes of the two currents, there is a very defined period of slack water. Under normal conditions, these currents attain rates of 1 to 1.5 knots; however, the rates and durations are greatly affected by the wind.

In the entrance, the incoming current is stronger on the S side of the channel and generally begins to set about 1 hour earlier than the current on the N side. The incoming current first sets across the shoals in the estuary and through the channels between the drying sands. The current coming across the flats near Scharhorn sets diagonally over Mittelgrund and then E towards the training wall and the main fairway.

In the vicinity of Cuxhaven, the incoming current on the N side of the channel is stronger and lasts longer than the current on the S side.

The outgoing current in the entrance begins to set sooner on the N side than the current on the S side. At first, it sets N along the S edge of Grosser Vogels and, as the water level is lowered and the drying sands appear, a branch of this current sets through the channels between these drying sands and another branch sets towards the sea through the main fairway. In the vicinity of Midem Sand, part of the current sets N and another part sets through the main channel, consequently increasing the velocity of the current off Cuxhaven.



Elbe Western Part VTS

Turbulent water may be encountered off the SW side of Medem Sand. Somewhat rough seas form on the N side of the channel with strong W and NW winds at almost the end of the outgoing current. On the S side of the channel, where the incoming current is beginning to set, the water remains calm. Lines of foam may indicate the edge between the currents setting in different directions and at different rates.

In the main channel off Scharhorn, currents, during calm weather and normal conditions, attain rates up to 3.5 knots. In the main channel E of Mittelgrund, the flood current attains rates of 2.5 knots at springs and 1.8 knots at neaps. The ebb current attains rates of 2.3 knots at springs and 1.3 knots at neaps.

Depths—Limitations.—The main river fairway has projected dredged depths of 14.7m as far as Cuxhaven and 14.4m (2002) as far as Hamburg, which stands about 78 miles above Elbe Lighted Buoy. It was reported (2010) that the river will be dredged to accommodate larger container ships, starting at the end of 2011.

Generally, vessels not dependent on the tide can transit to Hamburg with drafts (fresh water) up to 12.8m. It is reported (2005) that container vessels with a beam exceeding 32.3m and not dependent on the tide are limited to a draft (fresh water) of 12.7m.

The following maximum drafts (fresh water) for tide-dependent vessels are permitted provided the maintained channel depths are available and an average tide is expected:

1. Vessels up to 360m in length or 63m beam—Inbound draft of 14.2m and outbound draft of 12.7m.
2. Vessels up to 350m in length or 55m beam—Inbound draft of 14.5m and outbound draft of 13.1m.
3. Vessels up to 340m in length or 50m beam—Inbound draft of 14.8m and outbound draft of 13.4m.
4. Vessels up to 330m in length or 45m beam—Inbound draft of 15.1m and outbound draft of 13.7m.

Pilotage.—See Pilotage (paragraph 8.3) and Regulations (paragraph 8.4) under Approach Routes to the German Bight for pilotage information and regulations concerning large vessels and vessels carrying dangerous cargo approaching or navigating in the German Bight (Deutsche Bucht) and intending to enter the River Ems, the River Jade, the River Weser, or the River Elbe.

Such vessels approaching the River Elbe, including those using the German Bight Western Approach TSS, embark the pilot at the Inner Deutsche Bucht (German Bight) boarding position, which is located about 2 miles WNW of E3 Lighted Buoy (54°04'N., 7°55'E.).

The following pilotage requirements apply to all other vessels.

1. Pilotage on the River Elbe is compulsory for the following vessels:
   a. Tankers carrying gas, chemicals, petroleum or petroleum products in bulk.
   b. Unloaded tankers, if not cleaned, degassed or completely inerted after having carried petroleum, petroleum products or chemicals with a flashpoint below 35°C.

c. Other vessels of 90m LOA or more, or 13m beam or more.

2. Inbound vessels should request Pilot at least 12 hours prior to arrival at the pilot boarding position to Brunsbüttel Pilot Station.

3. Outbound vessels from Cuxhaven should request Pilot at least 3 hours prior to departure from Cuxhaven Pilot Station. Vessels departing between 2100-0700 should request Pilot before 1800.

4. Requests for pilotage should include the following information:

a. Vessel name, LOA, beam and gt.
b. Pilot boarding position.
c. ETA/ETD at/from pilot boarding position.
d. Destination of pilotage required.
e. Actual draft on arrival/departure (in decimeters).
f. Port of destination.
g. Port of departure.
h. Other vessels of 90m LOA or more, or 13m beam or more.
i. Freeboard and distance from Pilot deck to the waterline.

5. Pilot boards in the following positions:

a. Inbound—53°59.6'N., 8°08.9'E.
b. Outbound—54°00.3'N., 8°11.4'E.

Pilots can be contacted by VHF.

The pilot vessel has a black hull, with "Lotse" painted in white on both sides, and a yellow stack.

The river is divided into two pilotage districts. Sea pilots take vessels as far as Brunsbuttel (53°53.5'N., 59°08.8'E.), where river pilots board and take vessels as far as Hamburg or the Nord Ostsee Kanal.

Cuxhaven Pilot Station can be contacted, as follows:

1. Call sign: Cuxhaven Elbe Pilot
2. VHF: VHF channel 74
3. Telephone: 49-4721-36062
4. Facsimile: 49-4721-52608

Brunsbuttel Pilot Station can be contacted, as follows:

1. Call sign: Brunsbuttel Elbe Pilot.
2. VHF: VHF channel 8
3. Telephone: 49-4852-87295
   49-4852-87246
4. Facsimile: 49-4852-87165
5. Web site: http://www.elbe-pilot.de

Regulations.—Extraordinary Large Vessels are defined for the River Elbe as those exceeding 330m in length or 45m beam. Such vessels have special transit restrictions placed on them and permission must be obtained at least 24 hours prior to entering the river (see paragraph 8.1).

An Extraordinary Large Vessel, which is departing, may not pass Seemanshoft (53°32.4'N., 9°52.8'E.) during the period from 3 hours before HW at St. Pauli until HW if there is a tide-dependent vessel inbound.

Oil, gas, and chemical tankers, as well as tug and tow formations which transport or have transported hazardous cargo in bulk and are not gas-free, may not enter the River Elbe unless the visibility is at least 1,000m. The VTS Traffic Center may issue exemptions from the established regulations if the length of the vessel does not exceed 140m or the freshwater draft does not exceed 8.5m, if no technical or equipment defects can be detected, if the visibility is over 500m, and the traffic conditions are permitting.

Right-of-way vessels proceeding to the entrance of the Elbe should display the appropriate lights and signals as per Rule 27(b) of the International Regulations for Preventing Collisions at Sea (1972). For more details concerning right-of-way vessels, see Regulations (Approach Routes to the German Bight) in paragraph 8.4.

With prior permission from Cuxhaven Elbe Traffic VTS, the following vessels, when departing, may use Mittelrinne (53° 58'N., 8°33'E.), the main fairway, instead of Norderrinne:

1. Car carriers, container, and ro-ro vessels over 170m in length or 28m beam.
2. All other vessels over 220m in length or 28m beam.
3. All other vessels unable to use Norderrinne because of their draft.

No overtaking is permitted by any vessel within Mittelrinne, the main fairway, between No. 15/Neuwerk Reede Lighted Buoy (53°58'N., 8°28'E.) and No. 19 Lighted Buoy (53°55'N., 8°40'E.), and at Altenbruch between buoys numbers 35 and 41 in the following circumstances:

1. Overtaking a vessel with right of way, (vessels proceeding along the course of a fairway shall have the right of way over vessels entering, crossing, making turns in the fairway or vessels leaving berths or weighing anchor.)
2. Between extraordinarily large vessels, (extraordinarily large vessels in the Elbe are defined as vessels exceeding 350m LOA or a beam of 45m).
3. Where a tug with a large towing or pushing combination is involved.

For vessels proceeding in groups of more than three, one of which is required to use the deep water fairway, overtaking is prohibited in the following areas:

1. Mittelrinne between buoys 13 (Neuwerk-Reede 1) and 29.
2. Altenbruch between buoys 35 and 41.

A vessel departing via Norderrinne must not overtake on the port side of a vessel departing via Mittelrinne when below No. 29 Lighted Buoy (53°55'N., 8°40'E.).

Vessel Traffic Service.—See paragraph 8.5 (Approach Routes to the German Bight) for information concerning the Vessel Traffic Service (VTS) applying to vessels navigating within the waters of the German Bight and intending to enter the River Ems, the River Jade, the River Weser, or the River Elbe.

A local Vessel Traffic Service (VTS) system operates in the River Elbe. This VTS system is mandatory for the following vessels:

1. All vessels over 50m in length (including towed or pushed composite units) within the areas of Cuxhaven Elbe Traffic and Brunsbuttel Elbe Traffic and all ocean-going vessels over 100m in length (including towed or pushed composite units) within the area of Hamburg Port Traffic.
2. Vessels carrying dangerous cargo (gas, chemicals, petroleum, or petroleum products) in bulk.
3. Unloaded tankers if not cleaned, degassed, or completely inerted after carrying petroleum or petroleum products with a flashpoint below 35°C.
4. Nuclear-powered vessels.

The Elbe VTS system is divided into three operating areas, as follows:

1. Cuxhaven Elbe Traffic, extending from Elbe Lighted Buoy (54°00'N., 8°07'E.) to Nos. 53/54 Lighted Buoys (53° 51'N., 9°02'E.).
2. Brunsbuttel Elbe Traffic, extending from Nos. 53/54 Lighted Buoys to No. 125 Lighted Buoy (53°34'N., 9°44'E.).
3. Hamburg Port Traffic, above No. 125 Lighted Buoy.

Vessels entering the VTS area of **Cuxhaven Elbe Traffic** must maintain a continuous listening watch on VHF channel 71 or 16. It is mandatory to send the following reports:

1. Sailing Plan (SP)—An SP must be sent to VTS Center Cuxhaven Elbe Traffic on VHF channel 71, if not already reported by an SP to VTS German Bight Traffic (see paragraph 8.5), as follows:
   a. 30 minutes before entering the VTS area of Cuxhaven Elbe Traffic from sea.
   b. Before leaving a harbor or berth within the VTS area of Cuxhaven Elbe Traffic.
2. Position Report (PR)—A PR must be sent to VTS Center Cuxhaven Elbe Traffic on VHF channel 71, as follows:
   a. When entering the VTS area of Cuxhaven Elbe Traffic (on passing Elbe Lighted Buoy or Nos. 53/54 Lighted Buoys).
   b. When leaving a harbor or berth within the VTS area of Cuxhaven Elbe Traffic.

Vessels entering the VTS area of **Brunsbuttel Elbe Traffic** must maintain a continuous listening watch on VHF channel 68 or 16. It is mandatory to send the following reports:

1. Sailing Plan (SP)—An SP must be sent to VTS Center Brunsbuttel Elbe Traffic on VHF channel 68, if not already reported by an SP to an adjacent VTS center, as follows:
   a. Before leaving a harbor or berth within the VTS area of Brunsbuttel Elbe Traffic.
   b. Before leaving the Nord-Ostee Kanal (Kiel Canal) locks in Brunsbuttel.
2. Position Report (PR)—A PR must be sent to VTS Center Brunsbuttel Elbe Traffic on VHF channel 68, as follows:
   a. When entering the VTS area of Brunsbuttel Elbe Traffic (on passing Nos. 53/54 Lighted Buoys or No. 125 Lighted Buoy).
   b. When leaving a harbor or berth within the VTS area of Brunsbuttel Elbe Traffic.

Vessels entering the VTS area of **Hamburg Port Traffic** must maintain a continuous listening watch on VHF channel 74. It is mandatory to send the following reports:

1. Sailing Plan (SP)—An SP must be sent to VTS Center Hamburg Port Traffic on VHF channel 14, if not already reported to VTS Hamburg Port Traffic, as follows:
   a. When entering the VTS area of Hamburg Port Traffic.
   b. When at a berth within the VTS area of Hamburg Port Traffic.
2. Position Report (PR)—A PR must be sent to VTS Center Hamburg Port Traffic on VHF channel 14 as follows:
   a. Inbound vessels—When passing the limits of the VTS area of Hamburg Port Traffic (on passing No. 125 Lighted Buoy) and on arrival at the berth.
   b. Vessels shifting berth—When leaving the present berth and on arrival at the new berth.
   c. Outbound vessels—When leaving the berth and when passing the limits of the VTS area of Hamburg Port Traffic (on passing No. 125 Lighted Buoy).
3. Further Position Report (PR)—Inbound and outbound vessels, and vessels shifting their berth, must send a further PR to all vessels and land-based stations on VHF channel 74 when passing the following reporting points:
   a. No. 125 Lighted Buoy.
   b. No. 132 Lighted Buoy.
   c. Parkhafen (53°32.5'N., 9°54.2'E.).
   d. No. 135/KS1 Lighted Buoy.
   e. Vorhafen (53°32.6'N., 9°57.0'E.).
   f. Uberseebrucke (53°32.6'N., 9°58.7'E.).
   g. Amerikahoft (53°32.2'N., 9°59.6'E.).
   h. Norderelbebrucken (53°32.0'N., 10°01.5'E.).
   i. Dove-Elbe (53°30.5'N., 10°03.5'E.).
   j. Kohlbrandbrucke (53°31.4'N., 9°56.4'E.).
   k. Kattwykbrucke (53°29.7'N., 9°57.2'E.).
   l. Rethebrucke (53°30.3'N., 9°58.3'E.).

Incident Reports (IR) and Deviation Reports (DR) must be sent to the appropriate VTS Traffic Center as necessary.

The format for the SP and RP can be found under vessel Traffic Service (Approach Routes to the German Bight) in paragraph 8.5.

Radar advice is provided on request, or if instructed by the VTS Center (Cuxhaven Elbe Traffic on VHF channel 71, Brunsbuttel Elbe Traffic on VHF channel 68, or Hamburg Port Traffic on VHF channel 14) in German, or on request in English. The request should include the vessel's name, call sign, and position.

This service is provided when the visibility is less than 3,000m, when the pilot vessel is in a sheltered position, when lighted buoys are withdrawn due to ice, when required by the traffic situation, or when requested by a vessel.

Radar advice within the approaches and river entrance is provided by the following stations:

1. Elbe Approach West Radar—VHF channel 65—GB Lightfloat to Elbe Lighted Buoy.
2. Elbe Approach East Radar—VHF channel 19— Elbe Lighted Buoy to No. 5 Lighted Buoy.
3. Scharhorn Radar—VHF channel 18—No. 5 Lighted Buoy to No. 15/Neuwerk Reede Lighted Buoy.
4. Neuwerk Radar—VHF channel 5—No. 13/Neuwerk Reede1 Lighted Buoy to No. 29 Lighted Buoy.

Information (weather, depths, maximum drafts, dredging, and traffic) broadcasts are made, as follows:

1. By Cuxhaven Elbe Traffic at 35 minutes after every hour for the outer River Elbe on VHF channel 71, in German and English. Situation broadcasts are also supplied on demand.
2. By Brunsbuttel Elbe Traffic at 5 minutes after every hour for the inner River Elbe on VHF channel 68, in German and English. Situation broadcasts are also supplied on demand.
3. By Hamburg Port Traffic, which provides situation broadcasts on demand in German, or on request in English.

Maritime Assistance Service—The VTS provides a Maritime Assistance Service as follows:

1. In the event of an incident involving a vessel, the VTS will receive the reports, consultations and notifications.
2. If a report discloses an incident that may give rise to a situation where the vessel is in need of assistance, the VTS will monitor the vessel's situation.

The VTS will also serve as the point of contact for the following vessels using the Maritime Assistance Service:

1. Between the Master and the coastal state if the vessel's situation requires exchanges of information between the vessel and the coastal state other than a distress situation that could lead to a search and rescue operation.
2. Between those involved in a marine salvage operation undertaken by private facilities at the request of the company and the coastal state if the coastal state considers that it should monitor the conduct of the operation.

Anchorage.—An outer anchorage area for large and deep-draft vessels lies adjacent to the W side of the Jade Approach TSS (54°06'N., 7°32'E.) and may best be seen on the chart. A number of wrecks and obstructions lie within this area.

Elbe Approach Reede (54°04'N., 7°45'E.), an outer anchorage area for vessels waiting for the tide, lies centered about 5 miles W of E3 Lighted Buoy (54°04'N., 7°55'E.) and may best be seen on the chart.

Aussenelbe Reede (54°03'N., 8°10'E.), an anchorage area, with depths of 14 to 18m, lies in the approaches to the river, 3 miles NNE of Elbe Lighted Buoy (54°00'N., 8°07'E.).

Neuwerk Reede (53°58'N., 8°30'E.), an anchorage area available for vessels carrying explosives, lies on the S side of Mittelrinne, 1.5 miles S of Grosser Vogelsand Tower, and has depths of 8 to 16m.

Medem Reede (53°51'N., 8°46'E.), an anchorage area available for vessels carrying dangerous cargo, lies close E of the main fairway and has depths of 6 to 12m.

The above anchorage areas are marked by buoys and their limits may best be seen on the chart.

Directions.—See paragraph 8.4 (Approach Routes to the German Bight) for information concerning the Traffic Separation Schemes (TSS) and Deep-Water Routes situated in the outer approaches to the River Elbe.

An IMO-adopted Traffic Separation Scheme (TSS) is situated in the vicinity of Elbe Lighted Buoy (54°00'N., 8°07'E.) and may best be seen on the chart.

Inbound vessels for the River Elbe should pass to the S of Elbe Lighted Buoy; outbound vessels should pass to the N of Elbe Lighted Buoy.

Radar tracks, designated green for inbound and red for outbound, have been established within the fairway channels and may best be seen on the chart.

Caution.—The shoals lying in the estuary are usually approached before land is sighted and for this reason constitute a serious hazard for vessels intending to enter the river. These shoals change constantly under the action of the tidal currents and heavy seas. Consequently, their charted positions do not always correspond with the actual positions.

In the entrance to the river, NW gales, particularly with an outgoing current, may cause very heavy seas, high breakers, and heavy ground swells.

In the approaches and the river fairways, the tidal currents may set diagonally across the direction of the traffic lanes and the channel. Care must be taken when stopping for any reason with the tidal currents at full strength.

Not all areas have been cleared of mines. Vessels are advised to only anchor in the designated berths and to keep strictly to the recommended routes and channels.

Grosser Vogelsand Tower

The sides of the sandbanks facing the main fairway in the approaches to the river are generally steep-to. In the case of a grounding on one of these banks, it is likely that sand will be scoured away from the stem and stern, resulting in the back of the vessel being broken. Therefore, refloating of the vessel should be accomplished as soon as possible.

Several National Park Wildlife Sanctuaries, the limits of which are shown on the chart, lie along the banks adjacent to the main channel. Entry into these areas is restricted.

Numerous wrecks and foul areas lie in the approaches and river channels and may best be seen on the chart.

Several submarine cables and pipelines lie across the river channels and may best be seen on the chart.

At times, small ice buoys, which are not radar conspicuous, may replace the normal navigational aids.

Ferries cross the river at various places which are indicated on the chart.

High speed craft operate between Cuxhaven and Hamburg and also between Cuxhaven and Helgoland.

Measured distances are established in the main fairway in the vicinity of Pagensand (53°42'N., 9°31'E.) and Falkenstein (53°34'N., 9°46'E.). They are marked by beacons and may best be seen on the chart.

Fixed fishing equipment, such as eel traps, may be located within the river outside of the main fairway, especially near banks.

A local magnetic anomaly is reported to occur in the vicinity of a wreck lying near No. 42 Lighted Buoy (53°51'N., 8°50'E.).

The banks of the river are protected, in many places, by numerous groynes, which extend varying distances into the channel.

Cuxhaven (53°52'N., 8°43'E.)

World Port Index No. 30800

9.4 Cuxhaven is situated on the S bank of the Elbe, about 25 miles above Elbe Lighted Buoy, and is entered directly from the main river fairway. In addition to being a commercial port, the harbor provides extensive facilities for fishing vessels, offshore exploration support vessels, and pleasure craft.

Tides—Currents.—The tides rise about 3.3m at springs and 2.9m at neaps.

Winds from the W raise the water level at the port and strong E winds lower it.

In the roadstead, the incoming current begins to set 3 hours 45 minutes before HW and attains a rate up to 3 knots at springs. The outgoing current begins 1 hours 15 minutes after HW and attains a rate up to 5 knots at springs.

Strong W winds increase the rate of the incoming surface current by 0.5 to 1 knot and strong E winds increase the rate of the outgoing surface current by up to 1 knot.

Depths—Limitations.—The main fairway has a projected dredged depth of 14.7m as far as the port. For details of maximum drafts (fresh water) for tide-dependent vessels transiting the river, see Depths—Limitations for the River Elbe in paragraph 9.3.

The harbor consists of several tidal basins, a wet dock, and a number of riverside quays. The main facilities are described below.

Fahrhafen, a basin, and Seebarderbrucke, a riverside quay 300m long, are situated in the N part of the port and form a passenger ferry terminal. Ro-ro vessels up to 180m in length and 9m draft can be handled.

Steubenhoft, a riverside quay, is 400m long and has depths of 14 to 14.5m alongside. It is mostly used by passenger vessels.

Alter Fischereihafen, a tidal basin, has a depth of 5.5m and is mostly used by fishing vessels. Vessels up to 80m in length, 18m beam, and 4.5m draft can enter.

Neuer Fischereihafen, a wet dock, has a depth of 9m. It is entered through a lock, 190m long and 24m wide. This basin is mostly used by fishing boats and support vessels.

Amerikahafen, a tidal basin, is mostly used by general cargo and bulk vessels. Lentzkai, a quay located at the W side, provides 430m of berthage, with a depth of 7m alongside. Humberkai, a quay located at the E side, provides 110m of berthage, with a depth of 7m alongside. A floating dock is situated in the S part of this basin.

Europakai, a riverside quay with ro-ro ramps, provides 700m of berthage, with depths of 12 to 15.8m alongside.

Vessels up to 350m in length and 14m draft can be accommodated in the port.

Aspect.—For landmarks in the vicinity of the port, see the River Elbe (paragraph 9.3).

Pilotage (Harbor).—Pilotage is compulsory for vessels over 80m LOA or over 2000 gt.

Vessels should send request for Pilots at least 2 hour prior to arrival or 3 hour before departure.

Contact Information.—Harbor pilots can be contacted 24 hours a day as follows:

1. Call sign: Cuxhaven Harbour Pilot
2. VHF: VHF channel 74
3. Telephone: 49-4721-36062
4. Facsimile: 49-4721-52608

Cuxhaven port can be contacted as follows:

1. Call sign: Cuxhaven Port
2. VHF: VHF channel 69
3. Telephone: 49-4721 7480
4. Facsimile: 49-4721 748122
5. E-mail: info@cuxport.de
6. Website: www.cuxport.de

Special Note: VHF channel 69 provides information on the harbor situation, takes requests for Harbour Pilots and provides berth information. This does not interfere with Cuxhaven Lock services.

VTS Cuxhaven Elbe Port can be contacted, as follows:

1. Call sign: Cuxhaven Elbe Traffic.
2. VHF: VHF channels 16 and 71
3. Telephone: 49-4721-567380
4. Facsimile: 49-4721-567466
5. E-mail: nat2.wsa-cux@wsv.bund.de

Seeschleuse Lock Contact Information:

1. VHF: VHF channel 69
2. Telephone: 49-4721-500120.

Anchorage.—The roadstead anchorage area, with depths of 5 to 10m, lies on the NE side of the fairway adjacent to the port. It is marked by buoys and may best be seen on the chart. The holding ground is reported to be poor during gales, especially when a strong tidal current is running.

Caution.—The tidal currents in the vicinity of the port are very strong and set across the entrances of the basins.

9.5 **Altenbruch** (53°50'N., 8°46'E.), a small town, stands on the S side of the river, 3 miles above Cuxhaven. It can be easily identified by a prominent church with a double spire. The harbor basin, used only by small craft, lies at the mouth of Die Braake. It provides access, via a lock, to a shallow canal which leads to the town, 1 mile S.

Otterndorf (53°49'N., 8°54'E.), another small town with a prominent church, stands on the S side of the river, 4.5 miles above Altenbruch. The Medem River and the Hadelner Kanal enter the Elbe through a common waterway which leads to the town, 1 mile inland.

Die Oste (53°51'N., 8°59'E.) is entered on the S side of the Elbe, about 11 miles above Cuxhaven. This narrow river is navigable by small coasters as far as Bremervorde, about 40 miles SE. The water level is controlled by a flood barrage, with a navigable width of 22m, situated 2.5 miles above the entrance. The fairway has a depth of 4m as far as Osten (53°42'N., 9°11'E.) and 2.2m as far as Bremervorde.

9.6 **Brunsbuttel** (53°54'N., 9°09'E.) (World Port Index No. 30710), a small town, stands on the N side of the Elbe, at the W entrance of the Nord Ostsee Kanal. The port consists of an outer harbor, with riverside berths, and an inner harbor, situated within the first section of the canal.

Tides—Currents.—The tides rise about 3.1m at springs and 2.7m at neaps.

Depths—Limitations.—The main fairway has a projected dredged depth of 14.4m as far as the port.

Brunsbuttel (canal side berths)

Elbehaven Brunsbuttel, a riverside quay, is situated in the outer harbor, 1.2 miles E of the canal entrance. It provides about 1,100m of berthage, with dredged depths of 14.7 to 16.1m alongside. This quay has facilities for general cargo, container, bulk, LPG, and tanker vessels.

Vessels up to 220m in length and 12m draft, except laden gas tankers, can reach and depart from this quay at any state of the tide. Tide-dependent vessels up to 350m in length and 55m beam can be accommodated alongside the quay, with fresh water drafts up to 14.5m (tankers 13.8m).

Brunsbuttel Binnenhaven, the inner harbor, is situated in the widened part of the canal and extends up to about 2.5 miles above the entrance locks. The fairway in this part of the canal is dredged to a depth of 12m.

Several quays, a number of dolphin berths, and two basins are situated along the sides of the canal within the inner harbor and have depths up to 12m alongside. They provide facilities for tanker, gas, chemical, and bulk vessels.

Vessels are limited to a maximum length of 235m due to the restrictions of the canal locks (see paragraph 9.7). Vessels up to 10.4m draft can enter the inner harbor, via the lock, on a sliding scale depending on their beam. Vessels up to 27m beam can be handled with drafts up to 10.4m; vessels up to 29m beam can be handled with drafts up to 9.5m; and vessels up to 32.5m beam, the maximum permitted, can be handled with drafts up to 8m.

An overhead cable, with a vertical clearance of 40m, spans the inner harbor, 1.5 miles above the lock.

Brunsbuttel (Ostermoor Basin)

Aspect.—Brunsbuttel radar tower, 36m high with a wide cylindrical top, stands at the entrance to the locks and is conspicuous.

Two prominent chimneys, 70m and 103m high, stand at a power station on the N side of the river, 2 miles E of the entrance to the locks. A conspicuous chimney, 178m high, stands, 1.3 miles N of the power station.

Pilots—Pilot boards vessels, 1.5 miles ESE of lighted Bouy Elbe. Cuxhaven Elbe Pilots can be contacted on VHF channel 12.

Regulations.—An approach area, the limits of which are shown on the chart, lies on the river side of the entrance to the locks and is marked by buoys. Passage through this area is generally restricted to vessels entering or leaving the canal or inner harbor. However, with prior permission, vessels over 160m in length berthing at Elbehaven Brunsbuttel or anchoring in Nordwest Reede during the flood tide may enter.

Anchorage.—An extensive anchorage area, for vessels waiting to enter the Nord Ostee Kanal, extends along the N side of the river fairway, on both sides of the entrance to the locks. This roadstead consists of four sections. Neufeld Reede West, Neufeld Reede Oste, and Nordwest Reede are situated W of the canal entrance and Nordostreede is situated E of it.

Sudreede, a narrow anchorage area, extends along the S side of the main river fairway, close E of the canal entrance. It may only be used by vessels less than 120m in length.

The limits of the above anchorage areas are marked by buoys and may best be seen on the chart.

Nord Ostsee Kanal (Kiel Canal) (53°53'N., 9°08'E.)

9.7 The Nord Ostsee Kanal, also known as the Kiel Canal, is a connecting waterway between the North Sea and the Baltic Sea. The North Sea terminal is at Brunsbuttel and the Baltic Sea terminal is at Holtenau, on Kieler Forde. The canal, which has been widened and deepened, was originally opened to regular traffic in 1895.

The canal is 53 miles long and has a least depth of 11m. It has a surface width between 103m and 162m and a bottom width between 44m and 90m.

The latest information concerning the canal is available on the Internet, as follows:

Kiel Canal Home Page

http://www.kiel-canal.org

Ice

Ice does not appear in the canal before Christmas each year and generally begins to form at the beginning of January. Under normal conditions, ice obstruction lasts only from 4 to 6 weeks; however, during severe winters, the ice may remain until the beginning of April. The continuous operation of icebreakers and the passage of high-powered vessels normally keeps the canal clear enough for transit.

Nord Ostsee Kanal (Kiel Canal)

Canal entrance at Brunsbuttel

Depths—Limitations

Canal Locks.—Sets of double canal locks are situated at Brunsbuttel and at Holtenau, near the port of Kiel.

At Brunsbuttel, there are two sets of double locks. At present, only the new locks are being used as they are considerably larger than the old ones. The double locks lie parallel to each other, and normally one is used for entering the canal and the other for leaving it.

It is reported (2010) that vessels must moor with their own lines to the canal walls.

The new locks have a usable length of 310m and a usable width of 42m. They have sliding gates and each lock is subdivided into two chambers. The depth on the sills is 14m below the mean water level of the canal which corresponds to a river depth of 12.5m. Vessels up to 10.4m draft can use the lock.

The old locks at Brunsbuttel have a usable length of 125m and a width of 22m. Vessels up to 6m draft can use this lock.

An approach area, the limits of which may be seen on the chart, lies on the river side of the entrance to the locks. Passage through this area is generally restricted to vessels entering or leaving the canal or inner harbor.

Canal Transit.—The maximum permitted draft for transit of the canal is 9.5m. Vessels with drafts up to 10.4m may enter the canal in order to berth at the inner harbor of Brunsbuttel (see paragraph 9.6).

The canal, which operates 24 hours, can accommodate vessels up to a maximum of 235m in length and 32.5m beam with drafts in proportion up to the maximum permitted. For example:

1. The maximum draft of 9.5m applies to all vessels up to 160m in length.
2. Vessels 160m in length, with a beam of 20 to 27m, are allowed a maximum draft of 9.5m.
3. Vessels 160m in length, with a beam of 32.5m, are allowed a draft up to 8.9m.
4. Vessels 190m in length, with a beam of 24m, are allowed a draft up to 9.1m.
5. Vessels 190m in length, with a beam of 32.5m, are allowed a draft up to 8m.
6. Vessels 210m in length, with a beam of 24m, are allowed a draft up to 8.5m.
7. Vessels 210m in length, with a beam of 32.5m, are allowed a draft up to 7.4m.
8. Vessels 235m in length, with a beam of 20m, are allowed a draft up to 8.3m.
9. Vessels 235m in length, with a beam of 27m, are allowed a draft up to 7.4m.
10. Vessels 235m in length, with a beam of 32.5m, are allowed a draft up to 7m.

Several bridges and overhead cables, with least vertical clearances of 40m, span the canal.

The average time of transit usually requires from 8 to 10 hours, which includes passing through the locks at both ends of the canal.

Vessels of 14,000 gt and less are limited to a speed of 8 knots. Vessels over 14,000 gt or 8.5m draft are limited to a speed of 6.5 knots.

Kilometer markers, standing on the banks of the canal, begin with zero (00) at the entrance of Brunsbuttel.

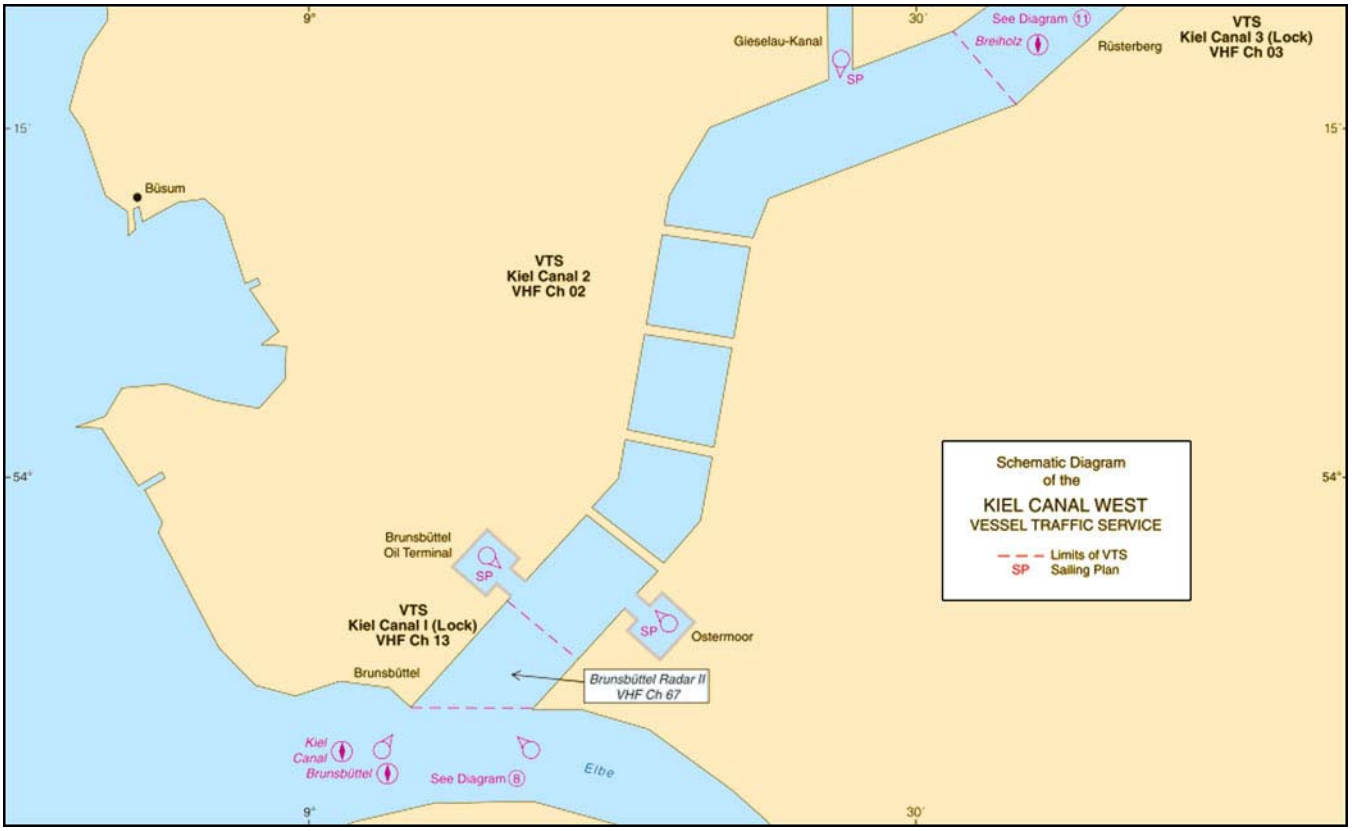
The distance in miles saved by using the canal in preference to navigating around Skagen and through the Skagerrak is, as follows:

1. From Hamburg to Kobenhavn—255 miles via canal and 512 miles via Skagerrak—257 miles saved.
2. From Hamburg to Gdansk—437 miles via canal and 777 miles via Skagerrak—340 miles saved.
3. From Dover to Kobenhavn—572 miles via canal and 679 miles via Skagerrak—107 miles saved.
4. From Dover to Gdansk—754 miles via canal and 944 miles via Skagerrak—190 miles saved.
5. From Antwerp to Gdansk—758 miles via canal and 946 miles via Skagerrak—188 miles saved.
6. From Southampton to Helsinki—1,175 miles via canal and 1,338 miles via Skagerrak—163 miles saved.

Pilotage

Pilotage in the canal is compulsory for the following vessels:

1. Tankers over 60m in length, or 10m beam, or 3.1m draft carrying gas/chemicals/petroleum/petroleum products



Kiel Canal West VTS

in bulk, or unloaded tankers, if not cleaned, degassed, or completely inerted after carrying petroleum/petroleum products with a flashpoint below 35°C.

2. Other vessels or composite units over 45m in length, 9.5m beam, and 3.1m draft or 55m in length, 8.5m beam, and 3.1m draft.

3. Tows over 65m in length, 10m beam, or 3.1m draft.

Vessels bound for the Nord Ostee Kanal entering from the River Elbe should send a request for pilots at least 2 hours before reaching the entrance, or immediately upon departure from nearby ports or berths if the voyage is less than 2 hours. Pilots board in the river close SW of the entrance to the locks.

Vessels over 100m in length, 15.5m beam, and 6.1m draft or 115m in length, 14m beam, and 6.1m draft must embark a certified helmsman for the canal transit. For vessels carrying certain dangerous goods, the summer draft applies, if this is larger than the actual draft. Vessels over 100m in length with a beam of 19m or more, or over 120m in length with a beam of 17m or more, or with a draft over 7m must employ two helmsmen. Requests for helmsmen should be sent to the Canal Helmsman Service at least 2 hours in advance through Kiel Canal Pilot on VHF channel 9 or VTS Center Kiel Canal on VHF channel 13. Requests may also be made 2 hours in advance through Holtenau Pilot on VHF channel 12 or through Kiel Pilot on VHF channel 14.

Vessel Traffic Service

See Vessel Traffic Service (paragraph 9.3) for details of the VTS system operating in the River Elbe.

Vessel Traffic Service Kiel Canal West (VTS Kiel Canal West) has been established in the canal and its approaches.

The requirements for VTS Kiel Canal East/Kieler Forde are described in Pub. 194, Sailing Directions (Enroute) Baltic Sea (Southern Part) (Sector 3).

Participation in VTS Kiel Canal West is mandatory for all vessels, including pushed or towed composite units. Yachts less than 15m in length are excluded.

Vessels entering the VTS area of VTS Kiel Canal West must maintain a continuous listening watch on the appropriate VHF channels, as follows:

1. Brunsbuttel Locks approach and outer harbors (inbound only)—Kiel Canal Station 1—VHF channel 13.

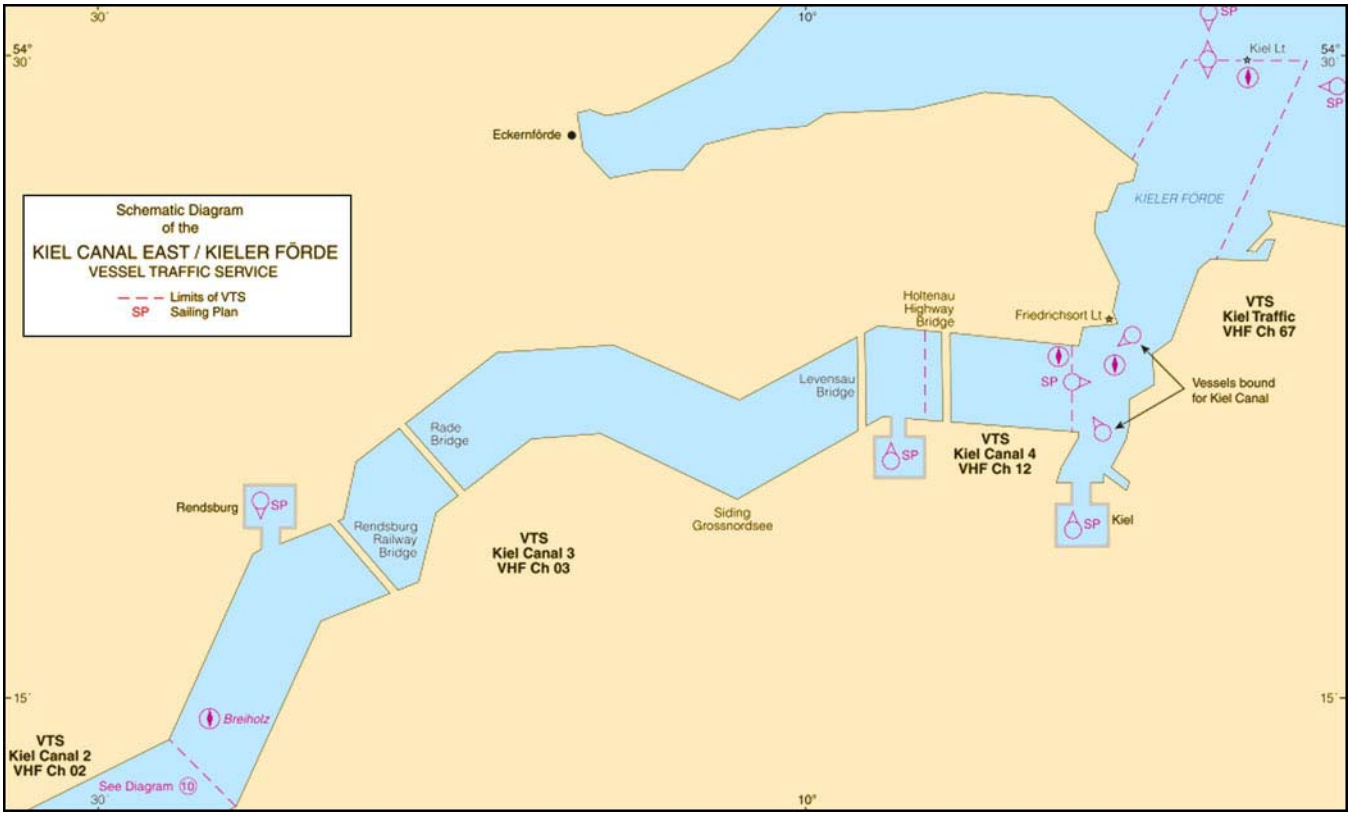
2. Brunsbuttel Locks approach and outer harbors (outbound only)—Brunsbuttel Elbe Traffic—VHF channel 68.

3. Brunsbuttel Locks—Kiel Canal Station 1—VHF channel 13.

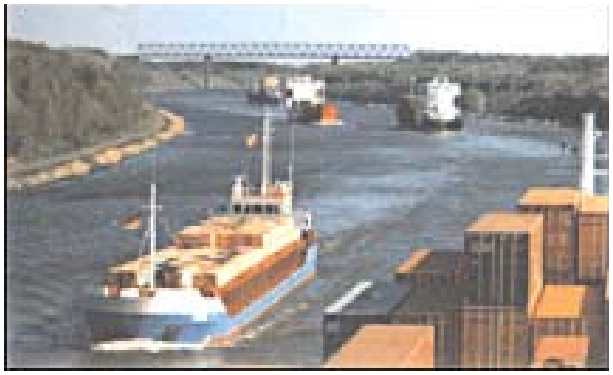
4. Canal area from Brunsbuttel to Breiholz—Kiel Canal Station 2—VHF channel 2.

A Sailing Plan (SP) must be sent, as follows:

1. In the locks, using the form available in the locks.



Kiel Canal East VTS



Nord Ostsee Kanal (Kiel Canal)

2. Before leaving a harbor or berth within the VTS area of Kiel Canal West to VTS Center Kiel Canal 2 on VHF channel 2.

A Deviation Report (DR) must be sent in case of amendments to the SP (e.g., when interrupting or commencing canal transit without instruction by the VTS Center) to VTS Center Kiel Canal 2 on VHF channel 2.

An Incident Report (IR) must be sent as necessary to VTS Center Kiel Canal 2 on VHF channel 2.

The format for the SP and the DR can be found under Vessel Traffic Service (Approach Routes to the German Bight) in paragraph 8.5.

Information relevant to the safe passage of vessels through the VTS area is broadcast as follows and on demand:

1. VTS Center Kiel Canal 2—every H+15 and H+45 on VHF channel 2, in German (on request, in English).
2. VTS Center Kiel Canal 3—every H+20 and H+50 on VHF channel 3, in German (on request, in English).
3. VTS Center Kiel Traffic—during severe icing in Kieler Forde, according to the situation, on VHF channel 22.

These broadcasts include general fairway and traffic situations; local storm warnings and weather messages; visibility and ice reports; casualties; and dredging operations.

It is reported (2006) that vessels transiting the canal must have operational AIS equipment on board. The position data of all vessels in the canal, except pleasure craft, will be recorded by the VTS system via AIS. In exceptional cases or emergencies, such as system failure, mobile AIS equipment may be leased from the authorities at the entry locks.

Signals

For the purposes of the Canal Traffic Regulation, vessels transiting are considered to belong to one of six traffic groups, depending on their size and potential hazard. Vessels must display the appropriate lights and shapes for their group. The

canal pilots will explain the detailed regulations and the signals, flags, or lights required to be shown.

Entry into the approach area is controlled by light signals displayed from a mast on the lock island separating the two locks.

Entry into the canal is controlled by light signals displayed at the inner and outer ends of the central wall of each pair of locks.

Signs are installed at locations in the canal displaying the mandatory minimum clearance (in meters) to be observed when passing them.

Caution

Ferries cross the canal at several points. Some are chain ferries and some are free navigating ferries. At night, ferries display an isophase yellow light at the masthead and on each side of their bow and stern.

Several submarine pipelines and cables cross the canal and may best be seen on the chart.

Numerous small wharves and loading places are situated along the length of the canal. Several locations, usually at the widest places of the canal, are designated as passing sites or sidings. Some of them are at curves in the channel and most of them are equipped with dolphins for vessels desiring to moor alongside. These passing sites, situated about 2.5 to 7 miles apart, are about 600 to 1,400m long and have beds about 135 to 165m wide. Four of these sites are equipped with turning spaces which have bottom diameters of about 300m. The traffic control stations at Brunsbuttel and Holtenau issue the necessary instructions for vessels using these passing sites.

The Gieselau Kanal branches from the Nord Ostsee Kanal abreast Oldenbuttel (54°10'N., 9°27'E.) and extends N for 1.5 miles to the Eider River. It can be entered by vessels up to 65m in length and 9m beam. A lock, situated 0.7 mile N of the entrance, can handle vessels with drafts up to 2.7m.

The canal between Rendsburg and Holtenau, a distance of 17 miles, has two fairly sharp curves. One is situated in the vicinity of Levensau Wharf and the other at Knoop, between Km 90 and Km 95. These curves have a radius of curvature of about 1,800 and 1,870m, respectively.

Rader Island, small in extent, lies on the NW side of the canal between Km 67 and Km 70. A small loading pier is situated on the SE side of this island.

The Achterwehrer Schiffahrtskanal (54°20'N., 9°58'E.) branches S from the Nord Ostsee Kanal, close E of Km 85. It runs through a lock at Stohbruck to the cargo berths at Flemhude, 1 mile S, and at Achterwehr, 2 miles S. This canal is navigable only during daytime by vessels up to 35m in length, 7.5m beam, and 2m draft. A power cable, with a vertical clearance of 21m, spans the canal in two locations.

At Kiel Holtenau, there are two sets of double locks providing access to Kieler Forde. The larger locks have a usable length of 310m and usable width of 40m. An inner harbor here is situated within the canal and provides oil and bunkering berths with depths up to 11m alongside.

9.8 **Rendsburg** (54°18'N., 9°41'E.) (World Port Index No. 30730), a city of moderate size, stands on the N bank of the Nord Ostsee Kanal near Km 63. Because of its location in the heart of Schleswig Holstein, the city is an important commercial center. Several industrial plants and a number of shipyards are situated here.

Kreishafen, on the N side of the canal, has a quay, 750m long, with depths of 7 to 9.5m alongside. Vessels up to 165m in length can be accommodated alongside.

The Obereider branches from the canal abreast of Audorfer, close N of Km 65. It extends W for 1.7 miles and is entered through The Enge, a narrow passage. The entire channel has a depth of 4.5m and forms part of the port of Rendsburg. An overhead power cable, with a vertical clearance of 38m, spans the entrance to this channel. There are several private quays, with depths of 4 to 7.7m alongside, and vessels up to 125m in length can be handled. In addition, there are several dry docks at the shipyards, the largest being 193.7m long. Vessels up to 30,000 dwt, 29.5m beam, and 6.4m draft can be accommodated for repairs.

The River Elbe (continued)

9.9 The River Elbe, from Brunsbuttel to Hamburg, follows a winding course between several shoals, flats, and islands. Secondary channels lead between the larger islands and drying sands and the river bank. Both sides of the river are heavily populated and there are numerous landing places, small harbor basins, and marinas. Dikes protect the lowlands on both sides of the river and groins and stone embankments protect the banks from the strong currents in the river.

A number of tributaries, which lead to small wharves mostly used by coasters, discharge into the River Elbe. The most important are Die Stor, which leads to Wewelsfleth and Itzehoe; Die Krukau, which leads to Elmshorn; Die Pinnau, which leads to Utersen; Die Schwinge, which leads to Stade; and Die Luhe, which leads to Grunendeich.

A conspicuous nuclear power station stands on the E bank of the river at Brokdorf (53°51'N., 9°20'E.), about 7 miles above Brunsbuttel.

Die Stor (53°49'N., 9°24'E.) flows into the River Elbe about 2 miles SE of Brokdorf. The depths in this river are controlled by a flood barrage, situated close within the entrance, which is closed when the water level rises to 1m above MHW. The barrage has two openings, each with a navigable width of 22m, which are spanned by a bascule bridge. The river has a depth of 5.5m as far as Wewelsfleth, 1 mile above the barrage, where there is a shipyard and two dry docks. The largest dry dock can handle vessels up to 18,000 dwt, 132m in length, 22m beam, and 5m draft.

Itzehoe, located 14 miles above the barrage, provides 450m of quayage along the N bank of the river. A depth of 5m is maintained at HW as far as this harbor and vessels up to 82m in length, 12m beam, and 3.8m draft can be accommodated.

To the S of the entrance to the Stor, 3 miles above Brokdorf, the main fairway winds SSE and leads between the drying bank of Brammerbank, on the W side of the river, and the island of Rhinplatte, on the E side.

Rhinplatte (53°47'N., 9°24'E.), which fronts the small port of Gluckstadtin, is narrow, long, and very low. Most of the island is foul with weeds and its central part is only just visible at HW. Lights are shown at the N and S extremities of the island.

9.10 Gluckstadt (53°47'N., 9°25'E.) (World Port Index No. 30760) stands on the E side of the river, 11 miles above Brunsbuttel. The town is fronted by a small harbor consisting of an outer tidal basin and an inner wet basin. A church and a water tower stand in the town and are prominent.

Tides—Currents.—Off the entrance, the tide rises 2.7m at springs and 2.4m at neaps.

Depths—Limitations.—The harbor can be approached through Gluckstadt Nebenelbe, a channel leading E of Rhinplatte Island. This buoyed channel can be entered at the N or S ends, which have least depths of about 3.7m and 3m, respectively.

The outer harbor basin, which is entered between two moles, is 90m wide. It provides 460m of berthage on the N side and 200m of berthage on the S side, with a projected depth of 5.8m at HW. The inner wet dock basin is accessible only at HW through a gate passage, 12.8m wide. It is 600m long, 55m wide, and has depths of 3 to 5m. The harbor is used by fishing vessels, ferries, coasters, and yachts. Vessels up to 5,000 dwt, 140m in length, and 5.2m draft can be handled.

Caution.—The harbor basins and approach channel are subject to heavy silting.

Gluckstadt

9.11 The river channel between Gluckstadt and Butzfleth, 9 miles upriver, narrows and the main fairway passes between Schwarztonnen Sand (53°43'N., 9°27'E.), on the W side, and Pagensand (53°42'N., 9°31'E.), on the E side. Pagensander Nebenelbe, a shallow and narrow channel, passes between Pagensand and the mainland to the E. It is marked by buoys and provides access to the Kruckau and Pinnau rivers.

The Kruckau River flows into the NE end of Pagensander Nebenelbe and is navigable by small craft as far as Elmshorn, 5 miles above its mouth.

The Pinnau River flows into the SE end of Pagensander Nebenelbe and is navigable by small craft as far as Utersen, 5 miles above the mouth, and Pinneberg, 10 miles above the mouth.

The Schwinge River flows into the W side of the Elbe at Stadersand (53°38'N., 9°32'E.), 2 miles above the S end of Pagensand, and is used by coasters. It has projected depths at HW of 5.5m at Stadersand and 3.3m at Stade, a town located 2.5 miles upstream. At Stadersand, the N side of the river provides 700m of quayage. There is a quay, 150m long, located along the W bank at Stade. A flood barrage, with a navigable width of 16m, is situated close above Stadersand. Above the barrage the river is spanned by several bascule bridges and a power cable, with a vertical clearance of 21m. Vessels up to 100m in length and 5m draft can be handled at Stadersand, but the river is subject to heavy silting and is not regularly dredged.

9.12 Butzfleth Terminal (53°39'N., 9°31'E.) is situated on the W side of the Elbe, 1.3 miles SW of the S extremity of Pagensand. It consists of a T-head jetty, about 500m long, connected to the shore by a road bridge. The outer berths have a dredged depth of 14.6m alongside and the inner berths have depths of 7 to 10m alongside. There are facilities for bulk, chemical, and gas vessels. Vessels up to 270m in length and 14m draft can be handled.

Stadersand Terminal (53°38'N., 9°32'E.) is situated on the W side of the Elbe, close N of the mouth of the Schwinge River, and consists of a tanker jetty, with a depth of 10m alongside. It is reported (2001) that this terminal is no longer in use.

A prominent nuclear power station (Stade) is situated about 0.5 mile S of the mouth of the Schwinge River.

Anchorage.—Freiburg Reede (53°51'N., 9°20'E.), with depths up to 13m, lies on the W side of the fairway, opposite Brokdorf, and is used mostly by oil and chemical tankers. This anchorage provides shelter even in severe storms, but is located close SE of a cable area.

Krautsand Reede (53°47'N., 9°23'E.), which provides good anchorage, lies on the W side of the fairway, opposite Rhinplatte Island. The N part of this roadstead, which is known as Wischafen Reede, is generally reserved for tankers and chemical vessels.

Grauerort Reede (53°40'N., 9°30'E.), which provides anchorage for gas and chemical tankers, lies on the W side of the main fairway, 1.4 miles below Butzfleth Terminal.

Twielenfleth Reede (53°37'N., 9°33'E.), an anchorage area, lies on the S side of the main fairway, about 1 mile above the mouth of the Schwinge River.

The above anchorage areas are marked by buoys and their limits may best be seen on the chart.

9.13 The River Elbe continues for 9 miles above Stadersand to the outer limit of the port of Hamburg at Tinsdal. From Stadersand to the entrance of the Luhe River (53°34'N., 9°38'E.), the main channel extends SE for 5 miles and passes between the island of Luhesand (53°36'N., 9°36'E.), on the SW side, and an extensive shallow flat fronting the shore, on the NE side.

Several conspicuous masts, each about 200m high, stand in the vicinity of the island of Luhesand and support overhead cables which span the main river fairway. The cables have a vertical clearance of 71.5m and give strong radar echoes. The aluminum spheres suspended at intervals along these cables generally cause additional smaller echoes on close approach.

From the mouth of the Luhe to Tinsdal (53°34'N., 9°44'E.), the main channel extends E and passes close to the N bank of the river. Numerous groins extend from both banks of the river and extensive training walls line the S side of the channel.

Hamburger Jachhafen, an extensive marina is situated on the N bank of the Elbe at Wedel (53°34'N., 9°41'E.), about 1.5 miles E of the mouth of the Luhe River. A prominent radar mast, 55m high, stands at the SW side of this marina.

At Willkomm Hoft, situated about 0.8 mile E of the marina, arriving and departing ocean-going vessels are generally greeted during daylight hours by the raising of their national flag.

Wedel power station, with two conspicuous chimneys, stands about 1.7 miles E of the marina and is fronted by a coal quay. The quay is 320m long and has a depth of 11.7m alongside.

Hahnofer Nebenelbe (53°33'N., 9°44'E.), a secondary channel, branches SE from the main fairway, 0.7 mile SW of Wedel marina. This shallow channel leads S of the islands of Hanskalbsand, Nessand, and Schweinsand and connects with Muhlenberger Loch. A radar station stands on the N side of Nessand.

Muhlenberger Loch (53°33'N., 9°48'E.), a small bight, indents the S side of the river and mostly dries. A channel leads S through this bight from the main river fairway to the mouth of the Die Este (53°32'N., 9°47'E.).

Die Este, a narrow and tortuous river, is navigable by coasters as far as Buxtehude, 7 miles above the entrance. An outer flood barrage is situated at the river mouth. It has a navigable width of 22m and is spanned by a bascule bridge. An inner flood barrage, with a navigable width of 13.5m, is situated 0.6 mile above the mouth. The river has depths of 4.5m at the mouth and 3.3m as far as Buxtehude.

A shipyard and repair facility, with a number of floating docks, is situated close above the outer flood barrage. The largest dock can handle vessels up to 160m in length, 22m beam, and 6m draft.

Tinsdal (53°34'N., 9°44'E.), the site of an oil refinery, is located close E of Wedel power station and forms the westernmost limit of the port of Hamburg.

Blankenese (53°34'N., 9°49'E.), a popular resort, stands on the N bank of the Elbe, 2.5 miles E of Tinsdal, and is fronted by a ferry landing stage and two marinas.

Hamburg (53°33'N., 9°56'E.)

World Port Index No. 30780

9.14 The port of Hamburg, the largest in Germany, is situated 78 miles above the mouth of the Elbe. It serves an extensive industrial area, handles all types of cargo, and is connected to the vast inland waterway system.

Tides—Currents.—In the Norder Elbe at St. Pauli, the tide rises 3.6m at springs and 3.2m at neaps. At Harburg, in the Suder Elbe, the tide rises about 0.1m greater. The tides generally affect the water level as far as 19 miles above the bridges on the Norder Elbe.

At Hamburg, the flood current reaches its maximum rate within 30 minutes and maintains this rate for about 3 hours. The ebb current, acting in a similar manner, attains its maximum rate after about 1 hour and maintains this rate for about 5 hours 30 minutes. The maximum rates under normal conditions is 2 knots in both directions.

Weak and variable local currents may be encountered in some of the dock basins.

Ice.—Even during severe winters, ice is kept moving by the heavy shipping traffic so that the harbor is always kept open. It may cause some difficulties in the slightly frequented basins and channels.

Hamburg

The earliest ice appears about the middle of December, although it has been observed as early as the first week of November. Ice may disappear as early as the last day of January or remain as late as the beginning of March. During severe winters, it has still been observed as late as the latter part of March.

Hamburg

Depths—Limitations.—The port is comprised of the combined areas of Hamburg, Altona, and Harburg-Wilhelmsburg harbors and consists of 35 main basins for ocean-going vessels, with depths up to 17m alongside, and 21

basins for inland waterway craft. These basins provide about 23 miles of berthage alongside quays and 13 miles of berthage alongside dolphins. The harbor area extends for 14 miles in an E/W direction and 5 miles in a N/S direction. It can accommodate over 430 ocean-going vessels at the same time.

The River Elbe between Tinsdal and Altona (53°33'N., 9°56'E.) is known as the Unterelbe. At Altona, the river divides into two branches. The Norder Elbe, the N branch, leads E for about 3.5 miles to the center of Hamburg where it is spanned by two fixed bridges. The Suder Elbe, the S branch, leads S and then E, passing between the districts of Harburg and Wilhelmsburg. The two branches reunite at Buntshaus, about 5 miles above the fixed bridges on the Norder Elbe, thereby forming an island. Above Buntshaus, the river is known as the Oberelbe. An extensive complex of dock basins is situated on the island formed between these two branches.

The dock basins are grouped into several well-defined harbor areas. The principal basins, including all those for ocean-going vessels, are tidal and easily accessible from the Unterelbe and the two branches of the river. The basins for the inland waterway traffic are either accessible from the river or are interconnected by a system of gate locks and canals.

Reiherstieg (53°29'N., 9°59'E.), a canal, passes through the complex of dock basins situated along the above-mentioned island. It has depths of 4 to 6m and provides access from the Norder Elbe to the Suder Elbe. Both branches of the River Elbe are navigable by ocean-going vessels.

Three principal bridges are situated in the port area. Kohlbrand Hochbrucke (53°31.3'N., 9°56.4.'E.), a fixed road bridge, spans the Suderelbe and has a vertical clearance of 51m. Kattwyk Hubbrucke (53°29.7'N., 9°57.2'E.), a lift bridge, spans the Suderelbe and has a navigable width of 100m, with a vertical clearance of 51m. Rethe Hubbrucke (53°30.3'N., 9°58.1'E.), a lift bridge, spans the W entrance to Reiherstieg and has a navigable width of 42m, with a vertical clearance of 51m.

Several overhead cables span the channels and basins within the port area and may best be seen on the chart. Generally, their vertical clearances are greater than the above bridges and are not controlling factors.

With the exception of an inner basin at Harburg, all of the basins are tidal and open to the river, thereby permitting entry and exit at all times. Extensive cargo facilities are available including floating cranes up to 400 tons capacity, floating grain elevators, and floating coal elevators. Tanker, ro-ro, chemical, bulk, container, general cargo, passenger, LASH, reefer, ferry, and fishing vessels can be handled. In addition, the harbor provides facilities for repair and shipbuilding services; several dry docks and floating docks are situated within the port. The largest dry dock is 351m long and 59m wide. It can handle vessels up to 320,000 dwt, 350m in length, 54m beam, and 9.5m draft.

The main river fairway has a projected dredged depth of 14.4m as far as the port. Inbound tide-dependent vessels transiting the river at HW are generally limited to a maximum length of 360m or a maximum FW draft of 15.1m. Outbound vessels are limited to a maximum fresh water draft of 13.7m.

See Depths—Limitations in the River Elbe, in paragraph 9.3, for maximum size limits pertaining to tide-dependent vessels.

Generally, the river passage takes between 5 hours and 7 hours 30 minutes, depending on the size of vessel. Vessels over 10m draft should arrange to arrive at Seemannshoft (53°32'N., 9°53'E.) about 1 hour prior to HW at the port.

Deep-draft vessels normally begin discharging immediately on arrival so as to remain afloat through the following LW period. However, the bottom throughout the port consists of soft mud and sand so significant damage is unlikely due to touching the ground.

Vessels with a beam up to 32.3m (Panamax) can reach the port independent of the tide with fresh water drafts up to 12.8m. Container vessels with a beam over 32.3m are limited to a maximum fresh water draft of 12.7m. Vessels up to 100,000 dwt, fully laden, and 250,000 dwt, partly laden, can be accommodated within the port.

See Regulations (paragraph 9.3) for limits pertaining to Extraordinary Large Vessels.

The principal groups of dock basins and quays are identified, as follows:

1. The Hamburg-Finkenwerder area is situated at the W end of the port, S of the main fairway. It includes the following main facilities:
   a. Kohlfleethafen, which has a depth of 12m and provides oil berths at a central jetty.
   b. Kohlfleet, which has depths of 5 to 12m and is used by general cargo and fishing vessels.
   c. Dradenauhafen, which has depths of 5.4 to 14.4m and provides ore and timber berths.
   d. Finkenwerder Vorhafen, which has depths of 9 to 11m and provides ro-ro berths.
   e. A riverside waiting berth, situated on the S side of the main fairway, is formed by dolphins and has a dredged depth of 15.5m.
2. The Hamburg-Waltershof area is situated W of the Suder Elbe and S of the main fairway. It includes the following main facilities:
   a. Petroleumhafen, which has depths up to 11.9m and provides oil berths.
   b. Waltershofer Hafen, which has depths of 9.8 to 16.5m and provides extensive container berths.
   c. Griesenwerder Hafen, which has depths up to 10m and provides general cargo and ro-ro berths.
   d. Athabaskai, a riverside quay, which provides ro-ro ferry and container berths and has a depth of 13.4m alongside.
3. The Hamburg-Neuhof-Kattwiek-Hoheschaar area is situated adjacent to the N part of the Suder Elbe. It includes the following main facilities:
   a. Hansaport (Sanauhafen), which has depths up to 17m and provides ore and bulk berths.
   b. Neuhoferhafen, which has depths up to 12.5m and provides oil berths.
   c. Rethe (Reiherstieghafen), which has depths of 10 to 13.5m and provides general cargo, oil, grain, and bulk berths.
   d. Blumensandhafen, which has a depth of 13m and provides oil berths.
   e. Kattwykhafen, which has depths of 12 to 13.7m and provides oil and auto-carrier berths.

4. The Hamburg-Harburg area is situated at the S side of the inner part of the Suder Elbe. It includes the following main facilities:

a. Seehafen I, which has depths of 7.4 to 9m and provides general cargo and grain berths.

b. Seehafen II, which has depths of 7.4 to 11m and provides coal berths.

c. Seehafen III, which has depths of 9 to 10.4m and provides liquid bulk berths.

d. Seehafen IV, which has depths of 6.8 to 8.4m and provides oil berths.

5. The Hamburg-Altona area is situated on the N side of the Norder Elbe, at the W end. It includes the following main facilities:

a. Fischereihafen, which has depths of 3.6 to 6.4m and provides berths for fishing vessels.

b. Engelhardtkai, a riverside quay, which has a depth of 8m and provides ferry and cruise passenger berths.

6. The Hamburg-Kuhwerder-Ross-Steinwerder area is situated on the S side of the Norder Elbe, at the W end. It includes the following main facilities:

a. Kohlenschiffhafen, which has depths of up to 7m at the dolphins and provides coal and bulk berths.

b. Vorhafen, which has depths of 9.4 to 12.1m and provides container berths.

c. Vulkanhafen, which has depths of 7.6 to 9.6m and provides shipbuilding berths.

d. Rosshafen, which has depths of 7 to 10.1m and provides general cargo and fitting-out berths.

e. Ellerholzhafen, which has depths up to 10.6m and provides general cargo and container berths.

f. Oderhafen, which has depths of 2.4 to 11.6m and provides general cargo and ro-ro berths.

g. Kaiser Wilhelm Hafen, which has depths of 9.4 to 12.1m and provides general cargo and container berths.

h. Kuhwerder Hafen, which has depths of 8.4 to 9.6m and provides reefer and grain berths.

i. Werfthafen, which has depths of 6.6 to 12.6m and is a shipyard basin.

7. The Hamburg-Kleiner-Grasbrook area is situated on the S side of the Norder Elbe, at the E end. It includes the following main facilities:

a. Segelschiffhafen, which has depths of 6.9 to 8.3m and provides ro-ro and fruit berths.

b. Hansahafen, which has depths of 6.3 to 11.6m and provides general cargo, fruit, and vehicle-carrier berths.

c. Indiahafen, which has depths of 8.4 to 9.6m and provides general cargo berths.

d. Sudwesthafen, which has depths of 3.2 to 8.4m and provides general cargo berths.

8. The Hamburg-Grosser-Grasbrook area is situated on the N side of the Norder Elbe, at the E end. It includes the following main facilities:

a. Baakenhafen, which has depths of 5.3 to 12m and provides general cargo and paper product berths.

b. Sandtorhafen, which has depths up to 7.5m and provides general cargo and ro-ro berths.

c. Grasbrookhafen, which has depths up to 4.8m and provides general cargo and ro-ro berths.

d. Kirchenpauerkai, a riverside quay, which has depths up to 12m and provides container berths.

e. St. Pauli Landing Stage, a riverside quay, which has a depth of 8.1m and provides ro-ro ferry and passenger berths.

f. Uberseebrucke, a riverside quay, which has a depth of 9.6m and is used by large passenger ships.

Hamburg Container Terminal

Hamburg Bulk Terminal

Hamburg Oil Terminal

Signals.—Water level and tidal signals are shown from windows in the prominent radar station building at Seemannshoft (53°32'N., 9°53'E.). Letters "E" or "F" denote the ebb or the flood and two black digits indicate the height of tide in meters and decimeters above chart datum. Red digits indicate a height below chart datum.

A clock tower stands close N of the E end of St. Pauli Landing Stage Quay. Water level and tidal signals generally similar to those shown at Seemannshoft are displayed from it.

Caution.—Tunnels pass under the River Elbe in the vicinity of St. Pauli (53°32.6'N., 9°58.0'E.) and Maakenwerder Hoft (53°32.4'N., 9°55.5'E.). Vessels may pass over these tunnels only at slow speed and when there is sufficient water.

Passenger ferries operate between landing stages throughout the port area. They are especially concentrated within the Unterelbe in the vicinity of St. Pauli (53°33'N., 9°58'E.).

Helgoland

9.15 Helgoland (54°11'N., 7°53'E.), a resort island, is an important landmark in the approach to the River Jade, the River Weser, the River Elbe, and the River Eider. It lies about 25 miles W of the coast and consists of a mass of red limestone, which rises steeply from the sea to a height of 60m. The E part of the island consists of a low foreland extending from cliffs. Dune, a low and sandy island, lies 0.5 mile E of Helgoland and is the location of a small airfield. A prominent tower stands near the center of this island.

The HelWin alpha Platform (54°27'N., 7°44'E.). has an Automatic Identification System.

Small harbor basins, mostly used by small craft and local ferries, are situated on the SE and NE sides of Helgoland and also at the W end of Dune. However, this latter harbor is now closed to public traffic.

A light is shown from a conspicuous square radar tower, 34m high, standing on the W cliffs of Helgoland; a prominent signal station is situated close SE of it. Conspicuous radio masts stand close SSE and 0.4 mile NW of the light. A church, with a prominent spire, and the conspicuous chimney of a power station are situated close NE and 0.2 mile NNE, respectively, of the light.

Lighted range beacons are situated near the center of the S coast of Dune. They indicate the narrow approach channel which leads between the shoals and reefs into Binnen Reede Sud and the entrances to the harbor basins on Helgoland.

Langa Anna, a conspicuous detached stack, rises close W of the NW extremity of Helgoland.

Numerous reefs and wrecks, which may best be seen on the chart, front all the sides of the islands. Selle Brunn is the outer end of a chain of reefs which extends up to about 3 miles NW from Dune. Selle Brunn Knoll, with a depth of 6.7m, lies about 0.5 mile farther NW. Repulse Grund, with a least depth of 4.9m, lies about 1.3 miles NW of Helgoland and is the outermost danger off this part of the island.

9.16 Steingrund (54°14'N., 8°03'E.), a rocky shoal, lies about 5.5 miles NE of Dune and has a least depth of 8.7m. This detached shoal, which is foul with explosives, is marked by a lighted buoy moored about 1 mile E of it.

Helgoland Light

Tides—Currents.—The tides at Helgoland rise about 2.7m at springs and 2.3m at neaps.

An ESE current starts to set past Helgoland at about 5 hours 30 minutes before local HW. It attains a maximum rate of 1 to 1.3 knots about 2 hours before HW. A WNW current starts to set past Helgoland at about 1 hour after local HW. It attains a maximum rate of 1 to 1.3 knots about 4 hours after HW.

As the islands are approached, their effect on the tidal currents becomes noticeable, and up to about 4 miles from the islands, though the tidal currents set more or less the same as offshore, they are subject to considerable, but uncertain, changes.

Ice.—Ice may be encountered in the vicinity of Helgoland between the early part of January and the early part of March. It is not usually a hindrance to navigation.

Caution.—High speed ferries operate in the vicinity of Helgoland.

Extensive lobster beds and nature protection areas are located near Helgoland and Dune. Most of the shore of the two islands is fronted by restricted areas, which are marked by buoys and may best be seen on the chart.

Ammunition dumping ground areas, which may best be seen on the chart, lie about 2.5 miles S of Helgoland and 1 mile N of Dune.

The approaches to the small harbors are encumbered with extensive shoals and reefs, some marked by buoys, and local knowledge is required. After gales, the positions of the buoys, especially in the outer approaches, cannot be relied upon.

The River Elbe to Listertief

9.17 From the main entrance to the River Elbe, the coast extends 65 miles N to Listertief (55°04'N., 8°24'E.). The mainland shore consists largely of low-lying marsh land protected by dikes, and in a few places, sand dunes. Amrum (54°38'N., 8°21'E.) and Sylt (55°44'N., 8°18'E.) are the outermost islands fronting this section of the coast.

The boundary between Germany and Denmark extends ESE through Listertief, N of Sylt, SE through Hojer Dyb, and E of Sylt. It then extends S and E across the shoals and drying flats towards the shore.

Busum (55°08'N., 8°52'E.), Tonning (55°19'N., 8°57'E.), and Husum (55°29'N., 9°03'E.) are the most important towns along this section of the coast.

Ice.—The time of onset of ice and the duration are extremely varied. The direction of the wind has a considerable influence on ice conditions along the coast. Continuous W winds free the approaches to the channels temporarily, but force the loose ice into the inner parts of the channels. Continuous E winds cause considerable ice flows. Ice forms rapidly over the flats at LW and then, with a rising tide, the winds blow it into the channels. It has been reported that, during severe winters, ice can stop the coastal traffic.

Tides—Currents.—At Amrum Haven (54°38'N., 8°21'E.), the tides rise about 2.9m at springs and 2.6m at neaps.

Generally, the currents from the North Sea set in SE and E directions, with a rising tide at Helgoland and in the opposite directions with a falling tide.

At a position about 16 miles WSW of Amrum, the currents set chiefly SE and NW. However, the current tends to turn counterclockwise, more slowly when it is strong and more rapidly when it is approaching the turn of the tide.

During spring tides, the incoming current sets in a SW direction at a rate of 0.3 knot about 5 hours 30 minutes before HW at Helgoland. It attains a maximum rate of 1.1 knots, setting in a SE direction, about 2 hours 30 minutes before HW. Shortly after HW, the outgoing current sets in a NE direction at a rate of 0.3 knot. It attains a maximum rate of 1 knot, setting in a NW direction, about 3 hours 30 minutes after HW at Helgoland.

During neap tides, the incoming current sets in a SW direction at a rate of less than 0.3 knot about 5 hours 30 minutes before HW at Helgoland. It attains a maximum rate of 0.8 knot, setting in an ESE direction, about 3 hours before HW. About 30 minutes after HW, the outgoing current sets in a NE direction at a rate of 0.3 knot. It attains a maximum rate of 0.8 knot, setting in a NW direction, about 4 hours after HW.

The water level along this part of the coast is influenced considerably by the direction and force of the wind. Winds from the W usually cause higher water levels and those from the E usually cause lower water levels than those predicted in the tide tables. In exceptional cases, the water level has been reduced by as much as 2.5 to 3.5m.

Caution.—Three disused ammunition dumping ground areas, the limits of which are shown on the chart, lie off Sylt. They lie centered 5 miles WNW of the N end of Sylt, 15 miles W of the N end of Sylt, and 3.5 miles WNW of the S end of Sylt.

A prohibited area, the limits of which are shown on the chart, lies centered about 18 miles WSW of the N end of Sylt and is marked by a lighted buoy.

A submarine exercise area, the limits of which are marked on the chart, lies centered 21 miles NW of Helgoland.

Several submarine cables extend seaward from this stretch of coast and may be best seen on the chart.

Numerous wrecks, some dangerous, lie off this stretch of coast and may be best seen on the chart; most off-lying dangerous wrecks are marked by lighted buoys.

Many of the buoys, especially lighted buoys, moored in the open sea along this part of the coast are liable to be out of position as a consequence of the action of the sea. Station buoys, painted in a similar fashion, have therefore been moored near them.

9.18 Off-lying dangers—Amrum Bank (54°38'N., 8°00'E.), marked by lighted buoys, forms the outermost danger in this area and consists of two detached patches which lie with their outer edges 8 to 14 miles W of the island of Amrum. The northernmost patch has a least depth of 9m; the southernmost patch, lying 10.5 miles W of Amrum, has a least depth of 5m. A channel, about 1 mile wide, leads between these two shoal patches and has a least depth of 10m. Numerous wrecks and foul patches lie within 5 miles of Amrum Bank, and several wrecks and obstruction areas lie within 5 miles W of the island of Sylt.

Drying flats and shoals extend seaward from this part of the coast and numerous narrow and winding, though sometimes deep, channels lead between them. The bars that front these channels and the banks on either side of them vary considerably under the influence of wind and storms, especially with strong W winds, so that the depths given on the charts are not always reliable.

For the most part, these channels lead to places of no great importance and traffic is confined to local coasters, fishing boats, and pleasure craft.

9.19 Norder Elbe (54°03'N., 8°25'E.), a narrow secondary channel, leads ESE along the N sides of Grosser Vogelsand (54°01'N., 8°27'E.) and Gelbsand (53°59'N., 8°39'E.) and rounds the E edge of the latter shoal. Norderelbe Lighted Buoy (5°03'N., 8°25'E.) is moored about 5.2 miles N of Scharhorn and marks the outer entrance. This channel, which is buoyed, joins Die Elbe about 5 miles NNW of Cuxhaven. It should only be used by vessels with local knowledge and in good weather. Entry should not be attempted during strong W winds as a heavy surf and swell are raised in the fairway.

Neu Fahrwasser (54°02'N., 8°40'E.) initially branches ENE from Norder Elbe, 7 miles above the entrance. This shallow channel, which is buoyed, then passes N and E of Mittel Plate and leads SE to Friedrichskoog.

Mittelplate A Platform (54°02'N., 8°44'E.), with two lighted dolphins located close E, stands about 5 miles WNW of Friedrichskoog and is prominent from seaward.

Friedrichskoog (54°00'N., 8°52'E.), a small drying harbor, is situated about 0.5 mile within the entrance of a narrow inland channel and close E of a flood barrage. It is mostly used by fishing vessels. Vessels up to 25m in length, 8.2m beam, and 2m draft can be accommodated.

Trischen (54°04'N., 8°41'E.), a low island, is situated 2 miles NW of the Mittelplate A Platform on the outer end of Marner Plate, an extensive drying flat. A conspicuous tower stands near its center.

Trischendamm (54°02'N., 8°49'E.), a causeway, extends about 1.2 miles W from the NW end of the Dieksand Peninsula, 2 miles NNW of Friedrichskoog.

9.20 Suderpiep (54°06'N., 8°26'E.), a narrow channel, leads E through the extensive drying flats fronting the coast. It is buoyed and has a least depth of 5m. Suderpiep Lighted Buoy (54°02'N., 8°49'E.) is moored about 11 miles NE of Elbe Lighted Buoy and marks the outer entrance, which has no bar. The channel passes S of Tertius Sand (54°08'N., 8°40'E.), on which stands a conspicuous beacon mast, and leads 19 miles to Busum.

Norderpiep (54°11'N., 8°28'E.), a secondary channel, leads ESE and SE to join Suderpiep. It is entered about 6.5 miles NE of Suderpiep Lighted Buoy and passes N of Tertius Sand. The fairway, which is obstructed by a wide bar, is marked by unlit buoys and has least depths of 3 to 4m. During W gales, the sea breaks on the bar.

Several beacons stand on the sandbanks fronting the coast in this vicinity and provide the only marks visible from seaward. However, they are of no navigational value except in clear weather. Closer in, the landmarks at Busum can be identified. Local knowledge is advised for navigating both Norderpiep and Suderpeip.

Busum (54°08'N., 8°52'E.), standing on the N side of Meldorfer Bucht, provides one of the most accessible small ports located along this section of coast. The port, lying 19 miles above the entrance to Suderpiep, consists of an outer harbor, protected by two moles, and an inner harbor, protected by a flood barrage. The tide rises about 3.6m at springs and 3.2m at neaps.

The entrance channel is 21.5m wide and is indicated by a lighted range. The outer harbor, which has two ro-ro berths, is dredged to a depth of 3.7m, but is subject to silting. The flood barrage is closed when the tide reaches 0.3m above MHW. A lock in the barrage enables vessels up to 30m in length to enter the inner harbor while it is closed.

The inner harbor consists of four tidal basins, two of which can be used by commercial vessels. Basin II, 420m long and 50m wide, has a dredged depth of 2.7m. Basin III, 500m long and 80m wide, has a dredged depth of 1.5m. The harbor can handle general cargo, bulk, and ro-ro vessels up to 120m in length, 20m beam, and 6m draft at HW. There are also extensive facilities for fishing boats and pleasure craft. Vessels intending to enter the harbor should send an ETA at least 48 hours in advance and contact the harbormaster on VHF channel 11 to ascertain the actual depth conditions. Vessels entering are required to have an underkeel clearance of 0.5m, but they may take the bottom at LW.

A light is shown from a prominent tower, 22m high, standing at Busum. A conspicuous building, 22 stories high, is situated in the W part of the town and a prominent silo stands near the center of the harbor.

Meldorfer Bucht (54°04'N., 8°52'E.) extends between Busum and the Dieksand Peninsula, 5.5 miles S. It is obstructed by extensive drying flats. Most of the shore of this bight is lined by a dike from which numerous groynes extend as part of a reclamation project. Several shallow channels, used only by pleasure craft and fishing boats, lead through the flats.

9.21 Die Eider (54°12'N., 8°36'E.) discharges into the North Sea through a wide estuary lying S of the Eiderstedt Peninsula. The upper reaches of this river are connected to the Nord Ostsee Kanal.

Busum Light

Most of the estuary is obstructed by extensive shoals and drying flats which extend up to about 8 miles seaward. The main channel leading into the river mouth is subject to constant change and local knowledge is essential. The outer entrance of this channel is obstructed by a bar and marked by Eider Lighted Buoy (54°15'N., 8°28'E.). The river fairway, which leads ESE, is marked by lighted buoys and buoys. It provides access to the small harbors of Tonning and Friedrichstadt. The least depth over the bar is 3.1m (2001).

The river is closed 4.5 miles below Tonning by Eiderdamm (54°16'N., 8°51'E.). This protective dam, which is 2.5 miles long, incorporates sluice gates and a small lock. Vessels up to 75m in length, 13m beam, and 2.7m draft can be handled in the lock.

Tonning (54°19'N., 8°57'E.), a small harbor, is used by coasters and fishing boats. It provides about 900m of quayage with depths of 3 to 3.5m alongside. Vessels up to 60m in length, 10m beam, and 2.7m draft can be accommodated.

Friedrichstadt (54°23'N., 9°05'E.) is located at the confluence of the Eider River and the Treen River, about 9 miles above Tonning. It is used by small coasters which also enter via the Nord Ostee Kanal and the Gieselua Kanal. A navigation lock gives access to this small harbor and vessels up to 50m in length, 9m beam, and 2.7m draft can be handled at HW.

9.22 Eiderstedt Peninsula (54°20'N., 8°38'E.) extends W for 13 miles from Tonning and is about 8 miles wide. It is low and protected from the sea by dikes and sand dunes.

Saint Peter Light (54°17'N., 8°39'E.) is shown from a prominent tower, 18m high, standing on the SW part of the Eiderstedt Peninsula. A conspicuous building is situated in the town of Saint Peter Ording, 1.7 miles NW of the light.

Westerheversand Light (54°22'N., 8°38'E.) is shown from a prominent tower, 40m high, standing on the NW part of the Eiderstedt Peninsula.

The S extremity of Sylt (54°53'N., 8°20'E.) lies about 27 miles NNW of Westerheversand Light. The intervening area

Saint Peter Light

Westerheversand Light

contains Suderoog Sand, Norderoog Sand, Jap Sand, and Amrum, the outermost islands of the Nordfriesische Inseln chain. Shallow channels lead between these islands and provide access to several small coastal harbors. Dangerous shoals and flats extend up to about 7 miles seaward of these islands and numerous wrecks, some stranded, lie in this vicinity. Several resort villages are situated on many of the larger islands.

Amrum (54°38'N., 8°21'E.) is 6 miles long and has several sand dunes, about 30m high, standing in its N part. The dunes at the S end of this island are lower and much lighter in color.

Amrum Light is shown from a prominent tower, 41m high, standing in the S part of the island; two conspicuous windmills are situated 0.7 mile and 1 mile N of it.

A prominent church stands at Nebel, 1.2 miles N of Amrum Light. It is reported (1999) that a casino building, standing at a resort in the S part of the island, is conspicuous from seaward.

Norddorf Light is shown from a tower, 8m high, standing near the NW end of the island.

Amrum Light

Pellworm Light

For a description of Amrum Bank, see paragraph 9.19.

9.23 Pellworm (54°31'N., 8°39'E.), small and low, is relatively densely populated. It is surrounded by extensive drying flats. A prominent church tower, in ruins, stands on the W side of this island and a wind generator is situated close S of it. A light is shown from a prominent tower, 41m high, standing on the S part of the island.

Nordstrand (54°30'N., 8°55'E.), an island surrounded by extensive drying flats, is connected at its E side to the mainland by a road causeway and a dam.

Fohr (54°43'N., 8°30'E.), the second largest of the Nordfriesische Inseln, is low and diked. Several villages stand on this island and a small harbor is situated at Wyk, on its E side.

Langeness (54°38'N., 8°32'E.) is connected at its NE end to Oland (54°41'N., 8°42'E.), which in turn is connected by a causeway at the N end to the mainland. Nordmarsch-Langeness Light is shown from a prominent tower, 11m high, standing on the W end of this island.

Numerous smaller islands and islets lie within the bight extending between the Eiderstedt Peninsula and the S end of

Nordmarsh-Langeness Light

Sylt. Most of these islands are served from the mainland by small passenger ferries.

Suderoogsand (54°26'N., 8°29'E.), a low island, lies about 7 miles NW of Westerheversand Light. A light is shown from a prominent refuge beacon, 19m high, standing on piles at the SW end of this island.

Suderoogsand Light (Refuge Beacon)

9.24 Die Hever (54°23'N., 8°24'E.) is entered between Suderoogsand and the shoals extending W from the Eiderstedt Peninsula. Suder Hever, Mittel Hever, and Alte Hever are three buoyed channels which lead into the mouth of this river. These channels are separated by shallow banks, some of which dry in parts, and are obstructed by bars. They extend in an E direction and unite as one channel, about 7 miles above the river entrance. Mittel Hever, the main channel, is marked at its seaward end by Hever Lighted Buoy (54°20'N., 8°18'E.) and has a depth of 4.6m.

About 11 miles above the mouth, Die Hever divides into two channels. Hever Strom, the S and main channel, continues E to Husum. The depths in the channels are subject to frequent changes and vessels should not enter them without local knowledge.

Husum (54°29'N., 9°03'E.) (World Port Index No. 30680) is approached through Hever Strom, the S continuation of Mittel Hever. This small harbor lies in the widened section of Husumer Au, a river outlet, and extends 0.9 mile E above a flood barrage. It is divided into two parts by a bascule railroad bridge. The outer part provides 600m of quayage. The inner part provides 350m of quayage and dries at LW. The controlling depth in the entrance to Husumer Au is 1m. Tides rise about 3.8m at springs and 3.4m neaps. There are facilities for coasters, fishing vessels, and small craft. Vessels up to 145m in length, 21m beam, and 4.1m draft can be accommodated at HW. However, vessels over 70m in length may experience difficulty in maneuvering.

A number of prominent churches, a water tower, and several silos are situated in the vicinity of Husum. Sudfall (54°28'N., 8°44'E.) is an islet lying in the outer approaches on which stands a conspicuous house and a radio mast.

Vessels exceeding 9m beam or 3.4m draft should report via Husum Port Radio on VHF channel 11 or by telephone to Husum Flood Barrier (Leitstand Sperrwerk Husum) when passing position 54°28.25'N, 8°56.35'E. The report must include the vessel's name, position, dimensions, and destination. All vessels must obtain permission from the harbor authorities prior to entering Husumer Au.

Pilots are available and should be requested at least 12 hours in advance through the agent. Pilots board in a position agreed to by the vessel and the harbor authorities.

9.25 Sylt (54°53'N., 8°20'E.), the outermost and largest of the Nordfriesische Inseln, is almost 20 miles long. A peninsula, which extends about 5 miles ESE from the center of this island, is joined to the mainland by Hindenburgdam, a causeway carrying a railroad. A narrow peninsula extends 9 miles S from the center of the island to Hornum Odde, the S extremity, and is dotted with sand dunes, 15 to 30m high.

Hornum (54°45'N., 8°18'E.), a resort village, is situated on the E side of Sylt, 1 mile N of Hornum Odde. It is fronted by a small harbor protected by moles. The harbor basin, which is 350m long and 90m wide, can accommodate vessels up to 70m in length and 4m draft. It is approached through Vortrapp Tief, a buoyed channel leading between Amrum and the shoals extending S from Hornum Odde.

A light is shown from a prominent tower, 34m high, standing at Hornum. A conspicuous radio mast, 193m high, stands about 3 miles of N of the light. A group of other radio masts are situated close NW of this mast.

Rote Kliff, 51m high, forms the highest part of Sylt. It rises near the center of the island and is about 1 mile long.

Kampen Light (54°57'N., 8°20'E.) is shown from a conspicuous tower, 38m high, standing on Rote Kliff. A disused light tower is situated about 1.2 miles N of this light.

A large white apartment building stands at Westerland, 2.5 miles SSW of Kampen Light, and is conspicuous from seaward. A radio mast and a church tower, both prominent, are situated about 0.3 mile ENE and 0.3 mile ESE, respectively, of this building.

The N part of Sylt, known as Listland, consists of numerous sand dunes up to about 30m high. Ellenbogen, an elbow-

Hornum Light (Sylt)

List Ost Light (Sylt)

Kampen Light

List West Light (Sylt)

Kampen Disused Light Tower

shaped peninsula, forms the N extremity of the island and is a bird sanctuary. List (55°01'N., 8°26'E.), a resort village, stands on the N part of the island and is fronted by a small craft harbor.

List West Light is shown from a tower, 11m high, standing at the NW end of Ellenbogen. List Ost Light is shown from a prominent tower, 13m high, standing on the N side of Ellenbogen, 1.5 miles E of List West Light.

Pilotage—Pilotage is provided by Limfjorden Pilots.

Pilots board 6 miles WNW of List West Light.

Listertief (55°04'N., 8°27'E.), also known as Listerdyb, leads between the N end of Sylt and the island Romo. This channel provides access to an extensive sheltered area of mainly shallow water. It is used by coasters and fishing vessels seeking refuge during bad weather. The seaward entrance is marked by Listertief Lighted Buoy (55°05'N., 8°17'E.), which is moored close W of a bar. The buoyed fairway leads E for about 7 miles to a position located adjacent to the E extremity Ellenbogen. There are depths of 4 to 5m over the bar, but greater depths lie in the channel and the roadstead.

Salz Sand extends up to about 3 miles W of Ellenbogen and forms the S side of this channel. Parts of this shoal dry and its outer edge is nearly always marked by breakers.

Tides rise about 1.8m at springs and 1.7m at neaps in the channel. Vessels can anchor in the roadstead lying off the E end of Ellenbogen, in depths of 11 to 20m. The channel and adjacent banks are subject to frequent change.

Dan Tysk Wind Farm—(55°09'N., 7°12'E.) Has a 500m safety zone that surrounds the site into which unauthorized entry is prohibited. It has been reported that the project has 80 wind turbines. Fino 3 platform (55°11.7'N., 7°09.5'E.) is equipped with AIS. There are seven lighted buoys (cardinal) surrounding Dan Tysk Wind Farm.

Butendiek Wind Farm—under construction, centered on (55°01'N., 7°46'E.) and surrounded by buoys (cardinal and

special). The project should be completed sometime in 2015, and is expected to comprise about 80 wind turbines.

Sandbank Wind Farm—(52°12'N., 6°51'E.) Is under construction (2015) in a prohibited area marked by lighted buoys prefaced SB. The farm is expected to comprise 72 wind turbines. Clear of Dan Tysk Wind Farm and Sandbank Wind Farms lies Platform Fino 3 on the W edge of Dan Tysk Wind Farm.

Butenediek Wind Farm

Butenediek Wind Farm

Listertief to Blavands Huk

9.26 Between Listertief and Blavands Huk, 32 miles NNW, the coast is low and sandy. The shore is fronted by a sandy shoal which extends up to about 10 miles seaward and mostly dries at LW. The low islands of Romo, Mano, and Fano lie on this shoal and consist of numerous sand dunes.

Esbjerg, located 13 miles ESE of Blavands Huk, is the largest Danish port on the W coast of Jylland (Jutland).

The boundary between Germany and Denmark lies between Sylt and Romo, see paragraph 9.18.

Romo (55°08'N., 8°31'E.) lies 5 miles offshore and is connected at its E side to the mainland by a causeway. The W side of the island consists of a low and sandy beach which rises inland to sand dunes. The pointed steeple of a church and a beach hotel, both prominent, stand near the center of the island.

Romo Haven, a small harbor, is situated on the SE side of the island and protected by breakwaters. It has a dredged depth of 4.2m and can accommodate vessels up to 90m in length and 4m draft at HW. This harbor is used by fishing vessels, pleasure craft, and passenger ferries.

Pilotage.—Pilots for Romo Havn should be ordered as follows:

1. At least 18 hours before ETA at the required pilot boarding position, with confirmation or corrections 4 hours before ETA.
2. For vessels outbound from port: At least 4 hours before the pilot is required, with confirmation or corrections 1 hour before ETD.
3. Danish State Pilotage handles the public pilotage through Danish territorial waters from any destination in Denmark to all ports in the Baltic Sea. As the unique full-service provider in Denmark DanPilot offers pilotage to all Danish ports as well. DanPilot is obliged to deliver pilotage in Denmark and handles all transit pilotage.

Pilot boards in position: (56° 06'N, 8° 15'E.).

Romo Flak, a drying bank, extends about 3 miles W from the N end of the island.

Rode Klit Sand (55°11'N., 8°10'E.) lies about 13 miles W of Romo and has a least depth of 6.9m.

Fano Bugt (55°21'N., 8°10'E.), a bay, indents the coast between Horns Rev (55°31'N., 7°45'E.) and Rode Klit Sand.

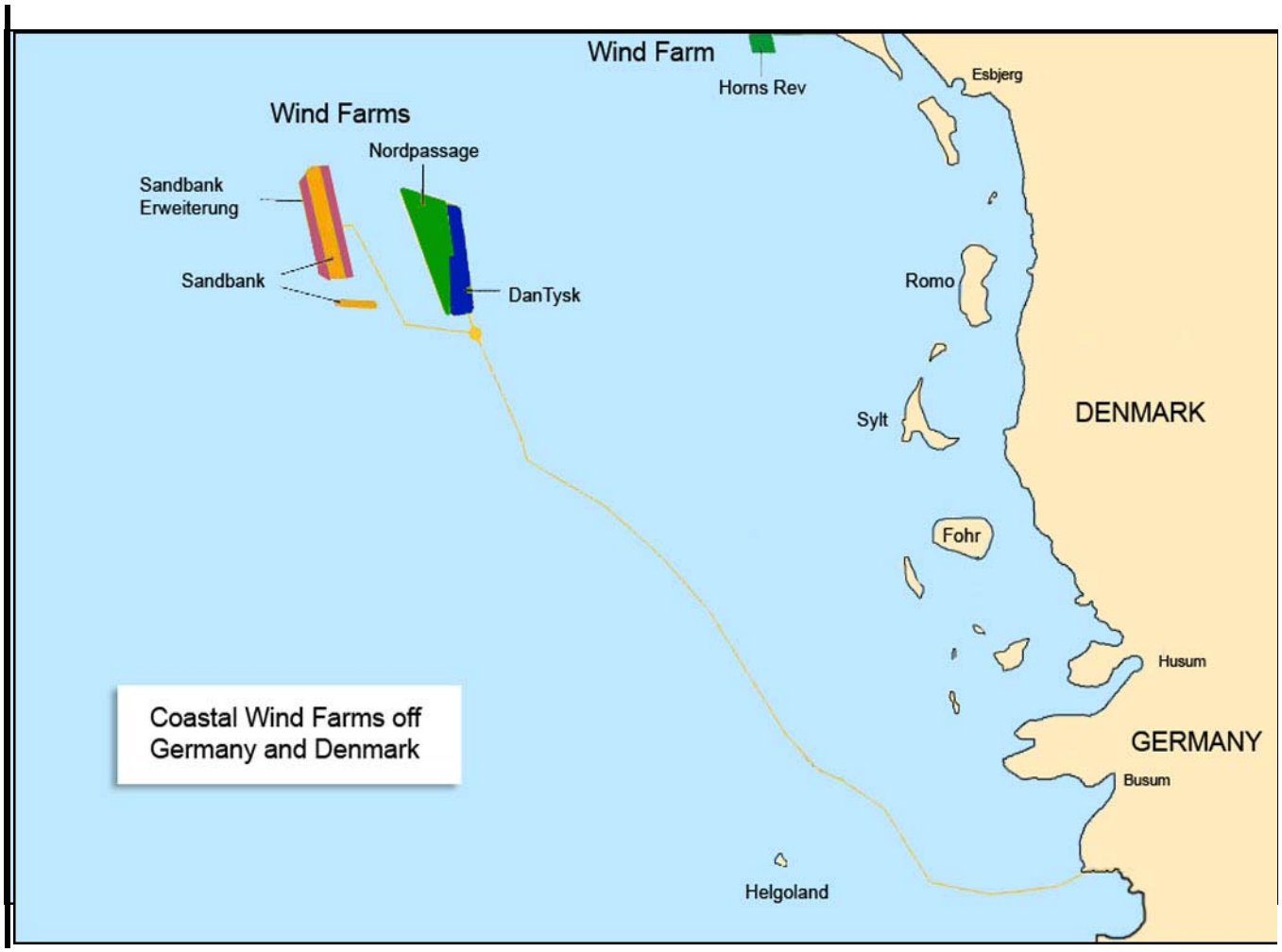
Mando (55°17'N., 8°33'E.), a small island, lies 3.5 miles N of Romo and is connected to the mainland at its E side by a causeway. It appears from seaward as a uniform line of white dunes.

9.27 **Fano** (55°24'N., 8°25'E.), lying within Fano Bugt, appears as a line of dunes with beach hotels and villas. Sonderho, a resort village, is situated on the S end of the island and a church and a windmill, both prominent, stand in its vicinity.

A conspicuous church, with a group of wind generators standing 1.2 miles NNW of it, is situated at Nordby, in the NE part of the island. For Norby Havn, see paragraph 9.29.

Knudedyb, a buoyed channel, leads E between the S end of Fano and Mando. It provides access to the inner sheltered waters and is used by small vessels seeking refuge during bad weather. The bar, which is marked by a lighted buoy, has a depth of only 3m over it. The outer part of the channel, inside the bar, has depths of 7 to 14m. Local knowledge is required.

Tides—Currents.—In the outer part of Fano Bugt, the flood current sets SE and the ebb current sets NW. The current changes regularly in calm weather, about every 6 hours and usually counterclockwise, with no period of slack water. These



Coastal Wind farms in the North Sea

currents attain a maximum rate of 1.5 knots, though the outgoing current may be somewhat stronger than the incoming one. The current maintains a rate of 0.3 knot as it turns.

Strong winds and storms have a considerable effect on these tidal currents. Gales from SE through S to NW usually increase the rate of the NW ebb current, which may attain a rate up to 3 knots, while entirely suppressing the SE flood current. During storms from these directions, the SE current will frequently set for only 3 hours.

Closer to the coast, the flood and ebb currents generally follow the shore. The flood current sets S and flows into the channels and the ebb sets N and out of the channels.

Caution.—Numerous wrecks, some dangerous, lie off this stretch of coast and may best be seen on the chart.

Several submarine cables, which may best be seen on the chart, extend seaward from the vicinity of Fano and the S end of Romo.

A restricted area, which may best be seen on the chart, extends up to about 5 miles W of Romo and 7 miles W of Mando. Anchoring and fishing are prohibited within this area.

An area, within which fishing and anchoring are dangerous due to the residual danger from mines, extends NW from Mando and along the W coast of Fano. This area extends about 1 mile from the shore and may best be seen on the chart.

A firing practice area is situated in the vicinity of the N end of Romo. A flashing light is shown from a control tower when the area is in use.

Esbjerg (55°28'N., 8°27'E.)

World Port Index No. 30640

9.28 Esberg, one of the most important ports on Jylland, is protected on the SW side by the island of Fano and on the NW side by the Skallingen Peninsula. The harbor is situated on the mainland, 7 miles above the Gradyb bar.

Winds—Weather.—Depths in the approaches to the port are frequently affected by strong winds. Winds from W and SW raise the water level and those from E tend to lower it. Also, heavy seas may break over the bar with strong W to SW winds.

Ice.—During severe winters, ice may form on the shoals in Gradyb and SE of Esbjerg. At HW, this ice is usually broken loose and carried into the channel by the ebb current, where it may hinder navigation before it disappears or is carried out to

Esbjerg from SE

Esbjerg

sea by NE winds. Usually, navigation is seldom interrupted for any length of time by fixed ice covering the entire channel.

Tides—Currents.—Off the entrance, the tide rises about 1.5m at springs and 1.2m at neaps.

The flood current begins about 5 hours before HW at Helgoland and sets SSE. It attains a maximum rate of 0.3 knot at springs. Between the bar and Torre Bjaelke, a bank on the SW side of Skalling Ende, the flood current sets across the banks on both sides of the channel and continues until about HW at Esbjerg, 3 hours after HW at Helgoland. During the latter part of this period, the current inside the bar sets in a NE direction.

The ebb current begins about 1 hour 15 minutes after HW at Helgoland and sets NW. It attains a maximum rate of 0.5 at springs. During the first 2 hours, the ebb current sets straight out of the channel spreading towards the banks which line both sides of the approach. For the next 2 hours, it sets in a W direction. Then, for the remainder of the time, it sets out across the bar in a SW direction and turns S with the flood outside. This ebb current generally continues for some time after the water has started to rise.

HW and LW occur on the bar at Gradyb about 1 hour 15 minutes earlier than at Esbjerg.

Depths—Limitations.—Gradyb, the principal approach channel, leads NE between the banks fronting the N end of Fano and Skalling Ende, the S extremity of the Skallingen Peninsula. It then rounds the N end of Fano and leads SE between this island and the mainland to Esbjerg and Nordby.

A fairway, 220m wide, leads over the bar and has a dredged depth of 10.3m on the centerline. The sides of the fairway have a dredged depth of 9.8m.

The harbor is situated on the E side of the inner fairway channel and is comprised of several tidal basins. The main facilities are described below.

Fishing Harbor consists of six basins which provide 5,900m of total quayage, with depths of 4.4 to 7.5m alongside.

Trafikhaven has 1,620m of total quayage, including oil berths, with depths of 7.5 to 11.5m alongside.

Dockhaven has 1,025m of total quayage, with a depth of 6.7m alongside.

Englands Quay is 315m long and has a depth of 7.6m alongside.

Australian Quay is 286m long and has a depth of 10.5m alongside.

Europa Quay is 400m long and has a depth of 10.5m alongside.

Taurus Quay is 380m long and has a depth of 6.3m alongside.

There are facilities for bulk, container, ro-ro, general cargo, tanker, and LPG vessels. In addition, there are extensive installations for handling passenger ferries, fishing boats, oil and gas drilling platforms, and oil and gas exploration support vessels. Vessels up to 245m in length and 10.5m draft can be accommodated at HW.

Nordby Havn (55°27'N., 8°24'E.) is situated on the NE side of Fano, 1.5 miles SW of Esbjerg, and is accessible from the main fairway. This small harbor fronts a resort town and is used by ferries, small craft, and pleasure boats. Vessels up to 30m in length and 3.6m draft can be accommodated.

Aspect.—The various reaches within Gradyb are marked by lighted buoys. The fairway is indicated by lighted ranges and sector lights which may best be seen on the chart.

Gradyb Anduvning Lighted Buoy (55°25'N., 8°12'E.), equipped with a racon, is moored about 5 miles SW of the S end of the Skallingen Peninsula and marks the seaward entrance of the approach channel.

The Skallingen Peninsula is mostly low and appears from seaward as a continuous line of sand dunes.

A conspicuous power station chimney, with aeronautical obstruction lights, stands in the SE part of the port and another prominent chimney is situated 0.4 mile N of it. Prominent container gantry cranes are situated at a quay close SW of the power station chimney. A conspicuous water tower stands 0.6 mile NNW of the power station chimney. Prominent churches are situated 1 mile NNW and 1.8 miles NNE of the power station chimney.

Pilotage.—Pilotage through Gardyb is compulsory for all tankers 60m in length and over arriving and departing. Some exemptions are made for frequent visitors. Pilotage for other vessels is not compulsory, but is advisable.

Pilots may be contacted by VHF and board about 1.5 miles SW of Gardyb Anduvning Lighted Buoy (55°25'N., 8°12'E.).

Pilots should be ordered through the DanPilot (Belt and Fjord Pilot), Fredericia office, which can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 45-76-200320
3. Facsimile: 45-75-928822

4. E-mail: littlebelt-pilot@lillebaelt.dk
5. Web site: http://www.pilotage.dk

Regulations.—Vessels should contact the port well in advance of their arrival and state their ETA, purpose of call, and nature of cargo. Vessels carrying dangerous cargo must report by e-mail or facsimile at least 12 hours prior to arrival. The Port Control Office may be contacted, as follows:

1. VHF: VHF channel 12
2. E-mail: vagt@portesbjerg.dk

A Position Reporting System operates in the approaches to the port and is mandatory for all vessels over 100 gt. Vessels must report to the Port Control Office on VHF channel 12 when passing Nos. 1 and 2 Lighted Buoys (55°25.6'N., 8°13.8'E.), Nos. 13 and 14 Lighted Buoys (55° 28.5'N., 8°20.9'E.), and on arrival at the harbor. The report must include the vessel's name, direction (inbound or outbound), position, draft, and name of master. Vessels proceeding in the opposite direction must reply immediately so that a safe passage may be arranged.

Within the port, outbound vessels give way to inbound vessels. Gradyb is regarded as a narrow channel. However, the requirement for an inbound vessel to give way to an outbound vessel in a narrow channel, as per the Navigation Rules in Certain Danish Waters, applies only in that part of the channel crossing the bar.

Anchorage.—Anchorage can be taken, in depths of 6 to 9m, just inside the bar, but vessels must remain clear of the main fairway.

Caution.—During inclement weather, vessels should make sure that they are S and well clear of Horns Rev (55°31'N., 7°45'E.) before making an approach to the port.

An area, within which fishing and anchoring are dangerous due to the residual danger from mines, fronts the coast of Fano in the vicinity of Gradyb. This restricted area extends about 1 mile from the shore and may best be seen on the chart.

A prohibited area fronts the seaward side of the Skallingen Peninsula. It extends up to about 1 mile from the shore and may best be seen on the chart.

Spoil ground areas lie 2 miles N and 1.5 miles ESE of Gradyb Anduvning Lighted Buoy and may best be seen on the chart.

All depths in the port are maintained by dredging, but are subject to silting.

During winter, the outer channel lighted buoys may be withdrawn or replaced by unlighted and smaller buoys.

The channel buoys are frequently moved to meet changes of the sea bottom and the ranges and sector lights are modified accordingly.

Large vessels should attempt to arrive off the appropriate harbor basin at slack water in order to minimize the effect of the tidal current when berthing.

Blavands Huk to Limfjorden

9.29 Blavands Huk (55°33'N., 8°05'E.), located 13 miles NW of Esbjerg, is a low point marked to the N and SE by sand dunes. A light is shown from a prominent square tower, 39m high, standing on the point.

A conspicuous gun emplacement is situated 3 miles E of the light. A radio mast stands about 1 mile ESE of the light.

Blavands Huk Light

Horns Rev (55°31'N., 7°45'E.) consists of an extensive group of shoals extending about 21 miles W from Blavands Huk. These shoals, which form a serious danger to navigation, are divided into an inner part and an outer part by a channel with a least depth of 14.4m. This channel is known as Slugen in its SE part and Normands Dyb in its NW part. It extends in a WNW direction from a position located about 4 miles S of Blavands Huk. A secondary passage, known as Soren Bovbjergs Dyb, branches in a N direction from Slugen, about 5 miles WSW of Blavands Huk, and has a least depth of 5m.

Depths on the outer part of Horns Rev, to the W of Nordmands Dyb and Slugen, range from 1.2 to 9m. Generally, the shallowest depths are found along a ridge which extends about 15 miles in an E and W direction along the N part of the shoal.

Horns Rev West Lighted Buoy (55°35'N., 7°26'E.) is moored about 22 miles W of Blavands Huk Light and marks the W and outer extremity of the shoals.

A prominent meteorological measuring mast, 60m high, stands on Munk Shoal, in the outer part of Horns Rev, about 10.3 miles WSW of Blavands Huk Light.

A wind farm area, in which 80 prominent wind generators stand, is located on the outer part of Horns Rev, about 9 miles WSW of Blavands Huk Light. The wind generators are lighted and interconnected by submarine power cables. Racons are situated at the wind generators standing at the SW and NE ends of he area.

Caution.—Wrecks that may suddenly rise up out of the constantly shifting sands are strewn over the entire Horns Rev shoal area. Some of these wrecks may contain explosives. Vessels are, therefore, advised not to navigate outside the

marked channels, even though the charted depths may appear adequate.

Cautionary areas, the limits of which are shown on the chart, lie in the vicinity of this extensive shoal. They are centered about 10 miles SW, 15 miles SSW, and 10 miles ENE of Horns Rev West Lighted Buoy. Vessels should not anchor, trawl, or conduct any bottom operations in these areas due to the residual danger from mines on the seabed.

A submarine cable extends W to the outer part of the shoal from a point on the shore located about 3 miles ESE of Blavands Huk Light.

9.30 The coast extending between Blavands Huk and Hanstholm, 98 miles N, is generally low and backed by sand dunes, but there are areas, particularly near the headlands, where cliffs rise up to 67m in height.

The NE part of the North Sea, which fronts this section of coast, is relatively shallow. The depths shoal gradually towards the shore over a bottom of sand and sand mixed with shells and stones.

Ice.—The E part of the North Sea that fronts this section of coast is never ice-covered. Ice forms off the coast as far N as Hanstholm, but it is usually of little significance and rarely causes any interruption of navigation.

Ringkobing Fjord is often closed to navigation because of ice. In Thyboron Kanal, leading to Limfjorden, there is never any solid ice cover, but navigation usually ceases here as soon as the inner waters of Limfjorden are frozen over.

Tides—Currents.—A constant current sets N and NE along the coast of Jylland. The current follows the coast as far as Hanstholm and then turns sharply ENE.

Off the S part of this area, the current is rather weak, setting only about 6 miles per day at Horns Rev. However, it increases in strength farther to the N. Between Blavands Huk and Hanstholm, the current is particularly subject to the effects of the wind and tidal currents. To the N of Blavands Huk, the effects of the tidal currents progressively decrease until N of Vorupor, when only the wind has any effect. Winds between the S and W generally increase the current, and winds between the W and N may stop it or even reverse the direction. To the N of Bovbjerg, the current sets N along the coast at a rate of up to 2 knots with W winds. With strong SW winds, this rate may reach 3 knots.

Although the rate of the tidal currents decreases rapidly to the N of Blavands Huk, there is a regular rise and fall of the tide; off Blavands Huk, there is a mean tidal rise of about 1.5m.

Caution.—A firing practice area extends about 9 miles NW from Blavands Huk and is marked by buoys.

A firing practice area extends about 8 miles W of Nymindegab (55°49'N., 8°12'E.) and is marked by a buoy.

Numerous wrecks, some dangerous, lie off this section of the coast and may best be seen on the chart.

Several submarine cables, which may best be seen on the chart, extend seaward from points on the shore located about 13 miles and 21 miles N of Blavands Huk Light and 6 miles SSW of Hanstholm Light (57°07'N., 8°36'E.).

Oil and gas submarine pipelines, which may best be seen on the chart, extend seaward to offshore installations from points on the shore located about 8 miles and 12 miles NNE of Blavands Huk Light.

A prohibited area, the limits of which are shown on the chart, extends 1 mile from the coast between Blavands Huk and Nymindegab (55°49'N., 8°12'E.), about 16 miles N.

A cautionary area, the limits of which are shown on the chart, extends 1 mile from the coast between Nymindegab (55°49'N., 8°12'E.) and a point located on the coast about 4 miles N of Lodbjerg Light (56°49'N., 8°16'E.). Another cautionary area, the limits of which are shown on the chart, extends seaward across the Skagerrak from a section of the coast between Lodbjerg Light (56°49'N., 8°16'E.) and Hanstholm Light (57°07'N., 8°36'E.). Vessels are advised not to anchor, trawl, or conduct any bottom operations in these areas due to the residual danger from mines on the seabed.

Lighted buoys, with tidal measuring equipment, may be frequently moored off this section of the coast.

Hvidesande Light

9.31 Off-lying dangers.—Lille Fisker Banke (56°48'N., 6°21'E.), with a least depth of 31m, lies centered about 63 miles W of Thyboron Kanal. A rather extensive bank, with least depths of 25 to 27m, lies up to 20 miles S and SW of Lille Fisker Banke.

Jutland Bank (56°47'N., 7°15'E.), with depths of 14 to 36m, lies centered about 26 miles NW of Thyboron Kanal.

Ekofisk Oil/Gas Field (56°33'N., 3°13'E.) is situated 164 miles W of the entrance to Thyboron Kanal. It consists of an extensive complex of production platforms, gas and oil pipelines, and tanker loading systems. The SPM tanker loading

systems are removed when the submarine pipelines to shore are operating normally, but installations remain on the seabed.

Numerous other oil and gas fields, with platforms, wells, and submarine pipelines, lie in the waters off the coast of Denmark and may best be seen on the chart. For more information, see paragraph 9.1 and paragraph 1.4.

9.32 Blabjerg (55°45'N., 8°15'E.), a prominent sand dune, stands 12 miles NNE of Blavands Huk. It is 64m high and rises above all the other dunes in this vicinity. This dune can easily be recognized by the three humps on its top.

Ringebjerge Beacon, 13m high, and Kaergaarde Beacon, 11m high, stand 4 miles and 9.5 miles, respectively, NNE of Blavands Huk. They are both prominent from seaward.

A church, with a prominent steeple, stands at Henne, 1 mile S of Blabjerg dune.

Holmsland Klit (56°00'N., 8°09'E.), centered 25 miles N of Blavands Huk, is a narrow strip of land which separates Ringkobing Fjord from the sea. It is fronted by two sandbars, the outermost lying about 0.3 mile offshore. The W side of this narrow strip is lined with sand dunes. On its S part, the dunes are low, but on its N part, they are high enough to hide the buildings standing behind.

Hvidesande Kanal (55°49'N., 8°12'E.), situated in the center of Holmsland Klit, forms the main approach to the fjord. A light is shown from a prominent framework tower, 19m high, standing on the S side of the canal entrance.

The canal entrance is formed by two moles which are protected on their N side by a breakwater extending W from the shore. The entrance channel leads into a small harbor consisting of two basins. There is 300m of quayage, with a depth of 3.5m alongside. The harbor is mostly used by fishing vessels and small craft. The inner basin is connected to Ringkobing Fjord by a lock. The entrance channel is subject to frequent changes and vessels should not enter without local knowledge.

The lock leading into the fjord is 34m long and 16.5m wide, with a depth of 4m over the sill. Vessels more than 33.5m in length must be channeled through the lock at certain stages of the tide.

Pilotage.—Pilotage is compulsory for the following vessels entering Danish ports, including the reloading to or from another vessel in Danish territorial waters or requiring to anchor in Danish waters.

1. Vessels carrying oil or having uncleaned cargo tanks that have not been inerted.
2. Vessels carrying chemicals.
3. Vessels carrying gasses.
4. Vessels with more than 5,000mt of bunker oil onboard.
5. Vessels carrying highly radioactive material.
6. Towed vessels:
   a. Vessels being towed over 150gt or over 28m LOA in dredged channels or marked navigational channels when entering or leaving harbor.
   b. Where the towed vessel is not manned or cannot be propelled by its engines, the tugs shall use pilots.
   c. Vessels towing or being towed within the same harbor area are exempt from pilotage.

Danish State Pilotage (DanPilot) - As the unique full-service provider in Denmark, Danish State Pilotage handles the public pilotage through Danish territorial waters from any destination in Denmark to all ports in the Baltic Sea. Danish State Pilotage offices will also forward Pilot ordering for private pilotage service providers. Danish State Pilots should be ordered as follows:

1. At least 18 hours before ETA at the required pilot boarding position, with confirmation or corrections 4 hours before ETA, for inbound vessels.
2. At least 4 hours before the pilot is required, with confirmation or corrections 1 hour before ETD, for vessels outbound from port.

Danish Pilot Service should be ordered through the following offices:

1. Skagen, Storebælt South and Gedser: 24 and 12 hours in advance via e-mail or telephone, with confirmation 6 hours before ETA via telephone.
2. Pols Rev, Route T Lighted buoy No. 21, Route T Lighted buoy No. 23, Fredericia Roads, Kalundborg Roads and Aabenraa Roads; At least 6 hours in advance via telephone.
3. Limfjorden; 6 hours in advance with confirmation 3 hours before ETA at Hals 1, 2 & 3 or the entrance to Limfjorden west.

Vessels should state the following information when ordering a Pilot:

1. Vessel name, call sign and IMO Number.
2. LOA, gt, beam, draft and speed.
3. Nature of cargo under IBC codes.
4. ETA at required pilot boarding position.
5. Destination for pilotage.
6. Any faults affecting vessel's maneuverability.
7. Contact and payment information.
8. Payer's information.

Hvide Sande Pilot boards in position (55°59.0'N., 8°03.3'E.).

Contact Information.—Hvide Sande can be contacted as follows:

1. VHF: VHF channels 12 or 16
2. Telephone: 45-97-311633
3. Facsimile: 45-96-591822
4. E-mail: hvidesandehavn@hvshavn.dk
5. Website: http://www.hvidesandehavn.dk

The Harbor Master can be contacted as follows:

1. VHF: VHF channels 12 or 16
2. Telephone: 45-97-311633
3. E-mail: portcontrol@hvshavn.dk

Ringkobing (56°05'N., 8°15'E.) (World Port Index No. 30630), a small port, is situated on the N shore of the fjord, 7 miles NE of the canal. The harbor is approached through a channel, 20m wide, which is marked by perches and has a depth of 2.4m. It consists of two basins, with depths of 2.5 to 3m, and is mostly used by fishing vessels, small craft, and pleasure boats. There is a quay, 149m long, with a depth of 2.7m alongside. Several yacht marinas are situated within the fjord near Ringkobing.

Havrvig Beacon, 11m high, and Argab Beacon, 12m high, stand 5 miles and 0.8 mile, respectively, S of the canal entrance. Both beacons are prominent from seaward.

A church, with a small pointed tower, is situated at Gammelsogn, 7 miles NE of the canal entrance, and another church, white with a dark roof, is situated at Nysogn, 8 miles NNE of the canal entrance.

9.33 Lyngvig Light (56°03'N., 8°06'E.) is shown from a prominent tower, 38m high, standing 3 miles N of the canal entrance. It is also known locally as Holmslands Klit Light.

Lyngvig Light

Husby Klit Beacon, 12m high, and Vederso Beacon, 11m high, stand 8 miles and 12.5 miles, respectively, N of Lyngvig Light. A church, white with a dark roof, is situated at Husby, 14.5 miles N of Lyngvig Light.

Torsminde Havn (Thorsminde Havn) (56°22'N., 8°07'E.), a small fishing harbor, is situated within the channel which provides access from the North Sea to Nissum Fjord, 19.5 miles N of Lyngvig Light. The intervening coast is backed by sand dunes, which attain heights up to about 27m.

A light is shown from a framework tower, 25m high, standing near the harbor entrance. A conspicuous windmill, 32m high, is situated close ESE of the light. The entrance channel is 40m wide and has a depth of 3m. Vessels up to 40m in length, 8m beam, and 3m draft can be accommodated at HW. The harbor is blocked about 0.2 mile inside the entrance by sluices which control the level of water in the fjord. A road bridge spans the harbor close W of the sluices. Small craft can enter the fjord through the sluices only when the water levels of the sea and the fjord are equal or almost equal.

The coast between Torsminde Havn and Thyboron, 21 miles N, is backed by low sand dunes.

Bovbjerg Light (56°31'N., 8°07'E.) is shown from a prominent tower, 26m high, standing on Bovbjerg, a prominent dune, 38m high, which rises 8.5 miles N of Torsminde Havn.

A conspicuous factory chimney stands about 9 miles NNE of Bovbjerg Light and several prominent churches are situated along this section of the coast.

Caution.—Between Lyngvig Light and Lodsberg (56°49'N., 8°16'E.), numerous remains of bunkers, pill boxes, groins, and other defense installations lie along the sea bed, close off the coast. In some areas, these obstructions are being removed.

It is reported (2006) that measuring equipment, with a depth of 15m over it, lies about 3 miles SW of Bovbjerg Light and is marked by a lighted buoy.

Limfjorden

9.34 Limfjorden (56°43'N., 8°13'E.), the comparatively shallow waterway cutting through the N part of Jylland, consists of a series of irregular bays connected by narrow sounds. It extends in a NE direction from Thyboron (56°42'N., 8°13'E.) on the North Sea to Hals on the Kattegat. The W entrance of this waterway is formed by the Thyboron Kanal.

Limfjorden cuts through Jylland and converts the N part of that peninsula into an island. Several towns, villages, and loading places are situated within this waterway. The main fairway within the waterway is 91 miles long.

Bovbjerg Light

Aalborg, the principal port of Limfjorden, lies about 16 miles within the E entrance at Hals. A description of this port and the E entrance may be found in Pub. 193, Sailing Directions (En-route) Skagerrak and Kattegat.

Thyboron (56°42'N., 8°13'E.) (World Port Index No. 30460), a small town, stands near the N end of Harboore Tange and is fronted on its inner side by a harbor. A church, with a prominent thin tower, stands in the town. Harboore Tange, a low and sandy tongue, extends NNE from a position located about 7.5 miles N of Bovbjerg Light. This tongue separates the S part of Nissum Bredning from the North Sea and is protected by groynes on its W side. The W entrance to Limfjorden, which is known as the Thyboron Kanal, leads between the N end of Harboore Tange and a breakwater extending seaward from the S end of Agger Tange.

Agger Tange, composed of sand and pebbles, is a low tongue of land which separates the N part of Nissum Bredning from the North Sea. It is about 5 miles long, protected by groynes on both sides, and often flooded at HW during storms.

A light is shown from a framework tower, 17m high, standing near the N extremity of Harboore Tange. An outer lighted buoy, equipped with a racon, is moored about 2.5 miles W of the light and marks the bar.

The entrance fairway is indicated by lighted ranges and has a dredged depth of 6m over the bar (2000).

Thyboron Havn is entered directly from the canal. It provides about 1,000m of total commercial berthage, with

depths of 5 to 6m alongside. Vessels up to 100m in length, 15m beam, and 5.5m draft can be accommodated.

Limfjorden is entered via the Thyboron Kanal. The depths in the waterway between the W entrance and the port of Aalborg vary considerably. The main fairway is reported (2000) to have a least depth of 4m. Vessels with drafts up to 3.8m may transit the waterway.

Tides—Currents.—At Thyboron, the tides rise about 0.4m at springs and 0.3m at neaps.

Off the entrance to the Thyboron Kanal, the tidal currents change regularly in fair weather. The flood current becomes established 3 hours 30 minutes before local HW and continues until 4 hours after. The ebb current usually lasts for 5 hours. Winds between S and W strengthen and increase the duration of the N flood current and sometimes overcome the S ebb current entirely. Winds from between N and E increase the duration of the ebb current. The currents normally attain rates of about 2.5 knots.

Within the Thyboron Kanal, the water level is affected by the wind. Winds from W can raise the level by up to 1.3m and winds from E can lower it by as much as 1.2m. The difference between the water levels inside and outside the canal may be considerable. This condition, in conjunction with prolonged E of W winds, may cause a continuous incoming or outgoing current to persist for several days. Under these exceptional conditions, the current has attained a rate of 6 to 8 knots.

Ice.—There is never a solid ice cover in the canal, but navigation stops as soon as the inner waters are frozen over. The inner waters of Limfjorden are susceptible to freezing; in severe winters, this may occur between the middle of December and the early part of April. Navigation may be impeded for a period of up to 3 months and may be stopped entirely for up to 2 months.

Regulations.—Special regulations for navigating in Danish inner waters are in force within all of Limfjorden and its entrances. Generally, inbound vessels, having sounded one long blast to indicate entering, take precedence over outbound vessels.

The fairways through Limfjorden are marked in accordance with the Danish system for minor passages.

Pilotage.—Pilotage is compulsory for vessels over 200 gt or 35m in length. It is recommended for all vessels without local knowledge. Pilots may be contacted by VHF and board close outside the entrance bar whenever the weather conditions permit.

Pilots may be ordered through the Limfjorden Pilot Station which can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 45-98-251006
3. Facsimile: 45-98-251477
4. E-mail: limfjorden@pilotage.dk

Pilots for Limfjorden may also be ordered through the Dan-Pilot (Great Belt), Spodsbjerg office which can be contacted, as follows:

1. VHF: VHF channel 16
2. Telephone: 45-62-501535
3. Facsimile: 45-62-501528
4. E-mail: belt@pilotage.dk

Caution.—Depths over the outer bar constantly change and the authorities should be contacted in order to ascertain the latest information.

The sea sometimes breaks on the outer bar during W gales. However, safe entry can usually be made in all weather conditions.

Due to silting, depths within Thyboron Havn may be up to 0.5m less than charted.

Limfjorden to Hanstholm (continued)

9.35 The coast extends 28 miles NNE from Thyboron to Hanstholm. During the fall and winter months, parts of this low coast may be inundated and flooded at HW, especially with strong W winds.

Lodbjerg Light (56°49'N., 8°16'E.) is shown from a prominent tower, 35m high, standing on the dunes, about 7 miles NNE of Thyboron.

Lodbjerg Light

Hanstholm Light

The coast extending between Lodbjerg and Norre Vorupor, 9 miles NNE, consists of dunes. These dunes are low in the vicinity of Norre Vorupor, but otherwise fairly high. Stenbjerg Beacon and Torup Beacon, 11m high, stand about 6.5 miles and 11 miles, respectively, NNE of Lodbjerg Light. Prominent

churches are situated at Norre Vorupor and 0.6 mile ENE of Stenbjerg Beacon.

A detached breakwater, 2m high, is situated at Norre Vorupor and protects a landing place for boats. It extends 310m NW from a position close offshore and is connected to the coast by a piled pier, 115m long.

Limfjorden (Hals)—(56°59'N., 10°18'E.) is open 24 hours a day and the following procedures are to be followed by inbound vessels:

1. Notice of ETA: Vessels should advise ETA to Pilots 24 hours and 12 hours in advance by email, 2 hours in advance by telephone, and 30 minutes in advance on VHF channel 12.
2. Pilot boards in the following positions:
   a. Hals 1: 56°51.5'N 10°46.5'E (near No. 7 Lighted buoy)
   b. Hals 2: 56°51.9'N 10°35.3'E (1 mile NW of Svitringen Rende S Light)
   c. Hals 3: 56°56.0'N 10°29.0'E (7 miles NW of Svitringen Rende S Light)

Contact Information: Harbour Pilots (Limfjord Pilot ApS) can be contacted as follows:

1. VHF: VHF channel 16 (channel 12 can be used only when the Pilot Vessel is manned)
2. Telephone: 45-91-528888
3. E-mail: 24h@limfjordpilot.dk
4. Website: www.limfjordpilot.dk

Orhage (57°03'N., 8°29'E.), a prominent promontory, is located 6 miles NE of Norre Vorupor. A shallow rocky ledge fronts the NW side of this promontory and a spit lies close S and parallel to it. A conspicuous church, red with a slate roof and no tower, is situated at Klitmoller, 0.5 miles E of the promontory.

Hanstholm (57°07'N., 8°36'E.), the NW extremity of the Danish mainland, is formed by a broad chalk and limestone promontory which rises steeply from the sea.

A light is shown from a prominent tower, 23m high, standing on Hansted, the NW part of Hanstholm. Hjertebjerg, the summit of the promontory is 67m high and rises about 2 miles SE of the light.

The boundary between the North Sea and Skagerrak extends seaward from Hanstholm to Lindesnes (57°59'N., 7°03'E.).

For a description of the coast extending E of Hanstholm Light, including Hanstholm Havn, see Pub. 193, Sailing Directions (Enroute) Skagerrak and Kattegat.

Flemish

FLEMISH	English
A	
aa	stream
afleidingskanaal	navigation canal
as	stream
B	
bank	shoal
beek, beke	stream
berg	hill
bergen	dunes
bol	shoal
bos, bossen	woods
broek	marsh, pond
D	
diep	channel, submarine depression
dijk	dike
dok	docking basin, harbor
droogte	shoal
duinen	dunes
F	
fortje	fort
G	
gat	drainage ditch, lake, pond
geleed	drainage ditch, stream
geule	lake
gracht	drainage ditch, navigation canal
H	
heide	marsh, dunes
heuvel	dune, dunes
hoef, hoeve	farm
hoven	farm
K	
kamp	fort
kanaal	navigation canal
kasteel	castle, chateau
L	
lede	navigation canal
leed, leede	drainage ditch, stream
leegte	marsh
loop	stream
M	
meer	lake, pond
moer, moeren	lake, marsh
P	
poel	marsh
put, putten	marsh
R	
renne	stream
S	
schans	fort
slaak	stream
sluis	lock
strand	beach
stroom	stream
V	
vaart, vaartje	navigation canal
ven, venn	marsh, pond, lake
verbindingskanaal	navigation canal
vlakte	shoal
vliet	stream
W	
weel	pond, lake
weier	marsh
weiers	ponds
Z	
zijkanaal	navigation canal
zwijn, zwin	drainage ditch

Dutch

DUTCH	English
A	
aan	at, near, on
B	
baak	beacon
berg	mountain, hill
binnen	inner
blauwe	blue
bocht	bay, bend, light
bol	ball
boom	tree
bosch	forest
boschje	small wood, brush
breed	broad
brug	bridge
buiten	outer
bult	hump
D	
dam	dam, breakwater
de, den	the
diep	deep
dijk	dike
dorp	village
draaikalk	eddy
drempel	bar
dric	three
drichoek	triangle
droogte	shoal
duin	dune, sandhill
dwars	across, athwart
E	
eiland	island
F	
friesche	frisian
G	
gat	channel
geul	narrow channel
groei	green
gronden	grounds
groot	great
H	
haven	harbor
helft	half
het	the
heuvel	hill
hoek	cape, point
hoofd	head
hoog	high
hout	wood, timber
K	
kaap	cape, headland
kake	quay
kegel	cone
kil	channel
klein	small
klip	rock
kop	head
kreek	creek
kromme	crooked
kust	coast
L	
laag, lage	low
lang	long
licht	light
loods	pilot
loodswezen	pilotage
M	
meer	inland sea
middel, midden	middle
modder	mud
molen	mill
N	
nauw	narrows
nieuw	new
noord	north
noorder	northern
O	
oost	east
oud	old
P	
peilschaal	tide gage
plaat	shoal
plaatje	small shoal
plat	flat
polder	reclaimed land
punt	point
R	
rak	channel
rechthoekig	rectangular
reddingboot	lifeboat
rede	roadstead
rode, rood	red
rots	rocks

DUTCH	English
rug	ridge
ruitvormig	diamond-shaped

S

schaar	channel
scherm	screen
schor	shoal
schutsluis	lock gate
seinen	signals
sluis	lock
smal	narrow
spits, spitse	pointed
spoorweg	railway
staart	tail (of a bank)
stad	town
steen	stone
steiger	jetty, pier
steile	steep
strand	beach, shore
stroom	current, stream

T

toegang	access
tramweg	tramway

U

uit	out

DUTCH	English

V

vaart	canal
vaarwater	fairway
valsch	false
van	of
veerboot	ferry
verklikker	warning light
vlakte	flat below surface
vliegtuigen	aircraft

W

wad	drying coastal bank
wal	banks, wall
watergetijden	tidal current
waterweg	waterway
weg	way
werk	work
wester	western
wit, witte	white
wrak	wreck

Z

zand	sand
zee	sea
zeegat	estuary
zuid	south
zuider	southern
zwart	black

German

GERMAN	English
A	
abgersuchtes gebiet	swept area
alt-; e, er, es	old
ankerplatz	anchorage
anlege stelle	landing place
ansicht	view
ansteuerungstonne	landfall buoy
au	brook, stream
auffallig	conspicuous
aussen	outer, outside
B	
baggerrinne	dredged channel
bai	bay, cove
bake, baken	beacon, beacons
Balje	channel between sands
bank, untiefe	bank (shallow area)
berg	mountain
betonnung	buoyage
binnen	inner
blau	blue
bodden	bay
boot	boat
brecher, brandung	breakers
brucke	bridge
bucht	bay
busch	bush
D	
dalben	dolphin
damn	dam, embankment
deich	dike
deviationsbake	deviation beacon
doek, hafenbecken	dock (alongside berth)
dorf	village
drahtschleppgerat	wire drag
drehbrucke	drawbridge
dune	dune
durchfart	passage, channel
E	
ebbe	ebb tide
eck, ecke	angle, corner
ehe	channel for small craft
eiland	island
einfahrt	entrance
eisenbahn	railway
eisfeld	icefield
eissignale	ice signals
F	
faden	fathom
fahre	ferry
fahrwasser	navigable channel
feilsgrund	rock (bottom)
festmachetonne	mooring buoy
feuerschiff	lightship
fischerei	fishery
fischstaken	fish weirs
fluss	river
flut	flood tide
flutbecken	tidal basin
forde	inlet, gulf
funkfeuer	radiobeacon
funkmast	radiomast
G	
gat	channel between banks
gebiet	area
gefahrsignale	danger signals
gegenstrom	countercurrent
gelb	yellow
geloscht	extinguished
gezeiten	tide
gezeitenstromwirbel	tide race
glockentonne	bell buoy
golf	gulf
grenze	boundary, limit
gross-; e, er, es	great, large
grun	green
grund	shoal
H	
hafen	harbor
hafengrenze	harbor limit
hafensignale	port signals
hafenzeit	vulgar establishment (of port)
haff	lagoon, fresh water lake
haken	point
halbinsel	peninsula
hauptfahrwasser	main ship channel
heultonne	whistle buoy
hochwasser	high water
hoft	foreland, point
hohe	height, hill, ridge
holz	woods, forest
hoved	headland
hugel	hill
huk	cape, point, head
I	
insel	island
K	
kai	pier, quay
kanal	canal
kap	cape
kapelle	chapel
kartennull	chart datum

GERMAN	English
kirche	church
klein	small
klippe	cliff, rock
knoten	knot
kreisfunkfeuer	radiobeacon
kuppel	cupola
kurs	course
kustenwache	coast guard

L

ladeplatz	wharf
landenge	isthmus
landungsbrucke	pier, jetty
leitfeuer	range light
leitmarken, leitbaken	range marks
leuchttonne	light buoy
leuchtturm	lighthouse
lot	sounding lead
lotse	pilot
lotsenstelle	pilot station

M

marsch	marsh
meer	sea
meerenge	narrows
meeresarm	estuary, inlet
mittel	middle
mittelwasser	mean tide level
muhle	mill
munde, mundung	mouth of river, etc.

N

nachrichten fur seefahre	notice to mariners
nebel	fog
neue, neu, neues	new
nieder	lower
niedrigwasser	low water
niss	cape, point
nord	north

O

ober	upper
ort	place
ortschaft	town, village
ost	east
ostsee	the baltic

P

pegel	tide gage
peilung	bearing
pier	pier
platz	place
poller	bollard
punkt	position, point

R

radarstelle	coastal radar station
rathaus	town hall
reede	roadstead
rettungsstelle	lifesaving station
richtfeuer	range light
riff	reef
riffgrund	rocky ground
rinne	narrow channel
rot	red

S

sand	sand
schiffahr shirdern	obstruction to navigation
schiffahr swege	shipping lanes
schleuse	lock, sluice
schleusensignale	lock signals
schlick	mud
schloss	castle
schornstern	chimney, smokestack
schwartz	black
schwimmdock	floating drydock
schwingdrucke	swing bridge
see	sea, lake
seedeich	seawall
seegat	entrance channel
seegras	kelp
seekarte	chart
seemeile	nautical mile
seetang, seegras	kelp seaweed
spiegel	reflector
spitze	summit, peak, point
stadt	city, town
stein	stone
strand	shore, beach
strom	current, stream
stromkabbelung	overfalls, tide rips
stromrichtung	set (of tidal current)
strudel	eddy, whirlpool
sturmsignale	storm signals
sud	south
sumpf	swamp, bog
sund	sound, strait

T

tagmarke	daymark
tidehafen	tidal basin
tidenhub	range (of tide)
tief	deep, channel
tiefgang	draft (of vessel)
tonne	buoy
toppzeichen	topmark
trockendock	drydock
turm	tower

U

ufer	river bank, beach, coast, shore
unreiner grund	foul ground
unter	under, lower
unterstromung	undercurrent
untersuchungsankerplatz	examination anchorage

GERMAN	English
unterwasserkabel	submarine cable
untiefe	bank, shoal

V

verboten	prohibited
vermuren	mooring
versandet	silted up, shoaled

W

wald	wood, forest
wasserstande	water level
wasserstelle	watering place
weiss	white
wellenbrecher	breakwater
west	west
wiek	bay, inlet, cover
windmotor	windwheel
windmuhle	windmill
wrack	wreck

Z

zeitweilig	temporary
zerstort	destroyed
zollgrenze	customs boundary
zugbrucke	lift bridge

Danish

DANISH	English
A	
aa	rivulet
anlaegsbro	pier
B	
baek	brook
baelte	band
bake	beacon
bakke	hill
banke	bank
begt	bay, bight
berg	castle, fortified place
bjerg	mountain
bredning	wide place in channel
bro	pier
brygge	quay, wharf
bundgarn	seine net
by	town
D	
dal, dale	valley, gorge
drag	isthmus
dyb	deep
dybde	depth
F	
farvand, farvandet	fairway
fjord	fjord
flak	flat
flogetonde	whistle buoy
fyr	light
G	
gab	mouth
gammel	old
gittermast	framework beacon
grat	gray
gron	green
grund	shoal area
H	
hage	shoal, spit
hale	spit, peninsula
havn	harbor
hoj	hill, point
holm	island
hoved	point, headland
huk	point
hus	house
hvidt	white
I	
inder	inner
K	
kalv	detached islet
kanal	canal
klev	cliff
klint	cliff, bluff
klit	sand dunes
knold	knol, shoal
knude	point
kysten	coast
L	
lang	long
lille	little
lob	channel
lods	pilot
lyd	sound
lys	light
M	
middelgrund	middle ground
minde	mouth
molle	mill
munding	outlet
N	
naeb	point
naes	point, cape, peninsula
nakke	point, cape, bluff
nor	shallow inlet basin
nord	north
ny	new
O	
o	island
odoe	point, peninsula, cape
ore	shoal, point, peninsula
ostee	east
ostersoen	the baltic
P	
plade	shoal
pulle	shoal
pynt	point, peninsula
R	
red	roadstead
redningstatien	lifesaving station
rende	channel
rev	reef, sand flat
revle	reef, shoal
rod	red

DANISH	English
ron	rocky ledge

S

sand	shoal, sand flat, beach
sandhage	shoal
skance	fort
skow, skoven	forest
slot	castle
sluse	lock
snaevrinjen	the narrows
so, soen	lake, lagoon
sojord	sand flat
spids	point
steil	steep
store	big, great
strom	current
sund	sound
syd	south

T

tage	fog
tange	tongue of land
tarn	tower

V

vest	west
vig	bay, inlet, bight, cove
vrag	wreck

Y

yder	outer

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 Chart Information diagram for the Sector. Plot the approximate position of the feature on this diagram and note the approximate chart number.

To use as an Index of features described in the text note the paragraph number at the right. To locate this feature on the best scale chart use the Gazetteer procedure above.

Index—Gazetteer

	Position				Sec
	°	'	°	'	.
A					
ABERLADY BAY	56	01 N	2	53 W	1.9
ACKUMER EE	53	43 N	7	27 E	8.20
AKKAERT BANK	51	23 N	2	50 E	6.3
ALDEBURGH	52	09 N	1	36 E	3.39
ALEXANDRA CHANNEL	51	30 N	1	10 E	4.10
ALNMOUTH	55	23 N	1	37 W	2.13
ALNMOUTH BAY	55	22 N	1	34 W	2.13
ALTE EMS	53	31 N	6	41 E	8.13
ALTE WESER	53	55 N	7	58 E	8.27
ALTE WESER LIGHT	53	52 N	8	08 E	8.21
ALTENBRUCH	53	50 N	8	46 E	9.5
AMBLE	55	20 N	1	35 W	2.14
AMELAND	53	27 N	5	47 E	8.8
AMRUM	54	38 N	8	21 E	9.22
AMRUM BANK	54	38 N	8	00 E	9.18
AMSTERDAM	52	22 N	4	54 E	7.19
ANSTRUTHER EASTER	56	13 N	2	42 W	1.22
ANTWERP	51	13 N	4	24 E	6.24
ANTWERPEN	51	13 N	4	24 E	6.24
B					
BACTON	52	51 N	1	29 E	3.33
BALTRUM	53	44 N	7	24 E	8.19
BARKING REACH	51	31 N	0	07 E	5.10
BARNS NESS	55	59 N	2	27 W	2.2
BARROW DEEP	51	38 N	1	14 E	4.6
BASS ROCK	56	05 N	2	39 W	1.3
BATH	51	24 N	4	12 E	6.22
BATTERY POINT	56	00 N	3	23 W	1.15
BAWDSEY BANK	52	00 N	1	33 E	4.14
BAWDSEY CLIFF	52	00 N	1	25 E	4.12
BEAMER ROCK	56	00 N	3	25 W	1.23
BENACRE NESS	52	24 N	1	44 E	3.38
BERWICK	55	46 N	2	00 W	2.5
BERWICK BAY	55	45 N	1	55 W	2.6
BERWICK-UPON-TWEED	55	46 N	2	00 W	2.5
BID DOWSING PLATFORM	53	34 N	0	53 E	3.17
BLABJERG	55	45 N	8	15 E	9.32
BLACK DEEP	51	40 N	1	25 E	4.7
BLACK ROCKS POINT	55	37 N	1	33 W	2.7
BLACKWALL REACH	51	30 N	0	00 W	5.14
BLACKWELL POINT	51	30 N	0	03 E	5.13
BLAE ROCK	56	03 N	3	11 W	1.6
BLAKENEY	52	57 N	1	02 E	3.30
BLAKENEY OVERFALLS	53	03 N	0	57 E	3.31
BLANKENBERGE	51	19 N	3	08 E	6.8
BLANKENESE	53	34 N	9	49 E	9.13
BLAVANDS HUK	55	33 N	8	05 E	9.29
BLIGH BANK	51	36 N	2	46 E	6.2
BLYTH	55	07 N	1	30 W	2.16
BOL VAN HEIST	51	23 N	3	13 E	6.4
BOL VAN KNOKKE	51	25 N	3	18 E	6.13
BOLLEN VAN GOEREE	51	51 N	3	40 E	7.3
BORKUM	53	35 N	6	40 E	8.11
BORKUM GREAT LIGHT	53	35 N	6	40 E	8.11
BORKUM HAFEN	53	34 N	6	45 E	8.11
BORKUM RIFFGRUND	53	53 N	6	15 E	8.10
BORKUMRIFF	53	36 N	6	37 E	8.11
BOSTON	52	58 N	0	01 W	3.25
BOSTON DEEP	53	04 N	0	21 E	3.24
BOTLEK	51	53 N	4	18 E	7.9
BOVBJERG LIGHT	56	31 N	8	07 E	9.33
BRAAKMANHAVEN	51	21 N	3	46 E	6.18
BRAEFOOT BAY TERMINAL	56	02 N	3	19 W	1.17
BRAEFOOT POINT	56	02 N	3	19 W	1.16
BRAKE	53	20 N	8	29 E	8.32
BREADNELL POINT	55	33 N	1	37 W	2.12
BREMEN	53	08 N	8	46 E	8.35
BREMERHAVEN	53	32 N	8	35 E	8.28
BRESKENS	51	24 N	3	34 E	6.18
BRIDGENESS	56	01 N	3	35 W	1.26
BRIDLINGTON	54	05 N	0	11 W	3.5
BRIGHTLINGSEA	51	48 N	1	02 E	4.21
BROKEN BANK	53	21 N	2	05 E	3.14
BROWN POINT	55	02 N	1	26 W	2.17
BROWN RIDGE	52	38 N	3	19 E	7.21
BRUGES	51	14 N	3	13 E	6.10
BRUGGE	51	14 N	3	13 E	6.10
BRUNSBUTTEL	53	54 N	9	09 E	9.6
BRUSSELS	50	52 N	4	21 E	6.25
BRUXELLES	50	52 N	4	21 E	6.25
BUGSBY'S REACH	51	30 N	0	01 E	5.14
BUITEN RATEL	51	15 N	2	32 E	6.4
BUITENBANKEN	51	49 N	3	08 E	6.3
BURNHAM	51	37 N	0	50 E	4.24
BURNMOUTH	55	50 N	2	04 W	2.4
BURNTISLAND	56	03 N	3	14 W	1.18
BUSUM	54	08 N	8	52 E	9.20
BUTZFLETH TERMINAL	53	39 N	9	31 E	9.12
C					
CAISTER POINT	52	39 N	1	43 E	3.35
CANVEY ISLAND TERMINAL	51	31 N	0	34 E	5.3
CHARLESTOWN	56	02 N	3	30 W	1.25
CHATHAM DOCKS	51	24 N	0	33 E	5.26
CHATHAM NESS	51	23 N	0	31 E	5.27
CLACTON-ON-SEA	51	47 N	1	09 E	4.18
COAL PIT	53	30 N	1	45 E	3.14
COCKENZIE	55	58 N	2	58 W	1.10
COCKLE GATWAY	52	43 N	1	45 E	3.36
COLCHESTER	51	53 N	0	55 E	4.21
COLNE POINT	51	46 N	1	03 E	4.20
COQUET ISLAND	55	20 N	1	32 W	2.14
CORK HOLE	51	54 N	1	25 E	4.13
CORK KNOLLS	51	56 N	1	26 E	4.13
CORK SAND	51	54 N	1	24 E	4.13
CORTON SHOAL	52	35 N	1	48 E	3.35
CORYTON OIL TERMINAL	51	31 N	0	32 E	5.3
COWBAR NAB	54	34 N	0	47 W	2.24
CRAIL	56	15 N	2	38 W	1.22
CRASTER SKERES	55	29 N	1	28 W	2.12
CROMBIE	56	02 N	3	32 W	1.25

	Position				Sec
CROMER	52	56 N	1	18 E	3.32
CROMER KNOLL SHOAL	53	18 N	1	18 E	3.15
CROSS SANDS	52	40 N	1	52 E	3.35
CROSS SANDS LIGHTED BUOY	52	37 N	1	59 E	3.35
CULLERNOSE POINT	55	28 N	1	35 W	2.12
CUTLER	51	59 N	1	27 E	4.14
CUXHAVEN	53	52 N	8	43 E	9.4
CUXHAVEN RADAR TOWER	53	52 N	8	43 E	9.3

D

DAN TYSK WIND FARM	4	29 N	9	03 E	9.25
DAN TYSK WIND FARM	54	29 N	9	03 E	9.25
DARNETT NESS	51	24 N	0	36 E	5.19
DELFZIJL	53	20 N	6	56 E	8.15
DEN HELDER	52	58 N	4	47 E	7.24
DEN OEVER	52	56 N	5	02 E	7.27
DER DOLLARD	53	18 N	7	10 E	8.17
DER DOLLART	53	18 N	7	10 E	8.17
DEURLOO	51	30 N	3	24 E	6.13
DITZUM	53	19 N	7	17 E	8.17
DOGGER BANK	54	40 N	2	20 E	3.4
DOMBURGER RASSEN	51	36 N	3	26 E	6.13
DORDRECHT	51	49 N	4	39 E	7.12
DR1 LIGHTED BUOY	53	04 N	2	40 E	8.2
DRILL STONE	51	26 N	1	42 E	4.3
DRURIDGE BAY	55	17 N	1	33 W	2.15
DUDGEON LIGHTED BUOY	53	17 N	1	16 E	3.17
DUDGEON SHOAL	53	16 N	0	57 E	3.16
DUKEGAT	53	28 N	6	52 E	8.13
DUNBAR	56	00 N	2	31 W	2.2
DUNWICH CLIFFS	52	16 N	1	38 E	3.39
DYSART	56	08 N	3	07 W	1.19

E

EAST BARROW	51	38 N	1	11 E	4.7
EAST HINDER BANK	51	33 N	2	39 E	6.2
EAST SWALE	51	22 N	0	57 E	4.30
EAST SWIN	51	40 N	1	09 E	4.9
EAST SWIN OR KING'S CHANNEL	51	45 N	1	25 E	4.6
EEMSHAVEN	53	27 N	6	50 E	8.14
EGMOND AAN ZEE	52	37 N	4	37 E	7.20
EIDER RIVER	54	12 N	8	36 E	9.21
EIDERSTEDT PENINSULA	54	20 N	8	38 E	9.22
EKOFISK FIELD	56	33 N	3	13 E	9.31
ELBE LIGHTED BUOY	54	00 N	8	07 E	9.2
ELBE RIVER	53	58 N	8	33 E	9.2
ELBOW	51	22 N	1	31 E	4.26
ELIE NESS	56	11 N	2	49 W	1.21
ELSFLETH	53	14 N	8	28 E	8.33
EMBLETON BAY	55	30 N	1	36 W	2.12
EMDEN	53	20 N	7	11 E	8.16
EMS RIVER	53	36 N	6	21 E	8.10
ENGELSMANPLAAT	53	27 N	6	03 E	8.9
ERITH RANDS REACH	51	29 N	0	12 E	5.10
ERITH REACH	51	30 N	0	11 E	5.10
ESBJERG	55	28 N	8	27 E	9.28
EURO LIGHTED BUOY	51	57 N	3	10 E	7.4
EUROGEUL	52	00 N	3	32 E	7.5
EUROPLATFORM	52	00 N	3	17 E	7.4
EUROPOORT	51	57 N	4	08 E	7.8
EYEMOUTH	55	52 N	2	05 W	2.4

F

FAIRY BANK	51	24 N	2	20 E	6.2
FALL GAP	51	33 N	1	53 E	4.2
FANO	55	24 N	8	25 E	9.27
FANO BUGT	55	21 N	8	10 E	9.26
FARNE ISLAND	55	37 N	1	39 W	2.10
FARNE ISLANDS	55	38 N	1	37 W	2.8
FELIXSTOWE	51	57 N	1	17 E	4.15
FELIXSTOWE LEDGE	51	57 N	1	23 E	4.14
FIDDLER'S REACH	51	28 N	0	18 E	5.8
FIDRA	56	04 N	2	47 W	1.3
FIFE NESS	56	17 N	2	35 W	1.2
FILEY BAY	54	12 N	0	15 W	2.28
FILEY BRIGG	54	13 N	0	16 W	2.28
FISCHERBALJE LIGHT	53	33 N	6	43 E	8.11
FISHERMAN'S GAT	51	35 N	1	22 E	4.8
FLAMBOROUGH HEAD	54	07 N	0	05 W	3.3
FLUSHING	51	27 N	3	36 E	6.16
FLUSHING ROAD	51	26 N	3	35 E	6.15
FOHR	54	43 N	8	30 E	9.23
FORT DE NOLLE	51	27 N	3	33 E	6.12
FORTH DW CHANNEL	56	03 N	3	04 W	1.5
FORTH RAILWAY BRIDGE	56	00 N	3	23 W	1.14
FORTH RIVER	56	01 N	3	29 W	1.23
FORTH ROAD BRIDGE	56	00 N	3	24 W	1.14
FOSDYKE BRIDGE	52	52 N	0	02 W	3.26
FOULGER'S GAT	51	38 N	1	26 E	4.8
FOULNESS POINT	51	37 N	0	57 E	4.25
FOUR FATHOMS CHANNEL	51	26 N	0	58 E	4.29
FREEMAN CHANNEL	52	58 N	0	15 E	3.24
FRIEDRICHSKOOG	54	00 N	8	52 E	9.19
FRIEDRICHSTADT	54	23 N	9	05 E	9.21
FRIESCHE ZEEGAT	53	28 N	6	04 E	8.9
FRINTON-ON-SEA	51	50 N	1	15 E	4.18

G

GALLIONS REACH	51	30 N	0	05 E	5.11
GALLOPER	51	47 N	1	58 E	4.2
GARRISON POINT	51	27 N	0	45 E	5.19
GB LIGHTFLOAT	54	11 N	7	28 E	8.21
GEESTE RIVER	53	32 N	8	35 E	8.29
GENIUS BANK	53	36 N	8	09 E	8.23
GENT	51	04 N	3	44 E	6.21
GHENT	51	04 N	3	44 E	6.21
GILLINGHAM REACH	51	24 N	0	34 E	5.25
GIN HEAD	56	04 N	2	39 W	1.2
GLUCKSTADT	53	47 N	9	25 E	9.10
GOEREE LIGHT	51	55 N	3	40 E	7.4
GOOLE	53	42 N	0	50 W	3.12
GOOTE BANK	51	27 N	2	50 E	6.3
GORE CHANNEL	51	24 N	1	15 E	4.29
GORE POINT	52	58 N	0	33 E	3.27
GOSFORD BAY	56	00 N	2	54 W	1.9
GRAIN LNG TERMINAL	51	26 N	0	42 E	5.23
GRANGEMOUTH	56	01 N	3	43 W	1.27
GRANTON	55	59 N	3	13 W	1.12
GRAVESEND	51	27 N	0	22 E	5.5
GRAVESEND REACH	51	27 N	0	23 E	5.5
GREAT YARMOUTH	52	37 N	1	44 E	3.36
GREENWICH REACH	51	29 N	0	01 W	5.15
GRIMSBY	53	35 N	0	04 W	3.9
GROSSER VOGELSAND TOWER	54	00 N	8	29 E	9.2
GROTE REDE	51	15 N	2	51 E	6.4
GULLANE POINT	56	02 N	2	52 W	1.9
GUNFLEET OLD LIGHTHOUSE	51	46 N	1	20 E	4.6
GUNFLEET SAND	51	45 N	1	15 E	4.6
GW/EMS LIGHTFLOAT	54	10 N	6	21 E	8.2

H

HAAKSGRONDEN	52	58 N	4	40 E	7.22
HAISBOROUGH GAT	52	49 N	1	56 E	3.34
HAISBOROUGH SAND	52	57 N	1	40 E	3.34
HALFWAY REACH	51	31 N	0	09 E	5.10
HAMBURG	53	33 N	9	56 E	9.14
HAMMERSMITH BRIDGE	51	29 N	0	14 W	5.18
HAMMOND KNOLL	52	52 N	1	55 E	3.34
HANSTHOLM	57	07 N	8	36 E	9.35
HANSWEERT	51	26 N	4	01 E	6.23
HAPPISBURGH	52	49 N	1	32 E	3.34
HARLE	53	47 N	7	50 E	8.20
HARLINGEN	53	11 N	5	25 E	7.28
HARTLEPOOL	54	42 N	1	11 W	2.22
HARWICH	51	57 N	1	17 E	4.15
HAWKCRAIG POINT	56	03 N	3	17 W	1.16
HELGOLAND	54	11 N	7	53 E	9.15
HELWIN	54	27 N	7	44 E	9.15
HEN AND CHUCKENS	56	02 N	3	38 W	1.25
HEVER RIVER	54	23 N	8	24 E	9.24
HEWETT RIDGES	52	59 N	2	00 E	3.15
HOEK VAN HOLLAND	51	59 N	4	07 E	7.4
HOEK VAN HOLLAND HARBOR	51	59 N	4	08 E	7.7
HOHE WEG LIGHT	53	43 N	8	15 E	8.27

	Position				Sec
HOLLESLEY BAY CHANNEL	52	02 N	1	30 E	4.14
HOLM CHANNEL	52	33 N	1	48 E	3.36
HOLMSLAND KLIT	56	00 N	8	09 E	9.32
HOLY ISLAND	55	41 N	1	47 W	2.7
HOOKSIEL	53	38 N	8	02 E	8.23
HOOKSIEL PLATE	53	39 N	8	09 E	8.23
HOPETOUN MONUMENT	55	59 N	2	48 W	1.9
HORNS REV	55	31 N	7	45 E	9.29
HORNSEA	53	55 N	0	10 W	3.6
HORNUM	54	45 N	8	18 E	9.25
HORSE CHANNEL	51	25 N	1	10 E	4.29
HOUND POINT TERMINAL	56	00 N	3	22 W	1.13
HOWDEN DYKE	53	45 N	0	52 W	3.13
HUBERTGAT	53	35 N	6	20 E	8.12
HUISDUINEN LIGHT	52	53 N	4	43 E	7.22
HULL	53	45 N	0	17 W	3.11
HUMBER BRIDGE	53	42 N	0	27 W	3.7
HUMBER LIGHT FLOAT	53	39 N	0	20 E	3.7
HUMBER RIVER	53	33 N	0	10 E	3.7
HUMBERSIDE	53	33 N	0	10 E	3.7
HUNTE RIVER	53	15 N	8	29 E	8.33
HUSUM	54	29 N	9	03 E	9.24
HVIDESANDE KANAL	55	49 N	8	12 E	9.32

I

IJ1 LIGHTED BUOY	52	30 N	3	52 E	7.15
IJ-GEUL	52	29 N	4	24 E	7.15
IJ-GEUL APPROACH AREA	52	30 N	4	00 E	7.15
IJM C LIGHTED BUOY	52	29 N	4	24 E	7.15
IJMUIDEN	52	28 N	4	35 E	7.16
IJSSELMEER	52	52 N	5	12 E	7.29
IMMINGHAM	53	38 N	0	12 W	3.10
INCH GARVIE	56	00 N	3	23 W	1.7
INCHCOLM	56	02 N	3	18 W	1.7
INCHKEITH	56	02 N	3	08 W	1.6
INDEFATIGABLE BANKS	53	32 N	2	21 E	3.14
INNER BANK	53	12 N	2	02 E	3.14
INNER DOWSING LIGHTED BUOY	53	20 N	0	34 E	3.21
INNER GABBARD	51	54 N	1	54 E	4.2
INVERKEITHING	56	02 N	3	24 W	1.15
IPSWICH	52	03 N	1	10 E	4.17
ISLE OF GRAIN	51	27 N	0	42 E	5.3
ISLE OF MAY	56	11 N	2	33 W	1.3
ISLE OF SHEPPEY	51	24 N	0	53 E	4.30

J

JADE	53	49 N	7	57 E	8.22
JADE 2 LIGHTED BUOY	53	52 N	7	47 E	8.21
JADE BUSEN	53	28 N	8	12 E	8.25
JADE/WESER LIGHTED BUOY	53	58 N	7	39 E	8.21
JARROW	54	59 N	1	29 W	2.18
JUIST	53	40 N	6	52 E	8.19
JUTLAND BANK	56	47 N	7	15 E	9.31

K

KALOO	51	34 N	3	21 E	6.13
KAMPEN LIGHT	54	57 N	8	20 E	9.25
KATWIJK AAN ZEE	52	12 N	4	24 E	7.14
KENTISH KNOCK	51	39 N	1	37 E	4.3
KETHOLE REACH	51	25 N	0	39 E	5.24
KIEL CANAL	53	53 N	9	08 E	9.7
KIJKDUIN LIGHT	52	57 N	4	44 E	7.22
KINCARDINE	56	04 N	3	43 W	1.28
KING'S LYNN	52	45 N	0	24 E	3.28
KINGHORN NESS	56	04 N	3	10 W	1.19
KINGSFERRY BRIDGE	51	23 N	0	45 E	5.22
KINGSTON UPON HULL	53	45 N	0	17 W	3.11
KIRKCALDY	56	07 N	3	09 W	1.19
KNOB CHANNEL	51	31 N	1	10 E	4.10
KNOB GAT	51	32 N	1	01 E	4.6
KNOB SHOAL	51	32 N	1	10 E	4.8
KNOCK	53	20 N	7	01 E	8.13
KNOCK DEEP	51	38 N	1	32 E	4.9
KNOCK JOHN	51	34 N	1	09 E	4.7
KNOCK JOHN CHANNEL	51	33 N	1	09 E	4.7
KNOCK JOHN TOWER	51	34 N	1	10 E	4.7
KORNWERDERZAND	53	04 N	5	20 E	7.27
KRUISHOOFD	51	24 N	3	28 E	6.11
KUEERENS	51	36 N	3	26 E	6.13
KUGEL BEACON	53	54 N	8	41 E	9.3
KWINTE BANK	51	16 N	2	38 E	6.4

L

LANDGUARD POINT	51	56 N	1	19 E	4.12
LANGENESS	54	38 N	8	32 E	9.23
LANGEOOG	53	45 N	7	32 E	8.20
LARGO	56	13 N	2	56 W	1.21
LARGO BAY	56	12 N	2	56 W	1.21
LAUWERSZEE	53	23 N	6	10 E	8.9
LEER	53	14 N	7	27 E	8.17
LEITH	55	59 N	3	11 W	1.11
LEITH CHANNEL	56	02 N	3	04 W	1.8
LEMAN BANK	53	06 N	1	59 E	3.15
LILLE FISKER BANKE	56	48 N	6	21 E	9.31
LIMEHOUSE REACH	51	30 N	0	02 W	5.16
LIMFJORDEN	56	43 N	8	13 E	9.34
LIST	55	01 N	8	26 E	9.25
LISTERTIEF	55	04 N	8	27 E	9.25
LITTLE NORE ANCHORAGE	51	27 N	0	45 E	5.19
LIZARD POINT	54	58 N	1	22 W	2.19
LODBJERG LIGHT	56	49 N	8	16 E	9.32, 9.35
LONDON	51	27 N	0	21 E	5.1
LONG REACH	51	28 N	0	15 E	5.9
LONG SAND	51	38 N	1	26 E	4.3
LONGSTONE	55	39 N	1	36 W	2.9
LOWER HOPE REACH	51	28 N	0	27 E	5.4
LOWER POOL	51	30 N	0	03 W	5.16
LOWESTOFT	52	29 N	1	45 E	3.37
LYNGVIG LIGHT	56	03 N	8	06 E	9.33

M

MAAS CENTER LIGHTED BUOY	52	01 N	3	54 E	7.4
MAASGEUL	52	00 N	4	00 E	7.5
MAASMOND	51	59 N	4	03 E	7.5
MAASSLUIS	51	55 N	4	15 E	7.9
MAASVLAKTE LIGHT	51	58 N	4	01 E	7.4
MABLETHORPE	53	20 N	0	15 E	3.20
MANDO	55	17 N	8	33 E	9.26
MAPLIN SANDS	51	35 N	0	58 E	4.25
MAPLIN SPIT	51	36 N	1	06 E	4.8
MARGARET NESS	51	30 N	0	06 E	5.13
MARGATE	51	23 N	1	23 E	4.27
MARGATE SAND	51	26 N	1	20 E	4.11
MARR BANK	56	23 N	1	40 W	1.3
MARSDEN POINT	54	59 N	1	23 W	2.19
MARSDIEP	52	58 N	4	45 E	7.23
MEDUSA CHANNEL	51	53 N	1	19 E	4.14
MELDORFER BUCHT	54	04 N	8	52 E	9.20
MELLUMPLATE LIGHT	53	46 N	8	06 E	8.21
MEMMERT	53	38 N	6	53 E	8.19
MERSEA ISLAND	51	47 N	0	57 E	4.20
METHIL	56	11 N	3	00 W	1.20
MG LIGHTED BUOY	53	04 N	4	39 E	7.23
MIDDELBANK	51	42 N	3	21 E	7.3
MIDDELBURG	51	30 N	3	37 E	6.17
MIDDEN SLUISSEILAND ISLAND	52	28 N	4	36 E	7.17
MIDDLE DEEP	51	40 N	1	12 E	4.8
MIDDLE KERKEBANK	51	18 N	2	44 E	6.4
MINSENER OOG	53	46 N	8	01 E	8.23
MISTLEY	51	57 N	1	05 E	4.16
MITTEL RINNE	53	49 N	8	00 E	8.23
MITTELPLATE A PLATFORM	54	02 N	8	44 E	9.19
MITTELRINNE	53	58 N	8	33 E	9.3
MIUNDESLEY	52	53 N	1	26 E	3.33
MOLENGAT	53	01 N	4	41 E	7.23
MORTIMER'S DEEP	56	02 N	3	18 W	1.16
MOUSE	51	32 N	1	04 E	4.7
MOUSE CHANNEL	51	32 N	1	01 E	4.6
MUSSELBURGH	55	57 N	3	03 W	1.10

	Position				Sec
N					
NAUW VAN BAT	51	24 N	4	12 E	6.14
NE SPIT LIGHTED BUOY	51	28 N	1	30 E	4.10
NEU FAHRWASSER	54	02 N	8	40 E	9.19
NEUE WESER	53	52 N	7	52 E	8.27
NEUER LEUCHTERGRUND	53	59 N	8	31 E	9.3
NEUWERK LIGHT	53	55 N	8	30 E	9.2
NEVGENVAAM	51	16 N	2	40 E	6.4
NEW HOLLAND	53	42 N	0	21 W	3.12
NEWARP BANKS	52	46 N	1	54 E	3.35
NEWARP LIGHTSHIP	52	48 N	1	56 E	3.34
NEWBIGGIN POINT	55	11 N	1	30 W	2.15
NEWCASTLE	54	58 N	1	35 W	2.18
NEWTON SKERE	55	33 N	1	29 W	2.12
NIEUWE SLUIS LIGHT	51	25 N	3	31 E	6.11
NIEUWE WATERWEG	51	57 N	4	08 E	7.6
NIEUWPOORT	51	08 N	2	45 E	6.6
NOORD HINDER LIGHTED BUOY	52	00 N	2	51 E	7.4
NOORDERHOOFD LIGHT	51	32 N	3	26 E	6.12
NOORDPAS	51	12 N	2	38 E	6.4
NOORDWIJK AAN ZEE	52	15 N	4	26 E	7.14
NOORDZEEKANAAL	52	28 N	4	38 E	7.18
NORD OSTSEE KANAL	53	53 N	9	08 E	9.7
NORDDEICH	53	38 N	7	10 E	8.19
NORDENHAM	53	29 N	8	29 E	8.31
NORDER ELBE	54	03 N	8	17 E	9.19
NORDERNEY	53	43 N	7	15 E	8.19
NORDERPIEP	54	11 N	8	28 E	9.20
NORDERRINNE	53	59 N	8	33 E	9.3
NORDSTRAND	54	30 N	8	55 E	9.23
NORTH BERWICK	56	04 N	2	43 W	1.9
NORTH CHANNEL	56	03 N	3	07 W	1.5
NORTH EAST SPIT	51	27 N	1	28 E	4.10
NORTH EDINBURGH CHANNEL	51	33 N	1	19 E	4.9
NORTH FALLS	51	39 N	1	56 E	4.2
NORTH FORELAND	51	23 N	1	27 E	4.26
NORTH HAISBORO LIGHTED BUOY	53	00 N	1	32 E	3.33
NORTH HINDER BANK	51	37 N	2	34 E	6.2
NORTH KNOB	51	33 N	1	08 E	4.7
NORTH QUEENSFERRY	56	01 N	3	24 W	1.14
NORTH SMITHIC	54	05 N	0	05 W	3.5
NORTH SUNDERLAND	55	35 N	1	39 W	2.11
NORTHFLEET HOPE REACH	51	28 N	0	20 E	5.6
O					
OAZE	51	30 N	1	00 E	4.7
OAZE DEEP	51	30 N	1	02 E	4.7
OLDENBURG	53	07 N	8	13 E	8.33
OOSTDYCK RADAR TOWER	51	16 N	2	27 E	6.2
OOSTENDE	51	14 N	2	55 E	6.7
OOSTENDE BANK	51	18 N	2	48 E	6.4
OOSTGAT	51	23 N	3	13 E	6.13
ORFORD HAVEN	52	03 N	1	28 E	4.12
ORFORD NESS	52	05 N	1	35 E	4.12
ORHAGE	57	03 N	8	29 E	9.35
OSTE RIVER	53	51 N	8	59 E	9.5
OSTEREMS	53	38 N	6	47 E	8.12
OSTFRIESISCHE GATJE	53	23 N	6	58 E	8.13
OTTERNDORF	53	49 N	8	54 E	9.5
OTZUMER BALJE	53	46 N	7	38 E	8.20
OUTER DOWSING CHANNEL	53	25 N	1	00 E	3.17
OUTER DOWSING SHOAL	53	27 N	1	07 E	3.15
OUTER FISHERMAN LIGHTED BUOY	51	34 N	1	25 E	4.8
OUTER GABBARD	51	58 N	2	03 E	4.2
OUTER GABBARD LIGHTED BUOY	51	58 N	2	04 E	4.2
OUTER HARBOR	52	35 N	1	45 E	3.36
OUTER PASSAGE	51	55 N	1	48 E	4.2
OUTER SAND LIGHTED BUOY	53	36 N	0	29 E	3.7
OUTER SILVER PIT	54	05 N	2	10 E	3.4
OUTER TONGUE LIGHTED BUOY	51	31 N	1	26 E	4.8
OUTER WELL BANK	54	10 N	2	00 E	3.4
OVERLAND PASSAGE	51	25 N	1	03 E	4.29
OWER BANK	53	11 N	1	56 E	3.14
OXCARS	56	01 N	3	17 W	1.6
P					
PAN SAND	51	28 N	1	10 E	4.10
PAPENBURG	53	06 N	7	23 E	8.17
PELLWORM	54	31 N	8	39 E	9.23
PERNIS	51	53 N	4	22 E	7.10
PETTEMERPOLDER	52	47 N	4	37 E	7.20
PETTEN	52	46 N	4	40 E	7.20
PINUP REACH	51	24 N	0	36 E	5.25
PITTENWEEM	56	13 N	2	44 W	1.22
PLATTERS	51	56 N	1	21 E	4.14
PORT EDGAR	56	00 N	3	25 W	1.26
PORT OF FELIXSTOWE	51	57 N	1	17 E	4.15
PORT OF TYNE	55	00 N	1	30 W	2.18
PRINCES APPROACH LIGHTED BUOY	51	29 N	1	23 E	4.10
PRINCES CHANNEL	51	29 N	1	15 E	4.10
PROTECTOR OVERFALLS	53	25 N	0	25 E	3.20
Q					
QUEEN ELIZABETH II BRIDGE	51	28 N	0	16 E	5.9
QUEENBOROUGH	51	25 N	0	45 E	5.21
QUEENS CHANNEL	51	28 N	1	18 E	4.11
QUEENSFERRY	55	59 N	3	23 W	1.14
R					
RABS BANK	51	36 N	3	08 E	6.3
RACE BANK	53	11 N	0	54 E	3.16
RANDZELGAT	53	34 N	6	40 E	8.13
RECULVER	51	23 N	1	12 E	4.27
RED SAND	51	29 N	1	01 E	4.7
RED SAND TOWERS	51	29 N	1	00 E	4.7
REDCAR	54	37 N	1	04 W	2.24
REDE VAN VLISSINGEN	51	26 N	3	35 E	6.15
RENDSBURG	54	18 N	9	41 E	9.8
REPORTING SYSTEMS	50	00 N	2	30 W	2.1
RICHMOND BRIDGE	51	28 N	0	18 W	5.18
RIDHAM DOCK	51	23 N	0	46 E	5.22
RIFFGAT	53	39 N	6	28 E	8.12
RINGKOBING	56	05 N	8	15 E	9.32
RIVER BLACKWATER	51	45 N	0	55 E	4.22
RIVER COLNE	51	46 N	1	02 E	4.21
RIVER CROUCH	51	37 N	0	56 E	4.23
RIVER MEDWAY	51	26 N	0	44 E	5.19
RIVER SWALE	51	25 N	0	44 E	5.21
RIVER TEES	54	39 N	1	08 W	2.23
ROBBENPLATE LIGHT	53	41 N	8	24 E	8.27
ROBIN HOOD'S BAY	54	26 N	0	30 W	2.26
ROCHESTER BRIDGE	51	23 N	0	30 E	5.27
RODE KLIT SAND	55	11 N	8	10 E	9.26
ROMO	55	08 N	8	31 E	9.26
ROSYTH	56	01 N	3	26 W	1.24
ROTER SAND TOWER	53	31 N	8	05 E	8.21
ROTTERDAM	51	54 N	4	29 E	7.11
ROUGH CHANNEL	51	56 N	1	25 E	4.13
ROUGH SHOALS	51	54 N	1	28 E	4.13
ROUGH TOWER	51	54 N	1	29 E	4.13
RUNSWICK BAY	54	32 N	0	44 W	2.24
S					
SAINT EDMUND'S POINT	52	57 N	0	30 E	3.27
SAINT PETER LIGHT	54	17 N	8	39 E	9.22
SALES POINT	51	45 N	0	56 E	4.20
SALTFLEET	53	25 N	0	10 E	3.20
SALTPAN REACH	51	26 N	0	42 E	5.23
SALTWICK NAB	54	29 N	0	35 W	2.26
SCARBOROUGH	54	17 N	0	24 W	2.27
SCHAAR	51	41 N	3	10 E	7.3
SCHAAR	51	41 N	3	15 E	6.3
SCHARHORN	53	57 N	8	26 E	9.2
SCHELDE	51	26 N	3	35 E	6.14
SCHEUR	51	24 N	3	10 E	6.13
SCHEVENINGEN	52	06 N	4	16 E	7.13
SCHIEDAM	51	54 N	4	24 E	7.10
SCHIERMONNIKOOG	53	30 N	6	15 E	8.9
SCHIERMONNIKOOG RADAR STATION	53	29 N	6	08 E	8.9
SCHILBOLSNOL LIGHT	53	00 N	4	46 E	7.22
SCHILLIG OLD LIGHT TOWER	53	42 N	8	01 E	8.23
SCHLUSSELTONNE LIGHTED BUOY	53	56 N	7	55 E	8.21
SCHOUWENBANK	51	46 N	3	24 E	7.3

	Position				Sec
SCHOUWENBANK LIGHTED BUOY	51	45 N	3	14 E	6.13
SCHULPENGAT	52	55 N	4	40 E	7.23
SCOLT HEAD	52	59 N	0	41 E	3.30
SCROBY SANDS WIND FARM	52	39 N	1	47 E	3.35
SCROBY SHOALS	52	39 N	1	47 E	3.35
SEA REACH	51	29 N	0	48 E	5.2
SEAHAM	54	50 N	1	19 W	2.21
SELBY	53	47 N	1	04 W	3.13
SEWERBY	54	06 N	0	09 W	3.5
SG LIGHTED BUOY	52	53 N	4	38 E	7.23
SHEERNESS	51	27 N	0	45 E	5.20
SHELL HAVEN	51	31 N	0	29 E	5.3
SHELL NESS	51	22 N	0	57 E	4.30
SHERINGHAM	52	57 N	1	13 E	3.32
SHERINGHAM SHOAL	53	03 N	1	10 E	3.19
SHIELDS HARBOR	55	00 N	1	27 W	2.18
SHINGLES	51	31 N	1	13 E	4.9
SHINGLES PATCH	51	32 N	1	18 E	4.9
SHIPWASH	51	57 N	1	37 E	4.3
SHIPWAY	51	58 N	1	35 E	4.14
SHIVERING SAND TOWER	51	30 N	1	05 E	4.10
SHIVERING SANDS	51	30 N	1	04 E	4.10
SHOEBURY NESS	51	31 N	0	47 E	4.25
SHORT REACH	51	24 N	0	33 E	5.27
SILVER PIT	53	30 N	0	40 E	3.14
SKEGNESS	53	09 N	0	20 E	3.23
SKEGNESS MIDDLE	53	08 N	0	24 E	3.24
SLEDWAY	52	00 N	1	30 E	4.14
SLEDWAY	53	02 N	0	34 E	3.19
SLUISSCHE HOMPELS	51	26 N	3	26 E	6.13
SMITHS KNOLL	52	53 N	2	12 E	3.15
SMITHS KNOLL LIGHTED BUOY	52	44 N	2	18 E	3.15
SOLE PIT	53	40 N	1	32 E	3.14
SOUTER POINT	54	57 N	1	21 W	2.19
SOUTH CHANNEL	51	24 N	1	21 E	4.29
SOUTH CHANNEL	56	01 N	3	05 W	1.8
SOUTH EDINBURGH CHANNEL	51	32 N	1	15 E	4.9
SOUTH FALLS	51	25 N	1	49 E	4.2
SOUTH SAND LIGHTED BUOY	53	35 N	0	25 E	3.7
SOUTHWOLD	52	20 N	1	41 E	3.38
SPIEKEROOG	53	46 N	7	44 E	8.20
SPURN HEAD	53	35 N	0	07 E	3.7
SPURN LIGHT FLOAT	53	33 N	0	14 E	3.7
ST ABBS HEAD	55	55 N	2	08 W	2.3
ST. CLEMENT'S REACH	51	28 N	0	18 E	5.8
ST. DAVID	56	02 N	3	22 W	1.15
ST. MARY'S ISLAND	55	04 N	1	27 W	2.17
ST. MONANCE	56	12 N	2	46 W	1.21
ST. MONANS	56	12 N	2	46 W	1.21
STADERSAND TERMINAL	53	38 N	9	32 E	9.12
STEENBANK PILOT STATION	51	45 N	3	12 E	6.13
STEENBANKEN	51	40 N	3	24 E	7.3
STEINGRUND	54	14 N	8	03 E	9.16
STIRLING	56	07 N	3	56 W	1.28
STOR RIVER	53	49 N	9	24 E	9.9
STORM LIGHTED BUOY	51	52 N	1	38 E	4.3
STROOM BANK	51	14 N	2	52 E	6.4
SUDEROOGSAND	54	26 N	8	29 E	9.23
SUDERPIEP	54	06 N	8	26 E	9.20
SUNDERLAND	54	55 N	1	22 W	2.20
SUNK	51	52 N	1	38 E	4.3
SUNK CENTRE LIGHT FLOAT	51	50 N	1	46 E	4.3
SUNK INNER LIGHT FLOAT	51	51 N	1	35 E	4.3
SUNK SAND	51	40 N	1	22 E	4.6
SUTTON BRIDGE	52	40 N	0	07 E	3.29
SWARTE BANK	53	24 N	2	10 E	3.14
SYLT	54	53 N	8	20 E	9.25
T					
TEESPORT	54	39 N	1	08 W	2.23
TEGELER PLATE LIGHT	53	48 N	8	11 E	8.21
TERNEUZEN	51	21 N	3	49 E	6.19
TERNEUZEN GHENT KANAL	51	20 N	3	49 E	6.20
TERSCHELLING	53	22 N	5	10 E	8.7
TETNEY MONOBUOY	53	32 N	0	07 E	3.8
TEXEL	53	05 N	4	48 E	7.25
THAMES TIDAL BARRIER	51	30 N	0	02 E	5.13
THAMESHAVEN TERMINAL	51	31 N	0	29 E	5.3
THAMESMEAD	51	30 N	0	07 E	5.13
THAMESPORT	51	26 N	0	42 E	5.23

	Position				Sec
THE BAYS	52	59 N	0	32 E	3.19
THE CANT	51	28 N	0	55 E	4.7
THE MIDDLE	51	40 N	1	10 E	4.8
THE NAZE	51	52 N	1	17 E	4.18
THE NORE	51	29 N	0	51 E	4.30
THE SNOOK	55	35 N	1	38 W	2.11
THE SWALE	51	22 N	0	57 E	4.30
THE WALLET	51	46 N	1	13 E	4.19
THE WARP	51	30 N	0	55 E	4.6
THE WASH	53	00 N	0	20 E	3.21
THE WOULD	52	52 N	1	40 E	3.33
THEDDLETHORPE	53	22 N	0	13 E	3.20
THORNTON BANKS	51	35 N	3	00 E	6.3
THORPE NESS	52	11 N	1	37 E	3.39
THORSMINDE HAVN	56	22 N	8	07 E	9.33
THRESHOLD	51	54 N	1	32 E	4.13
THYBORON	56	42 N	8	13 E	9.34
TILBURY DOCKS	51	27 N	0	21 E	5.7
TINSDAL	53	34 N	9	44 E	9.13
TIZARD BANK	51	33 N	1	13 E	4.8
TONGUE SAND TOWER	51	30 N	1	22 E	4.10
TONNING	54	19 N	8	57 E	9.21
TORNESS POINT	55	58 N	2	24 W	2.2
TORSMINDE HAVN	56	22 N	8	07 E	9.33
TOWER BRIDGE	51	30 N	0	04 E	5.17
TRISCHEN	54	04 N	8	41 E	9.19
TRITON KNOLL	53	24 N	0	53 E	3.16
TYNEMOUTH	55	00 N	1	30 W	2.18
U					
UITDIEP	51	17 N	2	44 E	6.4
UPPER POOL	51	30 N	0	04 W	5.16
V					
VEERE	51	33 N	3	40 E	6.17
VL CENTER LANBY	53	27 N	4	40 E	8.2
VLAARDINGEN	51	54 N	4	21 W	7.10
VLAKTE VAN DE RAAN	51	27 N	3	13 E	6.13
VLIELAND	53	16 N	4	58 E	7.25
VLISSINGEN	51	27 N	3	36 E	6.16
W					
WADDEN SEA	53	13 N	5	13 E	7.27
WADDENZEE	53	13 N	5	13 E	7.27
WADGATE LEDGE	51	56 N	1	22 E	4.14
WALCHEREN KANAL	51	27 N	3	35 E	6.17
WANDELAAR	51	23 N	3	03 E	6.4
WANDELAAR PILOT STATION	51	22 N	2	52 E	6.13
WANGEROOGE	53	47 N	7	54 E	8.20
WANGEROOGE LIGHT	53	47 N	7	52 E	8.20
WANGEROOGER FAHRWASSER	53	49 N	7	57 E	8.23
WARDEN POINT	51	25 N	0	54 E	4.30
WARKWORTH HARBOUR	55	20 N	1	35 W	2.14
WEENER	53	10 N	7	22 E	8.17
WELL BANK	53	16 N	2	00 E	3.14
WELL HIOLE	53	43 N	1	51 E	3.14
WELLS	52	58 N	0	51 E	3.30
WENDUINE BANK	51	19 N	2	59 E	6.4
WESER	53	52 N	7	52 E	8.26
WEST BARROW	51	35 N	1	08 E	4.7
WEST HINDER BANK	51	27 N	2	30 E	6.2
WEST HINDER LIGHT	51	23 N	2	26 E	6.2
WEST SCHOUWEN LIGHT	51	43 N	3	42 E	7.2
WEST SWALE	51	25 N	0	44 E	5.21
WEST SWIN	51	33 N	1	01 E	4.9
WESTDIEP	51	10 N	2	36 E	6.4
WESTEREMS CHANNEL	53	38 N	6	24 E	8.12
WESTERHEVERSAND LIGHT	54	22 N	8	38 E	9.22
WESTERSCHELDE	51	26 N	3	35 E	6.11
WESTGAT	52	57 N	4	38 E	7.23
WESTHOOFD LIGHT	51	49 N	3	52 E	7.4
WESTKAPELLE	51	32 N	3	26 E	6.12
WEYBOURNE	52	57 N	1	08 E	3.32
WHITBY	54	29 N	0	37 W	2.25
WHITBY HIGH LIGHT	54	29 N	0	34 W	2.26
WHITING BANK	52	03 N	1	33 E	4.14

	Position				Sec
WHITSTABLE	51	22 N	1	02 E	4.28
WIELINGEN	51	23 N	3	13 E	6.13
WIELINGEN SLUIS	51	22 N	3	23 E	6.11
WILHELMSHAVEN	53	32 N	8	10 E	8.24
WINTERTON NESS	52	44 N	1	41 E	3.34
WINTERTON RIDGE	52	50 N	2	01 E	3.34
WISBECH	52	40 N	0	07 E	3.29
WITHERNSEA	53	44 N	0	01 E	3.6
WOODBRIDGE HAVEN	51	59 N	1	24 E	4.12
WOOLWICH REACH	51	30 N	0	03 E	5.12

Y

	Position				Sec
YMUIDEN	52	28 N	4	35 E	7.16

Z

	Position				Sec
ZAANDAM	52	26 N	4	50 E	7.18
ZANDDIJK GROTE KAAP LIGHT	52	53 N	4	43 E	7.22
ZANDVOORDE	51	12 N	3	00 E	6.7
ZANDVOORT	52	23 N	4	32 E	7.14
ZEEBRUGGE	51	20 N	3	12 E	6.9
ZEEGAT VAN AMELAND	53	28 N	5	35 E	8.8
ZEEGAT VAN TERSCHELLING	53	19 N	5	08 E	7.26
ZEEGAT VAN TEXEL	52	58 N	4	44 E	7.22
ZOUTELANDE LIGHT	51	30 N	3	29 E	6.12