PUB. 160

SAILING DIRECTIONS (PLANNING GUIDE)

★

SOUTH ATLANTIC OCEAN AND INDIAN OCEAN

★

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2016

THIRTEENTH EDITION

Preface

Pub. 160, Sailing Directions (Planning Guide) South Atlantic Ocean and Indian Ocean, Thirteenth Edition, 2016, is issued for use in conjunction with the following Sailing Directions (Enroute) Publications:

Pub. 123, Pub. 124, Pub. 171, Pub. 172, Pub. 173, Pub. 174, and Pub. 175.

Digital Nautical Charts 1, 2. 3, 4, 7, 10, and 14 provide electronic chart coverage for the area covered by this publication.

This publication has been corrected to 5 March 2016, including Notice to Mariners No. 10 of 2016. Subsequent updates have corrected this publication to 5 November 2016, including Notice to Mariners No. 45 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 (Planning Guide) are intended to assist mariners in planning ocean passages and to eliminate duplication by consolidating useful information about all the countries adjacent to a particular ocean basin in one volume.

Planning Guide publications are compiled and structured in the alphabetical order of countries contained within the region covered by each publication.

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

Charts.—Reference to charts made throughout this publication refer to both the paper chart and the Digital Nautical Chart (DNC).

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 website:	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 publication shown above. Important information to amend material in the publication is available is updated as needed and available as a downloadable corrected publication from the NGA Maritime Domain web site.

NGA Maritime 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 meridional angle as the designated course. Vessels following the directives must allow for every influence tending to cause deviation from such track, and navigate so that the designated course is continuously being made good.

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

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

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

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.

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

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

Organization web site:

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

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

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

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

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

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

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

Special Warnings.—Special Warnings 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 Domain website.

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

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

Standard Time Zone of the World Chart
http://www.cia.gov/library/publications/the-world-factbook/graphics/ref_maps/physical/pdf/standard_times_zones_of_the_world.pdf

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

Reference List

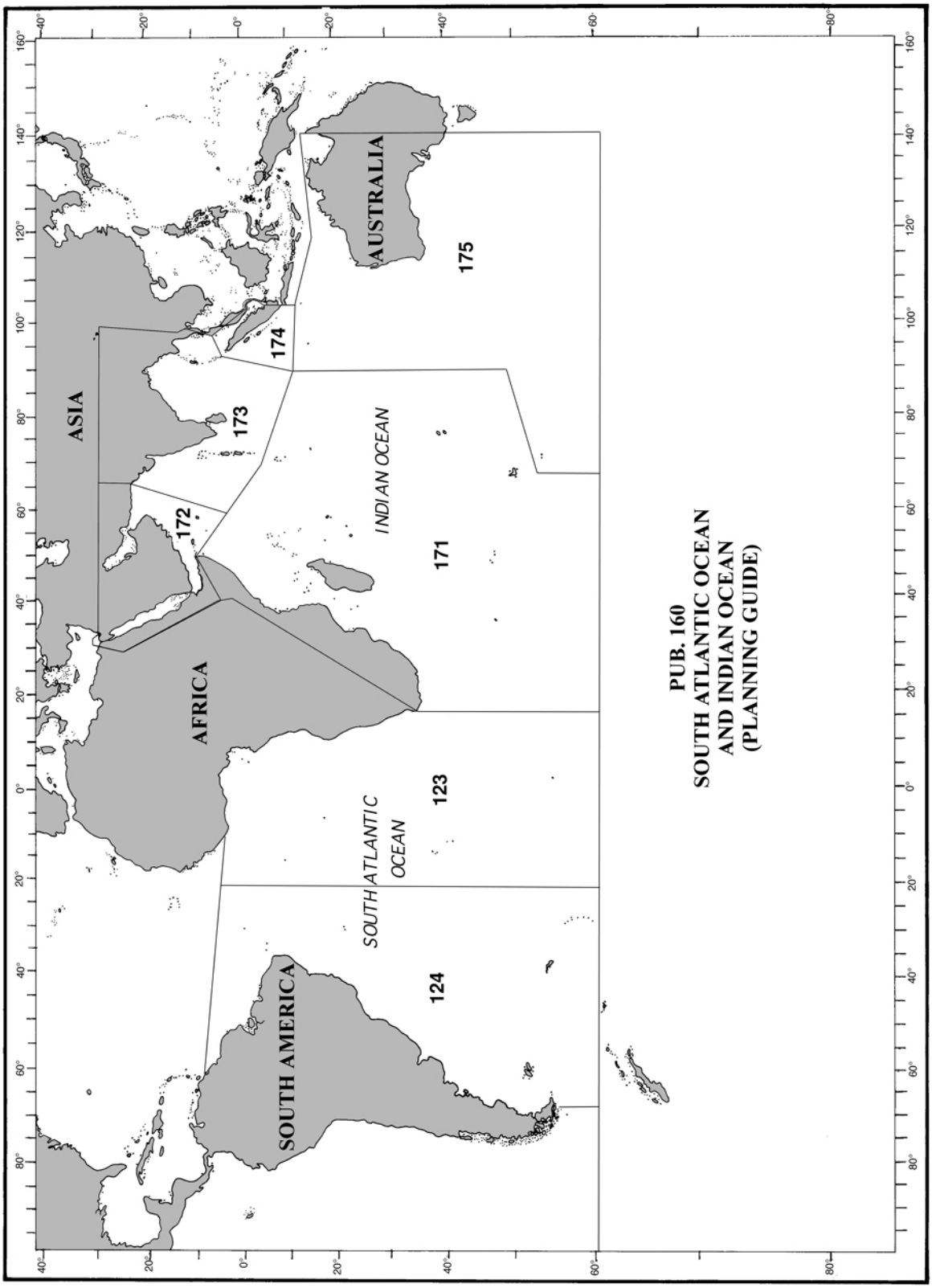
The principal sources examined in the preparation of this publication were:

British Hydrographic Office Sailing Directions.
Argentina Sailing Directions.
Brazil Sailing Directions.
South Africa Sailing Directions.
Fairplay Ports and Terminals
The Statesman's Yearbook
The World Factbook
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.
Internet Web sites, as follows:

1. Department of State/U.S. Embassies.
   http://usembassy.state.gov
2. IMB Piracy Reporting Center Home Page.
   http://www.iccwbo.org/ccs/menu_imb_piracy.asp
3. World Factbook.
   http://www.cia.gov/library/publications/resources/the-world-factbook

Date of Change: 5 November 2016	
Notice to Mariners: 45/2016	
Country File	**List of Changes**
Djibouti	Cautions
Eritrea	Cautions
India	Cautions (Offshore Data Buoys), Offshore Drilling, Signals, and Vessel Traffic Service
Indian Ocean	Cautions (MARAD Advisories and RAMA Buoys)

Date of Change: 5 November 2016	
Notice to Mariners: 45/2016	
Country File	**List of Changes**
Red Sea and the Persian Gulf	Cautions
Saudi Arabia	Cautions
Seychelles	Search and Rescue
Somalia	Cautions
South Atlantic Ocean	Cautions (PIRATA Buoys and MARAD Advisories)
Sri Lanka	Cautions and Search and Rescue
Sudan	Cautions
Yemen	Cautions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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
NGL	Natural Gas Liquids	FSO	Floating Storage and Offloading
Lo-lo	Lift-on Lift-off	FPSO	Floating Production Storage and Offloading
		FSU	Floating Storage Unit

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	HAT	highest astronomical tide
HWS	high water springs	LAT	lowest astronomical tide
LWN	low water neaps		

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

Miscellaneous

AIS	Automatic Identification System	MMSI	Maritime Mobile Service Identity Code
COLREGS	Collision Regulations	No./Nos.	Number/Numbers
IALA	International Assoc of Lighthouse Authorities	PA	Position approximate
IHO	International Hydrographic Office	PD	Position doubtful
IMO	International Maritime Organization	Pub.	Publication

The following abbreviations may be used in the text:

IMDG	International Maritime Dangerous Goods Code	SOLAS	International Convention for the Safety of Life at Sea
LOA	Length overall	St./Ste.	Saint/Sainte
UKC	Underkeel clearance	ISPS	International Ship and Port Facility Security

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General

Angola is located in the S part of Africa and faces the South Atlantic Ocean. It is bounded on the N and NE by the Democratic Republic of Congo, formerly Zaire; on the SE by Zambia; and on the S by Namibia.

The coast, over 800 miles long, includes the province of Cabinda, a small separated enclave. About 65 per cent of the country is formed by a plateau with elevations of 1,050 to 1,350m. The watershed of many rivers runs through the central part of this inland plateau. The coastal plain is separated from the plateau by a zone that varies in width from about 100 miles in the N part to about 15 miles in the central and S parts.

The climate is mostly tropical, being semiarid in the S and coastal parts. Temperatures are constant throughout the year and most rain falls during March and April. The N part has a dry season from May to October and a rainy season from November to April.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported (1994) that some obsolescent buoyage marks (Uniform Lateral System) may still be encountered.

Cautions

Piracy

Mariners are advised to be alert for pirates in the waters off the coast of Angola.

Currency

The official unit of currency is the kwanza.

Government

Angola is a republic. The country is divided into 18 provinces.

Angola is governed by a President, elected to a renewable 5-year term by the National Assembly, who appoints a Council of Ministers. The unicameral National Assembly consists of 220 members elected to 5-year terms by proportional represen-

Flag of Angola

tation.

The legal system is based on Portuguese civil law; it has been modified to accommodate political pluralism and increased the use of free markets.

The capital is Luanda.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 4	Martyr's Day
February 4	Start of Armed Struggle Day
March 8	Women's Day
March 27	Victory Day *
April 4	Peace Day
April 14	Youth Day *
Good Friday	Variable
Easter Monday	Variable
May 1	Workers Day
May 25	Africa Day
June 1	Children's Day
August 1	Armed Forces Day *
September 17	National Heroes' Day
November 2	Memorial Day
November 11	Independence Day
December 1	Pioneers' Day *
December 10	Date of Foundation of MPLA (Popular Movement for the Liberation of Angola)
December 24	Christmas Eve (starting at 1200)
December 25	Christmas Day (also known as Family Day)

* Unofficial holiday, but widely celebrated.

Industries

The major industries are agriculture, petroleum production, mining (iron ore, diamonds, gold, phosphates, feldspar, bauxite, and uranium), cement, basic metal products, fish processing, food processing, brewing, tobacco products, sugar, textiles, and ship repair.

The main exports are crude oil, diamonds, refined petroleum products, coffee, sisal, fish and fish products, timber, and cotton. The main export-trading partners are China, the United States, India, and Spain.

The main imports are machinery and electrical equipment, vehicles and spare parts, medicines, food, textiles, and military goods. The main import-trading partners are China, Portugal, the United States, South Korea, and Brazil.

Languages

Portuguese is the official language. Bantu and other African tribal languages also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Angola are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines.

Search and Rescue

Maritime Rescue Coordination Center (MRCC) Angola maintains a continuous listening watch on 2182 kHz, 4125 kHz, and VHF channel 16 for distress traffic. MRCC Angola can be contacted, as follows:

1. Telephone: 244-2-22391399
   244-2-22336338
2. Facsimile: 244-2-22330430

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 32 Rua Houari Boumedienne, Miramar, Luanda.

The mailing addresses are, as follows:

1. Angola address—
   Caixa Postal 6468
   Luanda
2. U. S. address—
   2550 Luanda Place
   Washington DC (20521-2550)

U. S. Embassy Angola Home Page
http://angola.usembassy.gov

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General

Argentina, located on the E side of the S part of South America, is bounded on the N by Bolivia; on the NE by Paraguay; on the E by Brazil, Uruguay, and the Atlantic Ocean; and on the W by Chile. The country has a coast of about 2,180 miles, including the shore of the Rio de la Plata.

The Andes Mountains form the greater part of the W border region. The N half of the country is composed of the rich plains

of the Pampas. In the far N, these plains are heavily wooded and are known as the Gran Chaco. The Pampas, in the central region, is treeless and fertile. The S region is occupied by a series of step-like plateaus. This region, known as the Patagonia, is bleak, arid, and rises to heights of over 1,500m.

The shore of the Rio de la Plata is low and featureless, while the sea coast consists of long stretches of low cliffs with occasional areas of low sand.

The climate is very warm over the plains where the rainfall occurs at all seasons, but diminishes towards the W. In the N and W parts, the climate is more arid, with high summer temperatures. In the extreme S, conditions are dry and much cooler.

Buoyage System

The IALA Buoyage System (Region B) is in effect. Mariners are cautioned that the buoyage in those parts of the Rio Uruguay that are the responsibility of the Argenitine authorities is being changed to IALA Region B. Mariners are further cautioned that they might encounter both buoyage systems may be until the changeover is complete and should contact local authorities for the latest information.

The direction of buoyage is from N to S along the coast and from seaward in port approaches.

Beacons and buoys marking the inner channels of Tierra del Fuego should not be fully relied upon. They are generally small and difficult to identify. Buoys are also likely to drag.

See chart No. 1 for further IALA Buoyage System information.

Cautions

Kelp

Kelp, or sargasso weed, grows on most of the dangers having a rocky or stony bottom, especially off the coast and S of Punta Delgada (42°46'S., 63°38'W.).

Growing kelp should invariably be considered a sign of danger and vessels should never pass through it if it can be avoided. A clear patch of water in the middle of a thick growth of weeds often indicates the position of the least depth over the danger. Many dangers are not marked by kelp; heavy seas sometimes tear the weed from a rock, or a moderate tidal current draws it underwater and out of sight.

Dead kelp, which has broken away from the bottom, floats in curled masses, with leaves showing above the surface; it sometimes drifts in long lines.

High Speed Craft

High speed craft, with speeds in excess of 30 knots, operate in the following areas:

1. Colonia-Buenos Aires.
2. Montevideo-Buenos Aires.
3. Piriapolis-Buenos Aires.

Light Vessels

Light vessels of Argentina display a secondary light from their sterns. This should be taken into account when passing a light vessel, especially in the Rio de la Plata.

Argentine light vessels also display a riding light; if the light vessel is used as a pilot station, a red light is displayed under the riding light.

Magnetic Anomalies

Magnetic anomalies are located in Golfo Nuevo, as follows:

1. Between longitudes 64°30W and 64°35'W and latitude 42°33' S and the N coast of the gulf.
2. Within a 3-miles radius of position 42°45'S, 64°35'W.
3. Between longitudes 64°30W and 64°40'W and latitude 42°50'S and the S coast of the gulf.

Access Area to the Estrecho de Magallanes

Argentina has declared the area of its 12-mile wide territorial waters between the parallels of 52°20'S and 52°39'S as an "Access Area to the Estrecho de Magallanes." In this area, the Argentina Maritime Authority requests information pertaining to lifesaving, search and rescue, and anything that affects the flow of traffic and ensuring an unobstructed passage for vessels proceeding to or from the Estrecho de Magallanes.

Southern Right Whale Protection Area

Golfo Neuvo (42°40'S., 64°30'W.) contains a seasonal protected area for the Southern Right Whale. For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Currency

The official unit of currency is the Argentine peso.

Government

Flag of Argentina

Argentina is a republic. The country is divided into 23 provinces and one federal district.

Argentina is governed by a directly-elected President who can serve two 4-year terms. The National Congress consists of a 72-member directly-elected Senate, whose members serve 6-year terms, and a 257-member directly-elected Chamber of Deputies, whose members serve 4-year terms.

The legal system is based on western European civil codes.

The capital is Buenos Aires.

Holidays

The following holidays are observed:

January 1	New Year's Day

Holy Thursday	Variable
Good Friday	Variable
Easter Sunday	Variable
March 24	Memorial Day
April 2	Malvinas Veterans Day
May 1	Labor Day
May 25	1810 Revolution Anniversary
Third Monday in June	Flag Day
July 9	Independence Day
Third Monday in August	Death of General San Martin Anniversary
October 12	Columbus Day
December 8	Immaculate Conception
December 25	Christmas Day
December 31	Bank Holiday

Ice

The Combined Antarctic Naval Patrol (Argentina-Chile) normally carries out patrol duties from November 15 until March 15. Patrol duties include search and rescue duties; maritime salvage, surveillance, and anti-pollution work; providing safe conditions for mariners and human life at sea; and maintaining the area to be free of pollution. The area of responsibility is S of 60°S between the meridians of 10°W and 131°W. Vessels requiring assistance should contact naval patrol vessels on VHF channel 16 or 2182 kHz or with any of the following Maritime Rescue Coordination Centers (MRCC) or Maritime Rescue Subcenters (MRSC):

1. MRCC Ushuaia—
   a. Telephone: 54-2901-431098
   b. Facsimile: 54-2901-431098
   c. Radio: 500 kHz, 2182 kHz, 4660 kHz, and VHF channel 16
   d. E-mail: mrccushuaia@ara.mil.ar
2. MRCC Punta Arenas—
   a. Telephone: 56-61-2201161
      56-61-2201162
   b. Facsimile: 56-61-2201172
   c. Radio: 2182 kHz, 2738 kHz, and VHF channel 16
   d. E-mail: mrccpuntaarenas@directemar.cl
3. MRSC Puerto Williams—
   a. Telephone: 56-61-2621090
   b. Facsimile: 56-61-2621090
   c. Radio: 2182 kHz, 2738 kHz, and VHF channel 16
   d. E-mail: mrscpuertowilliams@directemar.cl
      williams@directemar.cl
4. MRCC Antarctica Chilena—
   a. Telephone: 56-32-2208556
   b. E-mail: mrscantarctica@dgtm.cl
      odmcpfildes@directemar.cl

Industries

The main industries are food processing, motor vehicles, consumer durable goods, textiles, chemicals and petrochemicals, printing, metallurgy, and steel.

The main exports are soybeans and their derivatives, petroleum and gas, motor vehicles, corn, and wheat. The main export-trading partners are Brazil, China, and the United States.

The main imports are machinery, motor vehicles, petroleum and natural gas, organic chemicals, and plastics. The main import-trading partners are Brazil, the United States, China, and Germany.

Languages

Spanish is the official language. English, Italian, German, and French are also spoken.

Meteorology

Shipping forecasts are available in English and Spanish from the Servicio Meteorologico Nacional.

Servicio Meteorologico Nacional Home Page

http://www.smn.gov.ar

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of Argentina are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims Golfo San Matias, Golfo Nuevo, and Golfo San Jorge as internal waters. Claims, jointly with Uruguay, the estuary of the Rio de la Plata as internal waters.

Maritime Boundary Disputes

Argentina claims the United Kingdom-administered Falkland Islands, South Georgia, and the South Sandwich Islands. The United Kingdom rejects sovereignty talks requested by Argentina.

Pilotage

Pilotage is compulsory for all foreign vessels in all Argen-

tine channels, rivers, passes, ports, and berthing locations.

Pollution

Tank residues, bilges, or ballast water from oil compartments must never be pumped or released into ports or rivers. On the Atlantic coast, including Bahia Blanca, tanks and bilges can only be cleaned at a distance of not less than 50 miles off the shore and on a falling tide.

Regulations

General

Vessels operating in the proximity of an open port or close to quays or loading places where other vessels or barges are operating must reduce speed to a maximum of 6 knots.

Vessels anchored or moving within port limits must not use their whistles, sirens, or bells except as called for in the regulations to avoid collision or to signal a fire.

In Rio de la Plata, it is recommended that vessels have an underkeel clearance of at least 0.6m.

Communications

Vessels should establish VHF contact with the nearest coast radio station when within range and keep a listening watch on VHF channel 16 or a frequency assigned by the coast radio station. When out of range vessels should maintain a watch on VHF channel 16 if traffic is heavy or the visibility is poor.

If the watch cannot be maintained on VHF channel 16, then VHF channel 12 or 14 should be used after notifying the nearest SECOSENA station.

Search and Rescue

The Argentine navy, in conjunction with the Prefectura Naval Argentina, is responsible for maritime search and rescue.

The Argentine navy is responsible for the operation of all Maritime Rescue Coordination Centers (MRCC). The Prefectura Naval Argentina is responsible for the operation of all Rescue Subcenters (RSC) and provides the Safety of Navigation Communication Service (SECOSENA) through Argentine Naval Authority Coast Radio Stations.

The SECOSENA stations maintain a continuous listening watch on international distress frequencies.

Lifesaving stations are located, as follows:

1. Cabo San Antonio (36°18'S., 56°46'W.).
2. Isla Martin Garcia (34°11'S., 58°15'W.).

Ship Reporting System

Vessel Reporting System (SECOSENA)

SECOSENA is a reporting system designed to provide information in the event of Search and Rescue (SAR) incidents. Participation in this reporting system is mandatory for all vessels, with certain exceptions. Participation in the system is free of charge.

Reporting messages should be sent, as follows:

1. When entering Argentine waters, vessels should report the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.
   d. Length.
   e. Beam.
   f. Draft.
   g. Speed.
   h. Port of departure.
   i. Destination.
   j. Position.
   k. Course.
   l. Type of cargo.
   m. Whether there is a doctor on board.
2. When leaving Argentine waters, vessels should send the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.
   d. Speed.
   e. Destination.
   f. Position.
   g. Course.
3. When entering an Argentine port, vessels should send the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.
   d. ETA.
   e. Berthing location.
4. When departing an Argentine port, vessels should send the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.
   d. Length.
   e. Beam.
   f. Draft.

Argentina—MRCC/RSC Contact Information

Station	Telephone	Facsimile	E-mail
MRCC Buenos Aires	54-1143-172300	54-1143-132889	mrccbuenosaires@armada.mil.ar
MRCC Puerto Belgrano	54-2932-487162 54-1143-172038	54-2932-487163	mrccpuertobelgrano@armada.mil.ar
MRCC Ushuaia *	54-2901-431098	54-2901-431098	mrccushuaia@armada.mil.ar
RSC Rio de la Plata	54-1145-767650 54-1145-767649	54-1145-767646	pzonapzrp@prefecturanaval.gov.ar

Argentina—MRCC/RSC Contact Information			
Station	**Telephone**	**Facsimile**	**E-mail**
RSC Tigre	54-1145-124905 54-1145-124907	54-1145-124900	pzonapzde@prefecturanaval.gov.ar
RSC Rosario	54-3414-720340	54-3414-720344	pzonapzbp@prefecturanaval.gov.ar
RSC Corrientes	54-3783-423876 54-3783-443318 54-3783-421936	54-3783-423876	pzonapzpp@prefecturanaval.gov.ar
RSC Posadas	54-3752-425389	54-3752-430703	pzonapzap@prefecturanaval.gov.ar
RSC Concepcion del Uruguay	54-3442-425504	54-3442-423377	pzonapzbu@prefecturanaval.gov.ar
RSC Paso de los Libres	54-3772-424325	54-3772-424326	pzonapzau@prefecturanaval.gov.ar
RSC Mar del Plata	54-2234-800715	54-2234-803006	mpla@prefecturanaval.gov.ar
RSC Bahia Blanca	54-2914-573124	54-2914-573355	pzonapzan@prefecturanaval.gov.ar
RSC Comodoro Rivadavia	54-2974-442167 54-2974-473863 54-2974-476800 54-2974-464018	54-2974-462167 54-2974-473863	criv@prefecturanaval.gov.ar
RSC Puerto Deseado	54-2974-872322	54-2974-872322	dese@prefecturanaval.gov.ar
RSC Puerto Madryn	54-2965-451263	54-2965-451263	madr@prefecturanaval.gov.ar
RSC San Antonio Oeste	54-2934-421202	54-2934-421202	sant@prefecturanaval.gov.ar
RSC San Carlos de Bariloche	54-2944-422798	54-2944-425522	scba@prefecturanaval.gov.ar
RSC Nuequen	54-2994-472302	54-2994-422686	pzonapzlc@prefecturanaval.gov.ar
RSC Rio Gallegos	54-2966-420375	54-2966-420103	rgal@prefecturanaval.gov.ar
RSC Lago Argentino	54-2902-491653	54-2902-491653	larg@prefecturanaval.gov.ar
RSC Ushuaia	54-2901-422382	54-2901-421425	ushu@prefecturanaval.gov.ar
RSC Islas Orcadas	Communicate via MRCC Ushuaia *		
* MRCC Ushuaia normally operated only during the Antarctic summer from mid-November until mid-March.			

g. Speed.
h. Destination.
i. Course.
j. Type of cargo.
k. Whether there is a doctor on board.

5. When navigating within Argentine waters, vessels should report their position, as follows:

a. When between the parallels of 42°00'S and 54°30'S—to Comodoro Rivadavia Prefectura Naval Radio (PNR) at 0200 UTC and 1400 UTC and whenever course and speed changes occur.

b. When between the parallels of 35°50'S and 42°00'S—to Mar del Plata PNR at 0000 UTC and 1200 UTC and whenever course and speed changes occur.

c. When S of the parallel of 54°30'S—to Ushuaia PNR at 0200 UTC and 1400 UTC and whenever course and speed changes occur.

6. Vessels less than 50 gross tons navigating Canal Beagle from Ushuaia to Puerto Williams, Chile should report the following information:

a. Vessel name.
b. Vessel type.
c. Flag.
d. Call sign.
e. Time of departure.
f. Number of persons on board.
g. ETA.

For vessels on river and coastal voyages, reporting messages should be sent, as follows:

1. On entering the operational area of a SECOSENA Coast Radio Station (CRS), vessels should report the following information:

a. Vessel name.
b. Flag.
c. Call sign.
d. Length.
e. Beam.
f. Draft.
g. Speed.
h. Port of origin.

i. Port of destination.

2. If the vessel is leaving the operational area of an adjacent SECOSENA CRS, only the vessel's name, flag, and call sign need be sent.

3. On leaving the operational area of a SECOSENA CRS, vessels should send the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.

4. On entry to a port, vessels should send the following information:
   a. Vessel name.
   b. Call sign.
   c. ETA and place of berthing.

5. On departure from a port, vessels should send the following information:
   a. Vessel name.
   b. Flag.
   c. Call sign.
   d. Length.
   e. Beam.
   f. Draft.
   g. Speed.
   h. Time and place of departure.
   i. Destination.

6. Departing vessels heading S with a destination within Argentine waters must also report the type of cargo and if there is a doctor on board.

All messages should be sent to the nearest PNR coast station on VHF channel 16, if possible, otherwise by MF or HF. If contact with the nearest PNR coast station cannot be established, any other PNR coast station may be used, or, failing this, any Argentine coast radio station.

Messages should be in Spanish; however, if it is not possible to understand Spanish, vessels should use the International Code of Signals, or the Q-code, using the Standard Maritime Navigational Vocabulary.

Vessels should also report any accidents, hazards to navigation, defects in aids to navigation, or if urgent medical assistance is required.

Traffic Security Control System (CONTRASE)

The Traffic Control and Safety System (CONTRASE) is in effect in the following areas:
1. Buenos Aires (34°36'S., 58°22'W.).
2. Rio Parana (31°43'S., 60°32'W.).
3. Bahia Blanca (38°47'S., 62°16'W.).
4. Mar del Plata (38°02'S., 57°32'W.).
5. Rawson (43°18'S., 65°07'W.).
6. San Antonio Oeste (40°43'S., 64°57'W.).

Vessels are required to report to the appropriate Prefectura Naval Coast Radio Stations when passing the designated reporting points. For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

The following information should be reported to the appropriate Prefectura Naval Coast Radio Station:

1. Anchoring outside the port—Vessel name, flag, call sign, time of anchoring, and location.

2. Entering port—Vessel name, call sign, ETA, and destination.

Vessels must obtain permission from the appropriate Prefectura Naval Coast Radio Station prior to performing the following maneuvers:
1. Shifting anchorages.
2. Shifting berths.
3. Moving within the port.
4. Casting off.
5. Departing the port.

When requesting permissions, vessels should provide the vessel name, flag, call sign, destination (for 1, 2, and 3 above), and place of departure (for 4 and 5 above). Permissions are normally valid for 15 minutes.

Prefectura Naval Radio (PNR) Stations Which Accept SECOSENA Messages and CONTRASE Position Reports

PNR	Call sign	VHF	Operational areas	SECOSENA	CONTRASE
Bahia Blanca	L2N	VHF channels 9, 12, 14, 16, and 77	West of longitude 61°25'W and N of latitude 39°25'S.	X	X
Bermejo	L8F	VHF channels 9, 12, 14, and 16	Rio Paraguay—South of Km 1360, N of Km 1240, and W of the international boundary of Paraguay.	X	X
Buenos Aires	L2A	VHF channel 16	North of latitude 36°30'S, W of longitude 56°00'W to the Argentine territorial limit, E to a line from Km 27.3 on the Rio Lujan passing through Km 56.1 on the Rio Parana de Las Palmas to Km 121.5 on the Rio de la Plata.	X	X
Comodoro Rivadavia	L3B	VHF channels 9, 12, 14, and 16	Between latitude 42°00'S and latitude 54°30'S.	X	
Corrientes	L6Y	VHF channels 9, 12, 14, and 16	South of Km 1240 on the Rio Paraguay, W of Km 1242 on the Rio Parana, and N of Km 1135 on the Rio Parana.	X	X

Prefectura Naval Radio (PNR) Stations Which Accept SECOSENA Messages and CONTRASE Position Reports					
PNR	**Call sign**	**VHF**	**Operational areas**	**SECOSENA**	**CONTRASE**
Diamente	L6M	VHF channels 9, 12, 14, 16, and 77	Rio Parana—South of Km 568 and N of Km 480.	X	X
El Dorado	L7Z	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 1842 and N of Km 1774.	X	
Formosa	L8I	VHF channels 9, 12, 14, and 16	Rio Paraguay—South of Km 1520 and N of Km 1360.	X	X
Goya	L6V	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 1135 and N of Km 928.	X	X
Iguazu	L8C	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 1927 and N of Km 1842.	X	X
Ita Ibate	L7G	VHF channels 9, 12, 14, and 16	Rio Parana—West of Km 1410 and E of Km 1330.	X	X
Itati	L7D	VHF channels 9, 12, 14, and 16	Rio Parana—West of Km 1330 and E of Km 1242.	X	
Ituzaingo	L7J	VHF channels 9, 12, 14, and 16	Rio Parana—West of Km 1522 and E of Km 1410.	X	X
La Paz	L6S	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 827 and N of Km 677.	X	X
Libertador General San Martin	L7U	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 1774 and N of Km 1710.	X	X
Mar del Plata	L2O	VHF channels 9, 12, 14, and 16	Between latitude 35°50'S and latitude 42°00'S.	X	X
Parana	L6N	VHF channels 9, 12, 14, and 16	Rio Parana—South of Km 677 and N of Km 568.	X	X
Paso de los Libres	L9J	VHF channels 9, 12, 14, and 16	Rio Uruguay—South of Km 638 and N of Km 531.	X	
Pilcomayo	L8L	VHF channels 9, 12, 14, and 16	Rio Paraguay—South of Km 1619 and N of Km 1520.	X	X
Posadas	L7N	VHF channels 9, 12, 14, and 16	Rio Parana—West of Km 1710 and E of Km 1522.	X	X
Rawson	L4R	VHF channels 9, 12, 14, and 16	West of longitude 64°30'W, N of latitude 43°50'S, and S and E by the coast.	X	X
Rosario	L6I	VHF channels 9, 12, 14, 16, and 77	Rio Parana—South of Km 480 and N of Km 376.	X	X
San Antonio Oeste	L4V	VHF channel 12	In the vicinity of position 40°43'S, 64°57'W.		X
San Nicolas	L6G	VHF channels 9, 12, 14, 16, and 77	Southwest of Km 376 on the Rio Parana, NW of Km 310 on the Rio Parana Guazu, and W of Ibicuy on the Rio Parana Pavon.	X	X
San Pedro	L6E	VHF channels 9, 12, 14, and 16	West of Km 240 on the Rio Parana Guazu, E of Km 310 on the Rio Parana Guazu, and E of Ibicuy on the Rio Parana Pavon.	X	X

Prefectura Naval Radio (PNR) Stations Which Accept SECOSENA Messages and CONTRASE Position Reports					
PNR	Call sign	VHF	Operational areas	SECOSENA	CONTRASE
Ushuaia	L3P	VHF channels 9, 12, 14, 16, and 77	South of latitude 54°30'S.	X	
Zarate	L5T	VHF channels 9, 12, 14, 16, and 72	West of a line from Km 27.3 on the Rio Lujan, from Km 56.1 on the Rio Parana de las Palmas until Km 121.5 on the Rio de la Plata, S of Km 0 on the Rio Uruguay, and E of Km 240 on the Rio Parana Guazu.	X	X

Submarine Operating Areas

Argentine submarines may be encountered by day or at night while operating in the waters off the coast. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by local coastal radio stations.

A submarine exercise area off Mar del Plata is bounded by lines joining the following positions:

a. 38°00'S, 55°00'W.
b. 38°00'S, 57°21'W.
c. 38°35'S, 57°21'W.
d. 38°35'S, 55°00'W.

Submerged submarines operate, in depths of 30 to 55m, off the coast between Querandi Light (37°28'S., 57°07'W.) and Quequen Light, 100 miles SW.

Submarines exercise is an area between latitudes 42°30'S and 43°40'S and between longitude 62°00'W and the coast.

Submarines operate within the waters of Golfo Nuevo (42°46'S., 64°30'W.).

Argentine warships display the following signals to denote that submarines, which may be submerged or surfaced, are in the vicinity:

1. By day—A red rectangular flag, with a white letter S in the center, along with the appropriate signals from the International Code of Signals.
2. At night—On the fore topmast, the following lights are displayed:
   a. On the fore yard—Two green lights.
   b. On the starboard side—One green light over one white light.
   c. On the port side—One red light over one white light.

Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

A submarine submerged at a depth too great to show the periscope may indicate its position by means of an underwater lantern, which will illuminate the sea surface from below.

The following signals are used by submerged submarines while in submarine exercise area:

1. White smoke candles (with flames) indicate the position in response to a request from a ship or aircraft, or as required.
2. Yellow and green pyrotechnic flares indicate the position from which a practice torpedo has been fired. All vessels are requested to keep clear as the submarine may want to surface after the firing.
3. Yellow smoke candles.
4. Red pyrotechnic flares, which may be accompanied by smoke candles, repeated as often as possible indicate that vessels should keep clear as the submarine is carrying out emergency surfacing procedure. Vessels must not stop their propellers, but should clear the area immediately and stand by to render assistance.
5. Two yellow pyrotechnic flares or two white or yellow smoke candles released 3 minutes apart indicate that vessels should keep clear as the submarine is preparing to surface. Vessels must not stop their propellers and should clear the immediate vicinity.

Navigation Lights

Submarines may be encountered on the surface at night off the coast. The steaming and side lights of Argentine submarines appear to be placed well forward and very low above the water in proportion to the length and tonnage of these vessels. In particular, the emergency steaming light is lower than the side lights. The overtaking light (stern) is also placed low down and may be obscured by spray and wash. Argentine submarines are fitted with an amber quick-flashing light situated 1 to 2m above the steaming light as an aid to identification. It will also be used when snorting. While at anchor or moored to a buoy at night, Argentine submarines display normal anchor lights.

The overall arrangements of submarine lights is unusual and may well give the impression of markedly smaller and shorter vessels. Their vulnerability to collision when proceeding on the surface dictates particular caution when approaching such vessels.

Sunken Submarine

A submarine which is bottomed and unable to surface will try to indicate its position by the following methods:

1. Releasing an indicator buoy (which carries a vertical whip aerial) as soon as the accident occurs.
2. Firing candles giving off yellow or white smoke, at regular intervals, on the approach of surface vessels. (Yellow candles will be used as much as possible by day.)
3. Pumping out fuel or lubricating oil.

It may be impossible for a submarine to fire smoke candles. Correspondingly, a partially-flooded submarine may only have a certain number of smoke candles available and searching ships should not therefore expect many to appear.

Since oil slicks or debris may be the only indication of the presence or whereabouts of the sunken submarine, it is vitally

important that surface ships refrain from discharging anything which appears to have come from a submarine while they are in the probability area. Searching ships and aircraft can waste valuable time investigating these false contacts.

Some Argentine submarine pyrotechnics can be fitted with message carriers. These may be recovered as soon as they have finished burning.

Argentine submarines are fitted with a free-floating indicator buoy which can be released from inside in case of emergencies or if for any reason the submarine is unable to surface.

In any submarine accident, time is the most vital factor affecting the chances for rescue of the survivors, and, as the sighting of an indicator buoy may be the first intimation that an accident has in fact occurred, it is vital that no time should be lost in taking action. The sighting of any indicator buoy should at once be reported by the quickest available means. If known, the name of the submarine should be included in the report. However, if vessels are unable to establish communication without leaving the vicinity of the submarine, it should be borne in mind that the primary consideration should be for vessels to remain standing by to rescue survivors and not leave the scene of the accident.

At any time after a submarine accident, survivors may start attempting to escape. Current policy dictates that survivors will wait before escaping until rescue vessels are known to be standing by or conditions inside the submarine deteriorate to such an extent that an escape must be attempted. It should be noted that, in certain circumstances, the latter situation may not arise through lack of air supply until several days after the accident. However, if the submarine is badly damaged, survivors may have to make an escape attempt immediately. On arrival at the surface, crew members may be exhausted or ill, and, if circumstances permit, the presence of a boat already lowered is very desirable. Some crew members may require a decompression chamber. Therefore, it is the aim of the authorities to get such a chamber to the scene as soon as possible.

In order that those trapped in the submarine shall be made aware that help is at hand, naval vessels drop small charges into the sea which can be heard from inside the submarine. There is no objection to the use of small charges for this purpose, but it is vital that they are not dropped too close since crew members in the process of making ascents are particularly vulnerable to underwater explosions, and may easily receive fatal injuries. A distance of about 0.3 mile is considered to be safe.

If no small charges are available, the running of an echo sounder or the banging of the outer skin of the ship's hull with a hammer from a position below the waterline are likely to be heard in the submarine, and such banging and/or sounding should therefore be carried out at frequent intervals.

Indicator Buoy

Agentine submarines are equipped with free-floating indicator buoys. It is therefore of the utmost importance that the position, together with the estimated current and the strength and direction of the wind at that position; and the time of first sighting of the buoy be accurately and speedily reported to the appropriate authorities.

The Argentine submarine free-floating indicator buoy is made of aluminum. The body is cylindrical, 60cm long, approximately 20cm in diameter, and slightly domed on top. The base of the body flares out to a diameter of 23cm. It is bolted onto the buoy by means of eight-16cm bolts. Along the body there are three extensions which strengthen the structure and also act as guides to the strap with which the buoy is secured to the submarine. The whole of the body is painted bright orange. Between the base and the lower extension, a number is molded into the buoy with numerals 1cm in size. Another number with numerals 0.5cm in size appears close below the first.

Above the body is an aerial consisting of a yellow painted protection piece consisting of a metal cylinder, 14cm long and 9cm in diameter; a rubber protection piece, about 18cm long, which protects the flexible connection between the buoy and an insulator, 9cm long, on top of it; and a VHF aerial, 25cm long, which has a small white plastic knob on the end of it.

The buoys are fitted with an automatic transmitting radio unit operating an A2 transmission on 243MHz and 121.5MHz. The signal transmitted consists of a series of short dashes. Vessels receiving this signal should report the fact, giving their position and, if possible, an indication of signal strength.

Submarine indicator buoys should not be confused with white or yellow smoke candles or sonabuoys.

White smoke candles are usually fired from submarines to indicate their positions. They burn for up to 15 minutes emitting white smoke, flame, and a green dye into the water. These candles can be seen by day or at night and my easily be confused with aircraft marine markers. Yellow smoke candles are also fired from submarines to indicate their positions. They burn for about 5 minutes emitting yellow smoke. These candles can be seen more easily than white smoke candles in rough weather, but they cannot be seen at night. Sonabuoys are dropped from aircraft to detect submarines and may be encountered anywhere at sea.

The above objects may frequently be seen in areas where warships and aircraft exercise, whether or not submarines are present. In case of doubt, the object should be approached to confirm, visually, whether or not it is a submarine indicator buoy before reporting it.

Time Zone

The Time Zone description is PAPA (+3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Avenida Colombia 4300, Buenos Aires.

The mailing addresses are, as follows:

1. Argentina address—
   Avenida Colombia 4300
   C1425GMN Buenos Aires
2. U.S. address—
   Unit 4334
   APO AA (34034)

U. S. Embassy Argentina Home Page
http://argentina.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is located in Bahia Blanca

(38°48'S., 62°16'W.) For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

A Vessel Traffic Service and reporting system is in operation in the Strait of Magellan and its approaches. For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

AUSTRALIA

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General

Australia, the world's sixth-largest country and smallest continent, is located S of the Indonesian archipelago and is bounded on the E by the Pacific Ocean and on the W and S by the Indian Ocean.

The Great Barrier Reef fringes the NE coast of the country and extends for about 1,200 miles.

Most of the country consists of low irregular plateaus. The desert-like center is flat, barren, and dry. Large areas of fertile plain are located in the SE part.

The climate is generally arid to semiarid but there are wide variations. The N part is tropical and the S and E parts are temperate.

Areas to be Avoided

Off the Ningaloo Coast.—In order to reduce the risk of a marine casualty and resulting pollution and damage to the sensitive marine environment off the Ningaloo coast, all vessels over 150 gross tons and all vessels engaged in towing operations, regardless of size, should avoid the area bounded by the coast and lines joining the following positions:

a. 21°47'00"S, 114°09'45"E.
b. 21°47'00"S, 114°12'30"E.
c. 21°44'00"S, 114°12'30"E.
d. 21°42'00"S, 114°10'30"E.
e. 21°42'00"S, 114°00'00"E.
f. 21°47'00"S, 113°50'00"E.
g. 22°40'00"S, 113°29'00"E.
h. 22°50'00"S, 113°33'48"E.
i. The coast at 22°50'00"S.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

The general direction of buoyage for the purposes of the IALA Buoyage System is E to W along the S coast of Australia, S to N along the W coast of Australia, W to E along the N coast of Australia, counterclockwise in the Gulf of Carpentaria, from W to E in Torres Strait, N to S along the E coast of Australia, and counterclockwise around Tasmania.

Cautions

General

The volume of commercial shipping passing through Torres Strait is considerable. A large number of local craft also operate between the islands.

Seismic Surveys

In connection with the exploration for oil and gas, seismic survey vessels are operating off the Australian coast. When possible, general details of these activities will be broadcast as AUSCOAST Warnings. However, vessels carrying out such surveys may be encountered without warning.

Aids to Navigation

Due to the exposed position of many of the navigational buoys moored off the N and NW coasts of Australia and the frequency of cyclonic storms, no reliance should be placed on these buoys always maintaining their exact position. This applies especially to the buoys marking the outer approaches to Port Hedland, Port Walcott, and Dampier.

Magnetic Anomalies

Local magnetic anomalies have been reported, as follows:

1. In the approaches to Port Hedland, about 9 miles NW of Turtle Island (19°53.4'S., 118˝53.9'E.). The normal magnetic variation is increased by 9 to 10° in this area.
2. In the main approach channel to Port Hedland, about 5 miles N of Cooke Point (20°18.'S., 118°38.4'E.).
3. Between 3 and 4.5 miles SSW of Cape Lookout (20°35.6'S., 117°11.0'E.), with compass deflections of as much as 55°
4. In the approaches to Geraldton, about 80 miles WNW of North Island, in position 28°05'S, 112°03'E.
5. Off the coast between Fremantle and Cape Leeuwin.

Currency

The official unit of currency is the Australian dollar, consisting of 100 cents.

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE NORTHERN TERRITORIES

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YBBB/R230	Darwin	Military flying/non-flying	NOTAM	**R230A—**11°05'02"S, 130°53'39"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 11°20'50"S, 131°42'58"E; 12°05'13"S, 131°09'35"E; then the minor arc of a circle 25 NM in radius centered on Darwin DME to 12°00'17"S, 130°54'53"E.	7

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
NORTHERN TERRITORIES

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YBBB/R230	Darwin	Military flying/non-flying	NOTAM	**R230B—**10°24'52"S, 130°52'46"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 10°48'30"S, 132°07'07"E; 11°20'50"S, 131°42'58"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME to 11°05'02"S, 130°53'39"E.	7
		Military flying/non-flying	NOTAM	**R230C—**9°54'44"S, 130°52'07"E; then the minor arc of a circle 150 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 10°24'14"S, 132°25'11"E; 10°48'30"S, 132°07'07"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME to 10°24'52"S, 130°52'46"E.	7
		Military flying/non-flying	NOTAM	**R230D—**11°20'50"S, 131°42'58"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°02'20"S, 132°12'38"E; 12°18'53"S, 131°19'03"E; then the minor arc of a circle 25 NM in radius centered on Darwin DME to 12°05'13"S, 131°09'35"E.	7
		Military flying/non-flying	NOTAM	**R230E—**10°48'30"S, 132°07'07"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 11°50'11"S, 132°51'32"E; 12°02'20"S, 132°12'38"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME to 11°20'50"S, 131°42'58"E.	7
		Military flying/non-flying	NOTAM	**R230F—**10°24'14"S, 132°25'11"E; then the minor arc of a circle 150 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 11°41'01"S, 133°20'40"E; 11°50'11"S, 132°51'32"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME to 10°48'30"S, 132°07'07"E.	7

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE NORTHERN TERRITORIES

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YBBB/R264	Darwin	Military flying/non-flying	NOTAM	**R264A—**12°32'35"S, 130°29'53"E; then the minor arc of a circle 25 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°18'12"S, 130°29'54"E; 12°12'26"S, 130°10'20"E; then the minor arc of a circle 45 NM in radius centered on Darwin DME to 12°38'16"S, 130°10'16"E.	7
		Military flying/non-flying	NOTAM	**R264B—**12°38'16"S, 130°10'16"E; then the minor arc of a circle 45 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°12'26"S, 130°10'20"E; 12°02'16"S, 129°36'08"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME to 12°48'09"S, 129°35'54"E.	7
		Military flying/non-flying	NOTAM	**R264C—**12°48'09"S, 129°35'54"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°02'16"S, 129°36'08"E; 11°50'34"S, 128°57'06"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME to 12°59'22"S, 128°56'35"E.	7
		Military flying/non-flying	NOTAM	**R264D—**12°59'22"S, 128°56'35"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 11°50'34"S, 128°57'06"E; 11°35'48"S, 128°08'23"E; then the minor arc of a circle 170 NM in radius centered on Darwin DME to 13°13'15"S, 128°07'20"E.	7
		Military flying/non-flying	NOTAM	**R264E—**12°32'35"S, 130°29'53"E; then the minor arc of a circle 25 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°44'26"S, 130°37'42"E; 13°26'16"S, 130°00'54"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME to 12°48'09"S, 129°35'54"E.	7

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE NORTHERN TERRITORIES

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YBBB/R264	Darwin	Military flying/non-flying	NOTAM	**R264F—**12°48'09"S, 129°35'54"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 13°26'16"S, 130°00'54"E; 13°56'38"S, 129°34'00"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME to 12°59'22"S, 128°56'35"E.	7
		Military flying/non-flying	NOTAM	**R264G—**12°59'22"S, 128°56'35"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 13°56'38"S, 129°34'00"E; 14°34'32"S, 129°00'13"E; then the minor arc of a circle 170 NM in radius centered on Darwin DME to 13°13'15"S, 128°07'20"E.	7
		Military flying/non-flying	NOTAM	**R264H—**12°44'26"S, 130°37'42"E; then the minor arc of a circle 25 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 12°49'20"S, 130°46'39"E; 13°41'06"S, 130°26'55"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME to 13°26'16"S, 130°00'54"E.	7
		Military flying/non-flying	NOTAM	**R264J—**13°26'16"S, 130°00'54"E; then the minor arc of a circle 80 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 13°41'06"S, 130°26'55"E; 14°18'44"S, 130°12'30"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME to 13°56'38"S, 129°34'00"E.	7
		Military flying/non-flying	NOTAM	**R264K—**13°56'38"S, 129°34'00"E; then the minor arc of a circle 120 NM in radius centered on Darwin DME (12°25'24"S, 130°54'23"E) to 14°18'44"S, 130°12'30"E; 15°05'44"S, 129°54'21"E; then the minor arc of a circle 170 NM in radius centered on Darwin DME to 14°34'32"S, 129°00'13"E.	7
YBBB/R272	Bathurst Island	Military non-flying	NOTAM	A circle 1 NM in radius centered on 11°45'34"S, 130°02'05"E.	7

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
—	Greenough	Firing	HJ NOTAM	a. 28°57'50"S, 114°43'17"E., then along the coast to b. 28°58'09"S, 114°43'38"E. c. 28°58'28"S, 114°43'16"E. d. 28°58'10"S, 114°42'55"E.	9
YMMM/R140	Garden Island	Military non-flying	H24	**R140A—**A circle 1.0 NM in radius centered on 32°10'36"S, 115°40'18"E.	9
		Military non-flying	NOTAM	**R140B—**A circle 1.0 NM in radius centered on 32°10'36"S, 115°40'18"E.	9
YMMM/R146	Lancelin	Military flying/non-flying	NOTAM	**R146A** a. 30°54'00"S, 114°56'00"E. b. 30°45'30"S, 115°17'30"E. c. 30°55'00"S, 115°24'00"E. d. 31°07'30"S, 115°05'00"E.	9
		Military flying/non-flying	NOTAM	**R146B** a. 30°45'30"S, 115°17'30"E. b. 30°41'00"S, 115°27'00"E. c. 30°50'00"S, 115°33'00"E. d. 30°55'00"S, 115°24'00"E.	9
		Military flying/non-flying	NOTAM	**R146C** a. 30°41'00"S, 115°27'00"E. b. 30°45'30"S, 115°17'30"E. c. 30°47'56"S, 115°11'21"E., then along the coast to d. 30°38'57"S, 115°07'36"E.	9
YMMM/R162	Pearce	Military flying	NOTAM	32°14'51"S, 115°41'24"E; 32°13'29"S, 115°40'47"E; 32°13'49"S, 115°56'52"E; 32°13'36"S, 116°04'27"E; 33°02'56"S, 116°24'49"E; then the minor arc of a circle 70 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°58'36"S, 115°18'38"E; 32°28'35"S, 115°37'42"E; 32°22'32"S, 115°39'30"E.	9

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R163	Pearce	Military flying/non-flying	NOTAM	32°09'27"S, 115°39'42"E; 32°14'47"S, 115°29'22"E; then the minor arc of a circle 30 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°52'31"S, 115°22'40"E; 31°52'46"S, 115°24'56"E; 31°45'43"S, 115°46'02"E; 31°47'22"S, 115°50'43"E; then the minor arc of a circle 11 NM in radius centered on PH/DME to 31°48'23"S, 115°49'06"E; 31°57'14"S, 115°36'26"E; then the minor arc of a circle 18 NM in radius centered on PH/DME to 32°01'07"S, 115°37'02"E.	9
YMMM/R165	Pearce	Military flying/non-flying	NOTAM	31°52'46"S, 115°24'56"E; 31°48'30"S, 114°47'46"E; then the minor arc of a circle 60 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°06'08"S, 115°19'35"E; then the minor arc of a circle 60 NM in radius centered on PH/DME to 31°04'05"S, 115°23'36"E; then along the coast to 31°45'43"S, 115°46'02"E.	9
YMMM/R167	Pearce	Military flying/non-flying	NOTAM	**R167A—**31°52'31"S, 115°22'40"E; then the minor arc of a circle 30 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°05'28"S, 115°23'49"E; 31°08'56"S, 115°10'17"E; then the minor arc of a circle 42 NM in radius centered on PH/DME to 31°50'56"S, 115°08'12"E.	9
		Military flying/non-flying	NOTAM	**R167B—**32°18'24"S, 115°23'42"E; then the minor arc of a circle 36 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°07'13"S, 115°17'04"E; 32°05'28"S, 115°23'49"E; then the minor arc of a circle 30 NM in radius centered on PH/DME to 32°14'47"S, 115°29'22"E.	9

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R168	Pearce	Flying/non-flying	NOTAM	**R168A—**30°50'33"S, 114°00'29"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 30°10'34"S, 114°51'52"E; then the minor arc of a circle 120 NM in radius centered on PH/DME to 30°08'06"S, 114°57'33"E; then along the coast to 31°06'08"S, 115°19'35"E; then the minor arc of a circle 60 NM in radius centered on PH/DME to 31°23'49"S, 114°58'43"E.	9
		Flying/non-flying	NOTAM	**R168B—**31°40'00"S, 113°38'07"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 30°50'33"S, 114°00'29"E; 31°23'49"S, 114°58'43"E; then the minor arc of a circle 60 NM in radius centered on PH/DME to 31°48'30"S, 114°47'46"E.	9
YMMM/D169	Swanbourne	Firing	H24	a. 31°56'49"S, 115°46'00"E. b. 31°56'49"S, 115°43'00"E. c. 31°58'47"S, 115°43'00"E. d. 31°58'47"S, 115°46'00"E.	9
YMMM/R184	Lancelin	Military flying/non-flying	NOTAM	A circle 1.5 NM in radius centered on 30°52'54"S, 115°16'12"E.	9
YMMM/R190	Stirling	Flying/non-flying	NOTAM	31°52'46"S, 115°24'56"E; 31°48'30"S, 114°47'46"E; then the minor arc of a circle 60 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°23'49"S, 114°58'43"E; 31°38'11"S, 115°29'51"E; 31°50'01"S, 115°33'12"E.	9
YMMM/R191	Stirling	Flying/non-flying	NOTAM	31°40'00"S, 113°00'00"E; 30°00'03"S, 113°00'00"E; 30°03'13"S, 113°49'39"E; 30°00'00"S, 114°30'00"E; 30°10'34"S, 114°51'52"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°40'00"S, 113°38'07"E.	9

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R192	Stirling	Flying/non-flying	NOTAM	**R192A—**32°30'51"S, 113°41'55"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°40'00"S, 113°38'07"E; 31°47'08"S, 114°36'09"E; then the minor arc of a circle 70 NM in radius centered on PH/DME to 32°16'55"S, 114°38'39"E.	9
		Flying/non-flying	NOTAM	**R192B—**32°16'55"S, 114°38'39"E; then the minor arc of a circle 70 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 31°47'08"S, 114°36'09"E; 31°51'43"S, 115°15'41"E; then the minor arc of a circle 36 NM in radius centered on PH/DME to 32°07'13"S, 115°17'04"E.	9
		Flying/non-flying	NOTAM	**R192C—**33°08'23"S, 114°03'35"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°30'51"S, 113°41'55"E; 32°16'55"S, 114°38'39"E; then the minor arc of a circle 70 NM in radius centered on PH/DME to 32°38'44"S, 114°51'27"E.	9
		Flying/non-flying	NOTAM	**R192D—**32°38'44"S, 114°51'27"E; then the minor arc of a circle 70 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°16'55"S, 114°38'39"E; 32°07'13"S, 115°17'04"E; then the minor arc of a circle 36 NM in radius centered on PH/DME to 32°18'24"S, 115°23'42"E.	9
		Flying/non-flying	NOTAM	**R192E—**33°42'40"S, 114°50'16"E; then the minor arc of a circle 120 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 33°08'23"S, 114°03'35"E; 32°38'44"S, 114°51'27"E; then the minor arc of a circle 70 NM in radius centered on PH/DME to 32°58'36"S, 115°18'38"E.	9

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R192	Stirling	Flying/non-flying	NOTAM	**R192F—**32°58'36"S, 115°18'38"E; then the minor arc of a circle 70 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°38'44"S, 114°51'27"E; 32°18'24"S, 115°23'42"E; then the minor arc of a circle 36 NM in radius centered on PH/DME to 32°28'35"S, 115°37'42"E.	9
		Flying/non-flying	NOTAM	**R192G—**32°28'35"S, 115°37'42"E; then the minor arc of a circle 36 NM in radius centered on PH/DME (31°56'42"S, 115°57'34"E) to 32°18'24"S, 115°23'42"E; 32°14'47"S, 115°29'22"E; then the minor arc of a circle 30 NM in radius centered on PH/DME to 32°22'32"S, 115°39'30"E.	9
YBBB/R803 A/B	Curtin	Military flying	NOTAM	16°20'06"S, 123°54'41"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 18°15'53"S, 124°57'23"E; 17°48'57"S, 124°13'06"E; then the minor arc of a circle 25 NM in radius centered on Curtin VOR to 17°10'15"S, 123°52'15"E.	12
YBBB/R805 A/B	Curtin	Military flying	NOTAM	17°34'12"S, 123°24'58"E; then the minor arc of a circle 25 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 17°58'28"S, 123°40'58"E; 18°44'45"S, 123°20'36"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR to 17°31'38"S, 122°32'42"E.	12
YBBB/R806 A/B	Curtin	Military flying	NOTAM	17°10'15"S, 123°52'15"E; then the minor arc of a circle 25 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 17°34'12"S, 123°24'58"E; 17°31'38"S, 122°32'42"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR to 16°20'06"S, 123°54'41"E.	12

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YBBB/R807 A/B	Curtin	Military flying	NOTAM	**R807A/B—**15°04'52"S, 123°58'17"E; then the minor arc of a circle 150 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 18°55'58"S, 126°04'13"E; 18°15'53"S, 124°57'23"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR to 16°20'06"S, 123°54'41"E.	12
YBBB/R809 A/B	Curtin	Military flying	NOTAM	**R809A/B—**19°54'05"S, 122°49'43"E; then the minor arc of a circle 150 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 17°27'20"S, 121°14'21"E; 17°31'38"S, 122°32'42"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR to 18°44'45"S, 123°20'36"E.	12
YBBB/R810 A/B	Curtin	Military flying	NOTAM	**R810A/B—**17°27'20"S, 121°14'21"E; then the minor arc of a circle 150 NM in radius centered on Curtin VOR (17°35'20"S, 123°51'07"E) to 15°04'52"S, 123°58'17"E; 16°20'06"S, 123°54'51"E; then the minor arc of a circle 75 NM in radius centered on Curtin VOR to 17°31'38"S, 122°32'42"E.	12
YBBB/R811	Curtin	Military flying	NOTAM	a. 16°04'26"S, 120°56'17"E. b. 14°04'27"S, 122°56'24"E. c. 15°04'57"S. 123°58'17"E. d. 17°04'28"S, 121°56'18"E.	12
YMMM/R850A/B	Learmonth	Military flying	NOTAM	**R850A/B—**22°54'26"S, 116°07'49"E; then the minor arc of a circle 120 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 24°07'12"S, 113°21'00"E; 22°51'49"S, 113°50'54"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 22°27'47"S, 114°46'13"E.	8
YMMM/R851A/B/C	Learmonth	Military flying	NOTAM	**R851A/B/C—**21°22'24"S, 116°02'08"E; then the minor arc of a circle 120 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 22°54'26"S, 116°07'49"E; 22°27'47"S, 114°46'13"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 21°57'04"S, 114°44'39"E.	8

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R852A/B	Learmonth	Military flying	NOTAM	**R852A/B**—20°24'43"S, 114°59'27"E; then the minor arc of a circle 120 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 21°22'24"S, 116°02'08"E; 21°57'04"S, 114°44'39"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 21°37'40"S, 114°23'44"E.	8
YMMM/R853A/B	Learmonth	Military flying	NOTAM	**R853A/B—**19°52'35"S, 113°10'54"E; then the minor arc of a circle 150 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 19°57'19"S, 115°12'42"E; 20°52'05"S, 114°46'07"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME to 20°49'14"S, 113°32'34"E.	8
YMMM/R854A/B	Learmonth	Military flying	NOTAM	**R854A/B—**20°49'14"S, 113°32'34"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 20°52'05"S, 114°46'07"E; 21°37'40"S, 114°23'44"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME, to 21°36'25"S, 113°50'49"E.	8
YMMM/R859A/B/C	Learmonth	Military flying	NOTAM	**R859A/B/C—**A circle 40 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E).	8
YMMM/R860A/B/C	Learmonth	Military flying	NOTAM	**R860A/B/C—**A circle 25 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E).	8
YMMM/R861A/B	Learmonth	Military flying	NOTAM	**R861A/B—**22°29'33"S, 112°29'59"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 20°49'14"S, 113°32'34"E; 21°36'25"S, 113°50'49"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 22°21'08"S, 113°23'11"E.	8
YMMM/R862A/B	Learmonth	Military flying	NOTAM	**R862A/B—**22°39'16"S, 111°26'00"E; then the minor arc of a circle 150 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 19°52'35"S, 113°10'54"E; 20°49'14"S, 113°32'34"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME to 22°29'33"S, 112°29'59"E.	8

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
WESTERN AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R863A/B	Learmonth	Military flying	NOTAM	**R863A/B—**22°29'33"S, 112°29'59"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 23°38'56"S, 113°32'16"E; 24°35'26"S, 113°09'38"E; then the minor arc of a circle 150 NM in radius centered on Learmonth DME to 22°39'16"S, 111°26'00"E.	8
YMMM/R864A/B	Learmonth	Military flying	NOTAM	**R864A/B—**23°38'56"S, 113°32'16"E; then the minor arc of a circle 90 NM in radius centered on Learmonth DME (22°14' 05"S, 114°05'38"E) to 22°29'33"S, 112°29'59"E; 22°21'08"S, 113°23'11"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 22°51'49"S, 113°50'54"E.	8
YMMM/R870	Learmonth	Military flying	NOTAM	**R870A—**22°10'43"S, 113°59'06"E; then along Line Road to 22°14'09"S, 113°58'01"E; 22°28'39"S, 114°01'32"E; then the minor arc of a circle 15 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 22°06'41"S, 113°51'35"E.	8
		Military flying	NOTAM	**R870B—**22°06'41"S, 113°51'35"E; then the minor arc of a circle 15 NM in radius centered on Learmonth DME (22°14'05"S, 114°05'38"E) to 22°28'55"S, 114°02'50"E; 22°53'37"S, 113°58'10"E; then the minor arc of a circle 40 NM in radius centered on Learmonth DME to 21°54'07"S, 113°28'18"E.	8

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
SOUTH AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R231	Adelaide	Military flying	NOTAM	34°47'27"S, 138°24'26"E; then the minor arc of a circle 11 NM in radius centered on Adelaide DME (34°56'49"S, 138°31'28"E) to 34°57'08"S, 138°18'06"E; 34°58'09"S, 137°47'42"E; then the minor arc of a circle 36 NM in radius centered on Adelaide DME to 34°26'08"S, 138°08'33"E.	10

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
SOUTH AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R254	North East Rock	Military flying	NOTAM	35°07'00"S, 136°21'43"E; then the major arc of a circle 7 NM in radius centered on 35°04'30"S, 136°29'40"E to 35°07'00"S, 136°37'37"E.	10
YMMM/R279	Edinburgh	Military flying/non-flying	NOTAM	35°18'08"S, 136°52'48"E; then N along the coast of the Yorke Peninsula to 34°58'12"S, 137°46'05"E; 34°57'38"S, 138°03'31"E; then the minor arc of a circle 23 NM in radius centered on Adelaide DME (34°56'49"S, 138°31'28"E) to 35°05'02"S, 138°05'19"E; 35°35'27"S, 137°23'33"E; then W along the N coast of Kangaroo Island to 35°43'19"S, 136°43'13"E; then the minor arc of a circle 100 NM in radius centered on Adelaide DME to 35°21'44"S, 136°33'21"E.	10
YMMM/R282	Adelaide	Military flying/non-flying	NOTAM	36°10'00"S, 138°10'00"E; 36°15'26"S, 137°31'00"E; 36°52'11"S, 137°04'08"E; then the minor arc of a circle 150 NM in radius centered on Edinburgh TAC (34°42'17"S, 138°36'45"E) to 37°03'57"S, 139°38'12"E; 35°54'48"S, 139°07'39"E; 35°42'02"S, 138°57'43"E; then the minor arc of a circle 50 NM in radius centered on Adelaide DME (34°56'49"S, 138°31'28"E) to 35°45'40"S, 138°18'03"E.	10
YMMM/R292	Port Wake-field	Military flying/non-flying	H24	**R292A** a. 34°27'06"S, 138°08'30"E. b. 34°13'30"S, 138°08'30"E. c. 34°13'30"S, 138°11'59"E., then SE along Port Wakefield Road to d. 34°19'57"S, 138°16'15"E. e. 34°25'18"S, 138°16'06"E. f. 34°27'15"S, 138°13'29"E.	10
			NOTAM	**R292B** a. 34°27'06"S, 138°08'30"E. b. 34°13'30"S, 138°08'30"E. c. 34°13'30"S, 138°11'59"E., then SE along Port Wakefield Road to d. 34°19'57"S, 138°16'15"E. e. 34°25'18"S, 138°16'06"E. f. 34°27'15"S, 138°13'29"E.	10

RESTRICTED AND DANGER AREAS WITH ASSOCIATED AIRSPACE
SOUTH AUSTRALIA

Area	Name	Nature of Activity	Times of Use	Area limits bound by lines joining positions stated, unless otherwise indicated	Chartlet No.
YMMM/R292	Port Wakefield	Military flying/non-flying	NOTAM	**R292C** a. 34°25'47"S, 138°15'27"E. b. 34°29'30"S, 138°16'30"E. c. 34°29'30"S, 138°08'30"E. d. 34°27'06"S, 138°08'30"E. e. 34°27'15"S, 138°13'29"E.	10
		Military flying/non-flying	NOTAM	**R292D** a. 34°29'30"S, 138°16'30"E. b. 34°34'00"S, 138°18'00"E. c. 34°34'00"S, 138°08'30"E. d. 34°29'30"S, 138°08'30"E.	10
		Military flying/non-flying	NOTAM	**R292E** a. 34°24'00"S, 138°03'30"E. b. 34°13'30"S, 138°03'30"E. c. 34°13'30"S, 138°08'30"E. d. 34°24'00"S, 138°08'30"E.	10
		Military flying/non-flying	NOTAM	**R292F** a. 34°24'00"S, 138°03'30"E. b. 34°29'27"S, 138°03'30"E. c. 34°34'00"S, 138°06'30"E. d. 34°34'00"S, 138°08'30"E. e. 34°24'00"S, 138°08'30"E.	10
YMMR/R303 A/B	Alamein	Military flying/non-flying	NOTAM	**R303A** a. 32°43'11"S, 137°32'47"E. b. 32°39'11"S, 137°34'56"E. c. 32°40'21"S, 137°35'45"E. d. 32°40'28"S, 137°40'00"E. e. 32°40'46"S, 137°40'04"E. f. 32°40'49"S, 137°46'44"E. g. 32°44'36"S, 137°48'35"E. h. 32°54'06"S, 137°48'34"E. i. 32°58'24"S, 137°42'43"E. j. 32°54'43"S, 137°38'22"E. k. 32°54'36"S, 137°38'01"E. l. 32°55'11"S, 137°35'07"E.	10
		Military flying/non-flying	NOTAM	**R303B** a. 32°42'23"S, 137°29'35"E. b. 32°38'54"S, 137°31'29"E. c. 32°55'22"S, 137°34'08"E. d. 32°55'56"S, 137°34'16"E. e. 32°56'20"S, 137°32'00"E. f. 32°51'16"S, 137°30'48"E. g. 32°43'33"S, 137°29'35"E.	10

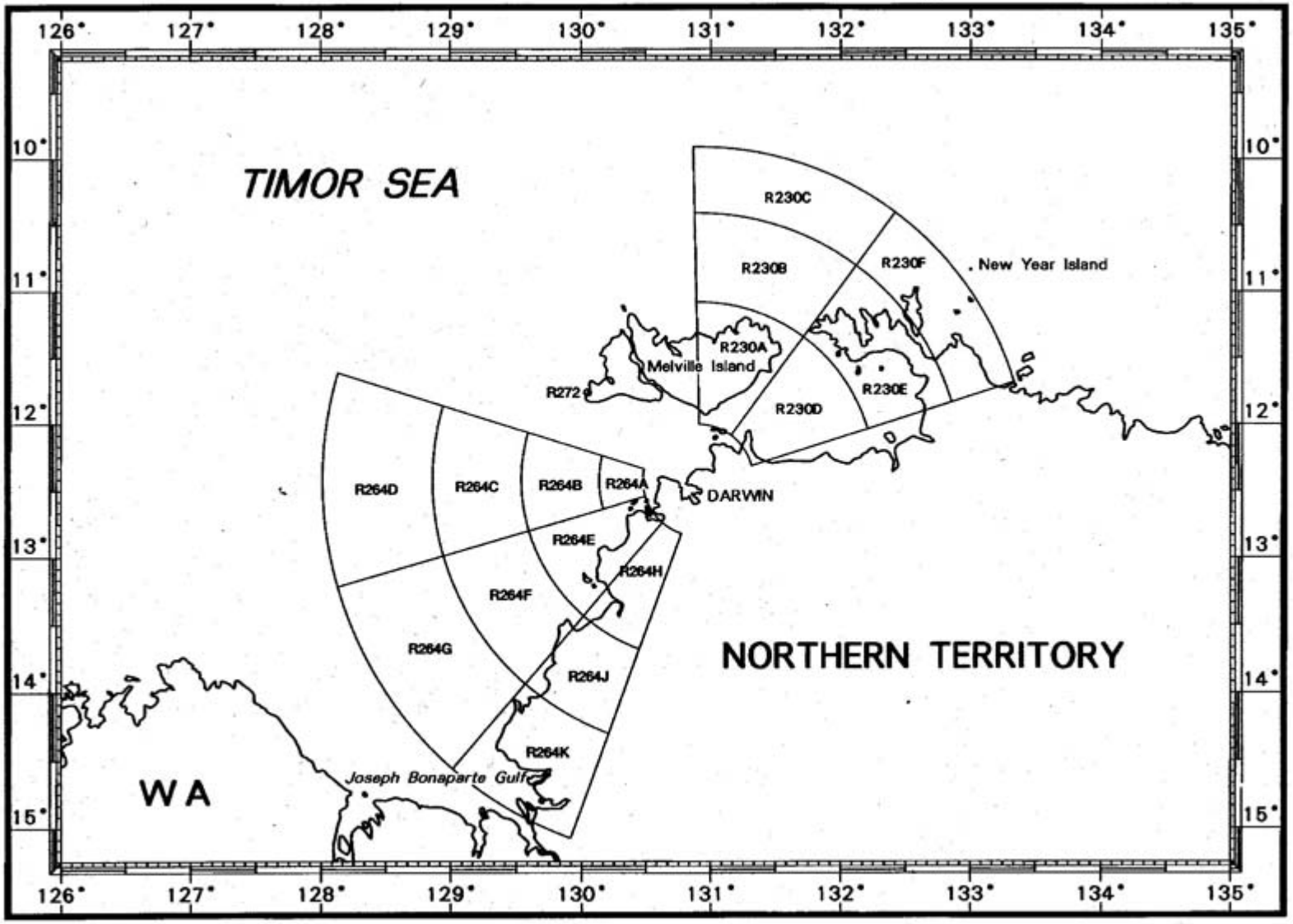
Firing Areas

Firing Practice and Exercise Areas

The tables and graphics displayed below indicate details concerning the declared firing practice areas under Australian Army, Air Force, and Naval Forces Regulations.

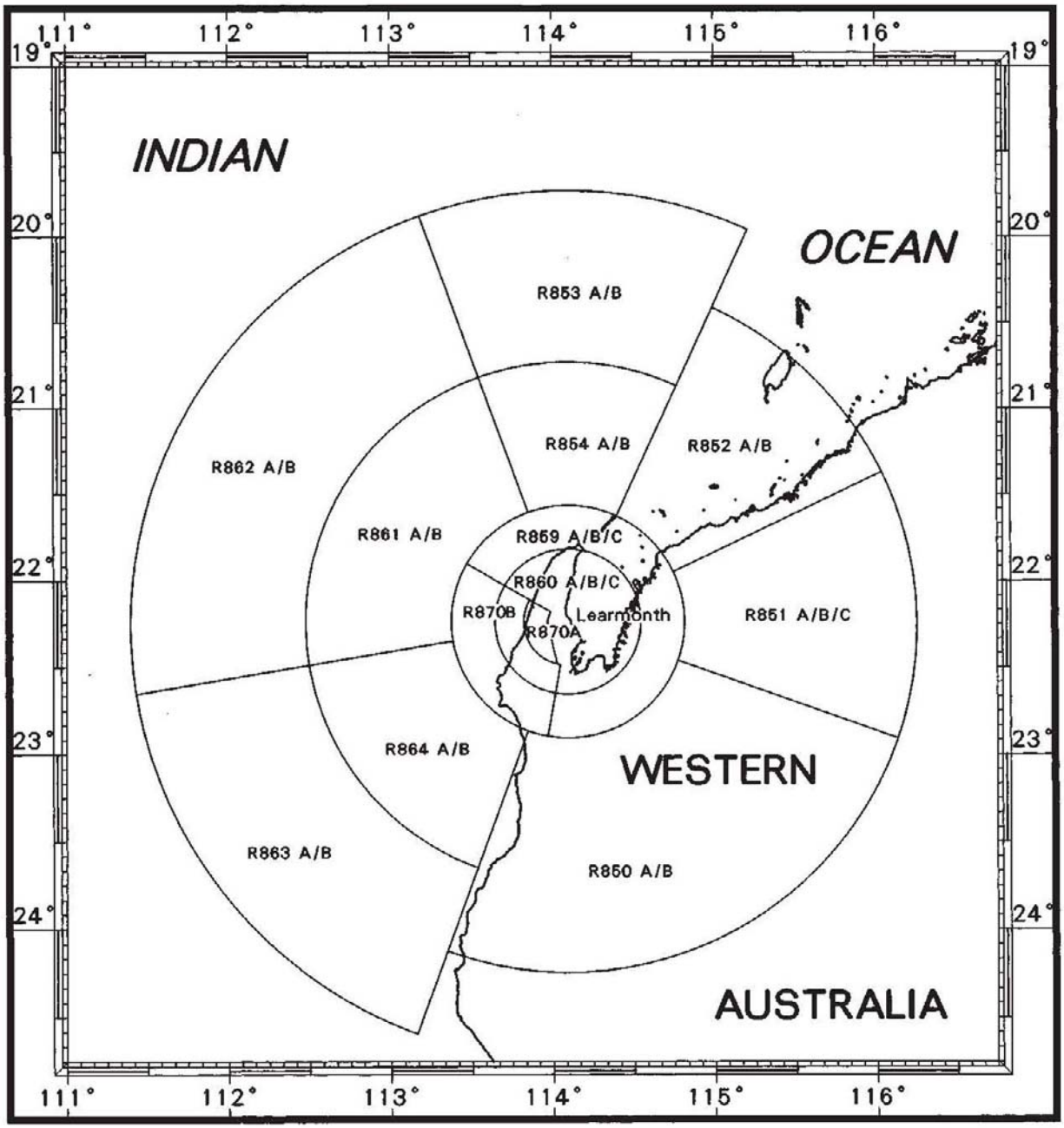
Firing practice areas may be selected anywhere and details are published in the Australian Government Gazette and the Designated Airspace Handbook.

In view of the responsibility of range authorities to avoid accidents, the limits of practice areas are not shown on charts and descriptions of areas do not appear in the Sailing Directions (Enroute). However, beacons, lights, and buoys associated with the areas, which may be of assistance to the mariner, and targets, which might be a danger to navigation, will generally be shown on charts and, when appropriate, will be mentioned in



Courtesy of the Australian Hydrographic Service

Chartlet No. 7



Courtesy of the Australian Hydrographic Service

Chartlet No. 8

the Sailing Directions.

Types of Firing Practices

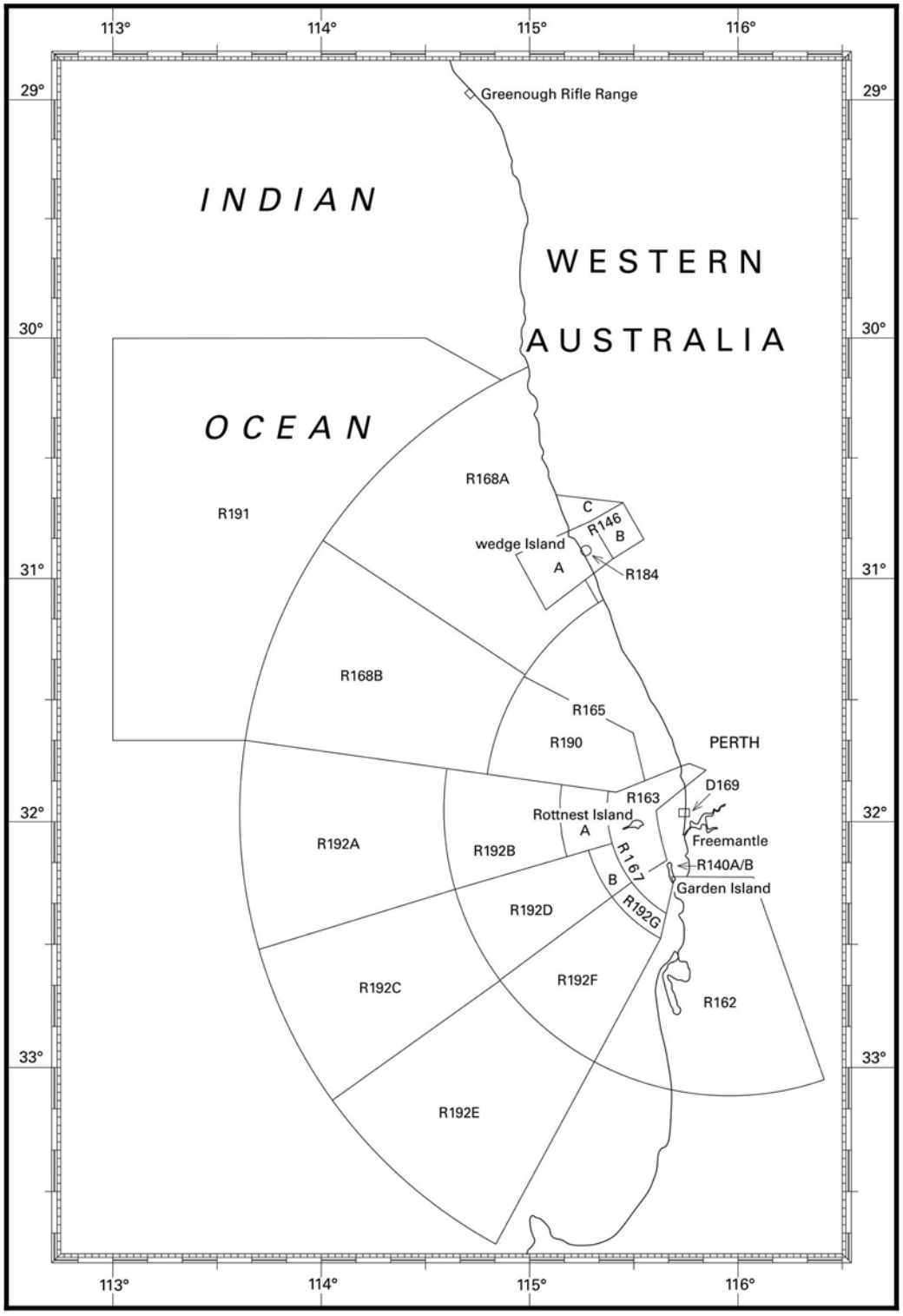
The principal types of practice include the following:

1. **Bombing practice from aircraft.—**Warning signals usually shown.

2. **Air-to-air, air-to-sea or air-to-ground firing.—**Air-to-air firing is carried out by aircraft at a large white or red sleeve, a winged target, or a flag towed by another aircraft moving on a steady course. Air-to-sea firing or air-to-ground firing is carried out from an aircraft at towed or stationary targets on sea or land, the firing in each case being directed seawards.

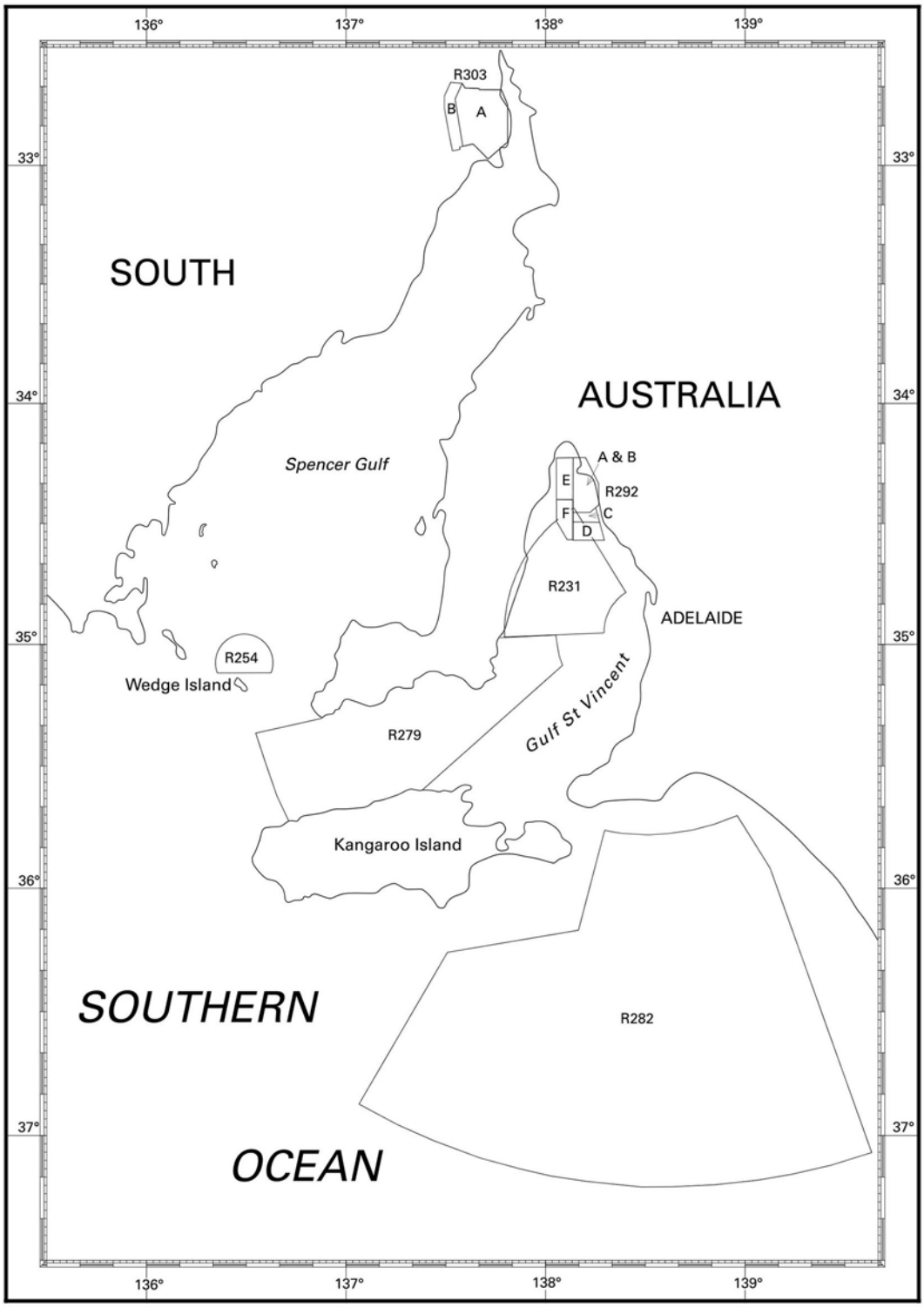
3. **Anti-aircraft firing.—**This may from anti-aircraft guns or machine guns directed at a target towed by an aircraft, a unpiloted aircraft, a balloon, or a kite. Firing may take place from shore batteries or ships.

4. **Firing from shore batteries or ships.—**Firing at fixed



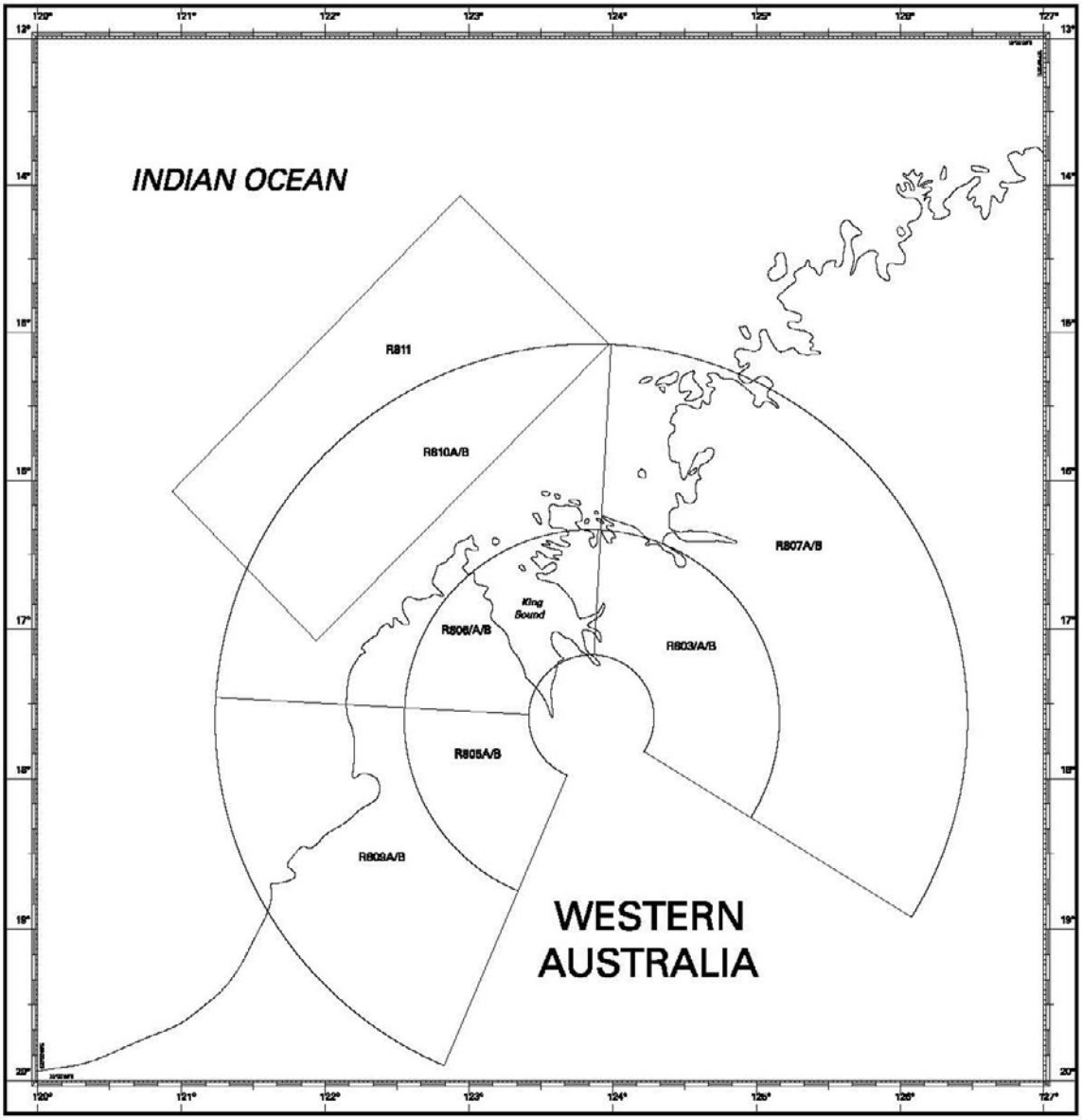
Courtesy of the Australian Hydrographic Service

Chartlet No. 9



Courtesy of the Australian Hydrographic Service

Chartlet No. 10



Courtesy of the Australian Hydrographic Service

Chartlet No. 12

or floating targets.

5. **Remote-controlled craft.—**Surface craft, orange in color and 6.4m long, carry no distinctive shapes or lights. They are, however, fitted with navigation lights appropriate to the size in accordance with 72COLREGS. These craft are remotely controlled from helicopters, ships, and, occasionally, from shore.

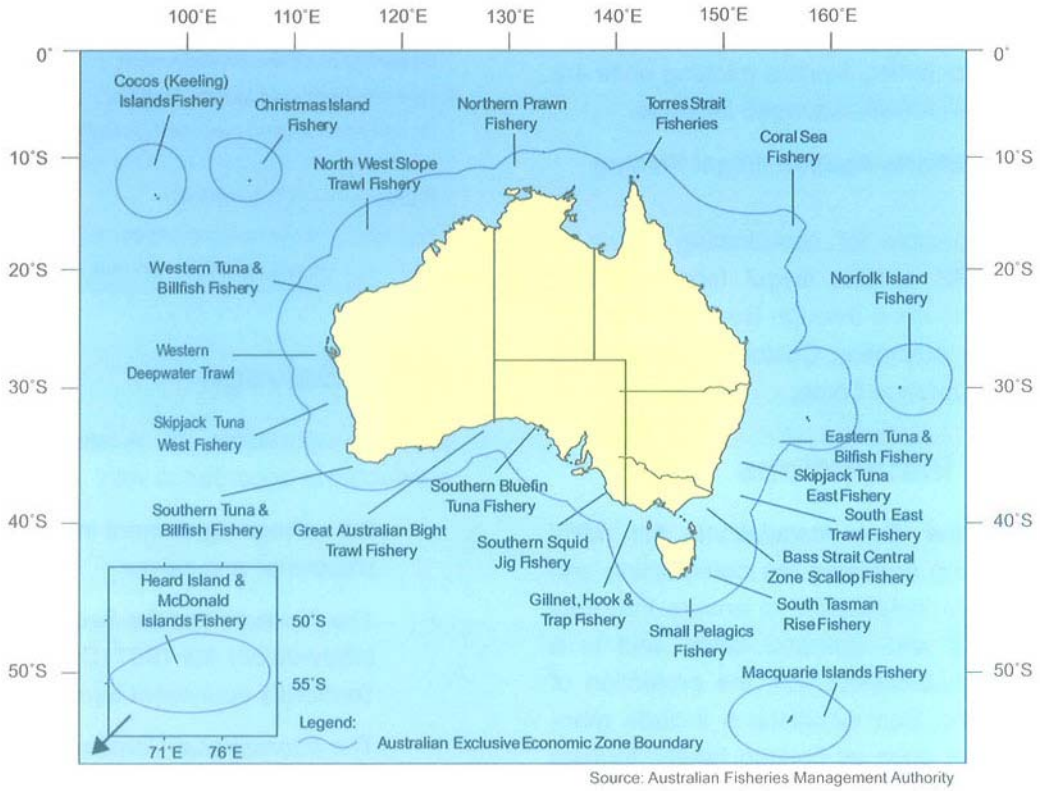
6. **Rocket and guided weapons firing.—**These may take the forms as listed in paragraphs 1, 2, and 3 above. All such firings are conducted under Clear (Air and Sea) Range procedures. Devices are generally incorporated whereby the missiles may be destroyed should their flight be erratic.

Visual Warning Signals

Visual warning signals are used, as follows:

1. Ships engaged in firing operations fly a red flag during daylight hours.
2. Range safety craft, target towers, or control launches for radio-controlled towers will display the following:
   a. A large red flag at the masthead.
   b. A painted canvas strip (dimensions: 1.8m by 0.9m) with red and white or red and yellow checks in 0.3m squares on the foredeck or cabin roof.

Ships and aircraft engaged in night exercises may illuminate the area with bright white flares.



Australia—Fishing Areas

Vessels should comply with all requests made by range safety craft.

The absence of warning signals should not be used as evidence that an exercise is not underway.

Definitions

A Restricted Area (R) is an area of defined dimensions within which certain restrictions are applied to aircraft. When shown as an R Area in Notices to Mariners, the air activity extends to sea level and the nature of the activity is such that dangers to maritime traffic may exist at specified times within the area.

A Prohibited Area (P) is an area of defined dimensions within which ships are not permitted at any time under any circumstances.

A Surface Restricted Area (SR) is a surface area of defined dimensions within which activities dangerous to maritime traffic may exist at specified times. The restriction is applicable to maritime traffic only.

The limits of all the areas are laid down numerically by States. Naval practice firings outside of the declared areas may be approved by the Department of Defense (Navy Office) from time to time. Warnings concerning firing practices are promulgated by Notices to Airmen (NOTAM) originated by the RAN and RAAF.

Fishing Areas

Extensive commercial fishing activities take place off the coast. Floating buoys and their associated moorings should be avoided.

South Australia.—Extensive lobster fishing is carried out from November to June between the vicinity of Margaret Brock Reef (36°58'S., 139°36'E.) and Cape Nelson (38°26'S., 141°32'E.) and between the shore and the 150m curve. Vessels are requested to keep at least 10 miles clear of Cape Banks (37°54'S., 140°23'E.).

General

Vessels are requested to transit off the coast in accordance with the following recommendations, if possible:

1. South Australia, Victoria, and Western Australia—outside the 200m curve.
2. New South Wales—outside the 220m curve.

A significant level of commercial fishing takes place in Torres Strait during the prawn season, which occurs from May through September. These vessels work exclusively at night and anchor in the lee of the islands by day.

Pearl beds, which may be floating or fixed structures, and their associated moorings should be avoided. The beds are generally marked by buoys or beacons, which may be lit.

Government

Flag of Australia

Australia, a fully independent nation within the British Commonwealth of Nations, is a democratic federal/state system recognizing the British monarch as sovereign. The country is divided into six states and two territories.

Elizabeth II, recognized as the Chief of State, appoints a Governor-General. The bicameral Parliament is composed of a 76-member Senate (directly elected to 6-year terms) and a 150-member House of Representatives (directly elected through proportional representation to 3-year terms).

The legal system is base on English common law.

The capital is Canberra.

Dependent Islands

The Cocos (Keeling) Islands

The **Cocos (Keeling) Islands** (12°05'S., 96°53'E.) lie in the Indian Ocean about 2,770 miles NW of Perth. The group is formed by two separate atolls and consists of some 27 small coral islands with a total area of about 14.2 km2.

The islands are low-lying, flat, and thickly covered by coconut palms. They surround a lagoon in which vessels, with drafts of up to 7m, may anchor, but which is extremely difficult for navigation.

The islands were placed (1955) under the authority of the Australian Government as the Territory of Cocos (Keeling) Islands. An Administrator, appointed by the Governor-General, is the government's representative in the Territory and is responsible to the Minister for Territories and Local Government.

West Island is the largest of the group and the site of the airport. The climate is pleasant, being moderated by the SE trade winds for 9 months of the year.

The observed Standard Time is 6 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

Christmas Island

Christmas Island (10°25'S., 105°40'E.), an isolated peak, lies in the Indian Ocean, about 225 miles S of the W end of Java. It is under the control of the Australian Government with an Administrator responsible for local administration. Extraction and export of rock phosphate dust is the island's only industry. The island is about 11 miles long and 4.5 miles wide.

The Time Zone description is GOLF (-7). Daylight Savings Time is not observed.

Heard Island and the McDonald Islands

Heard Island and the **McDonald Islands** (53°00'S., 73°00'E.) lie about 2,500 miles SW of Fremantle and are under the control of the Australian Government. Heard Island, of volcanic origin, is about 27 miles long and 13 miles wide; Shag Island lies about 5 miles N of it. The McDonald Islands lie 26 miles W of Heard Island and consist of two small islands and a rock. All the islands are barren and uninhabited.

The islands are located within a marine reserve. Vessels may transit the territorial sea under innocent passage but a permit is required for all other activities.

The Time Zone description is GOLF (-7). Daylight Savings Time is not observed.

Macquarie Island

Macquarie Island (54°36'S., 158°53'E.) is located in the Southern Ocean approximately 810 miles SE of Tasmania. Sovereignty was claimed by Britain in 1825 and Macquarie Island became part of the colony of Van Diemans Land, which subsequently became Tasmania, and part of the Commonwealth of Australia.

Macquarie Island is 21 miles long and approximately 3 miles wide. It is geologically unique, being the only place on Earth where rocks from the Earth's mantle are exposed above sea level. There are no trees on the island, which is covered by tussock grass and other low growing plants. Most of the island consists of a plateau at a general elevation of 245m, rising to low rounded spurs and hills ranging in height from 365 to 425m. The edge of the plateau falls away abruptly to the sea or to narrow beaches. Landing is difficult.

The island is home to a variety of wildlife, including elephant and fur seals, penguins, and numerous sea birds. A penguin colony at Hurd Point is home to over 1 million birds during the breeding season.

The climate is sub-Antarctic and characterized by persistent strong winds, cloudy skies, and frequent precipitation of rain or snow. Winds are predominantly from the W and NW at an average speed of about 16 knots. Mean annual temperatures range from about 3°C to 7°C. There is no permanent snow or ice cover. The island is often obscured by mist or low cloud.

Norfolk Island

Norfolk Island (29°02'S., 167°57'E.) lies in the Pacific Ocean about 860 miles NE of Sydney. The island, discovered by James Cook in 1714, became part of Australia in 1914 when it was accepted as a Territory under the authority of the Australian Government

The Territory of Norfolk Island comprises Norfolk Island, Philip Island, and Nepean Island.

Norfolk Island is a self-governing territory, controls its own treasury, and raises revenue under its own system of laws.

Coral Sea Islands

The Coral Sea Islands Territory, situated in two areas of the Coral Sea, is approximately 782,000 square kilometers in area. The territory was established in 1969.

The coral and sand islands are quite small with some grass and low vegetation cover. There is no fresh water. Most of the islands have been declared nature reserves and are normally uninhabited.

Ashmore and Cartier Islands

The Territory of Ashmore and Cartier Island, comprising West Island, Middle Island and East Island of Ashmore Reef; Cartier Island; and the 12-mile territorial sea generated by those islands, lies about 450 miles W of Darwin and about 170 miles off the NW coast of Australia.

Ashmore Island (12°14'S., 123°04'E.) is located on the outer edge of the Australian continental shelf in the Indian Ocean; Cartier Island lies about 33 miles SE of Ashmore Island.

Much of the territory is declared a Nature Reserve and Marine Reserve, with many areas closed to the public. Access to East Island and Middle Island is by permit only. The area within 4 miles of Cartier Island is closed to all persons. An agreement between Australia and Indonesia allows traditional Indonesian fishermen access to certain parts of Ashmore Reserve to access fresh water, seek shelter, and visit grave sites.

Holidays

The following holidays are observed:

January 1 *	New Year's Day
January 26 *	Australia Day
First Monday in March	Labor Day (Western Australia only)
Second Monday in March	Labor Day (Victoria only)
Good Friday	Variable
Easter Saturday	Variable
Easter Sunday	Variable
Easter Monday	Variable
April 25	ANZAC Day
First Monday in May	Labor Day (Northern Territory and Queensland only)
Second Monday in June	Queen's Birthday (except Western Australia)
Last Monday in September/first Monday in October	Queen's Birthday (Western Australia only)
First Monday in October	Labor Day (Australian Capital Territory, South Australia, and New South Wales only)
December 25	Christmas Day
December 26	Boxing Day

* If the holiday falls on a Saturday or Sunday, it is observed on the following Monday.

The following additional holidays in Australia are observed locally:

1. Northern Territory:
   - Alice Springs Show Day (July)
   - Tennant Creek Day (July)
   - Katherine Show Day (July)
   - Darwin Show Day (July)
   - Borroloola Show Day (June)
   - Picnic Day (August)
2. Australian Capital Territory:
   - Canberra Day (March)
   - Family and Community Day (September)
3. South Australia:
   - Adelaide Cup Day (March)
   - Proclamation Day (December 26)
4. Tasmania:
   - Devonport Cup Day (January)
   - Hobart Regatta (February)
   - Launceton Cup Day (February)
   - Eight Hours Day (March)
   - King Island Show Day (March)
   - AGFEST (May)
   - Burnie Show Day (October)
   - Royal Launceton Show Day (October)
   - Flinders Island Show Day (October)
   - Royal Hobart Show Day (October)
   - Recreation Day (November) (northern Tasmania only)
   - Devonport Show Day (December)
5. Western Australia:
   - Foundation Cup Day (June)
   - Melbourne Cup Day (November)

The following holidays are observed on Christmas Island:

January 1	New Year's Day
Chinese New Year	Variable
Good Friday	Variable
Hari Raya Puasa	Variable
Mari Raya Haji	Variable
December 25	Christmas Day

Ice

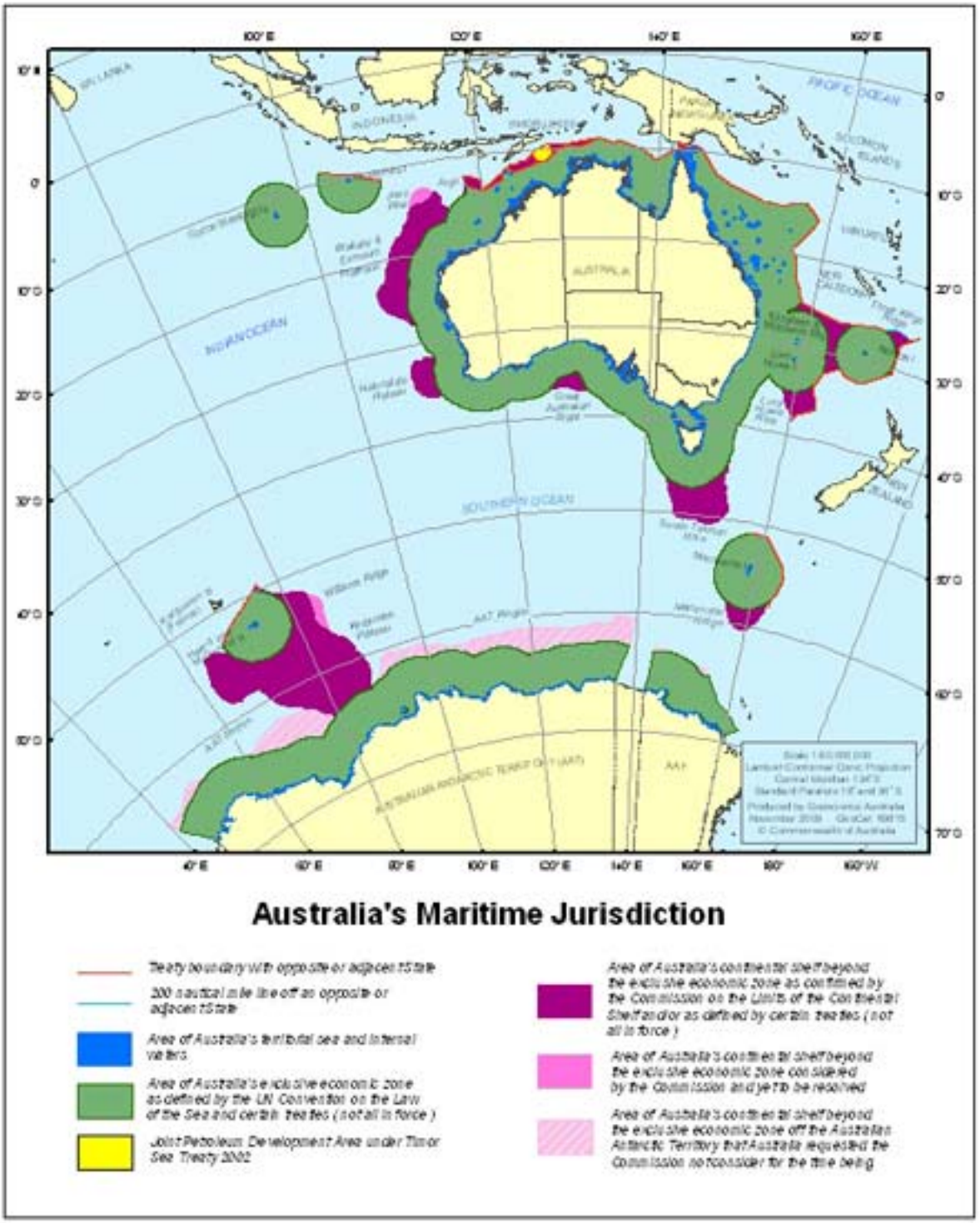
Icebergs, some of immense size, may drift in from Antarctica. The mean northernmost limit, usually reached during the first quarter, extends from a point about 150 miles S of Cape Leeuwin, then E to near longitude 130°00'E, and then SE to a position about 400 miles S of Cape Northumberland.

Industries

The main industries are mining, industrial and transportation equipment, food processing, chemicals, and steel.

The main exports are coal, gold, meat, wool, aluminum, iron ore, wheat, machinery, and transport equipment. The main export trading partners are China, Japan, and South Korea.

The main imports are machinery and transport equipment, computers and office machines, telecommunications equipment and parts, and crude oil and petroleum products. The main import-trading partners are China, the United States, Japan, and Singapore.



Courtesy of Geoscience Australia (http://www.ga.gov.au)

Australia's Maritime Jurisdiction

Languages

English is the official language. There are some native dialects in use.

Meteorology

Marine weather forecasts and high seas warnings are available in English from the Australian Commonwealth Bureau of Meteorology.

Bureau of Meteorology Home Page

http://www.bom.gov.au/marine

Mined Areas

The following areas are declared dangerous due to mines laid during the war of 1939-1945:

1. **Napier Broome Bay.—**An area within a circle, with a radius of 1 mile, centered on position 14°04'S, 126°40'E.
2. **Cartier Island.—**An area within a circle, with a radius of 5 miles, centered on position 12°32.0'S, 123°32.5'E.

Due to the elapse of time, the risk in these areas to surface navigation is now considered no more dangerous than the ordinary risks of navigation. However, a very real risk still exists with regard to anchoring, fishing, or carrying out any form of submarine or sea bed activity.

Navigational Information

Enroute Volumes

Pub. 127, Sailing Directions (Enroute) East Coast of Australia and New Zealand.

Pub. 175, Sailing Directions (Enroute) North, West, and South Coasts of Australia

Maritime Claims

The maritime territorial claims of Australia are, as follows:

Territorial Sea *	12 miles. **
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Claims Anxious Bay, Rivoli Bay, Encounter Bay, and Lacepede Bay as historic waters.

** Certain islands in Torres Strait retain a territorial sea limit of 3 miles. A special claim extends the territorial sea limit to include a roadstead of the port of Karumba in the Gulf of Carpentaria.

Maritime Boundary Disputes

Indonesian groups have challenged Australia's claim to Ashmore Reef (12°15'S., 123°03'E.) and Cartier Island (12°32'S., 123°32'E.).

Offshore Drilling

Petroleum exploration rigs and production platforms may be encountered off the coasts of Australia. The main areas of activity are in the NE part of Bass Strait, in the Timor Sea, and off the NW coast of Australia, especially in the vicinity of Varanus Island (20°39'S., 115°35'E.), E of Barrow Island and the Montebello Islands, up to 85 miles WNW through N of the Dampier Archipelago, NW of Mary Ann Passage (21°12'S., 115°28'E.), and about 25 miles NNW of North West Cape (21°48'S. 114°10'E.). Isolated rigs may be encountered anywhere.

Safety zones extend a radius of 500m around fixed structures. Only authorized vessels may enter the safety zones. A cautionary zone may also extend a radius of 2.5 miles around the structure.

Drill rigs are moored within a ring of large anchor buoys; this ring may exceed a diameter of 1 mile. The anchor buoys are unlit and may not give a good radar return.

When there is sufficient sea room to do so, vessels should not pass within 2.5 miles of exploration rigs or production platforms, giving sufficient allowance for prevailing weather conditions and the possibility of engine, steering, or other mechanical failure.

Production platforms and exploration rigs maintain a continuous listening watch on VHF channel 16.

Pollution

Insurance Requirements

All vessels 400 gross tons and over carrying oil as cargo or bunkers must have a "relevant insurance certificate" when visiting an Australian port. This requirement does not apply to oil tankers already required to have insurance under the International Convention on Civil Liability for Oil Pollution Damage 1992. The "relevant insurance certificate" must contain the following information:

1. Vessel name.
2. Owner's name.
3. Name and business address of insurance provider.
4. Commencement date of insurance coverage.
5. Amount of coverage provided.

Further information on these requirements can be obtained from Environment Protection Standards of the Australian Maritime Safety Authority (AMSA), as follows:

1. Telephone: 02-6279-5007
2. E-mail: Using the contact form found at the AMSA web address listed below:

http://www.amsa.gov.au/Contact_Us

Pollution Reports

All vessels navigating within Australian territorial waters must report incidents involving the following:

1. A discharge or probable discharge of oil, or noxious liquid substances in bulk, resulting from damage to the vessel or its equipment, or for the purposes of securing the safety of a vessel or saving life at sea **(Harmful Substances (HS) Report)**.
2. A discharge or probable discharge of harmful sub-

stances in packaged form, including those of freight containers, portable tanks, road and rail vehicles, and shipborne barges **(Marine Pollutants (MP) Report)**.

3. A loss or likely loss overboard into the sea of packaged dangerous goods, including those in freight containers, portable tanks, road and rail vehicles, and shipborne barges **(Dangerous Goods (DG) Report)**.

4. Damage, failure, or breakdown of a vessel 15m long or greater which either:

a. Affects the safety of the ship, including but not limited to collision, grounding, fire, explosion, structural failure, flooding, and cargo shifting.

b. Results in impairment of the safety of navigation, including but not limited to failure or breakdown of steering gear, propulsion plant, electrical generating system, and essential shipborne navigational aids.

5. A discharge during the operation of the ship of oil or noxious liquid substances in excess of the quantity or instantaneous rate permitted under the current MARPOL Convention.

The pollution report (POLREP) should be sent to the General Manager, Ship Safety Division in the Australian Maritime Safety Authority (AMSA), Canberra through JRCC Australia. JRCC Australia can be contacted 24 hours, as follows:

1. Telephone: 61-2-6230-6811
   1-800-641-792 (toll free in Australia)
2. Facsimile: 61-2-6230-6868
   1-800-622-153 (toll free in Australia)
3. E-mail: rccaus@amsa.gov.au

Information required in the three reports can be found in Appendix II in the table titled Australia—Pollution Reports by Vessels Suffering a Casualty.

Vessels rendering assistance or undertaking salvage work with vessels who have submitted an HS Report or an MP Report are also required to submit these reports. Information required by these reports can be found in Appendix II in the table titled **Australia—Pollution Reports by Vessels Rendering Assistance or Undertaking Salvage Work**.

Regulations

Ship Pre-Arrival Report

Foreign flag vessels are required to submit pre-arrival information using the Australian Customs Service's Form 13 (Ship Pre-Arrival Report); this information should be sent at least 96 hours prior to arrival or, as follows:

1. If the duration of the voyage from the previous port is less than 96 hours, the report should be submitted 72 hours in advance.
2. If the duration of the voyage from the previous port is less than 72 hours, the report should be submitted 48 hours in advance.
3. If the duration of the voyage from the previous port is less than 48 hours, the report should be submitted 24 hours in advance.
4. If the duration of the voyage from the previous port is less than 24 hours, the report should be submitted 12 hours in advance.

Australian Customs Service's Form 13 (Ship Pre-Arrival Report) can be obtained from the Australian Customs Service web site, as follows:

Australia Customs Home Page

http://www.customs.gov.au

The Ship Pre-Arrival Report contains security related fields requiring the following information:

1. Details of the International Ship Security Certificate (ISSC).
2. The current security level at which the ship is currently operating.
3. The last ten ports of call, with departure dates, and the security level at each port.
4. When the security level at any of these ports is different from that of the ship, details of any special/specific security measures implemented by the ship.
5. Details of any ship-to-ship activity within the last ten ports of call.
6. Next four ports of call, including Australian ports, where known.

Quarantine

The Department of Agriculture and Water Resources (formerly the Department of Agriculture, Fisheries, and Forestry (DAFF)) currently requires all vessels 25m long and over arriving in Australia from overseas, or who have been in contact with overseas vessels or sea installations, to submit a Pre-Arrival Report (PAR) to the Department of Agriculture and Water Resources. Vessels must submit the PAR 96 to 12 hours prior to arriving at an Australian port. The PAR provides important information to the Department of Agriculture and Water Resources to conduct a biosecurity risk assessment of the vessel prior to its arrival at an Australian port.

The preferred PAR submission method is electronically (eQPAR Form 009), although a written submission (PAR Form 010a) submitted through the vessel's agent may also be accepted. The report can be accessed from the Department of Agriculture and Water Resources web site.

Department of Agriculture and Water Resources Home Page

http://www.agriculture.gov.au

Department of Agriculture and Water Resources (eQPAR Form 009 and PAR Form 010a)

http://www.agriculture.gov.au/biosecurity/avm/vessels/vessel-clearance/vessels

Vessels submit a Ballast Water Report if it is intended that the vessel will discharge, or has already discharged, ballast water in Australian waters (within 12 miles of the Australian baseline). The report should be provided 12 to 96 hours prior to the intended discharge. Reports are to be submitted to the Maritime National Coordination Center by e-mail (mmaritimencc@agriculture.gov.au) or by facsimile (1-300-005-882 when inside Australia or 6-18-8201-6176 when outside Australia).

Vessels discharging ballast water using a Ballast Water Management System will submit a Ballast Water Management System Report (Form AG09). Other vessels will submit a Ballast Water Report other than Ballast Water Management Systems (Form AG23). These forms can be accessed from the Department of Agriculture and Water Resources web site.

Department of Agriculture and Water Resources Ballast Water Management (Form AG09 and Form AG23)

http://www.agriculture.gov.au/biosecurity/avm/vessels/quarantine-concerns/ballast

Vessels intending to visit a non-proclaimed port, defined as a remote port with no active Department of Agriculture and Water Resources presence, must obtain prior permission to do so by submitting the Department of Agriculture and Water Resources Form 20AA at least 10 days prior to arrival at the port. Copies of the form can be accessed from the Department of Agriculture and Water Resources web site.

Department of Agriculture and Water Resources Form 20AA

http://www.agriculture.gov.au/biosecurity/avm/vessels/vessel-clearance/s20aa-s33-applications-guides

Note.—The Department of Agriculture and Water Resources is preparing to launch (2016) a new system called the Maritime Arrivals Reporting System (MARS). The system will be used for vessels arriving at a pilot location as a first port only. A pilot program covering only Mackay and Gladstone came into operation in July 2016. Further information can be found on the Department of Agriculture and Water Resources home page at the following links:

MARS—Pilot and Implementation

http://www.agriculture.gov.au/biosecurity/avm/vessels/mars/pilot

MARS—Communications and Training Materials

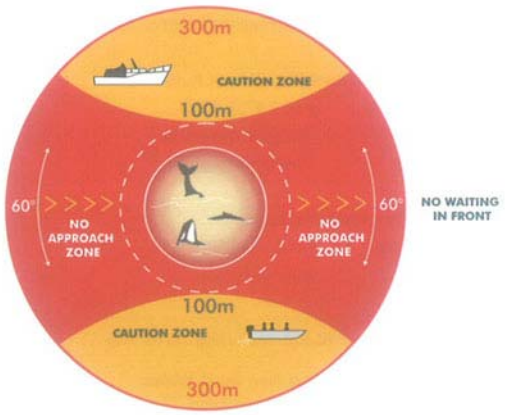
http://www.agriculture.gov.au/biosecurity/avm/vessels/mars/mars-/communications-training-materials

Department of Agriculture and Water Resources First Ports of Entry are, as follows:

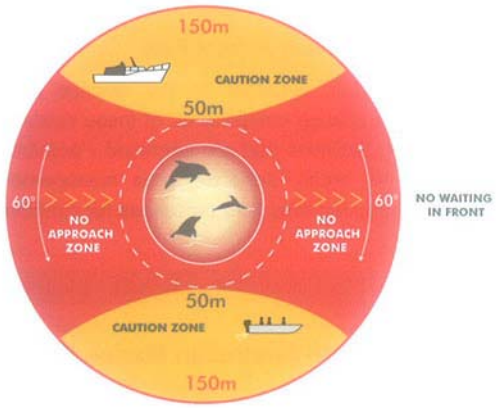
1. Queensland (listed from N to S)—
   a. Weipa.
   b. Cairns.
   c. Mourliyan Harbour.
   d. Lucinda.
   e. Townsville.
   f. Mackay.
   g. Hay Point (Dalyrimple Bay).
   h. Port Alma.
   i. Gladstone.
   j. Bundaberg.
   k. Brisbane.
   l. Bowen.
   m. Port Kennedy.
2. New South Wales—
   a. Yamba.
   b. Coff's Harbour.
   c. Lord Howe Island.
   d. Newcastle.
   e. Sydney, including Port Jackson.
   f. Botany Bay (Sydney).
   g. Port Kembla.
   h. Eden (Twofold Bay).
3. Victoria (listed from E to W)—
   a. Westernport.
   b. Melbourne.
   c. Geelong.
   d. Portland.
4. Tasmania (listed from E to W)—
   a. Hobart, including Risdon and Selfs Point.
   b. Launceton, including Beauty Point, Bell Bay, and Long Reach.
   c. Devonport.
   d. Burnie.
   e. Port Latta.
   f. Port Huon.
   g. Spring Bay.
   h. Stanley.
5. South Australia (listed from E to W)—
   a. Port Adelaide.
   b. Androssan.
   c. Port Giles.
   d. Wallaroo.
   e. Port Pirie.
   f. Port Bonython.
   g. Whyalla.
   h. Port Lincoln.
   i. Cape Thevenard.
6. Western Australia (listed from S to N)—
   a. Esperance.
   b. Albany.
   c. Bunbury.
   d. Fremantle, including Kwinana.
   e. Geraldton.
   f. Carnarvon.
   g. Exmouth.
   h. Dampier.
   i. Port Hedland.
   j. Broome.
   k. Derby.
   l. Port Walcott.
   m. Wyndham.
7. Northern Territory (listed from W to E)—
   a. Darwin.
   b. Melville Bay.
   c. Miller Bay.

Single Hull Oil Tankers (SHOT)

Australia is in the process of phasing in a ban on all SHOT



Approach Distances for Whales



Courtesy of Australian Seafarer's Handbook

Approach Distances for Dolphins

by 2010. Further information can be found in Australian Maritime Safety Organization (AMSA) Marine Notice 13/2004, at the AMSA website, as follows:

AMSA Marine Notices 2004
http://www.amsa.gov.au/shipping_safety/Marine_Notices/2004/index.asp

Submarine Cable Protection Zones

Australia has established Submarine Cable Protection Zones to prevent damage to critical underwater telecommunications cables, as follows:

1. **Western Australia—Perth Protection Zone.—**Extends from City Beach, Perth for 51 miles offshore or to a depth of 2,000m. The zone extends 1 mile on either side of the SEA-ME-WE3 Cable, which links Australia's communications network with Southeast Asia, the Middle East, and western Europe.
2. **New South Wales:**
   a. **Northern Sydney Protection Zone.—**Extends from Narrabeen Beach for 40 miles offshore or to a depth of 2,000m, covering the N branches of the Australia-Japan Cable, the Southern Cross Cable, the Pipe Pacific Cable, the Australia-Papua New Guinea Cable, and the Gondwana Cable. The zone extends 1 mile on either side of each cable and includes the area between the two cables.
   b. **Southern Sydney Protection Zone.—**Extends from Tamarara Beach and Clovelly Beach for 30 miles offshore or to a depth of 2,000m, covering the S branches of the Australia-Japan Cable, the Southern Cross Cable, the Tasman 2 Cable, and the Endeavor Cable. The zone extends 1 mile on either side of each cable and includes the area between the two cables.

Further information concerning the exact location of Submarine Cable Protection Zones, as well as prohibited and regulated activities within these areas, can be found at the Australian Communications and Media Authority (ACMA) web site, as follows:

ACMA Home Page (Submarine Cables)
http://www.acma.gov.au/subcables

Marine Mammals

Cetaceans (including porpoises, dolphins and whales) in Commonwealth waters are protected under the *Environmental Protection and Biodiversity Conservation Act 1999* which established the Australian Whale Sanctuary encompassing the waters of the Australian Exclusive Economic Zone.

It is an offense to kill, interfere with, injure, take, trade, keep, or move a cetacean in the Australian Whale Sanctuary. Interference with a cetacean includes harassing, chasing, herding, tagging, marking, or branding.

Australia—Whale Information

Species	Status	Location	Time Frame
Blue whale	Endangered	All Australian waters but primarily off the Perth Canyon (Western Australia), Geographe Bay (Western Australia), and the Bonney Upwelling (southeast Australia to western Victoria).	Migration patterns are poorly known.
Southern right whale	Endangered	All Australian waters, except off Northern Territory, but primarily off the S coast of Australia from Perth (Western Australia) to Eden (New South Wales).	May to November.

Australia—Whale Information			
Species	**Status**	**Location**	**Time Frame**
Humpback whale	Vulnerable	All Australian waters, except off Northern Territory, but primarily off the S. Migration occurs along the E and W coasts of Australia.	May to November.
Sei whale	Vulnerable	Recorded in the waters of Western Australia, South Australia, Tasmania, and Queensland.	Migration patterns are poorly known.
Fin whale	Vulnerable	Recorded in the waters of Western Australia, South Australia, Tasmania, Victoria, and Queensland.	Migration patterns are poorly known.

Regulations for watching whales and dolphins are in place in all Australian waters. These aim to minimize disturbance and interruptions to the normal behavior patterns of the animals. The diagrams in the graphics titled **Approach Distances for Whales and Approach Distances for Dolphins** give the minimum approach distance and show the best strategies for vessels to approach whales and dolphins.

Whales and dolphins may come close to vessels. In this instance ship masters should take precautions to avoid a collision, either by slowing down and steering away from the animal or placing the engines in neutral and let the animal pass.

Queensland

Vessels on arrival at any port in Queensland should obtain a copy of the port regulations.

The following sound signals are in force in Queensland rivers:

1. The master of every powered vessel shall, immediately before casting off from any wharf or jetty in any river in Queensland, signify his purpose to do so by a prolonged blast on the whistle or siren.
2. The master of every powered vessel proceeding up any river in Queensland and approaching any bend shall sound on the whistle or siren a short blast followed by a long blast. The master of any vessel proceeding down any river and approaching any bend shall sound on the whistle or siren a long blast followed by a short blast.
3. When a powered vessel underway in any river in Queensland is about to turn around, the master shall signify such purpose by four short blasts on the whistle or siren followed, after a short interval, if turning with its head to starboard, by one short blast and, if with its head to port, by two short blasts; and, while such vessel is turning shall repeat such signal to any approaching vessel; the master of the latter vessel shall take action to avoid collision.
4. Power-driven ferries operating across Queensland rivers, exhibit a green light visible all-round the horizon, at each end of the vessel.
5. In the Brisbane River, when such vessels are underway, they exhibit an additional red flashing light visible all-round the horizon, from a position midway between the center of the ferry and the forward green light.

Speed.—Every powered vessel when underway within the limits of any port in Queensland, shall be navigated at such reduced speed as to not endanger the safety of any other vessel or vessels or moorings, or cause damage thereto, or to the banks of any river, or to any wharf, jetty, dredged channel, beacon, buoy, or other harbor improvement.

When passing a berthed container vessel with the portainer boom in the lowered position, vessels should approach at the minimum possible speed and, if possible, stop their engines when passing.

Vessels with drafts over 2m must not exceed the prescribed speed limits for the various ports.

Customs.—The Collector of Customs has appointed certain stations for the boarding or landing of customs officers at the various ports in Queensland.

The signal to be shown for stopping vessels at such stations shall be “SQ” of the International Code of Signals, or a red light at night.

Explosives.—Vessels carrying explosives in excess of 20 pounds are forbidden to proceed beyond certain points at ports in Queensland. For details, see Pub. 127, Sailing Directions (Enroute) East Coast of Australia and New Zealand.

Western Australia

Masters of vessels must obey all directions given by the harbormaster regarding the anchorage location and the vessel’s approach to it, coming alongside or leaving a jetty or wharf, and the mooring and securing of the vessel.

Vessels shall not anchor in or near the middle of any fairway, channel, or river. Vessels detained in the fairway, channel, or river shall lie as close to one side as possible. Cables, chains, hawsers, or ropes shall not be placed across any fairway, channel, or river without permission from the harbormaster.

Only the pilot or Health Officer shall be allowed alongside or on board a vessel en route from a non-Australian port prior to being cleared by the Health Officer. Personnel on board the vessel will not be allowed to leave the vessel until it has been cleared by the Health Officer and the Customs Officer.

Search and Rescue

JRCC Australia, a unit of the Australian Maritime Safety Authority (AMSA), is responsible for both maritime and aviation search and rescue operations.

When a ship or an aircraft is in distress in the Australian Search and Rescue Region (SRR), the boundaries of which are identical to the boundaries of the Modernized Australian Ship Tracking and Reporting System (MASTREP) area, assistance may be given by vessels in the vicinity and/or the following authorities:

1. The Australian Maritime Safety Authority (AMSA), through the Rescue Coordination Center Australia (JRCC Australia), is responsible for search and rescue for civil aircraft, for merchant ships outside port limits, and for small

craft beyond the capacity of regional SAR resources. JRCC Australia, located in Canberra, coordinates aircraft and surface vessels involved in search and rescue operations within the Australian SRR and can be contacted, as follows:

a. Telephone: 61-2-6230-6811
b. Facsimile: 61-2-6230-6868
c. E-mail: rccaus@amsa.gov.au

JRCC Australia is also the Australian Mission Control Center (AUMCC) for the COSPAS/SARSAT International Satellite System used for the detection of distress beacons. It is manned continuously and may be contacted through the AMSA HF DSC network or via INMARSAT.

Australian Maritime Safety Authority (Search and Rescue)

http://www.amsa.gov.au/search_and_rescue

2. The AMSA HF DSC Network, which has stations located in Wiluna (Western Australia) and Charleville (Queensland), is controlled from JRCC Australia and will respond to initial calls on HF DSC. Vessels wishing to communicate with the HF DSC network (station identifier: JRCC Australia; call sign: VIC; MMSI number 005030001) are required to initiate a DSC call on the International Distress Alerting Frequencies (4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz, and 16804.5 kHz). The INMARSAT Land Earth Station (LES) at Perth provides communications through both the Indian Ocean Region (IOR) and Pacific Ocean Region (POR) satellites. Details of Australian Maritime Communications Stations (MCS) can be found in relevant International Telecommunications Union (ITU) and ALRS publications.

3. The Royal Australian Air Force (RAAF) is responsible for SAR operations involving Australian and foreign military land-based aircraft, but may provide assistance to other SAR authorities.

4. The Royal Australian Navy (RAN) is responsible for SAR in respect to naval ships and aircraft.

5. State and Territory Police Forces are responsible for SAR operations involving fishing vessels and pleasure craft within the limitations of their SAR resources, but may provide assistance to other SAR authorities.

Ships fitted with suitable radio equipment can make a significant contribution to safety by guarding an appropriate International distress frequency for as long as practicable, whether or not required to do so by regulations.

All Australian port radio stations use VHF channel 67 to supplement VHF channel 16 as a distress, safety, and calling frequency.

Masters of vessels operating within the Australian Search and Rescue Region (SRR) are advised that an Australian Government protocol for ships assisting people in distress at sea is in place. This protocol sets out important principles that must be recognized to ensure a smooth post-rescue effort while minimizing the disruption to the intended voyage of the rescuing vessel. It provides guidance to ships' masters on the processes to be followed in relation to landing people who have been rescued at sea. Copies of the protocol can be obtained from the web site listed below.

Protocol for Commercial Shipping Rescuing Persons at Sea in or Adjacent to the Australian Search and Rescue Region

http://www.dotars.gov.au/transinfra/sea_rescue.aspx

The protocol requires the master of a vessel participating in a rescue that is being coordinated by JRCC Australia to provide certain information to JRCC Australia. Reports can be made 24 hours, as follows:

AMSA HF DSC Network:	MMSI 00503001
Toll-free:	1-800-641-792
Telephone:	61-2-6230-6811
Facsimile:	61-2-6230-6868
E-mail	rccaus@amsa.gov.au

Volunteer Marine Rescue Groups

A number of volunteer marine rescue services operate closely with state marine authorities, police, customs, and various state rescue services. Assistance provided by these groups include radio monitoring, safety patrols, search and rescue assistance, and marshaling at sporting/leisure events. Further information about these groups can be obtained at the web sites listed in the table titled **Contact Information—Australia Volunteer Rescue Services**.

Contact Information—Australia Volunteer Rescue Services

Organization	Web Site
Australian Volunteer Coast Guard	http://www.coastguard.com.au
Marine Rescue New South Wales	http://www.marinerescuensw.com.au
Volunteer Marine Rescue Association Queensland	http://www.marineresuceqld.org.au
Volunteer Marine Rescue Western Australia	http://www.vmrwa.org.au
Northern Territory Emergency Service	http://www.nt.gov.au
Volunteer Marine Rescue Tasmania	http://www.slst.asn.au
South Australia Sea Rescue Squadron	http://www.sasearescue.org.au

Ship Reporting System

The Modernized Australian Ship Tracking and Reporting System (MASTREP)

The Modernized Australian Ship Tracking and Reporting System (MASTREP) is compulsory for foreign vessels from their arrival at their first Australian port until their departure from their final Australian port and for all regulated Australian vessels while in the MASTREP area. All other vessels are encouraged to participate when within the MASTREP area. Further information can be found in Appendix I—MASTREP.

Signals

Port Control Signals

When a port in Australia is closed to navigation, the following signals are shown:

1. By day, a black cone, point up, between two black balls, vertically disposed.
2. At night, a green light between two red lights, vertically disposed at the signal masthead.

Note.—When these signals are shown, no other masthead signals will be shown.

Caution.—Some ports have their own signals. See the appropriate Sailing Directions (Enroute) publication for the port concerned.

Port Priority Signals

In certain Australian ports, vessels of 35m or more in length (less in some ports), when navigating within the pilotage waters of the port and requiring a priority or right-of-way over other vessels, may display the following:

1. By day, when berthing or unberthing, the flag signals as prescribed in the Port Authority By-laws.
2. At night, two lights mounted vertically, 2m apart, the upper being green and the lower being red.

Navigation Signals

Navigation signals, shown 2m below the masthead, are used to indicate navigational risk due to the state of the sea on a bar, or to strong tidal currents or freshets in a river. These signals are given in the accompanying table titled **Navigation Signals.**

Navigation Signals		
Condition	**Day signal**	**Night signal**
Normal	No signal shown	
Moderate	Black cone, point down	Quick flashing green light
Dangerous	Two black cones, points down, vertically disposed	Quick flashing red light

Datum Signals.—This signal indicates that the yardarm Depth Signals are to be subtracted. If shown at the same time as Navigational Signals, the Datum Signal will be shown 2m below the Tide Signals and the Navigational Signals.

The Datum Signals are, as follows:

1. Day signal—Black cylinder.
2. Night signal—White light.

Tidal Signals

Tide Signals.—Tide Signals, shown from the masthead, refer to vertical movements of the tide only and are given in the accompanying table.

Tide Signals		
Tide	**Day signal**	**Night signal**
Flood tide	Black cone, point up	Green light
Ebb tide	Black ball	Red light
Slack water	Black cylinder	White light

Quarter Tide Signals.—When shown with other signals, they are displayed on the mast below the cross tree or the normal position of the crosstree. Quarter Tide Signals are not shown with Depth Signals. When considered sufficient by local authorities, only 1st Quarter and 3rd Quarter Signals will be shown to indicate 1st Half Tide and 2nd Half Tide. The signals are given in the accompanying tables.

Flood Tide Quarter Tide Signals		
Tide	**Day signal**	**Night signal**
1st Quarter	Black cone, point up	Green light
2nd Quarter	Black cone, point up over black cylinder	Green light over white light
3rd Quarter	Two black cones, points up, vertically disposed	Two green lights, vertically disposed
4th Quarter	Black cylinder over black cone, point up	White light over green light

Ebb Tide Quarter Tide Signals		
Tide	**Day signal**	**Night signal**
1st Quarter	Black ball	Red light
2nd Quarter	Black ball over black cylinder	Red light over white light
3rd Quarter	Two black balls, vertically disposed	Two red lights, vertically disposed
4th Quarter	Black cylinder over black ball	White light over red light

Depth Signals

Depths signals are shown at the yardarm, with whole meter signals being shown at the yardarm opposite the decimal signals.

The signals indicate the depth, in meters, above local port datum, which may differ from chart datum. Depth Signals, which are not displayed with Quarter Tide Signals, are given in

the accompanying table.

Depth Signals		
Depth	**Day signal**	**Night signal**
0.25m	Black ball	Red light
0.50m	Black cone, point up	Green light
0.75m	Black cylinder	White light
1m	Black ball over black cone, point up	Red light over green light
2m	Black ball over black cylinder	Red light over white light
3m	Black cone, point up, over black ball	Green light over red light
4m	Black cone, point up, over black cylinder	Green light over white light
5m	Two black cones, points up, vertically disposed	Two green lights, vertically disposed
6m	Black cylinder over black ball	White light over red light
7m	Black cylinder over black cone, point up	White light over green light
8m	Two black cylinders, vertically disposed	Two white lights, vertically disposed

Storm Warning Signals

When bad weather prevails or is expected, special reports and storm warnings are transmitted from the radio stations in the area affected. Daily weather reports and forecasts are also transmitted.

The following signals may be displayed when winds of force 8 or greater are expected:

1. Day signal—One black diamond.
2. Night signal—Two red lights, vertically disposed.

Weather reports and forecasts are posted up in post offices at various ports in Australia.

Within Queensland, warnings of tropical cyclones are sent by the Bureau of Meteorology, Brisbane, by telegram daily (including Sundays) to coastal radio stations.

Such warnings are also sent to postmasters, harbormasters, police, and general public broadcasting stations in and adjacent to areas likely to be affected. Coastal Radio Stations broadcast such warnings to all ships on receipt. The Bureau issues warnings at 6 hour intervals when a cyclone center is more than 150 miles from the coast. If less than 150 miles from the coast, additional warnings are issued.

For the information of vessels not fitted with a radio, a red pendant will be displayed at various ports and signal stations along the Queensland coast. (See Pub. 127, Sailing Directions (Enroute) East Coast of Australia and New Zealand).

This red pennant indicates that a storm warning message has been received, details of which may be obtained from the harbor officials or postmaster at any port or place where the signal is displayed; when it is displayed at a signal station or lighthouse, the details will be signaled, on demand; the reply to a demand for a storm warning message is made by the International Code, by day, and by light at night.

In addition, there are certain places where storm warning messages are available at the Post Office, but where no red pendent is displayed.

General Signals

General signals should be used by vessels in Australian ports. A vessel having pilotage exemption should display a white flag at the main or where it can best be seen.

The signals laid down in the International Code of Signals should be used by vessels having explosives on board or waiting for clearance from quarantine or requiring any of the following; pilot, customs, water, police, or medical assistance.

A vessel having inflammable cargo on board shall display at the masthead, by day, Flag "B" of the International Code of Signals, and by night will exhibit a red light, visible all-round the horizon.

A vessel swinging in a river or narrow channel should sound four short blasts on its whistle or siren, followed after a short interval by the appropriate sound signal to indicate its direction of movement.

Submarine Operating Areas

The entire Australian Exclusive Economic Zone (EEZ) is a permanently-established Australian submarine exercise area. Australian submarines may be encountered by day or at night while operating in any of the waters off the Australian coast. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by local coastal radio stations.

Warning Signals

Australian escort vessels fly the International Code Group "NE2" to denote that submarines, which may be submerged or surfaced, are exercising in the vicinity. Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

A submarine submerged in an exercise area at a depth too great to show the periscope may show the following pyrotechnic or smoke candle signals:

1. White smoke candles (with flame) indicate the submarine's position in response to a request from a ship or aircraft or as required.
2. Red pyrotechnic flares (may be accompanied by smoke candles repeated as often as possible) indicate that the submarine is carrying out emergency surfacing procedures. Vessels should keep clear and must not stop their propellers. Vessels must also standby to render assistance.

If the red pyrotechnic flare signal is sighted and the submarine does not surface within 5 minutes, it should be assumed that the submarine is in distress and has sunk. An immediate attempt should be made to fix the position in which the signal was sighted.

White smoke candles burn for up to 6 minutes; they emit white smoke and flame and can be seen day and night. Caution is necessary as they can be easily confused with the smoke and flame of aircraft marine markers and floats.

The red pyrotechnic flare is ejected up to an altitude of 100m. Its duration is 30-40 seconds and can be seen day and

night.

These signals may frequently be encountered in areas where Australian naval ships and aircraft exercise, whether or not submarines are present, and should not be confused with a submarine emergency radio beacon (SERB). In case of doubt, the object should be approached to visually confirm whether or not it is a SERB before reporting it.

Navigation Lights

Australian submarines have their masthead and side lights placed well forward and very low over the water in proportion to their length and tonnage. In particular, some submarines can only show a forward masthead light in calm confined waters. Other submarines may have the forward masthead light situated lower than the side lights. In addition, the main masthead light may be situated well forward of the midpoint of the submarine's length.

The stern light may be placed very low and may, at times, be partially obscured by spray and wash. In some cases, the stern light will be well forward of the aft part of the submarine and will not give a true indication of the submarine's length. The stern lights are invariably situated lower than the side lights.

The aft anchor light of a nuclear submarine at anchor is mounted on the upper rudder which is some distance astern of the hull's surface waterline. Hence, care must be taken to avoid confusing the submarine with two separate vessels of less than 50m in length.

The overall arrangement of submarine lights is unusual and may well give the impression of markedly smaller and shorter vessels. Their vulnerability to collision when proceeding on the surface and the fact that some submarines are nuclear powered dictates particular caution when approaching such vessels.

Nearly all Australian submarines are fitted with an amber quick-flashing light situated above or abaft the main steaming light. This additional light is for use as an aid to identification in narrow waters and areas of dense traffic. Australian submarines will normally exhibit this identification light under the above conditions and when entering or leaving a harbor at night.

Australian Collins class submarines exhibit a very quick flashing yellow identification light (120 flashes per minute). This identification light should not be confused with an air-cushioned vessel operating in a non-displacement mode, which displays the same light.

Sunken Submarine

A submarine which is disabled or in distress and unable to surface will try to indicate its position by firing red pyrotechnic flares and submarine emergency radiobeacons (SERB).

It may be impossible for a submarine to fire its flares or smoke candles. Correspondingly, a partially-flooded submarine may have only a certain number of smoke candles available and searching ships should not therefore expect many to appear.

Since oil slicks or debris may be the only indication of the presence or whereabouts of the sunken submarine, it is vitally important that surface ships refrain from discharging anything which might appear to have come from a submarine while they are in the submarine probability area. Searching ships and aircraft can waste many valuable hours in investigating these false contacts.

Some Australian submarine pyrotechnics can be fitted with message carriers. If a message has been attached, the pyrotechnic will be fitted with a dye marker, giving off a green color on the surface. Such a pyrotechnic should be recovered as soon as it has finished burning.

Australian Collins class submarines are fitted with a Submarine Launched EPIRB (SERB), which will be described later in this section.

In any submarine accident, time is the most vital factor affecting the chances of rescue of survivors, and, as the sighting of an indicator buoy may be the first indication that an accident has in fact occurred, it is vital that no time should be lost in taking action. The sighting of any flare or beacon should be reported at once to the nearest Australian Maritime Safety Authority (AMSA) Rescue Coordination Center (telephone: 1-800-641-792 or 61-2-6230-6811), the Navy, or the police. However, if vessels are unable to establish communications without leaving the vicinity of the submarine, it should be borne in mind that the primary consideration should be for vessels to remain standing by to rescue survivors and not leave the scene of the accident. Every effort should be made to include in the report the serial number of the beacon; this number is affixed on top of the SERB.

At any time after a submarine accident, survivors may start attempting to escape. Current policy dictates that survivors will wait before escaping, as follows:

1. Until rescue vessels are known to be standing by.
2. Conditions inside the submarine deteriorate to such an extent that an escape must be attempted.

It should be noted that, in certain circumstances, the latter situation may not arise through lack of air supply until several days after the accident. However, if the submarine is badly damaged, survivors may have to make an escape attempt immediately. Any ship finding a SERB should not therefore leave the position but stand by well-clear ready to pick up survivors.

The escapees will ascend nearly vertically and it is important to give plenty of sea room to enable them to do so safely.

On arrival at the surface, crew members may be exhausted or ill, and, if circumstances permit, the presence of a boat already lowered is very desirable. Some crew members may require a decompression chamber. Therefore, it is the aim of the authorities to get such a chamber to the scene as soon as possible.

In order that those trapped in the submarine shall be made aware that help is at hand, naval vessels drop small charges into the sea which can be heard from inside the submarine. There is no objection to the use of small charges for this purpose, but it is vital that they are not dropped too close since crew members in the process of making ascents are particularly vulnerable to underwater explosions, and may easily receive fatal injuries. A distance of about 0.3 mile is considered to be safe.

If no small charges are available, the running of an echo sounder or the banging of the outer skin of the ship's hull with a hammer from a position below the waterline are likely to be heard in the submarine, and such banging and/or sounding should therefore be carried out at frequent intervals.

Submarines may, at any time, release pyrotechnic floats which, on reaching the surface burn, with a flame and/or emit smoke which serve to mark the position of the wreck. They are also like to use this means to acknowledge sound signals.

In summary, the aims of a submarine rescue operation are, as follows:

1. Fixing the exact position of the submarine.
2. Getting a ship standing by to pick up survivors, if practicable, with boats already lowered.
3. Getting medical assistance to survivors picked up.
4. Getting a diver's decompression chamber to the scene in case this is required by those seriously ill after being exposed to great pressure.
5. Informing the trapped crew that help is at hand.
6. Notifying the appropriate authorities.

Submarine Emergency Radio Beacon (SERB)

The SERB is made of aluminum, colored orange, and is cylindrical in shape, with two whip aerials. The beacon is fitted with an automatic transmitting unit, with a battery life of 48 hours, and operating on the following frequencies:

a. 406.025 MHz—COSPAS/SARSAT/EPIRB.
b. 243 MHz—Military Air Guard.
c. 121.5 MHz—Civil Air Guard.

Time Zone

Australia is covered by multiple Time Zones, as follows:

1. Northern Territory—The observed Standard Time is 9 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.
2. South Australia—The observed Standard Time is 9 hours 30 minutes fast of UTC. Daylight Savings Time (10 hours 30 minutes fast of UTC) is maintained from the first Sunday in October until the first Sunday in April of the following year.
3. Western Australia—The Time Zone description is HOTEL (-8). Daylight Savings Time is not observed.
4. Christmas Island—The Time Zone description is GOLF (-7). Daylight Savings Time is not observed.
5. Cocos (Keeling) Island—The observed Standard Time is 6 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) off the coasts of Australia are, as follows:

1. South of Wilson Point in Bass Strait. (IMO adopted)
2. In Bass Strait. (IMO adopted)
3. Port Jackson. (Government of Australia)
4. Botany Bay. (Government of Australia)
5. Newcastle. (Government of Australia)
6. Port Darwin. (Government of Australia)
7. Off Cape Leeuwin. (IMO adopted) (effective 1 December 2016)
8. Off Chathan Island. (IMO adopted) (effective 1 December 2016)

U.S. Embassy

The U.S. Embassy is situated at Moonah Place, Yarralumla, Canberra, Australian Capital Territory 2600.

The mailing addresses are, as follows:

1. Australia address—
   Moonah Place
   Yarralumla, ACT 2600
2. U. S. address—
   APO AP (96549)

U. S. Embassy Australia Home Page
http://canberra.usembassy.gov

Vessel Traffic Service

Vessel Traffic Services are in operation, as follows:

1. Brisbane, Queensland (27°27'S., 153°05'E.). [1]
2. Bundaberg, Queensland (24°46'S., 152°23'E.). [1]
3. Gladstone, Queensland (23°50'S., 151°15'E.). [1]
4. Mackay, Queensland (21°06'S., 149°14'E.). [1]
5. Townsville, Queensland (19°15'S., 146°50'E.). [1]
6. Melbourne (including Port Philip), Victoria (37°51'S., 144°56'E.). [1]
7. Whitsunday Group, Queensland (20°15'S., 149°00'E.). [1]
8. Port Kembla, New South Wales (34°28'S., 150°55'E.).[1]
9. Sydney (Port Jackson), New South Wales (33°51'S., 151°13'E.).[1]
10. Fremantle, Western Australia (32°03'S., 115°44'E.). [2]
11. Dampier, Western Australia (20°39'S., 116°40'E.). [2]
12. Port Hedland, Western Australia (20°19'S., 118°34'E.). [2]
13. Weipa, Queensland (12°40'S., 141°51'E.). [2]

1 See Pub. 127, Sailing Directions (Enroute) East Coast of Australia and New Zealand for further information

2 See Pub. 175, Sailing Directions (Enroute) North, West, and South Coasts of Australia for further information

Appendix I—MASTREP (Modernized Australian Ship Tracking and Reporting System)

The Modernized Australian Ship Tracking and Reporting System (MASTREP) is a ship reporting system designed to contribute to safety of life at sea and is operated by the Australian Maritime Safety Authority (AMSA) through the Australian Rescue Coordination Centre (JRCC Australia) in Canberra.

Participation in MASTREP is compulsory for the following vessels:

1. All foreign vessels from their arrival at their first Australian port until their departure from their final Australian port
2. All regulated Australian vessels while in the MASTREP area

All other vessels are encouraged to participate when within the MASTREP area.

MASTREP provides positional data on vessels transiting the Australian Search and Rescue Region (SRR) via AIS technology, which ensures that only the closest vessels are requested to assist in a search and rescue incident, reducing the need for vessels to steam long distances from their intended voyage plan. The Search and Rescue Officers conducting such operations in the Australian SRR routinely use this facet of MASTREP. Given the expansiveness of the Australian SRR, merchant vessels are often the only resources available that can quickly respond to an incident.

The MASTREP area and Australian SRR cover the coast of Australia, as well as the coast of Antarctica between 75°E and 163°E, and extends N to approximately 6°S at its W limit and to 12°S at its E limit. This area, which is best seen on the accompanying graphic, is bounded by the coast and lines joining the following positions:

a. The coast of Antarctica at longitude 75°00'E.
b. 6°00'S, 75°00'E.
c. 2°00'S, 78°00'E.
d. 2°00'S, 92°00'E.
e. 12°00'S, 107°00'E.
f. 12°00'S, 123°20'E.
g. 9°20'S, 126°50'E.
h. 7°00'S, 135°00'E.
i. 9°50'S, 139°40'E.
j. 9°50'S, 141°00'E.
k. 9°37'S, 141°01'E.
l. 9°08'S, 143°53'E.
m. 9°24'S, 144°13'E.
n. 12°00'S, 144°00'E.
o. 12°00'S, 155°00'E.
p. 14°00'S, 155°00'E.
q. 14°00'S, 161°15'E.
r. 17°40'S, 163°00'E.
s. The coast of Antarctica at longitude 163°00'E.

MASTREP uses Position Reports, which must be transmitted by AIS in accordance with the International Convention for the Safety of Life at Sea (SOLAS), Chapter 5, Regulation 19.2.4. Position Reports must include the following information:

1. Vessel name.
2. Vessel type.
3. Position.
4. Course.
5. Speed.
6. Navigational status.
7. Safety related information.

Position reporting is automated and the data is fed in to the system using AIS. Positional data is usually updated at time intervals between 5 minutes and 5 hours, depending on the location and source. There is no requirement in MASTREP to transmit Sailing Plans (SP), Deviation Reports (DR), or Final Reports (FR).

No positive search and rescue watch is maintained in MASTREP. MASTREP is a passive ship reporting system and does not involve shore to vessel communications. ALL DISTRESS MESSAGES SHOULD BE SENT DIRECTLY TO Jrcc Australia WHILE IN THE MASTREP AREA. Similarly, any vessel copying an SOS, MAYDAY, or DSC alert from a distressed vessel, or otherwise becoming aware that a distress incident has occurred, should contact JRCC Australia.

The master of a vessel must report any malfunction of the vessel's AIS equipment to JRCC Australia.

Communications with JRCC AUSTRALIA.—The primary means of communicating with MASTREP are, as follows:

1. Automatic Identification System (AIS).
2. INMARSAT-C.—Messages sent to MASTREP using special access code (SAC 1243) through Perth LES (POR Satellite Code 212 or IOR Satellite Code 312) will be reverse charged to JRCC Australia.
3. HF DSC Network.—Messages sent via the AMSA HF DSC network will be free of charge. The initial contact through the AMSA HF DSC station is made by using a DSC safety priority call to MMSI 005030001. The message can then be passed on an appropriate radiotelephone frequency. All reports sent by voice should include the mandatory fields, including the identifying letter.
4. If INMARSAT-C reports are not sent using SAC 1243 via Satellite Code 212 or Satellite Code 312, it is likely that the message will not be received by JRCC Australia and charges will apply to the ship.

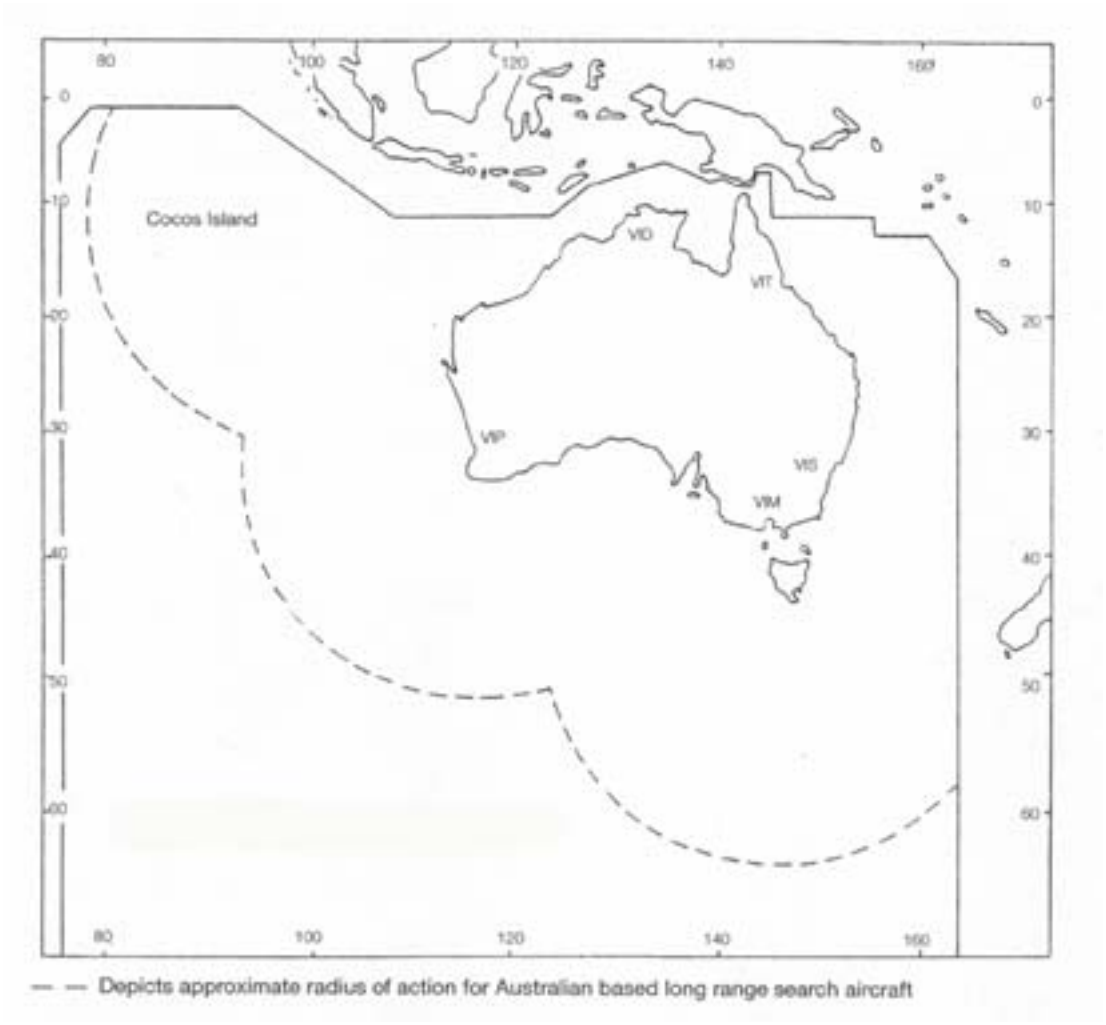
If for any reason communications are not possible via AIS, INMARSAT-C, or the AMSA HF DSC station, the required information must be passed by alternative means to JRCC Australia using one of the following methods:

1. Other INMARSAT telephone/facsimile services.—Vessels will be charged for messages sent to JRCC Australia using INMARSAT systems other than INMARSAT-C.
2. Other non-INMARSAT satellite telephone/facsimile services.—A reverse charge telephone call or facsimile may be used to pass reports when in port.

For further information or advice concerning MASTREP or to obtain copies of MASTREP instructions, contact JRCC Australia, as follows:

1.	Telephone:	61-2-6230-6811 1-800-641-792 (toll free in Australia)
2.	Facsimile:	61-2-6230-6868 1-800-622-153 (toll free in Australia)
3.	E-mail:	rccaus@amsa.gov.au
4.	Web site:	http://ww.amsa.gov.au

Reports to other reporting systems.—Reports from ships to other reporting systems (AMVER, JASREP, etc.) are not forwarded by JRCC Australia. Ships are requested to pass



MASTREP Area

these reports direct.

REEFVTS interaction.—The following applies to ships transiting through the Great Barrier Reef and Torres Strait:

1. Ships must report to REEFVTS.
2. REEFTVS automatically forwards regular position reports to JRCC Australia. When a vessel departs a port within the REEFVTS Area and intends to report to MASTREP when it exits the REEFVTS Area, the vessel should ensure that Position Reports are transmitted by AIS in accordance with the International Convention for the Safety of Life at Sea (SOLAS), Chapter 5, Regulation 19.2.4.
3. When a vessel departs the REEFVTS Area and is reporting to MASTREP, the master must report any malfunction of the vessel's AIS equipment to JRCC Australia.

Further information about REEFVTS can be found in Pub. 127, Sailing Directions (Enroute) East Coast of Australia and New Zealand.

Procedures for reporting to REEFVTS are provided in the *Great Barrier Reef and Torres Strait Vessel Traffic Service User Guide (2016)* available from the Maritime Safety Queensland web site (http://www.msq.qld.gov.au/Shipping/Reefvts (scroll down and select *REEFVTS Users Guide*)).

Appendix II—Reporting Formats for Australian Pollution Reports

Australia—Pollution Reports by Vessels Suffering a Casualty				
Iden-tifier	**Content**	**HS***	**MP***	**DG***
A	Vessel name, call sign/ship station identifier, and flag	X	X	X
B	Date and time (UTC) of event	X	X	X
C	Latitude/Longitude	X[1]	X[1]	X
D	True bearing and distance	X[1]	X[1]	
E	True course	X		
F	Speed in knots and tenths of knots	X		
L	Intended track	X		
M	Radio communications (full names of stations)	X	X	X
N	Time of next report	X		
P	Pollution details, as described in the Key below	X[2]	X[3]	X[3]
Q	Ship information, as described in the Key below	X[4]	X[4]	X[4]
R	Dangerous cargo lost overboard, as described in the Key below	X[5]	X[6]	X[6]
S	Weather conditions	X	X	X
T	Name, address, telephone number, and e-mail address (if applicable) of ship's owner and representative s (charterer, manager, or agent)	X	X	X
U	Vessel size and type (details of length, breadth, tonnage, etc.)	X	X	X
X	Remarks, as described in Key below	X[7]	X[7]	

Key	
*	Sections of the reporting format which are inappropriate may be omitted from the report.
X	Required information. Information not immediately available should be sent in a supplementary message or messages.
X[1]	Either C or D may be used.
X[2]	This information is required in the event of probable discharge. The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid substance on board. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 Quantity.
X[3]	This information is required in the event of probable discharge. The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo.
X[4]	The following details should be included: 1 Condition of the vessel. 2 Ability to transfer cargo/ballast/fuel.

Key	
X[5]	The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid discharged into the sea. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 An estimate of the quantity of the substances. 6 Whether lost substances floated or sank. 7 Whether loss is continuing. 8 Cause of loss. 9 Estimate of the movement of the discharge or lost substances, giving current conditions, if known. 10 Estimate of the surface area of the spill, if possible.
X[6]	The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo. 7 Whether lost cargo floated or sank. 8 Whether loss is continuing. 9 Cause of loss.
X[7]	The following details should be included: 1 Action being taken with regard to the discharge and the movement of the vessel. 2 Assistance or salvage efforts which have been requested or which have been provided by others. 3 The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned.

Australia—Pollution Reports by Vessels Rendering Assistance or Undertaking Salvage Work			
Iden-tifier	**Content**	**HS***	**MP***
A	Vessel name, call sign/ship station identifier, and flag	X	X
B	Date and time (UTC) of event	X	X
C	Latitude/Longitude	X[1]	X[1]
D	True bearing and distance	X1	X1
E	True course	X	
F	Speed in knots and tenths of knots	X	
L	Intended track	X	
M	Radio communications (full names of stations)	X	X
N	Time of next report	X	
P	Pollution details, as described in the Key below	X[2]	X[3]
Q	Ship information, as described in the Key below	X[4]	X[4]
R	Dangerous cargo lost overboard, as described in the Key below	X[5]	X[6]
S	Weather conditions	X	X
T	Name, address, telephone number, and e-mail address (if applicable) of ship's owner and representative s (charterer, manager, or agent)	X	X
U	Vessel size and type (details of length, breadth, tonnage, etc.)	X	X
X	Remarks, as described in Key below	X[7]	X[7]

Key	
*	Sections of the reporting format which are inappropriate may be omitted from the report.
X	Required information. Information not immediately available should be sent in a supplementary message or messages.
X[1]	Either C or D may be used.
X[2]	This information is required in the event of probable discharge. The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid substance on board. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 Quantity.
X[3]	This information is required in the event of probable discharge. The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo.
X[4]	The following details should be included: 1 Condition of the vessel. 2 Ability to transfer cargo/ballast/fuel.

Key	
X[5]	The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid discharged into the sea. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 An estimate of the quantity of the substances. 6 Whether lost substances floated or sank. 7 Whether loss is continuing. 8 Cause of loss. 9 Estimate of the movement of the discharge or lost substances, giving current conditions, if known. 10 Estimate of the surface area of the spill, if possible.
X[6]	The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo. 7 Whether lost cargo floated or sank. 8 Whether loss is continuing. 9 Cause of loss.
X[7]	The following details should be included: 1 Action being taken with regard to the discharge and the movement of the vessel. 2 Assistance or salvage efforts which have been requested or which have been provided by others. 3 The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned.

BAHRAIN

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General

Bahrain is comprised of a group of islands in the Persian Gulf lying midway between Qatar and the mainland of Saudi Arabia. Bahrain, the largest and highest island of the group, is about 30 miles long and 10 miles wide. Al Muharraq, lying close NE, is about 4 miles long and1 mile wide; it is connected to Bahrain by a causeway. The country also includes the islands of Sitrah, Umm Nasan, Jiddah, and several other small islets. Bahrain has a dispute with Qatar concerning territorial claims over the Hawar Islands.

The terrain is formed by mostly low, desert plain.

The climate is hot and humid during the summer, with somewhat mild winters.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Currency

The official unit of currency is the Bahraini dinar, consisting of 1,000 fils.

Firing Areas

Naval firing practices (surface-to-surface and surface-to-air) take place within an exercise area enclosed by the following:

a. 26°34'N, 50°50'E.
b. 26°34'N, 50°36'E.
c. 26°40'N, 50°36'E.
d. 26°40'N, 50°50'E.

Government

Flag of Bahrain

Bahrain is a constitutional hereditary monarchy. The country is divided into four governorates.

Bahrain is governed by a king, who appoints the Prime Minister and the Cabinet. The bicameral National Assembly consists of a 40-member Consultive Council (appointed by the king) and a 40-member Chamber of Deputies (directly elected to 4-year terms).

The legal system is based on Islamic law and English common law.

The capital is Manama (Al Manamah), on the island of Bahrain.

Holidays

The following holidays are observed:

December 16 or 17	Bahrain National Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are petroleum processing and refining, aluminum smelting, iron pelletization, fertilizers, offshore banking, insurance, ship repair, and tourism.

The main exports are petroleum and petroleum products, aluminum, and textiles. The main export-trading partners are Saudi Arabia, India, the United Arab Emirates, and South Korea.

The main imports are crude oil, machinery, and chemicals. The main import-trading partners are Saudi Arabia, Algeria, China, the United States, and Japan.

Languages

Arabic is the official language. English, Farsi, and Urdu are also widely spoken.

Meteorology

Internet Weather Services

Marine weather forecasts in English are available from the Meteorological Directorate (http://www.bahrainweather.com).

Mined Areas

Vessels are advised that Mined Areas exist in the N part of the Persian Gulf. Further information should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150 5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Bahrain are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.

Pollution

Ballast Water Management

The coast of Bahrain lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

Liquor trafficking between vessels alongside wharves or between vessels and the shore is strictly prohibited.

All foreign-flagged self-propelled vessels operating in Bahraini waters are required to have an operational Automatic Identification System (AIS) on board.

Notification

It is compulsory for all ships entering Bahrain waters for reasons other than berthing at Mina Salman, ASRY, BAPCO, ALBA, or any other private jetties to obtain prior written permission from the Port Director before anchoring in Bahrain waters.

Single-hull Tankers

Single-hull tankers are prohibited from entering ports and terminals in Bahrain.

Search and Rescue

The Directorate of Ports is responsible for coordinating maritime search and rescue operations in Bahrani territorial waters.

RCC Bahrain can be contacted, as follows:

1. Telephone: 973-17-719404
   973-17-727447
2. Facsimile: 973-17-727985

Bahrain Maritime Operations Center (A9M) maintains a continuous listening watch on international distress frequencies.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Building 979, Road 3119, Block 331, Zinj, Manama (Al Manamah).

The mailing addresses are, as follows:

1. Bahrain address—
   Box 26431
   Manama
2. U.S. address—
   PSC 451
   Box 660
   FPO AE (09834-5100)

U. S. Embassy Bahrain Home Page
http://bahrain.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in Mina Salman (26°18'N., 50°49'E.). For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

BANGLADESH

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General

Bangladesh, formerly East Pakistan, lies in southern Asia and borders the Bay of Bengal. It is bounded on the W, N, and NE by India; on the S by the Bay of Bengal; and on the SE by Burma. In 1992, India granted Bangladesh a 999-year lease of the Tin Bigha corridor linking the enclaves of Angarpota and Dahagram.

The terrain consists mostly of a flat alluvial plain, with some hills in the SE part.

The climate is tropical monsoon with heavy rains, heat, and extreme humidity. Rain falls heavily during the monsoon season from June to October.

The short winter season, from October to March, is dry and cool.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information. However, less important areas may not conform to this system.

Buoys may be removed during the monsoon season (mid-May to mid-September).

Currency

The official unit of currency is the taka, consisting of 100 poisha.

Firing Areas

Military firing practice takes place regularly off the coast of Bangladesh. Notice of firing exercises and the areas involved are promulgated through coastal warnings and by local notices to mariners. Vessels should navigate with caution.

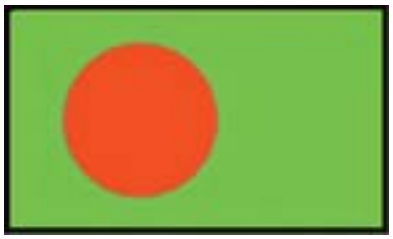
Fishing Areas

Heavy concentrations of large and small fishing vessels will be encountered, especially from September to May, off the ports and harbors of Bangladesh.

Mariners should keep a good lookout, especially at night and around sunrise and sunset, when navigating in coastal waters.

Fishing stakes and enclosures are generally found on off-lying banks and off the coast in depths of 5 to 10m, but occasionally in greater depths. Their positions are subject to considerable change.

Government



Flag of Bangladesh

Bangladesh is a parliamentary democracy. The country is divided into seven divisions.

Bangladesh is governed by a President, who is elected for a 5-year term by the Parliament. The Prime Minister is appointed by the President. The unicameral Parliament consists of 350 directly-elected members serving 5-year terms.

The legal system is based on English common law and Islamic law.

The capital is Dhaka (Dacca).

Holidays

The following holidays are observed:

February 21	Shahid Day (Martyr's Day)
March 26	Independence Day
April 15	Bengali New Year's Day
May 1 (plus or minus 1 day)	Labor Day
First Monday in July	Bank Holiday
August 15	National Mourning Day
November 7	National Revolution and Solidarity Day
December 16	Victory Day
December 25	Christmas Day
December 31	Bank Holiday

Hindu holidays, which are subject to the appearance of the moon, include Jamat-Ul-Vida, Buddha Purnima, Janamashtami, and Durga Puja (Dashami).

Islamic holidays, which are subject to the appearance of the moon, include Shab-e-Barat, Shab-e-Qadr, Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are cotton, jute, garments, paper, leather, fertilizer, iron and steel, cement, petroleum products, tobacco, pharmaceuticals, ceramics, tea, salt, sugar, edible oils, soap and detergent, fabricated metal products, electricity, and natural gas.

The main exports are garments, jute and jute products, leather, agricultural products, knitwear, and frozen fish and seafood. The main export-trading partners are the United States, Germany, the United Kingdom, and France.

The main imports are machinery and equipment, chemicals, iron and steel, foodstuffs, and cotton. The main import-trading partners are China, India, and Singapore.

Languages

Bengali is the official language. English is also used.

Navigational Information

Enroute Volume

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of Bangladesh are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	18 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	The Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea. Nuclear-powered vessels and vessels transporting nuclear materials or other radioactive substances are required to give notice prior to entering the territorial sea. Claims straight baseline between points along the 18m curve.

* * Also considered a Security Zone.

Maritime Boundary Disputes

A dispute with India over New Moore Island (South Talpatty Island) (Purbasha Island) (21°37'N., 89°09'E.), in the Bay of Bengal, has prevented the establishment of a maritime boundary. It has been reported (2010) that the island is now submerged and no longer visible.

Bangladesh, Burma, and India have referred their maritime boundary claims to the International Tribune on the Law of the Sea.

Search and Rescue

The Bangladesh Department of Shipping is responsible for coordinating search and rescue operations and can be contacted, as follows:

1. Telephone: 880-2-9555128

880-2-9553584
2. Facsimile: 880-2-7168363
3. E-mail: dosdgbd@bttb.net.bd

A Maritime Rescue Coordination Center (MRCC) is located in Dhaka and can be contacted by telephone at 880-2-407643 or 880-2-405434.

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Signals

Storm Signals

The General System is used in Chittagong (22°18'N., 91°49'E.) and Cox's Bazar (21°26'N., 91°59'E.). For further information, see **India—Signals—Storm Signals**.

Time Zone

The Time Zone description is FOXTROT (-6). Daylight Savings Time is not maintained.

U.S. Embassy

The U.S. Embassy is situated at the Diplomatic Enclave, Madani Avenue, Baridhara, Dhaka.

The mailing address is GPO Box 323, Dhaka 1000

U. S. Embassy Bangladesh Home Page
http://dhaka.usembassy.gov

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General

Benin, formerly Dahomey, is bounded on the E by Nigeria, on the N by Niger and Burkina Faso, on the W by Togo, and on the S by the Gulf of Guinea. Its coast, 65 miles long, is flat and sandy with scattered lagoons and mangrove swamps.

The country extending inland is flat and covered with tropical vegetation. The ground rises gradually, about 50 miles inland, to a plateau that attains elevations of 304 to 487m.

The far N region of the country consists of a featureless plateau that attains an elevation of about 760m and slopes down toward the Niger River, on the N border.

The climate is equatorial in the coastal region, with a long rainy season from March to July and a short rainy season from October through November. The dry season increases away from the coast, with some inland areas having rain only between May and September.

The country has average temperatures of 27.8°C in January and 25°C in July.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in Benin are unreliable. Lights may be extinguished; buoys and beacons may be missing, unlit, or out of position.

Cautions

The West African Gas Pipeline lies off the coast of Benin. For further information, see **South Atlantic Ocean—Cautions**.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

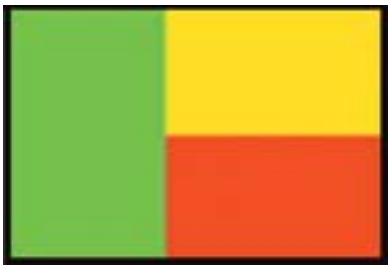
The official unit of currency is the franc CFA (French African Community franc), consisting of 100 centimes.

Fishing Areas

Fishing vessels, many of which are unlit, may be encountered off the coast.

When near the coast, a sharp lookout should be kept for canoes.

Government



Flag of Benin

Benin is a republic. The country is divided into 12 departments.

Benin is governed by a directly-elected President serving a 5-year term.The unicameral National Assembly consists of 83 directly-elected members serving 4-year terms.

The legal system is based on French civil law and customary law.

The capital is Porto-Novo. Cotonou is the seat of government.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 10	Traditional Religions Day
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
Ascension Day	Variable
Whitmonday	Variable
August 1	Independence Day
Assumption Day	Variable
October 26	Armed Forces Day
November 1	All Saints' Day
November 30	National Day
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), and the Prophet's Birthday.

Industries

The main industries are agriculture, textiles, food processing, construction materials, and cement.

The main exports are cotton, cashews, shea butter, textiles, palm products, and seafood. The main export-trading partners are China, India, Lebanon, and Niger.

The main imports are foodstuffs, capital goods, and petroleum products. The main import-trading partners are China, Algeria, and the United States.

Languages

French is the official language. The tribal languages of Fon and Yoruba are used in the S region; at least six other tribal dialects are used in the N.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Benin are, as follows:

Territorial Sea	200 miles. *
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles.

* Informal notice of a 12-mile territorial sea provided in 1998.

Search and Rescue

The Port of Cotonou is responsible for coordinating search and rescue operations. A Maritime Rescue Coordination Center (MRCC) is located at Cotonou and can be contacted, as follows:

1. Telephone: 229-21-314033
2. Facsimile: 229-21-312891

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Rue Caporal Bernard Anani, Cotonou.

The mailing address is 01 BP 2012, Cotonou.

U. S. Embassy Benin Home Page
http://cotonou.usembassy.gov

BRAZIL

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General

Brazil is located in the NE part of South America and borders the Atlantic Ocean. It is bounded on the N by French Guiana, Suriname, Guyana, and Venezuela; on the W by Colombia, Peru, Bolivia, Paraguay, and Argentina; and on the S by Uruguay.

The greater part of the country consists of hilly uplands, plateaus, and low mountains. There is a narrow coastal belt but very little of the land can be considered a plain, except for the area in the upper Amazon Basin.

The Amazon River and its tributaries, which traverse the heavily-wooded N lowlands, form the greatest river system in the world and provide over 13,700 miles of channels that are safe for navigation. The headwaters of the Amazon drain the Andes from Colombia to Bolivia. The river is 3,500 miles long and rises in Lago Lauricocha, Peru, about 100 miles NNE of Lima.

The coast is about 4,000 miles long and is mostly fronted by low flat beaches. Numerous small rivers reach the shore but are seldom navigable for more than a few miles.

The climate is mostly tropical, but factors such as elevation, distance from the sea, and prevailing winds cause some variation and temperatures are not extreme.

Areas to be Avoided

Campos Basin.—In order to avoid risks of collision, pollution, and environmental damage in an area with a high concentration of oil rigs, production systems, and FPSOs, all vessels, except those involved in support activities to oil and gas production and prospecting, should avoid the area bounded by

lines joining the following positions:

a. 23°02'34.2"S, 41°03'16.2'W.
b. 22°41'54.0"S, 40°56'24.0'W.
c. 22°07'24.0"S, 40°22'34.2'W.
d. 21°35'30.0"S, 39°34'30.0'W.
e. 21°54'34.2"S, 39°13'25.8'W.
f. 22°57'13.8"S, 41°14'18.0'W.

Vessels should also use caution when transiting the area between the port of Macae and the above-described Area to be Avoided due to the considerable volume of supply vessels transiting this area.

Golfinho Oil Field.—A circle with a radius of 7 miles centered on position 20°00'10"S, 39°34'35"W. All vessels not engaged in offshore activities are requested to avoid this area.

Jubarte Oil Field.—A circle with a radius of 7.5 miles centered on position 21°16'25"S, 40°01'54"W. All vessels not engaged in offshore activities are requested to avoid this area.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Brazilian authorities have authorized the use of private buoyage, particularly in the access channels to private terminals or yacht clubs. These private aids are not corrected by notice to mariners.

Cautions

Light Vessels

Light vessels in Brazil display a secondary light from their sterns, which should be taken into account when passing a light vessel.

Piracy

Acts of piracy and armed robbery occur within Brazilian waters and in many of the ports of Brazil.

Whales

Southern Right Whales, a protected species threatened with extinction, approach the S coast of Brazil between Ihla de Bom Abriga (25°07'S., 47°51'W.)and Cabo de Santa Marta Grande (28°3'S., 48°49'W.) from May to November. These animals may be as long as 18m and weigh up to 40 tons. Vessels should exercise due caution when in the vicinity of these whales.

Floating Hazards

In the Amazon River and its tributaries, as well as in the Amazon delta, floating debris may be encountered when the rivers are high. Submerged logs floating downstream can disable vessels by striking and damaging propellers. Floating islands of vegetation may also be encountered, sometimes getting caught on a vessel's bow and dramatically reducing the vessel's speed.

Currency

The official unit of currency is the real, consisting of 100 centavos.

Firing Areas

Naval Firing Exercise Areas

Firing exercises are promulgated by local Radio Navigational Warnings. The following exercise areas are used by the Brazilian Navy:

1. **Area B-1** (SSE of Ponta Negra)—Naval exercises—Enclosed by a line joining the following positions:
   a. 23°10'00"S, 42°12'30"W.
   b. 23°10'00"S, 42°45'06"W.
   c. 23°35'00"S, 42°45'06"W.
   d. 23°35'00"S, 42°12'30"W.

2. **Area B-2** (S of Cabo Frio)—Naval exercises.—Enclosed by a line joining the following positions:
   a. 23°10'00"S, 41°40'12"W.
   b. 23°10'00"S, 42°12'30"W.
   c. 23°35'00"S, 42°12'30"W.
   d. 23°35'00"S, 41°40'12"W.

3. **Area B-3** (S of Cabo Frio)—Naval exercises.—Enclosed by a line joining the following positions:
   a. 23°35'00"S, 41°40'12"W.
   b. 23°35'00"S, 42°12'30"W.
   c. 24°00'00"S, 42°12'30"W.
   d. 24°00'00"S, 41°40'12"W.

4. **Area B-4** (SSE of Ponta Negra)—Naval exercises.—Enclosed by a line joining the following positions:
   a. 23°35'00"S, 42°12'30"W.
   b. 23°35'00"S, 42°45'12"W.
   c. 24°00'00"S, 42°45'12"W.
   d. 24°00'00"S, 42°12'30"W.

5. **Area C-1** (Saquarema approaches)—Gunnery exercises.—Enclosed by a line joining the following positions:
   a. 22°56'12"S, 42°45'06"W.
   b. 22°56'12"S, 42°12'30"W.
   c. 23°10'00"S, 42°12'30"W.
   d. 23°10'00"S, 42°45'06"W.
   Anchorage and fishing are prohibited.

6. **Area C-2** (Cabo Frio)—Gunnery exercises.—Enclosed by a line joining the following positions:
   a. 22°45'00"S, 41°58'00"W.
   b. 22°45'00"S, 41°40'12"W.
   c. 23°10'00"S, 41°40'12"W.
   d. 23°10'00"S, 42°12'30"W.
   e. 22°56'12"S, 42°12'30"W.
   Anchorage and fishing are prohibited.

7. **Area C-3** (E of Cabo Frio)—Gunnery exercises.—Enclosed by a line joining the following positions:
   a. 22°45'00"S, 41°08'06"W.
   c. 22°45'00"S, 41°40'12"W.
   b. 23°10'00"S, 41°40'12"W.
   d. 23°10'00"S, 41°08'06"W.
   Anchorage and fishing are prohibited.

8. **Area C-4** (E of Cabo Frio)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°10'00"S, 41°40'12"W.
b. 23°10'00"S, 41°08'06"W.
c. 23°35'00"S, 41°08'06"W.
d. 23°35'00"S, 41°40'12"W.
Anchorage and fishing are prohibited.

9. **Area C-5** (ESE of Cabo Frio)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°35'00"S, 41°40'12"W.
b. 23°35'00"S, 41°08'06"W.
c. 24°00'00"S, 41°08'06"W.
d. 24°00'00"S, 41°40'12"W.
Anchorage and fishing are prohibited.

10. **Area Delta** (Ilha de Alcatrazes).—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 24°06'00"S, 45°27'00"W.
b. 24°01'00"S, 45°35'00"W.
c. 24°02'00"S, 45°46'30"W.
d. 24°14'00"S, 45°51'00"W.
e. 24°15'00"S, 45°36'00"W.
Anchorage and fishing are prohibited.

11. **Area D-1** (Barra do Porto do Rio de Janeiro)—Naval exercises.—Enclosed by a line joining the following positions:
a. 22°56'12"S, 43°16'42"W.
b. 22°56'12"S, 42°45'06"W.
c. 23°12'00"S, 42°45'06"W.
d. 23°13'30"S, 42°46'30"W.
e. 23°06'06"S, 42°54'00"W.
f. 23°13'30"S, 43°01'30"W.
g. 23°06'06"S, 43°09'12"W.
h. 23°13'30"S, 43°16'42"W.

12. **Area D-2** (Ilha Maricas)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°12'00"S, 42°45'06"W.
b. 23°28'12"S, 42°45'06"W.
c. 23°20'00"S, 42°54'00"W.

13. **Area D-3** (SE of Ilha Rasa)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°27'12"S, 42°46'30"W.
b. 23°28'12"S, 42°45'06"W.
c. 23°42'18"S, 42°45'06"W.
d. 23°34'18"S, 42°54'00"W.

14. **Area D-4** (SSE of Ilha Rasa)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°27'12"S, 43°01'30"W.
b. 23°42'18"S, 42°45'06"W.
c. 23°50'00"S, 42°45'06"W.
d. 23°50'00"S, 43°16'42"W.
e. 23°41'06"S, 43°16'42"W.

15. **Area D-5** (SSE of Ilha Rasa)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°13'30"S, 43°16'42"W.
b. 23°20'00"S, 43°09'12"W.
c. 23°27'12"S, 43°16'42"W.
d. 23°20'00"S, 43°24'12"W.

16. **Area E-1** (Baia da Ilha Grande)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°00'00"S, 44°00'00"W.
b. 23°00'00"S, 44°41'00"W.
c. 23°25'00"S, 44°41'00"W.
d. 23°25'00"S, 44°00'00"W.

17. **Area E-2** (Ilha Grande)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°00'00"S, 44°00'00"W.
b. 23°00'00"S, 43°16'42"W.
c. 23°13'30"S, 43°16'42"W.
d. 23°25'00"S, 43°29'24"W.
e. 23°25'00"S, 44°00'00"W.

18. **Area E-3** (Ilha Grande)—Naval exercises.—Enclosed by a line joining the following positions:
a. 23°25'00"S, 44°00'00"W.
b. 23°25'00"S, 43°29'24"W.
c. 23°20'00"S, 43°24'12"W.
d. 23°34'18"S, 43°09'12"W.
e. 23°41'06"S, 43°16'42"W.
f. 23°50'00"S, 43°16'42"W.
g. 23°50'00"S, 44°00'00"W.

19. **Area E-4** (Restinga da Marambaia)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°50'00"S, 43°16'42"W.
b. 23°50'00"S, 44°00'00"W.
c. 24°15'00"S, 44°00'00"W.
d. 24°15'00"S, 43°16'42"W.
Anchorage and fishing are prohibited.

20. **Area E-5** (S of Restinga da Marambaia)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°25'00"S, 44°30'00"W.
b. 23°25'00"S, 44°00'00"W.
c. 24°15'00"S, 44°00'00"W.
d. 24°15'00"S, 44°30'00"W.
Anchorage and fishing are prohibited.

21. **Area F-1** (SW of Ilha de Sao Sebastiao)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°25'00"S, 45°08'42"W.
b. 23°25'00"S, 45°04'18"W.
c. 24°15'00"S, 45°04'18"W.
d. 24°15'00"S, 45°34'30"W.
e. 23°45'18"S, 45°34'30"W.

22. **Area F-2** (Approaches to Ilha de Sao Sebastiao)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°25'00"S, 45°04'18"W.
b. 23°25'00"S, 44°30'00"W.
c. 24°15'00"S, 44°30'00"W.

d. 24°15'00"S, 45°04'18"W.

23. **Area R-1** (S of Ilha Rasa)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 23°50'00"S, 43°16'42"W.
b. 23°50'00"S, 42°45'06"W.
c. 24°15'00"S, 42°45'06"W.
d. 24°15'00"S, 43°16'42"W.

24. **Area R-2** (S of Ilha Rasa)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 24°15'00"S, 43°16'42"W.
b. 24°15'00"S, 42°45'06"W.
c. 24°45'00"S, 42°45'06"W.
d. 24°45'00"S, 43°16'42"W.

25. **Area S-1** (W of Ilha Rasa)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 24°15'00"S, 44°00'00"W.
b. 24°15'00"S, 43°16'42"W.
c. 24°45'00"S, 43°16'42"W.
d. 24°45'00"S, 44°00'00"W.

26. **Area S-2** (Approaches to Ilha de Sao Sebastiao)—Gunnery exercises.—Enclosed by a line joining the following positions:
a. 24°15'00"S, 45°04'18"W.
b. 24°15'00"S, 44°00'00"W.
c. 24°45'00"S, 44°00'00"W.
d. 24°45'00"S, 45°04'18"W.

Firing Practice and Rocket Areas

The following restricted areas are aerial spaces for firing practices and rocket launching, whose limits cover maritime areas:

1. **Aquiraz Area.—**A circular area, with a radius of 2.7 miles centered on position 3°55'00"S, 38°20'00"W, used for gunnery exercises. The area comes into operation once the NOTAM (Notice to Airmen) is promulgated.

2. **Jangada Area.—**A permanent area enclosed by a line joining positions a, b, c, d, and e, having positions c and d joined by an arc of 10 miles radius centered in position f.
a. 3°03'00"S, 38°22'00"W.
b. 3°14'00"S, 37°54'00"W.
c. 3°36'00"S, 38°21'00"W.
d. 3°38'00"S, 38°37'00"W.
e. 3°37'00"S, 38°40'00"W.
f. 3°43'00"S, 38°28'00"W.

3. **Barreira Area.—**A permanent area for missile launching enclosed by a line joining the following positions:
a. 5°54'00"S, 35°11'00"W.
b. 5°56'00"S, 35°11'00"W.
c. 5°47'00"S, 34°56'18"W.
d. 6°03'54"S, 34°57'12"W.

4. **Satellite Area.—**An area for rocket launchings enclosed by a line joining the following positions:
a. 4°59'18"S, 34°31'36"W.
b. 5°28'18"S, 34°09'42"W.
c. 5°38'48"S, 35°02'30"W.
d. 5°54'00"S, 35°11'00"W.
e. 5°56'00"S, 35°11'00"W.
f. 6°23'36"S, 34°19'54"W.
The area comes into operation once the NOTAM is promulgated.

5. **Pirangi Area.—**An area for firing exercises enclosed by a line joining positions a, b, c, and d, having as an inner limit an arc of 24 miles radius and as an outer limit an arc of 32 miles radius, both centered on position e.
a. 6°03'54"S, 34°52'42"W.
b. 5°49'30"S, 34°51'18"W.
c. 5°47'48"S, 34°43'30"W.
d. 6°07'00"S, 34°45'18"W.
e. 5°54'30"S, 35°14'54"W.
The area comes into operation once the NOTAM is promulgated.

6. **Touros Area.—**An area for firing exercises enclosed by a line joining the following positions:
a. 5°15'00"S, 34°45'00"W.
b. 5°07'00"S, 34°38'00"W.
c. 4°51'00"S, 34°57'00"W.
d. 5°00'00"S, 35°03'00"W.
The area comes into operation once the NOTAM is promulgated.

7. **Marte Area.—**An area for gunnery exercises enclosed by a line joining the following positions:
a. 5°26'00"S, 35°05'00"W.
b. 5°18'00"S, 34°58'00"W.
c. 5°01'00"S, 35°06'00"W.
d. 5°01'00"S, 35°18'00"W.
The area comes into operation once the NOTAM is promulgated.

8. **Restinga Area.—**A circular area for firing exercises, permanent in nature, with a radius of 5.5 miles centered at position a, limited by a straight line joining positions b and c.
a. 23°04'00"S, 43°52'00"W.
b. 23°04'00"S, 43°47'20"W.
c. 23°10'00"S, 43°52'00"W.

9. **Marambaia Area.—**An area for firing exercises enclosed by a line joining the following positions:
a. 23°02'00"S, 43°51'00"W.
b. 23°05'00"S, 43°51'00"W.
c. 23°04'00"S, 43°35'00"W.
d. 23°02'00"S, 43°35'00"W.
This is a permanent area under visual meteorological conditions and may come into operation once the NOTAM is promulgated.

10. **Atlantico Area.—**An exercise area enclosed by a line joining the following positions:
a. 23°02'00"S, 43°36'00"W.
b. 23°03'00"S, 43°35'00"W.
c. 23°37'00"S, 44°07'00"W.
d. 23°20'00"S, 44°22'00"W.
The area comes into operation once the NOTAM is pro-

mulgated.

11. **Moreia Area.—**An area for firing exercises enclosed by a line joining the following positions:
a. 23°45'00"S, 42°30'00"W.
b. 23°45'00"S, 43°10'00"W.
c. 24°20'00"S, 43°10'00"W.
d. 24°20'00"S, 42°30'00"W.
The area comes into operation once the NOTAM is promulgated.

12. **Campos Novos Area.—**A circular area, with a radius of 1.1 miles centered on position 22°42'30"S, 42°00'00"W, used for firing exercises. The area comes into operation once the NOTAM is promulgated.

13. **Oceano Area.—**A permanent area for military aircraft and firing practices enclosed by a line joining the following positions:
a. 23°27'00"S, 43°52'00"W.
b. 23°30'00"S, 43°50'00"W.
c. 24°08'00"S, 44°35'00"W.
d. 23°45'00"S, 44°44'00"W.

14. **Pinhal Area.—**An area bound by true bearings of 108° and 123° of Salgado Filho Radiobeacon (Porto Alegre), forming a sector whose internal limit is an arc with a radius of 60 miles and whose outer limit is an arc with a radius of 85 miles, both centered on position 29°59'25.2"S, 51°09'48.0"W.

Fishing Areas

Fishing craft in large numbers operate at night off the NE coast of Brazil.

Many low fishing vessels may be encountered during the day up to 20 miles offshore from Mucuripe (3°42'S., 38°29'W.).

Government

Flag of Brazil

Brazil is a federal republic. The country is divided into 26 states and one federal district.

Brazil is governed by a directly-elected President serving a 4-year term. The bicameral National Congress consists of an 81-member directly-elected Senate serving 8-year terms and a 513-member Chamber of Deputies (directly elected using a system of proportional representation) serving 4-year terms.

The legal system is based on civil law.

The capital is Brasilia.

Holidays

The following holidays are observed:

January 1	New Year's Day
Carnival (the two days before Ash Wednesday)	Variable
Ash Wednesday (half day until 1300)	Variable
Good Friday	Variable
Easter Sunday	Variable
April 21	Martyrdom of Tiradentes
May 1	Labor Day
Corpus Christi	Variable
September 7	Independence Day
October 12	Nossa Senhora Aparecida
November 1	All Saints' Day
November 2	All Souls' Day
November 15	Proclamation of the Republic
December 24	Christmas Eve (half day)
December 25	Christmas Day
December 31	New Year's Eve (half day)

In addition, numerous local holidays (religious and traditional) are observed at the various ports.

Industries

The main industries are textiles, shoes, chemicals, cement, lumber, iron ore, tin, steel, aircraft, motor vehicles and parts, and other machinery and equipment.

The main exports are transport equipment, iron ore, soybeans, footwear, coffee, and automobiles. The main export trading partners are China, the United States, Argentina, and the Netherlands.

The main imports are machinery, electrical and transport equipment, chemical products, oil, automotive parts, and electronics. The main import-trading partners are China, the United States, Argentina, and Germany.

Languages

Portuguese is the official language.

Meteorology

Weather warnings, weather forecasts, and meteorological charts are available in English and Portuguese from the Direc-

toria de Hidrografia e Navegacao (DHN).

DHN Home Page

http://www.mar.mil.br/dhn

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of Brazil are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone **	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims to require permission for more than three warships of the same flag to be in the territorial sea at the same time.

** Military exercises in the EEZ can only be conducted with prior permission.

Offshore Drilling

Offshore oil exploration is taking place on the continental shelf off the N and E coasts of Brazil. The main areas of exploration are, as follows:

1. The N approaches to the Amazon River.
2. Between Ponta de Itapage (2°51'S., 39°57'W.) and Cabo Calcanhar (5°10'S., 35°29'W.), including lighted production platforms in a designated oil field area about 27 miles ENE of Ponta Mundau (3°11'S., 39°22'W.) and Guamare Oil Terminal (4°52'S., 36°21'W.) and its associated infrastructure within a designated area about 23 miles NW of Ponta dos Tres Irmaos (5°03'S., 35°59'W.).
3. Between Maceio (9°40'S., 35°40'W.) and Aracaju (11°00'S., 37°02'W.).
4. Off Salvador (13°00'S., 38°30'W.), especially in Baie de Todos os Santos.
5. Off Caravelas (17°45'S., 39°10'W.).
6. Off Vitoria (20°10'S., 40°15'W.).
7. Between Arquipelago dos Abrolhos (17°58'S., 38°42'W.) and Ponta do Ubu (20°48'S., 40°35'W.).
8. Southeast of Cabo de Sao Tome (22°00'S., 40°59'W.), including Pampo Oil Field (22°23'S., 40°07'W.).
9. Up to 100 miles offshore between an area SE of Santos (23°57'S., 46°20'W.) and ESE of Sao Francisco do Sul (26°14'S., 48°38'W.).

Within these areas, numerous oil drilling rigs, platforms, and associated structures may be encountered. In addition, vessels should use caution as drilling rigs may also be carrying out operations on the continental shelf outside of the above areas.

Mobile drilling rigs and temporary lighted buoys are not charted; however, their positions may be promulgated from time to time by Brazilian Notice to Mariners.

Pilotage

Pilotage is compulsory for foreign vessels of any gross tonnage and for all Brazilian vessels over 2,000 gt carrying oil, gas, or dangerous cargo.

Brazilian ports with an official pilot service have pilot boats painted red with the black letter P on either bow; they also display a red flag with the black letter P.

Vessels approaching a Brazilian port and requiring a pilot must indicate its draft by using the International Code of Signals.

For pilot boat/watch boat signals, see Signals.

Pollution

Brazil introduced legislation in December 2006 concerning ballast water management. All ships intending to discharge ballast water into waters under Brazilian jurisdiction should carry a ballast water management plan approved by their flag administration or recognized classification society. For further information, see **South Atlantic Ocean—Pollution—Ballast Water Management**.

Regulations

Vessels must fly the Brazilian flag at the foremast in Brazilian waters from 0800 to sunset daily. The customs flag, blue with a white star, must be flown 24 hours after clearance is granted.

In order for forts, patrol craft, and lookout posts to establish the identity of ships in the approaches to ports, vessels entering or leaving must display their ensign when within 3 miles of the entrance to a port or anchorage and, by day, also display their name (call sign) in flags of the International Code of Signals.

Vessels navigating within 200 miles of the Brazilian coast should maintain a continuous listening watch on VHF channel 16.

Anchoring and fishing are prohibited within 500m of all submarine cables.

The local representative at each port of the Brazilian Maritime Authority may declare the bar to be impassable if the following conditions exist:

1. The sea state at the pilot boarding position is greater than force 6.
2. The sea state in the turning basin is greater than force 4.
3. Visibility is less than 0.25 mile.

In this situation, vessels are prohibited from entering or departing the port.

Vessels carrying hazardous cargo, whether for delivery or in transit, shall forward the following information to the port authority at least 24 hours prior to arrival:

1. The technical name(s) of the hazardous cargo.
2. The IMDG Code classification.
3. The amount of hazardous cargo on board.
4. Destination and ETA of the vessel.

Search and Rescue

A Maritime Rescue Coordination Center (MRCC) and a series of Rescue Coordination Centers (RCC) operate in Brazil. Contact information can be found in the table titled **Brazil—MRCC and RCC Contact Information**.

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Naval rescue vessels are located, as follows:

1. Natal (5°47'S., 35°12'W.).
2. Recife (8°03'S., 34°52'W.).
3. Salvador (12°58'S., 38°31'W.).
4. Rio de Janeiro (22°54'S., 43°12'W.).
5. Itajai (26°54'S., 48°40'W.).
6. Rio Grande (32°02'S., 52°05'W.).

Ship Reporting System

Maritime Traffic Information System (SISTRAM)

Brazil has signed the International Convention for the Safety of Life at Sea and the International Convention on Maritime Search and Rescue (SAR). Therefore, Brazil is required to utilize all available means to help any merchant ship in distress within its own SAR maritime area of responsibility.

To achieve this goal, Brazil uses the Maritime Traffic Information System (SISTRAM), an electronic information system for maritime traffic operated by the Naval Command for the Control of Maritime Traffic (COMCONTRAM). This system tracks all merchant vessels engaged in ocean, coastal, and inland navigation within the Brazilian SAR area.

For further information on SISTRAM, see the Appendix.

Local Ship Reporting Systems

Mandatory ship reporting systems are in effect in the following Brazilian ports;

1. Vitoria (20°13.3'S., 40°19.8'W.).
2. Tubarao (20°17.6'S., 40°15.1'W.).
3. Rio de Janiero (22°53.4'S., 43°10.2'W.).
4. Santos (23°58.9'S., 46°17.3'W.).

For further information, see Pub. 124, Sailing Eirections (Enroute) East Coast of South America.

Signals

At some Brazilian ports, weather conditions may prevent the pilot from boarding a vessel. In these circumstances, vessels can be guided into port by signals given from the pilot vessel or a watch boat, as follows:

1. Pilot boat.—Signals are given by hand using a red signal flag. The flag is lowered towards the side of the pilot boat which the vessel should steer; if the signal flag is upright, the vessel's rudder should be amidships. The speed with which the signal flag is displaced indicates the speed with which the rudder should be applied to keep the vessel in the channel.
2. Watch boat.—Signals are given from a mast, by a black sphere, which runs under the yardarm. The position of the sphere in relation to the mast indicates the side the vessel should steer towards; if the sphere is in the center, the vessel's rudder should be amidships. The speed with which the sphere is displaced indicates the speed with which the rudder should be applied to keep the vessel in the channel.

Submarine Operating Areas

Submarines of the Brazilian Navy when engaged in submerged exercises, may, or may not be accompanied by escorting warships. If accompanied, an escorting vessel will display the signal "NE2" from the International Code of Signals, meaning that one or more submarines are exercising in the vicinity.

All other vessels, military and commercial, not taking part in the exercises shall clear the area.

Submarines exercise in an area S of the entrance to Baia de Guanabara.

Brazil—MRCC and RCC Contact Information

Office and Location		Telephone	Facsimile	E-mail
MRCC Brazil	Rio de Janeiro	55-21-21046056 55-21-21046863	55-21-21046038	mrccbrazil@con.mar.mil.br
RCC South	Rio Grande	55-53-32336130	55-53-32311519	rccsouth@5dn.mar.mil.br
RCC Southeast	Rio de Janeiro	55-21-22536572	55-21-21046104 55-21-21046196	mrccrio@1dn.mar.mil.br
RCC East	Salvador	55-71-35073730	55-71-35073772	rcceast@2dn.mar.mil.br
RCC Northeast	Natal	55-84-32211947	55-84-32163057	mrccnortheast@3dn.mar.mil.br
RCC North	Belem	55-91-32164030	55-91-32164030	30msg@4dn.mar.mil.br
RCC West	Ladario	55-67-32341007 55-67-32341008 55-67-32341177	55-67-32341007 55-67-32341014	cc@6dn.mar.mil.br
RCC Northwest	Manaus	55-92-21232238 55-92-21232239	55-92-21232238	salvamarnoroeste@9dn.mar.mil.br

When vessels sight one or two orange buoys on the surface showing flashing or fixed white lights of low intensity, they should investigate, as these buoys could belong to a submarine in distress or in need of help. Sometimes the buoys are unlighted.

Brazilian Tupi class submarines have a marking/transmitting buoy moored to them. The buoy is orange, 86cm in diameter, and 2.47m high, with gray vertical bands, and a white light that flashes 33 times per minute. The buoy has reflectors and a plate with a number and the instructions "Avisar A Autrodade Naval Competente Submarino Afundado/Finder Inform Navy Coast Guard Or Police Do Not Secure To Or Touch" inscribed in Portuguese and English. The buoy transmitter operates on 8364kHz and 243MHz for up to 72 hours.

The signal, transmitted in morse, is silence for 120 seconds; the serial number of submarine repeated three times in 30 seconds; SOS repeated six times in 27 seconds; SUBSUNK repeated three times in 36 seconds; and a goniometric signal for 30 seconds. The entire cycle is then repeated.

In addition to the marking/transmitting buoys, a submarine in distress may signal with air or oil bubbles. If vessels sight any of these buoys or receives any of the radio signals mentioned above, they should report this information immediately to the nearest Brazilian Naval vessel or to the first authority with which it can establish contact. Under no circumstances should vessels or boats moor to any of these buoys.

Submarines operating within Brazilian territorial waters and navigating on the surface, may exhibit, in addition to the conventional lights prescribed by the International Rules, an all-round intermittent yellow (amber) light with 90 flashes per minute. If necessary, they may exhibit only the intermittent light.

The following exercise areas, promulgated by local Radio Navigational Warnings, are used by submarines of the Brazilian Navy:

1. **Area A-1** (SSE of Ilha Rasa)—Enclosed by a line joining the following:
   a. 23°13'30"S, 43°01'30"W.
   b. 23°20'00"S, 42°54'00"W.
   c. 23°27'12"S, 43°01'30"W.
   d. 23°20'00"S, 43°09'12"W.
2. **Area A-2** (S of Ilha Rasa)—Enclosed by a line joining the following:
   a. 23°06'06"S, 43°09'12"W.
   b. 23°13'30"S, 43°01'30"W.
   c. 23°20'00"S, 43°09'12"W.
   d. 23°13'30"S, 43°16'42"W.
3. **Area A-3** (SE of Ilha Rasa)—Enclosed by a line joining the following:
   a. 23°06'06"S, 42°54'00"W.
   b. 23°13'30"S, 42°46'30"W.
   c. 23°20'00"S, 42°54'00"W.
   d. 23°13'30"S, 43°01'30"W.
4. **Area A-4** (S of Ilha Rasa)—Enclosed by a line joining the following:
   a. 23°20'00"S, 43°09'12"W.
   b. 23°27'12"S, 43°01'30"W.
   c. 23°34'18"S, 43°09'12"W.
   d. 23°27'12"S, 43°16'42"W.
5. **Area A-5** (SSE of Ilha Rasa)—Enclosed by a line joining the following:
   a. 23°20'00"S, 42°54'00"W.
   b. 23°27'12"S, 42°46'30"W.
   c. 23°34'18"S, 42°54'00"W.
   d. 23°27'12"S, 43°01'30"W.

Time Zone

Brazil is covered by multiple Time Zones, as follows:

1. Northeast states and Para—The Time Zone description is PAPA (+3). Daylight Savings Time is not observed.
2. Acre and the Amazonas cities of Eirunepe, Benjamin Constant, and Tabatinga—The Time Zone description is ROMEO (+5). Daylight Savings Time is not observed.
3. Amazonas (excluding the cities of Eirunepe, Benjamin Constant, and Tabatinga), Rondonia, and Roraima—The Time Zone description is QUEBEC (+4). Daylight Savings Time is not observed.
4. Bahia, Espirito Santo, Parana, Rio de Janiero, Rio Grande do Sul, Santa Catarina, and Sao Paulo—The Time Zone description is PAPA (+3). Daylight Savings Time (OSCAR (+2)) is maintained from the third Sunday in October through the third Sunday in February of the following year.
5. Mato Grosso and Mato Grosso do Sul—The Time Zone description is QUEBEC (+4). Daylight Savings Time (PAPA (+3)) is maintained from the third Sunday in October through the third Sunday in February of the following year.
6. Archipelago de Fernando de Noronha and Ilha de Trindade—The Time Zone description is OSCAR (+2). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Avenida das Nacoes, Quadra 801, Lote 3, 70403-900, Brasilia, Distrito Federal.

The mailing address is Unit 7500, APO AA (34030).

U. S. Embassy Brazil Home Page
http://brazil.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service operates in Sao Francisco do Sul (26°14'S., 48°38'W.). For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Appendix—SISTRAM

Maritime Traffic Information System (SISTRAM)

The Maritime Traffic Information System (SISTRAM) is used to improve search and rescue efforts within the Brazilian maritime area. This is accomplished by gathering navigational information from participating vessels. This information is then used during search and rescue efforts to route nearby vessels to the scene. The ability to quickly divert nearby vessels to the scene provides faster response than can be provided from shore and increases the safety of life at sea.

Participation by Brazilian ships is mandatory. Participation by foreign vessels is voluntary when outside the territorial waters of Brazil, but is mandatory when navigating within Brazilian territorial waters.

Participation in SISTRAM begins when a vessel sends a Type 1 message (Sailing Plan) and ends when the vessel sends a Type 4 message (Final Report).

Any non-participating vessel may join SISTRAM at any time by sending a Type 1 message. Such a vessel may leave SISTRAM at any time by sending a Type 4 message. Line X should be completed in the Final Report, including the reason for terminating participation.

SISTRAM Area

The SISTRAM area is bounded by a line joining the following positions:

a. 4°30.5'N, 51°38.2'W.
b. 8°35.0'N, 48°00.0'W.
c. 10°00.0'N, 48°00.0'W.
d. 10°00.0'N, 36°00.0'W.
e. 7°40.0'N, 35°00.0'W.
f. 6°22.0'S, 16°00.0'W.
g. 6°22.0'S, 10°00.0'W.
h. 34°00.0'S, 10°00.0'W.
i. 34°00.0'S, 48°27.0'W.
j. 35°48.0'S, 50°10.0'W.
k. 34°00.0'S, 53°00.0'W.

Types of Messages

Type 1 (Sailing Plan).—This report provides the basic information required to estimate the ship's position and should be sent when the ship joins SISTRAM, when the vessel departs from a Brazilian port, or when a vessel enters the SISTRAM area from other ports.

The report should be sent as early as possible prior to entering the SISTRAM area or prior to departure from a Brazilian port. When in port, the report may be sent as a written document.

Type 2 (Position Report).—This report confirms that the vessel has departed or if its position in the Sailing Plan is correct. It must be sent within the first 24 hours after departing from a Brazilian port.

Type 3 (Deviation Report).—This report provides information for necessary corrections to the existing Sailing Plan. A deviation report should be sent whenever the ship's position deviates 25 miles or more from the original track, the destination port is changed, or other changes occur which result in changing the Sailing Plan.

Type 4 (Final Report).—The Final Report provides the information which terminates the vessel's participation in SISTRAM. Accordingly, reports should be sent at least 1 hour before entering the destination port or when exiting the SISTRAM area.

Reporting Format

Each message consists of a selection of items from the message format list. Message items should be separated by a stroke (/), omitted items by a dash between two strokes (/-/), and the end of the message item by a double stroke (//). The system name (SISTRAM), type of message, and date-time group should precede every message.

The message always begins, as follows:

System Name (SISTRAM)/Type of Message (1, 2, 3, or 4)/ Date-Time-Month-Year of Transmission//

The message formats for the four types of messages are given in the accompany table titled **SISTRAM—Message Formats**.

Transmission of Messages

Participation in SISTRAM is free of charge when reports are sent through the Brazilian Coastal Radio Station Network (RENEC). The preferred and most effective means of transmitting SISTRAM reports is via e-mail. Reports may also be sent via facsimile or telephone. The contact information is, as follows:

1. Surface mail address:
   Edificio Almirante Tamandare - 6 andar
   Praca Barao de Ladario, S/N, Centro
   Rio de Janeiro - RJ - Brazil CEP: 20091-000
2. Telephone: 55-21-2104-6353
3. Facsimile: 55-21-2104-6341
4. E-mail: controle@cotram.mar.mil.br
5. Web site: http://www.comcontram.mar.mil.br

Note.—Vessels can also register through the SISTRAM web site to send their SISTRAM messages:

SISTRAM Home Page
http://www.sistram.mar.mil.br

The Brazilian Coast Radio Station Network stations which accept SISTRAM messages are, as follows:

1. Almerim.
2. Angra dos Reis.
3. Aracaju.
4. Aracati.
5. Belem.
6. Belem Mosqueiro.
7. Breves.
8. Cabedelo.
9. Campos.
10. Casimiro de Abreu.
11. Cavalinho.
12. Fernando de Noronha.
13. Florianapolis.

14. Fortaleza.
15. Ilheus.
16. Itacoatiara.
17. Itajai.
18. Joinville.
19. Juncao.
20. Laguna.
21. Macapa.
22. Maceio.
23. Manaus.
24. Morro do Meio
25. Morro Reuter.
26. Mossoro.
27. Natal.
28. Olinda.
29. Osorio.
30. Paranagua.
31. Parintins.
32. Porto Alegre.
33. Rio de Janeiro (Livramento).
34. Rio de Janeiro (Santa Cruz).
35. Rio de Janeiro (Sumare).
36. Rio Novo do Sul.
37. Salvador.
38. Santarem.
39. Santos (GJA).
40. Santos (PARP).
41. Sao Luis.
42. Sao Mateus.
43. Sao Sebasitiao.
44. Teixeira de Freita.
45. Vitoria.

SISTRAM—Message Formats

Desig-nator	Information	Type 1 (Sailing Plan)	Type 2 (Position Report)	Type 3 (Deviation Report)	Type 4 (Final Report)	Remarks
A	Call sign/Vessel name/Flag/Type//	X	X	X	X	See Note 1.
B	Date-time of departure//	X	X			See Note 2.
C	Latitude/Longitude//		X			See Note 3.
E	Current course//	O	X	O	O	See Note 4.
F	Estimated average speed//	O	X	O	O	See Note 5.
G	Port of departure/Latitude/Longitude//	X				See Note 3.
I	Port of destination/Latitude/Longitude//	X		X		See Notes 3 and 11.
K	Port of arrival or exit point/Latitude/Longitude/ETA//				X	See Note 3.
L	Average speed/Latitude/Longitude/ETA//	X		X		See Notes 3, 6, and 7.
M	Current coastal radio station/Next coastal radio station//	X	X	X		
V	Onboard medical resources//	X				See Note 8.
X	Amplifying comments (up to 65 characters)//	O	O	O	O	See Note 9.
Y	Comments//	O	O	O	O	See Note 10.

X—Mandatory field.
O—Optional field.

Note 1	Select vessel type as appropriate: TM-General cargo TMO-Tanker TMB-Bulk carrier TMF-Ferry TMT-Tug TMC-Container TME-Roll-on/roll-off TMM-Research	Select vessel type as appropriate: PLAT-Platform TMGB-Icebreaker TMK-Cable layer TMH-Heavy lift TMOS-Special liquids FPOS-Floating production, storage, and off-loading OTR-Other

SISTRAM—Message Formats						
Desig-nator	**Information**	**Type 1 (Sailing Plan)**	**Type 2 (Position Report)**	**Type 3 (Deviation Report)**	**Type 4 (Final Report)**	**Remarks**
Note 2	All date-time groups start with six (6) digits. The first two (2) digits are the day of the month. The next four (4) digits are hours and minutes using the 24-hour clock. Only Universal Coordinated Time (UTC) is to be used. The date-time group (six-digit) must be followed by the capital letter Z. The remainder of the date-time group must contain the first three letters of the month and the last two digits of the year.					
Note 3	Latitude is a four-digit group expressed in degrees and minutes and suffixed with “N” for North or “S” for South. Longitude is a five-digit group expressed in degrees and minutes and suffixed with “E” for East or “W” for West.					
Note 4	Current course as a three-digit group.					
Note 5	Estimated average speed for the entire passage is expressed in a three-digit group representing knots and tenths of a knot.					
Note 6	The information about the proposed route, in line L, is expressed by at least three (3) points. When a ship enters the SISTRAM area, show in the first line “L” of the Type 1 message (Sailing Plan) the latitude/longitude of that point and the estimated time of arrival (ETA). In the Type 3 message (Deviation Report), in the first line “L,” insert the data about the points where the course changes or of the first point which confirms deviation (if greater than 25 miles) from the planned route.					
Note 7	Estimated average speed to the intended turn point is expressed in a three digit group representing knots and tenths of knots.					
Note 8	Select onboard medical resources as appropriate: MD-Physician PA-Physician’s assistant or Health Supervisor NURSE-Nurse NONE-None					
Note 9	Optional information such as reference data for SISTRAM. Examples include date-time estimates for the next transmission, type of cargo, or INMARSAT number.					
Note 10	Can be used for any other type of communication at the discretion of the merchant vessel.					
Note 11	**Course Deviation Data Items.—**This is used to specify changes to the Type 1 message (Sailing Plan). An example shown below indicates the destination port was changed to Salvador: I/Salvador/1258S/03831W/051800Z//					

BRITISH INDIAN OCEAN TERRITORY

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General

The British Indian Ocean Territory, which includes the entire Chagos Archipelago, lies about midway between Indonesia and Africa and is an overseas territory of the United Kingdom. It is composed of a group of five atolls. The numerous coral islands and banks forming the atolls are flat and only attain heights of up to 4m.

Diego Garcia (7°20'S., 72°27'E.) is the largest and southernmost atoll of the group. It is the site of a joint US/UK military facility. There is no permanent population.

The climate is tropical. It is hot, humid, and moderated somewhat by the trade winds.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Anti-pollution laws are strictly enforced in the area of the atolls.

Fishing Areas

The entire British Indian Ocean Territory has been declared a Marine Protected Area (MPA). No commercial fishing is allowed.

Recreational fishing by personnel based at Diego Grarcia and subsistence fishing by yachts sailing through the MPA are strictly regulated.

Government

The British Indian Ocean Territory is an overseas territory of the United Kingdom.

The British Indian Ocean Territory is governed by a Commissioner and Administrator appointed by the British monarch.

The legal system is based on the laws of the United Kingdom.

Flag of the British Indian Ocean Territory

Industries

There is no agricultural or industrial activity on the atolls.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of the British Indian Ocean Territory are, as follows:

Territorial Sea	3 miles.
Fisheries or Economic Zone *	200 miles.

* Claims a 200-mile Environment Protection and Preservation Zone.

Maritime Disputes

The Chagos Archipelago is claimed by both Mauritius and Seychelles.

Regulations

Access to the British Indian Ocean Territory is restricted and a permit is required. There are no commercial airline flights to the territory and permits are only issued to yachts in safe passage. The territory is not a tourist destination.

Access to Diego Garcia is only permitted to those with connections to the military facility. The British Indian Ocean Territory Administration in the United Kingdom Foreign and Commonwealth Office in London (http://www.fco.gov.uk) is responsible for issuing permits.

The are no medical facilities in the territory. Search and rescue facilities are limited. Comprehensive travel insurance, to include medical evacuation to the value of $100,000, and yacht insurance, to include wreck clean up and disposal, should be obtained before traveling.

Vessels are not allowed to approach within 3 miles of Danger Island (6°23'S., 71°14'E.). Cow Island (6°14'S., 71°18'E.), or Three Brothers (6°09'S., 71°31'E.).

Vessel fuel tanks may not be cleaned or blown down within 3 miles of Diego Garcia.

Search and Rescue

A continuous listening watch is maintained for distress traffic on 282.8 MHz, 243.0 MHz, 121.5 MHz, and VHF channel 16 (Port Control).

The British Representative can be contacted via the British Indian Ocean Territory Police by telephone, as follows:

a. 246-370-2938
b. 246-370-2939 (24 hour police)

Port Control can be contacted, as follows:

1. Telephone: 246-370-4301
2. Facsimile: 246-370-3028

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is FOXTROT (-6). Daylight Savings Time is not observed.

U.S. Embassy

The British Indian Ocean Territory is an overseas territory of the United Kingdom. There is no diplomatic representation.

BURMA

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General

Burma, also known as Myanmar, is located in Southeast Asia and borders the Andaman Sea and the Bay of Bengal. It is

bounded on the W by Bangladesh and India, on the N by China, and on the E by Laos and Thailand.

The terrain consists of a central lowland ringed by steep rugged highlands.

The climate is mostly tropical monsoon. The summer is rainy, hot, and humid during the Southwest Monsoon (June to September). The winter is mild, with lower humidity during the Northeast Monsoon (December to April).

Buoyage System

The IALA Buoyage System (Region A) is in effect; caution is necessary, however, as in some areas buoys and beacons may not conform to the system. See Chart No. 1 for further IALA Buoyage System information.

Buoys may be removed during the monsoon season (mid-May to mid-September).

Cautions

Uncharted drilling rigs may be temporarily located in the Andaman Sea. Uncharted well heads and other obstructions may also be located in the Andaman Sea.

Currency

The official unit of currency is the kyat, consisting of 100 pyas.

Firing Areas

Saint John;s Rocks (Church Rocks).—An area bounded by lines joining the following positions:

a. 17°39.5'N, 94°07.3'E.
b. 17°39.5'N, 94°25.0'E.
c. 17°15.5'N, 94°25.0'E.
d. 17°15.5'N, 94°07.3'E.

Investigator Passage.—An area bounded by lines joining the following positions:

a. 12°46.0'N, 98°05.5'E.
b. 12°46.0'N, 97°41.0'E.
c. 17°36.0'N, 97°41.0'E.
d. 17°36.0'N, 94°05.5'E.

Fishing Areas

Heavy concentrations of large and small fishing vessels will be encountered, especially from September to May, off the ports and harbors of Burma.

Mariners should keep a good lookout, especially at night and around sunrise and sunset, when navigating in coastal waters.

Fishing stakes and enclosures are generally found on off-lying banks and off the coast in depths of 5 to 10m, but occasionally in greater depths. Their positions are subject to considerable change.

Government

Burma, also known as Myanmar, is a military regime with a nominal parliamentary system. The country is divided into seven states, seven regions, and one union territory.

Flag of Burma

Burma is governed by President elected by the Parliament from among three vice presidents to a 5-year term. The legislature consists of the 224-member House of Nationalities (168 directly-elected members and 56 members appointed by the military) and the 440-member House of Representatives (330 directly-elected members and 110 members appointed by the military), all serving 5-year terms.

The legal system is based on remnants of the British era, but there is no guarantee of fair trials, as the judiciary is not independent of the military regime.

The capital is Rangoon (referred to by the regime as Yangon). Nay Pyi Taw, about 375 miles N of Rangoon (Yangon), is the administrative capital.

Holidays

The following holidays are observed:

January 4	Independence Day
February 12	Union Day
March 2	Peasants' Day
March 27	Armed Forces Day
May 1	May Day
July 19	Martyrs Day
November 11	National Day
December 25	Christmas Day

Other holidays, which are subject to the appearance of the moon, are Full Moon of Tabaung, Thingyan (Burmese Water Festival), Burmese New Year's Day, Full Moon of Kason (Beginning of Buddhist Lent), Full Moon of Waso, Full Moon of Thadingyut (End of Buddhist Lent), Tazaungdaing, National Day, Karen New Year, Idul Athwaha, and Dewali.

Industries

The principal industries are agriculture, wood and wood products, mining (copper, tin, tungsten, and iron), cement, construction materials, pharmaceuticals, fertilizer, oil and natural gas, garments, jade, and gems.

The main exports are natural gas, wood products, pulses,

beans, fish, rice, clothing, jade, and gems. The main export-trading partners are China, Thailand, and India.

The main imports are fabric, petroleum products, fertilizer, plastics, machinery, transport equipment, cement, construction materials, crude oil, edible oil, and food products. The main import-trading partners are China, Thailand, Singapore, and Japan.

Languages

Burmese is the official language.

Navigational Information

Enroute Volume

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of Burma are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims the following as internal waters:

1. All waters inside a 223-mile baseline closing the Gulf of Martaban.
2. All waters inside straight baselines connecting coastal islands.

** Also considered a Security Zone.

Maritime Boundary Disputes

Bangladesh, Burma, and India have referred their maritime boundary claims to the International Tribune on the Law of the Sea.

Search and Rescue

Search and rescue operations are coordinated between the Myanmar air force, the Myanmar navy, the Department of Civil Aviation, and the Department of Marine Administration. A Maritime Rescue Coordination Center is located in Rangoon (Yangon) and can be contacted, as follows:

1. Telephone: 95-3131642
2. Facsimile: 95-1202417
3. E-mail: mrcc.yangon@mptmail.com.mm

Rangoon (Yangon) Coast Radio Station (XYR) maintains a continuous listening watch on international distress frequencies. Myeik Coast Radio Station (XYM) maintains a continuous listening watch on VHF channels 16 and 70.

Signals

Storm Signals

The General System is used in Dawei (14°04'N., 98°11'E), Mawlamyine (Moulmein) (16°29'N., 97°37'E.), and Meyeik (12°26'N., 98°36'E.). The Extended System is used in Sittwe (Akyab) (20°08'N., 92°55'E.), Thamihla Kyan (15°52'N., 94°17'E.), and Yangon (Rangoon) (16°46'N., 96°10'E.). For further information, see **India—Signals—Storm Signals**.

Time Zone

The observed Standard Time is 6 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 110 University Avenue, Kamayut Township, Rangoon.

The mailing address is Box B, APO AP (96546).

U. S. Embassy Burma Home Page
http://burma.usembassy.gov

CAMEROON

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General

Cameroon, located on the SW coast of Africa, is bounded on the NW by Nigeria; on the E by Chad and the Central African Republic; and on the S by the Republic of Congo, Gabon, and Equatorial Guinea.

The country may be divided into four distinct physical regions, as follows:

1. The S region consists of a coastal plain covered by dense rain forests.
2. The central region consists of the Adamawa Plateau, which is 1,370m high.
3. The N region is a transitional area, with forests giving way to savanna country. In the far N part of this region, the savanna gradually slopes into marshland surrounding Lake Chad.
4. The W region consists of forested mountains up to 4,090m high.

Numerous rivers are located along the coast but are generally encumbered with rapids.

The climate is equatorial, with high temperatures and plentiful rainfall occurring during all seasons. The heaviest rain falls from March to June and from September to November.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Mariners are advised to be alert for pirates in the waters off the coast of Cameroon.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

The official unit of currency is the French African Community franc, consisting of 100 centimes.

Government

Flag of Cameroon

Cameroon is a republic. The country is divided into ten regions.

Cameroon is governed by a directly-elected President serving a 7-year term. The Prime Minister and the Council of Ministers are appointed by the President. The bicameral Legislature consists of a 100-member Senate (70 members indirectly elected by municipal councils and 30 members appointed by the President) and a 180-member directly-elected National Assembly, all serving 5-year terms.

The legal system is based on French civil law, English common law, and customary law.

The capital is Yaounde.

Holidays

The following holidays are observed:

January 1	New Year's Day/Independence Day
January 12	Feast of the Lamb
February 11	Youth Day
Good Friday	Variable
Holy Saturday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 20	National Day
Ascension Day	Variable
August 15	Assumption of the Blessed Virgin Mary
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan) and Eid Al-Adha (End of Pilgrimage).

In addition, two or more local holidays are usually celebrated in each region. Autonomous provinces may celebrate certain local holidays instead of some of the general holidays.

Industries

The main industries are agriculture, petroleum production and refining, aluminum production, food processing, light consumer goods, textiles, lumber, and ship repair.

The main exports are crude oil and petroleum products, lumber, cocoa beans, aluminum, coffee, and cotton. The main export-trading partners are Spain, China, India, Italy, the Netherlands, and Belgium

The main imports are machinery, electrical equipment, transport equipment, fuel, and food. The main import-trading partners are China, Nigeria, and France.

Languages

English and French are the official languages; however, 24 major African dialects are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Cameroon are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	**
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines.

** Extends from the external boundary of the territorial sea to the limit placed under its jurisdiction under international law.

Maritime Boundary Disputes

An equidistant settlement of the Cameroon-Equatorial Guinea-Nigeria maritime boundary was reached in 2002, but a dispute remains between Cameroon and Equatorial Guinea over an island at the mouth of the Riviere Ntem and imprecisely-defined maritime coordinates in the settlement.

Search and Rescue

Douala Coast Radio Station (TJC) maintain a continuous listening watch for distress calls on 2182 kHz.

RSC Douala can be contacted, as follows:

1. Telephone: 237-33423975
   237-33421539
2. Facsimile: 237-33423139

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting**

System.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Avenue Rosa Parks, Yaounde.

The mailing addresses are, as follows:

1. Cameroon address—
   P.O. Box 817
   Yaounde
2. U.S. address—
   American Embassy Yaounde
   Department of State
   Washington DC (20521-2520)

U. S. Embassy Cameroon Home Page
http://yaounde.usembassy.gov

COMOROS

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General

The Comoros (Iles Comores), a group of four islands, lie W of the N end of Madagascar, in the middle of the N entrance to the Mozambique Channel.

The islands are of volcanic origin and their interiors vary from low hills to steep mountains. The climate is tropical, affected by the Indian monsoon winds from N, with a wet season from November to April.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Buoyage around the three westernmost islands cannot be relied upon and navigational lights on the coasts are frequently reported to be extinguished or irregular.

Currency

The official unit of currency is the Comorian franc, consisting of 100 centimes.

Firing Areas

For information on firing practice areas off Ile de Mayotte, see **Reunion—Firing Areas**.

Fishing Areas

Information on fishing activities in the vicinity of the Comoros is given in the table titled **Comoros—Fishing Operations**.

Comoros—Fishing Operations

Type of Fishing	Fishing Technique	Season
Sailing canoes	Traps, handlines, and gill nets	Year round.

Comoros—Fishing Operations		
Type of Fishing	**Fishing Technique**	**Season**
Motorized boats less than 10m long	Traps, handlines, trolling, and gill nets	Year round.
Tuna boats less than 30m long	Deep long lines	August to January—between Madagascar and the Equator. January to June—south of Mauritius.
Tuna boats (600 to 2,500 gross tons)	Purse seining	Year round. The main season is from September to March in the area of Madagascar/ Seychelles Bank/Chagos Archipelago.

Fish aggregating devices have been established around the coast of Ile de Mayotte. They are marked by strings of orange-colored floats and masts displaying flags. Vessels should maintain a clearance of at least 1.5 miles from these devices.

Government

Comoros

Flag of the Comoros

The Comoros consists of Grand Comore (Njazidja), Moheli (Mwali), and Anjouan (Nzwani). These three islands, the westernmost of the group, gained independence from France in 1975 after a referendum.

The Comoros is governed by a President, serving a rotating 4-year term, selected from the elected Presidents of the three islands of the group. The unicameral Assembly of the Union consists of 33 members serving 5-year terms; 9 members are selected by the individual islands' legislative bodies, with the remaining 24 members being directly elected.

The legal system is based on French and Muslim law in a new consolidated code.

The capital is Moroni.

Mayotte

Mayotte (Ile Mayotte), the easternmost island of the group, is an overseas department of France. After referendums in 1976, the island rejected inclusion into the Comoros.

Holidays

The following holidays are observed in the Comoros:

January 1	New Year's Day
March 16	Anniversary of the Death of ex-President S. M. Cheikh
May 1	Labor Day
May 25	Organization of African Unity Day
May 29	Anniversary of the Death of ex-President A. Solih
July 6	National Independence Day
November 26	Anniversary of the Death of ex-President A. Abdallah
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

The following holidays are observed in Mayotte:

January 1	New Year's Day
Easter Monday	Variable
May 1	Labor Day
Ascension Day	Variable
Whitmonday	Variable
July 14	National Holiday
August 15	Assumption of the Blessed Virgin Mary
November 1	All Saints' Day
November 11	1918 Armistice Day
December 25	Christmas Day

Several Islamic holidays are also observed.

Industries

The main industries are agriculture, fishing, tourism, and perfume distillation.

The main exports are vanilla, ylang-ylang (a perfume essence), and cloves. The main export-trading partners are India. Singapore, France, Germany, and Saudi Arabia.

The main imports are rice and other foodstuffs, consumer goods, petroleum products, cement, and transport equipment. The main import-trading partners are China, Pakistan, France, Algeria, the United Arab Emirates, and India.

Languages

French, Arabic and Shikomoro (Comoran), a blend of Swahili and Arabic, are official languages.

Navigational Information

Enroute Volume
Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims
The maritime territorial claims of the Comoros are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims archipelagic status.

Maritime Boundary Disputes
Claims the French-administered island of Mayotte.
Challenges France's and Madagascar's claims to Banc du Geyser (12°41'S., 46°26'E.), a drying reef in the Mozambique Channel.

Regulations

Foreign fishing vessels that have traditionally fished in the waters around the Comoros are permitted to do so, but only at a distance of 6 miles or more from the coasts. Other foreign vessels are prohibited from fishing inside the territorial waters.

Signals

Storm signals denoting the localities of the Comoros and Madagascar threatened by a cyclone are indicated by showing a black cylinder and black cones, displayed from a flagstaff, as described in the accompanying table titled **Comoros—Storm Signals**. The signals are numbered from 1 to 14 to permit rapid transmission by radio.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

There is no diplomatic representative in the Comoros. The U.S. ambassador to Madagascar is accredited to the Comoros.

U. S. Embassy Madagascar Home Page
http://antananarivo.usembassy.gov

Comoros—Storm Signals

Signal No.	Signal	Meaning
1	Cylinder above two cones, points upward	Between Antsiranana and Antalaha—E coast of Madagascar
2	Cylinder between two cones, points upward	Between Antalaha and Port Sainte Marie (Ambodifototra)—E coast of Madagascar
3	Cylinder below two cones, points upward	Between Port Sainte Marie (Ambodifototra) and Vatomandry —E coast of Madagascar
4	Cylinder above two cones, points downward	Between Vatomandry and Mananjary—E coast of Madagascar
5	Cylinder between two cones, points downward	Between Mananjary and Farafangana—E coast of Madagascar
6	Cylinder below two cones, points downward	Between Farafangana and Tolanaro (Faradofay)— E coast of Madagascar
7	Cylinder below two cones, with the upper cone point downwards and the lower cone point upwards	Between Antsiranana and Hellville (Andoany)—W coast of Madagascar
8	Cylinder above a cone, points upwards	Between Hellville (Andoany) and Mahajanga (Majunga)—W coast of Madagascar
9	Cylinder below a cone, points upwards	Between Mahajanga (Majunga) and Maintirano—W coast of Madagascar
10	Cylinder above a cone, points downwards	Between Maintirano and Morondava—W coast of Madagascar
11	Cylinder below a cone, points downwards	Between Morondava and Toliari—W coast of Madagascar
12	Cylinder above two cones, with the upper cone point downwards and the lower cone point upwards	Between Toliari and Tolanaro (Faradofay)—S extremity of Madagascar

Comoros—Storm Signals		
Signal No.	**Signal**	**Meaning**
13	Cylinder between two cones, points towards the cylinder	Comoros
14	Cylinder between two cones, bases towards the cylinder	E part of the Comoros

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General

The Democratic Republic of the Congo, formerly known as Zaire, is located in the central part of Africa. It is bounded on the N by the Central African Republic; on the NE by Sudan; on the E by Uganda, Rwanda, and Burundi; on the S by Zambia; on the SW by Angola; and on the NW by the Republic of Congo.

Cabinda, an Angolan enclave, lies on the NW side of the strip that extends to the Atlantic Ocean.

A low plateau extends between the highlands of East Africa and the coastal ranges of West Africa from the basin of the central part of the country. Dense rain forests cover the central lowlands. They are bordered to the SE by the Shaba region, a high plateau, and to the S by the lower lands of the Angola plateau. Rain forests in the E part of the country rise to the mountains bordering the lakes.

The climate is varied, the central region having an equatorial climate with yearlong high temperatures and rain in all seasons. Elsewhere, depending on position N or S of the Equator, there are well-defined wet and dry seasons. The mountains of the E and S regions have a temperate climate with the highest summits having considerable snowfall.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported that obsolescent buoyage (Uniform System of Buoyage) may still be encountered in some waters.

Cautions

Piracy

Mariners are advised to be alert for pirates in the waters off the coast of Democratic Republic of the Congo.

Currency

The official unit of currency is the Congo franc.

Government

The Democratic Republic of the Congo is a republic. The

Flag of the Democratic Republic of the Congo

country is divided into 25 provinces and one city.

The Democratic Republic of the Congo is governed by a directly-elected President serving a 5-year term. The Cabinet is appointed by the President. The legislature consists of a 108-member Senate, whose members are indirectly elected by provincial assemblies to 5-year terms, and the 500-member National Assembly, consisting of 61 members who are directly elected and 439 members chosen by open list proportional representation, all serving 5-year terms.

The legal system is based on Belgian civil law.

The capital is Kinshasa.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 4	Day of the Martyrs
January 16-17	National Heroes Days
May 1	Labor Day
June 30	Independence Day
August 1	Parent's Day
October 14	Founder's Day/Youth Day
October 27	Naming Day (Three-Z Day)
November 17	Army Day
November 24	New Regime Anniversary
December 25	Christmas Day

Industries

The main industries are mining (gold, copper, cobalt, coltan, zinc, tin, tungsten, and diamonds), mineral processing, consumer products, timber, metal products, processed foods and beverages, cement, and commercial ship repair.

The main exports are diamonds, gold, copper, crude oil, wood products, coffee, and cobalt. The main export-trading partners are China, Zambia, and Italy.

The main imports are foodstuffs, mining and other machinery, transport equipment, and fuels. The main import-trading partners are China, South Africa, Zambia, Belgium, and Zimbabwe.

Languages

French is the official language, but English is also used. Of the 200 native dialects, four (Swahili, Tshiluba, Kikongo, and Lingala) have been recognized as national languages.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of the Democratic Republic of Congo are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles. *
Continental Shelf	350 miles measured from the baseline or to 100 miles from the 2,500m curve.

* To median lines or boundaries.

Maritime Boundary Disputes

The maritime boundary between the Democratic Republic of the Congo and the Republic of the Congo in the Congo River is indefinite, except in the Pool Malabo/Stanley Pool area.

Search and Rescue

RCC Kinshasa can be contacted by telephone (243-999-925964).

Banana Coast Radio Station (9PA) maintains a continuous listening watch for distress calls on 2182 kHz and VHF channel 16.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Democratic Republic of the Congo is covered by two Time Zones, as follows:

1. Eastern Zone—The Time Zone description is BRAVO (-2). Daylight Savings Time is not observed.
2. Western Zone—The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 310 Avenue des Aviateurs, Kinshasa-Gombe.

The mailing addresses are, as follows:

1. Congo address—
   310 Avenue des Aviateurs
   B.P. 697
   Kinshasa 1
2. U.S. address—
   Unit 2220
   APO AE (09828)

U. S. Embassy Democratic Republic of the Congo (Zaire) Home Page
http://kinshasa.usembassy.gov

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General

Congo, known as the Republic of the Congo, is located in the W part of Africa. It is bounded on the W by Gabon; on the NW by Cameroon; on the NE by the Central African Republic; on the E and S by the Democratic Republic of the Congo (formerly known as Zaire); and on the S by the Angolan province of Cabinda.

The coast, which is 84 miles long, fronts the South Atlantic Ocean and extends between a position lying 10 miles SE of Pointe Banda (3°49'S., 11°01'E.) and a point lying 19 miles SSE of Pointe Noire.

The terrain is partly mountainous, with a dense forest in the N part.

The climate is equatorial, being constantly hot and humid. There is a long dry season, from May to October, in the SW region. The NE region is more humid, with a heavy annual rainfall.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported that some obsolescent buoyage (Uniform System of Buoyage) may still be encountered.

Cautions

Aids to Navigation

It is reported that lights and navigational aids on the coast of Republic of Congo are unreliable; they may be missing, unlit, or out of position.

Currency

The official unit of currency is the French African Community franc, consisting of 100 centimes.

Government

The Republic of the Congo is a republic. The country is divided into 12 departments.

The Republic of the Congo is governed by a directly-elected President serving a 7-year term. The President appoints a Council of Ministers. The bicameral Parliament consists of a 72-member indirectly-elected Senate serving 5-year terms and a 139-member directly-elected National Assembly serving 5-year terms.

The legal system is based on French civil law and customary law.

The capital is Brazzaville.

Flag of the Republic of the Congo

Holidays

The following holidays are observed:

January 1	New Year's Day
February 5	President's Day
February 8	Youth Day
March 8	Congolese Women's Day
March 18	Marien Ngoubai Day
May 1	Labor Day
June 10	Commemoration of the National Sovreign Conference
June 22	National People's Army Day
July 31	Congo Revolution Day
August 15	Independence Day (Anniversary of the Revolution)
December 25	Christmas Day
December 31	Congolese Labour Party Foundation Day/Republic Day

Industries

The main industries are petroleum extraction, cement, brewing, lumber, sugar, palm oil, soap, flour, and cigarettes.

The main exports are petroleum, lumber and plywood, sugar, cocoa, coffee, and diamonds. The main export-trading partners are China, Australia, and Italy.

The main imports are capital equipment, construction materials, and foodstuffs. The main import-trading partners are Algeria, China, and France.

Languages

French is the official language. Lingala, Kongo, and Monokutuba are the most widely used of several African languages.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of the Republic of the Congo are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea.

Maritime Boundary Disputes

The maritime boundary between the Democratic Republic of the Congo and the Republic of the Congo in the Congo River is indefinite, except in the Pool Malabo/Stanley Pool area.

Regulations

In the event of congestion at the ports, vessels are obligated to work cargo at night and on Sundays. If they refuse to do this, vessels may be relegated to the roadstead anchorages and thereby lose their turn to berth alongside.

As the customs officials are very strict, store lists and crew declarations must be accurate, as the slightest error is penalized and a fine imposed.

Search and Rescue

The Congolese Navy is responsible for coordinating search and rescue operations.

Rescue Coordination Center (RCC) Navy can be contacted by telephone (242-22-2941344).

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

Traffic Separation Schemes

A Traffic Separation Scheme has been established by the Government of the Republic of the Congo in the approaches to Pointe-Noire. This scheme is not IMO adopted.

U.S. Embassy

The U.S. Embassy is located at 70-83 Section D, Maya Maya Boulevard, Brazzaville.

The mailing address is BP 1015 Brazzaville.

U. S. Embassy Republic of the Congo Home Page
http://brazzaville.usembassy.gov

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General

Djibouti, located in the NE part of Africa, has a coast, about 195 miles long, and extends for about 48 miles inland. It is bordered on the NW by Eritrea, on the W by Ethiopia, on the SE by Somalia, and on the E by the Gulf of Aden.

The country has a coastal plain and a plateau, separated by central mountains.

The climate is dry, with high temperatures and sparse rainfall.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Special Warning 125 (Issued 15 March 2010)

Information on Special Warning 125 can be found in **Yemen—Cautions**.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Maritime Security Patrol Area

The Commander, U.S. Navy Central Command has directed the establishment of a Maritime Security Patrol Area (MSPA) in the Gulf of Aden. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy—Maritime Security Patrol Area**.

Currency

The official unit of currency is the Djibouti franc, consisting of 100 centimes.

Government

Flag of Djibouti

Djibouti is a republic. The country is divided into six districts.

Djiboiti is governed by a directly-elected President serving a 5-year term. The Prime Minister is appointed by the President. The unicameral Parliament consists of a 65-member directly-elected Chamber of Deputies serving 5-year terms. Constitutional amendments adopted in 2010 provide for the establishment of a Senate.

The legal system is based on French civil law, Islamic law, and customary law.

The capital is Djibouti.

Holidays

The following holidays are observed:

January 1	New Year's Day
May 1	Labor Day
June 27	Independence Day (2 days)

Islamic holidays, which are subject to the appearance of the moon, include Eid-il-Fitr (End of Ramadan), Eid-il-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are construction, agricultural processing, and shipping.

The major exports are hides and skins, coffee (in transit), and the re-exporting of cargo in transit. The main export-trading partners are Somalia and Yemen.

The main imports are food, beverages, transport equipment, chemicals, clothing, and petroleum products. The main import partners are China, Saudi Arabia, Indonesia, and India.

Languages

French and Arabic are the official languages. Several Somali and Afar dialects are also widely used.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Djibouti are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.

* Claims straight baselines. Nuclear-powered vessels and vessels transporting nuclear materials or other radioactive substances are required to give notice prior to entering the territorial sea.

Pollution

MARPOL Special Area

The Gulf of Aden has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Indian Ocean—Pollution—MARPOL Special Areas**.

Search and Rescue

Djibouti Coast Radio Station (J2A) maintains a continuous listening watch for distress calls on VHF channel 16.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Maritime Liaison Office (MARLO) Bahrain Recommended Reporting Procedures

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 48 hours prior to entering the Gulf of Aden recommended transit corridor. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

Traffic Separation Schemes

An IMO-adopted Traffic Separation Scheme is located in the Strait of Bab al Mandeb.

U.S. Embassy

The U.S. Embassy is situated at Lot 350-B, Haramouss, Djibouti.

The mailing address is B.P. 185, Djibouti.

U. S. Embassy Djibouti Home Page
http://djibouti.usembassy.gov

EGYPT

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General

Egypt is located in the N part of Africa. It is bordered on the N by the Mediterranean Sea; on the W side by Libya; on the E side by the Gaza Strip, Israel, the Gulf of Aqaba, and the Red Sea; and on the S by Sudan. The Sinai Peninsula, which forms the E part of the country, is bordered on its W by the Gulf of Suez and the Suez Canal and on its E by the Gulf of Aqaba.

A number of Egyptian islands lie within the Gulf of Suez and the Red Sea. These include Jazirat Jubal, Jazirat Shakir, Jazair Jiftun, and Jazirat Zabarjad (St. Johns Island).

The Nile River, in the 960 miles of its course through Egypt, does not receive a single tributary. The First Cataract is near Aswan (24°05'N., 32°52'E.), above which has been constructed the High Dam. Most of the country is an arid desert. Only the Nile valley, the Nile delta, and some oases are cultivated. Several mountain ranges intersect the desert between the Nile River and the Red Sea. The climate is arid with hot dry summers and moderate winters.

The Suez Canal, a sea-level waterway, connects Port Said (Bur Said) on the Mediterranean Sea with Suez (As Suways) on the Red Sea. Regulations, restrictions, and other operational details concerning transit of the Suez Canal are fully described in Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Areas to be Avoided

Several Areas to be Avoided, best seen on the chart, have been established along the coast on the W side of the S approach to the Strait of Tiran, around several islands on the E side of the strait, and on the W side of the Red Sea N of the strait. Three charted Areas to be Avoided are IMO-adopted; the remainder have not been adopted by the IMO. To avoid the risk of severe damage to critical ecosystems, the environment, and the economy of the area, all vessels carrying dangerous or toxic cargo, or any other vessel exceeding 500 gt, should avoid these areas.

The IMO-adopted areas are located, as follows:

1. North of the Strait of Tiran—An area bounded by the coast and lines joining the following positions:

a. 28°46'00.0"N, 34°37'30.0"E. (coast)
b. 28°46'00.0"N, 34°40'00.0"E.
c. 28°24'00.0"N, 34°31'00.0"E.
d. 28°18'00.0"N, 34°26'00.0"E.
e. 28°11'00.0"N, 34°29'00.0"E.
f. 28°06'00.0"N, 34°28'00.0"E.
g. 28°01'30.0"N, 34°25'30.0"E. (coast)

2. North of Sharm el Sheikh Harbor—An area bounded by the coast and lines joining the following positions:
a. 27°58'00.0"N, 34°25'00.0"E. (coast)
b. 27°50'30.0"N, 34°20'36.0"E.
c. 27°51'00.0"N, 34°17'12.0"E. (coast)

3. At the Southern Extremity of the Sinai Peninsula—An area bounded by the coast and lines joining the following positions:
a. 27°51'06.0"N, 34°16'36.0"E. (coast)
b. 27°47'10.8"N, 34°19'00.0"E.
c. 27°42'12.0"N, 34°17'00.0"E.
d. 27°41'00.0"N, 34°07'00.0"E.
e. 27°43'00.0"N, 34°04'00.0"E.
f. 27°48'18.0"N, 34°06'00.0"E. (coast)

The non-adopted areas are located, as follows:
1. The area encircling Jazirat Tiran (27°58'N., 34°33'E.).
2. The area along the W side of the Gulf of Aqaba extending N from latitude 28°46'N to the Egypt/Israel border.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in the Gulf of Suez are unreliable; they may be missing, unlit, or out of position.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Indian Ocean—Cautions** for further information.

Locust Reports

See **Indian Ocean—Cautions** for further information.

Magnetic Anomalies

A local magnetic anomaly of between 2°E and 3°E has been reported along the entire length of the E side of the Gulf of Aqaba.

Normal magnetic variation has been observed to decrease by 1° when in the vicinity of Jazirat Shakir (27°29.7'N., 33°59.9'E.).

Currency

The official unit of currency is the Egyptian pound, consisting of 100 piastres.

Government

Egypt is a republic. The country is divided into 27 governorates.

Flag of Egypt

Egypt is governed by a directly-elected President serving a 4-year term. The Prime Minister is appointed by the President. The unicameral 596-member House of Representatives consists of 446 directly-elected members, 120 members directly elected from party list constituencies (woman, youth, Christians, and workers), and 28 members appointed by the President.

The legal system is based on English common law, Islamic law, and the Napoleonic code.

The capital is Cairo.

Holidays

The following holidays are observed:

January 7	Coptic Christmas
April 25	Sinai Liberation Day
Easter Monday	Variable
May 1	Labor Day
June 18	Evacuation Day
July 23	Revolution Day
October 6	Armed Forces Day
October 24	Suez Victory Day
December 23	Victory Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Sham El Nessim (Spring Holiday), and the Prophet's Birthday.

Industries

The main industries are textiles, food processing, tourism, chemicals, pharmaceuticals, petroleum, construction, cement, metals, and light manufacturing.

The main exports are crude oil and petroleum products, fruits and vegetables, cotton, textiles, metal products, chemicals, and processed foods. The main export-trading partners are the Italy, Saudi Arabia, India, and Turkey.

The main imports are machinery and equipment, foodstuffs, chemicals, wood products, and fuels. The main import-trading partners are China, Germany, the United States, and Kuwait.

Languages

Arabic is the official language. English and French are widely understood by the educated classes.

Mined Areas

Due to dangerous mines, navigation is prohibited within an area on the W side of the Red Sea in an area bounded by the following positions:

a. 28°38.5'N, 32°51.0'E.
b. 28°38.5'N, 32°53.0'E.
c. 28°35.0'N, 32°56.0'E.
d. 28°33.5'N, 32°55.0'E.

Anchorage is not recommended, except in an emergency, in the Strait of Gubal. A former mined area, now declared safe, has been laid off the NE side of the fairway.

Navigational Information

Enroute Volumes

Pub. 132, Sailing Directions (Enroute) Eastern Mediterranean.

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Egypt are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.

** Also considered a Security Zone. Egypt claims the right to prior permission for entry of nuclear-powered vessels, vessels carrying nuclear materials, and foreign vessels carrying hazardous or other wastes.

Maritime Boundary Disputes

Saudi Arabia claims the Egyptian-administered islands of **Tiran** (27°56'N., 34°33'E.) and **Sanafir** (27°56'N., 34°43'E.) on the E side of the Strait of Tiran.

Offshore Drilling

Numerous oil rigs and platforms, most of which are marked by lights and, in some cases, for structures near the traffic lanes, by racons, are situated in the Gulf of Suez.

Pollution

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Regulations

Navigation

Navigation may be prohibited in certain areas within 20 miles of the Egyptian coast.

Vessels bound for Egyptian ports or navigating off the Egyptian coast are advised to obtain the latest information from their agents.

All vessels should send an ETA at least 24 hours in advance to the port authorities indicating their last port of call, position, course, and speed. Vessels navigating within 24 miles of the Egyptian coast should contact the port authorities for entry instructions.

Vessels bound for Egyptian ports in the Red Sea should request permission to enter Egyptian waters from the port authorities, through their agents, at least 48 hours before crossing the parallel of 23°N.

Vessels in the Gulf of Suez (Khalij as Suways) should maintain a listening watch on VHF channel 16.

Quarantine (Pre-arrival Reporting)

Pratique for El Iskandariya (Alexandria), Bur Said (Port Said), and El Suweis (Port Suez) may be granted prior to the vessel's arrival provided the following conditions are met:

1. The vessel must be a regular liner known to the Quarantine Authorities and have a doctor on board.
2. Details shown on the Quarantine Statement should be sent to the Quarantine Authorities 24 hours prior to ETA.
3. Prior to arrival, vessels must declare any accidents which may have taken place on board prior to arrival.
4. The vessel must not have called on any infected port.

The message address is "Quarantine (name of port)."

For Ain Sukhna and Sidi Kerir, a notification of a healthy crew holding vaccination certificates should be sent with the vessel's ETA message to SUMED Operations, El Iskandariya (Alexandria).

Protected Areas

All islands withing Egyptian territorial waters in the Red Sea are declared Protected Areas. It is forbidden to anchor, fish, cause pollution, leave litter, or disturb marine life within 1 mile of each of these islands. In addition, a permit and payment of park fees is required before entering the areas surrounding the following islands:

1. Gifatin Islands (27°13'N., 33°57'E.).
2. El Akhawein (26°19'N., 34°51'E.).
3. Abu El Kizan (24°56'N., 35°52'E.).
4. Gaziret Zabargad (23°36'N., 36°12'E.).
5. Rocky Island (23°34'N., 36°15'E.).

The coral reefs along the Egyptian coast in the following areas are also protected areas:

1. Between Ras Muhammad (27°43.5'N., 34°14.9'E.) and Ras Nasrani (27°58.0'N., 34°25.0'E.).
2. The Gulf of Aqaba.
3. Jazirat Tiran.

Routes

The Suez Canal

The Suez Canal, a sea-level waterway, connects Port Said (Bur Said) on the Mediterranean Sea with Suez (As Suways) on the Red Sea. It has a total length of 193.5km (including approaches); depths in the canal are generally maintained to a depth of 24m on the centerline.

The canal was originally opened for traffic on November 17, 1869 and nationalized in 1956. It was closed in June 1967 due to military conflict and reopened in June 1975. Regulations, restrictions, and other operational details concerning transit of the Suez Canal are fully described in Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Search and Rescue

The Middle East Search and Rescue Center at the Joint Rescue Coordination Center (JRCC) Cairo is responsible for coordinating search and rescue operations and can be contacted, as follows:

1. Telephone: 20-2-24184537
2. Facsimile: 20-2-24184531
3. Telex: 91-21095 RCCCR UN
4. INMARSAT-C: 462299910 RCCE X
5. E-mail: jrcc136@afmic.com (distress only)
6. Web site: http://www.saregypt.net.eg

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system which covers the Red Sea, the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Signals

Visual storm warning signals used in Egypt are given in the accompanying table titled **Egypt—Storm Signals**.

Egypt—Storm Signals

Day	Night	Meaning
One black triangle, point up	—	Gale from NW quadrant
One black triangle, point down	—	Gale from SW quadrant
Two black triangles, points up, vertically disposed	—	Gale from NE quadrant
Two black triangles, points down, vertically disposed	—	Gale from SE quadrant
Two black triangles, bases together, vertically disposed	—	Storm
White flag with yellow anchors	Four red lights, vertically disposed	Sea too rough. Pilots cannot go out.

Time Zone

The Time Zone description is BRAVO (-2). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) on the Mediterranean coast of Egypt are, as follows:

1. Western Approaches to Mina Dumyat. (IMO adopted)
2. Eastern Approaches to Mina Dumyat. (IMO adopted)
3. Western Approaches to Bur Said. (IMO adopted)
4. Eastern Approaches to Bur Said. (IMO adopted)

Traffic Separation Schemes (TSS) on the Red Sea coast of Egypt are, as follows:

1. In the Gulf of Suez. (IMO adopted)
2. In the Entrance to the Gulf of Aqaba. (IMO adopted)

The following TSS-associated rules for vessels navigating in the Gulf of Suez have been approved by the IMO:

1. Ships should take into account that crossing traffic may be encountered in the traffic junction eastward of Ain Sukhna and in the precautionary area off Ras Shukheir, and should be in a high state of readiness to maneuver in these areas.
2. Exceptional care is needed, when overtaking another ship within a lane, not to enter the separation zone or force the overtaken ship to do so.
3. Ships navigating in the Gulf of Suez are requested to keep a continuous listening watch on the Suez Gulf Traffic Information Broadcasts and report any aids to navigation which are malfunctioning or are out of position and that are not already included in the broadcasts.
4. All ocean-going ships should have their radar in effective use by day and at night throughout the passage between Shaker Island and Suez Port as an aid to achieving maximum feasible lane conformity and avoiding risk of collision. Particular care is required for strict adherence to the confines of relevant traffic lanes.
5. Ships proceeding S from Suez should be alert for tankers heading for the SUMED Oil Terminal, situated off Ain Sukhna.
6. Northbound tankers heading for the SUMED Oil Terminal should report their intention of using the traffic junction off Ain Sukhna on the appropriate frequencies.
7. All ships, northbound and southbound, when navigating through the precautionary area off Ras Shukheir or in the vicinity of the July Oil Field should avoid overtaking within the traffic lanes in these areas.

8. All ships, including service and supply craft serving the July Oil Field, the Ramadan Oil Field, and the Morgan Oil Field, proceeding in and out of the Ras Shukheir Oil Terminal should only cross the southbound and northbound traffic flow through the precautionary area. Within this precautionary area, local rules relating to crossing traffic apply.

9. Tankers leaving the Ras Shukheir Oil Terminal and intending to join the northbound traffic lane should only do so when no through southbound traffic is in the vicinity and should always report their movements to other ships beforehand on VHF.

10. Ships anchored in the designated waiting area for Ras Shukheir should ensure that they are never less than 0.25 mile from the edge of the southbound traffic lane and should pay special regard to their correct light signals for ships at anchor. They should also show their deck lights.

U.S. Embassy

The U.S. Embassy is situated at 5 Tawfik Diab Street, Garden City, Cairo.

The mailing addresses are, as follows:

1. Egypt address—
   5 Tawfik Diab Street
   Garden City, Cairo
2. U.S. address—
   Unit 64900
   Box 15
   APO AE (09839-4900)

U. S. Embassy Egypt Home Page:
http://egypt.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in the Strait of Tiran. For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Vessel Traffic Management and Information Systems are in operation, as follows:

1. In the Gulf of Suez and the N part of the Red Sea.
2. Safaga (26˝44'N., 33°57'E.).

For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

EQUATORIAL GUINEA

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General

Equatorial Guinea consists of **Isla de Bioko** (3°30'N., 8°41'E.), formerly known as Macias Nguema Biyogo or Fernando Poo; **Pagalu** (1°26'N., 5°37'E.), formerly known as Annobon; and an enclave on the mainland, formerly known as Rio Muni, which includes the adjacent islets of Corsico, Elobey Grande, and Elobey Chico. The mainland portion of the country is bounded on the N by Cameroon and on the E and S by Gabon.

Much volcanic activity exists on the various islands. In the cultivated areas of the islands, mosquitoes, phalaria flies, and tsetse flies are common up to a height of about 600m. Only sand flies and mosquitoes are encountered in the townships.

Isla de Bioko is the largest island in the Gulf of Guinea. It has two large volcanic formations separated by a valley that bisects the island at its narrowest point. The coast is high in the S part, while lower and more accessible in the N.

The climate is very hot and the island has a very heavy annual rainfall, especially in the S part. The period from April to October is the wettest, while the period from December to February is relatively dry. The warmest period is from January through May when the average temperature is 26°C. The slightly cooler period is from July to October, when the mean annual temperature is 24°C. The island has recorded extreme temperatures of 16°C and 39°C.

Rio Muni has a coastal plain which gives way to a succession of valleys separated by low hills and spurs of the Crystal Mountains. The terrain is mostly made up of forest and woodland.

The climate is very hot and humid.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation are reported to be unreliable; they may be missing, unlit, or out of position.

Cautions

General

Vessels entering the territorial waters of Equatorial Guinea

without permission or not flying a courtesy ensign may be subject to heavy fines.

Piracy

Mariners are advised to be alert for pirates in the waters off the coast of Isla de Bioko.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions.**

Currency

The official unit of currency is the French African Community franc, consisting of 100 centimes.

Government

Flag of Equatorial Guinea

Equatorial Guinea is a republic. The country is divided into seven provinces.

Equatorial Guinea is governed by a directly-elected President serving a 7-year term. The President appoints the Prime Minister and a Council of Ministers. The bicameral National Assembly consists of a 70-member Senate (55 directly-elected members and 15 members appointed by the President) and a 100-member directly-elected People's Representatives, all serving 5-year terms.

The legal system is based on Spanish civil law and customary law.

The capital is Malabo, located on Isla de Bioko.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Sunday	Variable
May 1	Labor Day
May 25	Organization of African Unity Day
June 5	President's Birthday
Corpus Christi	Variable
August 3	Armed Forces Day
August 15	Constitution Day
October 12	Independence Day
November 17	St. Isabel of Hungary Day
December 8	Immaculate Conception
December 10	Human Rights Day
December 25	Christmas Day

Other holidays include Victory Day, Declaration of President Vitalicio S.E. Massie Nguema Biyogo Day, and Ascension of Equatorial Guinea's Life President Day.

Industries

The main industries are petroleum, lumber, and natural gas.

The main exports are petroleum and timber. The main export-trading partners are China, the United Kingdom, Brazil, France, Japan, the Netherlands, India, and Spain.

The main imports are petroleum sector equipment, construction materials, and transport equipment. The main import-trading partners are the United States, Spain, China and France.

Languages

Spanish is the official language. Pidgin English and several local dialects are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Equatorial Guinea are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Maritime Boundary Disputes

Creation of a maritime boundary in Corsico Bay with Gabon has been hampered by a dispute over Islote Mbane (0°48'N., 9°22'E.), which has been occupied and administered by Gabon since the 1970s.

An equidistant settlement of the Cameroon-Equatorial Guinea-Nigeria maritime boundary was reached in 2002, but a dispute remains between Cameroon and Equatorial Guinea over an island at the mouth of the Riviere Ntem and imprecisely-defined maritime coordinates in the settlement.

Search and Rescue

The Captain of the Port of Malabo is responsible for coordinating search and rescue operations up to 50 miles off the coast of Equatorial Guinea. Vessels in distress should contact Malabo Port Control on VHF channel 16 or 8790.2 kHz.

Malabo Port Control maintains a continuous listening watch for distress traffic on VHF channel 16.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy in Equatorial Guinea is located at Carretera Malabo II, Malabo.

The mailing address is Department of State, Washington, DC (20521-2520).

U. S. Embassy Equatorial Guinea Home Page
http://malabo.usembassy.gov

ERITREA

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General

Eritrea, located in the NE part of Africa, is bounded on the NE by the Red Sea, on the SE by Djibouti, and on the NW by Sudan. The Dahlak Archipelago, consisting of about 300 small and mostly uninhabited islands, lies close off the coast.

Highlands in the W part of the country descend to a desert strip along the coast.

The climate is hot and dry along the desert strip while the highlands are cooler and wetter. The rain is heaviest between June and September except on the coastal desert. Frequent droughts occur.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Navigational lights in Eritrea have been reported to be unreliable.

Cautions

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Special Warning 125 (Issued 15 March 2010)

Information on Special Warning 125 can be found in **Yemen—Cautions**.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Indian Ocean—Cautions** for further information.

Locust Reports

See **Indian Ocean—Cautions** for further information.

Oil Exploration

Oil exploration activities are being conducted off the coast of Eritrea.

Maritime Security Patrol Area

The Commander, U.S. Navy Central Command has directed the establishment of a Maritime Security Patrol Area (MSPA) in the Gulf of Aden. For further information, see **Indian Ocean—Cautions—Piracy—Maritime Security Patrol Area**.

Currency

The official unit of currency is the nafka.

Government

Flag of Eritrea

Eritrea is authoritarian presidential regime. The country is divided into six regions

Eritrea is governed by a President who is elected by the National Assembly for a 5-year term. The President appoints ministers to the State Council. The unicameral National Assembly consists of 150 members, with 75 members indirectly elected by the ruling party and 75 directly-elected members, all serving 5-year terms.

The legal system is based on civil, customary, and Islamic law.

The capital is Asmara.

An agreement of July, 1993 gives Ethiopia the right to use the ports of Assab and Massawa.

Holidays

The following holidays are observed:

January 1	New Year's Day
March 8	International Women's Day
May 24	National Liberation Day
June 20	Martyr's Day
September 1	Launching of Armed Struggle Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Coptic Christian holidays, which are subject to the appearance of the moon, include Coptic Christmas, Epiphany, Good Friday, Coptic Easter, Coptic New Year, and Meskal (Finding of the True Cross).

Industries

The main industries are food processing, beverages, clothing and textiles, light manufacturing, salt, and cement.

The main exports are gold and other minerals, livestock, sorghum, textiles, food, and small manufactured goods. The main export-trading partners are Italy, Sudan, Saudi Arabia, China, and the United Kingdom.

The main imports are machinery, petroleum products, food, and manufactured goods. The main import-trading partners are Saudi Arabia, Egypt, China, India, Germany, Italy, South Africa, and Brazil.

Languages

Arabic, Tigrinya, and English are the official languages.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The only maritime claim of Eritrea is a territorial sea of 12 miles claimed from straight baselines; jurisdiction is claimed to the limit of the pearl and sedentary fishing grounds.

Pollution

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Indian Ocean—Pollution—MARPOL Special Areas**.

Regulations

When entering the territorial waters of Eritrea, vessels may be challenged by naval vessels. Vessels should be prepared to identify themselves by their signal letters or by other means.

It is prohibited to stop, anchor, or lower boats while in Eritrean territorial waters.

Vessels arriving at or leaving Eritrean ports are subject to medical inspections.

Search and Rescue

Port harbormaster offices are responsible for coordinating maritime search and rescue operations and can be contacted by telephone, as follows:

1. Asseb: 291-3-660077
   291-3-660095
   291-3-660101

2. Massawa: 291-1-552122

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Indian Ocean—Ship Reporting System**.

Maritime Liaison Office (MARLO) Bahrain Recommended Reporting Procedures

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 48 hours prior to entering the Gulf of Aden recommended transit corridor. For further information, see **Indian Ocean—Piracy**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) off Eritrea are, as follows:

1. In Bab-el-Mandeb. (IMO adopted)
2. West and S of Hanish al Kubra. (IMO adopted)
3. East of Az Zuqar (Jabal Zuqar). (IMO adopted)

U.S. Embassy

The U.S. Embassy is situated at 179 Ala Street, Asmara. The mailing address is P.O. Box 211, Asmara.

U. S. Embassy Eritrea Home Page
http://eritrea.usembassy.gov

FALKLAND ISLANDS

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General

The Falkland Islands (Islas Malvinas), consisting of a group of numerous islands, are a Crown Colony of Great Britain and are claimed by Argentina. In April 1982, Argentine forces occupied the islands but the United Nations Security Council voted for their immediate withdrawal. After a military campaign, the Argentine forces surrendered and the United Kingdom regained possession in June 1982.

East Falkland Island and West Falkland Island, the only two islands of any size, are separated from each other by a sound that varies in width from 2.3 to 12 miles. The group as a whole provides numerous sounds and bays which form excellent harbors. The S part of East Falkland Island is low, but the N part rises to a considerable elevation.

The aspect of the islands is not striking. Ridges of rocky hills, more than 300m high, traverse extensive tracts of treeless moorland, which are bounded by rocky coasts.

West Falkland Island is slightly greater in average elevation than East Falkland Island. Steep cliffs, exposed to the fury of the W seas, front the W sides of this island and the adjoining islets.

The islands have a cool temperate climate, very much affected by strong winds, particularly in the spring.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Vessels remaining within a harbor for more than a few hours must clean their sea water intakes daily to prevent fouling by krill. The most serious fouling occurs at night; it is suspected the krill is attracted by bright lights.

Currency

The official unit of currency is the Falkland Islands pound, consisting of 100 pence.

Fishing Areas

Large numbers of fishing vessels operate off the Falkland Islands. Fishing vessels transfer their catches to factory vessels in Berkely Sound (51°34'S., 57°54'W.).

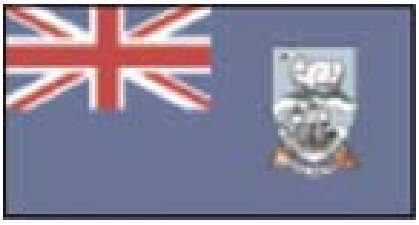
Government

Queen Elizabeth II is recognized as the Chief of State and appoints a Governor.

The Falkland Islands are administered by the appointed Governor, assisted by an Executive Council (which is the equivalent of a cabinet) and a 10-member elected Legislative Council, two of which are appointed and eight of which are directly elected, all serving 4-year terms. A Military Commissioner is responsible for defense and internal security.

The legal system is based on English common law.

Stanley, the principal city, stands at the E side of East Falkland Island and is the location of the seat of government.



Flag of Falkland Islands

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
April 21	The Queen's Birthday
First Monday in May	May Day
Last Monday in May	Bank Holiday
June 14	Liberation Day
August 14	Falklands Day
Last Monday in August	Summer Bank Holiday
December 8	Battle Day
December 25	Christmas Day
December 26	Boxing Day

In addition, the first business day after Boxing Day is a public holiday known as Christmas Holiday. A government holiday is celebrated the two business days following Christmas Holiday.

Industries

The main industries are fish processing, wool processing, and tourism.

The main exports are wool, hides, meat, fish, and squid. The main export-trading partners are Spain and the United States.

The main imports are fuel, food and beverages, building materials, and clothing. The main import-trading partners are the United Kingdom, the United States, and the Netherlands.

Languages

English is the official language.

Mined Areas

Mines laid in the vicinity of the Falkland Islands during the 1982 conflict have been cleared and hazards to shipping have been marked; however, undiscovered dangers to navigation may still exist. Vessels wishing to enter Falkland Islands' waters are advised to contact the Harbor Master in Stanley.

Dangerous materials and ammunition may be found on many of the shores.

Stanley, Port Fitzroy, Goose Green Settlement, Darwin Settlement, Port Howard, and Fox Bay are areas within which land mines or booby traps are known to exist. There is no evidence that other areas contain land mines or booby traps; however, they may contain unexploded bombs or missiles. Mines have been found on beaches and river banks outside of known mine fields. The seaward approaches to land mine fields are not marked. Special care is required when approaching the beaches and rivers lying adjacent to the above-mentioned areas.

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of the Falkland Islands are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles. **

* Claims straight baselines.

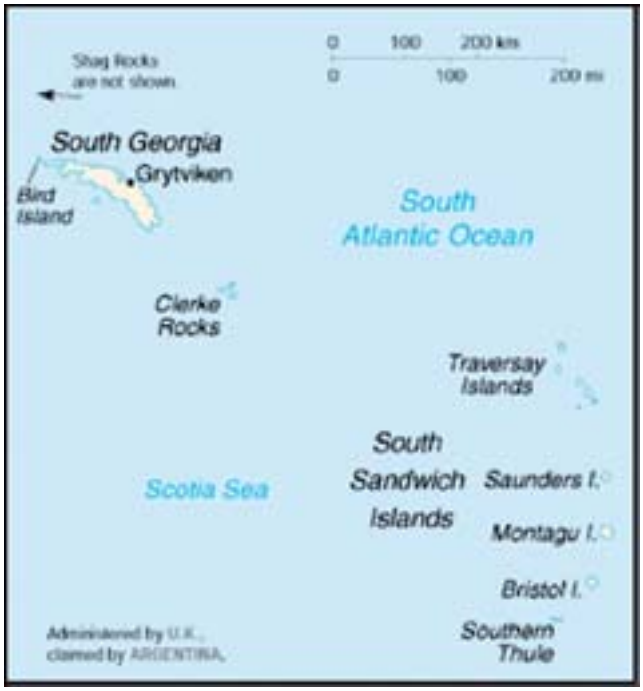
** Only enforced to a distance of 150 miles on the W of the Falkland Islands, with a rhumb line between position 52°30'00.0"S, 63°19'15.0"W and position 54°08'40.8"S, 60°00'00.0"W.

Maritime Boundary Disputes

Argentina claims the United Kingdom-administered Falkland Islands, South Georgia, and the South Sandwich Islands. The United Kingdom rejects sovereignty talks requested by Argentina.

Offshore Islands

The South Atlantic Territories of South Georgia and the South Sandwich Islands



South Georgia and the South Sandwich Islands

Flag of South Georgia and the South Sandwich Islands

South Georgia Island, the South Sandwich Islands, Shag Rocks, and Clerke Rocks are all overseas territories of the United Kingdom.

South Georgia Island lies 800 miles SE of the Falkland Islands and has an area of about 1,450 square miles. It has no permanent population and is administered by a Commissioner, who resides in the Falkland Islands. A small military garrison is situated at Grytviken, on South Georgia, and a biological station, maintained by the British Antarctic Survey, is reported to be located on Bird Island.

Argentine forces invaded the island on 3 April 1982; however, a British naval task force recovered the territory on 25 April 1992.

The terrain is high and consists of very steep glacier-covered mountains. Mount Paget, the summit, is 2,934m high and saddle-shaped. In summer, the lower hills standing near the coast appear to be light brown in color, being free from snow and, in most cases, covered with grass and moss. There is little flat land and the island, except for patches of sparse grass and moss, is almost entirely barren. The SW side of the island is permanently frozen. The shores, especially at the N side, are deeply indented, but the bays are dangerous during most of the year because of large quantities of loose ice.

The climate is the same as for the Falkland Islands, being cloudy and humid with strong W winds.

The South Sandwich Islands have an area of about 130 square miles and lie 470 miles SE of South Georgia Island. The group consists of a chain of nine uninhabited islands, connected by a low submarine ledge. The islands, which offer little shelter, are mostly volcanic with some showing signs of activity. Zavodovski, the northernmost island, is reported to be in constant eruption.

The climate consists of fog, mist, and snow. The inclement weather and poor visibility render the islands difficult to approach. During the winter and spring, the group is completely surrounded by pack ice.

The maritime territorial claims of South Georgia and the South Sandwich Islands are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.

*South Georgia claims straight baselines.

Search and Rescue

The Falkland Islands Rescue Coordination Center (FIRCC) is responsible for coordinating search and rescue operations. The FIRCC maintains a continuous listening watch on VHF channel 16 and can be contacted, as follows:

1. Call sign: Falklands Rescue
2. Telephone: 500-74252
   500-74235
   500-74344
   500-74030
3. Facsimile: 500-74368
4. E-mail: irics@horizon.co.fk

The Falkland Islands Fisheries Department maintains a continuous listening watch on VHF channel 16 and 2182 kHz, a daylight hours only listening watch on 4066.1 kHz, and can be contacted, as follows:

1. Call signs: Fishops
   Stanley Port Control
2. Telephone: 500-27260 (main office)
   500-27266 (operations room)
   500-53045 (after office hours)
3. Facsimile: 500-27265 (main office)
4. E-mail: fishops@fisheries.gov.fk

Ship Reporting System

Vessel Reporting System

Vessels are advised to send in their ETA 24 hours in advance. All vessels engaged in transshipment operations in Falkland

waters and entering or leaving Berkeley Sound, Port William, or Stanley Harbor are required to report to Stanley Port Control. For further information, see Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Time Zone

For the Falkland Islands, the Time Zone description is PAPA (+3). Daylight Savings Time is not observed.

For the South Atlantic Territories of South Georgia and the South Sandwich Islands, the Time Zone description is OSCAR (+2). Daylight Savings Time is not observed.

U.S. Embassy

There is no U.S. Embassy in the Falkland Islands or the South Atlantic Territories of South Georgia and the South Sandwich Islands.

These groups are dependencies of the United Kingdom.

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General

French Guiana, located in the N part of South America, is bounded on the W by Suriname and on the S and E by Brazil. It includes the offshore islands of Devil's Island, Royal Island, and St. Joseph Island.

The land rises gradually from a low swampy coastline, 200 miles long, to higher slopes and plains about 50 miles inland. The low mountains are composed entirely of granite and extend in an E/W direction.

The country is well drained, with more than 20 rivers discharging into the ocean. Immense forests of rich timber cover about 90 per cent of the land.

The climate is tropical, hot, and humid with very little seasonal temperature variation.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Heavy rollers may occur along the coast from December through February, but especially in December and January, when the Northeast Trade Winds are strong. Rollers appear where the depths decrease irregularly or in depths of about 9m over coastal sand banks and mud banks.

Currency

The official monetary unit is the Euro, consisting of 100 cents.

Firing Areas

Rocket firings, associated with the space program at the Centre Spatial de Kourou (5°15'N., 52°45'W.), are conducted off the coast of French Guiana.

Danger areas are promulgated by Radio Navigational Warning Messages.

Government

French Guiana is an overseas department of France.

French Guiana is administered by a directly-elected 19-member General Council and a 31-member Regional Council; members of both bodies serve 6-year terms. It is represented in the French National Assembly and Senate. The French government is represented by an appointed Prefect.

The legal system is based on French civil law.

The capital is Cayenne.

Flag of French Guiana

Holidays

The following holidays are observed:

January 1	New Year's Day
Mardi Gras	Variable
Ash Wednesday	Variable
Mid Lent	Variable
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 8	World War II Victory Day
Ascension Day	Variable
Whitsunday	Variable
Whitmonday	Variable
June 10	Abolition of Slavery
July 14	Bastille Day
August 15	Assumption Day
October 15	Cayenne Festival
November 1	All Saint's Day
November 2	All Soul's Day
November 11	Armistice Day
December 25	Christmas Day

Industries

The main industries are construction, shrimp processing, forestry products, rum, and gold mining.

The main exports are shrimp timber, gold, rum, rosewood essence, and clothing. The main export-trading partners are France and Switzerland.

The main imports are food, machinery and transport equipment, fuels, and chemicals. The main import-trading partners are France, the United States, and Trinidad and Tobago.

Languages

French is the official language.

Meteorology

Marine weather forecasts are available in French from Meteo Antilles-Guyane (http://www.meteo.gp).

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of French Guiana are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

Regulations

Vessels in transit or stationary within the territorial waters, except when alongside in port, should maintain a continuous listening watch on VHF channel 16 and respond to calls by official vessels and French coast radio stations.

Dangerous cargo is handled during daylight hours only. Vessels must provide an advance notice of 24 hours when carrying dangerous cargo.

Radio pratique will be granted by radio provided it is requested in the ETA message to Cayenne.

Search and Rescue

Maritime Rescue Coordination Subcenter (MRSC) Cayenne is associated with MRCC Fort-de-France, which is located on Martinique and is the Centre Regional de Surveillance et de Sauvetage aux Antilles-Guyana (CROSSAG). CROSSAG is responsible for coordinating search and rescue operations in its area of responsibility and maintains a continuous listening watch for distress traffic on 2182 kHz and VHF channel 16.

MRSC Cayenne can be contacted, as follows:

1. Telephone: 594-594-304444
2. Facsimile: 594-594-395790
3. E-mail: cayenne@mrscfr.eu
   mrsc@netfag.fr

MRCC Fort-de-France can be contacted, as follows:

1. Telephone: 596-596-709292
   596-596-731616
2. Facsimile: 596-596-632450
3. E-mail: antilles@mrccfr.eu

Ship Reporting System

SURNAV.—The SURNAV system is intended to prevent accidental pollution in the territorial water of French Guiana and the waters within 50 miles of the coast of French Guiana. For further information, see the Appendix.

Signals

Special signals, which may be used in certain ports, are given in the accompanying table. The use of these signals may signify that obstructions may exist in the fairway; vessels must proceed with extreme caution and obey any signals given by the port authorities.

Meaning	Day signal	Night signal
Port closed	Three red balls, vertically disposed	Three red lights, vertically disposed
Port open	The appropriate signal from the International Code of Signals	Three red lights, vertically disposed

Time Zone

The Time Zone description is PAPA (+3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. maintains no resident representation in French Guiana. The country lies within the consular district of the U.S. Consulate General at Fort-de-France, Martinique.

Appendix—SURNAV

The SURNAV system is intended to prevent accidental pollution in the territorial water of French Guiana and the waters within 50 miles of the coast of French Guiana.

Covered Vessels.—The regulations are mandatory for the following vessels:

1. Vessels carrying hydrocarbons or the gaseous residues of hydrocarbons as specified in Annex 1 of MARPOL 73.
2. Non-inert tankers and vessels carrying the following:
   a. Noxious liquid substances as specified in Annex 2 of MARPOL 73 and classed in Category A and Category B in Chapter 17 of the IBC Code.
   b. Liquefied gas in bulk.
   c. Plutonium-239, uranium-233, uranium-235, uranium-238, thorium, or all materials containing them, with the exception of ores.
   d. Acetaldehyde (UN 1089), ether ethyl (UN 1155), ethyl vinylic ether (UN 1302), monoethylamine (UN 1036), ammonium nitrate (UN 0222), or propylene oxide (UN 1280).
   e. Composite organochlorides, such as organochloride pesticides (UN 2761, UN 2762, UN 2995, and UN 2996).
3. Vessels carrying the following:
   a. Noxious liquid substances as specified in Annex 2 of MARPOL 73 and not listed above.
   b. Harmful liquid substances as specified in Annex 3 of MARPOL 73.
   c. Dangerous cargo as specified in the International Maritime Code of Dangerous Goods (IMDG), including radioactive materials specified in the INF Code.
   d. Dangerous cargo as specified in Chapter 17 of the IBC Code and Chapter 19 of the IGC Code.

SURNAV-FRANCE Messages.—All vessels listed in paragraph 1 and paragraph 2 of **Covered Vessels** preparing to pass through or stay in the territorial waters of French Guiana must send a SURNAV-FRANCE message to CROSS Antilles-Guyane 6 hours prior to entering the territorial waters of French Guiana or 6 hours prior to departing from a port or anchorage in French Guiana.

The message covers the entire planned voyage in the territorial waters until departure or until arrival at the destination, even if the vessel's route takes it out of these waters and back in again. If there is a change in the vessel's planned route, or the vessel is unable to maneuver or navigate, the vessel must send a correcting message as soon as possible.

SURNAV-FRANCE messages should be send to CROSS Antilles-Guyane and prefixed SURNAV-FRANCE using any method available to the vessel. Messages should be sent in the format given in the table titled **SURNAV-FRANCE Message** and should also include the following additional information:

1. Intended movements within territorial waters.
2. Current ability to maneuver and navigate.

SURNAV-FRANCE Message	
Designator	**Information required**
ALFA	Vessel's name, call sign, and flag.
BRAVO	Date and time (UTC), suffixed ZULU (6 figures DD/HH/MM).
CHARLIE	Position (latitude/longitude).
ECHO	Course.
FOXTROT	Speed.
GOLF	Last port of call.
HOTEL	1. Date and time (UTC) and position of entering territorial waters. * 2. Date and time (UTC) and place of departure. * *Whichever is appropriate.
INDIA	Destination.
KILO	1. Date and time (UTC) and position of leaving territorial waters. * 2. Date and time (UTC) of arrival at destination (port, anchorage, waiting position, deballasting position) within territorial waters. * *Whichever is appropriate.
MIKE	Radio watch maintained.
OSCAR	Draft.
PAPA **	Cargo—type (as defined by MARPOL 73) and quantity.
QUEBEC **	Any defects, damage, faults, or restrictions.
UNIFORM	Type of vessel.
XRAY **	Other remarks.
ZULU	End of message.
** Vessels should refer to IMO Resolution A.851(20) in order to correctly give the information requested.	

Vessels arriving from outside the European Union.—All vessels listed in paragraph 1, paragraph 2, and paragraph 3 of **Covered Vessels** arriving from a port outside the European Union must send a message when departing from the loading port, or as soon as possible if changing destinations, using any method available to the vessel to CROSS Antilles-Guyane stating either the following information or indicating the authority holding this information in the European Union:

1. Vessel name and call sign.
2. Flag.
3. Draft and loa.
4. Destination port.
5. ETA at destination port, pilot station, or designated anchorage, as requested by the local authority
6. ETD.
7. Planned itinerary.
8. Precise technical names of dangerous or polluting cargo; UN numbers, if necessary; risk classes, as defined by the IMO in accordance with the IMDG Code and the IBC/IGC compendium; and the INF category of the vessel, if neces-

sary.

9. Confirmation that a list, manifesto, or loading diagram is held on board that details the dangerous or polluting cargo on board the vessel and the location of it.

10. Number of crew.

Incident/Accident Report.—Vessels of 300 gross tons and over on a commercial voyage and navigating with the limits of the Economic Zone, or when outside the limits of the zone but less than 50 miles from the coast must immediately report the following:

1. Every incident or accident affecting the safety of the vessel (collision, stranding, damage, breakdown or failure, invasion or movement of cargo, or all defects within the hull or damage to the structure).

2. Every incident or accident affecting the safety of navigation (damage likely to affect the vessel's maneuverability or navigation, or every defect affecting the propulsion systems, steering gear, the production of power, or the navigation or communication equipment).

3. Every situation likely to lead to pollution (discharge or risk of discharge of pollutants into the sea).

4. Every slick of pollution and every drifting container seen in the sea.

Messages should be sent to CROSS Antilles-Guyane using any method available to the vessel, in the format given in the table titled **SURNAV-FRANCE Incident/Accident Report.**

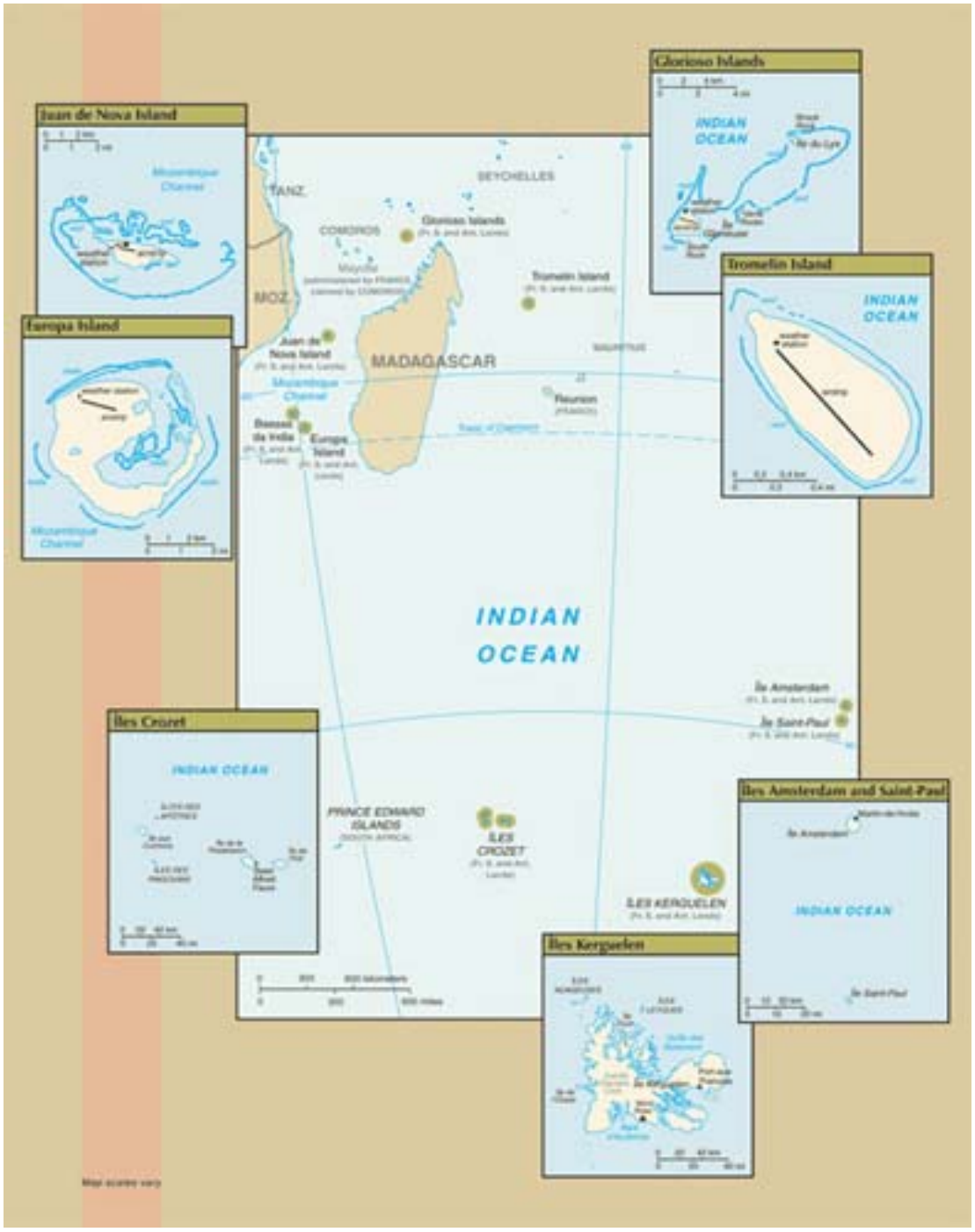
SURNAV-FRANCE Incident/Accident Report	
Designator	**Information required**
ALFA	Vessel's name, call sign, and flag.
BRAVO	Date and time (UTC), suffixed ZULU (6 figures DD/HH/MM).
CHARLIE	Position (latitude/longitude).
ECHO	Course.
FOXTROT	Speed.
GOLF	Last port of call.
INDIA	Destination and ETA.
MIKE	Radio watch maintained.
OSCAR	Draft.
PAPA *	Cargo and details of dangerous or pollutant cargo on board.
QUEBEC *	Nature of incident or situation, with damage or problem suffered.
ROMEO *	Description of the pollution caused and of all containers, parcels, or cargo lost overboard or observed drifting and presenting a danger to navigation and/or the environment.
TANGO	Owner's details, charter company, and possible consignees in France.
UNIFORM	Vessel type, characteristics, and tonnage.
WHISKEY	Number of people on board.
XRAY *	Date and time (UTC) of possible call for assistance or towing, possible presence and name of assisting vessel, time (UTC) of contacting a possible assisting vessel, or other information.
YANKEE	Request transmission of report to another system (AMVER, JASREP, MAREP, etc.).
ZULU	End of message.
* Vessels should refer to IMO Resolution A.851(20) in order to correctly give the information requested.	

Listening watch—Throughout the duration of a transit or stay in territorial waters, vessels listed in paragraph 1, paragraph 2, and paragraph 3 of **Covered Vessels** must maintain a continuous listening watch on 2182 kHz, VHF channel 16, and any other frequency they are advised to listen on.

Contact Information.—CROSS Antilles-Guyane can be contacted, as follows:

1. Call sign: CROSSAG
2. VHF: VHF channel 16
3. Radiotelephone: 2182 kHz
4. Telephone: 596-596-709292
5. Facsimile: 596-596-632450
6. Telex: 584-422799024 (INMARSAT-C)
7. E-mail: fortdefrance.mrcc@developpement-durable.gouv.fr

FRENCH SOUTHERN AND ANTARCTIC LANDS



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General

The Crozet Islands (Iles Crozet)

The Crozet Islands are an archipelago consisting of two groups of volcanic islands lying about 50 miles apart. The islands lie between 45°57'S and 46°30'S, and between 50°10'E and 52°20'E and, with the exception of Ile de la Possession,

have been declared a sanctuary for all forms of wildlife.

Ile aux Cochons, with an area of 26 square miles, is the main island of the W group. Its summit, 775m high, is always covered with snow.

Ile de la Possession, the largest island, lies in the E group. It is mostly formed by a splendid mass of volcanic mountains, the summit of which is 935m high and usually covered with snow.

The winds are often extremity violent in the vicinity of these islands. The sky is usually overcast and the weather cold and bleak.

Amsterdam Island (Ile Amsterdam)

Amsterdam Island (37°51'S., 77°33'E.) has an area of 21 square miles and has been declared a sanctuary for all forms of wild life. The island is of volcanic origin and composed of basaltic lava and ashes. It has a high rugged cone on which stand several old volcanic craters. Some wild cattle, penguins, and seals frequent the W side of the island.

Lobster boats less than 35m long may operate in the vicinity of Amsterdam Island.

Saint-Paul Island (Ile Saint Paul)

Saint-Paul Island (38°43'S., 77°33'E.) has an area of 2 square miles and has been declared a sanctuary for all forms of wildlife.

The island is formed by the above-water part of an extinct volcano; a large section is occupied by a submerged crater. It has sulfurous hot springs and is overrun with rabbits and rats.

Strong W winds and overcast skies predominate for most of the year. Significant E winds blow between December and March. Gales are common. When SW winds blow, violent squalls usually sweep down the sides of the crater.

Lobster boats less than 35m long may operate in the vicinity of Saint-Paul Island.

The Kerguelen Islands (Iles de Kerguelen)

The Kerguelen Islands are an archipelago consisting of over 300 islands, islets, and rocks. The islands, islets, and rocks lie between 48°27'S and 49°58'S, and between 68°25'E and 70°35'E. Portions of the islands have been declared a sanctuary for all forms of wildlife.

Mont Grand Ross, 1,849m high, is the summit of Grand Terre, the main island. It is always covered with snow and glaciers descend down the sides. Because of the rugged and boggy nature of the ground, in addition to the severity of the climate and the absence of trees and wood, the interior of the island is little visited. It is reported that reindeer, trout, and sheep have been acclimatized.

Squalls, descending from the heights with great speed and a deafening roar, quickly transform the surface of the sea near the island into a froth. Even in summer, scarcely a day passes without winds of force 8 or 9 blowing for a few minutes.

Juan de Nova Island

Juan de Nova Island (17°03'S., 42°45'E.) is a low, flat, and sandy island with an area of about 1.7 square miles. The island has a maximum elevation of 10m.

The island is a wildlife sanctuary for sea birds and sea turtles.

Europa Island

Europa Island (22°20'S., 40°22'E.) is a low, flat, sandy, and heavily-wooded island with an area of about 10.8 square miles. The island has a maximum elevation of 24m.

The island is a wildlife sanctuary for sea birds and sea turtles.

Tromelin Island

Tromelin Island (15°52'S., 54°25'E.), a low, flat, and sandy island, has an area of about 0.4 square mile. The island has a maximum elevation of 7m and is likely a volcanic seamount.

The island is a wildlife sanctuary for sea birds and sea turtles.

Bassas da India

Bassas da India (21°30'S., 39°50'E.), an uninhabitable circular atoll of volcanic rock surrounded by reefs surrounding a shallow lagoon, sits atop an extinct submerged volcano and is awash at high water. The atoll has a maximum elevation of 2.4m.

The Glorioso Islands

The **Glorioso Islands** (11°30'S., 47°20'E.) consist of Ile Glorieuse and Ile du Lys, two lushly-vegetated coral islands, and three rocks, with a total area of about 1.9 square miles. The islands and rocks are surrounded by an extensive reef system and have a maximum elevation of 12m. The islands are a marine nature reserve.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Antipollution laws are strictly enforced in the vicinity of Amsterdam Island and Saint-Paul Island.

The NW and W coasts of the Kerguelen Islands have been declared a national park, in which hunting and fishing are forbidden.

Currency

The official unit of currency is the Euro, consisting of 100 cents.

Firing Areas

A firing practice area off the SE side of the Glorioso Islands is bounded by lines joining the following positions:

a. 11°34'42.0"S, 47°18'28.2"E.
b. 11°33'58.8"S, 47°19'58.2"E.
c. 11°34'40.2"S, 47°20'13.2"E.
d. 11°35'24.0"S, 47°20'16.2"E.
e. 11°36'04.2"S, 47°20'07.2"E.
f. 11°36'47.4"S, 47°19'42.6"E.
g. 11°35'27.0"S, 47°17'54.0"E.

Government

Flag of French Southern/Antarctic Lands

All the islands and archipelagos are dependent territories of France.

The territory is administered from France.

The legal system is based on French law.

The Crozet Islands (Iles Crozet)

The seat of administration is situated in Port Alfred, at the head of **Crique du Navire** (46°25'S., 51°52'E.), on Ile de la Possession. It is reported that a permanent scientific station is maintained by the French government at Port Alfred.

Amsterdam Island (Ile Amsterdam)

The seat of administration is situated at Roche Godon, on the NE part of the island. A permanently-inhabited meteorological and scientific station stands at Roche Godon.

The Kerguelen Islands (Iles de Kerguelen)

The seat of administration is situated in **Port aux Francais** (49°21'S., 70°13'E.) on Grand Terre. It is the only permanent and inhabited settlement in the archipelago and is the site of a meteorological and scientific station.

Juan de Nova Island

A small military garrison and meteorological station is located on the island. The island is occasionally visited by scientists.

Europa Island

A small military garrison and meteorological station is located on the island. The island is occasionally visited by scientists.

Tromelin Island

The island is uninhabited but is occasionally visited by scientists.

The Glorioso Islands

A small military garrison and meteorological station is located on Ile Glorieuse. The islands are occasionally visited by scientists.

Industries

Economic activity is limited to servicing French and other fishing fleets, as well as the meteorological and geophysical research stations.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

As a dependent territories of France, the maritime territorial claims of are identical to the maritime territorial claims of France, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

Maritime Boundary Disputes

Juan de Nova Island, Europa Island, Bassas da India, the Glorioso Islands, and Banc du Geyser are claimed by Madagascar.

Tromelin Island is claimed by Mauritius.

Regulations

Single-Hull Tankers

Single-hull tankers carrying heavy petroleum products are not permitted to enter, leave, or anchor.

Fishing

French regulations prohibit all fishing within the 12-mile zone of territorial waters and the 200-mile economic zone surrounding the Crozet Islands.

French regulations prohibit all fishing within the 12-mile zone of territorial waters surrounding Iles de Kerguelen. All fishing, with the exception of trawling, is prohibited within the 200-mile economic zone. However, trawling is prohibited within the economic zone during the months of March, April, and May and in the SE quadrant of the economic zone, bounded on the N side by 49°30'S and on the W side by 69°00'E, between 15 September and 15 November.

Ship Reporting System

SURNAV.—Vessels bound to and from the Crozet Islands, Amsterdam Island, Saint-Paul Island, and the Kerguelan Islands are all subject to the reporting requirements of SURNAV.

The SURNAV system is intended to prevent accidental pollution in French territorial waters of the South Indian Ocean, hereafter known as the Area, and the waters within 50 miles of the coast of the Area. The Area includes the following:

1. Reunion, including Mayotte and Iles Esparses.
2. The Crozet Islands.
3. Amsterdam Island.
4. Saint-Paul Island.
5. The Kerguelen Islands.

6. Bassas da India.
7. Europa Island.
8. The Glorioso Islands.
9. Juan de Nova Island.
10. Tromelin Island.

For further information, see **Reunion—Ship Reporting System**.

Time Zone

The Time Zone description for the Kerguelen Islands, Saint-Paul Island, and Amsterdam Island is ECHO (-5). Daylight Savings Time is not observed.

The Time Zone description for the Crozet Islands and Tromelin Island is DELTA (-4). Daylight Savings Time is not observed.

The Time Zone description for the Glorioso Islands, Juan de Nova Island, Bassas da India, and Europa Island is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The islands are an Oversea Departments of France. There is no diplomatic representation.

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General

Gabon, located on the Equator, is bounded on the N by Equatorial Guinea and Cameroon, on the E and S by the Republic of Congo, and on the W by the Atlantic Ocean.

The country consists of a narrow coastal plain, a hilly interior, and savanna regions in the E and S.

The land is mostly covered with a dense equatorial forest.

The climate is always hot and humid. There is a heavy rainfall. The dry periods are from the middle of May to the middle of September and from the middle of December to the middle of February.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported that obsolescent buoyage (Uniform System of Buoyage) may still be encountered in some waters.

It is reported that lights and navigational aids on the coast of Gabon are unreliable; they may be missing, unlit, or out of position.

Cautions

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

The official unit of currency is the French African Community franc, consisting of 100 centimes.

Government

Gabon is a republic. The country is divided into nine provinces.

Gabon is governed by a directly-elected President serving a 7-year term. The Prime Minister, who is appointed by the President, is the head of government and appoints a Council of Ministers in consultation with the President. The bicameral legislature consists of a 102-member indirectly-elected Senate,

Flag of Gabon

serving 6-year terms, and a directly-elected 120-member National Assembly, serving 5-year terms.

The legal system is based on French civil law and customary law.

The capital is Libreville.

Holidays

The following holidays are observed:

January 1	New Year's Day
March 12	Renovation Day
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 6	Martyrs' Day
Whitsunday	Variable
Whitmonday	Variable
August 15	Assumption Day
August 17	Independence Day
November 1	All Saints' Day
December 25	Christmas Day
December 31	New Year's Eve

Eid-il-Fitr (End of Ramadan) and Eid-il-Adha (End of Pilgrimage) are observed Islamic holidays, the dates of which vary from year to year and are subject to the appearance of the moon.

Industries

The major industries are agriculture, petroleum extraction and refining, manganese, gold, chemicals, ship repair, food and beverages, textiles, lumber and plywood, and cement.

The main exports are crude oil, timber, manganese, and uranium. The main export-trading partners are China, Japan, Australia, the United States, India, and South Korea.

The main imports are machinery and equipment, foodstuffs, chemicals, and construction materials. The main import-trading partners are France, Ivory Coast, China, the United States, and Algeria.

Languages

French is the official language. Several native dialects are also spoken, with the principal ones being Fang, Nzebi, Bateke, Bapounou (Eschira), and Bandjabi.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Gabon are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines.

Maritime Boundary Disputes

Creation of a maritime boundary in Corisco Bay with Equatorial Guinea has been hampered by a dispute over Islote Mbane (0°48'N., 9°22'E.), which has been occupied and administered by Gabon since the 1970s.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Boulevard du Bord de Mer, Libreville.

The mailing addresses are, as follows:

1. Gabon address—
   Sabliere, B.P. 4000
   Libreville
2. U. S. address—
   2270 Libreville Place
   Washington DC (20521-2270)

U. S. Embassy Gabon Home Page
http://libreville.usembassy.gov

GHANA

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General

Ghana, located on the W coast of Africa, is bounded on the W by the Ivory Coast, on the N by Burkina Faso, and on the E by Togo. The seacoast, about 290 miles long, lies between a position 2.5 miles W of Newtown (5°05'N., 3°04'W.)

and a point 0.8 mile SW of Lome.

The land is fronted by a low sandy shore and backed by plains and scrub. In the extreme W and E parts, sand spits enclose large lagoons which are bordered by mangrove forests.

A tropical rain forest belt extends N for 175 miles from a point on the shore near the border with the Ivory Coast. It is broken by several hills and many streams and rivers. This area, known as the Ashanti, produces most of Ghana's cocoa, minerals, and timber.

The country lying to the N of this belt varies from 90 to 390m in elevation and is covered by low bush, parkland savannah, and grassland plains.

The climate ranges from equatorial along the coast to savannah in the N part and is typified by the existence of well-defined dry and wet seasons.

Areas to be Avoided

An IMO-adopted Area to be Avoided "Off the Coast of Ghana in the Atlantic Ocean" has been established around Jubilee Well. Except for ships authorized by the Ghana Maritime Authority, all ships should avoid the areas within a radius of 5 miles centered on position 4°32'06.6"N, 2°54'36.0"W. and position 4°35'20.4"N, 3°08'24.0"W

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in Ghana are unreliable. Lights may be extinguished; buoys and beacons may be missing, unlit, or out of position.

Cautions

General

Offshore oil and gas exploration is carried out in the coastal and deep-water areas off the coast of Ghana.

The West African Gas Pipeline lies off the coast of Ghana. For further information, see **South Atlantic Ocean—Cautions**.

Piracy

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

The official unit of currency is the cedi, consisting of 100 pesewas.

Fishing Areas

Fishing vessels, many of which are unlit, may be encountered off the coast.

When near the coast, a sharp lookout should be kept for canoes. These fishing canoes may be found as far offshore as the 200m curve.

Government

Flag of Ghana

Ghana is a constitutional democracy. The country is divided into ten regions.

Ghana is governed by a directly-elected President who serves a 4-year term. The President appoints a Council of Ministers, subject to approval by the Parliament. The unicameral Parliament consists of 275 directly-elected members serving 4-year terms.

The legal system is based on English common law and customary law.

The capital is Accra.

Holidays

The following holidays are observed:

January 1	New Year's Day
March 6	Independence Day
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	May Day
May 25	African Union Day
July 1	Republic Day
September 21	Kwame Nkruma's Birthday
December 25	Christmas Day
December 26	Boxing Day

Islamic holidays, which are subject to the appearance of the moon, include Eid-il-Fitr (End of Ramadan) and Eid-il-Adha (End of Pilgrimage).

Industries

The main industries are agriculture, mining, lumbering, light manufacturing, aluminum smelting, food processing, cement, small commercial shipbuilding, and petroleum.

The main exports are oil, gold, cocoa, timber, tuna, bauxite, aluminum, manganese ore, diamonds, and horticultural products. The main export-trading partners are China, France, the Netherlands, India, and South Africa.

The main imports are capital equipment, petroleum, and foodstuffs. The main import-trading partners are China, Nigeria, the Netherlands, Ivory Coast, and the United States.

Languages

English is the official language. In addition, about 75 native dialects are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Ghana are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Maritime Boundary Disputes

Disputed maritime boundary with Ivory Coast.

Search and Rescue

Rescue Coordination Center (RCC) Accra is located at the Air Traffic Services Department of the Ghana Civil Aviation Authority and can be contacted, as follows:

1. Telephone: 233-30-2773283
   233-24-4540656
2. Facsimile: 233-30-2769401
3. E-mail: eotiboadi@yahoo.com

Tema Coast Radio Station (9GX) maintains a continuous listening watch on all international distress frequencies.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Signals

The following signals may be displayed at signal stations in Takoradi (4°53'N., 1°45'W.) and Tema (5°37'N., 0°01'E.):

Day signal:	Two black balls, vertically disposed
Night signal:	Two red lights, vertically disposed
Meaning:	Expected line squall or thunderstorm of slight to moderate intensity accompanied by NE to E winds

Time Zone

The Time Zone description is ZULU. Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at No. 24 4th Circular Road, Cantonments, Accra.

The mailing address is P.O. Box GP 2288, Accra.

U. S. Embassy Ghana Home Page
http://ghana.usembassy.gov

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General

Guyana, located on the NE coast of Latin America, is fronted by the Atlantic Ocean. It is bounded on the E by Suriname, on the W by Venezuela, and on the S and W by Brazil.

The country can be divided roughly into three regions, as follows:

1. A low coastal region, about 250 miles long, which varies in width up to 30 miles and constitutes the agricultural area.
2. An intermediate area, about 100 miles wide, which is composed of slightly higher undulating land and which provides the chief mineral and forest resources
3. A hinterland composed of several mountain ranges and extensive savannas

Approximately 87 per cent of the land area is covered with forests.

The climate is tropical, with rainy seasons from April to July and November to January. The humidity is high all year, but temperatures are moderated by sea breezes.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Exposed light structures marking the approaches to river ports are liable to be destroyed.

Cautions

Heavy rollers may occur along the coast from December through February, but especially in December and January, when the NE trade winds are strong. Rollers appear where the depths decrease irregularly or in depths of about 9m over coastal sand banks and mud banks.

Piracy incidents have been reported (2006) in Georgetown.

Currency

The official unit of currency is the Guyana dollar, consisting of 100 cents.

Fishing Areas

Large-scale shrimp fishing is carried out off the coast of Guyana.

Government

Flag of Guyana

Guyana is a republic. The country is divided into ten regions.

Guyana is governed by a directly-elected President, as the leader of a party list in parliamentary elections, to a 5-year term. The President appoints the Prime Minister and the Cabinet of Ministers. The National Assembly consists of 65 directly-elected members, under a system of proportional representation, serving 5-year terms.

The legal system is based on English common law, with certain admixtures of Roman-Dutch law.

The capital is Georgetown.

Holidays

The following holidays are observed:

January 1	New Year's Day
February 23	Republic Day
Phagwah (Holi)	Variable
Good Friday	Variable
Holy Saturday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 5	Indian Heritage Day
May 26	Independence Day
First Monday in July	CARICOM Day
First Monday in August	Emancipation Day/ Freedom Day
Diwali (Deepavali)	Variable
December 25	Christmas Day
December 26	Boxing Day
December 31	Old Year's Night

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), and the Prophet's Birthday.

Industries

The major industries are bauxite, sugar, rice milling, timber, textiles, and gold mining.

The main exports are sugar, gold, bauxite, alumina, rice, shrimp, molasses, rum, and timber. The main export-trading partners are the United States, Canada, Venezuela, and the United Kingdom.

The main imports are manufactured goods, machinery, petroleum, and food. The main import-trading partners are the United States, Trinidad and Tobago, Venezuela, China, and Suriname.

Languages

English is the official language. Several Amerindian dialects are also spoken.

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of Guyana are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea.

Maritime Boundary Disputes

Guyana and Suriname seek United Nations arbitration to resolve a long-standing dispute over the axis of the territorial sea in potentially oil-rich waters.

Venezuela's claim of all territory W of the River Essequibo has prevented any discussions regarding the maritime boundary between Guyana and Venezuela. Based on a recent oil discovery, which Guyana claims is within the Guyanese Exclusive Economic Zone, it has been reported (2015) Venezuela has issued a decree that would annex Guyanese maritime waters as a theoretical new "defense zone" which would leave Guyana with no direct access to the Atlantic Ocean.

Guyana has expressed its intention to challenge the N limit of Trinidad and Tobago's maritime boundary with Venezuela under the claim that this boundary extends into the territorial waters of Guyana.

Regulations

General

Dangerous cargo is handled during daylight hours only.

Pratique

Pratique is given at Georgetown (6°48.8'N., 58°10.3'W.) when the pilot boards and includes vessel bound for ports on the Essequibo River and the Berbice River. Radio pratique is not available; vessels with a contagious disease on board must advise by radio and wait for instructions in the quarantine anchorage.

Search and Rescue

The Maritime Corps of the Guyana Defense Force is responsible for coordinating search and rescue operations. A Maritime Rescue Coordination Center is located in Georgetown and can be contacted by telephone (592-22-68410, 592-22-60570, or 592-22-60579).

Demerara Coast Radio Station (8RB) maintains a continuous listening watch for distress calls on 2182 kHz.

Ship Reporting System

CARICOM (Caribbean Community) Advance Passenger Information System (APIS)

CARICOM APIS is a mandatory reporting system providing Advance Passenger Information (API) about passengers and crew to the Joint Regional Communications Center (JRCC) Barbados for vessels bound for or departing from a port in the following participating CARICOM member states:

1. Antigua and Barbuda.
2. Barbados.
3. Dominica.
4. Grenada.
5. Guyana.
6. Jamaica.
7. St. Kitts and Nevis.
8. St. Lucia.
9. St. Vincent and the Grenadines.
10. Trinidad and Tobago.

The JRCC Barbados has been selected by the governments of the participating CARICOM states as the agent for collecting and collating data from arriving and departing vessels and can be contacted, as follows:

1. Telephone: 1-246-4297931 (Maritime)
   1-246-4354659 (eAPIS)
2. Facsimile: 1-246-2284040
3. E-mail: maritime.compliance@impacsjrcc.org
4. Web site: http://www.impacsjrcc.org

The Electronic Advance Passenger Information Service (eAPIS) is a web-based application that provides a means of uploading and transmitting passenger and crew information. Further details and downloadable forms can be obtained from CARICOM Advance Passenger Information System web site. Failure to provide these reports may result in heavy fines and/or prosecution.

Arriving vessels should submit an API, as follows:

1. Vessels arriving from a port outside of the CARICOM area—No later than 24 hours prior to arrival.
2. Vessels arriving from a port within the CARICOM area—No later than 1 hour prior to arrival.

Departing vessels should submit an API, as follows:

1. Vessels departing for a port outside of the CARICOM area—No later than 15 minutes after departure.
2. Vessels departing for a port within the CARICOM area—No later than 1 hour prior to arrival at that port.

CARICOM Advance Passenger Information System Home Page

http://www.caricomeapis.org

Time Zone

The Time Zone description is QUEBEC (+4). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 100 Young and Duke Streets, Kingston, Georgetown.

The mailing addresses are, as follows:

1. Guyana address—
   P.O. Box 10507
   Kingston, Georgetown
2. U.S. address—
   3170 Georgetown Place
   Washington DC (20521-3170)

U. S. Embassy Guyana Home Page
http://georgetown.usembassy.gov

INDIA

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General

India is located in the S part of Asia. It is bounded on the W by Pakistan and the Arabian Sea; on the E by Bangladesh, Burma, and the Bay of Bengal; on the N by the disputed territory of Jammu and Kashmir; and on the NE by China, Nepal, Tibet, and Bhutan. The far E part is almost separated from the rest of the country by Bangladesh.

The terrain varies and includes the mountainous region of the Himalayas in the N, the coastal lowlands, the almost flat plain of the Ganges River in the NE, and a desert in the W.

The climate varies from tropical monsoon in the S part to temperate in the N.

Buoyage System

The IALA Buoyage System (Region A) is in effect. Caution is necessary, however, as the implementation is progressing in phases, the existing uniform system may still be in place. See Chart No. 1 for further IALA Buoyage System information.

Lighted aids to navigation may be extinguished in parts of India, particularly on the N part of the Malabar Coast.

Buoys may be removed and lights extinguished during the monsoon season (mid-May to mid-September).

Cautions

Routes

The Indian authorities have established recommended routes for vessels bound for the port of Bombay in order to aid traffic transiting the approach areas. The local authorities request that vessels remain 1 to 2 miles to starboard of the recommended route tracklines, which may be seen on the chart, consistent with safe navigation and the *International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS)*.

Seismic Surveys

Seismic surveys, in connection with offshore oil and mineral exploration, are conducted in and around Indian waters. Details of these surveys are generally provided to mariners by local radio navigational warning or by Indian Notices to Mariners. It is seldom practicable to publish details of the areas of operation except in general terms; therefore, vessels carrying out seismic surveys may be encountered without prior notice. Seismic survey vessels operate either alone or in company and may tow a sensing device in the form of buoyant cable streamed 1 to 2 miles astern. This sensing device may be on the surface or lie at depths of up to 12m below. An orange buoy, which displays a quick flashing light and carries a radar reflector, is usually attached to the end of the cable.

In the process of the survey, repeated shock waves are created, at any level between the bottom and the surface, by the use of explosive charges, compressed air, mechanical vibrators, or electrical means. Vessels surveying will usually make way through the water, but sometimes they stop for extended periods.

Seismic survey vessels that are unable to maneuver are required to carry the lights and signals as described in the 72 COLREGS and should be given a wide berth.

If charges are being fired by radio or electrically triggered detonators, survey vessels may suspend radio and radar transmissions in order to avoid accidental firings. The charges may be contained in a variety of cylinders, tubes, or bags which may be marked as "Dangerous." No attempt to recover such items should be made and if any are inadvertently taken aboard in trawls, etc., should be jettisoned immediately.

Locust Reports

See **Indian Ocean—Cautions** for further information.

Piracy

Attacks on all classes of vessels occur in the waters of India and have been reported at or off many of the ports; they are most prevalent at Cochin. They also occur at a considerable distance offshore.

Vessels transiting off the coast of India should note that over 300,000 fishing vessels operate off the coast of India. Fishing off the coasts of the states of Kerala and Karnata is particularly intense up to 50 miles offshore, especially during the Southwest Monsoon. Many of the fishing vessels are equipped with outboard motors, with crews of four to five, and use longlines and purse seine gear. When merchant vessels appear to be nearing nets or fishing gear, these fishing vessels may sail towards merchant vessels in an attempt to attract attention so as to avoid damage to their nets and gear. Consequently, merchant vessels may mistake these fishing boats to be pirate skiffs. Vessels should navigate with extreme caution within 50 miles of the coast of India so as not to mistake these fishing vessels for pirate skiffs.

Vessels should report any suspicious activities of skiffs/boats to MRCC Mumbai, as follows:

1. Telephone: 91-22-243-88065
   91-22-243-16558
2. E-mail: indsar@vsnl.net
   icgmrcc_mumbai@mtnl.net

Merchant vessels with armed guards on board are required to report their presence to the Indian Navy/Coast Guard when transiting the Indian Exclusive Economic Zone.

Offshore Data Buoys

The Government of India has established a series of data collection and tsunami buoys off the coasts of India in the Arabian Sea and the Bay of Bengal, as follows:

1. Data buoys—used to collect meteorological and oceanographic date.
2. Tsunami buoys—used to collect deep-sea water level data.

India Offshore Data Buoys			
Arabian Sea		Bay of Bengal	
Buoy ID	Position	Buoy ID	Position
Data Buoys			
AD02 MB	14°51'52.8"N, 68°54'52.2"E	BD08 OB	18°09'57.0"N, 89°39'06.6"E
AD04 MB	8°29'01.8"N, 73°05'37.2"E	BD09 OB	17°53'52.8"N, 89°40'30.0"E
AD06 OB	18°30'52.8"N, 67°28'16.8"E	BD10 OB	16°30'00.6"N, 87°58'04.8"E
AD07 OB	14°57'58.2"N, 68°59'22.2"E	BD11 OB	13°29'07.2"N, 84°00'04.2"E
AD08 OB	11°46'10.0"N, 68°35'48.0"E	BD12 OB	10°29'54.6"N, 94°01'49.8"E
AD09 OB	8°15'12.0"N, 73°21'00.0"E	BD13 OB	14°00'33.6"N, 86°58'52.8"E
AD10 OB	10°19'04.2"N, 72°35'18.6"E	BD14 OB	6°35'00.6"N, 88°14'55.8"E
CB02 CB	10°52'25.8"N, 72°12'31.8"E	CB01 CB	11°35'19.8"N, 92°35'45.0"E
CB04 CB	15°24'13.8"N, 73°46'07.8"E	CB06 CB	13°06'21.0"N, 80°19'03.6"E

India Offshore Data Buoys			
Arabian Sea		Bay of Bengal	
Buoy ID	Position	Buoy ID	Position
CALVAL MB	10°36'18.0"N, 72°13'46.8"E	—	—
Tsunami Buoys			
TB12 TB	20°20'19.8"N, 67°32'49.8"E	TB03 TB	6°19'07.2"N, 88°36'00.0"E
STB02 TB	20°48'00.0"N, 65°25'00.0"E	TB05 TB	10°59'40.8"N, 89°36'22.2"E
		TB06 TB	14°43'34.2"N, 89°35'49.2"E
		TB09 TB	17°18'19.2"N, 89°46'46.2"E
		STB01 TB	6°15'00.0"N, 88°48'00.0"E
		STB03 TB	3°48'36.0"N, 91°42'00.0"E
		STB04 TB	10°00'00.0"N, 88°30'00.0"E
		STB05 TB	13°30'00.0"N, 89°00'00.0"E

All buoys are yellow, with a 3.5m high mast and a radar reflector. Mariners are advised to maintain a clearance of 1 mile off these buoys.

Currency

The official unit of currency is the rupee, consisting of 100 paise.

Firing Areas

Firing, bombing, and other defense practice exercises take place within a number of areas lying off the coast of India. The responsibility to avoid accidents rests entirely with the Range Authorities. Therefore, the limits of these areas may not, in all cases, be shown on the charts and their descriptions may not appear in the Sailing Directions (Enroute).

When air-to-air, air-to-sea, or ground firing are carried out by aircraft, a large white or red sleeve, a winged target, or a flag is towed by another aircraft moving on a steady course. Generally, warning signals are shown when the targets are stationary, but not when towed targets are used.

All marine craft operating as range-safety craft, target towers, or control launches for remote-controlled targets will display for identification purposes, while within or in the vicinity of the danger area, a large red flag at the masthead.

Remote-controlled craft are about 21m in length and carry "Not Under Command" shapes and lights, as well as normal navigation lights. Exercises consisting of surface firing by ships, practice bombing, air to sea firing, and rocket firing may be carried out against these craft or targets towed by them. In such cases, a control craft will keep a visual and a radar watch extending up to about 8 miles and there will be cover from the air over a much greater range to ensure that shipping is not endangered.

Rocket and guided weapons firing exercises are conducted under Clear (Air and Sea) Range procedures. Devices are generally incorporated whereby the missiles may be destroyed should their flights be erratic.

Warning signals, when given, usually consist of red flags by day and red fixed or red flashing lights at night. However, the absence of any such signal cannot be accepted as evidence that a practice area does not exist. Warning signals are shown from shortly before practice commences until it ceases.

Ships and aircraft carrying out night exercises may illuminate with bright red or orange flares.

Vessels may be aware of the existence of practice areas by monitoring the NAVAREA VIII warning messages, the coastal warning messages, local Notice to Mariners, and by observing warning signals.

The Range Authorities are responsible for ensuring that there is no risk of damage from falling shell splinters, bullets, etc., to any vessel which may be in the practice area.

Rocket Launching Areas

1. **Thumba Equatorial Rocket Launching Station.**—Experimental high altitude meteorological/scientific rocket firing will take place periodically from a launching site at Thumba (8°32'34"N., 76°51'32"E.), on the W coast of India.

The danger areas are, as follows:

a. Area I.—Within a sector contained in a 5-mile radius from the launching site, between bearings 010° and 120° from seaward.

b. Area II.—Within a sector contained in arcs of 10 and 125 miles radii from the launching site, between bearings 010° and 120° from seaward.

Mariners are advised to keep clear of the above danger areas when firing is due to take place. NAVAREA VIII and coastal radio warnings will be issued sufficiently in advance in accordance with Indian Special Notice No. 12.

Visual warning signals are displayed at the launch site, as follows:

a. White signal flares fired 45 minutes before launch.

b. Red signal flares fired 40 minutes before launch.

c. Green signal flares fired 5 minutes after launch (all clear signal.

2. **Balasore Rocket Launching Station.**—Experimental high altitude meteorological/scientific rocket firing will take place periodically from a launching site at Balasore (21°25'30"N., 87°00'10"E.), on the E coast of India.

Danger areas will be disseminated prior to any launch.

Mariners are advised to keep clear of the danger areas

when firing is due to take place. NAVAREA VIII and coastal radio warnings will be issued sufficiently in advance in accordance with Indian Special Notice No. 12.

3. **Satish Dhawan Satellite/Sounding Rocket Launching Stations.**—Experimental high altitude satellite/sounding rocket launching will take place periodically from Sriharikota launching sites on the E coast of India, as follows:

a. Sounding Rocket Launching Station (13°41'N., 80°14'E.) with danger areas, as follows:

(i) RH200/RH300:

• Danger Zone 1—A circle, with a radius of 5 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 15 miles, centered on the launcher, between azimuth angle 070° clockwise to azimuth angle 110°.

• Danger Zone 3—A sector, with a radius of 40 miles, centered on the launcher, between azimuth angle 080° clockwise to a radius of 70 miles on azimuth angle 120°.

(ii) RH (stretched version) (13°41'N., 80°14'E.):

• Danger Zone 1—A circle, with a radius of 5 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 40 miles, centered on the launcher, between azimuth angle 070° clockwise to a radius of 60 miles on azimuth angle 110°.

• Danger Zone 3—A sector, with a radius of 40 miles, centered on the launcher, between azimuth angle 080° clockwise to a radius of 70 miles on azimuth angle 120°.

(iii) RH560 (Variant 1) (13°41'43.8"N., 80°14' 04.8"E.):

• Danger Zone 1—A circle, with a radius of 5 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 25 miles, centered on the launcher, between azimuth angle 090° clockwise to azimuth angle 130°.

• Danger Zone 3—A sector, with a radius of 180 miles, centered on the launcher, between azimuth angle 090° clockwise to a radius of 300 miles on azimuth angle 130°

(iv) RH560 (Variant 2) (13°41'43.8"N., 80°14' 04.8"E.):

• Danger Zone 1—A circle, with a radius of 12 miles, centered on the launcher.

• Danger Zone 3—A sector, with a radius of 50 miles, centered on the launcher, between azimuth angle 080° clockwise to a radius of 250 miles on azimuth angle 120°.

b. Satellite Launching Station (13°42'N., 80°14'E.) with danger areas, as follows:

(i) PSVL (Variant 1):

• Danger Zone 1—A circle, with a radius of 10 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 115 miles, centered on the launcher, between azimuth angle 130° clockwise to a radius of 165 miles on azimuth angle 150°.

• Danger Zone 3—Area bounded by lines joining the following positions:

(a) 9°00'N, 84°30'E.
(b) 9°00'N, 85°00'E.
(c) 7°30'N, 85°00'E.
(d) 7°30'N, 84°30'E.

• Danger Zone 4—Area bounded by lines joining the following positions:

(a) 0°50'S, 84°30'E.
(b) 0°50'S, 85°00'E.
(c) 4°50'S, 85°00'E.
(d) 4°50'S, 84°30'E.

• Danger Zone 5—Area bounded by lines joining the following positions:

(a) 29°50'S, 72°00'E.
(b) 29°50'S, 76°00'E.
(c) 34°50'S, 76°00'E.
(d) 34°50'S, 72°00'E.

(ii) PSVL (Variant 2):

• Danger Zone 1—A circle, with a radius of 10 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 20 miles, centered on the launcher, between azimuth angle 130° clockwise to a radius of 40 miles on azimuth angle 150°.

• Danger Zone 3—A sector, with a radius of 100 miles, centered on the launcher, between azimuth angle 130° clockwise to a radius of 160 miles on azimuth angle 150°.

• Danger Zone 4—A sector, with a radius of 180 miles, centered on the launcher, between azimuth angle 130° clockwise to a radius of 200 miles on azimuth angle 150°.

• Danger Zone 5—Area bounded by lines joining the following positions:

(a) 9°00'N, 85°00'E.
(b) 9°00'N, 85°30'E.
(c) 7°30'N, 85°30'E.
(d) 7°30'N, 85°00'E.

• Danger Zone 6—Area bounded by lines joining the following positions:

(a) 4°30'S, 80°50'E.
(b) 4°30'S, 82°50'E.
(c) 8°30'S, 82°50'E.
(d) 8°30'S, 80°50'E.

• Danger Zone 7—Area bounded by lines joining the following positions:

(a) 40°30'S, 72°00'E.
(b) 40°30'S, 76°00'E.
(c) 45°30'S, 76°00'E.
(d) 45°30'S, 72°00'E.

(iii) PSVL (Varient 3):

• Danger Zone 1—A circle, with a radius of 10 miles, centered on the launcher.

• Danger Zone 2—Area bounded by lines joining the following positions:

(a) 12°45'N, 82°00'E.
(b) 12°45'N, 84°00'E.
(c) 13°45'N, 84°00'E.
(d) 13°45'N, 82°00'E.

• Danger Zone 3—Area bounded by lines joining the following positions:

(a) 12°00'N, 86°45'E.
(b) 12°00'N, 87°15'E.

(c) 12°45'N, 87°15'E.
(d) 12°45'N, 86°45'E.

• Danger Zone 4—Area bounded by lines joining the following positions:
(a) 10°00'N, 95°00'E.
(b) 10°00'N, 95°30'E.
(c) 11°00'N, 95°30'E.
(d) 11°00'N, 95°00'E.

• Danger Zone 5—Area bounded by lines joining the following positions:
(a) 19°00'S, 132°00'W.
(b) 21°00'S, 132°00'W.
(c) 16°00'S, 120°00'W.
(d) 18°00'S, 120°00'W.

(iv) PSVL (Varient 4):

• Danger Zone 1—A circle, with a radius of 10 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 40 miles, centered on the launcher, between azimuth angle 80° clockwise to a radius of 75 miles on azimuth angle 125°.

• Danger Zone 3—Area bounded by lines joining the following positions:
(a) 12°45'N, 82°45'E.
(b) 13°15'N, 82°45'E.
(c) 13°15'N, 84°00'E.
(d) 12°45'N, 82°00'E.

• Danger Zone 4—Area bounded by lines joining the following positions:
(a) 12°25'N, 84°10'E.
(b) 13°00'N, 84°10'E.
(c) 13°00'N, 85°40'E.
(d) 12°25'N, 85°40'E.

• Danger Zone 5—Area bounded by lines joining the following positions:
(a) 11°25'N, 88°10'E.
(b) 12°00'N, 88°10'E.
(c) 12°00'N, 89°10'E.
(d) 11°25'N, 89°10'E.

• Danger Zone 6—Area bounded by lines joining the following positions:
(a) 8°50'N, 94°30'E.
(b) 10°50'N, 94°30'E.
(c) 10°50'N, 95°30'E.
(d) 8°50'N, 95°30'E.

• Danger Zone 7—Area bounded by lines joining the following positions:
(a) 16°00'S, 130°00'W.
(b) 17°00'S, 130°00'W.
(c) 8°00'S, 90°00'W.
(d) 8°00'S, 90°00'W.

(v) GSVL (Varient 1):

• Danger Zone 1—A circle, with a radius of 5 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 15 miles, centered on the launcher, between azimuth angle 045° clockwise to azimuth angle 160°.

• Danger Zone 3—Area bounded by lines joining the following positions:
(a) 11°15'N, 85°00'E.
(b) 11°15'N, 86°45'E.
(c) 12°30'N, 86°45'E.
(d) 12°30'N, 85°00'E.

• Danger Zone 4—Area bounded by lines joining the following positions:
(a) 10°15'N, 88°30'E.
(b) 10°15'N, 90°30'E.
(c) 11°30'N, 90°30'E.
(d) 11°30'N, 88°30'E.

(vi) GSVL (Varient 2):

• Danger Zone 1—A circle, with a radius of 5 miles, centered on the launcher.

• Danger Zone 2—A sector, with a radius of 15 miles, centered on the launcher, between azimuth angle 045° clockwise to azimuth angle 160°.

• Danger Zone 3—Area bounded by lines joining the following positions:
(a) 11°30'N, 85°00'E.
(b) 11°30'N, 86°45'E.
(c) 12°30'N, 86°45'E.
(d) 12°30'N, 85°00'E.

• Danger Zone 4—Area bounded by lines joining the following positions:
(a) 10°15'N, 88°15'E.
(b) 10°15'N, 90°30'E.
(c) 11°30'N, 90°30'E.
(d) 11°30'N, 88°15'E.

• Danger Zone 5—Area bounded by lines joining the following positions:
(a) 8°00'N, 94°45'E.
(b) 8°00'N, 95°30'E.
(c) 9°00'N, 95°30'E.
(d) 9°00'N, 94°45'E.

Mariners are advised to keep clear of the above danger areas when launching is due to take place. NAVAREA VIII and NAVTEX warnings will be issued sufficiently in advance in accordance with Indian Special Notice No. 12. No visual warning signals will be displayed. Vessels unavoidably in the danger areas should contact MRCC Chennai.

Firing Practice and Exercise Areas

1. **Bedi (off Balachiri)**.—An area bounded by lines joining the following positions:
a. 22°49'00.0"N, 70°06'00.0"E.
b. 22°45'49.8"N, 70°13'10.2"E.
c. 22°38'15.0"N, 70°09'19.8"E.
d. 22°41'10.2"N, 70°01'49.8"E.

2. **Nora Island**.—An area of 2 miles around Nora Island (22°31'00"N., 69°20'30"E.).

3. **Mumbai (Bombay)**

(i) Area A—An area bounded by lines joining the following positions:
a. 18°30'N, 70°50'E.
b. 18°30'N, 71°10'E.
c. 18°12'N, 71°10'E.
d. 18°12'N, 70°50'E.

(ii) Area B—An area bounded by lines joining the following positions:
a. 17°50'N, 72°00'E.
b. 17°50'N, 72°20'E.
c. 17°32'N, 72°20'E.
d. 17°32'N, 72°00'E.

(iii) Area R—An area bounded by lines joining the following positions:
a. 19°32'N, 67°22'E.
b. 19°32'N, 69°06'E.
c. 21°07'N, 69°06'E.
d. 21°07'N, 67°22'E.

(iv) Middle Ground Firing Area—An area bounded by lines joining the following positions:
a. 18°50'00.0"N, 72°54'30.0"E.
b. 18°54'18.0"N, 72°54'00.0"E.
c. 18°54'30.0"N, 72°54'00.0"E.
d. 18°55'06.0"N, 72°54'30.0"E.
e. 18°55'10.2"N, 72°50'58.2"E.
f. 18°54'39.0"N, 72°50'34.8"E.
g. 18°54'23.4"N, 72°50'21.0"E.
h. 18°50'00.0"N, 72°54'18.0"E.

(v) Oyster Rock Firing Area—An area bounded by lines joining the following positions:
a. 18°48'00.0"N, 72°52'00.0"E.
b. 18°50'00.0"N, 72°54'18.0"E.
c. 18°50'00.0"N, 72°54'30.0"E.
d. 18°54'39.0"N, 72°50'00.0"E.
e. 18°54'23.4"N, 72°50'34.8"E.
f. 18°54'04.8"N, 72°49'48.0"E.
g. 18°54'03.0"N, 72°49'28.8"E.
h. 18°48'00.0"N, 72°49'00.0"E.

(vi) Area 1—An area bounded by lines joining the following positions:
a. 18°48'00.0"N, 72°38'00.0'E.
b. 18°52'00.0"N, 72°46'00.0"E.
c. 18°51'00.0"N, 72°47'00.0"E.
d. 18°53'34.8"N, 72°48'45.0"E. (Colaba Point)
e. 19°00'00.0"N, 72°44'04.8"E.
f. 19°00'00.0"N, 72°38'00.0"E.

Position a and position f are to be joined by an arc with position d as the center.

(vii) Firing from Colaba Point—An area bounded by lines joining the following positions:
a. 18°48'00.0"N, 72°38'00.0"E.
b. 18°53'21.0"N, 72°48'27.0"E.
c. 19°00'00.0"N, 72°44'03.0"E.
d. 19°00'00.0"N, 72°38'00.0"E.

(viii) Area 2—An area bounded by lines joining the following positions:
a. 18°51'49.8"N, 72°38'19.8"E.
b. 19°01'19.8"N, 72°49'00.0"E.
c. 19°05'00.0"N, 72°47'00.0"E.
d. 19°04'00.0"N, 72°35'00.0"E.

4. **Goa**

(i) Area A—An area bounded by lines joining the following positions:
a. 15°12'30"N, 73°20'30"E.
b. 14°54'00"N, 73°28'30"E.
c. 15°16'30"N, 73°29'30"E.
d. 14°58'00"N, 73°38'00"E.

(ii) Area B—An area bounded by lines joining the following positions:
a. 15°08'00"N, 73°10'30"E.
b. 14°50'00"N, 73°19'00"E.
c. 15°12'30"N, 73°20'30"E.
d. 14°54'00"N, 73°28'30"E.

(iii) Air-to-air range (VAD 17) bounded by lines joining the following positions:
a. 15°09'N, 73°11'E.
b. 15°15'N, 73°29'E.
c. 14°37'N, 73°45'E.
d. 14°30'N, 73°29'E.

(iv) Air-to-air range (VAD 17) bounded by lines joining the following positions:
a. 15°13'N, 73°57'E.
b. 15°13'N, 73°52'E.
c. 15°11'N, 73°52'E.
d. 15°11'N, 73°57'E.

5. **Netrani Island (off Karwar)—**Firing area bounded by lines joining the following positions:
a. 13°56'12.0"N, 74°13'36.0"E.
b. 14°07'12.0"N, 73°25'04.2"E.
c. 14°07'12.0"N, 74°13'36.0"E.
d. 13°55'12.0"N, 74°25'04.2"E.

6. **Off Kochi (Cochin)**

(i) Area D—An area bounded by lines joining the following positions:
a. 9°01'N, 75°39'E.
b. 9°12'N, 75°08'E.
c. 9°30'N, 75°17'E.
d. 9°12'N, 75°44'E.

(ii) Area E—An area bounded by lines joining the following positions:
a. 9°56'N, 75°16'E.
b. 9°39'N, 75°28'E.
c. 9°29'N, 75°11'E.
d. 9°46'N, 75°00'E.

(iii) Area H—An area bounded by lines joining the following positions:
a. 9°28'N, 74°09'E.
b. 9°28'N, 74°39'E.
c. 9°94'N, 73°39'E.
d. 9°04'N, 73°09'E.

(iv) Area J—An area bounded by lines joining the following positions:
a. 9°52'N, 74°15'E.
b. 9°31'N, 74°15'E.
c. 9°31'N, 73°56'E.
d. 9°15'N, 73°56'E.

(v) Area U—An area bounded by lines joining the following positions:
a. 8°38'N, 74°24'E.
b. 8°56'N, 74°14'E.
c. 8°56'N, 74°34'E.
d. 8°38'N, 74°45'E.

(vi) Area B—An area bounded by lines joining the following positions:
a. 8°15'N, 74°38'E.
b. 8°30'N, 74°38'E.
c. 8°30'N, 75°00'E.
d. 8°15'N, 75°00'E.

(vii) Firing Sector—An area bounded by lines joining the following positions:
a. 9°57'19.8"N, 76°14'10.2"E.
b. 10°03'49.8"N, 76°03'10.2"E.
c. 9°44'49.8"N, 76°15'09.0"E.

(viii)Firing Area—An area bounded by lines joining the

following positions:
a. 9°57.5'N, 76°59.5'E.
b. 9°57.7'N, 76°14.2'E.
c. 9°44.0'N, 76°17.5'E.
d. 9°42.5'N, 76°09.5'E.

7. **Trivandrum**—Area P—An area bounded by lines joining the following positions:
a. 8°16'N, 75°42'E.
b. 8°16'N, 76°32'E.
c. 8°41'N, 76°32'E.
d. 8°41'N, 75°42'E.

8. **Chennai (Madras)**

(i) Chennai Firing Area.—An area bounded by an arc extending 16 miles from Chennai Light on a bearing between 037° and 184°.

(ii) Area V—An area bounded by lines joining the following positions:
a. 16°10'N, 84°18'E.
b. 16°10'N, 84°59'E.
c. 15°30'N, 84°59'E.
d. 15°30'N, 84°18'E.

9. **Visakhapatnam**

(i) Area A—An area bounded by lines joining the following positions:
a. 17°44'00.0"N, 84°05'00.0"E.
b. 17°44'00.0"N, 83°48'00.0"E.
c. 17°48'07.8"N, 83°42'00.0"E.
d. 17°58'00.0"N, 83°52'00.0"E.
e. 17°58'00.0"N, 84°19'00.0"E.

(ii) Area B—An area bounded by lines joining the following positions:
a. 16°30'N, 83°00'E.
b. 15°30'N, 83°00'E.
c. 15°30'N, 84°00'E.
d. 16°30'N, 84°00'E.

(iii) Firing Area D—An area bounded by lines joining the following positions:
a. 16°56'54.0"N, 84°00'12.0"E.
b. 16°56'54.0"N, 84°29'37.8"E.
c. 16°30'24.6"N, 84°29'37.8"E.
d. 16°30'24.6"N, 84°00'12.0"E.

(iv) Area E—An area bounded by lines joining the following positions:
a. 17°42'03.0"N, 83°18'24.0"E.
b. 17°41'30.0"N, 83°18'07.2"E.
c. 17°30'24.0"N, 83°18'07.2"E.
d. 17°34'04.2"N, 83°30'18.0"E.
e. 17°46'04.2"N, 83°32'04.2"E.

10. **Gopalpur**—An area bounded by lines joining the following positions:
a. 19°14'36.0"N, 84°53'42.0"E.
b. 19°07'23.4"N, 85°35'56.4"E.
c. 18°33'36.6"N, 84°53'44.4"E.
d. An arc with a radius of 75 kilometers, centered on point a, joining point b and point c.

11. **Kalaikunda**—Firing area bounded by lines joining the following positions:
a. 18°58'53.4"N, 87°00'55.2"E.
b. 18°58'53.4"N, 90°06'46.8"E.
c. 18°38'59.4"N, 90°06'46.8"E.
d. 18°38'59.4"N, 87°00'55.2"E.

12. **Balasore**—An area bounded by lines joining the following positions:
a. 21°27'30"N, 87°02'00"E.
b. 21°09'00"N, 87°21'51"E.
c. 21°00'18"N, 87°03'00"E.
d. 21°58'30"N, 87°53'30"E.
e. 20°10'54"N, 86°04'24"E.

13. **Kolkata (Calcutta)**—Firing area bounded by lines joining the following positions:
a. 22°11'30"N, 88°11'00"E.
b. 22°11'24"N, 88°08'00"E.
c. 22°06'00"N, 88°09'30"E.
d. 22°01'00"N, 88°03'18"E.
e. 22°07'00"N, 88°10'30"E.
f. 22°05'00"N, 88°15'00"E.

14. **Port Cornwallis**—An area bounded by lines joining the following positions:
a. 12°55'N, 94°05'E.
b. 12°55'N, 94°45'E.
c. 12°30'N, 94°45'E.
d. 12°30'N, 94°05'E.

15. **Port Blair**

(i) Area A—An area bounded by lines joining the following positions:
a. 11°39'N, 92°49'E.
b. 11°39'N, 93°03'E.
c. 11°24'N, 93°03'E.
d. 11°24'N, 92°49'E.

(ii) Firing Area B—An area bounded by lines joining the following positions:
a. 11°55'N, 94°03'E.
b. 11°55'N, 94°30'E.
c. 12°25'N, 94°30'E.
d. 12°35'N, 94°03'E.

(iii) Firing Area D—An area bounded by lines joining the following positions:
a. 11°24'N, 92°45'E.
b. 11°24'N, 93°05'E.
c. 11°00'N, 93°05'E.
d. 11°00'N, 92°45'E.

(iv) Firing Area E—An area bounded by lines joining the following positions:
a. 11°39.7'N, 92°46.3'E.
b. 11°40.6'N, 92°47.0'E.
c. 11°37.8'N, 92°57.1'E.
d. 11°30.4'N, 92°48.9'E.

16. **Passage Island**—Firing area bounded by lines joining the following positions:
a. 11°05'N, 92°35'E.
b. 11°17'N, 92°35'E.
c. 11°17'N, 92°47'E.
d. 11°05'N, 92°47'E.

Naval Exercise Areas

1. **Off Dwarka.—**Area D—An area bounded by lines joining the following positions:
a. 22°12.0'N, 68°36.2'E.
b. 21°15.0'N, 69°04.0'E.
c. 21°09.0'N, 69°40.0'E.
d. 21°15.0'N, 69°41.0'E.
e. 22°12.0'N, 68°42.0'E.

2. **Off Navi Bandar.—**Area P—An area bounded by lines joining the following positions:
a. 21°00'N, 68°00'E.
b. 21°00'N, 69°12'E.
c. 20°20'N, 69°40'E.
d. 20°00'N, 69°40'E.
e. 20°00'N, 68°40'E.

3. **Off Diu.**
(i) Area Q—An area bounded by lines joining the following positions:
a. 20°52'40.8"N, 70°03'04.8"E.
b. 20°31'45.6"N, 70°58'41.4"E.
c. 20°18'54.6"N, 70°59'25.2"E.
d. 20°19'05.4"N, 70°51'42.6"E.
e. 20°01'06.6"N, 71°02'32.4"E.
f. 20°24'55.8"N, 70°04'06.0"E.
(ii) Area T—An area bounded by lines joining the following positions:
a. 19°14'N, 69°45'E.
b. 19°47'N, 68°35'E.
c. 20°36'N, 69°02'E.
d. 20°02'N, 70°09'E.

4. **Off Mumbai.**
(i) Area F—An area bounded by lines joining the following positions:
a. 18°02.0'N, 68°40.0'E.
b. 18°43.0'N, 68°40.0'E.
c. 18°43.0'N, 68°58.0'E.
d. 18°02.5'N, 69°28.0'E.
(ii) Area G—An area bounded by lines joining the following positions:
a. 18°02'N, 68°40'E.
b. 18°43'N, 68°40'E.
c. 18°43'N, 67°43'E.
(iii) Area AA1—An area bounded by lines joining the following positions:
a. 18°59'N, 72°51'E.
b. 18°59'N, 72°56'E.
c. 18°56'N, 72°56'E.
d. 18°56'N, 73°02'E.
e. 18°47'N, 73°02'E.
f. 18°47'N, 72°55'E.
g. 18°34'N, 72°55'E.
h. 18°34'N, 72°42'E.
i. 18°55'N, 72°42'E.
j. 18°55'N, 72°49'E.

5. **Off Ratnagiri.**
(i) Area M—An area bounded by lines joining the following positions:
a. 16°00'N, 71°45'E.
b. 16°00'N, 72°15'E.
c. 15°40'N, 72°15'E.
d. 15°40'N, 71°45'E.
(ii) Area J—An area bounded by lines joining the following positions:
a. 17°00'N, 70°00'E.
b. 17°00'N, 70°25'E.
c. 16°28'N, 70°28'E.
d. 16°28'N, 70°04'E.
(iii) Area C—An area bounded by lines joining the following positions:
a. 17°50'N, 71°30'E.
b. 17°50'N, 71°52'E.
c. 17°32'N, 71°52'E.
d. 17°32'N, 71°30'E.
(iv) Area VAD31—An area bounded by lines joining the following positions:
a. 17°50'N, 72°28'E.
b. 17°50'N, 72°45'E.
c. 17°13'N, 72°42'E.
d. 17°35'N, 72°28'E.

6. **Off Devgarh.—**Area R—An area bounded by lines joining the following positions:
a. 16°30'N, 70°30'E.
b. 16°30'N, 71°00'E.
c. 16°00'N, 71°00'E.
d. 16°00'N, 70°30'E.

7. **Off Mormugao.**
(i) Area D—An area bounded by lines joining the following positions:
a. 15°24'N, 72°34'E.
b. 15°06'N, 72°40'E.
c. 15°00'N, 72°28'E.
d. 15°18'N, 72°22'E.
(ii) Area H—An area bounded by lines joining the following positions:
a. 15°33'N, 72°11'E.
b. 15°30'N, 72°28'E.
c. 15°10'N, 72°20'E.
d. 15°13'N, 72°02'E.

8. **Off Kochi.**
(i) Area A—An area bounded by lines joining the following positions:
a. 10°00'N, 75°23'E.
b. 8°47'N, 76°05'E.
c. 8°47'N, 75°22'E.
d. 10°00'N, 74°37'E.
(ii) Area Q—An area bounded by lines joining the following positions:
a. 8°15'N, 75°18'E.
b. 8°15'N, 74°32'E.
c. 8°59'N, 74°06'E.
d. 8°59'N, 74°54'E.
(iii) Area Y—An area bounded by lines joining the following positions:
a. 10°00'N, 73°51'E.
b. 10°00'N, 74°40'E.
c. 9°00'N, 74°40'E.
d. 9°00'N, 73°51'E.

9. **Off Visakhapatnam.**
(i) Area R—An area bounded by lines joining the following positions:
a. 17°45.0'N, 83°38.5'E.
b. 17°41.0'N, 83°44.5'E.
c. 17°32.5'N, 83°38.0'E.
d. 17°37.0'N, 83°32.5'E.
(ii) Area Y—An area bounded by lines joining the following positions:
a. 17°45.0'N, 83°57.0'E.
b. 17°53.0'N, 84°04.3'E.
c. 17°47.0'N, 84°10.2'E.
d. 17°39.0'N, 84°02.5'E.

e. 17°46.0'N, 84°03.5'E.

10. **Off Quilon.—**Area Z5—An area bounded by lines joining the following positions:
    a. 9°05'00.0"N, 75°50'00.0"E.
    b. 8°50'00.0"N, 75°59'00.0"E.
    c. 8°39'00.0"N, 75°31'49.8"E.
    d. 8°58'00.0"N, 75°31'00.0"E.

Missile Firing Areas

1. **Off Angria Bank.—**Area L—An area bounded by lines joining the following positions:
    a. 17°40.0'N, 71°14.0'E.
    b. 17°30.0'N, 71°07.0'E.
    c. 17°18.0'N, 71°16.0'E.
    d. 15°43.0'N, 71°28.0'E.
    e. 15°22.0'N, 72°05.0'E.
    f. 16°32.0'N, 72°35.0'E.
    g. 16°53.0'N, 72°00.0'E.
    h. 17°25.0'N, 71°30.0'E.
2. **Off Sesostris Bank.—**Area S—An area bounded by lines joining the following positions:
    a. 16°38.0'N, 70°03.0'E.
    b. 16°38.0'N, 71°10.0'E.
    c. 16°00.0'N, 71°10.0'E.
    d. 13°32.5'N, 73°22.0'E.
    e. 12°44.0'N, 73°22.0'E.
    f. 12°44.0'N, 68°52.0'E.
    g. 14°00.0'N, 69°10.0'E.
    h. 15°15.0'N, 70°12.0'E.
3. **Off Visakhapatnam.—**Area M—An area bounded by lines joining the following positions:
    a. 18°58'53.4"N, 87°00'55.2"E.
    b. 18°58'53.4"N, 90°06'46.8"E.
    c. 15°38'59.4"N, 90°06'46.8"E.
    d. 15°36'59.4"N, 87°00'55.2"E.
4. **Off Tillanchang.—**Area T—An area bounded by lines joining the following positions:
    a. 8°08.0'N, 93°06.0'E.
    b. 8°08.0'N, 94°08.0'E.
    c. 11°12.0'N, 94°08.0'E.
    d. 11°12.0'N, 93°06.0'E.
5. **Off Port Blair.—**Area C—An area bounded by lines joining the following positions:
    a. 11°00.0'N, 92°50.0'E.
    b. 10°30.0'N, 92°50.0'E.
    c. 10°30.0'N, 93°40.0'E.
    d. 10°00.0'N, 93°40.0'E.

Fishing Areas

Heavy concentrations of large and small fishing vessels will be encountered, especially from September to May, off the ports and harbors of India up to 50 miles offshore. The fishing grounds may be marked by barrel buoys and logs.

Heavy concentrations of fishing vessels may be encountered in the Gulf of Khambhat (21°21'N., 72°22'E.) and the Gulf of Kachchh (22°45'N., 69°45'E.).

Small fishing vessels with buoyed nets are likely to be encountered up to 25 miles offshore in the approaches to Mumbai (Bombay).

Lines of fishing stakes, surmounted by baskets and projecting as much as 6m out of the water, lie in depths of less than 25m in the N and S approaches to Mumbai (Bombay) as well as between Bona Point (17°24.3'N., 73°10.'E) and Kanhoji Angre Island, 80 miles NNW. Caution is necessary as these stakes may be broken off and not readily visible.

Mariners should keep a good lookout, especially at night and around sunrise and sunset, when navigating in coastal waters.

Fishing stakes and enclosures are generally found on off-lying banks and off the coast in depths of up to 25m. Their positions are subject to considerable change.

Fishing stakes are normally removed during the Southwest Monsoon.

Government

Flag of India

India is a federal republic with a parliamentary government. The country is divided into 29 states and seven union territories.

The head of the Union is the President, who is elected by an electoral college for a 5-year term, in whom all executive power is vested. The electoral college consists of all the elected members of the Parliament and the State Assemblies.

The Council of Ministers aids and advises the President. The Prime Minister is elected by the members of the majority party.

The bicameral Parliament consists of the Council of States (the upper house) and the People's Assembly (the lower house). The Council of States consists of not more that 245 members and is a combination of members selected by the elected members of the state and territorial assemblies and up to 12 members appointed by the President; all members serve 6-year terms. The People's Assembly consists of 543 directly-elected members and two appointed members, all serving 5-year terms.

The legal system is based on English common law.

The capital is New Delhi.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 26	Republic Day
Good Friday	Variable
August 15	Independence Day
October 2	Mahatma Gandhi's Birthday

December 25 Christmas Day (Natal)

Hindu holidays subject to the Hindu solar calendar include Vishnu/Bahag, Mesadi, and Maghi.

Hindu holidays subject to the Hindu lunar calendar include Holi, Sri Rami Navami, Mahavir Jayanthi, Buddha Purnima, Krishna Janamashti (Janmastami), Dussehra (Vijaya Dashmi), Diwali (Deepavali), and Hazrat Ali's Birthday.

There are many smaller Hindu holidays that may be celebrated locally.

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are agriculture, textiles, chemicals, food processing, steel, transportation equipment, cement, mining, petroleum, machinery, software, and pharmaceuticals.

The main exports are petroleum products, precious stones, machinery, iron and steel, chemicals, vehicles, pharmaceutical products, cereals, and apparel. The main export-trading partners are the United States and the United Arab Emirates.

The main imports are crude oil, machinery, gems, fertilizers, plastics, iron and steel, and chemicals. The main import-trading partners are China, Saudi Arabia, the United Arab Emirates, Switzerland, and the United States.

Languages

Hindi is the official language. English is also very widely used, especially in business, communications, and government. In addition, there are 14 other official languages; numerous dialects are also spoken.

Meteorology

Internet Weather Services

The latest GMDSS messages giving weather forecasts for the Arabian Sea and the Bay of Bengal are available in English from the Indian Meteorological Department (http://www.imd.gov.in).

Mined Areas

Mines may still exist in Preparis South Channel, S of Preparis Island (14°53'N., 97°38'E.), presenting a danger to subsurface activities, including submerged navigation, fishing, sea bed exploration, and anchoring.

Navigational Information

Enroute Volume

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of India are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims the Gulf of Mannar and Palk Bay as historic waters.

** Also considered a Security Zone.

Maritime Boundary Disputes

A dispute with Bangladesh over New Moore Island (South Talpatty Island) (Purbasha Island) (21°37'N., 89°09'E.), in the Bay of Bengal, has prevented the establishment of a maritime boundary. It has been reported (2010) that the island is now submerged and no longer visible.

Bangladesh, Burma, and India have referred their maritime boundary claims to the International Tribune on the Law of the Sea.

A dispute with Pakistan over the terminus of the estuary of Sir Creek (23°38'N., 68°02'E.), at the mouth of the Rann of Kutch, has prevented the establishment of a maritime boundary. In 2004, this disputed area was resurveyed in preparations for discussions concerning the maritime boundary.

Offshore Drilling

Oil Development Areas

Three Oil Development Areas (ODA) lie in the approaches to the port of Mumbai (Bombay), as follows:

1. Bombay High ODA (19°27"N., 71°20'E.)—90 miles WNW of the entrance to Mumbai (Bombay),
2. Panna and Bassain ODA (19°15'N., 72°00'E.)—50 miles NW of the entrance to Mumbai (Bombay),
3. Neelam Heera and Ratna ODA (18°34"N., 72°18'E.),—35 miles SW of the entrance to Mumbai (Bombay).

Recommended safety fairways lead between the ODAs to Mumbai to help mariners safely navigate clear of the ODAs. For further information, see the chart and Pub. 173, Sailing Directions (Enroute) West Coast of India and the Bay of Bengal.

Several oil fields and exploration sites lie within this area. In addition, numerous derricks, oil production platforms, wells, single point moorings, and other obstructions hinder safe navigation in this area. Other unlit objects, pipelines, submerged obstructions, and well heads, sometimes marked by buoys, exist in this area; these features are not all charted due to their complexity and frequent change.

Tapti ODA (20°38'N., 71°59'E.) lies in the approaches to the Gulf of Khambhat S of Western Banks.

Two additional Oil Development Areas are located off the E coast of Indian, as follows:

1. Sun Hoec ODA (11°30'N., 79°56'E.)—N of Karaikal.
2. Ravva ODA (16°27'N., 82°10'E.)—S of Kakinada Bay.

Vessels not associated with oil field operations are strongly advised by the Government of India not to approach within 2.5 miles of any production platforms or structures in any Oil Development Area.

Indian authorities advise all mariners to maintain a constant listening watch on VHF when within 25 miles of the oil fields.

Oil exploration activities are also taking place in the Gulf of Mannar, between the SE coast of India and the W coast of Sri Lanka.

Offshore Islands

The Andaman Islands

The Andaman Islands, a group of about 204 islands and rocks, lie between 10°30'N and 13°40'N, and between 92°11'E and 93°07'E.

The Andaman Islands, together with the Nicobar Islands, are administered as a Union Territory by the President of the Republic of India, acting through a Lieutenant Governor. The seat of administration is situated at Port Blair. The islands are densely wooded and contain valuable hardwood and softwood trees which form the principal export. They are deeply indented and form several deep and spacious harbors.

The observed Standard Time is 5 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

The Nicobar Islands

The Nicobar Islands, a group of about 19 islands, are a dependency of the Andaman Islands. They lie between 6°45'N and 9°15'N, and between 92°40'E and 93°55'E.

The islands are mostly hilly and undulating. Rivers are found only on the island of Great Nicobar. Severe earthquakes can be expected in this vicinity as the islands lie on a fault line. Coconuts and tobacco are grown.

The observed Standard Time is 5 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

The Laccadive Islands (Lakshadweep Islands)

The **Laccadive Islands** (10°00'N., 72°30'E.), meaning the hundred thousand islands, consist of a group of coral atolls lying between 115 and 215 miles off the SW coast of India; several detached shoals and banks lie off the islands.

The islands are divided into two groups, N and S, separated approximately by the parallel of 11°N. The N group is known as the Amindivi Islands. The S group is known as the Cannanore Islands.using ports in the Andaman and Nicobar regions of India)

Each of these islands lies on extensive coral shoals and no parts of these formations are more than about 4m high. As these islets and islands are low, with coconut trees only 18 to 24m high and not discernible for any great distance, they should be avoided. There are, however, some wide and deep channels between them.

The observed Standard Time is 5 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

Pollution

The discharge of oil into the sea is prohibited within 50 miles of the Indian coast or island groups.

Regulations

Pre-Arrival Notification of Security (PANS)

All vessels, owners, operators, managers, and agents are requested to submit a Pre-Arrival Notification of Security (PANS) 96 hours prior to arrival at any Indian port. Full details may be obtained from the relevant authorities in India.

If the voyage is shorter than 96 hours, the PANS should be submitted within 2 hours of departure from the last port. This also applies to vessels trading in coastal waters or between Indian ports.

Vessels should report to their port of arrival and to the following Indian authorities:

1. Ports on the W coast of India—Coast Guard Regional Headquarters (West) at MRCC Mumbai.
2. Ports on the E coast of India—Coast Guard Regional Headquarters (East) at MRCC Chennai.
3. Ports in the Andaman and Nicobar regions of India—Coast Guard Regional Headquarters (West) at MRCC Port Blair.

Contact information for PANS is given in the table titled **India—PANS Contact Information**.

India—PANS Contact Information

	MRCC Mumbai	MRCC Chennai	MRCC Port Blair
Telephone	91-22-243-88065	91-44-234-60405	91-3192-232681
Facsimile	91-22-243-16558	91-44-253-95018	91-3192-242948
E-mail	indsar@vsl.net	isareast@dataone.in	mrcc-ptb@indiancoastguard.nic.in
			com_cs@dataone.in
INMARSAT-C	583-441907210	583-441907510	583-441908010
INMARSAT-M	870-762882349	870-641901410	870-762483765 (voice)
			870-762483766 (facsimile)
			870-762483767 (data)

Dangerous and Hazardous Cargo

It is required that all vessels above 100 gt carrying dangerous and hazardous cargo transiting through the Indian Exclusive Economic Zone (EEZ) report the details of the cargo carried 48 hours before entering any Indian port or 24 hours prior to entering the Indian EEZ. Vessels sailing from neighboring countries are also required to report on their cargo 24 hours prior to departure.

This information shall be included in line P of the Indian Ship Position and Information Reporting System (INSPIRES) reporting format (see Appendix II).

Indian Naval Vessels

All vessels must maintain a minimum distance of 300m from any Indian naval vessel berthed in port or anchored in an anchorage. Vessels approaching less than 300m from Indian naval vessels may be identified as hostile and fired upon.

Vessel Age Restrictions

The following restrictions apply to foreign-flagged tankers in Indian waters:

1. Crude oil carriers—Must have segregated ballast tanks and be less than 25 years old.
2. Product tankers—Must have segregated ballast tanks and be less than 25 years old.
3. Chemical tankers—Must be less than 25 years old.

Chartered Vessel Age Restrictions During the Monsoon Season

The following chartered vessels are prohibited from transiting Indian territorial waters during the monsoon season:

1. Gas carriers over 30 years old.
2. All other vessels over 25 years old.

The ban is in effect, as follows:

1. Bay of Bengal—From May 1 until November 30.
2. West coast and Arabian Sea—from June 1 until August 31.

Quarantine

Indian Port Health Authorities require a quarantine message to be sent not more than 12 hours and not less than 4 hours prior to arrival.

Restricted Area

The union territories of the Andaman Islands and the Nicobar Islands has been declared a Restricted Area by the Government of India. Foreign vessels and foreign nationals are prohibited from visiting the Andaman Islands and the Nicobar Islands without prior permission from the Government of India.

All foreign vessels must contact Port Blair Port Radio at 0230 UTC when entering the Indian Exclusive Economic Zone and provide the following information:

1. Vessel particulars.
2. Position.
3. Course.
4. Speed.
5. Nationality of crew and passengers.

International Ship and Port Facility (ISPS) Code

The ISPS Code applies to ships of 500 gt and over on international voyages and port facilities directly interfacing with these ships.

The following information must be submitted at least 24 hours prior to the vessel's arrival:

1. Vessel name.
2. Name and designation of the Ship Security Officer.
3. Validation of the International Ship Security Certificate or the Interim Certificate and the issuing authority.
4. Security level at which the ship is currently operating.
5. Names of the last ten ports-of-call where interface with a port or vessel took place.
6. The security level at which the ship operated at during the ports-of-call listed in 5.
7. Any special or additional security measures taken at the ports-of-call listed in 5.
8. Confirmation that appropriate security measures were maintained during ship-to-ship activity at the ports-of-call listed in 5.
9. Any other security-related information pertaining to ensuring the safety and security of persons, port facilities, ships, and other property?
10. Will the vessel require stores/spares/bunkers/provisions/fresh water during this port call?
11. Will there be a change of crew or passengers during this port call?
12. Are there stowaways on board?

Search and Rescue

The Indian Coast Guard is responsible for coordinating Search and Rescue Operations (SAR) in the Indian Search and Rescue Region (ISRR). For the limits of the ISRR, see Ship Reporting System—INDSAR. The Indian Coast Guard can be contacted by e-mail, as follows:

dte-ops@indiancoastguard.nic.in

The ISRR is divided into three subregions. Each subregion has an assigned Maritime Rescue Coordination Center (MRCC). Each MRCC coordinates search and rescue missions with other agencies via a network of Maritime Rescue Coordination Subcenters (MRSC). Contact information is given in the table in Appendix I titled **India—Contact Information for MRCCs and MRSCs**.

Rescue craft are stationed at Aguada Bay.

Ship Reporting System

Indian Ship Position and Information Reporting System (INSPIRES)

The Indian Ship Position and Information Reporting System (INSPIRES) is mandatory for all Indian merchant vessels, including coastal and fishing vessels, of more than 300 gt. Other vessels within the reporting area are encouraged to participate in the system.

Further information on INSPIRES can be found in Appendix II.

India Ship Reporting System for SAR (INDSAR)

The India Ship Reporting System for SAR (INDSAR) is a

voluntary system designed to contribute to the safety of life at sea. Participation is mandatory for all Indian-registered vessels and encouraged for foreign-flag vessels of 300 gross tons and over operating or transiting in the Indian Search and Rescue Region (ISRR).

Further information on INDSAR can be found in Appendix III.

Island Ship Reporting System (ISLEREP)

The Island Ship Reporting System (ISLEREP) is an integral subsystem of the India Ship Reporting System for SAR (INDSAR) and applies to all vessels passing within 20 miles of Lakshadweep (Laccadive Islands) and the Andaman and Nicobar Islands.

A VHF communications network connects all the islands of these archipelagos and is used for position reporting and final reporting.The information will be used to provide additional information for maritime safety, the protection of the environment, and maritime search and rescue.

Due to the location and distance of these island groups from the mainland, participation in this communications network will result in the reduction of response time.

The ISLEREP Center can be contacted 24 hours, as follows:

1. Call sign: ISLEREP Center
2. VHF: VHF channels 8 and 16

Further information on ISLEREP can be found in Appendix IV.

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Signals

Harbor Signals

Should it become necessary to control the movement of ships into and within ports in India, the signals described below will be displayed from a conspicuous position in or near the port approaches and/or from any Examination or Traffic Control Vessel operating in the approaches to the port, as follows:

1. Entry to port prohibited:
   - Day signal—Three red balls, vertically disposed.
   - Night signal—Three flashing red lights, vertically disposed.
2. Entry to port permitted:
   - Night signal—Three fixed green lights, vertically disposed.
3. Movement or anchorage within port prohibited:
   - Day signal—Blue flag.
   - Night signal—A fixed green light between two fixed red lights, vertically disposed.

Storm Signals

The system of storm warnings may be briefly described as consisting of the following:

1. A General System, consisting of 11 signals. Two of these signals indicate the existence of distant disturbed weather; eight indicate that local bad weather threatens the port; and the remaining one indicates that communication with the Meteorological Office concerned has broken down and that, in the opinion of the local officer, there is danger of bad weather.
2. A Brief System, consisting of only five of the above signals. This system is used at ports frequented mainly by smaller vessels engaged in local traffic. The signals used by the Brief System are III, IV, VII, X, and XI.
3. An Extended System, which, in addition to the signals of the General System, includes signals to indicate the position of the disturbance. This system is in use only at certain ports in the Bay of Bengal and is further described at the end of this section.

The Meteorological Offices of India, Sri Lanka, and Pakistan keep port offices informed of all necessary warnings and the latest information with respect to disturbances in the seas off the coasts of the Indian peninsula.

India—Storm Signal Stations

Port	Location	General	Brief	Extended
West Coast of India				
Agashi Bay	19°29'N, 72°44'E		X	
Alleppey	9°30'N, 76°19'E	X		
Badagara	11°35'N, 75°33'E		X	
Bedi Bandar	22°31'N, 70°02'E		X	
Beypore	11°10'N, 75°48'E	X		
Bhatkal	13°58'N, 74°32'E		X	
Bhavnagar (at Ghogha)	21°46'N, 72°14'E		X	
Cannanore	11°51'N, 75°23'E		X	
Coondapoor	13°37'N, 74°37'E		X	
Dahanu	19°59'N, 72°43'E		X	

India—Storm Signal Stations				
Port	Location	General	Brief	Extended
Devgarh	16°23'N, 73°23'E		X	
Dighi	18°18'N, 72°55'E		X	
Diu	20°43'N, 71°01'E		X	
Dwarka	22°15'N, 68°59'E		X	
Harnai	17°49'N, 73°06'E		X	
Jakhau Harbor	23°20'N, 68°29'E		X	
JSW Jaigarh Port	17°18'N, 73°12'E		X	
Kandla	23°01'N, 70°13'E	X		
Karwar	14°48'N, 74°07'E	X		
Kilakkarai	9°14'N, 78°47'E		X	
Kochi (Cochin)	9°58'N, 76°14'E	X		
Malpe	13°21'N, 74°42'E		X	
Malvan	16°03'N, 73°28'E		X	
Mangalore	12°51'N, 74°50'E	X		
Mangrol Bandar	21°07'N, 70°06'E		X	
Mirya Bay	17°00'N, 73°16'E		X	
Moti Daman	20°24'N, 72°50'E		X	
Mumbai (Bombay)	18°55'N, 72°55'E	X		
Navlakhi	22°57'N, 70°24'E	X		
New Mangalore	12°56'N, 74°48'E	X		
Okha	22°28'N, 69°05'E	X		
Pipavav	20°55'N, 71°30'E		X	
Port Bankot	17°59'N, 72°59'E		X	
Port Dabhol	17°35'N, 73°09'E		X	
Port Redi	15°45'N, 73°39'E		X	
Ratnagiri	16°58'N, 73°16'E		X	
RCPPL Terminal	17°32'N, 73°09'E		X	
Revadanda	18°33'N, 72°52'E		X	
Sikka	22°30'N, 69°46'E		X	
Sultanpur	21°18'N, 72°06'E		X	
Tarapur	19°53'N, 72°39'E		X	
Tellicherry	11°43'N, 75°28'E		X	
Trivandrum	8°28'N, 76°54'E		X	
Tuticorin	8°45'N, 78°13'E	X		
Vasai	19°20'N, 72°49'E		X	
Vengurla	15°50'N, 73°35'E		X	
Veraval	20°54'N, 70°22'E	X		
Vesava	19°09'N, 72°49'E		X	
Vijayadurg	16°34'N, 73°20'E		X	

India—Storm Signal Stations				
Port	**Location**	**General**	**Brief**	**Extended**
Lakshadweep Islands				
Minicoy	8°16'N, 73°02'E		X	
East Coast of India				
Baj Baj (Budge Budge)	22°28'N, 88°11'E	X		
Bhimunipatanam	17°54'N, 83°29'E		X	
Chandbali	20°47'N, 86°46'E		X	
Chennai	13°06'N, 80°18'E			X
Cuddalore	11°43'N, 79°46'E			X
Diamond Harbor	22°11'N, 88°11'E	X		
Gopalpur	19°15'N, 84°55'E	X		
Kakinada	17°00'N, 82°19'E			X
Kalingapatanam	18°20'N, 84°09'E		X	
Kilakatai	9°14'N, 78°47'E		X	
Kolachal	8°10'N, 77°15'E		X	
Kolkata (Calcutta)	22°33'N, 88°19'E	X		
Krishnampatanam	14°15'N, 80°08'E		X	
Machilipatanam	16°09'N, 81°09'E	X		
Nagappatanam	10°46'N, 79°51'E			X
Nizampatanam	15°42'N, 80°33'E	X		
Paradip	20°16'N, 86°41'E	X		
Pondicherry	11°56'N, 79°50'E	X		
Puri	19°48'N, 85°50'E		X	
Rameswaran	9°17'N, 79°18'E		X	
Sagar Island	21°44'N, 88°07'E			X
Visakhapatnam	13°06'N, 80°18'E	X		
Vodarevu (Chirala)	15°48'N, 80°24'E		X	
Andaman Islands				
Port Blair	11°41'N, 92°45'E	X		

The Chennai (Madras) Meteorological Office is the warning center for ports on the W shore of the Bay of Bengal S of, and including, Kalingapatam. The Calcutta Meteorological Office is the warning center for Indian ports N and E of Baruva. The Rangoon Meteorological Office is the warning center for Burmese ports. These authorities keep the Port Officers informed of all necessary warnings and the latest information with respect to disturbances in the seas off the shores of the Bay of Bengal. Therefore, vessels may contact the Port Officers for details to supplement the indications of the signals displayed. Vessels will also receive detailed information in the broadcast weather bulletins issued by the Meteorological Offices through the coast radio stations. Vessels are advised to obtain a copy of the Meteorological Manual listing the day signals used in the three warning systems at the first port of call or through their agents.

Extended System—Explanation

These special signals are shown in many ports in the Bay of Bengal. These signals help locate areas of bad weather in the Bay of Bengal with some degree of certainty, even though the indicated bad weather may be located a considerable distance from the coast. The Bay of Bengal is divided into six Sections, along with a corresponding Section Signal, as shown in the accompanying graphic.

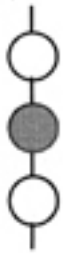
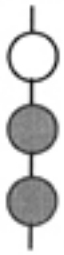
At ports not threatened, the Section signal for the affected Section is displayed below the General System Signal I or the General System Signal II and indicates the general position of the bad weather in the Bay of Bengal. Some examples of the Extended System are, as follows:

1. **Bad weather located in Section 5**—A horizontally-disposed cylinder (General Signal I) displayed over a black cone, point up (Extended System Section Signal 5).

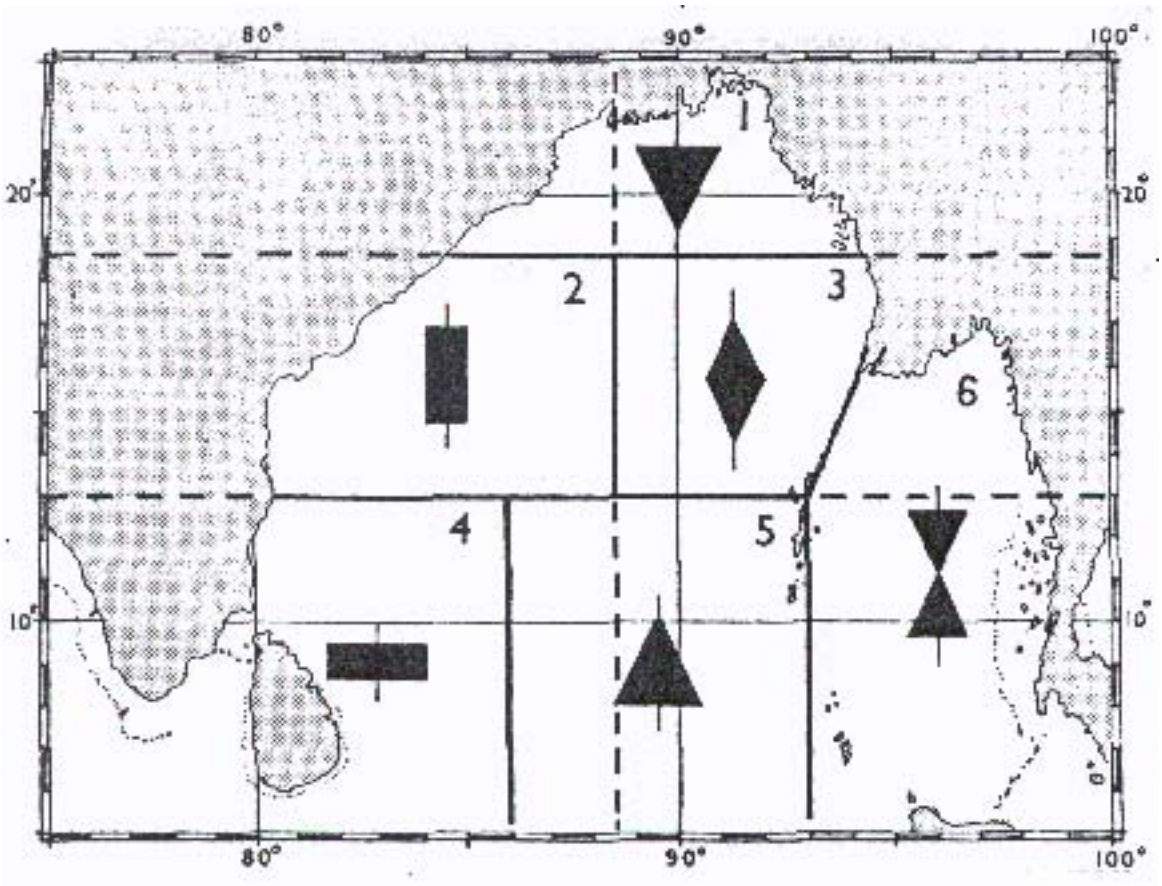
INDIA—PORT STORM SIGNALS—GENERAL SYSTEM

No.	Day	Night	Remarks
I			**Cautionary.**—There is a region of squally weather in which a storm may be forming. This signal is shown at ports so situated with reference to the disturbed weather that a ship leaving the port might run into danger during its voyage.
II			**Warning.**—A storm has formed. This signal is shown when there is no immediate danger of the port itself being affected, but ships leaving the port might run into the storm. But if, in addition to distant warnings (I and II), there is risk of the port experiencing bad weather, then the appropriate local signals (III to XI) are shown. In general, if the weather situation warrents two or three signals, then the highest-numbered signal is shown.
III			**Cautionary.**—The port is threatened by squally weather (i.e., winds over 20 knots accompanied by rain).
IV			**Warning.**—The port is threatened by a storm, but it does not appear that the danger is as yet sufficiently great to justify extreme measures of precaution. The existence of a storm can often be determined before its direction of motion can be fixed. In this case all those ports which the storm could possibly strike are warned by this signal.
V			**Danger.**—The port will experience severe weather from a cyclone expected to move keeping the port to the left of its track.
VI			**Danger.**—The port will experience severe weather from a cyclone expected to move keeping the port to the right of its track.

INDIA—PORT STORM SIGNALS—GENERAL SYSTEM

No.	Day	Night	Remarks
VII			**Danger.**—The port will experience severe weather from a cyclone expected to move over or close to the port. The signal is also used when a storm is expected to skirt the coast without actually crossing it.
VIII			**Great danger.**— The port will experience severe weather from a severe cyclone expected to move keeping the port to the left of its track.
IX			**Great danger.**— The port will experience severe weather from a severe cyclone expected to move keeping the port to the right of its track.
X			**Great danger.**— The port will experience severe weather from a severe cyclone expected to move over or close to the port. The signal is also used when a storm is expected to skirt the coast without actually crossing it.
XI			**Failure of communication.**— Communications with the Meteorological Warning Center have broken down and the local port officers consider that there is danger of bad weather.

Key to Color of Lights: RED WHITE



Indian Extended System

2. **Storm located in Section 2**—A vertically-disposed cylinder (General Signal II) displayed over a vertically-disposed cylinder (Extended System Section Signal 2) would be shown at all ports which are not directly affected by the storm. If the port itself is threatened, only the signals of the General System would be displayed.

If the storm center is near the boundary of two Sections, two Extended System Section Signals will be given. The first Extended System Section Signal will indicate which Section the storm center is in; the second Extended System Section Signal will indicate the neighboring Section.

If the storm center is near the boundary of three Sections, three Extended System Section Signals will be given. The first Extended System Section Signal will indicate which Section the storm center is in; the second Extended System Section Signal will indicate the nearest adjoining Section; and the third Extended System Section Signal will indicate the remaining Section.

Submarine Operating Areas

General

Submarines are likely to be met on the surface at night in the approaches to Mumbai (Bombay), Visakhapatnam, Kochi (Cochin), Chennai (Madras), Goa, Karwar, Porbandar, Kakinda, Port Blair, and Tuticorin. However, meeting surfaced submarines in the approaches to other ports cannot be ruled out.

Submarine Exercise Areas

Submarines, both surfaced and submerged, operate in an exercise area E of Gopalpur.

Areas in which submarines conduct exercises have been established off the following ports:

1. West coast:
   - Kochi (Cochin)—25 miles W and 100 miles SW of the harbor entrance.
   - Mormugao—65 miles W, 45 miles W, and 30 miles SW of Mormugao Head.
   - Ratnagiri—146 miles W of the harbor. Two other areas, centered about 100 miles WNW of the harbor, lie between Angria Bank and Fifty Fathom Flat.
   - Porbandar—75 miles W and 128 miles W of Diu Head (20°41'N., 70°50'E.).
2. East coast:
   - VisakhapatnamVisakhapatnam—18 miles ENE of Waltair Point (17°44'N., 83°21'E.).
   - Chennai (Madras)—20 miles ENE of Covelong Point (12°47'N., 80°15'E.).
   - Port Blair (Andaman Islands)—35 miles SSE of Port Blair.

Submarine exercise areas are also located, as follows:

1. Off Mumbai (Area T)—In an area bounded by lines

joining the following positions:
a. 18°28.0'N, 71°36.0'E.
b. 18°31.0'N, 71°43.5'E.
c. 18°34.5'N, 71°43.5'E.
d. 18°31.5'N, 71°36.0'E.

2. Off Mumbai (Area K)—In an area bounded by lines joining the following positions:
a. 18°25.0'N, 71°36.0'E.
b. 18°34.0'N, 71°36.0'E.
c. 18°40.0'N, 71°50.5'E.
d. 18°31.0'N, 71°50.5'E.

3. Off Ratnagiri (Area UU)—In an area bounded by lines joining the following positions:
a. 18°00.0'N, 70°12.0'E.
b. 18°00.0'N, 70°50.0'E.
c. 17°47.0'N, 71°04.0'E.
d. 17°40.0'N, 70°50.0'E.
e. 17°40.0'N, 70°12.0'E.

4. Off Goa (Area RR)—In an area bounded by lines joining the following positions:
a. 15°58.0'N, 72°22.0'E.
b. 15°58.0'N, 72°48.0'E.
c. 15°00.0'N, 72°52.0'E.
d. 15°00.0'N, 72°28.0'E.

5. Off Karwar (Area SS)—In an area bounded by lines joining the following positions:
a. 14°36.0'N, 73°15.0'E.
b. 14°12.0'N, 73°24.0'E.
c. 14°04.0'N, 73°00.0'E.
d. 14°28.0'N, 72°52.0'E.

6. Off Quilon (Area Z5)—In an area bounded by lines joining the following positions:
a. 9°05.0'N, 75°50.0'E.
b. 8°50.0'N, 75°39.0'E.
c. 8°39.0'N, 75°31.5'E.
d. 9°01.0'N, 75°31.0'E.

7. Off Kakinada (Area Z4)—In an area bounded by lines joining the following positions:
a. 17°03.0'N, 83°01.5'E.
b. 16°58.5'N, 83°03.5'E.
c. 16°49.0'N, 82°44.0'E.
d. 16°52.5'N, 82°43.5'E.

8. Off Visakhapatnam (Area S)—In an area bounded by lines joining the following positions:
a. 17°29.5'N, 83°26.0'E.
b. 17°21.0'N, 83°31.5'E.
c. 17°28.5'N, 83°38.0'E.
d. 17°37.0'N, 83°32.0'E.

9. Off Visakhapatnam (Area L)—In an area bounded by lines joining the following positions:
a. 17°24.0'N, 83°51.0'E.
b. 17°14.0'N, 83°51.0'E.
c. 17°20.5'N, 84°00.0'E.
d. 17°30.5'N, 84°00.0'E.

10. Off Visakhapatnam (Area V)—In an area bounded by lines joining the following positions:
a. 17°14.0'N, 83°49.1'E.
b. 17°02.0'N, 83°48.7'E.
c. 17°08.5'N, 84°00.0'E.
d. 17°20.5'N, 84°00.0'E.

11. Off Visakhapatnam (Area W)—In an area bounded by lines joining the following positions:
a. 17°04.0'N, 83°18.0'E.
b. 17°12.5'N, 83°27.0'E.
c. 17°06.0'N, 83°34.0'E.
d. 16°58.0'N, 83°24.5'E.

12. Off Visakhapatnam (Area G1)—In an area bounded by lines joining the following positions:
a. 17°09.5'N, 83°24.0'E.
b. 17°11.2'N, 83°22.5'E.
c. 17°21.0'N, 83°32.2'E.
d. 17°19.2'N, 83°34.5'E.

13. Off Visakhapatnam (Area G2)—In an area bounded by lines joining the following positions:
a. 17°01.5'N, 83°07.5'E.
b. 17°08.5'N, 83°21.0'E.
c. 17°11.0'N, 83°19.5'E.
d. 17°04.0'N, 83°06.0'E.

14. Off Visakhapatnam (Area Z)—In an area bounded by lines joining the following positions:
a. 17°40.0'N, 84°00.0'E.
b. 17°40.0'N, 84°30.0'E.
c. 17°10.5'N, 84°30.0'E.
d. 17°10.5'N, 84°00.0'E.

15. Off Visakhapatnam (Area Z1)—In an area bounded by lines joining the following positions:
a. 17°38.8'N, 83°46.5'E.
b. 17°33.0'N, 83°41.0'E.
c. 17°34.0'N, 83°37.0'E.
d. 17°41.8'N, 83°43.0'E.

16. Off Visakhapatnam (Area Z2)—In an area bounded by lines joining the following positions:
a. 17°40.2'N, 83°44.8'E.
b. 17°32.6'N, 83°38.0'E.
c. 17°37.2'N, 83°32.2'E.
d. 17°45.0'N, 83°39.0'E.

17. Off Visakhapatnam (Area Z3)—In an area bounded by lines joining the following positions:
a. 17°26.6'N, 83°37.5'E.
b. 17°18.7'N, 83°30.6'E.
c. 17°20.3'N, 83°27.8'E.
d. 17°28.9'N, 83°34.7'E.

18. Off Chennai (Area C)—In an area bounded by lines joining the following positions:
a. 13°10.0'N, 81°15.0'E.
b. 13°40.0'N, 81°15.0'E.
c. 13°40.0'N, 81°45.0'E.
d. 13°10.0'N, 81°45.0'E.

19. Off Port Blair (Area S)—In an area bounded by lines joining the following positions:
a. 11°15.0'N, 94°00.0'E.
b. 11°45.0'N, 94°00.0'E.
c. 11°45.0'N, 94°30.0'E.
d. 11°15.0'N, 94°30.0'E.

20. Off Port Blair (Area T)—In an area bounded by lines joining the following positions:
a. 11°55.0'N, 91°30.0'E.
b. 12°25.0'N, 91°30.0'E.
c. 12°25.0'N, 92°00.0'E.
d. 11°55.0'N, 92°00.0'E.

21. South of Little Anaman Island—In an area bounded by lines joining the following positions:

a. 10°23.0'N, 92°19.0'E.
b. 10°23.0'N, 93°20.0'E.
c. 9°24.0'N, 93°20.0'E.
d. 9°24.0'N, 92°19.0'E.

Warning Signals

Indian submarines may be encountered by day or at night while operating in any of the waters off the Indian coast. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by local coastal radio stations.

Indian escort vessels fly the International Code Group "NE2" to denote that submarines, which may be submerged or surfaced, are exercising in the vicinity. Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

A submarine submerged at a depth too great to show the periscope may sometimes indicate its position by releasing a "smoke candle" that gives off a considerable volume of smoke on first reaching the surface. Submarines may sometimes also indicate their positions by towing on the surface close astern a red-and-white or red-and-yellow float.

In order to enable the accompanying vessel to identify the position of a submerged Shishumar Class of submarine, an identification light is provided in the aft section of the conning tower. This light emits a white light upward through plexiglass and has a luminous range of 7 miles when measured in the air during clear visibility.

The following signals are used by submerged submarines within designated Submarine Exercise Areas:

1. Red grenades fired in quick succession indicate that vessels should clear the area immediately as the submarine is carrying out emergency surfacing procedure. Vessels must not stop their propellers and should standby to render assistance.
2. Two colored grenades fired 3 minutes apart (white, yellow, or green) indicate that vessels should clear the immediate vicinity. The submarine has indicated its position and is intending to carry out surfacing procedure. Vessels must not stop their propellers.

Navigation Lights

The masthead and sidelights of Indian submarines are place well forward and very low over the water in proportion to the length and tonnage of these vessels. The steaming lights, bow lights, and overtaking lights are closely spaced and as a result give no indication of the submarine's length, its course, or its change of course. The stern lights are placed very low and may at times be partially obscured by sea spray and wash. In summary, the overall arrangement of the submarine's navigational lights is unusual and may give the impression of a markedly smaller and shorter vessel than they truly represent.

Some submarines are fitted with a very quick yellow anti-collision light. These lights flash between 90 and 105 flashes per minute and are fitted 1 to 2m above or below the masthead light. These should not be confused with a similar light exhibited by hovercraft (120 flashes or more per minute).

Sunken Submarine

An Indian submarine that is bottomed and unable to surface will try to indicate its position by the following methods:

1. Releasing an indicator buoy as soon as the accident occurs.
2. On the approach of surface vessels and at regular intervals by firing red and green grenades accompanied by red, orange, white, or yellow smoke candles. (It should be noted that submarines may not be able to fire their grenades. Correspondingly, a partially flooded submarine may have only a certain number of grenades available and searching ships should not therefore expect many to appear.)
3. Pumping out fuel or lubricating oil.
4. Blowing out air.

Since oil streaks or debris may be the only indication of the presence or position of the sunken submarine, it is vitally important that surface vessels refrain from discharging anything which might appear to have come from a submarine while in the probability area. Searching vessels and aircraft can waste many valuable hours investigating these false contacts.

In any submarine accident, time is the most vital factor effecting the chances of rescue of survivors. As the sighting of a buoy may be the first indication that an accident has, in fact, occurred, it is vital that no time should be lost in taking action.

At any time after a submarine accident, survivors may start attempting to escape. Conditions inside are likely to deteriorate rapidly and postponement of escape will only be made in order to allow rescue ships to reach the scene. Therefore, any ship finding a moored submarine indicator buoy should not leave the position but should standby, well clear, ready to pick up survivors. Survivors will ascend nearly vertically and it is important that plenty of sea room is given to enable them to do so in safety. On arrival at the surface, survivors may be exhausted or ill, and if circumstances are favorable, the presence of a boat already lowered is very desirable. Some survivors may require a decompression chamber and it will, therefore, be the aim of the Naval authorities to get such a chamber to the scene as soon as possible.

Submarine Indicator Buoys

The Sindhughosh class of submarine carries one Emergency Indicator Buoy. The diameter of the buoy is 115 cm. The buoy is painted in four quadrants. The diagonally opposite quadrants are painted yellow and orange. The identification number of the submarine is painted on the buoy. This buoy has a white light which flashes once every 3 seconds. A sound-powered telephone is fitted on the top of the buoy for communication with the submarine. Two-way radiotelephone communications can be established with the submarine on 121.5 MHz when the buoy is recovered. The buoy is also fitted with a radiobeacon transmitting on 51.2MHz (the transmission may be continuous or for 20 seconds with a pause of 60 seconds).

The Shishumar Class of submarine carries one Emergency Indicator Buoy. The buoy is made of plastic foam covered with a GRP skin; it is semi-spherical in shape, being 76 cm in diameter and 90 cm high. The buoy floats end up with a freeboard of about 15 cm and is covered with alternating longitudinal strips of red and white reflective tape. A three-digit identification number is displayed on each side of a flashing ultraviolet light centered on the top surface of the buoy; in darkness and good weather the light is visible for 5 miles. Two-way telephone conversation with the submarine is not possible. The buoy carries HF and UHF whip antennas (168 cm long and 100 cm

long, respectively). The following transmissions/signals are automatically activated when the indicator buoy is released:

1. An HF transmission, at a frequency of 8364kHz, consisting of the international distress call "SOS" together with the submarine's identification number.
2. A UHF Sarbe tone transmitted on 243MHz.
3. A Xenon light flashing approximately 32 times per minute that is visible at a distance of 5 miles in good weather conditions.

The finder of any Emergency Indicator Buoy should inform the nearest Naval/Port/Police authorities and should not secure to or attempt to lift the buoy.

Time Zone

The observed Standard Time is 5 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

Traffic Separation Schemes

A Traffic Separation Scheme has been established by the Government of India in the approaches to Mumbai (Bombay). This scheme is not IMO adopted.

U.S. Embassy

The U.S. Embassy is situated at Shantipath, Chanakyapuri, New Delhi.

The mailing address is Shantipath, Chanakyapuri, New Delhi 110021.

U. S. Embassy India Home Page
http://newdelhi.usembassy.gov

Vessel Traffic Service

Vessel Traffic Services are in operation, as follows:

1. Gulf of Kachchh (22°40'N., 69°25'E.).
2. Gulf of Khambhat (21°20'N., 72°20'E.). The system is subdivided into VTS Khambhat West, VTS Khambhat East, and VTS Khambhat North.
3. Magdalla (21°08'N., 72°44'E.).
4. Mumbai (Bombay) (18°55'N., 72°51'E.) and Jawaharlal Nehru (18°57'N., 72°57'E.).
5. Kochi (9°58'N., 76°14'E.).

Vessel Traffic Management Systems (VTMS) are in operation, as follows:

1. Hugli River (22°02'N., 88°07'E.).
2. Mormugao (15°25'N., 73°48'E.).
3. New Mangalore (12°56'N., 74°48'E.).

See Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal for further information.

Appendix I—Contact Information for Indian MRCCs and MRSCs

Contact Information for Indian MRCCs and MRSCs			
Western Region			
	Telephone	**Facsimile**	**E-mail**
MRCC Mumbai (Bombay)	91-22-24301455 91-22-24316558	91-22-24316558	mrcc-west@indiancoastguard.nic.in icgmrcc_mumbai@mtnl.net.in indsar@vsnl.net
MRSC Porbandar	91-2862-242450 91-2862-244056	91-2862-210559	dhq1@indiancoastguard.nic.in opsdhq1@yahoo.com
MRSC Vadinar	91-2833-256579	91-2883-256560	cgs-vadinar@indiancoastguard.nic.in cgsvadinar@yahoo.co.in icgtn_vdr@sancharnet.in
MRSC Okha	91-2892-262261 91-2892-262259	91-2892-263421	icgsokha@bsnl.in
MRSC Goa	91-832-2521718	91-832-2520584 91-832-2520734	dhq11@indiancoastguard.nic.in cgdhq11@dataone.in
MRSC New Mangalore	91-824-2405278	91-824-2405267	dhq3@indiancoastguard.nic.in icgmrscmangalore@dataone.in
MRSC Kochi (Cochin)	91-484-2218969	91-484-2217164	dhq4@indiancoastguard.nic.in
Eastern Region (including the Bay of Bengal)			
	Telephone	**Facsimile**	**E-mail**
MRCC Chennai (Madras)	91-44-25395018	91-44-24360405	mrcc-east@indiancoastguard.nic.in
MRSC Haldia	91-3224-267755	91-3224-264541 91-3224-263407	dhq8@indiancoastguard.nic.in
MRSC Paradip	91-6722-223359	91-6722-222279 91-6722-220174	dhq7@indiancoastguard.nic.in
MRSC Visakhapatnam	91-891-2547266	91-891-2567789 91-891-2741130	dhq6@indiancoastguard.nic.in
MRSC Tuticorin	91-461-2352046	91-461-2353503	cgs-tut@indiancoastguard.nic.in
MRSC Mandapam	91-4573-241634	91-4573-241142	cgs-mdp@indiancoastguard.nic.in
Andaman and Nicobar Region			
	Telephone	**Facsimile**	**E-mail**
MRCC Port Blair	91-3192-245530 91-3192-246081	91-3192-242948	mrcc-ptb@indiancoastguard.nic.in com_cs@dataone.in pblmrccpb@sancharnet.in pbl@indiancoastguard.nic.in
MRSC Diglipur	91-3192-272315	91-3192-272345	dhq9@indiancoastguard.nic.in cgdhq9diglipur@gmail.com
MRSC Campbell Bay	91-3192-264015 91-3192-264235	91-3192-264212	dhq10@indiancoastguard.nic.in

Appendix II—INSPIRES

Indian Ship Position and Information Reporting System (INSPIRES)

The Indian Ship Position and Information Reporting System (INSPIRES) covers the sea area within the limits defined by the following:

a. The India-Pakistan border at the coast.
b. 12°00'N, 63°00'E.
c. The African coast (Somalia) at 12°00'N.
d. The African coast (Tanzania) at 10°30'S.
e. 10°30'S, 55°00'E.
f. 30°00'S, 55°00'E.
g. 30°00'S, 95°00'E and N to the coast.
h. The Burma/Thailand border at the coast.

The Indian Ship Position and Information Reporting System (INSPIRES) is mandatory for all Indian merchant vessels, including coastal and fishing vessels, of more than 300 gt. Other vessels within the reporting area are encouraged to participate in the system.

Additional reporting requirements for vessels greater than 100 gt carrying dangerous and hazardous cargo through the Indian Exclusive Economic Zone can be found in Regulations—Dangerous and Hazardous Cargo.

The purpose of the system is to provide data for SAR operations, vessel traffic management, weather forecasting, and the prevention and containment of marine pollution.

Vessels participating in the system should send regular reports through Indian Navy Communications Center Visakhapatnam or Mumbai, as follows:

1. Telephone: 91-22-22662695
   91-22-22751073
2. Facsimile: 91-22-22665435
3. E-mail: ncsomb@vsnl.net

All Indian vessels of between 100 gross tons and 299 gross tons which are not fully complying with GMDSS requirements shall send relevant reports through one of the Indian Coast Guard stations located along the coast of India. As an alternative, the owners of such vessels shall, upon receipt of the relevant report, forward the report to Indian Navy Communications Center Visakhapatnam or Mumbai, as appropriate.

All other vessels other than those above which are not fully complying with GMDSS requirements are encouraged to send relevant reports through one of the Indian Coast Guard stations located along the coast of India. As an alternative, the owners of such vessels shall, upon receipt of the relevant report, forward the report to Indian Navy Communications Center Visakhapatnam or Mumbai, as appropriate.

Reports may be made using any of the following methods:

1. MF R/T.
2. VHF channel 16.
3. Facsimile.
4. Telephone.
5. E-mail.

All vessels entering or transiting the INSPIRES area, regardless of flag, shall carry a copy of the latest edition of Indian Notices to Mariners Special Edition as a reference document and be guided by the detailed procedures specified in IMO Resolution A.851(20).

There are four types of messages, each containing a selection of the items listed in the INSPIRES Message Format in the accompanying table, as follows:

1. The Sailing Plan (SP) should be sent just prior to sailing or as soon as possible after leaving from a port within the reporting area, or when the vessel enters the area.

   Due to the large amount of information, it is recommended to send the SP directly by telex, facsimile, or e-mail. It the sailing time changes by more than 2 hours, then only the time need be corrected when the pilot disembarks.

2. A Position Report (PR) should be sent every day according to the schedule given in the table titled INSPIRES—Position Report Schedule. Position Reports must be received within 6 hours of the scheduled times.
3. A Deviation Report (DR) should be sent when the vessel's position varies significantly from the position that would have been predicted from previous reports, when changing the reported route, or as decided by the master.
4. A Final Report (FR) should be sent on arrival at the destination or when leaving the INSPIRES reporting area.

Brief reports on cyclones, deep depressions, defects and damage to the participating vessel, and marine pollution may be sent at the discretion of the master.

Message Format.—The first line of every message should always state the INSPIRES/message type (SP, PR, DR, FR, or title in full for other reports). Subsequent lines should start with the line identifier; the line identifier and other data items on a line should be separated by "/" and lines should be terminated by "//".

The line identifiers listed in the accompanying table titled **INSPIRES—Message Format** should be used when preparing an INSPIRES message.

INSPIRES—Position Report Schedule

Longitude of vessel	Latitude of vessel	Time Schedule (UTC)
West of 80°E	0°-10°N	0400-0455
	10°N-20°N	0500-0655
	N of 20°N	0700-0755
	0°-30°S	0400-0455
East of 80°E	0°-10°N	0300-0355
	10°N-20°N	0500-0555
	N of 20°N	0600-0655
	0°-30°S	0400-0455

INSPIRES—Message Format					
Identifier	**Content**	**SP**	**PR**	**DR**	**FR**
A/	Vessel's name/Call sign//	X	X	X	X
B/	Time (UTC)//—(date and time of report 6 digits—day of month is 2 digits; hours and minutes are 4 digits)	X	X	X	X
C/	Latitude/Longitude//—(latitude is 4-digit group in degrees and minutes with N or S; longitude is 4-digit group in degrees and minutes E)	X[1]	X[2]	X[2]	X[2]
D/	Position//—(true bearing is 3 digits; distance in miles is 2 digits from clearly identified stated landmark)				
E/	Course//—(true heading is a 3-digit group)	X	X	X[3]	X[4]
F/	Speed//—(knots and tenths of knots e.g. 155=15.5)	X	X	X[3]	X[4]
G/	Port of departure//—(name of last port of call)	X			
H/	Time/Position of entry into the system//—(time as expressed in B; position as expressed in C or D)	X[1]			
I/	Destination/ETA//—(port and ETA as expressed in B)	X			
J/	Pilot carried//—(state whether deep sea or local pilot is on board)				
K/	Time/point of exit from system//—(time as expressed in B; position as expressed in C or D)				X[4]
L/	Route//—(position of each turn point should be given as expressed in C, together with type of intended track between, e. g. RL=Rhumb Line, GC=Great Circle or Coast {in this case ETA of passing significant points expressed as expressed in B should be given})	X		X[3]	X[4]
M/	Radio communications//—(state full name of stations and fre-quencies guarded)	X			
N/	Time of next report//—(as expressed in B)	X	X	X[3]	
O/	Draft//—(in meters and centimeters expressed as 4 digits)	X			
P/	Cargo//—(brief details of any dangerous or hazardous cargo—See Note 1 below.)	X[5]			
Q/	Defects or damage//—(brief details of any defects, damage, or other limitations)			X[3]	
R/	Pollution//—(brief details of type of pollution and position as in C or D)				
S/	Weather//—(brief details of cyclonic conditions only)				
T/	Vessel's agent//—(name and particulars)	I	I	I	I
U/	Vessel size/type//—(length, beam in meters, gt, and type)	I	I	I	I
V/	Medical personnel//—(doctor, physician's assistant, nurse, or no medic)	X			
W/	Number of persons on board//	X			
X/	Remarks//—(any other information—brief details)				

Key to Symbols:
X —Required information.

X[1]—Required information when entering the area. Either item C or D may be used.

INSPIRES—Message Format					
Identifier	**Content**	**SP**	**PR**	**DR**	**FR**

X[2]—Either item C or D may be used.

X[3]—Include if appropriate.

X[4]—Required information when leaving the area.

X[5]—Reports on dangerous and hazardous cargo shall be made in accordance with the list below:

1 Correct technical name(s) of cargo.
2 UN number(s).
3 IMO hazard class(es).
4 Name of consignee/consignor and manufacturer of cargo.
5 Types of packages, including identification, make(s), or whether in portable tank, vehicle, or packaged in vehicle freight container or other portable tank unit.
6 Quantity and likely condition of the cargo.
7 Details of arms and ammunition being carried on board.

I—Must be included by all Indian vessels. Other vessels may include these items in the Sailing Plan (SP) at their discretion.

Note 1.—Dangerous and hazardous cargo shall include the following:

1. Cargo classified in the International Maritime Dangerous Goods (IMDG) Code.
2. Substances classified in Chapter 17 of the IBC Code (dangerous bulk chemicals) and Chapter 19 of the IGC Code (liquefied gases in bulk).
3. Oil as identified in MARPOL Annex I.
4. Noxious liquid substances as defined in MARPOL Annex II.
5. Harmful substances as defined in MARPOL Annex III.
6. Radioactive material as specified in the INF Code for the safe carriage of irradiated nuclear fuel, plutonium, and high level radioactive wastes in flasks.

Note 2.—The International Code of Signals should be used to send messages when language problems exist.

Appendix III—INDSAR

India Ship Reporting System for SAR (INDSAR)

General Information

The India Ship Reporting System for SAR (INDSAR) is a system designed to contribute to the safety of life at sea for certain vessels operating or transiting in the Indian Search and Rescue Region (ISRR).

The ISRR consists of the waters adjoining the Indian coast within the limits defined by the following:

a. 21°00'N,68°15'E.
b. 12°00'N,63°00'E.
c. 12°00'N,60°00'E.
d. 6°00'S,60°00'E.
e. 6°00'S,68°00'E.
f. 0°00',68°00'E.
g. 8°00'N,73°00'E.
h. 6°10'N,78°00'E.
i. 10°00'N,80°00'E.
j. 10°00'N,82°00'E.
k. 6°00'N,92°00'E.
l. 6°00'N,97°32'E.

Participation in INDSAR is mandatory for all Indian-registered vessels of 100 gross tons and over entering into or transiting the ISRR.

The Indian government encourages the following vessels to participate in INDSAR:

1. Foreign vessels of 300 gross tons and over.
2. All vessels of 100 gross tons and over, regardless of flag, carrying dangerous cargo.
3. Vessels more than 20 years old.

The objectives of INDSAR are, as follows:

1. To contribute to the safety of life and sea and the protection of the marine environment.
2. Limiting the time between the loss of a vessel and the initiation of SAR action, in cases where no distress signal is sent out.
3. Limiting the search area for a rescue action.
4. Providing up-to-date information on shipping resources available in the area in the event of a SAR incident.
5. To provide urgent medical assistance or advice to vessels not carrying a doctor.
6. To monitor and control the movement of vessels carrying dangerous or hazardous cargo within the Indian Search and Rescue Region.
7. Protection against piracy and armed robbery.

INDSAR is supplementary to INSPIRES and is an advanced computerized system operated and maintained by the Indian Coast Guard through Maritime Rescue Coordination Center (MRCC) Mumbai. Participation in INDSAR is voluntary and vessels will not incur any charges (if reports are sent through INMARSAT-C using Code 43 via Pune LES or by e-mail) or additional responsibilities other than already exists under SOLAS 74 and SAR 79.

The efficiency of INDSAR depends on the number of vessels regularly participating in the system. The more vessels maintained in the computerized plot, the greater the chance that a vessel will be identified near the position of distress. Since INDSAR will identify the most suitable vessel(s) to respond to a vessel in distress, MRCC Mumbai can release other vessels to continue their voyage.

All Indian vessels of between 100 gross tons and 299 gross tons which are not fully complying with GMDSS requirements shall send relevant reports on VHF channel 16 or MF radiotelephone through one of the Indian Coast Guard stations located along the coast of India. As an alternative, the owners of such vessels shall, upon receipt of the relevant report, forward the report to the nearest Maritime Rescue Coordination Center (MRCC) or Maritime Rescue Subcenter (MRSC) for onward transmission to MRCC Mumbai.

All other vessels other than those above which are not fully complying with GMDSS requirements are encouraged to send relevant reports on VHF channel 16 or MF radiotelephone through one of the Indian Coast Guard stations located along the coast of India. As an alternative, the owners of such vessels shall, upon receipt of the relevant report, forward the report to the nearest MRCC or MRSC for onward transmission to MRCC Mumbai.

All vessels entering or transiting the INDSAR area, regardless of flag, shall carry a copy of the latest edition of Indian Notices to Mariners Special Edition as a reference document and be guided by the detailed procedures specified in IMO Resolution A.851(20).

In order to maintain continuity, vessels transiting along the coast of India and transiting through the Sri Lanka Search and Rescue Region and re-entering the ISRR are requested to send the prescribed INDSAR reports on a continual basis.

Types of Reports

There are seven types of INDSAR messages, as follows:

1. **Sailing Plan (SP).—**This report should contain enough necessary information to initiate a plot and give an outline of the intended route. It the vessel does not get underway within 2 hours of its stated time, a new SP should be sent to the INDSAR Center. Prior to departing from an Indian port or when entering the INDSAR area from overseas, vessels should send an SP to the INDSAR Center and adhere to the following:

   a. The SP should be sent within 2 hours before, upon, or after departure from an Indian port.
   b. The SP should be sent within 24 hours of the vessel entering the INDSAR area or not later than 2 hours after entering the boundary.

   There are four slightly different SP formats, depending on where the vessel is entering the INDSAR area, its route within the area, and its destination. The format for the SPs is located in the table titled **INDSAR Sailing Plan (SP) Message Formats.**

2. **Position Report (PR).—**This report should be sent within 24 hours of departing a port within the limits of the ISRR or when entering the limits of the ISRR from overseas; it should then be sent at least once every 24 hours thereafter. The destination should be included, at least in the first few reports, in case INDSAR has not received the SP or ENR information.

3. **Deviation Report (DR).—**This report should be sent whenever any voyage information changes which could af-

fect INDSAR's ability to accurately predict the vessel's position. Changes in course and speed due to weather, change in destination, diverting to evacuate a sick or injured crewman, diverting to assist another vessel, or any other deviation from the original SP or ENR should be reported as soon as possible.

If a vessel at any time is in a position more than 2 hours sailing time from the position predicted in its last intended route, anew PR of DR should be sent.

4. **Final Report (FR).—**This report should be sent upon arrival at the port of destination or when the vessel departs the INDSAR area. This report terminates the vessel's voyage in the INDSAR computer. The format for this report can be found in the table titled **INDSAR Message Formats.**

5. **Dangerous Goods Report (DG).—**This report should be sent when an incident takes place involving the loss or likely loss overboard of packaged dangerous cargo into the sea. The format for this report can be found in the table titled **INDSAR Message Formats.**

6. **Harmful Substances Report (HS).—**This report should be sent when an incident takes place involving the discharge or probable discharge of oil (Annex 1 of MARPOL 72/78) or noxious liquid substances in bulk (Annex 2 of MARPOL 72/78). The format for this report can be found in the table titled **INDSAR Message Formats.**

7. **Marine Pollutants Report (MP).—**This report should be sent in the case of loss or likely loss overboard of harmful substances in package form identified as marine pollutants in the IMO Dangerous Goods Code (Annex 3 of MARPOL 72/78). The format for this report can be found in the table titled **INDSAR Message Formats.**

If the vessel is unable to pass a PR, FR, or EXR through normal methods, the vessel should attempt to pass the message through another vessel, through a harbor authority, or through another shore authority, as appropriate.

Format of messages.—The first line begins with INDSAR, followed by a slash (/), the report type (SP, ENR, etc.), and ends with a double slash (//). Each remaining line begins with a specified letter, followed by a slash (/), to identify the line type. The remainder of each line contains one or more data fields separated by single slashes (/). Each line ends with a double slash (//). All reports end with a Z (end of report) line.

Note.—All reports are to be prefixed INDSAR and can be transmitted to MRCC Mumbai by the following:

1. Telephone: 91-22-24376133
2. Telefacsimile: 91-22-24316558
3. INMARSAT-C: 441907210
4. INMARSAT-M: 641901610
5. E-mail: indsar@vsnl.net

Reports can be sent to MRCC Mumbai via INMARSAT Code 43 through LES Pune or using any MRCC/MRSC listed in Search and Rescue.

INDSAR Sailing Plan (SP) Message Formats

Identifier	Content	Entering Indian waters from overseas and berthing at an Indian port	Navigating between Indian ports	Departing Indian ports for foreign ports	Transiting the INDSAR area and not stopping at Indian ports
A/	Vessel's name/Call sign//	X	X	X	X
B/	Time (UTC))//—(date and time of report 6 digits, day of month 2 digits, and hour and minutes is a 4 digits)	X			
E/	Course//—(true heading is a 3-digit group)	X			
F/	Speed//—(knots and tenths of knots e.g. 155=15.5)	X	X	X	X
G/	Port of departure//(name of last port of call)	X	X	X	X
H/	Date/time (as expressed in B) and position of entry into INDSAR area	X	X	X	X
I/	Destination/ETA//—(port and ETA as expressed in B)	X	X	X	X
K/	Time/point of exit from system//—(time as expressed in B; position as expressed in C)			X	X
L/	Route//—(position of each turn point should be given as expressed in C, together with type of intended track between e. g. RL=Rhumb Line, GC=Great Circle or Coast {in this case ETA of passing significant points expressed as expressed in B should be given})	X	X	X	X

INDSAR Sailing Plan (SP) Message Formats					
Identifier	**Content**	**Entering Indian waters from overseas and berthing at an Indian port**	**Navigating between Indian ports**	**Departing Indian ports for foreign ports**	**Transiting the INDSAR area and not stopping at Indian ports**
M/	Radio communications//—(state full name of stations and frequencies guarded)	X	X	X	X
V/	Medical personnel//—(doctor, physician's assistant, nurse, or no medic)	X[1]	X[1]	X[1]	X[1]
X/	Next port-of-call//	X			
Z/	EOR//	X	X	X	X

Key to Symbols:
X—Required information
X1—Required information if doctor, physician's assistant, or nurse on board.

INDSAR Message Formats							
Identifier	**Content**	**PR**	**DR**	**FR**	**DG**	**HS**	MP
A/	Vessel's name/Call sign//	X	X	X	X	X	X
B/	Time (UTC))//—(date and time of report 6 digits, day of month 2 digits, and hour and minutes is a 4 digits)	X	X		X	X	X
C/	Lat/Long//—(latitude is 4-digit group in degrees and minutes with N or S; longitude is 4-digit group in degrees and minutes E)	X	X		X	X	X
E/	Course//—(true heading is a 3-digit group)	X	X			X	
F/	Speed//—(knots and tenths of knots e.g. 155=15.5)	X	X			X	
G/	Port of departure//(name of last port of call)						
I/	Destination/ETA//—(port and ETA as expressed in B)	X[1]	X[2]				
K/	Time/point of exit from system//—(time as expressed in B; position as expressed in C)			X			
L/	Route//—(position of each turn point should be given as expressed in C, together with type of intended track between e. g. RL=Rhumb Line, GC=Great Circle or Coast {in this case ETA of passing significant points expressed as expressed in B should be given})		X[2]			X	
M/	Radio communications//—(state full name of stations and frequencies guarded)		O		X	X	X
N/	Date/time (as expressed in B) of next Position Report	X	X				
P/	Pollution details, as described in the Key below				X[3]	X[4]	X[3]
Q/	Ship information, as described in the Key below				X[5]	X[5]	X[5]
R/	Dangerous cargo lost overboard, as described in the Key below				X[6]	X[7]	X[6]
S/	Weather conditions//	O			X		
T/	Vessel's agent//—(name and particulars)				X	X	X
U/	Vessel size/type//—(length, beam in meters, gt, and type)				X		

INDSAR Message Formats							
Identifier	**Content**	**PR**	**DR**	**FR**	**DG**	**HS**	MP
X/	Remarks//—(other information; brief details)	O	O	O		X[8]	X[8]
Z/	EOR//	X	X	X	X	X	X

Key to Symbols	
O	Optional information.
X	Required information.
X[1]	Recommended to be included.
X[2]	Required information if destination or route changes.
X[3]	This information is required in the event of probable discharge. The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo.
X[4]	This information is required in the event of probable discharge. The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid substance on board. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 Quantity.
X[5]	The following details should be included: 1 Condition of the vessel. 2 Ability to transfer cargo/ballast/fuel.
X[6]	The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo. 7 Whether lost cargo floated or sank. 8 Whether loss is continuing. 9 Cause of loss.
X[7]	The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid discharged into the sea. 2 UN number(s). 3 Pollution category (A, B, C, or D) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 An estimate of the quantity of the substances. 6 Whether lost substances floated or sank. 7 Whether loss is continuing. 8 Cause of loss. 9 Estimate of the movement of the discharge or lost substances, giving current position, if known. 10 Estimate of the surface area of the spill, if possible.

INDSAR Message Formats							
Identifier	**Content**	**PR**	**DR**	**FR**	**DG**	**HS**	MP
X[8]	The following details should be included: 1 Action being taken with regard to the discharge and the movement of the vessel. 2 Assistance or salvage efforts which have been requested or which have been provided by others. 3 The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned.						
Note.—The International Code of Signals should be used to send messages when language problems exist.							

Appendix IV—ISLEREP

Island Ship Reporting System (ISLEREP)

Description.—The Island Ship Reporting System (ISLEREP) was instituted to enhance navigational safety in and around the waters of the Andaman Islands and the Nicobar Islands (A&N), located on the E side of the Bay of Bengal, and the Laccadive Islands (Lakshadweep Islands) and Minicoy Island (L&M), in the Arabian Sea off the SW coast of India. The purpose of the system is to minimize the risk of a maritime accident and consequential pollution and damage to the marine environment and to respond quickly in the event of any safety or pollution incident.

The ISLEREP Area is the area within 20 miles of the A&N coasts and within 20 miles of the K&M coasts.

Participation.—The following vessels are required to participate in this reporting system:

1. All vessels with a length of 50m and over.
2. All oil tankers, regardless of length. For the purposes of this requirement, oil tanker means a vessel defined in Regulation 1(4) of Annex I to MARPOL 73/78, together with those vessels other than oil tankers to which Regulation 2(2) of Annex I to MARPOL 73/78 applies; that is, vessels fitted with cargo spaces which are constructed and utilized to carry oil in bulk of an aggregate capacity of 200m3 or more.
3. All liquefied gas carriers, chemical tankers, or vessels coming under the INF Code, regardless of length.
4. Vessels engaged in towing or pushing where the towing or pushing vessel or the towed or pushed vessel is a vessel described in one of the categories above or where the length of the tow, measured from the stern of the towing vessel to the aft end of the tow, is greater than 150m.

Warships, naval auxiliaries, and government vessels are encouraged to participate in ISLEREP on a voluntary basis.

Operating Authority.—ISLEREP is operated under a joint arrangement between the Indian Coast Guard and the A&N/L&M administrations. Is is operated 24 hours and is based on VHF reporting employing a radio network along the A&N and L&M coasts to the Ship Reporting Center (call sign: ISLEREP CENTER) using VHF channels 8 and 16 with Port Blair Radio (A&N) and Kavaratti Radio (L&M).

Concept of ISLEREP.—ISLEREP is based on a VHF voice reporting system employing a radio network along the A&N coast and the L&M coast, as well as on islands in the adjacent area. Through this network, certain categories of vessels are required to report their entry into, and progress through, the area.

The purpose is to monitor compliance with the reporting requirements and provide enhanced ship traffic information at these locations. This will maintain a surface picture of participating vessels established from position reports and dead reckoning.

Entering the ISLEREP Area.—When entering the area from seaward within 20 miles of the islands or when departing from a port within the area, vessels are required to provide a Position Report (PR), which should include such information as vessel name, position, intended route, cargo, and other supplementary information. The extent of the PR will depend on whether the vessels has previously sent an INDSAR Sailing Plan (INDSAR SP) message. If a vessel has already reported in the INDSAR system, the ISLEREP system will only require a reduced PR from the vessel.

Enroute Position Reports.—As a monitor of progress through the reporting area, enroute reporting points have generally been placed at intervals of 80 to 100 miles apart, depending on location and the siting of shore-based VHF radio stations. The Enroute Position Reports are generally limited to the vessel name, position, speed or ETA, and any further information the master considers might be of value to the system, such as concentration of fishing vessels or abnormal weather conditions.

In A&N, a high frequency link called “Atlanta” is manned by port authorities, as follows:

1. Day—8294 kHz.
2. Night—6224 kHz.

The Lakshadweep Islands also maintains a high frequency watch from 0600 to 2200 (Indian Standard Time) on 4393.4 khz, 6275 kHz, 7344 kHz, and 8275 kHz.

Survey vessels, research vessels, aids to navigation support vessels, and tourist related or local trading vessels, which may not be on a continuous passage, are required to provide a PR to ISLEREP at intervals not to exceed 12 hours.

Consistent with the aim of avoiding dual reporting, vessels within the ISLEREP area who are already participating in INDSAR do not need to submit separate INDSAR PRs; instead they can be messaged to INDSAR.

Leaving the ISLEREP Area.—Vessels sending their final report to the ISLEREP system when about to enter port or in the vicinity of a port of entry/departure reporting point will be required to advise if this is also an INDSAR Final Report (INDSAR FR). Likewise, vessels sending their final report to the ISLEREP system when in the vicinity of an area entry/departure reporting point must advise if they intend to report to the INDSAR system for the remainder of their voyage in the Indian SRR area.

Special Reports.—Vessels must also advise ISLEREP in the following circumstances:

1. Significant deviation from track reported in the last PR.
2. Significant speed alterations, for reasons other than normal course and/or speed alterations.
3. Damage or defects to the vessel or its equipment which will affect its operations and/or seaworthiness.
4. Damage to the ship or its equipment that could make a discharge of dangerous cargo, harmful substances, or marine pollutants about to/or likely to occur.

Examples of such incidents include, but are not limited to, failure or breakdown of steering gear, propulsion plant, electrical generating system, or essential shipboard navigational aids; collision; grounding; fire; explosion; structural failure; flooding; or cargo shifting.

Communications.—Vessels participating in ISLEREP must communicate with ISLEREP Center using VHF channel 8 and 16 as the primary means of communication. The working VHF channel to be used will depend on the vessel’s position.

Vessels may also provide cargo details to INDSAR/ISLEREP by non-radio means (telephone, fax, or INMARSAT-C) provided this is done prior to their first report.The language

to be used for ISLEREP reports is English, using the IMO Standard Marine Communication Phrases where necessary.

Alternative communication methods may be used, in order of preference, as follows:

1. INMARSTA-C, through ARVI LES, using Toll Free Code 43.
2. Other INMARSAT (or non-INMARSAT) telephone/facsimile/telex services.
3. HF radiotelephone or telex services.

Automated Position Reporting.—Vessels transiting the ISLEREP region are encouraged to participate in Automated Position Reporting (APR) via INMARSAT-C Code 43. INMARSAT-C APR costs will be borne by the Indian Coast Guard. This is only for use when communications in the VHF network have failed and a satellite link with MRCC Mumbai (INMARSAT-C: 441907210) is necessary.

Types of Reports.—There are five types of ISLEREP reports, as follows:

1. FIRST ISLEREP PR—Entering the ISLEREP system, if vessel is previously logged in with an INDREP SP. The vessel will, at the first reporting point, normally only need to:
   a. Identify itself to the ISLEREP Center.
   b. Confirm that the vessel is an INDSAR participant.
   c. Report its position.
   d. Confirm there are no changes to the information provided.
   e. Report any changes or additional information relevant to the voyage
2. FULL ISLEREP PR—Entering the ISLEREP system, if vessel is not previously logged in with an INDSAR SP. If the ship does not intend to report to INDSAR, a FULL ISLEREP PR must be submitted
3. ISLEREP PR ENROUTE—Enroute within the ISLEREP system. Following the first report to ISLEREP Center, further position reports are required, as follows:
   a. At each subsequent reporting of islands.
   b. At intervals not to exceed 12 hours.
4. FINAL ISLEREP PR—Leaving the ISLEREP system. Vessels should notify ISLEREP Center when:
   a. Departing the ISLEREP area or when 20 miles from the island.
   b. Arriving at a port within the ISELREP area (A&N/L&M).

If the vessel is also an INDSAR reporting vessel and is departing the ISLEREP area at the next sea boundary, it should also notify ISLEREP Center if it intends to continue reporting to INDSAR and, if so, give the date and time of the next INDSAR PR.

If the vessel is arriving at a port within the ISLEREP area, it should notify ISLEREP Center that the report is also an INDSAR FR.

5. ISLEREP PR—When reporting defects, damages, deficiencies, or other limitations. For further information, see the "ISLEREP PR ENROUTE" paragraph above.

The required information for each report can be found in the accompanying table titled ISLEREP Message Formats.

Reporting Format.—The basic format for ISLEREP reports follows the International Maritime Organization (IMO) standard. The first line in every report begins with the word ISLEREP, followed by a slash (/), continuing with the report type, and ending with a double slash (//). Each remaining line begins with a specified letter followed by a slash(/) to identify the line type. The remainder of each line contains one or more data fields separated by single slashes (/). Each line ends with a double slash (//). All reports should end with the Z (end of report) line

For VHF reporting, vessels do not need to prefix each field with the IMO format letter, but may do so if they wish.

ISLEREP Message Formats

Designator	Information	FIRST ISLEREP PR (INDSAR SP lodged)	FULL ISLEREP PR (INDSAR SP not lodged)	ISLEREP PR ENROUTE	FINAL ISLEREP PR	Changed circumstances ISLEREP PR
A	Vessel name and call sign	X	X	X	X	X
B	Date and time (UTC) of vessel's actual position if within 20 miles of the island	X	X	X	X	X
C	Latitude and longitude of vessel's actual position if within 20 miles of the island	X	X	X	X	X
E	True course in whole degrees	X	X	X		X
F	Speed in knots	X	X	X		X
J	Coastal pilot on board? (Yes or No)		X			
L	Final mandatory entry/anchoring in island, with name		X			
O	Draft fore and aft in meters and tenths of meters		X			

ISLEREP Message Formats						
Design ator	**Information**	**FIRST ISLEREP PR (IND-SAR SP lodged)**	**FULL ISLEREP PR (IND-SAR SP not lodged)**	**ISLEREP PR ENROUTE**	**FINAL ISLEREP PR**	**Changed circum-stances ISLEREP PR**
P	Cargo name. Dangerous cargo (Yes or No)		X			
Q	Defects and other limitations (Yes or No. Supply details)		X			X
R	Brief details of type of pollution lost overboard (oil, chemicals, etc.). Also report if any pollution sighted.		X			X
U	Vessel type/length in meters/gross tonnage		X			
X	Remarks	X	X	X	X (see Note)	X
Z	End of report	X	X	X	X	X

Note:

1. Yes INDSAR next report ddhhhh, where dd is the date and hhhh is the hour (if the vessel is also an INDSAR reporting vessel and is continuing to report to INDSAR).
2. Yes INDSAR final report (if the vessel is also an INDSAR vessel and is arriving at a port in the ISLEREP area).
3. Not INDSAR (if the vessel is not an INDSAR vessel).

INDIAN OCEAN

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General

The Indian Ocean, the third largest ocean, is bordered on the W by Africa, on the S by Antarctica, on the N by Asia, and on the E by Australia.

The Mid-Indian Ridge, the most notable bathymetric feature of the ocean, lies near the center. It takes the form of an inverted "Y" and has a depth of 2,743m. The Mid-Indian Ocean Basin, with depths of over 5,000m, lies E of this ridge. The Ninetyeast Ridge extends S from the Bay of Bengal on the E side of the basin.

The **Vema Trench** (9°00'S., 67°30'E.), with depths of over 6,000m, lies on the E side of the Mid-Indian Ridge.

The **Java Trench** (10°20'S., 110°10'E.), with a reported maximum depth of 7,449m, is the deepest part of the Indian Ocean.

Cautions

Special Warning 122 (Issued 11 March 2005; reviewed 6 November 2014)

As of early 2005, the United States Government has received unconfirmed information that terrorists may attempt to mount a maritime attack using speedboats against a Western ship, possibly in East Africa. This information is unconfirmed and the United States is not aware of additional information on the planning, timing, or intended targets of the maritime attack.

Special Warning 120 (Issued 16 November 2001; reviewed 20 November 2014)

1. Due to recent events in the Middle East and the American homeland, U.S. forces worldwide are operating at a heightened state of readiness and taking additional defensive precautions against terrorist and other potential threats. Consequently, all aircraft, surface vessels, and subsurface vessels approaching U.S. forces are requested to maintain radio contact with U.S. forces on bridge-to-bridge channel 16, international air distress (121.5 MHz VHF), or MILAR Distress (243.0 MHz UHF)

2. U.S. forces will exercise appropriate measures in self-defense if warranted by the circumstances. Aircraft, surface vessels, and subsurface vessels approaching U.S. forces will, by making prior contact as described above, help make their intentions clear and avoid unnecessary initiation of such defensive measures.

3. U.S. forces, especially when operating in confined waters, shall remain mindful of navigational considerations of air-

craft, surface vessels, and subsurface vessels in their immediate vicinity.

4. Nothing in this special warning is intended to impede or otherwise interfere with the freedom of navigation or overflight of any vessel or aircraft, or to limit or expand the inherent self-defense right of U.S. forces. This special warning is published solely to advise of the heightened state of readiness of U.S. forces and to request that radio contact be maintained as described above.

Special Warning 129 (Issued 19 November 2014)

Information on Special Warning 129 can be found in **Pakistan—Cautions**.

Special Warning 107 (Issued 1 December 1997; reviewed 23 October 2014)

Information on Special Warning 107 can be found in **Sri Lanka—Cautions**.

ODAS

The term Ocean Data Acquisition System (ODAS) covers a wide range of devices for collecting weather and oceanographic data. However, the devices of most concern to vessels consist of buoy systems which support instruments. These buoy systems may be expected to become more numerous each year and may be found in most oceans.

The buoy systems vary considerably in size and are either moored or free-floating. As far as possible, positions of the former will always be widely promulgated, and, if considered to be of a permanent enough nature, will be charted. In both types, the instruments may be either in the float or attached at any depth beneath it.

The buoys are colored yellow and marked ODAS with an identification number. The moored buoys usually display a yellow light, showing a group of five flashes every 20 seconds.

ODAS equipment may be encountered in unexpected areas and often in deep water where navigational buoys would not be found. It should be noted that valuable instruments are often suspended beneath these systems or attached to the mooring lines. In some cases, the moorings have been cut loose beneath the buoy by unauthorized persons, with the consequent loss of the most valuable part of the system.

The moored buoys may be up to 7.5m in diameter and 2 to 3m in height. The free-floating buoys are usually much smaller, 2m wide, and do not display a light.

Locust Reports

General.—Many countries in Africa and Southwest Asia are, from time to time, invaded by swarms of Desert Locust. These locusts are capable of traveling for hundreds of miles and have repeatedly been seen in flight at sea within the North Arabian Sea, the Red Sea, the Gulf of Aden, the Persian Gulf, and the N part of the Indian Ocean. The adult Desert Locust is about 60mm long, with a wingspan of about 120mm. They vary in color from red to yellow according to their state of maturity.

Reports of locusts in all infested countries are exchanged through the Desert Locust Information Service, Food and Agriculture Organization (FAO) of the United Nations, Rome. To assist in the provision of appropriate warnings to countries threatened by locust invasion, mariners sighting locusts are requested to report by radio or, as follows:

1. Telephone: 39-06-570-52420
2. Facsimile: 39-06-570-55271
3. E-mail: eclo@fao.org
4. Web site below:

Desert Locust Information Service, Food and Agriculture Organization (FAO)

http://www.fao.org/news/global/locusts/locuhome.htm

The report should include the following particulars:

1. Date and time (specifying UTC or zone time) when locusts first seen.
2. Latitude and longitude, if possible to nearest minute, where locusts first seen.
3. Time and position at which locusts were last seen.
4. Whether isolated locusts (seen in flight singly), locust groups(s) (flying locusts seen intermittently in numbers), swarm (flying locusts seen continuously in numbers over a period of at least a minute), dense swarm (obscuring part of horizon or other background), or locusts appearing on board or floating dead (isolated, groups, or swarms).
5. Color of locusts (yellow, pink, red, or gray).
6. Wind direction and speed.

The cost of these messages will be defrayed by the FAO Desert Locust Information Service.

Pakistan.—Reports of locusts seen in the Arabian Sea can also be sent directly to the Department of Plant Protection, Karachi, as follows:

1. Telephone: 92-21-9248612
   92-21-9248613
   92-21-9248614
2. Facsimile: 92-21-9248673
3. E-mail: info@plantprotection.gov.pk
4. Web site: http://www.plantprotection.gov.pk

The cost of these messages will be defrayed by the Department of Plant Protection.

Oman.—Mariners sighting locusts are asked to report the information contained in 1 to 6 above to the Omani Ministry of Agriculture and Fisheries Locust Control Center, as follows:

1. Telephone: 968-24-540648
2. Facsimile: 968-24-540720
3. E-mail: dlumaf@omantel.net.om

If facsimile is not available contact FAO Rome, as previously described, and Muscat Coast Radio Station (A4H), as follows:

1. Telephone: 968-24-571400
   968-24-571500
2. Facsimile: 968-24-562995

Off-lying Dangers

The **Madagascar Plateau** (33°13'S., 43°48'E.), a submarine ridge, lies about 460 miles S of Madagascar. Walters Shoal, with a least depth of 18m, lies on this ridge.

The **Alphard Banks** (35°02'S., 20°52'E.), a series of coral and rock formations, rise from general depths of about 85m to a least depth of 15.5m. Heavy swells and turbulent seas frequently occur, especially during strong SW winds, in the vicinity of these formations.

Muirfield Seamount (13°10'S., 96°11'E.), with a least depth of 18m, is reported to lie about 70 miles SSW of the Cocos Islands (Keeling Islands).

Piracy

General.—Acts of piracy are reported to occur within the waters of the Indian Ocean lying off the W coast of Sumatra, off the coast of Somalia, and in the Strait of Hormuz. The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur. This center operates for the Southeast Asian Region and is able to receive reports from vessels concerning attacks and advise of danger areas. Piracy warnings are broadcast by the center. For further information, see **Malaysia—Cautions—Piracy**.

Vessels are further cautioned to be especially alert for pirates in the Malacca Straits and the Singapore Straits, in the waters off India, Indonesia, Banglasdesh, and off the Seychelles, Madagascar, and the western Maldives.

Guidance regarding practices recommended for vessels operating in high risk areas have been published by the International Maritime Organization's (IMO) Revised Maritime Safety Committee (MSC) Circulars, which can be accessed on the Internet, as follows:

IMO Revised MSC Circulars

http://www.imo.org/safety/mainframe.asp?topic_id=1147

For further Information on piracy in the Gulf of Aden and the Horn of Africa, see **Red Sea and the Persian Gulf—Cautions**.

Transit Recommendations off the E coast of Africa.—Piracy activity off the E coast of Somalia has increased (April 2009). Attacks have occurred more than 400 miles offshore, in an area about 400 miles SE of Hobyo and Mogadishu, and as far S as an area lying about 440 miles E of Dar es Salaam, Tanzania.

Vessels are advised, unless they specifically have business to conduct on the E coast of Africa, to pass E of the Seychelles and Madagascar and are strongly advised to remain E of longitude 60°E and at least 600 miles off the coast of Somalia. Even at this range, vessels should still take all necessary precautions to avoid, deter, and delay potential pirate attacks.

Freak Waves

An area in the Indian Ocean lying between the Cape of Good Hope and Durban has long been regarded as dangerous due to large swells and the occurrence, without warning, of abnormally high freak waves. These freak waves are reported to be preceded by a steep trough, often described as a "hole," into which vessels may plunge. Such vessels are then unable to rise up again before encountering a solid wall of water, 20 to 25m high. These freak waves have usually been reported to occur within 20 miles of the edge of the Continental Shelf.

The heavy swell is generated by the large extra-tropical storms to the S. These waves are often able to travel unimpeded to the coast of Africa. It is believed that the combination of SW winds and swell, the sharp drop in the Continental Shelf, and the swift southward-flowing Agulhas Current all contribute to creating these heavy swell conditions. The fact that they often occur in clear weather with moderate breezes makes them all the more dangerous.

Freak or abnormally high waves seem to be created under the following conditions. Preceding the passage of a cold front or low along the SE coast, strong NE winds intensify the Agulhas Current, which is at its fastest and deepest just outside the 183m line. Then a rapid change in wind direction, with the storm passage, brings strong SW winds, which raise 3.1 to 4.6m seas of 53 to 61m in length against the Agulhas Current. These waves, moving toward the NE, are joined by similarly moving swells of 6.1m or more in height, which increase in height as they run up against the Agulhas Current. Their wavelengths then drop to about 152m. When waves of varying wavelengths are superimposed, an abnormally high wave can be generated for a short period of time, sometimes for just a few minutes. This abnormally high wave moving against a fast flowing current can become extremely steep on the N or leeward face. An abnormally long trough also occurs on the NE side of the wave, posing an additional problem to southwestbound ships.

While the chances of encountering a freak wave are slight, care should be exercised when navigating in the vicinity of the edge of the Continental Shelf between Durnford Point and Cape Recife. If the previously mentioned conditions exist or are forecast, then it would be safest inside the 183m curve or, if that is not possible, then greater than 20 miles away from the Continental Shelf.

Tsunami Damage

In December 2004, a large tsunami affected the N and W coasts of Sumatera, the W coast of Thailand, the Maldive Islands, the Andaman Islands, the Nicobar Islands, Sri Lanka, the SE and SW coasts of India, and Somalia. Depths, coastlines, and sea levels may have changed throughout these areas; wrecks and obstructions may have been displaced; and aids to navigation may have been damaged, destroyed, or be out of position. Mariners in these areas should obtain local knowledge when making for ports or seeking refuge.

Seiches

In the Bay of Bengal, seiches (stationary wave oscillations superimposed upon the tide and having periods of about 34 minutes) may raise the water level 0.05 to 0.15m along the coast. These seiches, usually attributed to strong winds or changes in barometric pressure, are more pronounced during neap tides.

Fishing

Extensive fishing is carries out on the continental shelf of southern Africa. Lit or unlit buoys marking trawling areas may be encountered.

Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA) Buoys

The National Oceanic and Atmospheric Administration (NOAA) maintains an array of RAMA buoys in the equatorial Indian Ocean. RAMA buoys are white and orange toroid buoys, 2.3m in diameter and surmounted by a 4m high instrument tower, with radar reflectors, and visible on radar at ranges of 4 to 8 miles, depending on conditions; the buoys, which should be given a berth of 5 miles, are located in the following positions:

a. 24°45.1'S, 99°58.0'E.
b. 11°52.7'S, 93°18.5'E.
c. 14°58.7'N, 89°55.7'E.

d. 12°03.2'N, 88°47.9'E.
e. 8°00.1'N, 88°59.7'E.
f. 3°59.2'N, 89°31.7'E.
g. 1°34.4'N, 90°06.8'E.
h. 1°32.2'N,80°38.3'E.
i. 0°00.4'S, 89°55.8'E.
j. 0°04.3'N, 80°34.0'E.
k. 1°30.8'N, 80°28.7'E.
l. 3°53.6'S, 80°27.9'E.
m. 8°00.4'S, 80°25.8'E.
n. 11°56.6'S, 80°23.4'E.
o. 16°01.9'S, 80°31.7'E.
p. 0°23.9'N, 67°01.3'E.
q. 1°43.1'N, 66°41.6'E.
r. 1°37.9'S, 66°50.5'E.
s. 4°02.0'S, 67°13.1'E.
t. 8°07.4'S, 66°55.4'E.
u. 12°16.9'S, 67°15.2'E.
v. 4°10.3'S, 57°12.5'E.
w. 7°58.7'S, 54°54.6'E.
x. 12°07.4'S, 54°52.9'E.

Offshore Data Buoys

The Government of India has established a series of data collection and tsunami buoys off the coasts of India in the Arabian Sea and the Bay of Bengal. for further information, see **India—Cautions—Offshore Data Buoys.**

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.

The following MARAD Advisories are in effect in the geographic area of the Indian Ocean:

1. MARAD Advisory 2016-3 (issued 13 September 2016)—Zika Virus.
2. MARAD Advisory 2013-3 (issued 13 March 2013)—Guidance to Vessels Operating in the Gulf of Oman, North Arabian Sea, Gulf of Aden, and Bab el Mandeb Regions.
3. MARAD Advisory 2011-5 (issued 31 August 2011)—Risk to Vessels Transiting High Risk Waters.
4. MARAD Advisory 2010-6 (issued 29 March 2010)—Guidance to Vessels Transiting High Risk Waters.
5. MARAD Advisory 2005-1 (issued 22 July 2005)—Reporting Maritime Terrorist Incidents.

Maritime Administration (MARAD) Home Page

http://www.marad.dot.gov

Climatology

General

The Northeast Monsoon occurs from December to April. The Southwest Monsoon occurs from June to October. Tropical cyclones occur mostly during May, June, October, and November in the N part of the ocean and during January and February in the S part.

The N part of the Indian Ocean has a typical monsoon climate, with the onset of the Southwest Monsoon affecting Sri Lanka and the S part of India from late May to early June and steadily moving NW to affect the NW part of India and the SW part of Pakistan by early July. In early September, the Southwest Monsoon starts to retreat towards the SE and by mid to late December, the Southwest Monsoon has usually cleared most of Sri Lanka.

The weather pattern over much of the area is more regular than in most parts of the world, and is usually classified over most of India, as follows:

1. The cool season (December through March)—Dry NE winds, with little clouds, except in the S.
2. The hot season (April and May)—Light, variable winds, with sea breezes along the coasts, and a small chance of a tropical cyclone.
3. The Southwest Monsoon or rainy season (June through September)—Winds normally W to SW, but along the SW coast of India, winds are W to NW.
4. The interim, or transitional, period (October and November)—Light variable winds, with sea and land breezes. Occasional tropical cyclones may be experienced.

On the W coast of India, the whole period from the cessation of the Southwest Monsoon to its recommencement is often referred to as the "fine weather season." Along much of the coast of Pakistan and the W coast of India, most of the rainfall is associated with the Southwest Monsoon. The rainy season is more prolonged over the S part of India and Sri Lanka; in the extreme S part of the area, the monthly variation in rainfall is small.

Tropical cyclones (force 12) are infrequent, with an average of one or two occurring over the Arabian Sea each year.

Due to their devastating storm tides, tropical cyclones in the vicinity of the head of the Bay of Bengal have long been recognized as extremely dangerous. As far back as 1737, a "wall of water," reported to be 12m high, swept ashore killing over 300,000 people. In November 1970, a "severe cyclone" (classification used in India in lieu of hurricane) sent a 7m storm surge over Bangladesh and the offshore islands with loss of life estimated at about 310,000. This storm generated winds of 130 knots. In the past 35 years, cyclones, at times, have generated winds estimated at 150 to 175 knots and waves of up to about 10m high. However, with the increased use of satellites for detection and tracking, more advanced notice can be given and the intensity of the storm determined.

Naval Research Laboratory Monterey Home Page

http://www.nrlmry.navy.mil/pubs.htm

The Naval Research Laboratory Monterey, a corporate research laboratory for the United States Navy and Marine Corps, publishes port studies and forecaster handbooks that may be of use to the mariner. These publications can be accessed at the Naval Research Laboratory web site.

The African Severe Weather Port Guide contains information on the following ports:

1. Seychelles—Victoria.
2. South Africa—Port Elizabeth/Ngqura.

The Typhoons Haven Handbook Pacific contains information on the following ports:

1. Australia—Bunbury, Darwin, Fremantle, Geraldton, and Stirling.
2. British Indian Ocean Territory—Diego Garcia.
3. Pakistan—Karachi.
4. Sri Lanka—Colombo.
5. Thailand—Phuket.

Climate—Indian Ocean—April through August

North of the Equator the boreal summer becomes the season of the Southwest Monsoon. Southwest winds are entrenched from June through August as low pressure over Asia draws the Southern Hemisphere trade winds across the Bay of Bengal and Arabian Sea. The monsoon is preceded by the N movement of the Inter tropical Convergence Zone (ITCZ). This is a semi-continuous band of clouds and showers that separates the two monsoon or trade wind systems. In the boreal summer it merges with the continental low. On its N journey, it may spawn tropical cyclones over the North Indian Ocean. The Southwest Monsoon creates an area of dangerous winds and seas near Suqutra. It also brings clouds and rain to windward coasts.

South of the Equator the austral winter brings good weather to the tropics and some storms to the subtropics. The South Indian Ocean High, at its peak, produces warm dry air masses with mild fair weather. It generates Southeast Trade Winds N of 25°S. While tropical cyclones can form in any month, April is usually the last active month in the S. However, extra-tropical cyclones, which travel circumpolar routes S of 40°S, edge N during this season to bring strong winds, precipitation, and clouds N to about 30°S.

Of the major routes to and from the Cape of Good Hope, the Cape Leeuwin and Bur Said passages are probably the roughest. Weather around the Cape of Good Hope is variable due to austral winter storms. Gales blow up to 15 per cent of the time on winds that are generally out of the SW through NW.

The Cape routes that run through the Mozambique Channel, including those to and from the Gulf of Aden, the Persian Gulf, Mumbai (Bombay), and Colombo, are under the threat of tropical cyclones in both hemispheres during April and May. In the S the activity extends through the Mozambique Channel to about 5°S. In the N, it occurs mainly on the runs to Mumbai (Bombay) and the Persian Gulf; however, storms are occasionally encountered near Sri Lanka and Suqutra. By June, activity is generally confined to N of 15°N. Tropical cyclones are rare in July and August. The most dangerous weather occurs near the entrance to the Gulf of Aden, where winds blow out of the S through SW at average speeds of 20 to 30 knots; they reach gale force 20 to 40 per cent of the time. These strong winds are also encountered to a lesser degree along the Persian Gulf route. Upwelling of cold water by these winds causes some fog between Somalia and Suqutra. Visibilities fall to 2 miles or less about 3 to 7 per cent of he time from June through August. Fog is also occasionally encountered off the coast of Saudi Arabia and near Mumbai (Bombay).

Winds through the channel blow mainly out of the SE through S at about 8 to 13 knots. They are strongest near the S entrance. Gales are infrequent. North of the Equator, S through SW winds blow 60 to 90 per cent of thee time at average speeds of 10 to 20 knots, away from the Suqutra region. Winds often approach gale force but rarely exceed it. Precipitation is most frequent near Mumbai (Bombay), where it falls 15 to 30 per cent of the time under mostly cloudy skies. Elsewhere skies are partly cloudy and rain falls less than 10 per cent of the time. Snow is occasionally encountered around the S tip of Africa.

Between the Cape of Good Hope and Cape Leeuwin austral winter, storms bring gales. In the S route, between 50°E and 90°E, gales blow up to 30 per cent of the time. Cloudy skies and frequent precipitation are the rule, with snow falling up to 5 per cent of the time in midwinter. Visibilities fall below 5 miles in precipitation, but fog is infrequent. Both routes take advantage of following winds much of the time. Along the S route to Cape Leeuwin, winds are frequently out of the SW through NW. On the route from Cape Leeuwin, E through SE winds are frequent. Along this route, tropical cyclones are a slight threat through June.

Tropical cyclones are more of a threat on the routes that run E of Madagascar between the Cape of Good Hope and Mumbai (Bombay), Colombo, Calcutta (Kolkata), and Rangoon; this includes the routes between Colombo and Calcutta (Kolkata) or Rangoon. During April, the S routes run through the heart of S activity, where there is a 10 to 20 per cent chance of a tropical cyclone occurrence. In May, the Mumbai (Bombay) route skirts this trouble, but there is still a threat on the other routes. After May, all routes are fairly safe in the S. However, in the Northern Hemisphere, tropical cyclones are a problem on the Mumbai (Bombay) route in May and June. They occur north of 10°N along the Bay of Bengal routes during April and May and N of 15°N from June through August. In May there is a 25 per cent chance of at least one tropical cyclone occurrence between the Andaman Islands and Burma. Once out of the Cape of Good Hope region, gales are mainly tropical cyclone generated and therefore infrequent; they are most likely near Calcutta (Kolkata) in July. Winds are usually E through SE below the Equator, veering to the S near the Equator and to the SW above it. This flow is most persistent and strongest during June, July, and August, when the average speed blows at 10 to 20 knots. The Southwest Monsoon brings a blanket of clouds to the Mumbai (Bombay), Rangoon, and Calcutta (Kolkata) regions, where rain falls 20 to 30 per cent of the time from June through August, dropping visibilities to below 2 miles up to 5 per cent of the time. Elsewhere skies are partly cloudy, with occasional showers and good visibilities.

Few weather problems crop up between the Cape of Good Hope and Torres Strait and Selat Sunda. On the route to Torres Strait, gales blow 10 to 25 per cent of the time W of 100°E. On the other routes S of 30°S, the frequency drops to 5 to 15 per cent. Winds along the W portions are variable but generally SW through NW. North of 30°S, they run E through SE. Early in the season, tropical cyclones are a threat E of 45°E on both Selat Sunda routes and along the route from Torres Strait; on the route to Torres Strait, this threat exists E of about 100°E. Except for extra-tropical and tropical cyclones, partly cloudy skies, occasional showers and good visibilities are the prevailing conditions along these routes. A local visibility problem is sometimes encountered off the coast of northwest Australia. Fog and haze drop visibilities to below 2 miles about 5 to 10 per cent of the time; this condition is the worst in August, when these frequencies climb to 20 per cent in Joseph Bonaparte Gulf, near Darwin.

Routes through the Red Sea and Persian Gulf experience

mostly good weather during the N summer. Prevailing NW through N winds rarely reach gale force. In the S waters of both bodies, winds are most variable early in the season. Through the Strait of Hormuz, SW through NW winds give way in July to SE winds. Wind speeds average 5 to 10 knots in the Persian Gulf and southern Red Sea. In the northern Red Sea, speeds of 8 to 13 knots are common, and gales may occur, particularly where the prevailing wind is reinforced by the sea breeze. Over the Persian Gulf the persistent NW winds from July on are known as the Great Shamal (40-day Shamal). The winds occasionally blow at near gale strength, bringing clouds of dust and sand over the Persian Gulf. Dust and haze can reduce visibilities to less than 2 miles, but generally visibilities are good over both the Red Sea and Persian Gulf. Skies are often cloudless, with only a few scattered showers to break the monotony of good weather.

Outside the Red Sea and Persian Gulf the weather much more variable. The major routes to and from the Gulf of Aden rely on seasonal routings to try to avoid the strong winds and rough seas around Suqutra. At its July peak, the monsoon generates gales up to 40 per cent of the time just NE of Suqutra. Average wind speeds blow at 20 to 30 knots; conditions are only slightly better in June and August. Visibilities drop below 2 miles about 3 to 6 per cent of the time over these W portions of the routes. North of the Equator, early season variable winds give way to the persistent SW winds of summer. On the Cape Leeuwin and Torres Strait routes, light W winds near the Equator back to the E through SE at average speeds of 10 to 15 knots. Near Cape Leeuwin, variable winds blow mainly out of the SW through NW, reaching gale force 5 to 10 per cent of the time. Tropical cyclones are most likely to occur in the Arabian Sea in May and June, when there is a 5 to 10 per cent chance of an occurrence on most routes. They are more frequent on the Bay of Bengal portion of the Calcutta (Kolkata) routes, where there is a 10 to 20 per cent chance of at least one developing during May and a 25 to 50 per cent chance near Calcutta (Kolkata) from June through August. On the Torres Strait routes, there is also a 10 to 20 per cent chance of an April cyclone occurrence in the Timor Sea or the Arafura Sea. Over the Arabian Sea portions of the major routes, partly cloudy skies and occasional showers are the rule. Near the Maldive Islands, skies become cloudier and showers occur 10 to 20 per cent of the time. These conditions extend to Selat Sunda on the Torres Strait routes and to 15°S on the Cape Leeuwin routes. Conditions improve to the E and SE. On the Bay of Bengal portion of the Calcutta (Kolkata) route, skies are cloudy and rain falls 20 to 30 per cent the time; these same conditions occur near Mumbai (Bombay). Visibilities often fall below 5 miles in these showers and sometimes below 2 miles.

Along the routes between the Persian Gulf and Colombo and the Persian Gulf and Cape Leeuwin, tropical cyclones and monsoonal rains pose a hazard to navigation. Near Cape Leeuwin, extra-tropical cyclones generate gales 5 to 10 per cent of the time. Tropical cyclones are most likely in June, N of 15°N, where the chance of occurrence is 10 to 15 per cent. There is also a slight chance in April and May N of about 5°N. Winds N of the Equator are mainly SW, with some W winds. They gradually back to the S then SE below the Equator on the Cape Leeuwin runs. South of 25°S, they blow mainly out of the SW through NW. Between 10°N and 20°N and between 10°S and 20°S, average wind speeds are 15 knots or more, with gales occurring 5 to 10 per cent of the time in July and August. In the N, the monsoon brings rain up to 25 per cent of the time off the SW coast of India, under mostly cloudy skies. Rain is almost as frequent between 5°S and 15°S during midwinter. Visibilities along all routes are good except in showers.

Climate—Indian Ocean—September through March

Subtle changes signal the approach of the northern winter and southern summer. Southwest winds become lighter and less constant in the N, starting at the upper reaches of the Bay of Bengal and Arabian Sea. The continental low begins to weaken while the Siberian High intensifies. In the S, the large high is weakening slightly under the warmth of the approaching sun. The Southeast Trade Winds give way to light variable winds near the center of the high. South of 40°S, W winds are frequent in the region of extra-tropical storms. By October, the Asian High is spreading the Northeast Monsoon over the N waters. These winds are separated from the Southeast Trade Winds by the Inter-tropical Convergence Zone (ITCZ). This semi-continuous band of clouds and showers pushes S. By November, it has usually crossed the Equator. It affects weather from the Equator to 20°S during the next 3 months. It is partly responsible, along with a low level trough, for some of the 14 or so tropical cyclones that develop in an average year between northwestern Australia and the east African coast, from about December through April. Tropical cyclones are most frequent in the N from September through December, when about three develop on average. Weather is generally good in the N. Occasionally, a stray Mediterranean extra-tropical storm will bring rainy squally weather to the seas N of 20°N. South of the ITCZ, weather is also good. The circumpolar storm belt shifts S and the worst weather is concentrated S of 50°S.

The weather around the Cape of Good Hope is influenced by extra-tropical cyclones early and late in the season, when gales blow 5 to 10 per cent of the time. In midsummer, a moderate 20 to 30 knot SE through SW flow is created by the heat low over Africa and the highs over the ocean; occasionally, gale force winds are experienced. These strong winds often occur under clear skies, particularly between the Cape of Good Hope and Durban. Good weather is the rule throughout the summer, as showers occur 5 to 10 per cent of the time and skies are partly cloudy.

On the routes to and from the Cape of Good Hope through Mozambique Channel, tropical cyclones are a threat from Durban to 5°S. They are most likely during January and February when chances of one are around 25 to 30 per cent. These storms often move S through Mozambique Channel, then recurves to the SE. While tropical storms are more likely than hurricanes, winds of 100 knots have been encountered by ships in Mozambique Channel. Winds N of Durban generally are light and variable. Between Port Elizabeth and Maputo (Lourenco Marques), rain falls 10 to 20 per cent of the time in January and February. At other times along this coast and in Mozambique Channel, rain occurs less than 10 per cent of the time under partly cloudy skies. Visibilities are good except in showers.

Between Mozambique Channel and the N ports, including Mumbai (Bombay), Colombo, and those in the Red Sea and the Persian Gulf, tropical cyclones pose a threat, N of the Equator, from September trough December. They are most likely in November SW of Mumbai (Bombay), where there is a 10 to 12

per cent chance of at least one. Early in the season, SE winds cross the Equator and become SW winds. By October, NE winds are blowing over the N Arabian Sea; by December they reach Mozambique Channel. North through E winds at 5 to 15 knots prevail along these routes. This holds until March, when the reversal begins in the S. The ITCZ is a forerunner of the Northeast Monsoon, bringing clouds and showers, particularly over the easternmost routes. Otherwise skies are mostly sunny, with rain occurring less than 10 per cent of the time. Visibilities are good except for some September fog around Suqutra.

Along the routes to and from the Cape of Good Hope by way of Mauritius, tropical cyclones are a problem in both hemispheres. In the S, they are most likely to occur from December through March, when the monthly probabilities range from 20 to 90 per cent. The routes to Colombo and Calcutta (Kolkata) run right through the heart of this activity near Mauritius. Northern Hemisphere storms are most likely from September through December along the Calcutta (Kolkata) route and from October through December on the way to Rangoon. Monthly frequencies range from about 30 to 50 per cent. Tropical cyclones are less of a threat along the Colombo and Bombay routes. Early in the season, along the southernmost portion of these routes, gales blow 5 to 10 per cent of the time. Between the Cape of Good Hope and Mauritius, SW through W winds become NE through SE by February. North of Mauritius, E through SE winds prevail to the Equator until December. At this time, the Northeast Monsoon above the Equator crosses it, becoming W to NW. By January, these winds extend to about 10°S. Rain along these routes is most likely N of Mauritius, where showers occur 10 to 25 per cent of the time under frequently cloudy skies; it is concentrated between 10°S and the Equator from October through February. The Northeast Monsoon brings clearer drier weather. Visibilities are good except in showers.

Between the Cape of Good Hope and Selat Sunda, tropical cyclones are a hazard from December through March between 30°S and the strait. Monthly frequencies range from about 15 to 30 per cent; the most active area lies S and SE of Mauritius. The route to the Cape of Good Hope runs nearly a 60 per cent risk in this area during January. Shower activity is concentrated east of about 60°E, where by February the ITCZ is dominant. Rain falls 15 to 20 per cent of the time under partly cloudy skies. Gales are most likely W of 60°E early in the season, when they blow 5 to 10 per cent of the time on winds mainly out of the SW through N. North of about 30°S, they blow from the E through S.

Along the routes that run from the Cape of Good Hope to Cape Leeuwin and Torres Strait and back, weather is influenced by both extra-tropical and tropical cyclones. The southernmost routes run into frequent early and late season extra-tropical storms, particularly W of 100°E. Gales along these routes to Torres Strait and Cape Leeuwin blow 10 to 20 per cent of the time, with rain falling 20 to 30 per cent of the time under frequently cloudy skies. By January, conditions improve. The other two more N routes encounter a lot less weather throughout the season. Winds are variable along the W portions of all these routes. Over the E portions, E through S winds are common. In the Timor Sea and the Arafura Sea, these winds back to the W through NW with the arrival of the ITCZ in December. Gales are infrequent, occurring mostly in tropical cyclones which are most likely from December through March; gales blow 5 per cent of the time off northwestern Australia from January through March. Off North West Cape, there is a 40 per cent chance of a tropical cyclone in March. These storms are most frequent north of 25°S but are occasionally encountered around Cape Leeuwin. Tropical cyclones and the ITCZ are responsible for the occasional showers and frequently cloudy skies in the Timor Sea and the Arafura Sea. Weather improves to the S.

There are few weather problems in the Persian Gulf and Red Sea during winter. One hazard occurs in Red Sea's narrow Bab el Mandeb from October through March, when winds in this area and N to 20°N blow out of the SE through S. This creates a funneling effect in the narrow channel, causing an increase in wind speeds. While winds reach gale force just 1 to 2 per cent of the time, they blow at 22 to 33 knots up to 34 per cent of the time. Farther N and in the Persian Gulf, mainly W through N winds blow at 6 to 12 knots on the average. Occasionally, a low pressure system or front may bring gales, rain, and cloudy skies. Most of the time skies are clear and visibilities are good.

Between the Red Sea and Mumbai (Bombay), winter weather is usually good. There is just a slight chance of a tropical cyclone from September through December. Early in the season, S through SW winds blow at 10 to 15 knots, becoming W through NW, with showers 10 per cent of the time, near Mumbai (Bombay). By November, N through NE winds at 10 knots with sunny skies are the rule. Gales are rare and visibilities good. Weather is also good between the Red Sea and Colombo and on the W leg of the Red Sea-Torres Strait route. Near Suqutra, these routes encounter strong September SW and S winds, which reach gale force about 5 per cent of the time. There is a slight chance of a tropical cyclone from October through January. Southwest through W winds are gradually replaced by a N through NE flow with clear skies. Rain and clouds become more frequent E of the Maldive Islands. Rain falls 10 to 15 per cent of the time near Sri Lanka and 15 to 25 per cent of the time along the Torres Strait routes. These frequencies extend to the Timor Sea by December with the arrival of the ITCZ, which also brings W through NW winds. Gales are infrequent and, except in showers, visibilities are good.

Between the Red Sea and Cape Leeuwin, tropical cyclones are more apt to be encountered in the S. In March, between 70°E and 90°E there is a 15 to 25 per cent chance of an encounter. A slight threat exists in this area from December through February and in the N seas during October and November. Above the Equator, early season SW through W winds give way to NE winds, which back to the W near the Equator. Southeast winds prevail below the Equator, with SE through SW winds most common S of 30°S. There is a 5 per cent chance of gales S of 10°S. Average wind speeds range from 5 to 15 knots, slightly stronger in the N and in September between 10°S and 20°S. Mostly sunny skies with little rain prevail near both ends of these routes. Between 5°N and 15°S, rain falls up to 25 per cent of the time under mostly cloudy skies. Visibility is only a problem in showers.

Between the Persian Gulf and Colombo and the N leg of the Cape Leeuwin run, there is a slight chance of a tropical cyclone from September through March. October and November are usually the most active months. Except in these storms, gales are rare. South to SW winds give way to N and NE winds by December. Rain is infrequent, except near Sri Lanka, where it occurs 10 to 15 per cent of the time from September through

December. Skies are mostly clear and visibilities are good.

Over the S leg of the Persian Gulf-Cape Leeuwin run and along the Colombo-Cape Leeuwin route, tropical cyclones are a threat, from December through March, S of 5°S. Between 10°S and 20°S, the monthly frequencies run 10 to 20 per cent. Gales blow up to 5 per cent of the time in this region. North of 5°S, early season SW through SE wind give way to NW through NE winds above the Equator and W winds just below it. South of the ITCZ, E and SE winds prevail to about 25°S, where winds are more variable. Between Sri Lanka and 15°S, rain falls 15 to 25 per cent of the time under mostly cloudy skies. Otherwise, skies are usually partly cloudy and rain is infrequent. Visibility, except in showers, is good.

Southwest Indian Ocean (including the E coast of Africa, Madagascar, and other Indian Ocean Islands)

General.—Weather in this region is under the control of the Indian Ocean High, the monsoons, and the circumpolar belt of extra-tropical storms. The large high is the most important as its downward outward flow of air produces relatively warm dry air masses with mild fair weather and light variable winds. It persists throughout the year, shifting slightly from winter to summer. To the N it generates the Southeast Trade Winds, which are separated in the austral summer from the Northeast Trade Winds by the Inter-tropical Convergence Zone (ITCZ). This semicontinuous band of clouds and showers can also spawn tropical cyclones. To the S, W winds prevail, but they become more variable and stronger with increasing latitude, due to a steady stream of migrating extra-tropical storms, which bring cold air, precipitation, and sometimes gales.

Tropical Cyclones.—Eleven tropical cyclones (winds of 34 knots and greater) form in an average season. About four of these reach hurricane strength (winds of 64 knots and greater). Some have generated winds of 130 knots or more. They affect most of the region between 5°S and 30°S. South of 30°S, they usually peter out or become extra-tropical systems. The season generally runs from December through April, although tropical cyclones can form in any month. January and February are the most active times. In general, tropical cyclones form between 5°S and 15°S. They move toward the W through S at about 10 to 15 knots. Most recurve toward the S through SE This recurvature usually takes place near 20°S early in the season and 15°S later on. Storms usually accelerate after recurving. Some make it to Mozambique Channel before recurving; others continue W to landfall along the African coast, which is most likely early and late in the season. In addition to strong winds, these storms can bring torrential rains and disastrous flooding to the coasts and islands of this region. Ile de la Reunion holds the world record for rainfall measured in a 24-hour period. A tropical cyclone dumped 1,870mm of rain at Cilaos in 1952. The 12-hour world record of 1,340mm was set at Belouve, Reunion, in 1964. Wave heights at sea can reach 9.1 to 12.2m in these storms.

Extra-tropical Cyclones.—While more frequent than tropical cyclones, many of these storms do not reach tropical storm or hurricane intensity. Their frequency increases with latitude, giving rise to such terms as the "roaring forties," "whistling fifties," and "screeching sixties." These storms often intensify as they move E or SE across the region. They often come in a series or family separated by high pressure cells that break storm arrivals into 3 to 7-day periods. They make their farthest N penetration in winter, bringing snow, freezing temperatures, and gales to the islands and seas S of 30°S. During the austral summer, they are less frequent, less intense, and displaced farther S.

Winds.—The Northeast Monsoon spreads S from the Equator during October and November. North through E winds replace S and SW winds while wind speeds diminish. By December, N winds prevail; E winds are also common N of Dar es Salaam while N winds are frequent S of Lindi. The land-sea breeze is most noticeable in sheltered locations. The sea breeze along the E coasts serves to strengthen the normal onshore flow during the day. The land breeze acts as a retardant and helps foster winds with offshore components. For example, at Zanzibar, N winds in the morning give way to afternoon NE winds. Gales are infrequent along the coast, occurring only with tropical cyclones or perhaps briefly in a thunderstorm. March is a transition month. By April, S and SE winds are common. This regime holds through September. At its peak, these winds blow up to 90 per cent of the time at average speeds of 10 to 15 knots. While gales are infrequent, speeds reach 22 knots or more about to 10 per cent of the time. Nearshore winds often parallel the coast. The sea breeze often causes an increase in S winds. At Mombasa, in July, the frequency of S winds increases from 30 to 70 per cent during the day as the average speed increases from 5 to 9 knots. In the southern Mozambique Channel, the Southeast Trade Winds prevail. Winds blow from E through S year-round. Extra-tropical storms have a slight effect in winter, as do land and sea breezes during both seasons. Wind speeds range from 10 to 15 knots. Gales blow 1 to 3 per cent the time at their peak, which occurs in midwinter and midsummer. Between Durban and the Cape of Good Hope, winds are variable, but they tend to parallel the coastline. In winter W of Cape Agulhas, NW and SE winds are common, while between Cape Agulhas and Port Elizabeth, winds are often out of the SW through NW. East of Port Elizabeth SW, W, and NW winds are all common. Summer winds are more likely to have a S component. Strong winds are more likely in summer, although gales are rare. A steep gradient between oceanic highs and a heat low over Africa generate strong winds known as "Cape Southeasters," which are gusty, can vary within a short distance, and are not associated with bad weather. Onshore components and increasing wind speeds during the day are common in the austral summer. The coast of South Africa is subject at times to very hot dry "berg" winds that blow down from the central plateau. They are most frequent in winter but bring the highest temperatures in fall and spring. They are most common along the W coast, but can also occur on the coast in this region.

Over the islands S of 30°S, winds are strong and blow mainly out of the SW through NW all year. On lIes de Kerguelen they blow from these directions 80 to 90 per cent of the time. Wind speeds average 15 to 20 knot; winds of 65 knots or more have been observed in all seasons. On lIes de Kerguelen, winds of 40 knots or more blow on an average of 12 to 18 days per month. lIe Amsterdam and lIe St. Paul are the least windy. South of 40°S near 60°E, gales blow 25 per cent or more of the time.

Climate N of 30°S.—The climate is dependent upon exposure to prevailing winds and the position of the sun.

The general range of average annual rainfall amounts is between 762 and 1,016mm, but the overall spread is from 381mm

near the Equator to 1,524mm in Heira, Mozambique. April through July is the rainy season from Kismaayo to Malindi. Monthly amounts range from 51 to 127mm on 5 to 10 days along the Somali coast, up to 356mm on 19 to 20 days in May at Lamu and Malindi. While maximum 24-hour amounts range from to 102 to 152mm all along this coast, Lamu recorded 345mm one day in May. Thunderstorms occur infrequently.

October through May is the rainy season from Mombasa to Durban. Up to 330mm is recorded on 15 to 20 days during the rainiest months, which usually occur during the latter part of this season. Maximum 24-hour amounts of 127 to 203mm have been observed. Thunderstorms occur on about 3 to 10 days per month during the rainy season.

Along the E coast of Madagascar and over the smaller islands between the Equator and 30°S, annual average rainfall ranges between 1,016 and 2,540mm, depending upon exposure. This rain is mostly showers and thundershowers. These are most likely from October through May, particularly at locations exposed to the Southeast Trade Winds. The W coast of Madagascar, particularly S of Morombe, is sheltered and rainfall is considerably less. The NW coast is subjected to the ITCZ in January and February; annual rainfall amounts of 1,016 to 1,270mm are common. Thunderstorm activity is frequent in the ITCZ. Maximum 24-hour amounts are usually produced by tropical cyclones and range up to 1,854mm plus the previously-mentioned totals.

December through April are usually the warmest months N of 30°S. Over the smaller islands, particularly those near the Equator, there is little seasonal change. North of Maputo, there is little latitudinal difference. Along this coastal section, summer daytime highs range from the upper-20s to the low-30s (°C). They are only a few degrees cooler to the S. Extreme highs reach the mid-30s (°C), but have gone well over 37.8°C at sheltered ports like Beira and Maputo. At night, temperatures often drop into the low to mid-20s (°C) everywhere. July is usually the coldest month of the year. Average daytime highs range from the low-20s (°C) near Durban and Maputo to the low-30s (°C) N of Quelimane. During hot spells, they can get into the low-30s (°C) just about everywhere. Readings in the mid to upper-teens (°C) are common at night, except it is slightly cooler S of Maputo and slightly warmer over the smaller islands. The coldest temperatures have occurred around Durban, where they have dipped into the low single digits (°C). Elsewhere extremes range from the upper single digits (°C) at Maputo to the low-20s (°C) over the smaller islands.

Relative humidities, varying with temperature, reach an early morning peak and a mid-afternoon low. This diurnal variation can be as much as 40 per cent at sheltered locations or as little as 10 per cent at exposed sites. Exposure to the ocean keeps diurnal and seasonal variations small. The seasonal reversal of winds, such as those along the NW coast of Madagascar, can bring a large variation. Average relative humidities in the 70 to 80 per cent range are common in the mornings as are 60 to 70 per cent readings in the afternoons. Along the Kenya and Tanzania coasts, humidities are highest from March through September, during the rainy season, when they reach the upper 80s during the morning. Seasonal changes are slight along the Mozambique coast. Over Madagascar and the smaller islands, humidities are high and even diurnal variations are small. The east coast of Madagascar is particularly humid and readings in the 85 to 95 per cent range are common in the morning. The SW coast is only a little drier, while the NW coast has high readings during the summer when it is exposed to onshore winds.

This region is cloudy. Average coverage amounts range from 35 to 65 per cent. Seasonal variations are small, but prolonged periods of cloudy or clear weather can occur at times. Clear skies are most likely during the afternoon. In general, from southern Somalia to Zanzibar, cloudy skies are most common from April through September, while clear conditions occur most often in midsummer. South of Zanzibar, summer is often the cloudiest time, while winter brings plenty of sunshine. Over the islands there is little seasonal fluctuation in cloud cover, usually just a slight minimum during the cool season. On Madagascar, the E coast is considerably cloudier than the W coast, due to exposure. In January, however, the NW coast is under the blanket of the ITCZ, when cloud cover averages 80 per cent.

In Somalia, the climate is divided into four seasons of about 3 months each, starting in mid August, as follows:

1. Der—The rainy Southwest Monsoon still prevails until the NE winds set in.
2. Jilal—A dry season with constant NE winds.
3. Gu—A wet season in which the NE winds prevail until the Southwest Monsoon sets in.
4. Agai—A hot season, with lesser rains at intervals, in which the Southwest Monsoon is constant.

Climate S of 30°S.—About 508 to 1,270mm of rain fall each year between Durban and the Cape of Good Hope. In general, totals decrease toward the Cape of Good Hope. From Durban to East London summer is the rainy season, when 76 to 152mm fall on 10 to 16 days per month from September through March. To the W, May through August is the rainy season, when 51 to 102mm fall on 10 to 12 days per month; maximum 24-hour amounts along the entire coast range from about 102 to 178 inches. Snow is rare. Thunderstorms are most likely between Durban and Port Elizabeth where they occur on 3 to 8 days per month during the summer. Over the islands S of 30°S, annual precipitation amounts range mostly from 889 to 1,397mm, except on Marion Island, where 2,210mm fall in an average year. Seasonal variations are small, with a slight maximum from December through May, when 127 to 254mm per month is common. For Iles de Kerguelen, winter is the rainiest period and late summer is the least rainy; maximum 24-hour amounts range from 51 to 102mm. On Heard Island, Marion Island, and Iles de Kerguelen, snow has been observed in every month. It also occurs in the Prince Edward Islands and Iles Crozet in winter. Farther N, on Ile Amsterdam and Ile St. Paul, snow is infrequent.

December through March is usually the warmest time of the year from Durban to the Cape of Good Hope. Temperatures often climb into the low to mid-20s (°C) during the day and fall into the high teens (°C) at night. They can be expected to reach 32°C or above on just 1 to 5 days each year. High temperatures can also occur in September and October, when "berg" winds can cause readings in the 37.8°C range along the S coast. Winter temperatures range from the high-teens (°C) to the low-20s (°C) during the day, falling into the single digits (°C) to the mid-teens (°C) at night. Extreme lows range from -0.6°C at Port Elizabeth to 5.6°C at Port Saint Johns. Over the S islands, temperatures vary widely. In general, lIe Amsterdam is the

warmest and Heard Island is the coldest. Average summer daytime highs range from the high-teens (°C) over lIe Amsterdam down to the low single digits (°C) at Heard Island. Lows are usually 3° to 5°C cooler. The warmest temperatures are most likely in January and February. During the winter, the weather is better at Heard Island, with maximums and minimums hovering right around the freezing mark. Over the other islands, lows fall to near freezing, but during the day temperatures climb to around 4.5°C. At Ile Amsterdam, temperatures are about 8°C warmer. Extreme lows have reached -10°C at most places, except lIe Amsterdam, where the record low is 2.7°C.

Exposure to the sea temperature and elevation are important relative humidity factors along the South African coast. For example, at exposed Cape Agulhas, humidities are high all year; they vary only 10 to 20 per cent during the day. There is a slight peak from March through September, when morning readings are greater than 85 per cent and afternoon humidities stay above 73 per cent. At higher elevations like Port Saint Johns, average morning readings vary from 82 per cent in January to 60 per cent in July; this compares to 80 per cent in January and 86 per cent in March at Cape Agulhas. On the E coast in general, humidities are highest in late summer and autumn and lowest in winter.

Over the islands, diurnal and seasonal variations are small. Highest humidities are generally observed in the summer and fall to their lowest in the spring. In general, early morning humidities are in the 80 per cent range; afternoon readings are only 1 to 8 per cent lower.

Along the South African coast, it is cloudiest in the austral summer and clearest in winter. The change is least noticeable at exposed low locations like Cape Agulhas. However, average cloud cover even decreases significantly there. Cloudy skies (cloud cover of 6/8) occur on about 15 to 20 days per month during the summer season and less than 12 days per month in winter. These figures are reversed for clear days (cloud cover of 2/8).

Over the islands S of 30°S, cloud cover increases with latitude and changes very little seasonally or diurnally. Skies are cloudy (greater than 7/10 cloud cover) on 20 to 30 days per month all year. Clear skies (cloud cover less than 3/10) can be observed on 1 to 6 days per month.

Visibility.—Visibilities N of 30°S are generally good. Precipitation reduces visibilities to less than 2 miles about 1 to 2 per cent of the time in the S Mozambique Channel in January and 1 to 3 per cent of the time round the Chagos Archipelago in the austral spring and summer. The worst conditions along both shores of the Channel occur from April through October, when an early morning haze, known on the.Mozambique coast as "Cacimbo," obscures visibilities on about 12 to 18 days per month. It is only serious enough to be reported as fog on about 1 to 6 days per month, except at Morondava, where fog is reported on 7 to 10 mornings per month from May through October. Conditions usually improve by mid-morning.

Along the African coast fog (visibility less than 0.5 mile) is infrequent and occurs on about 1 to 3 days per month at the most. It is most likely in the late summer and fall. Haze and smoke are mainly fall and winter restrictions. Durban is the worst, recording 20 to 25 days per month of haze and smoke from March through September. Conditions are worst in the morning and usually clear by afternoon. These conditions exist all along the coast but less frequently than at Durban.

Snow, rain, and fog contribute to poor visibilities over the islands S of 30°S. Heard Island is the worst and shows only a slight seasonal or daily variation. Visibilities here drop below 6 miles 45 to 55 per cent of the time year-round and below 1.2 miles 10 to 18 per cent of the time from May through September. The Prince Edward Islands suffer about one-half as much. They report fog (visibility less than 0.5 mile) on 7 days per month in February, March, and April. Visibilities improve on the other islands. For example, over Iles de Kerguelen, fog is rare, and at Ile Amsterdam visibilities drop to less than 6 miles 10 to 20 per cent of the time, with improvements in the afternoon and in winter.

Northwest Indian Ocean (including the coasts of the Arabian Sea, the Red Sea, the Gulf of Aden, the Gulf of Oman, and the Persian Gulf)

For further information, see **Red Sea and the Persian Gulf—Climatology**.

Northeast Indian Ocean (Coasts of the Bay of Bengal, including the coasts of the Andaman Sea and the Strait of Malacca)

General.—Except in the SE, where there is little seasonal difference, weather is monsoonal. The Northeast Monsoon (winter) brings mostly cool dry weather with clear skies. The Southwest Monsoon (summer) is accompanied by clouds and rain. The Inter-tropical Convergence Zone (ITCZ), with its showers, thunderstorms, and tropical cyclones, is present during the spring and fall transitional seasons.

Tropical Cyclones.—About five of these storms develop each year; an average of three generate winds of 48 knots or more (these are called severe cyclones). These storms occasionally cause catastrophic loss of life along the N shores of the Bay of Bengal, where they can generate devastating storm tides. One of the worst was the Backergunge Cyclone of 1876. Its storm surge at the mouth of the Meghna River combined with an abnormally high tide to submerge the surrounding land area under 3.1 to 12.2m of water in less than 30 minutes. Some 100,000 lives were lost by drowning; another 100,000 died through the pestilence that followed.

While tropical cyclones may form in any month, they are most likely from April through December, with a peak in frequency and storm intensity during October and November. The storms that form during the heart of the Southwest Monsoon are usually weak and restricted to the head of the Bay of Bengal. Early season storms usually form far S in the Bay of Bengal and move toward the N or NW, sometimes recurving toward the NW, if they reach the head of the Bay of Bengal. In September, with the recession of the Southwest Monsoon tropical cyclones once again threaten the entire Bay of Bengal.

Frequently, storms form around the Nicobar Islands and either move WNW across the Bay of Bengal and southern India or turn N toward the Mouths of the Ganges.

While tropical cyclones of the Bay of Bengal are frequently less intense than western Pacific typhoons or North Atlantic hurricanes, they have generated winds up to 130 knots on occasion. When these wind speeds combine with high tides along the low-lying coasts of this area, the results are disastrous.

Extra-tropical Cyclones.—These infrequent storms affect the extreme N part of the Bay of Bengal from November through May. About 8 to 12 occur each year. They are known

locally as western depressions because they approach from the W. They normally pass to the N but may cause clouds, rain, and squalls at the head of the Bay of Bengal.

General Winds.—The first signs of the Southwest Monsoon show up at the head of the Bay of Bengal in February where there is a slight increase in SW winds. March is the transition month in the N, while April is the transition month in the S. By June, SW winds blow 55 to 70 per cent of the time along most coasts. The Strait of Malacca is sheltered from this strong flow and the result is weak SW and S winds. Off the S and W coasts of Sri Lanka, W and SW winds blow 80 to 90 per cent of the time. Wind speeds during the summer average 12 to 16 knots. They climb to 22 knots or more about 15 to 25 per cent of the time along the coasts of India, Bangladesh, and northern Burma. Gales are also most likely along these coasts but blow less than 4 per cent of the time. September, October, and November are the fall transition months. By December, N through NE winds prevail throughout the area; E winds are also common in the Andaman Sea. The Northeast Monsoon is weaker and less persistent than its summer counterpart. Average wind speeds range from 5 to 10 knots, with speeds reaching 22 knots or more less than 10 per cent of the time.

While wind speeds are lightest during the spring and fall transitional months, extreme winds are most likely at these times. In tropical cyclones, winds have reached 130 knots. Severe spring thunderstorms, known as "nor'westers," can generate winds of up to 100 knots in gusts along the Bengal and Orissa coasts. At the beginning or "burst" of the summer monsoon, winds can reach gale force, particularly along the lower W coast of India. This is associated with the passage of the ITCZ.

Coastal Winds.—Land and sea breezes are pronounced during the weak Northeast Monsoon and are practically nonexistent during the heart of the strong Southwest Monsoon. They are both effective along the W coast of Sri Lanka from December through March. In June, the sea breeze strengthens the Southwest Monsoon during the afternoon, causing wind speeds to occasionally climb to 30 knots, with gusts as high as 60 knots. Land and sea breezes are effective in the Strait of Malacca year-round. Where the prevailing wind and sea breeze coincide, speeds often reach 20 knots during the afternoon. The land breeze is most noticeable on clear quiet nights, attaining speeds of 4 to 8 knots. However, where the land slopes steeply to the coast, as it does in northern Sumatera, night winds can be gusty enough to cause problems to small boats.

Local Winds.—The following local winds occur in this area and are described, as follows:

1. **Sumatras.—**Squalls that occur in the Strait of Malacca from April through November. These storms usually develop at night and last from 1 to 4 hours. Winds are mainly out of the SW through NW, with gusts occasionally reaching 50 knots. They are most likely between Malacca and Singapore, particularly in June and August, when about six to eight may be expected.

2. **Nor'westers (kalbaisakhi).—**These severe thunderstorms occur on the coasts of Orissa, West Bengal, and the Sundarbans from March through early June. They usually develop inland during the late afternoon and move seaward from the NW. Occasionally, wind gusts reach 100 knots and these squalls can occur up to 100 miles at sea. A few nor'westers actually develop into tornadoes or waterspouts. During April and May, they often occur in 4 to 5 day spells at about the same place and time. They generally last for 3 to 4 hours. The Southwest Monsoon puts an end to the nor' wester season.

3. **Waterspouts.—**Waterspouts vary in intensity from the tornado type to a comparatively mild type that corresponds to dust devils ashore. The severe tornado type is most likely to be encountered during the spring transition season. It is associated with severe thunderstorms like the nor'wester. They have also been reported in fall. Waterspouts are found in both the Bay of Bengal and the Strait of Malacca.

Climate.—The coast from Chittagong to the N entrance to the Strait of Malacca is one of the rainiest in the world. During a normal year, amounts range from 2,540 to 5,588mm, depending upon exposure to the Southwest Monsoon, which brings 1,270 to 1,524mm and 20 days or more per month from June through August. Abnormal years can bring up to 2,540mm less rain or as much as 2,540mm more rain. The dry season is also well marked, with monthly totals averaging less than 1 inch at most locations during the Northeast Monsoon. The Southwest Monsoon is also responsible for much of the 1,016 to 2,540mm average annual falls along the coast of India from about Masulipatam to the Mouths of the Ganges. In the Strait of Malacca, September through December is usually the rainy season, while the least rain falls in early summer. Along the Thailand coast S of Ko Phuket and the coast of Malaysia, annual average amounts range from 1,778 to 2,540mm, with spring and fall the rainiest times. Another particularly rainy coast lies along northwest Sumatera, where annual averages of 3,810 to 5,080mm are common. There is no dry season; however, the ITCZ brings an October-November peak, with about 508mm of rain falling on about 20 days per month.

The frequency of days with thunderstorms varies from about 10 per year along the SE coast of India to more than 180 in the Strait of Malacca. They are most common during the spring transition, with a secondary maximum in the fall. They are also frequent in summer at the head of the Bay of Bengal. In addition to the high frequency along the Malaysia coast, thunderstorms occur on 140 to 160 days annually along the southern Tenasserim coast of Burma. Along the NE coast of India, severe spring thunderstorms accompanied by strong squalls are known as Kal Baisakhi (fateful thing).

Torrential rains occur in showers, thunderstorms, and tropical cyclones. They are most likely with the ITCZ in spring and fall. Along the exposed coasts, they even occur during the Southwest Monsoon. Record 24-hour amounts range from about 152 to 559mm.

Temperature ranges and variations, particularly near the Equator, are small. Rain and cloud cover are important factors in seasonal variations. While December is the coolest time of the year along the coast of India, monsoon rains make summer a few degrees cooler elsewhere. Even during the coolest months, mean daily maximums climb above 23.8°C at the head of the Bay of Bengal and above 29.4°C elsewhere. Some places, like Rangoon and Cuttack, have even recorded 37.8°C temperatures in February. Cuttack is a hot spot where average daily maximums exceed 37.8°C in April and May, while extremes have reached 47.8°C. March through June is usually the warmest time throughout the area. Average daytime temperatures, at their peak, reach the 32.2° to 37.8°C range everywhere. Extremes range from 37.8° to 48.9°C. Mean daily minimums run

6° to 14°C lower throughout the year.

Hot weather and the Northeast Monsoon, except where it is onshore, produce the lowest relative humidities. This is a factor along the NE and N coast of India, the coast of Bangladesh, and Burma. Relative humidities are lowest in late winter and spring, with readings in the 70 per cent range during the morning and the 50 to 60 per cent range in the afternoon. Along the SE coast of India, this minimum occurs in the summer. Maximums along these coasts and year round humidities elsewhere are very high. Early morning readings are frequently in the mid-80 to upper-90 per cent range; they fall 20 to 25 per cent during the afternoon.

Cloud cover is influenced by the monsoons, resulting in a winter minimum and summer maximum over much of the area. The reverse is true along the E coast of Sri Lanka and skies are mostly cloudy all year in the Strait of Malacca. During February and March, mostly clear skies prevail along the coast and in offshore waters from Chennai (Madras) to Rangoon. Elsewhere, except in the Strait of Malacca, skies are partly cloudy. During the transition period, cloud cover increases. By July, the Southwest Monsoon is in full swing, and cloud cover is most extensive. Overcast conditions prevail along and off the Pakistan-Burma coast, while mostly cloudy skies are common elsewhere, except for the coast of Sri Lanka, which remains under partly cloudy skies. Sky conditions begin to improve in late summer. By September, overcast conditions no longer prevail anywhere, and the following month partly cloudy skies S.

Visibility.—Throughout this region, visibilities are usually good. Restrictions are almost always in the form of rain, which when heavy may reduce visibility to below fog limits. In a tropical cyclone, the combination of torrential rain and blowing spray may reduce visibility to near zero. Fog is infrequent, particularly at sea. Haze and smoke cause local restrictions near the coast.

Around Sri Lanka, poorest visibilities occur from October through February on the E coast and through April on the E coast. Fog is rare and showers cause brief reductions. In addition, there is an early morning mist which can be dense at times; this usually burns off rapidly right after sunrise. It is much more frequent on the W coast. Along the SE coast of India, precipitation is mainly responsible for the poor visibilities that are most common in fall. Some fog and haze does form locally at Chennai (Madras) in winter. The frequency of poor visibility increases N from Gopalpur.

In the offshore waters of the northern Bay of Bengal, including the Gulf of Martaban, visibilities are worst from June through October, when they fall below 2 miles up to 5 per cent of the time. On the coast, these figures are even higher during the monsoon rains. Fog is frequent over the Delta region, particularly around the Sundarbans and in the Hooghly River from November through March. Mist or fog tends to form in the evening on the low ground and over the river and persists until morning. The visibility is made worse by the smoke from Calcutta (Kolkata). At Calcutta (Kolkata) itself, visibility is less than 2 miles on most evenings from October through January and every morning through March.

Along the Arakan coast of Burma, fog is relatively frequent from November through March, occurring on about 3 to 10 days per month. It is most frequent and persistent in the morning over and near river deltas. Visibilities drop below 6 miles almost nightly along some sections of this coast. Restrictions during the rainy season can be severe for brief periods. Visibility also drops below 2 miles up to 5 per cent of the time during this monsoon. Over the waters of the Gulf of Martaban and the Andaman Sea, visibilities are generally good, except in rain showers. Fog is only a local onshore problem from about November through April. In sheltered locations it forms during the night and early morning hours, but dissipates quickly by late morning. For example, at Ko Phuket Airport, early morning visibilities drop below 7/8 mile on 18 to 21 days per month from January through April. By early afternoon, the fog is gone and visibilities are usually greater than 6 miles. There are a few restrictions to visibilities in the Strait of Malacca and along the NW coast of Sumatera. Early morning haze frequently drops visibilities to less than 6 miles, but rarely to less than 2 miles. Ground fog may form during the early morning hours over marshy areas and around river estuaries. These restrictions are most common with fine weather conditions during the Southeast Monsoon. Precipitation is also responsible for brief reductions in visibilities.

Southeast Indian Ocean including the N, W, and S coasts of Australia and the SW coast of Sumatera)

General.—The climate varies from tropical in the N to temperate in the S. During the austral summer, the Inter-tropical Convergence Zone (ITCZ) lies N of Australia, influencing weather along the N coast and over Sumatera. The Northwest Monsoon (summer) brings hot, humid, and rainy weather to the N coast; tropical cyclones frequent the seas off N and W coasts of Australia. A high pressure ridge S of Australia generates a cool stable SE trade wind regime over the S part of the region in summer. During the austral winter, these trades move N to bring dry weather along the N coast, but showers to the exposed Sumatera coast. To the S, extra-tropical systems bring variable winds and precipitation to coastal areas.

Extratropical Cyclones.—These migratory low pressure systems with their attendant fronts travel a general circumpolar route, the mean path to which lies near 60°S. The frequency and intensity of these storms are greatest during the Southern Hemisphere fall and winter. They also make their farthest N penetrations during these seasons. Some move E or E along the S coast of Australia, with their fronts trailing N across the continent. It is not uncommon for either frontal or low pressure systems to affect weather along the S coast every 4 to 5 days in fall and winter. During the austral summer, this activity is at a minimum everywhere, even in the seas to the S.

Tropical Cyclones.—All coasts of Australia and the islands of this region have been affected by tropical cyclones. The S coast is usually only affected by a storm that has been weakened by an overland journey or by the extra-tropical remnants of a former tropical cyclone. In an average season, about four or five tropical cyclones develop in this region; one or two usually reach hurricane strength. Sometimes these severe storms are known as “willy-willies.” Winds in severe hurricanes have exceeded 130 knots, and more than 508mm of rain has fallen along the NW coast during a storm passage. Seas of 9.1m or more can be expected in the open water.

While a tropical cyclone can form in any month, December through April is the most active period off the NW coast of Australia. Most storms are spawned in the ITCZ and accelerate along a parabolic path toward higher latitudes. While most tropical cyclones form S of 10°S, some have been encountered

off the SW coast of Sumatra (near 4°S). Most storms affecting the Australian coasts form in the waters between the Bonaparte Archipelago and the Lesser Sunda Islands of Indonesia. Storms can also develop in the Timor Sea and the Arafura Sea, as well as in the Gulf of Carpentaria.

Early season tropical cyclones tend to parallel the coast but remain offshore and N of about 30°S. An average of one storm can be expected before mid-January. From mid-January to mid-February tropical cyclones move very close to the coast and frequently recurve inland around North West Cape; one storm can be expected in an average year during this period. From mid-February through March, two to three tropical cyclones develop; at least one usually reaches hurricane intensity. Early and late March are the times that storms are most likely to move ashore over Western Australia. During late March and through April, the S limit of many tropical cyclones is pushed to 35°S in the vicinity of Perth, Cape Leeuwin, and Albany. April storms are infrequent. These paths and frequencies represent average conditions and are intended only to give a feeling for the habits of tropical cyclones.

General Winds.—During the austral summer season (December through March), the South Indian Ocean High reaches its southernmost position and its minimum intensity. This allows the Southeast Trade Winds to extend S to near Cape Leeuwin. Southeast and S winds prevail off the W coast. East of North West Cape, winds blow mainly out of the SW through NW and are even lighter. Winds of 10 knots or less occur 70 per cent or more of the time over the Timor Sea and the Arafura Sea. Northwest winds are common early in the season in the N part of these seas and also along the SW coast of Sumatera. By February, the ITCZ is fluctuating across this entire area, separating these two light wind systems, which are sometimes referred to as the doldrums. Calms occur 15 to 25 per cent of the time. By April, the ITCZ has shifted N, leaving the Southeast Trade Winds to prevail. Along the S coast, summer winds are variable, with SE through SW winds the most common. Gales are infrequent everywhere.

During the austral winter, the Indian Ocean High pushes N and intensifies, limiting the Southeast Trade Winds to the N of North West Cape. In these waters, E through SE winds prevail. Winds of 10 knots or less occur 50 to 80 per cent of the time in N waters and up to 90 per cent of the time off the SW coast of Sumatera. Gales are rare. Between North West Cape and Perth, winds are quite variable. They reach gale force up to 5 per cent of the time along the S and W coasts. Winds along the S coast are mainly out of the SW through N, as storms pass close by during the season.

While gales are uncommon along the N and W coasts, extreme winds of 130 knots or more can occur in summer tropical cyclones. A record gust of 133 knots was recorded at Onslow while Darwin measured a 117 knot gust during the same season. Along the S coast, extremes are not as high, but strong winds are more frequent. They are most likely during fall and winter in extra-tropical storms. Sustained winds of 45 to 55 knots have been measured and it is likely that winds occasionally reach hurricane force (64 knots). Along the SW coast of Sumatera, winds of 30 to 40 knots may blow on occasion during a thunderstorm or in the early stages of a tropical cyclone.

Coastal Winds.—Land and sea breezes are noticeable along the N and W coasts of Australia. Usually, wind speeds increase during the day, but sometimes the land breeze reinforces the prevailing wind, and there is little diurnal variation. The sea breeze strengthens any onshore flow, which in most locations along the N coast results in an increase in W through N winds. Nighttime and early morning breezes are often from the S through W. Along the W coast, S through NW winds during the day give way to land breezes from the NE through S or SW at night. At Fremantle, the invigorating SW sea breeze is known as the "Fremantle Doctor." During the winter, the Southeast Trade Winds along the N and NW coasts are reinforced by the land breeze at night. If the gradient is slack, they are deflected to the W through NE during the day. Along the W coast, N through SE winds in the morning give way to S through W winds by afternoon.

Along the S coast, land and sea breezes are effective during light wind conditions year-round and even affect the prevailing summer flow. On summer mornings, winds are often N through NE, while by afternoon they blow out of the SE through SW. Wind speeds increase during the day. In winter, light N winds from a high that may move over Australia are often reinforced by the land breeze.

Along the SW coast of Sumatera, the sea breeze reinforces the SE summer flow, with speeds climbing up to 20 knots along some sections.

Local Winds.—The "morning glory" are squalls that occur in the S part of the Gulf of Carpentaria. They are most likely from September through November and again in April. They are similar to a line squall or a series of parallel squalls that burst in on calm clear conditions. Wind speeds generally run 15 to 25 knots.

Climate.—Precipitation from Cape York to the North West Cape falls mainly from December through April. It is mainly in the form of brief heavy showers in the ITCZ or sometimes in tropical cyclones. Rainfall is variable from year to year and even within the season. A tropical cyclone can dump an average annual amount on a location at one time. During the dry winter season, monthly amounts of less than 25mm are common. Average annual amounts decrease W in general, particularly W of Port George IV, and range from 1,778mm to less than 254mm. January is usually the wettest month. Summer thunderstorm activity is pronounced. For example, Port George IV has an average of 95 thunderstorm days annually; 84 of these occur from November through March. Tropical cyclones are mostly responsible for the maximum 24-hour amounts, which range from 203 to 406mm.

Along the W and S coasts, most rainfall is from Extra-tropical sources. This results in a winter rainy season. However, tropical cyclones or their remnants occasionally bring heavy summer rains. Thunderstorm activity is infrequent, with an average of 4 to 16 days annually. The rainiest part of the coast is from Perth around Cape Leeuwin to Albany where an average 889 to 1,016mm is recorded each year. North of Perth and E of Albany, amounts fall to as low as 229 to 254mm. In the S, the most arid region is the central coast of the Great Australian Bight. The summer brings little rain everywhere, with monthly totals usually less than 25mm. Heavy rains can occur in either tropical or extra-tropical cyclones; 24-hour maximum amounts have been recorded mostly from January through July. These amounts range from about 76 to 152mm.

Along the SW coast of Sumatera, average annual amounts range from about 3,048 to 4,445mm, with only a small season-

al fluctuation. Even during the midwinter dry season, monthly amounts of 178 to 254mm are common. November is usually the rainiest month, with 381 to 508mm averages. Heavy showers are common; 24-hour maximums range from 229 to 279mm. Thunderstorms occur on about 40 to 50 days annually, with a slight peak in April and September.

Along Australia's N and NW coast, winters are mild and summers are hot. Warmest temperatures often occur in the late spring or early summer (November and December) when cloud cover is less than it is in midsummer. Daytime temperatures in the mid-30s (°C); nighttime lows in the low to mid-20s (°C) are common. Extremes are most likely from October through January. They range from near 38°C at exposed locations to near 49°C at sheltered ports. July brings the coolest weather, with average daily maximums ranging from the mid-20s (°C) along the NW coast to the upper-20s (°C) along the N coast. Average daily minimums are about 8.5° to 14.0°C cooler, except on exposed Thursday Island, where there is just a 5°C difference. Extreme low temperatures, which occur mostly in June or July, range from the middle to upper low single digits (°C) on the NW coast to 17.8°C at Thursday Island.

Along much of the S and W coasts, summers are pleasant and winters moderate. January and February are the warmest months. Average daytime highs range from low-20s (°C) along the SW tip to about 32°C near Camarvon and sheltered Port Augusta. Nighttime lows are usually in the upper-teens to low-20s (°C). Extreme highs range from 42.8°C at Cape Leeuwin to 50.6°C at Eucla. July is usually the coolest month; below freezing temperatures have been recorded along the coast of the Great Australian Bight and in Spencer Gulf, where the extreme lows range from -3.9° to -0.6°C. Elsewhere the range of extremes is from just above freezing to 8.9FC at Cape Leeuwin. Average daily maximums run in the low to upper-teens (°C), except a few degrees higher N of Perth. Nighttime lows are in the upper single digits (°C) along the S coast and in the 8.9 to 11°C range along the W coast.

Temperatures are consistent along the SW coast of Sumatera. At Padang, which is representative, daytime highs are 30.0° to 31.1°C on the average year around, while minimums are often in the low to mid-20s (°C). The warmest time is March through June. Extremes range from a maximum in the mid-30s (°C) to a minimum in the upper-teens to low 20s (°C).

The NW and N coasts are cloudiest in summer, with the N being slightly cloudier. Usually, there is an afternoon peak. Winter on the N coast and spring along the NW coast are the least cloudy times and clear days are quite frequent. Along the W coast, skies are mostly gray in winter while summer days often are bright and sunny. The Great Australian Bight shores are cloudiest from March through May and least cloudy in spring. In the Spencer Gulf and Gulf St. Vincent, fall and winter are cloudiest while summer conditions are good.

Southwest Sumatera is a cloudy region throughout the year. Overcast conditions are observed nearly every day during October and November. Conditions are somewhat better in the austral winter.

Relative humidities are dependent upon temperature and exposure to the sea. The diurnal range in temperature produces a morning maximum and afternoon minimum in relative humidity in most cases. Seasonal and diurnal variations are small at exposed locations.

Along the N coast and NW coast E of Onslow, maximum relative humidities occur on summer mornings and minimum relative humidities occur on winter afternoons. At exposed locations, summer relative humidities range from 80 to 90 per cent in the morning falling to the 50 to 70 per cent range by afternoon. During the winter, 70 to 85 per cent readings in the morning fall into the 35 to 55 per cent range during the afternoon. These readings are a little higher at some island locations and a little lower at sheltered ports.

Along the W and S coasts, relative humidities are highest in the austral winter. From Onslow to Cape Leeuwin, they are usually in the 80 per cent range during the morning and the 50 to 70 per cent range during the afternoon; however, at exposed locations like Cape Leeuwin, they only drop to about 80 per cent. Humidities along the S coast have a somewhat wider range. Highest average readings occur at Ceduna and Adelaide, where they reach 85 to 88 per cent, while the range elsewhere is from 65 to 75 per cent. During the day, these readings fall into the mid-50 to low-70 per cent range. During the austral summer, the diurnal variation is overcome at some locations along the Great Australian Bight by the strong onshore flow and average maximum temperatures below 26.7°C. Readings at places like Eucla, Eyre, and Esperance average in the mid-50 to low-60 per cent range in the morning, climbing about 2 to 5 per cent during the day. Elsewhere, summer morning readings are in the 60 to 70 per cent range; they fall into the 40 per cent range during the day.

Along the SW coast of Sumatera, the diurnal variation is much greater than any seasonal one. The early morning humidities are in the 90 per cent range throughout the year; there is a slight maximum in the austral spring. These readings fall into the mid-60 to low-70 per cent range by early after noon.

Visibility.—Visibilities, in general, are good throughout the region year around. Heavy showers are the most frequent reduction, but this is usually brief. Mist, haze, smoke, and occasionally fog interfere with visibility. Rain and drizzle cause some problems along the SW and S coasts of Australia. Fog is an occasional problem mostly in the lagoons and estuaries of the NW coast in winter. At Broome, early morning visibilities drop below 7'8 mile 8 to 9 per cent of the time in August and September. Along the S coast, visibilities fall below 6 miles 5 to 15 per cent of the time in rain in the austral winter, but below 7/8 mile on rare occasions when both fog and rain occur. Fog is more often an early morning condition that is local and burns off quickly. Sea fog in the summer is fare. Dust storms occur E of Albany in summer, when N winds bring a reddish haze to coastal areas. When strong offshore winds follow a prolonged drought, a thick dust can affect visibilities at sea. Industrial smoke is a problem near Adelaide.

Along the SW coast of Sumatera, haze, rain showers, and a rare fog hamper visibilities. Visibilities fall below 6 miles most of the time during the rainy season from June through October. In addition, showers may also cause some early morning ground fog over the areas they have dampened the night before; this shallow type of fog also forms near rivers and swamps.

Currents

General

Non-tidal Currents.—The major surface currents of the Indian Ocean are, as follows:

1. West Wind Drift S of 50°S.
2. South Indian Current between 27°S and 50°S.
3. South Equatorial Current between 8°S and 20°S.
4. Agulhas Current along the SE coast of Africa.
5. East Africa Coastal Current along the NE coast of Africa.
6. Monsoon Drifts N of 0°.
7. The north-setting West Australia Current off the W coast of Australia.

The surface currents are influenced by the Prevailing Westerlies, in the S part of the Indian Ocean, and the Southeast Trade Winds, in the N part of the Indian Ocean. Speeds usually do not exceed 1 knot, but occasionally may reach 3 knots for short periods.

The surface flow in the Indian Ocean between 50°E and l00°E and N of 8°S is dominated by the monsoon winds and the Indian Equatorial Countercurrent.

Seasonal changes in surface current direction in the NW and NE parts of the Indian Ocean, which occur at different times, do not immediately respond to changes in wind direction. In the Arabian Sea, during the Northeast Monsoon from November through March, the current generally sets W except in the N part, where a clockwise gyre develops. In April, a transitional month, the currents are variable and begin to turn E; from May through September the flow prevails E. In October, another transitional month, the currents are variable and begin to turn E to complete the seasonal cycle.

In the NE part of the Indian Ocean, during November and December, the current predominates NW through the Strait of Malacca and in the Bay of Bengal. Northeast of Sri Lanka a large complex counterclockwise eddy results from interference between the S return flow along the coast of India and the N flow into the Bay of Bengal. January is a transition period when the clockwise circulation begins to develop in the N part of the bay; in February, the clockwise flow becomes fully established throughout the bay and continues through April. In May, the clockwise circulation changes abruptly to an E flow, which prevails through July, except for the region NE of Sri Lanka where the currents are variable. August is a transition period, with a counterclockwise circulation developing at the head of the Bay of Bengal; currents in the remainder of the bay are variable. In September, the counterclockwise pattern continues to develop in the N part of the bay; an E drift remains predominant in the S part, although the flow can at times be variable. In October, the pattern for the seasonal counterclockwise flow is fully established, but considerable variation may occur in the center of the bay.

In November and December, between the Equatorial Countercurrent and the S part of the Arabian Sea, between 50°E and 75°E, the current begins to turn from E to W and is not well established; from January to April the flow is W at 0.6 to 1.0 knot, but averages about 1.5 knots in the central region of highest speeds. During April, the current is in a state of transition, turns E, and is not well defined. From May through September, the currents in the open ocean set constantly E; during October, they are in a state of transition and become variable as they begin to turn W. During November, in the region N of the Equatorial Countercurrent and S of the Bay of Bengal, between 75°E and 100°E, the easternmost segment of the east-setting drift quickly dissipates, with part being deflected into the counterclockwise flow in the Bay of Bengal and the remainder turning SE into the South Equatorial Current. In December, the west-setting flow is noticeable mainly along 5°N latitude E and S of Sri Lanka. In January, the flow begins to widen and becomes fully established in February, extending between Sri Lanka and the Equator. During March, the current begins to turn and in April becomes well defined, setting E. From May through October, the flow is E and averages about 1 knot.

In the S part of the Indian Ocean, the Agulhas Current is strongest in the vicinity of the 183m curve off the coast of South Africa between 31°S and 33°S, when speeds occasionally exceed 5 knots. Current speeds at times reach 1.5 knots along the S coast of Australia and 3 knots along the W coast of Australia; the direction varies.

Tidal Currents.—Tidal currents are usually weak, except in channels and inlets along the coasts, where speeds are highest. In near shore waters, the tidal currents are usually reversing, flooding toward and ebbing away from the coast or flooding and ebbing in opposite directions parallel with the coast. In regions of mixed or semidiumal tides, two flood and two ebbs occur daily. In the region of diurnal tides, one flood and one ebb occur daily.

Rotary tidal currents occur offshore where the direction of flow is not restricted; speed will vary as direction changes continuously through all points of the compass during the tidal day. The change in direction is generally clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere.

Northwest Indian Ocean

Non-tidal Currents.—The surface circulation is greatly affected by the monsoons, but the direction of flow does not coincide entirely with the monsoons, particularly the Northeast Monsoon (November through March). The open ocean circulation consists mainly of part of the west-setting South Equatorial Countercurrent near the Equator, and the monsoon drift immediately to the N of the Equatorial Countercurrent. The time of transition from the wind and current systems of one monsoon to those of the other varies with latitude. For example, the change from the winds and currents of the Southwest Monsoon to those of the Northeast Monsoon occurs earlier at 14°N than nearer the Equator.

The main non-tidal current systems in this area are, as follows:

1. **South Equatorial Current**—Controlled by the Southeast Trade Winds and sets W throughout the year. In this region, it is perceptible only during January, April, October, November, and December; it reaches its northernmost limit of about 8°S in April.

   This current divides off the W coast of Africa. One part turns S, while the other turns and flows NE as the East Africa Coastal Current (Somali Current).

2. **East Africa Coastal Current (Somali Current)**—Originates mainly from the part of the South Equatorial Current which turns N off the coast of Africa in the vicinity of 10°S. The surface current appears to vary considerably in speed and direction from month to month. The greatest changes coincide with the period of the opposing Northeast Monsoon from November through March. This coastal current is most persistent in a N or NE direction and strongest during the Southwest Monsoon from May through September, and particularly during August. Speed and frequency be-

gin to decrease during the transition month of October. In November, at about 4°N, a part of the current begins to reverse; this part expands N and S until February. The region of reverse flow begins to diminish in March and disappears in April, when the N set again predominates.

3. **Equatorial Countercurrent—**A complex current greatly influenced by the monsoons and the circulation of the Arabian Sea. At times this east-setting current is perceptible, whereas all other times it loses its identity to the monsoon drift.

South of the countercurrent, the currents flow clockwise. From November through January, the Equatorial Countercurrent has a tendency to move S and become narrower; in January, the axis is at about 5°S, and it remains at this latitude through March.

From April through June, the Equatorial Countercurrent widens and moves N; in April its axis is at about 3°S. In May and June, the axis of the current moves farther N and its N boundary is difficult to discern because the direction of flow is essentially the same as that of the Monsoon Drift.

In July and August, the currents set S and W between the Monsoon Drift and the South Equatorial Current; only traces of the Equatorial Countercurrent remain.

During September and October, the Equatorial Countercurrent regains its identity, but its N boundary is difficult to distinguish from the Monsoon Drift.

4. **Monsoon Drift—**Pattern changes N of the Equatorial Countercurrent and S of the Arabian Sea do not coincide with the changes in direction of the monsoon winds. From January through March, the Monsoon Drift sets W, its S edge turning counterclockwise into the Equatorial Countercurrent. In March, this current divides off the coast of Somalia; part flows N, with the remainder flowing SW. During the transition period of April, the Monsoon Drift begins to turn E, but is not well defined. From May through September, the Monsoon Drift sets E across the northwest Indian Ocean. In November and December, the Monsoon Drift turns E to W and is not well established.

Northeast Indian Ocean

Non-tidal Currents.—The circulation in this region is dominated by four main current systems, as follows:

1. **South Equatorial Current**—Controlled by the Southeast Trade Winds and sets W throughout the year, with its N and S boundaries at approximately 10°S and 25°S, respectively. The N boundary of the current fluctuates seasonally between 9°S and 11°S, being at its northernmost limit during the Southwest Monsoon and at its southernmost limit during the Northeast Monsoon. The S boundary of the current remains S of the region throughout the year. Maximum current speeds occur during the Southwest Monsoon period, when the Southeast Trade Winds extend farthest N and the South Equatorial Current of the Indian Ocean is joined by its counterpart of the Pacific Ocean. Minimum current speeds and most variable current directions occur during the second half of the Northeast Monsoon.

2. **Equatorial Countercurrent**—Quite complex, being influenced by the monsoons and the circulations of the Arabian Sea and the Bay of Bengal. At times it is easily distinguishable, whereas at other times its presence is not evident.

From December through March, the Equatorial Countercurrent has a marked tendency to migrate S and to become narrower. In December, the N and S boundaries are at 2°N and 4°S respectively, moving S to 3°S and 6°S by February. The N boundary is easily discernible at this time owing to the generally W current flow in the region immediately N of the Equatorial Countercurrent.

From May through July, the cell, within which the Equatorial Countercurrent and Monsoon Drift flow clockwise, moves toward the W side of the region.

In June and July, southeast-setting currents prevail in the region between the Bay of Bengal and South Equatorial Current, and the only traces of the Equatorial Countercurrent remain apparent.

From August through November, eastward-setting currents prevail N of the Equatorial Countercurrent. As a result, the N boundary of the Equatorial Countercurrent is difficult to distinguish from the E drift currents.

3. **Monsoon Drift**—Located N of the Equatorial Countercurrent and S of the Bay of Bengal. During February and March, when the Northeast Monsoon decreases in intensity, the Monsoon Drift is formed from the outflow of the Strait of Malacca and a small amount of NW flow along the upper SW coast of Sumatera. Off the SW coast of Sumatera, a current generally sets SE during all months. It is strongest during October through April, when its mean maximum speed is 1.5 knots. The Monsoon Drift broadens as it sets W and divides off the W coast of Sri Lanka, with part joining the circulation of the Bay of Bengal and part joining the flow from the Arabian Sea.

During April, the transition period between monsoons, the Monsoon Drift is ill-defined. A counterclockwise circulation exists between Sumatera and Sri Lanka.

From May through October, the Monsoon Drift sets E to SE.

During November and December, part of the Monsoon Drift is deflected into the Bay of Bengal; the remainder turns clockwise and flows SE.

4. **Strait of Malacca**—Non-tidal currents generally set NW at a mean speed of about 1 knot and a maximum speed of about 2 knots; speeds are usually higher in the N part of the strait. Currents are most constant and strongest from December through February and less stable and weakest from June through August. Nontidal currents may be strongly influenced by reversing tidal currents; the prevailing current direction may become reversed with a strong tidal current during springs.

5. **Andaman Sea and the Bay of Bengal**—The circulation is characterized by four distinct patterns, in this order, as follows:

a. A clockwise circulation—From February through April, the clockwise circulation pattern is well established; the NW flow out of the Strait of Malacca in February and March is deflected almost immediately and joins the clockwise circulation of the bay. In April, however, the flow out of the Strait of Malacca extends farther into the Andaman Sea before it joins the clockwise circulation, which at this time is limited to the Bay of Bengal. In general, the currents in both the Andaman Sea and Bay of Bengal are somewhat weaker and more variable during April than during February and March.

b. A general E flow during the Northeast Monsoon—

From the established clockwise circulation pattern of April, the circulation pattern changes abruptly in May to an E flow over the entire Andaman Sea-Bay of Bengal region. During May through July, E to NE currents prevail over most of this region. Northeast of Sri Lanka, currents are variable.

c. A counterclockwise circulation—The transition from the E flow of the Southwest Monsoon season begins in August, with a counterclockwise circulation pattern developing in the head of the Bay of Bengal. Currents in the remainder of the bay and the Andaman Sea are somewhat variable.

In September, the counterclockwise pattern continues to develop, although E drift is the predominant feature of the S part of the Bay of Bengal. Variation in direction can be expected at any location in the Andaman Sea-Bay of Bengal region during September.

In October, the counterclockwise current is fully established. However, considerable variation is still apparent, with dual centers of the counterclockwise pattern in the Bay of Bengal and an erratic current pattern in the Andaman Sea.

d. A general W flow during the Southwest Monsoon—In November and December, currents set NW out of the Strait of Malacca and predominate over the region. Northeast of Sri Lanka, a more complex pattern results from interference between the S return flow along the coast of India and the N flow into the Bay of Bengal.

January is a transition month between the predominantly west-setting current of November and December and the clockwise pattern of February through April. The clockwise circulation pattern predominates in the N part of the bay during January and is bordered by a W flow over the S part.

Note.—The change from the clockwise pattern to the E flow and from the counterclockwise pattern to the W flow is abrupt, whereas the change from the W flow to the clockwise pattern and the E flow to the counterclockwise pattern is rather slow, with a month between each change that can be considered transitional.

During the months of November through March, the currents in the **Gulf of Mannar**, between India and Sri Lanka, set S at speeds ranging from 1 to 2 knots. In the transition month of April, a branch of the southeast-setting current off the W coast of India turns into the gulf and becomes variable. From May through September, currents set N in the gulf, through Pamban Channel, and across Adams Bridge. Currents in Pamban Channel may at times attain speeds of 6 knots; across Adams Bridge the north-setting current is strong but decreases in speed toward the Indian coast. In October, a continuation of the southeast-setting current along the W coast of India sets eastward across the S part of the Gulf of Mannar.

The time of transition from one monsoon period to the other varies with latitude. For example, the change from the Southwest Monsoon to the Northeast Monsoon occurs earlier at 19°N than nearer the Equator. The boundaries between the E current and the W current follow closely the boundaries between the E winds and the W winds.

Tidal Currents.—In the Strait of Malacca, the flow is the resultant of tidal and nontidal currents; reversing tidal currents along the NE coast of Sumatera are weak and considerably affected by the persistent W current. Farther SE in the main channel, the tidal currents are stronger and average up to 2 knots. They flood SE and ebb NW; there are two flood and two ebb currents each tidal day. In Singapore Strait and among the islands in the southern approaches to the Strait of Malacca both diurnal and mixed tidal currents occur. Speeds at strength are usually less than 3 knots but may be as high as 6 knots in narrow channels.

South Indian Ocean

Non-tidal Currents.—The main non-tidal currents in this area are, as follows:

1. **West Wind Drift**—Below 39°S, strong W winds maintain this prevailing E flow at a mean speed of 0.6 knot throughout the year, although speeds of 1 to 2 knots frequently occur near its N boundary; speeds are slightly stronger in summer than in winter. Local meteorological changes may result in current sets in other directions and even weak reversals for short periods. Variations in wind force cause the N boundary of the West Wind Drift to fluctuate between about 35°S and 40°S. Off the W coast of Australia, a part of the West Wind Drift turns N and N; this current is known as the West Australia Current.

2. **South Equatorial Current.—**This current sets W toward Madagascar, with seasonal variations in speed caused by the annual variations of the Southeast Trade Winds. from May through October, the mean speed is 0.9 knot and the maximum speed is 3 knots. During the remainder of the year, the mean speed is about 0.6 knot. Its S boundary fluctuates between about 18°S and 24°S, usually extending farthest S from December through April.

The South Equatorial Current sets W toward the E coast of Madagascar to the vicinity of Tamatave and Ile Sainte-Marie, where it divides; one part turns N, flows past the N tip of the island with speeds up to 3.3 knots, then sets W and NW toward the African coast.

The N branch of the South Equatorial Current divides upon reaching the coast of Africa near Cabo Delgado; one part turns and flows N, while the other turns and flows S in the W part of Mozambique Channel and forms the Agulhas Current. West of this S flow, in regions such as off Baia de Sofala between Cabo das Correntes and the vicinity of Rio dos Bons Sinais, countercurrents set E and NE at irregular intervals for a considerable distance offshore and occur most frequently off Baia de Sofala during July. Speeds up to 1.5 knots occur frequently. In the E part of the channel, the currents are mostly variable.

3. **West Australia Current.—**Generally sets N and NW and is controlled mainly by the Southeast Trade Winds. This current varies seasonally with the strength of the wind and is most stable during November, December, and January and least stable during May, June, and July, when sets in any direction are most likely. North of 20°S, the main part of this current sets NW into the South Equatorial Current while the remainder turns toward the coast of Australia. The speed of the current seldom exceeds 1 knot. Between the coast and the West Australia Current, the currents are variable during most months; however, along the coast the most frequent set is S from January through August and N from September through December, with a S set S of about 30°S in November and December. The maximum speed observed is 3 knots.

4. **Agulhas Current.—**A very constant coastal current that sets S and SW along the SE coast of Africa between 11°S and the Cape of Good Hope. The highest speeds and greatest constancy are observed in the vicinity of the 183m curve E of 28°E; here, the surface current is strongest from February through April when about 17 per cent of all measured speeds in the prevailing direction exceed 3 knots, particularly between 31°30'S and 33°30'S, where the speed occasionally exceeds 5 knots. These maximum speeds may occur at any time but less frequently from May through July.

West of about 23°E, in the vicinity of Agulhas Bank, the current branches. The main part continues W past Cape Agulhas; the second part turns counterclockwise and sets SE under the influence of the prevailing W winds and part of the east-setting South Atlantic Current that flows into the Indian Ocean. In this latter region, the current is weaker and more variable. Current speeds usually do not exceed 2 knots, although speeds of 3 knots or more occasionally may be observed. Another factor which will tend to reduce the constancy of the current is the countercurrent between the coast and the Agulhas Current, where E and NE sets between 0.5 and 1.5 knots may occur at irregular intervals at any time of the year.

In the Great Australian Bight, currents generally set E except in the N part from October through March, when countercurrents occur. In the N part of the bight, the currents are variable at times, as they are greatly affected by local winds. Currents setting N and NE, with speeds up to 1.5 knots, have been observed.

Note.—Prevailing surface currents are influenced by the predominant westerlies in the S part and the persistent Southeast Trade Winds in the N part. Tropical disturbances and extratropical cyclones may cause current directions to differ considerably from those expected.

Tidal Currents.—The tidal currents are usually weak except in channel and inlets along the coast. In nearshore waters, the tidal currents are usually reversing, flooding toward and ebbing away from the coast, or flooding and ebbing parallel with the coast in opposite directions. In areas of semidiurnal and mixed tides, two flood and two ebb periods occur daily. In areas of diurnal tides, one flood and one ebb occur daily.

Rotary currents occur offshore where the direction of flow is not restricted; their speed varies, and their direction changes counterclockwise through all points of the compass during the tidal day.

Navigational Information

International Ship and Port Facility (ISPS) Code

The ISPS Code applies to ships on international voyages and port facilities directly interfacing with these ships. All vessels should fully comply with the provisions of Chapter XI-Part 2 of the SOLAS Convention and Part A of the ISPS Code. Vessels shall demonstrate that appropriate maritime security measures are in place according to ISPS Code regulations. The following information must be furnished by the vessel when requested:

1. Information on the vessel and making contact.
   1.1 IMO Number
   1.2 Vessel name.
   1.3 Home port.
   1.4 Flag.
   1.5 Vessel type.
   1.6 Call sign.
   1.7 INMARSAT call sign.
   1.8 Gross tonnage.
   1.9 Company name.
   1.10 Name of Company Security Officer, including 24-hour contact information.
2. Information about the harbor and harbor facilities.
   2.1 Arrival harbor and harbor facilities where the vessel will berth.
   2.2 Date and time of arrival.
   2.3 Primary reason for entering the harbor.
3. Information required by Rule 9 Paragraph 2.1 of Chapter XI-2 of the Enclosure to the SOLAS Agreement.
   3.1 Does the vessel posses an International Ship Security Certificate (ISSC) or an Interim ISSC? (Yes/No)
      3.1.1If yes, list issuer of ISSC or Interim ISSC and expiration date.
      3.1.2If no, give reason why not.
      3.1.3Is there an approved Vessel Security Plan? (Yes/No).
   3.2 Current MARSEC Level of the vessel and position of vessel at the time of providing the report.
   3.3 The last ten port calls where there was interaction between the vessel and a harbor facility, in chronological order, with the most recent port call listed first. Include the MARSEC Level of the vessel, as well as the harbor name, country, harbor facility, and UN Location Code.
      3.3.1During the previous ten port calls, were additional security measures taken on board the vessel in addition to the measures required by the vessel's MARSEC Level. (Yes/No).
      3.3.2If yes, please detail the additional security measures taken. Include the harbor name, country, harbor facility, and UN Location Code.
   3.4 Within the period of the last ten calls at port facilities, list ship-to-ship activities, including position or latitude/longitude of the activities, with the most recent activity listed first.
      3.4.1Were proper security measures taken by the vessel during the ship-to-ship activities? (Yes/No).
      3.4.2If no, list the ship-to-ship activities where proper security measures were not taken and describe the security measures that were taken.
   3.5 General description of the cargo on board.
   3.6 A copy of the crew list
   3.7 A copy of the passenger list.
4. Other safety-related information.
   4.1 Are there any other safety-related matters to be reported (Yes/No).
   4.2 If yes, provide more detailed information.
5. Agents of the ship in future ports of arrival.
   5.1 Name(s) of ship's agent(s) in future ports of arrival including contact information (telephone number).
6. Identification of the person who prepared the information.
   6.1 Name.
   6.2 Title or function.
   6.3 Signature, including date and location of preparation.

Electronic Navigation and Communication

International Maritime Satellite Organization (INMARSAT).—Around the world satellite communication systems have now become synonymous with reliable and quality transfer of information. The International Maritime Satellite Organization (INMARSAT) is an international consortium comprising over 75 partners who provide maritime safety management and maritime communications services.

The INMARSAT system consists of a number of satellites, which maintain geosynchronous orbits, and provides quality communications coverage between about 77°N and about 77°S, including locations with less than a 5° angle of elevation.

INMARSAT-A, the original system, provides telephone, telex, and facsimile services. However, this system is being replaced by INMARSAT-B, which, by the use of digital technology, is providing the services with improved quality and higher data transmission rates.

INMARSAT-C provides a store and forward data messaging capability, but no voice communication.

Global Maritime Distress and Safety System (GMDSS).—The Global Maritime Distress and Safety System (GMDSS) provides a great advancement in safety over the previous usage of short range and high seas radio transmissions.

The GMDSS has been adopted by the International Convention for the Safety of Life at Sea (SOLAS) 1974. It applies to cargo vessels of 300 gt and over and all vessels carrying more than 12 passengers on international voyages. Unlike previous regulations, the GMDSS requires vessels to carry specified equipment according to the area in which they are operating. Such vessels navigating in polar regions must carry VHF, MF, and HF equipment and a satellite Emergency Position Indicating Radiobeacon (EPIRB).

Information on the GMDSS, provided by the U.S. Coast Guard Navigation Center, is accessible via the Internet, as follows:

U. S. Coast Guard Navigation Center

http://www.navcen.uscg.mil/marcomms/default.htm

Global Positioning System (GPS).—The NAVSTAR Global Positioning System (GPS) is a satellite-based system, operated by the US. Air Force, which provides very accurate positioning, time, and velocity information to multiple users. It is an all-weather system with world wide and continuous usage which will replace OMEGA and other such hyperbolic radio navigation systems. The space component of GPS consists of 24 satellites, of which a minimum of six are observable from any place on earth. GPS receivers convert data from the satellites to produce three-dimensional positions (latitude, longitude, and altitude). They compute information for fixes in terms of the World Geodetic System (1984) reference ellipsoid; hence, a datum shift correction may be required before a position can be plotted on a chart.

GPS provides two services for navigation positioning, as follows:

1. Standard Positioning Service (SPS)—The standard level of positioning and timing accuracy. It is available without restrictions to any user on a continuous worldwide basis. As of midnight (EDT) 1 March 2000, Selective Availability was set to zero; users should experience a GPS horizontal accuracy of 10 to 20m or better.
2. Precise Positioning Service (PPS)—An encoded level intended for use by the Department of Defense.

SafetyNET.—NAVTEX is an international automated direct printing service for the promulgation of navigational and meteorological warnings and urgent information to ships. It is a component of the World Wide Navigational Warning Service (WWNWS) and is an essential element of GMDSS.

The SafetyNET broadcast system provides the same information as NAVTEX to vessels on the high seas beyond NAVTEX coverage (generally about 200 miles offshore) and is delivered by the INMARSAT-C system.

General Information.—For further information concerning the International Maritime Satellite Organization (INMARSAT), the Global Maritime Distress and Safety System (GMDSS), the SafetyNET system, and the Global Positioning System (GPS), see Pub. No. 9, The American Practical Navigator (Bowditch); Pub. 117, Radio Navigation Aids; and Annual Notice to Mariners No. 1.

Automatic Identification System (AIS) Aids to Navigation (ATON)

For information, see **South Atlantic Ocean—Navigational Information**.

Enroute Volumes

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Pub. 175, Sailing Directions (Enroute) North, West, and South Coasts of Australia

Pollution

MARPOL Special Areas

MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Vessels of 400 gross tons and over are prohibited from discharging into the sea any oil or oily mixtures except when the following conditions are satisfied:

1. The ship is proceeding en route.
2. The oily mixture is processed through oil-filtering equipment meeting the requirements of Regulation 14.7 of MARPOL Annex I.
3. The oil content of the effluent without dilution does not exceed 15 parts per million.
4. The oily mixture does not originate from cargo pump room bilges on oil tankers.
5. The oily mixture, in the case of oil tankers, is not mixed with oil cargo residue.

Vessels of less than 400 gross tons shall retain on board any oil or oily mixtures for subsequent discharge to reception facilities or discharged into the sea with the following provisions:

1. The ship is proceeding en route.
2. The ship has in operation equipment of a design approved by the Administration that ensures that the oil content of the effluent without dilution does not exceed 15 parts per million.

3. The oily mixture does not originate from cargo pump room bilges on oil tankers.

4. The oily mixture, in the case of oil tankers, is not mixed with oil cargo residue.

The **Southern South African MARPOL Special Area** (Particularly Sensitive Sea Area) is bounded by lines joining the following positions:

a. 31°14.0'S, 17°50.0'E. (Mouth of the Spoeg River)
b. 31°30.0'S, 17°12.0'E.
c. 32°00.0'S, 17°06.0'E.
d. 32°32.0'S, 16°52.0'E.
e. 34°06.0'S, 17°24.0'E.
f. 36°58.0'S, 20°54.0'E.
g. 36°00.0'S, 22°30.0'E.
h. 35°14.0'S, 22°54.0'E.
i. 34°30.0'S, 26°00.0'E.
j. 33°48.0'S, 27°25.0'E.
k. 33°27.0'S, 27°12.0'E. (Mouth of the Great Fish River)

Further information on MARPOL Special Areas can be found in "MARPOL Consolidated Edition 2006."

Single-hull Tanker Phase-out Schedule

In accordance with Regulation 13G of Annex I of the MARPOL Convention, single-hull tankers should be phased out or converted to a double-hull configuration according to a schedule based on their year of delivery. These requirements are designed to reduce the risk of oil spills from tankers involved in low-energy collisions or groundings.

The types of vessels affected by these regulations and their phase-out schedule is, as follows:

1. **Category 1—**Commonly known as Pre-MARPOL Tankers, consists of the following types of vessels:

a. Tankers of 20,000 dwt and over carrying crude oil, fuel oil, heavy diesel oil, or lubricating oil as cargo.

b. Tankers of 30,000 dwt and over carrying other oils, which do not comply with the requirements for protectively-located segregated ballast tanks.

The phase out schedule for Category 1 vessels is, as follows:

a. 2003 for ships delivered in 1973 or earlier.
b. 2004 for ships delivered in 1974 and 1975.
c. 2005 for ships delivered in 1976 and 1977.
d. 2006 for ships delivered in 1978, 1979, and 1980.
e. 2007 for ships delivered in 1981 or later.

2. **Category 2—**Commonly known as MARPOL Tankers, consists of the following types of vessels:

a. Tankers of 20,000 dwt and over carrying crude oil, fuel oil, heavy diesel oil, or lubricating oil as cargo, which comply with the MARPOL requirements for protectively-located segregated ballast tanks.

b. Tankers of 30,000 dwt and over carrying other oils, which comply with the MARPOL requirements for protectively-located segregated ballast tanks.

The phase out schedule for Category 2 vessels is, as follows:

a. 2003 for ships delivered in 1973 or earlier.
b. 2004 for ships delivered in 1974 and 1975.
c. 2005 for ships delivered in 1976 and 1977.
d. 2006 for ships delivered in 1978 and 1979.
e. 2007 for ships delivered in 1980 and 1981.
f. 2007 for ships delivered in 1980 and 1981.
g. 2008 for ships delivered in 1982.
h. 2009 for ships delivered in 1983.
i. 2010 for ships delivered in 1984.
j. 2011 for ships delivered in 1985.
k. 2012 for ships delivered in 1986.
l. 2013 for ships delivered in 1987.
m. 2014 for ships delivered in 1988.
n. 2015 for ships delivered in 1989 or later.

3. **Category 3—**Consists of tankers 5,000 dwt and over but less than the tonnage specified for Category 1 and Category 2 vessels.

The phase out schedule for Category 3 vessels is, as follows:

a. 2003 for ships delivered in 1973 or earlier.
b. 2004 for ships delivered in 1974 and 1975.
c. 2005 for ships delivered in 1976 and 1977.
d. 2006 for ships delivered in 1978 and 1979.
e. 2007 for ships delivered in 1980 and 1981.
f. 2007 for ships delivered in 1980 and 1981.
g. 2008 for ships delivered in 1982.
h. 2009 for ships delivered in 1983.
i. 2010 for ships delivered in 1984.
j. 2011 for ships delivered in 1985.
k. 2012 for ships delivered in 1986.
l. 2013 for ships delivered in 1987.
m. 2014 for ships delivered in 1988.
n. 2015 for ships delivered in 1989 or later.

Single-hull tankers of 5,000 dwt and over are prohibited from carrying heavy grade oil (HGO) after 5 April 2005. Single-hull tankers of 600 dwt and over but less than 5,000 dwt are prohibited from carrying HGO after the anniversary of their delivery date in 2008.

Ballast Water Management

International guidelines have been adopted by the IMO to prevent the introduction of unwanted aquatic organisms and pathogens from ships' ballast water and sediment discharge into marine ecosystems. The guidelines include the retention of ballast water onboard, ballast exchange at sea, ballast management aimed at preventing or minimizing the uptake of contaminated water or sediment, and the discharge of ballast ashore. Particular attention is drawn to the hazards associated with ballast exchange at sea.

Ship owners and agents are strongly advised to comply with these guidelines, which were introduced under IMO Resolution A.868(20), titled *1997 Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens.*

In February 2004, a diplomatic conference adopted an *International Convention for the Control and Management of Ships' Ballast Water and Sediments*. This *Ballast Water Management (BWM) Convention* will come into force world wide after it has been signed by 30 states, representing 35 per cent of the world's merchant shipping tonnage.

Individual states are currently in the process of introducing national legislation in accordance with the BMW Convention. Upon implementation, this legislation will be applicable to commercial vessels that carry out ballast water discharge within a state's jurisdictional waters.

Typical legislation requires that all ships intending to discharge ballast water within a state's jurisdictional waters shall

conduct any exchange at least 200 miles from the coast and in waters at least 200m deep. If this is not possible, the exchange should be carried out as far as possible from the nearest land and, in all cases, at least 50 miles from the coast. In cases where the ship is unable to comply, ballast water must be maintained on board, and only a minimum amount may be authorized for discharge, with the prior authorization of the appropriate national maritime authority.

Ballast water management will be conducted in accordance with a Ship's BMW Plan. In addition, a Ballast Water Reporting Form may be required by the relevant authority as directed, prior to the ETA. The Ship's BWM Plan will be approved by the flag administration or relevant classification society.

Violations of the legislation will be sanctioned according to national law, which can include warnings, fines, detentions, or prohibition of the ship's entry into a port or terminal.

Regulations

Ship Sanitation Control Certificates

The World Health Organization International Health Regulations (2005), which came into force in 2007, created the Ship Sanitation Control Certificate (SSC) and the Ship Sanitation Control Exemption Certificate (SSCEC) program to enable competent authorities to identify and record all areas of shipborne public health risks, along with any required control measures to be applied. Further information on SSCs and SSCECs can be found at the following web site:

SSC/SSCEC Information

http://www.who.int/csr/ihr/travel/TechnAdvSSC.pdf

The SSC, which carries a 6-month period of validity, may be required from all ships, whether ocean-going or inland vessels, on an international voyage calling at a port of a State Party. It may be renewed at any port authorized by the State Party to issue such renewals. A list of ports authorized by State Parties to issue SSCs and SSCECs can be found at the following web site:

Ports Authorized to Issue SSCs and SSCECs

http://www.who.int/csr/ihr/training/ihr_authorized_ports_list.pdf

Routes

Vessels leaving the Indian Ocean by rounding the S end of Africa from the N and E should remain in the strength of the Agulhas Current. This current lies 20 to 30 miles off the coast, but is favorable as close as 6 or 7 miles to the shore. Vessels entering the Indian Ocean from the South Atlantic Ocean should avoid the Agulhas Current by remaining well to the S of it.

The Indonesian and Malaysian governments have requested that tankers larger than 200,000 dwt operating between the Indian Ocean and the North Pacific Ocean not use the Malacca Strait or Singapore Strait. The channels leading through the Malacca Strait and Singapore Strait narrow to widths of about 2 miles and 1.2 miles, respectively. In addition, depths of only about 22m lie in several places in the SE part of the Malacca Strait and in the Singapore Strait. Selat Lombok, leading between the islands of Lombok and Bali, provides the safest route through the Eastern Archipelago for large vessels over 200,000 dwt. The minimum channel width is 11.5 miles and the minimum depth is greater than 140m. Selat Sunda leads between the islands of Sumatra and Jawa. This channel is deep and wide enough for large deep-draft vessels, but the currents are strong. In addition, the straits to the N leading to the South China Sea are shallow and dangerous.

The route information in this section considers selected ports in the Indian Ocean and routes to and from the Indian Ocean and ports in the South Atlantic Ocean, the Red Sea, and the Pacific Ocean.

In general these routes are as direct as safe navigation permits. However, in some instances a divergence is made to avoid dangers to navigation, to take advantage of favorable currents or to minimize the effects of adverse currents. In some cases several routes are recommended due to the effects of strong seasonal winds caused by the alternation of the monsoons. Where the same route may be followed either way, the reverse route is not described.

Detailed information on these routes can be found in the Appendix.

Seas

Adjacent Waters

Adjacent waters include the Bay of Bengal, the Malacca Strait, Bass Strait, and the Great Australian Bight.

The Bay of Bengal

The Bay of Bengal lies in the NE part of the Indian Ocean and is dominated by the monsoon winds. During spring, the current in the bay has a strong clockwise circulation. In autumn, the current is weaker and counterclockwise. The heaviest rains occur during autumn and the surface water tends to pile up on the W side of the bay. This, combined with the funnel shape of the bay and shoaling of its bottom, causes high tides and seiches.

The vast delta of the Ganges River lies at the head of the bay and has many mouths. The Hooghly River, the W branch of the Ganges River, forms the main route for oceangoing ships bound for Calcutta (Kolkata). The Meghnay River, lying 180 miles E of the Hooghly River, discharges the main volume of water from the Ganges River. At times, tidal bores occur during spring tides in these branches.

The Malacca Strait

The Malacca Strait, which forms the main route connecting the Indian Ocean with the South China Sea, is about 500 miles long. The channel fairway narrows to a width of about 8 miles at the E end where it joins the Singapore Strait.

Large sand waves are reported to be formed, with crests at right angles to the direction of the tidal currents, on the bottom of the strait. These sand waves form where strong tidal currents occur and rise 4 to 7m above the bottom. In addition, long sand ridges, running parallel to the direction of the tidal currents, are also formed. Therefore, deep-draft vessels should take particular note of the latest reports concerning depths in or near the fairway.

Navigational aids are difficult to maintain within the strait

and are reported to be frequently unreliable.

Heavy traffic is often encountered within the strait and maneuvering room may be restricted, at times, by numerous fishing craft.

For information concerning Navigation Rules for the Malacca and Singapore Straits, see **Singapore—Regulations**.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

The Middle East Merchant Vessel Voluntary Reporting System, which covers the Red Sea, the Indian Ocean N of 10°00'S, and the Arabian Sea, is bounded, as follows:

1. Northern limit—Gulf of Suez (30°00'N), S coast of the Arabian Peninsula, and the Persian Gulf (23°00'N).
2. Eastern limit—Longitude 78°00'E.
3. Southern limit—Latitude 10°00'S.
4. Western limit—East African coast.

For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Signals

For information on international port traffic signals and visual storm warning signals, see **Appendix II—International Port Traffic Signals and Visual Storm Warning Signals.**

Tides

General

Mixed, semidiumal, and diurnal tides occur and tide ranges differ considerably. Tide range vary from exceeding 12.2 in the Gulf of Cambay, about 4m at Beira, and 0.2m at Marion Island. Tide ranges are small along the S and W coasts of Australia N to Champion Bay. Seasonal variations in water level above and below mean sea level are usually less than 0.15m.

Northwest Indian Ocean

Tides.—Diurnal, semidiurnal, and mixed tides occur in this region. Diurnal tides consist of one high water and one low water each tidal day. In regions of semidiurnal tides, two high and two low waters occur each tidal day, with little inequality between the heights of successive high and successive low waters. Where the tide is mixed, two high waters and two low waters occur each tidal day, with a considerable inequality between the heights of successive high or successive low waters.

Tide ranges differ considerably. For example, at Bhavnagar in the Gulf of Cambay the maximum range may exceed 12.2m when spring tide occurs near perigee, whereas at Bur Sudan in the Red Sea the range is negligible. Semimonthly maximum tide ranges for semidiurnal or moderately mixed tides occur at springs (new or full moon); semimonthly minimum ranges occur at neaps (quadrature). Diurnal or extremely mixed tides attain their maximum range, the tropic range (approximately 1.3 times the diurnal range), during maximum N or S lunar declination.

Changes in Water Levels.—Fluctuations in water level due to meteorological changes vary throughout the area. In general, strong onshore winds and low barometric pressure raise the water level higher than predicted, and offshore winds and high barometric pressure lower it.

Northeast Indian Ocean

Tides.—Mixed and semidiurnal tides occur in the area. Along the coasts of Sumatera (including the off-lying islands), Thailand, Sri Lanka, and India from about 10°15'E to Mangalore (12°52'N., 74°53'E.), the tide is mixed, with two high waters and two low waters each tide day and a considerable inequality between the heights of successive high and successive low waters. Throughout the remainder of the area the tide is semidiurnal; two high waters and two low waters occur each tide day, with a small inequality between the heights of successive high and successive low waters.

The tide generally progresses northeastward in the NE part of the Indian Ocean, northward in the Bay of Bengal and Andaman Sea, and southeastward in the Strait of Malacca and along the SW coast of India.

Semimonthly maximum tide ranges occur near times of new or full moon. The tide ranges vary throughout this area; the largest range of about 6.7m occurs at Kyaikkami (Amherst), at the entrance to the Moulmein River, when spring tides occur near perigee. The mean spring range varies from about 1.5 to 9.0m on the NW coast of Australia.

Changes in Water Levels.—Changes in wind and barometric pressure may cause deviations from daily predicted water level. In general, prolonged onshore winds and low barometric pressure raise the water level, while offshore winds and high pressure lower it.

At the head of the Bay of Bengal, storm surges (oscillations with periods of 2 to 4 days) may occur in the wakes of cyclones (most frequent in May and October) and may cause the water level to rise considerably. Storm surges that flooded the entire coast of Bangladesh within a short period of time have been observed on rare occasions.

South Indian Ocean

Tides.—Mixed, diurnal, and semidiurnal tides occur. In regions of mixed tides two high waters and two low waters occur each tidal day, with considerable inequality between the heights of successive high and successive low waters. Where the tide is mainly diurnal, one high water and one low water occur each tidal day; however, near times of equatorial lunar declination high and low water stands occur for periods of as long as 12 hours. Semidiurnal tide consists of two high waters and two low waters each tidal day, with little or no inequality between the heights of successive high and successive low waters.

In regions of diurnal tide, low and high tides occur later each successive day for a period of about 8 or 9 days, then occur earlier each successive day for a period of about 5 days. As a result, low water occurs in late afternoon in winter and in early morning in summer.

Tide ranges differ considerably from place to place. For example, the mean range is 4.0m at Beira and 0.2m at Marion Island. At Port Hedland, the range may exceed 6.1m at springs near time of perigee, whereas the maximum range (tropic) at Champion Bay is about 0.6m.

Changes in Water Level.—In general, strong onshore winds and low barometric pressure raise the water level; offshore winds and high barometric pressure lower it. The greatest seasonal variations in water level above (+) or below (-) mean

sea level along the African coast are, as follows:

Along the coast of Mozambique between Baie de Lourenco Marques and Bartolomeu Dias	+0.09m in March -0.12m in August and September
Along the Mozambique coast between Chiloane and Beira	+0.15m in February -0.12m in August and September
Along the Mozambique coast from about 100 miles NE of Beira NE to the mouth of the Rio dos Bons Sinais	+0.27m in April -0.21m in August
Along the Mozambique coast between the Rio dos Bons Sinais and 15°S	+0.06m in May -0.09m in August and September
On the N side of Mauritius	+0.06m in April -0.09m in August and September

Meteorological conditions will also affect the times of high and low waters as well as the water level. Along the SW coast of Australia, strong W winds may advance the time of high water as much as 2 hours and delay the time of low water by an equal amount, whereas strong E winds have the opposite effect. In general, strong onshore winds and low barometric pressure raise the water level and offshore winds and high barometric pressure lower it. In some coastal regions, particularly along the W coast in the vicinity of Fremantle, the predicted water level may be exceeded by as much as 1.2 during strong W winds; strong E winds cause a very low water level.

The greatest seasonal variations in water level above (+) or below (-) mean sea level along the Australian coast are, as follows:

Between Eucla and Flinders Bay	+0.15m in June -0.09m in November, December, January, and February
Between Hamelin Bay and Fremantle	+0.12m in June -0.09m in November, December, and January
Between Jurien Bay and Port Gregory	+0.12m in May and June -0.09m in October and November
Between Freycinet Estuary and Exmouth Gulf	+0.12m in April and May -0.12m in September
Between Long Island and Port Hedland	+0.15m in April -0.12m in August and September

Appendix I—Routes in the Indian Ocean

Routes in the South Atlantic Ocean are divided into the following sub-categories:

1. Rounding the Cape of Good Hope.
2. Cape of Good Hope to ports on the E coast of Africa.
3. Cape of Good Hope to ports in India and Sri Lanka.
4. India and Sri Lanka ports to the Cape of Good Hope.
5. Cape of Good Hope to the Persian Gulf.
6. Cape of Good Hope to the East Indies and Australia.
7. The East Indies and Australia to the Cape of Good Hope.
8. Routes to and from ports in the Arabian Sea.
9. Routes between ports in the Bay of Bengal.
10. Routes to and from ports in the Bay of Bengal.
11. Routes between ports in the South Indian Ocean.
12. Routes to and from ports in the South Indian Ocean.
13. Routes between ports in the Strait of Malacca.
14. Strait of Malacca to ports in the Bay of Bengal.
15. Strait of Malacca to ports in the Arabian Sea and the Persian Gulf.
16. Strait of Malacca to Berbera, Aden, and As Suways (Suez).
17. Routes to and from Port Darwin, Northern Australia.
18. Routes to and from Fremantle, Western Australia.
19. Routes to and from Adelaide, South Australia

1. ROUNDING THE CAPE OF GOOD HOPE

When approaching the Cape of Good Hope from the W, it is advisable to close the land off the cape in position 34°22'S, 18°23'E and continue as close to the shore as prudent navigation will allow, in order to keep out of the Agulhas Current. Favorable counter currents will be found from 1 to 6 miles offshore.

To avoid the Agulhas Current altogether, steer to pass through position 36°30'S, 20°00'E and position 34°30'S, 32°30'E.

When approaching from the E, it is advisable to remain in the favorable Agulhas Current which is found from 6 to 30 miles off shore.

2. CAPE OF GOOD HOPE TO PORTS ON THE EAST COAST OF AFRICA

Cape of Good Hope to Bur Said (Port Said) (coastal route).—Round the Cape of Good Hope remaining as close to the land as safe navigation permits, thereby remaining in the countercurrent and passing within range of Cape Agulhas Light; follow a rhumb line to Cape St. Francis; then, taking frequent soundings, proceed along the coast to Cape Hermes. When off Durban veer away from the coast to about 100 miles offshore, where the current is weak. Then follow a rhumb line to the middle of Mozambique Channel, passing E of lIe Europa. Continue on a rhumb line to pass W of Grande Com ore Island, then direct to a point off Ras Hafun, and rhumb lines to round Ras Aser (Capo Guardafui). Then continue on rhumb lines keeping the African shore aboard to take advantage of the smooth water and the favorable currents as far as Mait Island; steer a direct course for Bab al Mandeb, entering into the Red Sea; and then proceed direct to Bur Said, as safe navigation permits.

Offshore route.--As an alternate route, whereby the Agulhas Current may be completely avoided and at the same time to take advantage of the Madagascar Current, follow a direct course to round the Cape of Good Hope, crossing longitude 20°E., in latitude 36°30'S.; then a direct course for latitude 34°30'S., longitude 32°30'E.; and a rhumb line to pass to the E of lIe Europa; then follow the route to Bur Said as noted above.

Bur Said to the Cape of Good Hope.—Proceed direct from Bur Said to Bab al Mandeb as safe navigation permits; then by rhumb lines to Ras Alula; and by rhumb line to Ras Aser (Capo Guardafui), rounding that cape; then W of Grande Comore, as noted on reverse route; steer direct courses to pass about 30 miles off Point Barracouta, Punta Zavora, and Cape St. Lucia; then follow the coast but remain at least 30 miles offshore during the remainder of the passage and around the Cape of Good Hope.

Cape of Good Hope to Durban.—See the description of the **Cape of Good Hope to Bur Said (Port Said) (coastal route)**. Due to the contour of the coast a strong offshore current wil1 be experienced just off Durban.

Durban to the Cape of Good Hope.—After departing Durban, join the **Cape of Good Hope to Bur Said (Port Said) (coastal route)**.

Cape of Good Hope to Maputo (Lourenco Marques).—See the description of the **Cape of Good Hope to Bur Said (Port Said) (coastal route)**. After passing Durban, set course to pass within range of Cape St. Lucia Light and proceed along the coast as safe navigation permits, rounding Cabo da Inhaca, to Maputo.

Cape of Good Hope to Mozambique.—See the description of the **Cape of Good Hope to Maputo** (Lourenco Marques) route. After passing Cape St. Lucia Light follow a course to pass within range of Punta Zavora Light and Point Barracouta Light, and then to Mozambique. Ample leeway should be allowed for the inshore current in the vicinity of the coast from Point Barracouta to Mozambique, as well as the numerous shoals along this coast.

Alternate route.—An alternate route may be taken to ensure more favorable currents by taking the offshore route from the Cape of Good Hope to Bur Said, holding this course as far as Juan de Nova Island, then crossing the Mozambique Channel, direct for Mozambique, allowing for the strong south-going current within 60 or 70 miles of the African coast.

Mozambique to the Cape of Good Hope.—On departure from Mozambique fol1ow a direct course to the SE until joining the route from **Bur Said to the Cape of Good Hope** and follow this round the cape.

Cape of Good Hope to Bur Said.—Take either the coastal or the offshore route to a position W of Grande Comore, and then proceed direct, sighting the N end of Mafia Island and passing inshore of Latham Island.

Vessels should enter Zanzibar from the N during the Northeast Monsoon, November to March, and from the S during the Southwest Monsoon, April to October.

Zanzibar to the Cape of Good Hope.—Take the reverse of the **Cape of Good Hope to Bur Said** route until departure from Mafia Island, and then take a SE course so as to intersect the route as indicated in the **Bur Said to the Cape of Good Hope** route.

3. CAPE OF GOOD HOPE TO PORTS IN INDIA AND SRI LANKA

Cape of Good Hope to Mumbai (Bombay).—Take either the coastal or offshore route as described in Cape of Good Hope to Bur Said, through the Mozambique Channel. When W of Ile Juan de Nova shape a course so as to pass between Anjouan and Ile Mayotte to a position 30 miles NW of Aldabra Island, then proceed direct to Mumbai (Bombay) as safe navigation permits.

Alternate route.—Round the Cape of Good Hope, using the offshore route until reaching position 34°30'S, 32°30'E. Then pass 100 miles SE of Madagascar; steer W of Reunion Island, then between the Agalega Islands and Saya de Malha Bank, and then by rhumb line to Mumbai (Bombay).

Cape of Good Hope to Colombo, Sri Lanka (passing E of Madagascar).—After rounding the Cape of Good Hope, as noted for the alternate route **Cape of Good Hope to Mumbai (Bombay)**, follow the offshore route to the position of the SE coast of Madagascar, then:

1. From November to March—proceed on a rhumb line passing about 120 miles NW of Reunion, then pass between Saya de Mahlha Bank and Nazareth Bank to a position about 100 miles W of Peros Banhos (Chagos Archipelago); then pass about 50 miles SE of Addu Atoll, and proceed direct to Colombo.
2. From April to October-—From the position off the SE coast of Madagascar, follow a rhumb line to pass 60 miles SE of Mauritius Island; then pass 30 miles SE of Diego Garcia (Chagos Archipelago) and proceed direct for Colombo.

Cape of Good Hope to Colombo, Sri Lanka (passing W of Madagascar).—Take either the coastal or the offshore route as for the **Cape of Good Hope to Bur Said**, then:

1. From April to October—After passing W of Juan de Nova Island follow rhumb lines, passing 30 miles SE of Banc du Geyser and Iles Glorieuses, and 30 miles NW of Wizard Reef, then a rhumb line for One and Half Degree Channel and proceed direct for Colombo.
2. From November to March—After passing W of Juan de Nova Island, follow a rhumb line between Anjouan and Ile Mayotte, then pass about 30 miles NW of Aldabra Island and 60 miles NE of Bird Island (Seychelles Group) to One and Half Degree Channel, and then to Colombo.

Cape of Good Hope to Calcutta (Kolkata), India.—Take routes as indicated for the Cape of Good Hope to Colombo, passing to the W of Madagascar. After clearing One and Half Degree Channel, steer a direct course to Great Basses Light, coast around Sri Lanka and follow a rhumb line to Hoogly River entrance; then proceed to Calcutta (Kolkata).

Alternate route.—Take routes as indicated for the Cape of Good Hope to Colombo, passing to the E of Madagascar, then:

1. From November to March—from the position 50 miles SE of Addu Atoll, take a direct course to the Great Basses, proceeding on to Calcutta (Kolkata) as noted above.
2. From May to September—follow a rhumb line to pass 60 miles SE of Mauritius, then rhumb line to pass about 30 miles SE of Diego Garcia, rhumb line to Great Basses; and, coasting around Sri Lanka, proceed on to Calcutta (Kolkata) as noted above.

4. PORTS IN INDIA AND SRI LANKA TO THE CAPE OF GOOD HOPE

Mumbai (Bombay) to the Cape of Good Hope.—Follow a rhumb line course to pass 15 miles NW of Aldabra Island, then pass between Grande Comore and Moheli and join the **Bur Said to the Cape of Good Hope** route off Point Barracouta.

Colombo to the Cape of Good Hope.—On departure from Colombo, set a direct course through Eight Degree Channel to about 110 miles NW of Bird Island (Seychelles Group), there joining the route as noted for Bombay to the Cape of Good Hope.

Alternate route.—From April to October follow the reverse route as for the **Cape of Good Hope to Colombo**, passing to the E of Madagascar.

Calcutta (Kolkata) to the Cape of Good Hope.—From Calcutta (Kolkata), proceed to the Bay of Bengal via the Hoogly River; then follow a rhumb line for the SE coast of Sri Lanka, coasting along this until reaching Point de Galle; take a rhumb line for Eight Degree Channel and then proceed on the route as noted for Colombo to the Cape of Good Hope.

Alternate route (from May to September).—Follow the above route to Sri Lanka as noted; coast along Sri Lanka to the Great Basses Light; and then follow the reverse of the route as for the Cape of Good Hope to Colombo route, passing to the E of Madagascar.

5. CAPE OF GOOD HOPE TO THE PERSIAN GULF

Vessels northbound from the Cape of Good Hope to the Persian Gulf should avoid the strength of the Agulhas Current by keeping as close to the coast as safe navigation permits as far as Durban. When abeam Durban steer away from the coast on an ENE course until about 100 miles offshore, where the current is weak, and then proceed through the middle of Mozambique Channel, passing E of Ile Europa and W of Ile Juan de Nova, until about 5 miles E of the S end of Anjouan. From this position proceed direct to position 21°00'N, 59°27'E, and then follow the reverse of the southbound route to destination.

Alternate route.—An alternative northbound route from the Cape of Good Hope to the position about 5 miles E of the S end of Anjouan, although longer than the route described in the preceding paragraph, avoids most of the Agulhas Current and has the advantage of favorable currents in the E part of Mozambique Channel. Vessels following this route should steer a S course across the Agulhas Current from a position off the Cape of Good Hope to about position 36°30'S, 20°00'E. They should then proceed to position 34°30'S, 32°30'E and then to position 30°00'S, 38°20'E. From the latter position a course should be set for a position about 13 miles W of Ile Juan de Nova, passing E of Ile Europa and Bassas da India. After passing Ile Juan de Nova, steer for the position E of Anjouan and then continue to destination as previously directed.

6. CAPE OF GOOD HOPE TO THE EAST INDIES AND AUSTRALIA

Cape of Good Hope to Selat Sunda (Sunda Strait).—Cross the Agulhas Current to position 36°30'S, 20°00'E and steer direct for position 33°45'S, 36°30'E; then shape a great circle course for Selat Sunda.

Alternate route.—Follow the coastal route, as noted for **Cape of Good Hope to Bur Said**, to Algoa Bay, then a rhumb line to position 30°00'S, 54°00'E.; take a rhumb line to position 19°30'S, 80°00'E; and proceed to Selat Sunda, passing N of Keeling (Cocos) Islands.

Cape of Good Hope to Selat Lombok (Lombok Strait).—See the **Cape of Good Hope to Selat Sunda. (Sunda Strait)** route. From position 33°45'S, 36°30'E, follow a great circle to Selat Lombok.

Cape of Good Hope to Torres Strait (Thursday Island).—See the **Cape of Good Hope to Selat Sunda. (Sunda Strait)** route. From position 33°45'S, 36°30'E, shape a great-circle course to position 14°00'S, 120°00'E; then proceed by rhumb lines as safe navigation permits to pass 50 miles N of Cape Van Diemen; pass between Crocker Island and Money Shoal, then follow a rhumb line to Markara Shoal Lightship and proceed to Torres Strait.

Cape of Good Hope to Fremantle, Australia.—Round the Cape of Good Hope and steer direct for position 36°30'S, 20°00'E., so as to cross the Agulhas Current, then:

1. From October to April—follow a rhumb line to position 41°00'S, 55°00'E.; proceed along the 41st parallel to longitude 71°E.; and then follow a great circle course to Fremantle.
2. From May to September—follow a rhumb line to position 35°00'S, 55°00'E; then proceed along the 35th parallel to longitude 90°E.; and follow a great circle to Fremantle.

Cape of Good Hope to Cape Leeuwin, Australia

1. From October to April—follow the directions as noted for the Cape of Good Hope to Fremantle, Australia route, until in longitude 80°E; then proceed by great circle to Cape Leeuwin.
2. From May to September—follow the directions as noted for the Cape of Good Hope to Fremantle, Australia route, remaining in latitude 35°S until reaching Cape Leeuwin.

7. THE EAST INDIES AND AUSTRALIA TO THE CAPE OF GOOD HOPE

Selat Sunda (Sunda Strait) to the Cape of Good Hope.—Follow a great circle course to position 33°45'S, 36°30'E; and then a direct course to join the route as described for **Bur Said to the Cape of Good Hope**.

Selat Lombok to the Cape of Good Hope.—Use reverse of the **Cape of Good Hope to Selat Lombok (Lombok Strait)** route. After arrival at position 33°45'S, 36°30' E, proceed to join the route described for the **Bur Said to Cape of Good Hope** route.

Torres Strait to the Cape of Good Hope.—Use reverse of the **Cape of Good Hope to Torres Strait (Thursday Island)** route, until in position 33°45'S, 36°30'E, then proceed direct to join the route as noted for **Bur Said to the Cape of Good Hope**.

Fremantle, Australia to the Cape of Good Hope.—See the **Freemantle to Durban (Port Natal) and Cape Town** route.

Cape Leeuwin, Australia, to the Cape of Good Hope.—Follow a rhumb line to position 30°00'S, 100°00'E; and then proceed along the 30th parallel to its intersection with the route described for the **Selat Sunda (Sunda Strait) to the Cape of Good Hope** route.

In summer (October to April), a shorter route follows the rhumb line between Cape Leeuwin and Cape Agulhas, which coincides roughly with the parallel of 35°S. This route is about 300 miles shorter, but adverse currents and head seas may be encountered.

8. ROUTES TO AND FROM PORTS IN THE ARABIAN SEA

Mumbai (Bombay) to Bhavnagar.—From a position off the entrance to Mumbai (Bombay) in position 18°50N, 72°45E steer a course for about 34 miles to position 19°10'N, 72°30'E. Then follow the directions given for the **Trincomalee to Bhavnagar** route in the following section.

Mumbai (Bombay) to Okha Harbor.—From position 18°50'N, 72°45'E off the entrance to Mumbai (Bombay), steer on a NW course as safe navigation permits to position 21°00'N, 70°00'E; then to position 22°10'N, 68°48'E; and finally to position 22°10'N, 68°55'E off the entrance to Okha Harbor.

Mumbai (Bombay) to Karachi.—From a position off the entrance to Mumbai (Bombay) in position 18°50'N, 72°45'E; follow the directions given for the **Mumbai (Bombay) to Okha Harbor** route to position 22°10'N, 68°48'E. Then proceed as given below for the Trincomalee to Karachi route.

Bhavnagar to Okha Harbor.—From a position off the entrance to Bhavnagar in position 21°35'N, 72°25'E steer various courses as safety permits passing through the following points:

a. 21°10'N, 72°11'E.
b. 20°45'N, 71°26'E.
c. 20°33'N, 70°46'E.
d. 21°00'N, 70°00'E.

From the latter position, follow the directions above, as given for the **Bombay to Okha Harbor** route.

Bhavnagar to Karachi.—Follow the directions above, as given for the **Bhavnagar to Okha Harbor** route, to position 21°00'N, 70°00'E. Steer NW for about 97 miles to position 22°10'N, 68°48'E, then follow the directions given for the **Trincomalee to Karachi** route.

Okha Harbor to Karachi.—From a position off the entrance to Okha Harbor in position 22°35'N, 69°05'E steer as direct a course as safe navigation will allow, for about 136 miles, to position 24°00'N, 67°10' E, then follow the directions as given below in the **Trincomalee to Karachi** route.

Mumbai (Bombay) to Mombasa.—From Mumbai (Bombay) full-powered vessels proceed direct to Mombasa.

Low-powered vessels traveling westbound during the Southwest Monsoon, should proceed to position 6°00'N, 67°00'E and then direct to Mombasa.

When returning from October to April proceed to position 2°30'S, 44°50'E and then direct for Mumbai (Bombay).

From May to September proceed to position 1°30'N, 45°50'E and then direct for Mumbai (Bombay).

Karachi to Mombasa.—Proceed as directly as possible within the limits of safe navigation, giving a wide berth to the E end of Suqutra.

Karachi to the Cape of Good Hope.—From Karachi proceed so as to pass W of the Comores, and then join the route from Mumbai (Bombay) off the African coast S of Mozambique.

When returning, proceed as directed for the return route from **Colombo to the Cape of Good Hope** as far as the position W of Ile Juan de Nova; then pass between Mayotte Island and Anjouan Island and W of Aldabra Island, and proceed direct for Karachi.

Karachi and Mumbai (Bombay) to Australian ports.—Proceed along the coast of India to a position off the S end of Sri Lanka as direct as safe navigation permits; then proceed as directed below under the **Colombo to Australian Ports** route.

Trincomalee to Colombo.—After clearing the harbor at Trincomalee, proceed to position 8°33'N, 81°26'E; then steer appropriate courses to round the S end of Sri Lanka to position 5°52'N, 80°03'E; then shape a course for about 31 miles to position 6°25'N, 79°52'E and proceed to a position off the entrance of Colombo in position 6°55'N, 79°47'E.

Trincomalee to Cochin.—Follow the directions above, as given for the **Trincomalee to Colombo** route, to position 5°52'N, 80°03'E. From here shape a NW course to position 8°22'N, 76°44'E; then to position 8°55'N, 76°20'E; then to position 9°45'N, 76°06'E; then proceed to a position off the entrance of Cochin in position 9°58'N, 76°11'E.

Trincomalee to Kiltan Island.—Follow the directions given for the **Trincomalee to Cochin** route to position 8°22'N, 76°44'E. Then steer as direct a course as safe navigation permits to position 11°30'N, 73°00'E; this position lies about 1 mile N of Kiltan Island.

Trincomalee to Mormugao.—Follow the directions above, as given for the **Trincomalee to Cochin** route, to position 8°55'N, 76°20'E. From this position, steer NW to position 12°47'N, 74°40'E. Then proceed direct as safe navigation will allow to a position off the entrance of Marmagao in position 15°25'N, 73°46'E.

Trincomalee to Mumbai (Bombay).—Follow the directions given for the **Trincomalee to Marmagao** route, to position 12°47'N, 74°40'E. Then proceed in a NNW direction to position 15°50'N, 73°20'E; then as direct as safety permits to position 18°40'N, 72°37E. From the latter position shape a course to arrive off the entrance of Mumbai (Bombay) in position 18°50'N, 72°45'E.

Trincomalee to Bhavnagar.—Follow the directions above, as given for the **Trincomalee to Mumbai (Bombay)** route, to position 18°40'N, 72°37'E. From this position steer NNW for about 31 miles to position 19°10'N, 72°30'E; then N for about 50 miles to position 20°00'N, 72°30'E. Then steer various courses, as safe navigation permits, passing through the following positions to arrive off the entrance to Bhavnagar:

a. 21°00'N, 72°36'E.
b. 21°14'N, 72°33'E.
c. 21°17'N, 72°29'E.
d. 21°35'N, 72°25'E.

Trincomalee to Okha Harbor.—Follow the directions given for the **Trincomalee to Cochin** route, to position 8°55'N, 76°20'E. From here proceed as direct as possible within the limits of safe navigation to position 22°10'N, 68°48'E. Then shape a course to a position off the entrance to Okha Harbor in position 22°30'N, 68°55'E.

Trincomalee to Karachi.—Follow the directions above, as given for the **Trincomalee to Okha Harbor** route, to position 22°10'N., 68°48'E. From this position set a direct course for position 24°00'N, 67°10'E; then to a position off the entrance to Karachi in position 24°46'N, 66°58'E.

Colombo to Mombasa.—From October to April, proceed for Eight Degree Channel and then shape a course direct for Mombasa.

From May to September proceed for One and Half Degree Channel and then shape a course direct for Mombasa.

When returning (all seasons) proceed on the reverse of the route just described.

Colombo to Australian Ports.—Proceed as direct as safe navigation will allow. Vessels bound to Torres Strait have a choice of three routes:

1. Via Singapore.
2. Via S of Jawa and Timor.
3. Via Selat Sunda and N of Jawa. Smoother water will be found on the routes leading N of Jawa.

From May to September low-powered vessels, after passing S of Sri Lanka, can proceed through the following positions:

a. 4°20'N, 85°00'E.
b. 2°40'N, 90°00'E.
c. 0°30'N, 95°00'E.

Then pass either outside or inside the islands off the SW coast of Sumatera, and from Selat Sunda continue on the route leading N of Jawa.

9. ROUTES BETWEEN PORTS IN THE BAY OF BENGAL

Trincomalee to Chennai (Madras).—After clearing the harbor at Trincomalee, proceed to position 8°36'N, 81°20'E; then direct about 76 miles to position 9°50'N, 81°03'E; and direct to position 13°07'N, 80°30'E. From the latter position, steer a W course for the anchorage off Chennai (Madras) in position 13°06'30"N, 80°19'08"E.

Trincomalee to Vishakhapatnam.—From a position off Trincomalee, proceed to position 8°36'N, 81°20'E and then direct for the southernmost anchorage off Vishakhapatnam Harbor in position 17°40'46"N, 83°18'46"E.

Trincomalee to Calcutta (Kolkata).—After clearing Trincomalee harbor, proceed to position 8°36'N, 81°20'E then direct to position 21°00'N, 88°13'E. Pilots board ships inbound for Calcutta (Kolkata) in the near vicinity of the latter position; the Eastern Channel Light Vessel is stationed here.

Trincomalee to Chittagong.—From Trincomalee proceed to position 8°36'N, 81°20'E then direct to position 21°00'N, 91°30'E. Then shape a course, as direct as safe navigation will allow, for about 53 miles to position 21°52'00"N, 91°42'30"E keeping W of South Patches and North Patches. When the N extremity of Kutubdia Island bears 070°, shape a course for position 22°00'N, 91°49'E. Then proceed for about 12 miles to a position off the entrance to the Karnaphuli River at position 22°11'36"N, 91°46'42"E. Pilots board ships inbound for Chittagong in the near vicinity of this position.

Trincomalee to Rangoon.—After clearing the harbor at Trincomalee, proceed to position 8°36'N, 81°20'E; then shape a direct course for about 50 miles to position 8°58'N, 82°05'E; and steer direct for position 13°42'N, 91°55'E. From the latter position, proceed as direct as safe navigation permits, passing through Preparis South Channel and N of Table Island to position 15°20'N, 95°11'E. Then steer direct courses to the following positions:

a. 15°31'N, 95°37'E.
b. 15°58'N, 96°13'E.
c. 16°09'N, 96°16'E.; the pilot vessel is normally in the vicinity of this position.

Chennai (Madras) to Vishakhapatnam.—When clear of the harbor at Chennai (Madras) or from the anchorage, as indicated on the chart, proceed to position 13°06'30"N, 80°30'00"E; then shape a direct course to the southernmost anchorage off Vishakhapatnam Harbor in position 17°40'46"N, 83°18'46"E.

Chennai (Madras) to Chittagong.—After clearing the harbor at Chennai (Madras) or from the anchorage, proceed to position 13°06'30"N, 80°30'00"E; then shape a direct course for position 21°00'N, 91°30' E. From the latter position, follow the directions above as given for the **Trincomalee to Chittagong** route.

Vishakhapatnam to Calcutta (Kolkata).—From the northernmost anchorage off Vishakhapatnam, in position 17°41'18"N, 83°19'23"E steer as direct a course as safe navigation will allow to position 21°00'N, 88°13'E. Pilots board ships inbound for Calcutta (Kolkata) in the near vicinity of the latter position; the Eastern Channel Light Vessel is stationed here.

Vishakhapatnam to Chittagong.—From position 17°41'18"N, 83°19'23"E steer a direct course for position 21°00'N., 91°30'E. Then follow the directions as given in the **Trincomalee to Chittagong** route.

Vishakhapatnam to Rangoon.—From the northernmost anchorage off Vishakhapatnam, in position 17°41'18"N, 83°19'23"E shape a course for position 16°00'N, 91°55'E; then steer as direct as safe navigation permits to position 15°20'N, 95°11'E. From the latter position, follow the directions as given above for the **Trincomalee to Rangoon** route.

Calcutta (Kolkata) to Chittagong.—Having negotiated the various channels from Calcutta (Kolkata) and debarked the pilot in the vicinity of position 21°00'N, 88°13'E steer as direct a course as possible within the limits of safe navigation to position 21°00'N, 91°30'E.; on this course it is advisable to keep outside the 30m curve. From the latter position, follow the directions given for the **Trincomalee to Chittagong** route.

Chittagong to Rangoon.—Follow the reverse directions from Chittagong to position 21°00'N, 91°30'E as given in the **Trincomalee to Chittagong** route. From this position steer as direct a course as safe navigation permits to position 15°33'N, 94°08'E; then steer to position 15°20'N, 95°11'E. From the latter position, follow the directions given for the **Trincomalee to Rangoon** route.

10. ROUTES TO AND FROM PORTS IN THE BAY OF BENGAL

Bay of Bengal to Mumbai (Bombay).—Proceed as direct as safe navigation permits, passing around Sri Lanka.

Bay of Bengal to Aden.—From October to April, after rounding the S end of Sri Lanka, steer to pass south of Minicoy Island; then shape a course to pass S of Suqutra. After rounding Ras Aser (Capo Guardafui), vessels can take advantage of smoother water and favorable currents by to keeping the African shore close aboard as far as Mait Island; from there a course can be shaped direct for Aden.

From May to September, leave the Bay of Bengal passing 45 miles S of Minicoy Island, then proceed by rhumb lines to position 8°00'N, 60°00'E; then to position 8°30'N, 53°00'E; then round Ras Aser (Capo Guardafui) and set a direct course for Aden. On this route the utmost caution is necessary when rounding Ras Aser (Capo Guardafui) from the S or SE during the Southwest Monsoon, when the weather is stormy. A heavy sea and strong current prevail and the land is generally obscured by a thick haze. Care must also be taken not to mistake Ras Hafun for Ras Aser (Capo Guardafui).

An alternate route follows the above to position 8°00'N, 60°00'E. Then proceed by rhumb line to position 13°10'N, 54°50'E (40 miles NE of Suqutra) and direct to destination.

A second alternate route for vessels of large size and high power leads from S of Minicoy Island to position 10°10'N, 60°00'E, and then to the position off the NE end of Suqutra. If these routes are adopted no attempt should be made for a landfall at Suqutra Island, due to the strength of the Southwest Monsoon, the strong and irregular currents, the frequent deceptive haze, and the lack of any definite banks for fixing the vessel's position by soundings. During the SW monsoon, better conditions of wind and sea are undoubtedly found in the route S of Suqutra, via Ras Hafun and Ras Aser (Capo Guardafui). This alternate route, passing well to the N of Suqutra is, however, preferred by some navigators because of the unpredictable variation in currents to the S and the uncertainty of the sea horizon.

Low-powered vessels, after passing S of Minicoy Island, proceed to position 6°00'N, 67°00' E., then due W to position 6°00'N, 60°00'E; and then to position 8°00'N, 52°40'E; then round Ras Aser (Capo Guardafui) and proceed to destination.

In proceeding from Aden to the Bay of Bengal during May to September, steer for position 13°10'N, 54°50'E and as direct as safe navigation permits to destination.

Bay of Bengal to the Cape of Good Hope.—From November to March, round the SE end of Sri Lanka and proceed to position 17°05'S, 56°00'E., passing NW of Chagos Archipelago and SE of Saya de Malha Bank; then to position 26°50'S, 47°40'E; and then as direct as safe navigation will allow, taking full benefit of the Agulhas Current by keeping 20 miles off the African coast.

When returning steer SSE for about 150 miles, until clear of the Agulhas Current, then proceed by rhumb lines to position 34°30'S, 32°30' E and position 26°50'S, 47°40' E; then follow the reverse of the route described above.

From May to September, after rounding the SE end of Sri Lanka, steer to pass SE of Diego Garcia, then pass S of Mauritius and Reunion and proceed to position 26°50'S, 47°40'E; then continue on as direct a course as safe navigation permits, taking full benefit of the Agulhas Current by keeping 20 miles off the African coast.

When returning steer SSE for about 150 miles, until clear of the Agulhas Current, proceed on rhumb lines through position 34°30'S, 32°30'E and position 26°50'S, 47°40' E; then follow the reverse of the route described above.

In April and October, round the SE end of Sri Lanka and proceed to One and Half Degree Channel in the Maldive Islands, then pass 80 miles W of Providence Island, 40 to 50 miles E of Iles Glorieuses and Bane du Geyser, and W of Ile Juan de Nova, then steer so as to gradually approach the African coast in the strength of the S current, keeping about 20 miles off the coast to get the full benefit of the Agulhas Current.

When returning stay out of the strength of the Agulhas Current by keeping as close to the coast as possible within the limits of safe navigation. A countercurrent extending from 1 to 6 miles offshore will sometimes be found between Cape Agulhas and the Kowie River. Special precautions must be taken when passing salient points and entrances to bays on account of the local current. When Durban is abeam haul off the coast to a distance of about 100 miles where the currents are weaker. Then proceed to a position west of Ile Juan de Nova and follow the reverse of the route given above. This return route can be taken throughout the entire season. (April to October)

In July and February vessels bound from the Cape of Good Hope to the Bay of Bengal can proceed as directed in the last paragraph to a position W of lie Juan de Nova. Then pass between Ile Mayotte and Anjouan and proceed to a position W of Aldabra Island. Then steer to pass N of Seychelles Islands, through One and Half Degree Channel, around the SE end of Sri Lanka, and up into the Bay of Bengal.

Bay of Bengal to Singapore.—Proceed as direct as safe navigation permits, passing through the Strait of Malacca.

Bay of Bengal to Australian Ports.—Proceed as direct as safe navigation permits. If bound for ports on the N coast of Australia, the shorter route with smoother water will be found through the Strait of Malacca and via the channels of the Eastern Archipelago. If bound to Freemantle or ports on the S coast of Australia, the shorter route in the majority of cases will be W of Sumatera.

11. ROUTES BETWEEN PORTS IN THE SOUTH INDIAN OCEAN

Port Louis, Mauritius to Tamatave, Cap Diego (Antsirana), or Port Victoria.—Vessels bound for Tamatave or Cap Diego, Madagascar, or for Port Victoria, Mahe Island (Seychelles Islands), proceed as direct to destination as safe navigation permits.

The return routes are the reverse of the outbound routes in each case.

From April to October low-powered vessels bound for Port Victoria proceed direct. Returning during these months low-powered vessels should steer an easterly course to about longitude 70°E; then proceed S until well into the Southeast Trades; and then direct to destination.

Low-powered vessels bound for Port Victoria during November to March should keep to the W of the direct route until the Northwest Monsoon; then proceed as direct as possible to destination. Returning during this season low-powered vessels should run E past the Saya de Malha Bank; then proceed S into the Southeast Trades, and direct to destination.

Port Louis, Mauritius to the Cape of Good Hope or Durban.—Vessels bound for Cape of Good Hope from Port Louis should proceed direct to position 26°50'S, 47°40'E (about 100 miles SE of Madagascar); then proceed as direct as safe navigation will allow, taking full benefit of the Agulhas Current by keeping from 20 to 30 miles off the African coast.

Vessels returning should steer about 150 miles SSE from Cape of Good Hope, across the Agulhas Current, to about position 36°30'S, 20°00'E. Then proceed to position 34°30'S, 32°30'E and direct to destination.

Vessels bound to or from Durban should proceed direct to position 26°50'S, 47°40'E (about 100 miles SE of Madagascar) and then on to destination.

Cap Diego, Madagascar to the Cape of Good Hope.—Southbound vessels cross the Mozambique Channel and keep in the Agulhas Current, off the coast of Africa, to destination. Northbound vessels follow the African coast to Durban, keeping as close to land as safe navigation permits, in order to be out of the strength of the Agulhas Current. When abeam of Durban vessels should haul out to about 29°00' S., 34°00' E., and then proceed direct to destination as safe navigation permits.

Port Louis, Mauritius to Mozambique.—Vessels bound to Mozambique from Port Louis proceed as direct as possible around the N end of Madagascar.

Note.—Vessels bound for the NW coast of Madagascar should always round the N end of that island; those bound for the W coast, or to any ports on the African coast S of the Quelimane River (about latitude 18°00'S), should round the S end.

Vessels bound for Port Louis from Mozambique proceed as direct as possible around the N of Madagascar.

Port Louis, Mauritius to Mombasa.—All vessels proceeding from Port Louis to Mombasa should shape a course as direct as safe navigation permits.

Vessels bound for Port Louis from Mombasa proceed direct.

Low-powered vessels bound for Port Louis from April to October proceed E until clear of the Chagos Archipelago; then S into the trade winds and direct to destination.

Low-powered vessels from November to March proceed in a general E direction with the Northeast Monsoon and the Northwest Monsoon and cross latitude 10°S in about longitude 70°E; then proceed direct through the trade winds to destination. Vessels should keep N of a line drawn from Zanzibar to the Seychelles Islands until in the Northwest Monsoon.

12. ROUTES TO AND FROM PORTS IN THE SOUTH INDIAN OCEAN

Port Louis, Mauritius to the Gulf of Aden.—Vessels bound for Gulf of Aden or Red Sea ports follow the most direct route.

Low-powered vessels from April to September should pass W of the Amirante Isles, and direct to Ras Aser (Capo Guardafui). Then proceed along the African coast as far as Mait Island before standing across to Aden or to the Strait of Bab-al-Mandeb.

Low-powered vessels from October to March should run N through the Southeast Trades and the Northwest Monsoon, crossing the Equator in about longitude 61°E. Then proceed N into the NE monsoon, and direct for the Gulf of Aden, passing N of Suqutra if possible.

Vessels bound from the Red Sea or Gulf of Aden to Port Louis proceed direct to destination from Ras Aser (Capo Guardafui).

From April to September low-powered vessels bound for Port Louis should pass N of Suqutra. Run through the Southwest Monsoon crossing the Equator at about 72°E, or run through the One and Half Degree Channel. Then make good a southerly course into the Southeast Trades, passing E of the Chagos Archipelago, and then as direct as possible to destination.

From October to March low-powered vessels should proceed along the Arabian coast until able to weather Ras Aser (Capo Guardafui), or steer direct for it; thence run through the Northeast Monsoon and the Northwest Monsoon, crossing the Equator in about longitude 64°E and the parallel of 10°S, in about longitude 70°E. Then when in the Southeast Trades, proceed as direct as safe navigation permits to Port Louis.

Port Louis, Mauritius to Persian Gulf ports or Mumbai (Bombay).—Vessels bound for Persian Gulf ports or Mumbai (Bombay) may proceed as direct as safe navigation will allow. The direct route to Al Basrah, Iraq, leads between the Seychelles Islands and the Saya de Malha Bank. The direct route to Mumbai (Bombay) leads about 20 miles W of the Cargados Carajos Shoal and over the S part of Saya de Malha Bank. Due to the possible existence of shoals not now charted on the bank, and also the caution necessary in crossing it, a safer but longer route could be made by completely avoiding it.

Port Louis, Mauritius to Colombo and ports in the Bay of Bengal.—From May to September vessels bound for Colombo or Bay of Bengal ports should pass about 30 miles E of Diego Garcia Island and then proceed direct to destination.

From November to March proceed so as to pass W of the Chagos Archipelago and S of the Maldive Islands; then proceed direct to destination.

Port Louis, Mauritius to Singapore.—Vessels may take a great circle or rhumb line to Pulau We; then through the Strait of Malacca to destination.

Port Louis, Mauritius to Selat Sunda or Torres Strait.—Vessels bound for Selat Sunda or Torres Strait from Port Louis proceed to destination as direct as safe navigation permits.

Port Louis, Mauritius to southern Australian ports.—Vessels bound to ports in the S part of Australia should proceed to destination by rhumb lines or great circle.

Vessels returning proceed to Port Louis as direct as possible by rhumb lines.

13. ROUTES BETWEEN PORTS IN THE STRAIT OF MALACCA

Singapore to Belawan.—Proceed through the Main Strait of Singapore Strait into the Strait of Malacca. Tanjong Tuan (Cape Rachado) should be given a berth of between 4 to 6 miles so as to safely clear Pyramid Shoal. Upon approaching One Fathom Bank a course should be selected so as to pass about 3.5 miles S of the lighthouse. From this position, steer to pass 5 miles NE of Pulau Pandang and 6 miles SW of Pulau Berhala. After passing N of Deli Bank, proceed direct to the outer roads at the entrance of Sungai Belawan.

Singapore to Pinang.—Proceed as for the **Singapore to Belawan** route until about 3.5 miles S of One Fathom Bank Light. From this position give North Sands a wide berth and proceed to pass 5 miles W of Kepulauan Sembilan and continue on a course leading 1 mile W of Kra Light Float. In the case of North Channel, round Muka Head and proceed to the North Channel Light Float. For South Channel proceed to Pulau Rimau.

Singapore to Sabang (Pualau We).—Proceed as for Belawan to a position 3.5 miles S of One Fathom Bank Light. Then lay a course to pass 10 miles NE of Tanjung Jambuair, giving Berhala Bank a safe clearance; then to Sabang as directly as safe navigation permits.

Pinang to Sabang (Pulau We).—After clearing North Channel of Pinang Harbor, proceed by rhumb line course to a position 2 miles N of Ujung Tapagajah Light at the N extremity of Pulau We. Then by piloting proceed direct to Sabang.

Pinang to Belawan.—Upon clearing South Channel take departure from Kra Light Float and proceed on rhumb line course to the entrance of Sungai Belawan.

Belawan to Sabang (Pulau We).—Take departure off Ujung Batu Chamal and proceed by piloting along the NE coast of Sumatera, passing 5 miles NE of Ujung Tamaing and Ujung Peureulak. From 10 miles NE of Tanjung Jambuair a rhumb line course may be taken directly to a position 2 miles N of Ujung Tapagajah; then by coastal piloting proceed to Sabang.

14. STRAIT OF MALACCA TO PORTS IN THE BAY OF BENGAL

Singapore to Rangoon.—Proceed through the Strait of Malacca, passing about 3.5 miles S of One Fathom Bank Light. From this position steer to pass 10 miles SW of the Brother Islands; precaution should be taken in clearing North Sands. From a position about 10 miles SW of the Brother Islands, steer to pass 10 miles W of the Similan Islands. From this position a rhumb line course may be steered direct for the Rangoon Pilot Vessel in about position 16°11'N, 96°20'E.

Pinang to Rangoon.—After clearing North Channel, steer to pass 10 miles SW of the Butang group and 10 miles SW of the Brother Islands. Then proceed over the route described under **Singapore to Rangoon**.

Belawan to Rangoon.—Take departure off Ujung Batu Chamal and steer to pass 10 miles W of the Similan Islands. Then proceed over the route described for **Singapore to Rangoon**.

Sabang (Pulau We) to Rangoon.—Take departure from Ujung Tapagajah and proceed by rhumb line course direct to the Rangoon Pilot Vessel in about position 16°11'N, 96°20'E.

Singapore to Calcutta (Kolkata).—Proceed as for the **Singapore to Belawan** route to the position 3.5 miles S of One Fathom Bank Light. From here clear North Sands and steer to make a landfall on Table Island, the northernmost island of the Coco group. Passing 10 miles N of Table Island through South Preparis Channel and steer a rhumb line course for the pilot station about 5 miles S of the Eastern Channel Lightship.

Pinang to Calcutta (Kolkata).—Proceed as for the **Singapore to Rangoon** route to a position 10 miles SW of the Brother Islands; then steer a rhumb line course for Preparis South Channel and from there proceed as described under the **Singapore to Calcutta (Kolkata) route**.

Singapore to Cocanada.—Proceed through the Strait of Malacca to a position 3.5 miles S of One Fathom Bank Light. From this position, steer to pass at least 10 miles N of Car Nicobar and proceed through Ten Degree Channel. Upon clearing Ten Degree Channel set a rhumb line course for destination.

Belawan to Cocanada.—Take departure from Ujung Batu Chamal and pilot along the NE coast of Sumatera, passing 5 miles NE of Ujung Tamiang and Ujung Peureulak. From 10 miles NE of Tanjung Jambuair a rhumb line course may be steered through Ten Degree Channel to destination.

Sabang (Pulau We) to Chennai (Madras).—Proceed directly to destination by rhumb line across the Bay of Bengal.

Singapore to Chennai (Madras).—Proceed as for the **Singapore to Cocanada** route to Ten Degree Channel. After passing through the channel, proceed by rhumb line to destination. A route through Sombrero Channel, although somewhat shorter, is not recommended because of the tidal current, which at times reaches a rate of 5 knots in places.

Pinang to Chennai (Madras).—Upon clearing North Channel, steer a course direct for Ten Degree Channel and from there proceed direct to destination.

Singapore to Colombo.—Proceed through the Strait of Malacca, passing 3.5 miles S of One Fathom Bank Light, and giving Berhala Bank a wide berth, to a position 10 miles NE of Tanjung Jambuair. From this position steer to pass either N or S of Pulau We, and by rhumb line proceed to 5 miles S of Dondra Head Light. From S of Dondra Head proceed by coastal piloting to Colombo.

Belawan to Colombo.—Follow the route described under Belawan to Sabang to a position 10 miles NE of Tanjung Jambuair. The remainder of the route is the same as that described under Singapore to Colombo.

Pinang to Colombo.—After clearing North Channel of Pinang Harbor steer to pass either N or S of Pulau We, and then proceed by rhumb line to a position 5 miles S of Dondra Head. From this position proceed coastwise to Colombo.

Sabang to Colombo.—Take departure from Ujung Bahu and proceed on a rhumb line to 5 miles S of Dondra Head and then by coastal piloting to Colombo.

15. STRAIT OF MALACCA TO PORTS IN THE ARABIAN SEA AND THE PERSIAN GULF

Strait of Malacca to Calicut, Karachi, and Mumbai (Bombay).—Proceed in each case as for the **Singapore to Colombo** route until 5 miles S of Dondra Head. Then by rhumb line course proceed to a position off Point de Galle; then to position 8°00'N, 77°00'W; and then by coastal piloting along the W coast of India to destination.

Strait of Malacca to Muscat, Jask, Bushehr, Basra, Al Bahrayn (Bahrain), and Kuwayt (Kuwait).—Proceed in each case as for Colombo until the position 5 miles S of Dondra Head is reached. Proceed on rhumb line courses SW of Point de Galle and Muttam Point and follow the Indian coast until clear of the Laccadive Islands; then direct to the Persian Gulf.

In the Persian Gulf steer direct from point to point, but the following information may be useful:

1. When navigating up or down the gulf keep along the Iranian coast, which is generally high, with salient features, mostly steep-to, and with few outlying shoals. Except at the entrance, the Arabian coast is very low, and generally reefs extend long distances off it.
2. The numerous islands, the strong tidal current near the entrance, and the frequency of bad weather necessitate caution. Strong breezes and sudden shifts of wind occur with little or no warning.
3. During shamals, especially in summer, and while the nashi is blowing in the S part of the gulf in winter, the very hazy state of the atmosphere so completely obscures the land that the surf on the beach may be the first indication of its proximity.

16. STRAIT OF MALACCA TO BERBERA, ADEN, AND AS SUWAYS (SUEZ)

Singapore, Malacca, Pinang, Belawan, and Sabang to Aden, Berbera, and As Suways (Suez).—The routes are the same as those for Colombo until a position 5 miles S of Dondra Head is reached. Then steer, as follows:

1. October to April—Steer first to a position S of Minicoy. From here take a rhumb line course S of Suqutra to round Ras Aser (Capo Guardafui). In order to take advantage of the favorable current and smooth water; it is preferable to proceed along the African coast until Mait Island is abeam and then to destination as directly as safe navigation permits.

   An alternate route from S of Minikoy Light is to steer to pass well to the NE of Suqutra and then direct to destination.

2. May to September—From Dondra Head proceed by rhumb line course to pass through the Eight Degree Channel at 7°30'N, then to position 8°00'N, 60°00'E; then to position 8°30'N, 53°00'E; then round Ras Aser (Capo Guardafui) and proceed to destination as direct as possible within the limits of safe navigation.

Singapore to Tanga, Mombasa, and Zanzibar.—Proceed as for the **Singapore to Colombo** route, passing N or S of Pulau We; then proceed directly to position 1°30'N, 73°30'E; and then proceed on a direct rhumb line course to destination or to round Pemba or Zanzibar.

Singapore to Mozambique.—Proceed as for the **Singapore to Colombo** route until passed Pulau We; then steer a rhumb line course to a position 5 miles N of Cap d' Ambre. From the position N of Cap d'Ambre proceed direct for the port of Mozambique.

Singapore to Beira.—Proceed as for the **Singapore to Mozambique** route until 5 miles N of Cap d'Ambre, then by direct rhumb line to 8 miles NW of Nosy Anambo Light; pass E of Leven and Castor Banks, and then as direct as safe navigation permits to destination.

Singapore to Maputo (Delagoa Bay).—Proceed to Pulau We as described in the **Singapore to Colombo** route; then shape a great circle to make a landfall on Pte d'Itaperina. This route will lead NE of Mauritius and Reunion. From Pointe d' Itaperina proceed by coastal piloting to a position 5 miles S of Cap Ste-Marie. From this position steer a direct rhumb line course to Delagoa Bay.

Singapore to Durban (Port Natal).—Follow the **Singapore to Maputo (Delagoa Bay)** route to 5 miles S of Cap Ste-Marie, then steer a direct rhumb line to destination.

Singapore to Cape Town.—Proceed as for Colombo until Pulau We is reached; then shape a great circle course to the African coast making a landfall SE of Port Elizabeth. From this position proceed by coastal piloting to Cape Town, rounding Cape Agulhas and the Cape of Good Hope at a safe distance.

Singapore to Fremantle.—Upon clearing Singapore Roads proceed through Selat Durian, Selat Berhala and Selat Bangka into the Java Sea; then through Selat Sunda and steer a direct rhumb line course for Geelvink Channel. Then proceed at a safe distance off the Australian coast to Fremantle.

Singapore to Albany.—Follow the **Fremantle to Selat Sunda** route. Then steer a rhumb line course to pass well clear of Naturaliste Reef and continue S rounding Cape Leeuwin by 10 miles in clear weather and by 15 miles at night or during inclement weather. From a position well S of Cape Leeuwin, proceed to pass S of Eclipse Island Light, then round Bald Head and pass into King George Sound.

Singapore to Port Augusta.—Proceed as for the **Singapore to Albany** route until Eclipse Island Light is abeam. From there set a rhumb line course to pass between North Neptune Island and South Neptune Island, then through Spencer Gulf to Port Augusta.

Singapore to Port Adelaide.—Follow the **Singapore to Albany** route to a position S of Eclipse Island Light and then proceed by rhumb line to Investigator Strait, making a landfall on Althorpe Island; round Troubridge Shoals, giving them a wide berth, and proceed by direct rhumb line course to destination.

Singapore to Melbourne.—Proceed as for the **Singapore to Albany** route until S of Eclipse Island Light. Then take a rhumb line or great circle track to Cape Otway and continue as directly as safe navigation permits to destination.

17. ROUTES TO AND FROM PORT DARWIN, NORTHERN AUSTRALIA

Port Darwin to Torres Strait.—After clearing Port Darwin enter Howard Channel of Clarence Strait, then through Dundas Strait, round Coburg Peninsula, and by rhumb line courses pass N of Crocker Island and New Year Island, then by parallel sailing proceed to the main entrance of Torres Strait.

Port Darwin to Brisbane and Sydney.—Follow the **Port Darwin to Torres Strait** route, then proceed over the track laid down on the charts for the Inner Route, through Capricorn Channel, and by rhumb line courses steer to pass well clear of Sandy Cape Shoal and Breaksea Spit to Moreton Bay (to Brisbane) or continue along the coast well clear of all bights to benefit by the S flow of the Australian Current to Sydney.

Port Darwin to Melbourne.—The passage may be made either to the E or to the W of Australia. The E route is considerably shorter and is, therefore, described. The route as far as Capricorn Channel has been described under Port Darwin to Brisbane. From Capricorn Channel steer rhumb line courses to keep along the 200m curve in order to take advantage of the southerly current, closing the land in the vicinity of Cape Howe or Gabo Island. From off Gabo Island steer for Southeast Point Lighthouse, Wilson Promontory, and pass about 2 miles S of the lighthouse and Anser Islands, then as directly as safe navigation permits to destination.

Melbourne to Port Darwin.—After clearing Port Phillip's Heads, steer through Bass Strait so as to pass about 2 miles S of the Anser Islands, 3 miles N of Rodondo, and 2 miles S of Southeast Point, Wilson Promontory. Then steer to pass about 5 miles SE of Rame Head and Gabo Island. From a position E of Cape Howe steer N, following the coast line fairly closely so as to avoid the southerly current. In fine weather pass inside of Barungba or Montagu Island and keep about 2 miles offshore. Round Sandy Cape, passing well clear of Sandy Cape Shoal and Breaksea Spit, and enter Capricorn Channel, then follow the reverse of the **Port Darwin to Brisbane** route.

Port Darwin to Basilan Strait.—After clearing Port Darwin proceed to pass 10 miles SW of Cape Fourcroy, Melville Island, then 7 miles SSW of Calder Shoal, alter course to pass between Moa and Meatij Miarang into the Banda Sea; then lay a course to Selat Manipa to pass clear of Kepulauan Penyu, through Molucca Passage and Bangka Passage into the Celebes Sea; then direct to Basilan Strait.

Port Darwin to Makassar, Sulawesi (Celebes).—After rounding Cape Fourcroy take a rhumb line course to Wetar Strait, then N of Alor, Solor and Flores Islands and S of Kalao and Pulau Tanahjampea, then direct to destination as safe navigation permits.

Port Darwin to Balikpapan.—Follow the **Port Darwin to Makassar, Sulawesi (Celebes)** route until S of Pulau Tanahjampea, then pass midway between Banka Uluang and Gosseaia and, by rhumb line course steer to pass 5 miles NE of Pulau Balabalangan, then to destination as safe navigation permits.

Port Darwin to Selat Lombok.—After clearing Port Darwin proceed to a position S of Roti Island by rhumb line course, then S of Sumba (Sandalwood) Island direct to the entrance of Selat Lombok.

Port Darwin to Surabaya, Jawa.—Proceed as for **Port Darwin to Selat Lombok** route, then through the strait and S of Madura Island to destination as direct as navigation permits. Deep-draft vessels will find it necessary to proceed from Selat Lombok N of Madura Island to destination due to the shallowness of the E entrance to Surabaya.

Port Darwin to Selat Sunda.—Proceed as for **Port Darwin to Selat Lombok** route, continuing along the S coast of Jawa to Selat Sunda.

Port Darwin to Singapore, Pinang Belawan and Sabang.—Proceed as for the **Port Darwin to Selat Lombok** route, then through Selat Lombok and Selat Sapudi steer rhumb-line courses to pass S of Pulau Bawean and through Karimata Strait, then through Selat Riau to Singapore Straits and direct to destination as safe navigation permits.

Port Darwin to Rangoon, Calcutta (Kolkata), Chennai (Madras), and Cocanada.—Proceed as for **Port Darwin to Singapore**, then through the Strait of Malacca and direct to destination as safe navigation permits.

Port Darwin to Colombo, Calicut, Bombay, and Karachi.—After clearing Port Darwin take a rhumb line course to S of Roti Island and proceed along the S coast of Jawa to a position SE of Tanjung Layar, then by direct rhumb line to a landfall off Point de Galle, then to Colombo or along the Indian coast to Calicut, Bombay, and Karachi.

Port Darwin to ports in the Persian Gulf.—Proceed as for **Port Darwin to Colombo** to the position off Point de Galle, cross the Gulf of Mannar, round Cape Comorin, and continue as described below under the **FremantIe to the ports in the Persian Gulf** route.

Port Darwin to Aden.—From October to April proceed S of Roti and along the S coast of Jawa until S of Tanjung Layer, then set a direct course to a position S of Minicoy Island, and proceed by rhumb line to Ras Aser (Capo Guardafui). In rounding Ras Aser (Capo Guardafui) the utmost caution is necessary as numerous wrecks have occurred along the coast to the S. After rounding Capo Guardafui follow along the African shore until Mait Island is abeam in order to take advantage of the favorable current and smoother water, then direct to Aden as safe navigation permits. It should be noted that there is a northerly current just E of the port of Aden which is at times dangerous.

Alternate route.—An alternate route may be taken from the position S of Minicoy Island to pass NE of Suqutra and then direct to destination. This route is, however, considerably longer than that passing S of Suqutra. Certain officers of great experience have recommended strongly the route S of Suqutra and Abdal Kuri during the Southwest Monsoon.

From May to September, from a position off Tanjung Layar (Jawa), take a great circle track to position 7°30'N, 72°45'E; then through Eight Degree Channel and by rhumb line to position 8°00'N, 60°00'E; then pass 60 miles NE of Suqutra and proceed direct to Aden.

Port Darwin to As Suways and Bur Said.—Follow the **Port Darwin to Aden** route into the Gulf of Aden then through the Strait of Bab al Mandeb and the Red Sea to the Suez Canal.

Port Darwin to Mombasa, Tanga, Zanzibar and Dar-es-Salaam.—From a position S of Roti Island proceed direct passing N of Chagos Archipelago and the Seychelles Group.

Port Darwin to Mozambique.—From a position 35 miles N of Seringapatam Reef, proceed by rhumb line to pass N of Cap d'Ambre, Madagascar, then direct to destination as safe navigation permits.

Port Darwin to Beira.—From a position 20 miles S of Scott Reef set a great circle course to 5 miles S of Cap Ste-Marie, Madagascar, then direct, within the limits of safe navigation, to destination.

Port Darwin to Maputo (Lourenco Marques).—Upon clearing Port Darwin proceed N of the Holothuria Banks to a position 20 miles S of Scott Reef and then by great circle sailing to the destination.

Port Darwin to Durban (Port Natal).—Pass N of Holothuria Banks and Browse Island, then take a great circle route to destination, giving Rowley Shoals a wide berth.

Port Darwin to Cape Town.—From a position N of the Holothuria Banks proceed by rhumb line course NW of Rowley Shoals, then by great circle sailing proceed to a position S of Cape Agulhas, and by coastal piloting to destination.

18. ROUTES TO AND FROM FREMANTLE, WESTERN AUSTRALIA

Fremantle to Albany.—After leaving Gage Roads, proceed N of Rottnest Island, giving it a berth of at least 2 miles, taking departure from Cape Vlaming. Depths of 30m will be found within 0.5 mile of the dangers off Cape Vlaming. It is therefore imperative for vessels in the interest of safety to give the cape a wide berth. Proceed from off Cape Vlaming to pass well clear of Naturaliste Reef, then S, rounding Cape Leeuwin by 10 miles in clear weather and by 15 miles at night or during inclement weather, then proceed to pass S of Eclipse Island Light, round Bald Head and into King George Sound.

Rounding Cape Leeuwin.—The distance to which sunken dangers extend off a long stretch of coast about Cape Leeuwin, the frequent thick weather that prevails with strong onshore winds and an inset in the same direction, make it very desirable to give the cape a wide berth in all but very good weather. From 15 to 20 miles is a good margin to leave; and if a position between these distances to the SW of the cape is taken as a point for which to steer when coming from the NW, just within the range of Cape Leeuwin Light, very little time will be lost in making King George Sound. At night the greatest caution should be used in running in to make Cape Leeuwin Light. With the weather at all thick, the light, powerful as it is, will often not be visible as far as Geographe Reef, 8 miles to the NW. As mist may hang about the land even when it is clear at sea, and the dangers are very steep-to, vessels should not stand in to a depth of less than 130m at night.

Fremantle to Port Augusta.—After rounding Cape Leeuwin as previously described, proceed by great circle sailing to a position between North and South Neptune Islands, then through Spencer Gulf to Port Augusta.

Fremantle to Adelaide.—After rounding Cape Leeuwin proceed by great circle to Investigator Strait sighting Althorpe Island Light, then round Troubridge Shoals at a safe distance and proceed to Port Adelaide.

Fremantle to Melbourne and Hobart.—After rounding Cape Leeuwin a great circle route may be taken to Cape Otway (for Melbourne) or to 6 miles S of Mewstone (for Hobart), and then as direct as safe navigation permits to destination.

Fremantle to Port Darwin.—Proceed through Geelvink Channel, then W of Monte Bello Island, 20 miles S of Scott Reef, and N of Holothuria Bank to Port Darwin.

Fremantle to Torres Strait.—Proceed through Geelvink Channel, then W of the Monte Bello Islands, 20 miles S of Scott Reef, and N of Holothuria Banks, then through Howard Channel of Clarence Strait, and rounding Vashon Head, proceed as direct as safe navigation permits.

Fremantle to Selat Lombok.—Proceed through Geelvink Channel and when W of Cape Inscription take a direct rhumb line to the entrance of Selat Lombok.

Fremantle to Surabaya.—After leaving Gage Roads proceed through Geelvink Channel, then W of Cape Inscription; from there set a direct course for Selat Lombok. A light-draft vessel may pass S of Madura Island entering Surabaya from the E. Deep draft vessels must pass N of Madura Island entering Selat Surabaya from the N.

Fremantle to Selat Sunda.—Upon clearing Geelvink Channel proceed direct to Selat Sunda by rhumb line course.

Fremantle to Jakarta.—Proceed through Geelvink Channel direct to Selat Sunda, then through the strait and to destination as direct as possible within the limits of safe navigation.

Fremantle to Singapore, Belawan, and Pinang.—Proceed through Geelvink Channel, Selat Sunda and then via Selat Bangka, Selat Berhala and Selat Durian to Singapore Strait; from there continue to destination as direct as safe navigation permits.

Fremantle to Rangoon and Calcutta (Kolkata).—Set a direct course to pass W of Sumatera, then by rhumb line courses S of the Nicobar Islands to Rangoon, or W of the Nicobar Islands and the Adaman Islands to Calcutta (Kolkata).

Fremantle to Cocanda, Chennai (Madras), and Colombo.—After clearing Gage Roads the routes are direct. Due to the strong N-S components of these routes the distances saved by great circle sailing are of little consequence.

Fremantle to Mumbai (Bombay), Calicut, and Karachi.—From Gage Roads steer a direct course to a landfall off Cape Comorin, then follow the Indian coast to destination.

Fremantle to ports of the Persian Gulf.—From Gage Roads proceed direct to a landfall off Cape Comorin, follow the Indian coast until clear of the Laccadive Shoals, then by rhumb line to the Persian Gulf. An alternate route intercepts that described in the **Persian Gulf to Cape Leeuwin** route.

Fremantle to Aden.—From October to April, proceed from Gage Roads through position 4°00'S, 73°30'E and direct to Ras Aser (Capo Guardafui), then round the cape at a safe distance and proceed direct to Aden.

From May to September, after clearing Gage Roads proceed to position 8°00'S., 68°00'E; then by rhumb line course to position 8°00'N, 52°40'E; then round Ras Aser (Capo Guardafui) and proceed directly to Aden.

Alternate route.—An alternate route from May to September is to proceed from position 8°00'S., 68°00'E by rhumb line course to position 8°00' N, 60000'E then N of Suqutra Island and direct to destination.

Fremantle to As Suways and Bur Said.—Follow the Fremantle to Aden routes into the Gulf of Aden, then through the Strait of Bab al Mandeb and the Red Sea to the Suez Canal.

Fremantle to Mombasa.—Proceed by great circle track direct from Gage Roads to Mombasa.

Fremantle to Zanzibar and Dar-es-Salaam.—Proceed by great circle to a position N of Cap d'Ambre, then direct to destination.

Fremantle to Mozambique.—From Gage Roads proceed by great circle to pass N of Madagascar Island and then to destination as safe navigation permits.

Fremantle to Beira.—From Gage Roads to 5 miles S of Cap Ste-Marie (Madagascar) proceed by great circle sailing. After rounding the cape, set a direct course to destination.

Fremantle to Maputo (Lourenco Marques).—A great circle track may be followed from N of Rottnest Island direct to Delagoa Bay.

From May to September vessels westbound should proceed to position 30°00'S, 100°00'E; then follow the 30th parallel to about 45°E; and steer direct to Maputo.

Fremantle to Durban (Port Natal) and Cape Town.—Follow a rhumb line to position 30°00'S, 100°00'E and proceed along the 30th parallel to Durban. Vessels bound for Cape Town may follow the African coast S from a position off Durban, remaining about 30 miles offshore.

From October to April a somewhat shorter voyage may be made by composite sailing. Take a great circle route to about position 35°00'S, 90°00'E and continue along the 35th parallel, rounding Cape Aqulhas to Cape Town. Vessels bound for Durban may break off at about longitude 65°E and proceed on a great circle to destination.

For the reverse routes see the **Cape of Good Hope to Freemantle, Western Australia** route.

19. ROUTES TO AND FROM ADELAIDE, SOUTH AUSTRALIA

Port Adelaide to Melbourne, Victoria.—Proceed via Backstairs Passage as direct as safe navigation permits to a position about 4 miles E of Cape Willoughby. Because of the possibility of an onshore current, which with S or W winds may set toward the land, it is advisable to lay all courses to clear the various capes en route to Melbourne by at least 4 miles. From the position off Cape Willoughby, steer rhumb line courses to pass SW of Cape Northumberland and Cape Nelson, and then to a position about 5 miles S of Cape Otway. From the position off Cape Otway, steer direct to the entrance of Port Phillip, and then, for deep-draft vessels, proceed via South Channel to Melbourne harbor.

Port Adelaide to Hobart, Tasmania.—Proceed via Backstairs Passage to a position 4 miles E of Cape Willoughby, as directed in the route to Melbourne, and then set a direct course to a position SW of South West Cape, Tasmania. From this position, steer rhumb line courses between the Maatsuyker Isles and Mewstone, then, giving Friar Rocks and the outlying dangers a good berth, round Tasman Head, and proceed into Storm Bay to Hobart harbor.

Alternate route.—Vessels that can safely navigate a 6-fathom channel may proceed via D'Entrecasteaux Channel. Proceed as directed in the above-mentioned route to a position off South East Cape, Tasmania, and then enter D'Entrecasteaux Channel, taking care to avoid the Actreon Isles and the out-lying dangers, and proceed to destination. This route is somewhat shorter than the one through Storm Bay.

Port Adelaide to Wilson Promontory (Junction Point).—Proceed via Backstairs Passage to a position S of Cape Otway, as directed in the route to Melbourne, then steer a direct rhumb line course to a position 9 miles S of Citadel Island Light and enter the westbound lane of the traffic separation scheme off Wilson Promontory.

Port Adelaide to Sydney, New South Wales.—Proceed via Backstairs Passage to Wilson Promontory (Junction Point) as directed in the above-mentioned Port Adelaide to Wilson Promontory (Junction Point) route. Then proceed by rhumb line courses to pass about 5 miles SE of Rame Head and Gabo Island to a position E of Cape Howe. Occasionally (but especially during and after E gales) the current sets strongly toward the shore in this vicinity. In thick weather it is advisable to take soundings frequently.

A strong S current prevails along the coast of New South Wales, extending 20 to 60 miles offshore. This current sets at a rate of 0.5 to 3 knots, the greatest strength being at the 200m curve, near which, at latitude 31°S, it has been recorded to attain a rate of 4.5 knots. Inshore of this S current, especially in the bights, there is a perceptible N set, varying from 0.25 to 1 knot. Off Cape Howe, the current may set in either a S or N direction at a rate of 1 to 1.5 knots.

To avoid the strong S set off this coast proceed N from a position E of Cape Howe to Sydney Harbor, following the coast line as closely as prudent navigation permits. In fine weather, pass inside Montagu Island and keep within a distance of 2 miles of the coast.

Sydney to Port Adelaide.—From a position E of Sydney Harbor proceed by rhumb line courses to Cape Howe, keeping as near the 200m curve as the direct course will permit to take advantage of the strong southerly current along this coast, and follow the reverse of the **Port Adelaide to Sydney, New South Wales** route.

Port Adelaide to Wallaroo, South Australia.—Follow rhumb line courses through Investigator Strait, round Althorpe Islands, giving Cape Spencer and West Cape a berth of at least 7 miles, and then proceed N into Spencer Gulf to Wallaroo. Strong tidal currents may be encountered in the vicinity of Troubridge Shoals.

Port Adelaide to Port Augusta, South Australia.—Proceed as directed in the **Port Adelaide to Wallaroo, South Australia** route as far as a position W of West Cape, and continue N into Spencer Gulf, favoring the W side of the gulf where deeper water is found. Caution is necessary in navigating Spencer Gulf as the depths are shallow and there are numerous shoal patches in the upper reaches of the gulf.

Port Adelaide to Albany, Western Australia.—Proceed through Investigator Strait to a position about 7 miles S of Althorpe Islands. Then proceed by rhumb line course to King George Sound, passing S of Breaksea Island within the limits of the port of Albany.

Port Adelaide to Cape Leeuwin (Junction Point).—Proceed through Investigator Strait to a position 7 miles S of the Althorpe Islands, then steer a rhumb line course to a position 16 miles S of D'Entrecasteaux Point, and direct to a position about 10 miles S of Cape Leeuwin, which is the junction point off Cape Leeuwin. At night it is advisable to give the cape a berth of at least 15 miles.

Port Adelaide to Fremantle, Western Australia.—Proceed as directed in the **Port Adelaide to Cape Leeuwin (Junction Point)** route, then round Cape Leeuwin and proceed N to a position N of Rottnest Island, giving Geographe Reef, Cape Naturaliste, and Naturaliste Reefs a wide berth. Utmost caution must be exercised in rounding Cape Leeuwin and Rottnest Island, as the dangers are very steep-to.

Port Adelaide to Darwin.—Proceed as directed in the **Port Adelaide to Cape Leeuwin (Junction Point)** route, then steer rhumb-line courses to a position 11 miles W of Cape Inscription, passing W of Geographe Reef. From the position W of Cape Inscription, proceed by rhumb line courses to the N of Monte Bello Island, giving the coast a berth of at least 15 miles, and direct to a position N of the Holothuria Banks, passing between Rowley Shoals and the outlying reef and N of Lynher Reef. Then steer by rhumb line course N of Penguin Shoal to the approaches of Darwin.

Utmost caution must be exercised in navigating along this route as the whole of the coasts of Northwest Australia, as well as the area between them and Timor, are as yet imperfectly surveyed and charted. The currents off the coast between Cape Naturaliste and Northwest Cape have, in general, a S predominance from March to August and a N one from September to February. Between Northwest Cape and Darwin the currents generally set with the wind, but they are uncertain, both in strength and direction, being complicated with the strong tidal currents which prevail on that part of the coast. However, it must be borne in mind that the currents, regardless of direction, have a general tendency to set a vessel towards the coast; this is especially true in the vicinity of Point Cloates and Northwest Cape.

Port Adelaide to the Cape of Good Hope.—The great circle track leads too far S into regions of strong gales and icebergs. The prevailing W winds and the South Indian Ocean Current must also be avoided in so far as practicable without unduly increasing the mileage. The recommended route is to follow the directions given in the **Port Adelaide to Cape Leeuwin (Junction Point)** route, and proceed as for the **Cape Leeuwin, Australia to Cape of Good Hope** route.

Cape of Good Hope to Port Adelaide.—From October to April, follow the route as described in the **Cape of Good Hope to Freemantle, Western Australia** route, remaining in latitude 41°S until reaching longitude 100°E, then proceed by great circle course to Investigator Strait, and steer rhumb line courses to destination.

From May to September proceed as for the **Cape of Good Hope to Freemantle, Western Australia** route until reaching position 35°00'S, 90°00'E; then proceed by great circle course to Investigator Strait and by rhumb line courses to destination.

Appendix II—International Port Traffic Signals and Visual Storm Warning Signals

International Port Traffic Signals		
No.	**Signal**	**Main Message**
1		Serious emergency. All vessels to stop or divert according to instructions.
2		Vessels shall not proceed.
2a		Vessels shall not proceed, except that vessels which navigate outside the main channel need not comply with the main message.
3		Vessels may proceed. One-way traffic.
4		Vessels may proceed. Two-way traffic.
5		A vessel may proceed only when it has received specific orders to do so.
5a		A vessel may proceed only when it has received specific orders to do so, except that vessels which navigate outside the main channel need not comply with the main message

International System of Visual Storm Warnings		
Day Signal	Night Signal	Meaning
●	○ ●	Near gale expected.
▲	● ●	Gale or storm from the NW quadrant.
▼	○ ○	Gale or storm from the SW quadrant.
▲ ▲	● ○	Gale or storm from the NE quadrant.
▼ ▼	○ ●	Gale or storm from the SE quadrant.
⚐	No signal	Wind expected to veer. (Flag may be of any suitable color.)
⚐ ⚐	No signal	Wind expected to back. (Flags may be of any suitable color.)
✚	● ● ●	Hurricane expected.

INDONESIA

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General

Indonesia consists of an archipelago of 17,508 islands that extends up to about 3,100 miles along the Equator between the mainland of Southeast Asia and Australia. The archipelago forms a natural barrier between the Indian Ocean and the Pacific Ocean. The main islands are Sumatera (Sumatra), Java, Sulawesi (formerly Celebes), Borneo (the S part of Kalimantan), and Irian Jaya (W half of New Guinea).

Indonesia shares land borders with Malaysia, East Timor, and Papua New Guinea.

The terrain consists of mostly coastal lowlands but the larger islands have interior mountains and some volcanoes.

The climate is mostly tropical being hot and humid, while somewhat moderate in the mountain areas.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

In some places in Indonesian waters small buoys, wooden beacons, projecting marks, or other unofficial devices may be found. These devices do not necessarily conform to the official buoyage system.

Channel beacons and lighted beacons follow the same color and topmark system as the buoys. However, occasionally, port hand beacons may carry two cans; starboard hand beacons may carry two cones, points up.

Within Indonesian waters, lights and buoys are considered unreliable, being frequently irregular, extinguished, missing, or off station.

Many lights and aids to navigation on the W coast of Sumatera were damaged or destroyed in the earthquake and tsunami of 2004 and the earthquake of 2005.

Cautions

Rigs

Movable oil drilling rigs, production platforms, storage tankers, and tanker moorings may be encountered off the coasts of Indonesia and in open waters.

Buoys associated with the drilling operations are frequently moored in the vicinity of these structures. The positions of these rigs and buoys are frequently changed and are generally promulgated by radio navigational warnings.

Navigational Hazards

Many of the rivers in Indonesia carry large quantities of debris and sediment from inland areas. Much of this material is deposited at the coast, both within the river mouths and in the sea immediately beyond them. Changes in the coasts and river banks in these areas should be expected. Long rivers with large deltas are particularly liable to change.

Logging takes place, mainly in Irian Jaya and Kalamintan. Driftwood brought down by the rivers can be a hazard, particularly after strong winds or heavy rains.

Piracy

It was reported (1995) that vessels have been attacked by armed thieves in the vicinity of Malacca Strait and Singapore Strait, mainly near Phillip Channel. These attacks were usually made from fast motor boats approaching from astern. Loaded vessels with low freeboards seem to be particularly vulnerable.

Piracy incidents are common in the following areas:

1. Tanjungperak (7°12'S., 112°44'E.).
2. Balikpapan (1°16'S., 116°49'E.).
3. Samarinda (0°30'S., 117°09'E.).
4. North of Pulau-pulau Takobonerate.
5. Along the E coast of Kalimantan, particularly in the open waters of Selat Makassar and in Makassar (5°08'S., 119°25'E.).
6. In the open waters of the Java Sea.
7. Northwest of Pulau Bawean (5°47'S., 112°40'E.).
8. Within Selat Surabaya, which separates Jawa from Madura.
9. Off the N coast of Sumatera.
10. At Belawan (3°47'N., 98°42'E.) and Dumai (1°41'N., 101°27'E.).
11. In Pinang (5°23'N., 100°22'E.).

In general, incidents of piracy remain at a high level in the waters of the Indonesian archipelago.

The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur. For further information, see **Malaysia—Cautions—Piracy**.

It has been reported (2014) Indonesian Marine Police are advising all vessels intending to anchor to do so at or near the areas listed in the table titled **Anti-Piracy Anchorage Areas**. Indonesian Marine Police can conduct more efficient patrols in these areas if the vessels are in the same location.

Anti-Piracy Anchorage Areas	
Location	**Position**
Belawan	3°55.0'N, 98°45.3'E
Dumai	1°42.0'N, 101°28.0'E
Nipah	1°07.3'N, 103°37.0'E
Tanjungpriok	6°00.3'S, 106°54.0'E
Gresik	7°09.0'S, 112°40.0'E
Taboneo	4°41.3'S, 114°28.0'E
Adang Bay	1°40.0'S, 116°40.0'E
Muara Berau	0°17.0'S, 117°36.0'E
Muara Jawa	1°09.0'S, 117°13.0'E
Balikpapan	1°22.0'S, 116°53.0'E

Vessels are advised to maintain strict anti-piracy watches, take anti-piracy measures, and report all attacks and suspicious sightings to the local authorities and the IMB Piracy Reporting Center.

Sand Waves

Strong tidal currents in Malacca Strait, arising from the water exchange between the Indian Ocean and the South China Sea, cause large uniform sand waves on the sea bed. For further information, see **Singapore—Cautions—Sand Waves**.

General

For further information concerning dangers in the vicinity of Sumatera (Sumatra) and Malacca Strait, see Singapore—Cautions.

For further information concerning dangers in Indonesian waters, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Currency

The official unit of currency is the rupiah, consisting of 100 sen. It was reported (1997) that sen are no longer used.

Firing Areas

General

Firing practice areas and surface exercise areas are usually marked by blue-and-white striped buoys lettered DB.

Firing Practice Area

Pulau Enggano.—An area bounded by lines joining the following positions:

a. 5°10'S, 101°40'E.
b. 5°10'S, 102°20'E.
c. 4°10'S, 102°20'E.
d. 4°10'S, 101°40'E.

Note.—Information on Indonesian firing areas E of Sumatera can be found in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Fishing Areas

Traps, seine and drift nets, lines, lures, and bottom trawls are all fishing methods used in Indonesia. Fishing craft vary from 3 to 15m in length. In coastal waters, large concentrations of fishing vessels may be encountered; even in open water, the occasional lone fishing vessel may be encountered.

The reliability of the lights on fishing vessels is low; some may be lit or lights may only be displayed at the last minute on the approach of a larger vessel.

On some outlying banks and off many parts of the coast, particularly off river mouths, fishing stakes and enclosures will be found in depths of 5 to 10m and sometimes in greater depths. These enclosures, constructed of wooden poles or bamboo driven into the bank and interlaced with branches, constitute a considerable hazard to vessels navigating at night.

Numerous floating fish traps, about 4m long, have been established in the Molucca Sea off the E coast of North Sulawesi and in the Celebes Sea. Mariners are advised to navigate with caution as these fish traps are difficult to see and may not be lighted at night.

Government

Flag of Indonesia

Indonesia is a republic. The country is divided into 31 provinces, one autonomous province, one special region, and one special capital city district.

Indonesia is governed by a directly-elected President serving a 5-year term. The Cabinet is appointed by the President. The bicameral People's Consultive Assembly consists of the 132-member Regional Representative Council, directly elected through a system of proportional representation to 5-year terms, and the 560-member House of Representatives, directly elected to 5-year terms.

The legal system is based on Roman/Dutch law and is substantially modified by indigenous concepts.

The capital is Jakarta.

Holidays

The following holidays are observed:

January 1	New Year's Day
Nyepi Saka (Balinese New Year)	Variable
Good Friday	Variable
Easter Sunday	Variable
Ascension Day	Variable
Waisak (Birthday of Buddha)	Variable
August 17	Independence Day
December 25	Christmas Day
December 31	New Year's Eve

Islamic holidays, which are subject to the appearance of the moon, include the Ascension of the Prophet Muhammad (Isra Mi'raj), Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), and the Prophet's Birthday.

Industries

The main industries are petroleum and natural gas, textiles, automobiles, electrical appliances, clothing, footwear, mining, cement, medical instruments and appliances, handicrafts, chemical fertilizers, plywood, rubber, processed food, jewelry, and tourism.

The main exports are palm oil, oil and gas, electrical appliances, ores and slags, plywood, textiles, and rubber. The main export-trading partners are Japan, China, Singapore, the United States, India, South Korea, and Malaysia.

The main imports are machinery and equipment, chemicals, electrical equipment, fuels, and foodstuffs. The main import trading partners are China, Singapore, Japan, South Korea, Malaysia, and Thailand.

Languages

Bahasa Indonesia (a modified form of Malay) is the official language. English, Dutch, and several local dialects, the most common of which is Javanese, are also used.

Mined Areas

Indonesian vessels carrying out minesweeping operations or minesweeping training have been greatly hampered in their maneuverability, therefore all other vessels must give them a wide berth. Minesweeping vessels will make the signals, according to the International Code of Signals, to indicate that they are in operation and to indicate the presence of minesweeping equipment.

When a minesweeper or a formation of minesweepers displays signals that show a minesweeping operation, other vessels must steer clear of the danger side or sides, keeping at a distance of at least 500m and must not cross the bow or the stern of such vessels at a distance of less than 1,000m.

For their own safety, steamers or sailing vessels must try to steer clear of ships making these signals and not approach them within the distances specified above.

The Indonesian Government has declared the following areas dangerous due to mines which were laid during World War II. Due to the lapse of time, navigation through these minefields whether they have been swept or not is now considered no more dangerous from mines than from any other of the usual hazards to navigation; but in the unswept areas a real danger still exists with regard to anchoring, fishing or any form of submarine or sea bed activity.

Pulau Lingga

1. The area of water bounded on the N side by the S coast of Pulau Lingga, on the E side by 104°48'E, on the S side by 0°29'S, and on the W side by the NE coast of Pulau Singkep and 104°32'E.
2. A swept channel S of Pulau Lingga, clear for all types of vessels, is bounded as follows:
   a. On the N side by a line joining the following positions:
      - 0°20'06"S, 104°32'00"E.
      - 0°23'06"S, 104°48'00"E.

   b. On the S side by a line joining the following positions:
      - 0°21'30"S, 104°32'00"E.
      - 0°22'00"S, 104°35'00"E.
      - 0°23'18"S, 104°39'48"E.
      - 0°24'54"S, 104°48'00"E

3. A recommended track near Selat Berhala lying between 0°54'00"S, 104°18'00"E and 0°54'00"S, 104°35'00"E.

Pulau We

An area bounded by lines joining the following positions:

a. 5°52'43.8"N, 95°15'15.6"E.
b. 5°52'44.4"N, 95°15'28.2"E.
c. 5°52'24.6"N, 95°15'36.0"E.
d. 5°52'24.6"N, 95°15'23.4"E.

Padang, Teluk Bayur

An area bounded by lines joining the following positions:

a. 0°59'30"S, 100°15'00"E.
b. The N point of Pulau Pisang (1°00'S., 100°20'E.).
c. The E point of Pulau Pisang.
d. The E point of Pulau Bitanggor (1°09'S., 100°20'E.).
e. The S point of Pulau Bitanggor.
f. 1°09'30"S, 100°15'00"E.

Sungai Panai

An area bounded by the shoreline, a line joining position a and position b below, and lines bearing 270° from point a and point b to the shoreline:

a. 2°35'N, 100°25'E.
b. 2°50'N, 100°15'E.

Navigational Information

Enroute Volumes

Pub. 163, Sailing Directions (Enroute) Borneo, Jawa, Sulawesi, and Nusa Tenggara.

Pub. 164, Sailing Directions (Enroute) New Guinea.

Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Maritime Claims

The maritime territorial claims of Indonesia are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf **	200 miles or the Continental Margin.

* Claims archipelagic status. Submarines must navigate above water level and show the national flag. Nuclear vessels and vessels carrying nuclear material must carry documents and adhere to international special preventative measures.

** Claims to restrict "stopping, dropping anchor, and/or cruising without legitimate reason" in high seas "adjoining Indonesian territorial water;" adjoining is officially interpreted to extend up to 100 miles seaward of Indonesian territorial waters.

Maritime Boundary Disputes

Indonesian groups have challenged Australia's claim to Ashmore Reef (12°15'S., 123°03'E.) and Cartier Island (12°32'S., 123°32'E.).

Indonesia and East Timor contest the sovereignty of the uninhabited coral island of Pulau Batek (Fatu Sinai) (9°15'S., 123°59'E.), which has hampered the creation of a maritime boundary.

Indonesia and Singapore have agreed (2005) to finalize their 1973 maritime boundary agreement by defining unresolved areas N of Pulau Batam.

Conducting negotiations with Palau to delineate maritime boundaries.

Regulations

Vessels are advised not to anchor in the Strait of Malacca and Singapore Strait between the landward limit of the Traffic Separation Scheme or precautionary area and the adjacent port limits. Vessels are to anchor only in designated areas.

For information concerning Navigation Rules for the Strait of Malacca and Singapore Strait, see **Singapore—Regulations**.

National Flag

The Indonesian national flag should be flown at sea when in Indonesian waters, including offshore oil terminals and anchorages. It should be flown not lower than any other flag, and it should not be smaller than the ship's national ensign or any other flag displayed.

Quarantine Regulations/Ship Arrival Procedures

The following procedures apply to vessels calling in Indonesia:

1. All vessels arriving from a foreign country are required to enter quarantine.
2. All vessels arriving from an Indonesian port and/or area designated as suffering from certain diseases are required to enter quarantine.
3. All vessels boarding passengers and/or loading cargo from a vessel falling into the categories listed in paragraph 1 or paragraph 2 are required to enter quarantine.
4. Vessels falling into the above three categories will be released from quarantine once they have been issued a certificate of free pratique.

Vessels arriving at an Indonesian port without prior advice must first call at one of the following ports of entry to obtain free pratique:

1. Tanjungpriok, Jawa (6°06'S., 106°54'E.).
2. Belawan, Medan (3°47'N., 98°42'E.).
3. Tanjungperak, Surabaya (7°14'S., 112°42'E.).
4. Ujungpandang, Sulawesi (5°10'S., 119°25'E.).

Port Authority

All Indonesia ports are administered by the Port Authority, which coordinates and supervises the activities of the port. This includes the Harbormaster Service, the Harbor Board, the Customs Service, the Quarantine Service, the Immigration Service, Port Security, and all other port activities.

Harbormaster Service

The harbormaster supervises the safety inspections and the compliance of all shipping regulations, all ships movements within the harbor limits, pilotage, notes of protest, and ship's certificates and documents.

Restricted Areas

An extensive prohibited area, in which fishing and other activities not associated with the innocent passage of foreign vessels, has been established off the NW, N, and NE coasts of Sumatera. For further information, see paragraph 3.1 of Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Search and Rescue

Baden SAR National (BASARNAS) coordinates search and rescue operations and can be contacted, as follows:

1. Telephone: 62-21-65867510
   62-21-65867511
2. Facsimile: 62-21-65857512
3. E-mail: basarnas@basarnas.go.id

Ship Reporting System

STRAITREP

STRAITREP is a joint Indonesia-Malaysia-Singapore mandatory ship reporting system in the Strait of Malacca and Singapore Strait. For further information on STRAITREP, see **Singapore—Ship Reporting System**.

Signals

Various signals are made in Indonesian ports and waters for the control and assistance of shipping.

Tidal Current Signals.—Tidal current signals are displayed from shore stations, as follows:

Meaning	Day
Flood tide	Red flag
Ebb tide	Blue flag
Slack water	White flag

Port Closure Signals.—During maneuvers and exercises, and also for other reasons, it may be necessary to prohibit entrance into channels and harbors of Indonesia or to permit it subject to reservations.

The following signals may be shown from Indonesian signal stations:

1. Emergency—Entry strictly prohibited:
   a. Day signal.—Three red balls disposed vertically.
   b. Night signal.—Three red lights disposed vertically.
2. Entry prohibited:
   a. Day signal.—A black cone, point up, between two black balls, disposed vertically.
   b. Night signal.—A white light between two red lights, disposed vertically.
3. Entry and departure prohibited:
   a. Day signal.—Two black cones, points down, over a black ball, disposed vertically.
   b. Night signal.—Green light, white light, and red light, disposed vertically.
4. Departure prohibited:
   a. Day signal.—Three black cones, with the top and bottom cones points down and the middle cone point up, disposed vertically.
   b. Night signal.—A white light between two green lights, disposed vertically.

Permission or refusal to enter the channel or harbor will be given after examination. A vessel is then only allowed to enter the channel or harbor provided it is in the charge of a pilot, or is preceded by a warship or pilot vessel.

From the time the signals are shown all exemptions from taking a pilot cease. Masters of vessels are obliged to carry out the instructions of the officer from the examination vessel and are to obey all signals.

If a warning shot is fired from an examining vessel, work on all vessels near the inspection vessel will be stopped immediately until it is safe, and permission has been given to proceed. Failure to comply with these regulations may result in danger to the vessel and crew. As a general rule, permission to enter at night will not be granted.

If a signal is made from the shore to intimate that vessels are subject to examination, and if there is no examination vessel in the entrance to the fairway, vessels must anchor or lie off.

The coming into operation of these regulations at any particular fairway or harbor will not be announced beforehand.

Berthing Signals.—The following flag signals that are displayed on shore may be used in the harbors of the Republic of Indonesia in addition to the international signals:

3rd substitute over A	Your berth is No. 1.
3rd substitute over B	Your berth is No. 2.
3rd substitute over C	Your berth is No. 3.
3rd substitute over D	Your berth is No. 4.
3rd substitute over E	Your berth is No. 5.
3rd substitute over F	Your berth is No. 6.
3rd substitute over G	Your berth is No. 7.
3rd substitute over I	Signal ball not hauled down at correct time.
3rd substitute over K	Signaling device temporarily malfunctioning
3rd substitute over R	Anchor in the anchorage area.
Blue flag	No communication, bad weather.

When two or more vessels are entering the harbor at the same time, the berthing signal for each vessel can be can be indicated by hoisting the company or national flag of the vessel below the berthing signal.

The following flag signals may be shown from vessels in Indonesian harbors:

1st substitute over R	Ship wishes to enter harbor.
2nd substitute over M	Please send motor boat.
3rd substitute over J	Request for fresh water.
1st substitute over N	Have passengers who have come directly or indirectly from outside Indonesia and wish to disembark.

2nd substitute over V	Request refuse barge.
3rd substitute over Q	Onboard, or during the voyage, there were one or more cases of contagious disease, or disease thought to be contagious (other than plague, cholera, or yellow fever).
Company flag over W	Request for medical assistance.

Pilot Signals.—Vessels requiring a pilot may make any of the below listed signals to obtain assistance.

The following day signals may be used:

1. The national flag, surrounded by a white border one-fifth the breadth of the flag displayed at the foremast head.
2. The pilot signal "UC" of the International Code of Signals.
3. Flag G of the International Code of Signals.
4. The distant signal consisting of a cone point up, having above it two balls or shapes resembling balls.

The following night signals may be used:

1. A blue light every 15 minutes.
2. A bright white light flashed or exhibited just above the bulwarks at frequent intervals for 1 minute.
3. The letter G in the Morse code made by flashing lamp.

The above signals must be shown until the pilot is on board or until an answering signal has been made.

Vessels arriving at night and not immediately requiring the services of a pilot should show the pilot signal at daybreak.

The pilot flag is blue, with a seven-point white star in its center.

The following signals are made from the pilot vessel in answer to ships making the pilot signal:

	Signal	Meaning
By day	No signal.	The pilot will proceed to vessel at once.
By night	White flare or swinging a white light.	
By day	Flag D of International Code of Signals.	No pilot is available; vessel may enter without a pilot until one is met with.
	Cone point up, surmounted by a ball.	
By night	A red light above a white light.	
By day	Cone point up with a ball below it.	No pilot is available; vessel must wait outside until further notice.
By day	Two cones vertically disposed, points down.	No pilot is available for vessels of less than 350 gross tons capacity; these vessels may enter without a pilot.

Dumping Explosives at Sea.—Vessels dumping ammunition or other explosives at sea will display a red flag by day and a red light at night.

Time Zone

Indonesia is covered by multiple Time Zones, as follows:

1. Western Zone (Bangka, Belitung, Jawa, Kalimantan Barat, Kalimantan Tengah, and Sumatera)—The Time Zone description is GOLF (-7). Daylight Savings Time is not observed.
2. Central Zone (Kalimantan Selatan, Kalimantan Timur, Nusa Tenggara, Sulawesi, and West Timor)—The Time Zone description is HOTEL (-8). Daylight Savings Time is not observed.
3. Eastern Zone (Aru Island, Kai Island, Maluku, Papua, and Tanimbar Island)—The Time Zone description is INDIA (-9). Daylight Savings Time is not observed.

Traffic Separation Schemes

Information on Traffic Separation Schemes off Indonesia which affect traffic using the Strait of Malacca can be found in **Malaysia—Traffic Separation Schemes**.

Information on Traffic Separation Schemes off Singapore which affect traffic using the Strait of Malacca can be found in **Singapore—Traffic Separation Schemes**.

U.S. Embassy

The U.S. Embassy is situated at Jalan Medan Merdeka Selatan 3-5, Jakarta.

The mailing addresses are, as follows:

1. Indonesia address—
   Jalan Medan Merdeka Selatan 3-5
   Jakarta, 10110
2. U. S. address—
   Unit 8129, Box 1
   FPO AP (96520)

U. S. Embassy Indonesia Home Page
http://jakarta.usembassy.gov

IRAN

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General

Iran is located in Southwest Asia and occupies the W part of the great Iranian plateau between the Indus River and the Tigris River. It is bounded on the N by Armenia, Azerbaijan, the Caspian Sea, and Turkmenistan; on the E by Afghanistan and Pakistan; on the S by the Persian Gulf and the Gulf of Oman; and on the W by Iraq and Turkey. Part of the E bank of the Shatt al Arab waterway is situated in Iran.

After an 8-year war with Iraq, Iran restored diplomatic relations in 1990 and is still trying to work out an agreement concerning the freedom of navigation and sovereignty over the Shatt al Arab waterway.

The terrain consists of a rugged and mountainous rim, a high central basin with deserts and mountains, and small plains along both coasts.

The climate is mostly arid or semiarid, with a subtropical area along the Caspian Sea coast.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation off Iran are reported to be unreliable. Aids may be missing, unlit, or out of position.

Cautions

Special Warning 114 (Issued 5 February 2001; reviewed 19 November 2014)

1. Mariners are advised to exercise caution when transiting the waters of the north Persian Gulf.
2. Iranian-flag speedboats and patrol craft operating in Iranian and international waters have boarded vessels and demanded payment before the vessels are allowed to proceed.
3. Mariners should exercise extreme caution and vigilance

when operating in this area, and should obtain and evaluate current warning information broadcasted by the National Geospatial-Intelligence Agency (NGA) via HYDROPAC broadcasts.

4. Any anti-shipping activity should be reported to NGA NAVSAFETY BETHESDA MD or navsafety@nga.mil via Ship Hostile Action Report (SHAR) procedures (See NGA Pub 117—Chapter 4), or directly to the U.S. State Department, or nearest U.S. Embassy or Consulate.

5. The publication of this notice is solely for the purpose of advising U.S. mariners of information relevant to navigational safety, and in no way constitutes a legal recognition by the United States of the validity of any foreign rule, regulation, or proclamation so published.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Indian Ocean—Cautions** for further information.

Piracy

Acts of piracy, mostly against small merchant vessels, have been occurring in and around Iraqi territorial waters, including the Khor Abd Allah. For further information, see **Iraq—Cautions—Piracy**.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Visibility

Navigation off the coast of Iran may be impeded by dust and haze frequently obscuring the land; this is especially prevalent from April through June. Vessels relying on visual fixes should remain in depths greater than 20m.

Magnetic Anomalies

A magnetic anomaly, which has caused compass deflections of up to 10°, has been reported in a position about 3 miles SW of Jazirah-ye Forur (26°17'N., 54°31'E.).

Currency

The official unit of currency is the Iranian rial, of which 10 equal 1 toman.

Firing Areas

It has been reported (2007) that unannounced missile firing exercises may be conducted in the following areas:

1. North side of the Gulf of Oman.—In an area bounded by lines joining the following positions:
   a. 25°38'N, 58°00'E.
   b. 25°18'N, 59°50'E.
   c. 24°50'N, 59°50'E.
   d. 25°00'N, 57°45'E.
2. North and E sides of the Strait of Hormuz.—In an area bounded by lines joining the following positions:
   a. 26°46'N, 57°03'E.
   b. 26°15'N, 57°06'E.
   c. 26°15'N, 56°44'E.
   d. 26°26'N, 56°45'E.
   e. 26°45'N, 56°24'E.
   f. 26°57'N, 56°28'E.
3. Southsoutheast of Bushehr.—In an area bounded by lines joining the following positions:
   a. 28°37'N, 50°31'E.
   b. 28°43'N, 50°55'E.
   c. 28°11'N, 51°17'E.
   d. 28°11'N, 51°03'E.

Government

Flag of Iran

Iran is a theocratic republic. The country is divided into 31 provinces.

Iran is governed by a directly-elected President who serves a maximum of two consecutive 4-year terms. The Council of Ministers is appointed by the President with the approval of the Islamic Consultative Assembly.

The unicameral Islamic Consultative Assembly consists of 290 directly-elected members serving 4-year terms.

An 86-member Assembly of Experts was established in 1982 and is popularly elected every 8 years. Its mandate is to interpret the constitution and select the religious leaders. Candidates for election are examined by a 12-member Council of Guardians. All legislation is subject to approval by the Council of Guardians.

The legal system is based on Islamic law.

The capital is Tehran.

Holidays

The following holidays are observed:

February 11	Revolution Day
March 20	Oil Nationalization Day
March 21-25	Iranian New Year (Eyde Nowrooz)
April 1	Iranian Islamic Republic Day
April 2	13th Day after Nowrooz
June 4	Death of Imam Khomeini

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, the Prophet's Birthday, Birthday of Imam Ali, Martyrdom of Imam Ali, Martyrdom of Imam Jaffar Sadegh, Birthday of Hazrat

Emam Reza, Eid ul Ghadeer Al Khom, Tassoa, Ashoora, Arbaein, Death of the Holy Prophet and Martyrdom of Imam Hassan, and Birth of the Holy Prophet and Imam Jaffar Sadegh.

Industries

The main industries are agriculture, petroleum and petrochemicals, fertilizers, caustic soda, textiles, cement and other construction materials, food processing (particularly sugar refining and vegetable oil production), metal fabricating, and armaments.

The main exports are petroleum products, chemical and petrochemical products, fruits, nuts, carpets, cement, and ores The main export-trading partners are China, India, Turkey, and Japan.

The main imports are industrial raw materials and intermediate goods, capital goods, foodstuffs and other consumer goods, and technical services. The main import-trading partners are the United Arab Emirates, China, and Algeria.

Languages

Farsi (Persian) is the official language. Other languages include Kurdish and Luri (in the W); Arabic, Gilaki, and Mazandarami (in the N); Baluchi (in the SE); and Turkish dialects (in the NW).

Meteorology

Internet Weather Services

Marine forecasts in English and Farsi are available from the Iran Meteorological Organization (http://www.weather.ir or http://www.irimet.net).

Mined Areas

Vessels are advised that Mine Danger Areas exist in the N part of the Persian Gulf. Information concerning swept routes should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150 5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

For further information, see **Iraq—Mined Areas**.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Iran are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone ***	—
Continental Shelf ***	—

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.
** Claims security jurisdiction in the Contiguous Zone.
*** Fisheries Zone and Continental Shelf extend to median line equidistant from baseline of neighbors.

Maritime Boundary Disputes

Iran and the United Arab Emirates are conducting talks to resolve disputes over Iran's occupation of Jazireh-ye Tonb-e Bozorg (26°16'N., 55°18'E.), Jazireh-ye Tonb-e Kuchek (26°14'N., 55°09'E.), and Jazireh-ye Abu Musa (25°53'N., 55°02'E.). It has been reported (2014) an agreement has been reached where Iran will return sovereignty of the islands to the United Arab Republic while retaining the sea bed rights surrounding the islands.

Iran's lack of a maritime boundary with Iraq prompts jusrisdictional disputes beyond the mouth of the Shatt al Arab in the Persian Gulf.

Kuwait and Saudi Arabia continue negotiating a joint maritime boundary with Iran.

Pollution

MARPOL Special Area

The Gulf of Oman has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Pollution Reporting

The National Coordination Center for Oil Pollution Preparedness and Cooperation is located in the Ports and Shipping Organization (PSO) and is managed by the PSO Deputy for Maritime Affairs. Pollution reports, especially oil slicks, in Iranian territorial waters can be sent to the PSO, as follows:

1. Telephone: 98-21-8493-2192
   98-21-8493-2141
2. Facsimile: 98-21-8493-2190
   98-21-8493-2675
3. E-mail: aparhizi@pso.ir
   derakhshannik@yahoo.com

The reports can also be sent to the following ports:

1. Asaluyeh
   a. Telephone: 98-772-732-4227
   b. Facsimile: 98-772-737-6631
2. Bandar Imam Khomeini
   a. Telephone: 98-652-252-2451
      98-652-252-2452
      98-652-252-2453
   b. Facsimile: 98-651-222-6902
3. Bandar Shahid Rajai
   a. Telephone: 98-761-451-4032
      98-761-451-4033

98-761-451-4034
98-761-451-4035
b. Facsimile: 98-761-451-4036
4. Bushehr
a. Telephone: 98-771-253-0074
98-771-253-0075
b. Facsimile: 98-771-253-0077
5. Chahbahar
a. Telephone: 98-545-222-1415
b. Facsimile: 98-545-222-1215

Ballast Water Management

The coast of Iran lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

Alcoholic drinks are prohibited in Iranian ports.

All crew, men or women, should strictly observe the Islamic way of dressing (Hejab).

Vessels should fly the Iranian national flag when in Iranian territorial waters, when at an anchorage, or when moored at a berth.

The Iranian Ministry of Road and Transportation has advised (2005) that the term "Arabian Gulf" should not be used in the documents of vessels calling at Iranian ports; the internationally-approved term "Persian Gulf" should be used. In cases where the term "Arabian Gulf" is used, Iranian ports will not provide port and maritime services to the offending vessels and their agents.

International Ship and Port Facility (ISPS) Code

The ISPS Code applies to ships on international voyages and port facilities directly interfacing with these ships. All vessels intending to enter Iranian territorial waters and ports should fully comply with the provisions of Chapter XI-Part 2 of the SOLAS Convention and Part A of the ISPS Code. Vessels shall demonstrate that appropriate maritime security measures are in place according to ISPS Code regulations. Vessels shall maintain compliance until leaving Iranian territorial waters.

Quarantine (Pre-arrival Reporting)

Requests for free pratique should be made 24 hours prior to arrival. Messages should contain the following information:

1. Name of vessel and nationality.
2. Last port of call.
3. Total number of crew, including master.
4. Master's name.
5. Net tonnage.
6. Any illness or disease on board.

Reporting

All vessels heading for Iranian ports should report to Bandar-e Shahid Rajai Port Control, through Bandar-e Shahid Rajai Coast Radio Station (EQI), on passing Ras al Kuh (25°48'N., 57°17'E) stating their ETA at the Strait of Hormuz and destination. If clearance is not received before passing Bandar-e Shahid Rajai (27°11'N., 56°17'E), vessels should proceed to the anchorage off that port.

All tankers intending to load or unload crude oil or petroleum products at Iranian terminals must advise, at least 72 hours before their arrival, the terminal authorities or their fully authorized agent at the terminal concerned.

The following information should be passed to the port authority of the vessel's destination in Iran, via the agent, at least 72 hours prior to arrival:

1. Vessel name.
2. Master's name.
3. Voyage number.
4. Flag/nationality.
5. Port of registry.
6. IMO number.
7. Call sign.
8. Beam and loa.
9. Arrival draft forward and aft.
10. Agent.
11. Type of vessel.
12. Deadweight tons.
13. Gross tons.
14. NRT
15. DWT.
16. ETA
17. Maximum speed.
18. Does the vessel have a Ship Security Certificate? (Yes or No).
19. Expiration date of Ship Security Certificate.
20. Issuing authority of Ship Security Certificate.
21. Last port.
22. Year built.
23. Number of cranes.
24. Cargo type.
25. Cargo quantity.
26. Dangerous cargo on board.
27. Loading port.

Search and Rescue

The Ports and Maritime Organization is responsible for coordinating maritime search and rescue operations. The HQ Tehran can be contacted, as follows:

1. Telephone: 98-21-84932175
98-21-84932172
98-21-84932170
2. Facsimile: 98-21-84932190
98-21-88651191
3. E-mail: Tehran-mrcc@pmo.ir

Maritime Rescue Coordination Centers (MRCC), along with their contact information, are located, as follows:

1. MRCC Bandar Imam Khomeyni (Persian Gulf).
a. Telephone: 98-651-2226902
98-652-2522451
98-652-2522452
98-652-2522453
b. Facsimile: 98-651-2226902
2. MRCC Bandar Shahid Bahonar (Persian Gulf).
a. Telephone: 98-761-4514031
98-761-4514032

98-761-4514033
98-761-4514034
98-761-4514035
98-761-4514036
98-761-4514037
b. Facsimile: 98-761-4514036

3. MRCC Bushehr (Persian Gulf).
   a. Telephone: 98-771-2530075
      98-771-2566449
   b. Facsimile: 98-771-2566400
      98-771-2530077
   c. E-mail: radio@pso.ir
4. MRCC Chahbahar (Gulf of Oman).
   a. Telephone: 98-545-2221415
      98-545-2221215
   b. Facsimile: 98-545-2221215

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Submarine Operating Areas

The following are submarine exercise areas declared by the Iranian navy:

1. **Area SO1.—**Bounded by lines joining:
   a. 26°32.05'N, 56°49.05'E.
   b. 26°36.08'N, 56°53.30'E.
   c. 26°47.00'N, 56°50.05'E.
   d. 26°43.05'N, 56°40.08'E.
2. **Area SO2.—**Bounded by lines joining:
   a. 25°18'N, 58°00'E.
   b. 25°28'N, 58°32'E.
   c. 25°28'N, 58°00'E.
   d. 25°18'N, 58°32'E.

Time Zone

The Time Zone description is 3 hours 30 minutes fast of UTC. Daylight Savings Time (4 hours 30 minutes fast of UTC) is observed from the end of March to the end of September; the exact changeover dates should be obtained from local authorities.

Note.—The Iranian year is a solar year running from 21 March to 20 March.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) in Iran are, as follows:

1. Off Ras al Kuh. (IMO adopted)
2. In the Strait of Hormuz. (IMO adopted)
3. Tonb-Forur (Jazireh-ye Tonb-e Bozorg to Jazireh-ye Forur). (IMO adopted)

U.S. Embassy

There is no U.S. Embassy or diplomatic representation. Diplomatic messages may be passed to the authorities through the Embassy of Switzerland.

Vessel Traffic Service

A Vessel Traffic Service is in operation in Bandar e-Imam Khomeyni (30°25'N., 49°04'E.). For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

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General

Iraq is located at the head of the Persian Gulf within a triangle of mountains, desert, and fertile river valleys. The coastline, about 36 miles long, extends from Khawr Shatanah to the mouth of the Shatt al Arab. The country is bounded on the E by Iran, on the N by Turkey, on the W by Syria and Jordan, and on the S by Saudi Arabia and Kuwait.

After an 8-year war with Iran, Iraq restored diplomatic relations in 1990 and is still trying to work out an agreement concerning the freedom of navigation and sovereignty over the Shatt al Arab waterway. In 1992, the United Nations Boundary Commission redefined Iraq's border with Kuwait, moving it slightly to the N. Iraq formally accepted this UN-demarcated border and recognized the independence of Kuwait in 1994.

The country slopes from mountains, up to 3,050m high, standing along the Turkey/Iran border to the alluvial plains of the Tigris and Euphrates rivers. These two rivers join to form the Shatt al Arab. Several areas of reedy marshes lie along the S border.

The climate is mostly desert with dry, hot summers and cool, mild winters. The mountain area in the N has cold winters with occasional heavy snow.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Multinational Security Force Vessel Requirements for Vessels Bound for Iraq

1. **Background.—**At the request of the Iraqi government and in accordance with United Nations Security Council Resolutions (UNSCR) 1483 and 1546, a multinational Maritime Security Force (MSF) continues to operate in the Northern Arabian Gulf (NAG). This force is authorized to conduct maritime security operations to prevent the unauthorized trade of arms and related material, to perform customary defense missions on behalf of the Iraqi government and to take all neces-

sary measures to contribute to the maintenance of security and stability in Iraq.

2. **Action.—**All vessels en route to and from Iraqi ports are subject to query, and may be subject to boarding and inspection by the MSF until further notice. This notice affects vessels traversing or preparing to traverse Iraqi territorial waters, the Khawr Abd Allah, Shatt al Arab and Iraq's offshore Al Basrah and Khawr Al' Amaya oil terminals. Inspections are conducted to verify compliance with relevant UNSCRs and to contribute to the maintenance of security and stability in Iraq. The intent is to conduct thorough inspections with minimum disruption to maritime commerce. All cleared vessels will be permitted to proceed to their next port of call upon inspection completion. Any vessel carrying unauthorized arms and related material or other cargo that could jeopardize the maintenance of security and stability in Iraq will be detained and turned over to the Iraqi government for appropriate action in accordance with Iraqi law. Specifically, violations may result in the seizure and confiscation of cargo by the Iraqi government. Additionally, the master and crew members of vessels carrying such cargo are subject to arrest, detention, and prosecution under Iraqi law. Strict adherence to the procedures in this notice will minimize delays associated with such inspections. Iraqi port status, categories of vessel traffic that can be accepted, and other restrictions will be published via separate notice by the Iraqi government. Hydrographic conditions of Iraqi ports and connecting waterways will also be published via separate notice by the Iraqi government. Parties wishing to dispatch ships to Iraqi ports are advised to review these notices and contact the Iraqi port authority for current entry protocol and restrictions.

3. **Checkpoint.—**Vessels bound for or departing from Iraqi ports and offshore oil terminals must pass within a 5-nautical mile radius of latitude 29°35'N and longitude 48°53'E. Approaching vessels must contact the Maritime Security Force Commander on Marine VHF (bridge-to-bridge) radio telephone, channel 16 within 5 nautical miles of this point and be prepared to respond to MSF queries.

4. **Notification.—**All shipping must be coordinated with the Iraqi Port Authority or State Oil Marketing Organization (SOMO).

5. **Cargo documentation.—**Documentation for Iraq bound cargo must include the items listed below:

a. An original manifest describing the cargo, as well as its location in the ship, must be onboard. The original manifest must include the port of origin, ports of call, complete business names and addresses of all shippers and consignees and final destination of all cargo. A complete business address must include, the street address, a prominent identifiable geographic location, or a post office box, contact person, name or recipient ministry or entity, an e-mail address plus a telephone number or fax number.

b. Consignee names and addresses on all cargo must match the manifest.

c. The manifest must bear an original signature of the vessel's master or chief mate. The manifest may be on shippers letterhead, fax, photocopy, or computer printout, but it must bear an original signature.

d. The original manifest may consist of more than one document if there are amendments that list cargo dropped off at a given port or correct the original manifest. These amendments may originate from the shipper or carrier. Since additional documents may be transmitted to a vessel by telegram or fax, they need not bear an original signature. However, the master is required to certify in writing that the amended manifest accurately reflects what is on board the vessel.

6. **Incomplete documentation.—**Iraq-bound vessels which are determined to have incomplete cargo manifests, to be otherwise in violation of requirements listed in Paragraph 5 of this advisory or Iraqi laws, may be detained by the MSF for turn over to the Iraqi government or diverted to last port of call until appropriate conditions are met.

7. **Petroleum imports and exports.—**Trade in petroleum products is controlled by the Iraqi government. Iraqi law authorizes the seizure and confiscation of vessels found in violation of any petroleum import or export authorization. All petroleum imports and exports are handled through SOMO or its agent the Iraqi South Oil Company (SOC). Only those oil shipments verified to be under valid SOMO contract, or otherwise specifically authorized by the Iraqi government will be allowed to pass. SOMO can be contacted by fax at 00-8737-6370-5020.

8. **Vessel documentation.—**Vessels must maintain sufficient indicia of flag state registry, such as the original certificate of registry, on board at all times the vessel is in operation. Stateless vessels or vessels without valid safety and environmental protection certificates are not welcome in Iraq.

a. Questionable registry—Vessels with questionable registry may be delayed in obtaining clearance to proceed or face detention and other penalties upon arrival in Iraqi ports.

b. Invalid registry—Vessels presenting certificates of registry confirmed to be invalid will be denied entry into Iraq, and could be subject to arrest by the Iraqi government.

9. **Personnel identification.—**All crew members on Iraq bound vessels must possess valid seaman's documents or passports. All passengers en route Iraq must possess valid passports or other identification documents acceptable under Iraqi law or regulation.

10. **Ferries and passenger ships.—**Ferries or passenger ships traversing the Iraqi maritime security force checkpoint will be subject to the following requirements:

a. Vessels carrying passengers only (with no commercial cargo capacity) may arrange for an expeditious transit through the checkpoint by forwarding a certified passenger list at least 36 hours prior to transit by fax or letter to the Iraqi port authority. Additionally, 10 days prior to first transit forward a certified passenger list by fax or letter from a recognized member of the International Association of Classification Societies (IACS) that the ship in fact has no cargo carrying capacity.

b. A passenger vessel arriving at the Iraqi Maritime Security Force checkpoint that has not complied with the requirements of paragraph 10a will be held until authorized by the Iraqi Port Authority to enter port. The passenger vessel may be boarded and inspected while awaiting authorization.

11. **Query/boarding procedures.—**MSF units querying passing vessels will identify themselves as Maritime Security Force warship (or aircraft) and may give an identifying number. Merchant vessels will be expected to provide the following information in response to query:

a. Name.

b. Flag.

c. International radio call sign or distinctive letters assigned by flag state.

d. Cargo quantity and description (with exception of military cargo).
e. Agent.
f. Last port of call and date departed.
g. Next port of call and estimated arrival.
h. Date of arrival and departure.

Following query, vessels may be cleared to proceed or directed to standby for boarding. Ships directed to standby for boarding will be boarded as expeditiously as possible, with due regard for weather conditions and vessel characteristics. Coalition vessels conducting boarding's will endeavor to provide advance notice of boarding team arrival whenever possible.

a. Boarding/security sweep.—Boarding teams will advise vessels of requirements to muster crew and account for any watchstanders prior to boarding. All directions from the coalition vessel should be followed explicitly to avoid misunderstanding. If any direction is not understood, the vessel master should ask for clarification. Merchant crews should not take offense at security sweeps, and should not interfere with them. Remain in locations designated until cleared to move about the ship by the boarding team.

b. Ship inspection—Vessel masters can facilitate the inspection process by opening hatch covers and making other reasonable preparations prior to the arrival of the boarding team. The ship's certificate of registry, cargo documentation, and crew passports or seaman's books should be available for inspection by the boarding officer. Boarding teams may require copies of some documents.

Warning and Exclusion Zones Surrounding Iraqi Offshore Oil Terminals

1. All mariners are advised to remain clear of Coalition Maritime Security Forces and to identify themselves and make their intentions known when operating in the vicinity of Coalition warships. If queried, mariners should clearly identify themselves and state their intentions and, if given directions from Iraqi warships, they should immediately execute such directions so as to make their intentions known. Mariners are reminded that Iraqi warships are prepared to take defensive measures, including, if necessary, the use of deadly force against any contact whose identity or intentions are unknown and which subjectively pose a threat.

2. Warning Zones and Exclusion Zones established:

a. **KAAOT Warning Zone.—**The Warning Zone extends 3,000m from the outer edge of the terminal structure, creating an oval-shaped area, 6,990m long by 6,107m wide, oriented NW to SE, centered on the terminal. This Warning Zone is complementary to the Exclusion Zone established and detailed later in this advisory.

b. **KAAOT Exclusion Zone.—**An Exclusion Zone extends 2,000m from the outer edges of the terminal structures in all directions. The right of innocent passage is temporarily suspended in accordance with international law in the Exclusion Zone.

c. **ABOT Warning Zone.—**The Warning Zone extends 4,000m from the outer edge of the terminal structure, in all directions, creating an oval-shaped area, 7,030m long by 6,107m wide, oriented NW to SE, centered on the terminal. This Warning Zone is complementary to the Exclusion Zone established and detailed later in this advisory.

d. **ABOT Exclusion Zone—**An Exclusion Zone which extends 3,000m from the outer edges of the terminal structures in all directions. The right of innocent passage is temporarily suspended in accordance with international law in the Exclusion Zone.

3. Vessels are to remain clear of the Warning Zones for all but essential transits. If transit requires entry into the zone, vessels are to contact the Iraqi navy via marine VHF channel 16 or 69, identify themselves, and make transit intentions known. If Iraqi navy forces order a vessel to depart the Warning Area, the vessel should immediately depart. Such direction will be given only when necessary to keep the vessel from standing into danger or when it is considered by the Iraqi navy that the vessel's presence constitutes a direct subjective threat to either oil terminal. No fishing or anchoring is permitted in the Warning Zones in any way or form whatsoever.

4. VLCC traffic to the terminals is expected to remain at high levels indefinitely. In addition to berthing and departing VLCCs and assisting tugs, Iraqi navy warships conducting maritime security patrols maneuver unpredictably within the Warning Zones and Exclusion Zones.

5. Only tankers and support vessels authorized by terminal operators or the Iraqi navy are allowed to enter the Exclusion Zones. Vessels attempting to entering the zones without authorization may be subjected to defensive measures, including when necessary, the use of deadly force. All reasonable efforts including established pre-planned responses will be taken to warn vessels away before employing deadly force. Deadly force will be employed when necessary to protect Iraqi navy forces, legitimate shipping present in the Exclusion Zones, and the oil terminals.

6. Questions regarding this advisory may be directed to the U.S. Naval Forces Central Command, IZMS Coordinator, which can be contacted, as follows:

1. Telephone: 973-1785-4627
973-1785-4839
2. Facsimile: 973-1785-9117
973-1785-4344

Note.—KAAOT is the abbreviation for the Khawr al Amaya Oil Terminal (29°47'N., 48°48'E.).

ABOT is the abbreviation for the Al Basra Oil Terminal (29°41'N., 48°49'E.).

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Piracy

Acts of piracy, mostly against small merchant vessels, have been occurring in and around Iraqi territorial waters, including the Khor Abd Allah. There were 70 such incidents reported from June through December, 2004; from January through June, 2005 attacks decreased to about 25 incidents, and have been moving outward from the Khor Abd Allah and the Shatt al Arab to the deep-water anchorages.

Most incidents have occurred when the moon was more than half full, usually between 0100 and 0300, by groups of three to eight people using small boats, described as skiffs. The majority of attacks have occurred while vessels were at anchor.

Locust Reports

See Red Sea and the Persian Gulf—Cautions for further information.

Currency

The official unit of currency is the new Iraqi dinar.

Government

Flag of Iraq

Iraq is a parliamentary democracy. The country is composed of 18 governorates and one region.

Iraq is governed by a President elected by the Council of Ministers to serve a 4-year term. The unicameral 328-member Council of Representatives is elected by an open-list system of proportional representation. The constitution also calls for the creation of an upper chamber known as the Federation Council.

The legal system is a mix of civil law and Islamic law.

The capital is Baghdad.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 6	Army Day
April 9	Fall of Baghdad
May 1	Labor Day
July 14	Republic Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are petroleum, chemicals, textiles, leather, construction materials, food processing, fertilizers, and metal fabrication and processing.

The main exports are crude oil, food, and livestock. The main export-trading partners are China, India, the United States, South Korea, and Greece.

The main imports are food, medicine, and manufactured goods. The main import-trading partners are Turkey, Syria, China, and the United States.

Languages

Arabic is the official language. Kurdish is also an official language and is spoken in the NE part of Iraq (Kurdish region). Other languages used are Assyrian and Armenian.

Mined Areas

Vessels are advised that Mine Danger Areas exist in the N part of the Persian Gulf. Further information should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150 5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

A Mine Danger Area is located N and NW of Khawr al Amaya Oil Terminal and extends to the Shatt al Arab. Several Former Mine Danger Areas are located within Khawr Abd Allah. All areas are best seen on the chart.

Mariners are warned that a greater mine threat exists within a Mine Danger Area and no swept routes have been established in these areas.

In a Former Mine Danger Area, mines could still present a hazard. Anchoring, fishing, or sea bed operations are not recommended anywhere within these areas. However, when anchoring is necessary, it should be carried out only within the designated anchorage areas, as directed by local authorities.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Iraq are, as follows:

Territorial Sea	12 miles.
Continental Shelf	No specified limit.

Maritime Boundary Disputes

Iraq's lack of a maritime boundary with Iran prompts jusrisdictional disputes beyond the mouth of the Shatt al Arab in the Persian Gulf.

No maritime boundary with Kuwait exists in the Persian Gulf.

Pollution

Ballast Water Management.—The coast of Iraq lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

All vessels, when inside Iraqi territorial waters, should listen for instructions on VHF channel 16.

Vessel Clearance Protocols

All shipping must be coordinated through the Iraqi Port Authority (IPA). The IPA Vessel Booking form is used to advise the IPA of a vessel arriving at an Iraqi port including, but not limited to, Umm Qasr and Az Zubayr.

A Vessel Booking Form must be completed by the vessel's agent and submitted to Umm Qasr Port Operations at least 5 working days prior to the vessel's arrival. The vessel's agent should also provide a cargo manifest to the IPA, preferably at least 5 working days prior to the vessel's arrival, but no later than 48 hours prior to the vessel's arrival.

The following information is required to be submitted in the Vessel Booking Form:

1. Vessel name.
2. Flag.
3. Call sign.
4. Vessel size (metric tons).
5. Cargo.
6. Agent's name.
7. Last port of call.
8. Arrival date.
9. Departure date.

The Vessel Booking Form is to be sent to Umm Qasr by e-mail, as follows:

ummqasrport@hotmail.com

A copy of the Vessel Booking Form should also be sent to the Iraqi Coastal Defense Force by e-mail, as follows:

icdfcdr@yahoo.com

Search and Rescue

Basrah Control (YIR) and Umm Qasr (YIU) maintain a continuous listening watch on VHF channel 16 for distress traffic.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not maintained.

U.S. Embassy

The U.S. Embassy is located on Al-Kindi Street, International Zone, Baghdad.

The mailing address is APO AE (09316).

U. S. Embassy Iraq Home Page
http://iraq.usembassy.gov

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General

Israel, located in the Middle East, is bordered on the NW by the Mediterranean Sea, on the N by Lebanon, on the NE by Syria, on the SE by Jordan and the Gulf of Aqaba, and on the SW by Egypt. The country extends about 260 miles in a N/S direction and varies from 10 to 65 miles in width. The Sinai Peninsula was formerly occupied by Israel after the 1967 Six Day War until 1982. The Gaza Strip, the westernmost coastal area, is now largely administered by the Palestinian Authority.

The Dead Sea, lying on the E side of the country, is 399.9m below sea level and the lowest point on the earth's surface. The terrain consists of low, coastal plains, central mountains, and the Negev Desert in the S.

The climate is primarily temperate, although it is hot and dry in the S and E areas.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Locust Reports

See **Indian Ocean—Cautions** for further information.

Currency

The official currency is the Israeli shekel, consisting of 100 agorot.

Government

Israel is a parliamentary democracy. The country is divided into six districts.

The Knesset, directly elected for a 4-year term, is a 120-member Parliament. The system of election is by proportional representation. Executive power lies in the Cabinet, headed by the directly-elected Prime Minister. The President of the Knesset, who serves as chief of state for a 7-year term, is chosen by the Knesset.

Flag of Israel

The legal system is based on English common law, British Mandate regulations, and, in personal matters, Jewish, Christian, and Muslim traditions.

The capital, as proclaimed in 1950, is Jerusalem. The United States, like nearly all other countries, does not recognize this status and maintains its Embassy in Tel Aviv.

Holidays

The following holiday is observed:

May 1	Labor Day

Other holidays, which are dependent on the appearance of the moon, include Passover, Independence Day, Pentecost, Rosh Hashana (Jewish New Year), Yom Kippur (Day of Atonement), and the Feast of the Tabernacles.

Industries

The main industries are high-technology products, wood and paper products, potash and phosphates, food, beverages, tobacco, caustic soda, cement, construction, metal products, chemical products, plastics, diamond cutting, textiles, and footwear.

The main exports are machinery and equipment, software, cut diamonds, agricultural products, chemicals, textiles, and clothing. The main export-trading partners are the United States, Hong Kong, and the United Kingdom.

The main imports are raw materials, military equipment, investment goods, rough diamonds, fuels, grain, and consumer goods. The main import-trading partners are the United States, China, Switzerland, Germany, and Belgium.

Languages

Hebrew is the official language. Arabic is the official language of the Arab minority. English is also widely used.

Navigational Information

Enroute Volumes

Pub. 132, Sailing Directions (Enroute) Eastern Mediterranean.

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Israel are, as follows:

Territorial Sea	12 miles. *
Fisheries or Economic Zone	200 miles. *
Continental Shelf	Limit of Exploitation.

* Reduced to 3 miles off Gaza.

** To median lines or boundaries.

Pollution

Ballast Water Exchange

In order to prevent the import of nonnative aquatic organisms into the waters of the ports of Israel from ballast water discharges, all ships destined for Israeli ports must exchange any ballast water that has not been taken on in open ocean.

The best method of protecting harbor waters from foreign organisms that may exist in the ballast water collected in foreign harbors and near-shore areas is for the ballast water to be exchanged in open ocean, beyond any continental shelf or fresh water current effect.

For vessels calling at Israeli Mediterranean ports, ballast exchange must be carried out in the Atlantic Ocean when practicable.

For vessels calling at Eilat, ballast exchange must be carried out outside the Red Sea, in the Indian Ocean or the Atlantic Ocean, when practicable.

Vessels failing to comply with the above procedure will not be permitted to pump out their ballast water during their stay in the port or while navigating along the coast of Israel.

A record of the location, date, and time of the ballast water exchange should be entered in the ship's log book, or in other suitable documentation, such as an official ballast water record book. Masters of vessels will be requested to provide ship's inspectors (pilots) with a completed ballast water exchange report.

Pollution Reports

All vessels navigating in Israeli waters should report any pollution, grounding, or dangerous situation to the Marine and Coastal Pollution Division through RCC Haifa. Reports should include the following details:

1. Date and time in UTC.
2. Position of pollution/dangerous vessel.
3. Spread and direction of spillage from polluting vessel.
4. Visible sheen or color of water surface.
5. Any other information concerning the type of pollution, including length and breadth of surface area covered.

The Oil Pollution Response Center is co-located with RCC Haifa and can be contacted, as follows:

1. Telephone: 972-4-8632072
   972-4-8632074
2. Facsimile: 972-4-8632117

Civil Liability

From 20 February 1997, entry to the territorial waters of Israel by oil tankers will be permitted only by those holding an

insurance policy covering civil liability for oil pollution damage issued by their flag state.

Vessels over a certain age carrying persistent oils (as stated in Regulation 15a of Israeli Regulations of Shipping and Ports) will not be allowed to enter Israeli territorial waters, as follows:

1. Mediterranean Sea—Vessels 25 years of age and older.
2. Gulf of Eilat—Vessels 20 years of age and older.

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Indian Ocean—Pollution—MARPOL Special Areas**.

Regulations

Communications

Within Israeli territorial waters, all vessels are forbidden to transmit by radiotelephone or radiotelegraphy except in accordance with the following conditions:

1. Carry out communications with or through an Israeli coastal radio station on its authorized frequency of 26.96 MHz.
2. Use the minimum power possible.
3. Do not cause interference with other authorized stations.
4. Stop transmitting when requested by Israeli coastal stations.

Quarantine

The Maritime Declaration of Health form should be forwarded to the Port Authority, including a copy to the vessel's agent, 12 hours prior to arrival. No contact with the shore is allowed until free pratique is granted by the Quarantine Authorities.

Search and Rescue

Rescue Coordination Center (RCC) Haifa can be contacted, as follows:

1. Telephone: 972-4-8632145
   972-4-8632073
   972-4-8632075
2. Facsimile: 972-4-8632117
   972-4-8590919
3. E-mail: rcc@mot.gov.il

Ship Reporting System

Israeli Ministry of Transport (IMOT)

Vessels bound for Israeli ports are required to report the following information through the Israeli navy to the Israeli Ministry of Transport (IMOT) when 100 miles off the Israeli coast (25 miles for small craft):

1. Vessel name (and previous name).
2. Call sign.
3. Flag and port of registry.
4. IMO number.
5. MMSI.
6. Telex number and satellite telephone number.
7. Mobile telephone number.
8. Year when vessel was built.
9. Gross tonnage.
10. Vessel type and cargo on board.
11. Number of crew/passengers.
12. Agent's name, telephone number, and facsimile.
13. Name of owner and operator.
14. Is the ship holding a valid International Ships Security Certificate (ISPS)?
15. What is the security level on board (Level 1, Level 2, or Level 3)?
16. Are there any guns or weapons on board? If yes, state type and quantity.
17. Last port/previous port and date of departure.
18. Destination.
19. Present position, course, and speed.
20. ETA (UTC).
21. Crew list, including name, rank, nationality, residence (country and city), age, gender, seniority in company, date of signing-on, passport number, and S.B. number.
22. AIS is activated.

Vessels which do not report according to the above IMOT procedures or do not comply with the ISPS Code will not be allowed to enter Israeli territorial waters.

The vessel's agent may be requested to furnish additional details to be submitted 48 hours prior to arrival according to the nature of the last port of call.

The IMOT report must be sent to the Israeli navy by one of the following methods:

1. Facsimile: 972-3-6064567
2. E-mail: crew_report@israports.co.il

The Israeli navy will confirm receipt of the IMOT report via INMARSAT-C.

If the vessel is not equipped with INMARSAT-C, or if communication fails, the IMOT report should be sent through RCC Haifa by e-mail (rcc@mot.gov.il) or by radio (VHF channel 16 or 70, 2187.5 kHz, 4207.5 kHz, 6312 kHz, or 8414.5 kHz).

The report, when sent by e-mail, must be sent as an attachment as the information is being received by a computerized process. The following instructions must be followed:

1. The attached file must be in the approved format only.
2. The attached file must be named "crewreport.xls".
3. The subject line must be "crewreport".

The file can be downloaded from the Israports web site (http://eng.israports.co.il/TargetServices/Pages/download.aspx).

Vessels with internet access can submit the IMOT and 48-hour reports by registering at the Israel Ports Company TASK YAM web site (https://taskyam.israports.co.il).

All vessels shall contact the Israeli navy on VHF channel 16 when 25 miles off the coast. The report shall include the following information:

1. Vessel's name and call sign.
2. Present position, course, and speed.
3. ETA.

Note.—This contact with the Israeli navy is not a substitute for the required IMOT report sent.

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the In-

dian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Indian Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is BRAVO (-2). Daylight Savings Time (CHARLIE (-3)) is maintained from the end of March until the end of October; the exact changeover date should be obtained from local authorities.

U.S. Embassy

The U.S. Embassy is situated at 71 Hayarkon Street, Tel Aviv.

The mailing address is 71 Hayarkon Street, Tel Aviv 6343229.

U. S. Embassy Israel Home Page
http://israel.usembassy.gov

IVORY COAST

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General

The Ivory Coast is located on the W coast of Africa. The country is bounded by Liberia and Guinea on the W, Mali and Burkina Faso (formerly Upper Volta) on the N, and Ghana on the E.

The sea coast, about 275 miles long, lies between the mouth of the **Riviere Cavally** (4°22'N., 7°32'W.) and a position 2.5 miles W of Newtown. The W part of the coast is high and rocky. The country rises gradually to the interior. The E part of the coast is low and sandy, with a series of lagoons and connecting canals reaching some distance inland.

The most important characteristic of the country is the primeval forest, which covers about forty percent of the country's area. North of the forest lies an inland savanna zone of sandy soil, where the vegetation is sparse and the landscape unbroken. Only the Guinea Highlands in the NW, which rise up to 1,460m, break the monotony of the inland plain.

The climate varies with the terrain, from tropical along the coast to semiarid and hot in the N.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in the Ivory Coast are unreliable. Lights may be extinguished; buoys and beacons may be missing, unlit, or out of position.

Cautions

For security reasons, the Ivorian authorities advise that all vessels, particularly fishing vessels, operate at least 3 miles off the coast.

Offshore oil and gas exploration is carried out in the coastal and deep-water areas off the coast of the Ivory Coast.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

The official unit of currency is the French African Community franc, consisting of 100 centimes.

Fishing Areas

Fishing vessels, many of which are unlit, may be encountered off the coast.

When near the coast, a sharp lookout should be kept for canoes.

Government

Flag of Ivory Coast

The Ivory Coast is a republic. The country is divided into 12 districts and two autonomous districts.

The Ivory Coast is governed by a directly-elected President who serves a 5-year term.The President appoints the Prime Minister and the Council of Ministers. The unicameral National Assembly consists of 225 directly-elected members serving 5-year terms.

The legal system is based on French civil law and customary law.

In March 1983, the capital was changed from Abidjan (5°15'N., 4°01'W.) to Yamoussoukro, which is situated 155 miles NW. The new capital is not recognized by the United States, which maintains an official presence in Abidjan.

Holidays

The following holidays are observed:

January 1	New Year's Day
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
Ascension Day	Variable
Whitsunday	Variable
Whitmonday	Variable
August 7	Republic Day
August 15	Assumption Day
November 1	All Saints' Day
November 9	Day of Mourning
November 15	Peace Day
December 7	National Feast Day
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), and the Prophet's Birthday.

Industries

The main industries are agriculture, foodstuffs, beverages, wood products, gold mining, oil refining, truck and bus assembly, textiles, fertilizers, building materials, and electricity.

The main exports are coffee, cocoa, timber, petroleum, cotton, bananas, pineapples, palm oil, and fish. The main export-trading partners are Ghana, the United States, Nigeria, the Netherlands, Gabon, Germany., and France

The main imports are fuel, capital equipment, and foodstuffs. The main import-trading partners are Nigeria, France, China, and the Bahamas,

Languages

French is the official language. Dioula, one of over 60 native dialects, is also widely spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of the Ivory Coast are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Maritime Boundary Disputes

Disputed maritime boundary with Ghana.

Search and Rescue

Abidjan Coast Radio Station (TUA) maintains a continuous listening watch for distress traffic on 2182 kHz and VHF channel 16.

RCC Abidjan can be contacted by telephone (225-21368051).

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ZULU. Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Cocody Riviera Golf, Abidjan.

The mailing address is 01 B.P. 1712, Abidjan 01.

U. S. Embassy Ivory Coast Home Page
http://abidjan.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in the approaches to Abidjan (5°15'N., 4°00'W.). For further information, see Pub. 123, Sailing Directions (Enroute) West Coast of Africa.

JORDAN

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General

Jordan, located in the Middle East, is bounded on the N by Syria, on the E by Iraq, on the SE and S by Saudi Arabia, and on the W by Israel.

The country is landlocked, except for its S extremity, where 16 miles of shoreline on the Gulf of Aqaba provide access to the Red Sea through the port of Aqaba (Al Aqabah).

The climate is predominantly Mediterranean, with hot dry summers and cool wet winters.

The rainy season is from November to April. The E part of the country has an arid desert climate.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Locust Reports

See **Indian Ocean—Cautions** for further information.

Magnetic Anomalies

A local magnetic anomaly of between 2°E and 3°E has been-reported along the entire length of the E side of the Gulf of Aqaba.

Currency

The official unit of currency is the Jordan dinar, consisting of 1,000 fils.

Government

Jordan is a constitutional monarchy. The country is divided into 12 governorates.

Jordan is governed by a King. The Prime Minster is appointed by the King. The Prime Minister appoints the Cabinet, in consultation with the King.

The bicameral National Assembly consists of the appointed (by the King) 60-member House of Notables (Senate), serving

Flag of Jordan

4-year terms, and the directly-elected, via proportional representation, 150-member House of Deputies (House of Representatives), serving 4-year terms.

The legal system is based on Islamic law and civil law.

The capital is Amman.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 30	King Abdullah's Birthday
Palm Sunday	Variable
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 25	Independence Day
June 10	Army Day
November 14	King Hussein's Birthday
December 25	Christmas Day
December 31	New Year's Eve

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, Ascension of the Prophet, and the Prophet's Birthday.

Industries

The main industries are tourism, information technology, clothing, fertilizers, potash, phosphate mining, pharmaceuticals, petroleum refining, cement, inorganic chemicals, and light manufacturing.

The main exports are clothing, phosphates, fertilizers, potash, vegetables, and pharmaceuticals. The main export-trading partners are the United States, Iraq, Saudi Arabia, and India.

The main imports are crude oil, refined petroleum products, machinery, transport equipment, iron, and cereals. The main import-trading partners are Saudi Arabia, China, the United States, and India.

Languages

Arabic is the official language. English is also widely used in commerce and government.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The only maritime territorial claim of Jordan is a territorial sea of 3 miles.

Pollution

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Indian Ocean—Pollution—MARPOL Special Areas**.

Regulations

Reporting

A Notice of Arrival and ETA must be sent to the harbormaster at Aqaba, through the ship's agent, at least 24 hours before arrival. The ETA must be confirmed by radio before entering the Strait of Tiran. A confirmation of ETA by VHF is also required at least 2 hours prior to arrival.

Entry of ships to the anchorage between 2000 and daybreak is prohibited.

Search and Rescue

The Aqaba Harbormaster is responsible for coordinating search and rescue operations and maintains a continuous listening watch for distress traffic on VHF channels 16 and 70.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Indian Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is BRAVO (-2). Daylight Savings Time (CHARLIE (-3)) is observed from the last Friday in March/first Friday in April until the last Friday in October; contact local authorities for the exact changeover date.

U.S. Embassy

The U.S. Embassy is situated at Abdoun, Al-Umawyeen Street, Amman.

The mailing addresses are, as follows:

1. Jordan address—
   P.O. Box 354
   Amman, 11118

2. U.S. address—
   Unit 70200, Box 5
   APO AE (09892-0200)

U. S. Embassy Jordan Home Page
http://jordan.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in the approaches to Aqaba (29°31'N., 35°00'E). For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

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General

Kenya is located on the E coast of Africa. It is bounded on the N by Ethiopia and Sudan, on the S by Tanzania, and on the E by Somalia and the Indian Ocean.

Much of the land in the N and E parts is arid. From the coastal lowlands, the land rises through a wide arid plain to the highlands. Mount Kenya, 5,199m high, rises in the W part. Several plateaus, 910 to 3,000m high, stand between the mountain ranges and provide some of Africa's most fertile soil. The Great Rift Valley extends S from Lake Turkana and divides the central highlands from the W plateau, which gradually descends to Lake Victoria. The Tana, rising on the slopes of Mount Kenya, is the principal river. It is navigable by shallow-draft vessels for about 200 miles above the mouth.

The climate is tropical with wet and dry seasons. However, considerable variations in altitude form differing conditions between the hot, coastal lowlands and the cooler plateaus. Heavy rain falls during April and May, but a second wet season, in November and December, occurs in some places.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Currency

The official unit of currency is the Kenya shilling, consisting of 100 cents.

Fishing Areas

Long-line tuna fishing may be encountered within 20 miles of the Kenyan coast. These fishing lines may be up to 4 miles long and are marked by buoys and flags.

Government

Kenya is a republic. The country is divided into 47 counties.

Kenya is governed by a directly-elected President serving a 5-year term. The Cabinet is appointed by the President. The bicameral National Assembly consists of a 67-member Senate and a 349-member National Assembly, all serving 5-year

Flag of Kenya

terms.

The legal system is based on Kenyan statutory law, Kenyan and English common law, tribal law, and Islamic law.

The capital is Nairobi.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Monday	Variable
May 1	Labor Day
June 1	Madaraka Day
October 10	Moi Day
October 20	Kenyatta Day
December 12	Jamhuri/Independence Day
December 25	Christmas Day
December 26	Boxing Day

Eid-il-Fitr (End of Ramadan), an Islamic holiday subject to the appearance of the moon, is also celebrated.

Industries

The main industries are small-scale consumer products, agricultural products, horticulture, oil refining, aluminum, steel, lead, cement, commercial ship repair, and tourism.

The main exports are tea, horticultural products, coffee, petroleum products, fish, and cement. The main export-trading partners are Uganda, the United States, the Netherlands, Tanzania, Zambia, and the United Kingdom.

The main imports are machinery and transportation equipment, petroleum products, motor vehicles, iron and steel, and resins and plastics. The main import-trading partners are China, India, the United States, and the United Arab Emirates.

Languages

English and Swahili are the official languages. There are many tribal languages.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Kenya are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

* Established a straight baseline system. Claims Ungwana Bay as historic waters.

Search and Rescue

The ATS Division of the Kenyan Directorate of Civil Aviation is responsible for coordination of search and rescue operations. A Rescue Coordination Center (RCC) is located in Nairobi and can be contacted by telephone (254-20-824587 and 254-20-824566).

A Maritime Rescue Coordination Center (MRCC) is located in Mombasa. MRCC Mombasa can be contacted by telephone (254-72-3745487 (mobile) or 254-41-2131100).

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated on United Nations Avenue, Nairobi.

The mailing addresses are, as follows:

1. Kenya address—
   P.O. Box 606, Village Market
   00621 Nairobi
2. U. S. address—
   U.S. Department of State
   Washington, DC (20521-8900)

U. S. Embassy Kenya Home Page
http://nairobi.usembassy.gov

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General

Kuwait is located at the NW corner of the Persian Gulf. It is bordered on the NW by Iraq, on the SW by Saudi Arabia, and on the E by the Persian Gulf. The islands of Qaruh, Kubrqurayn, Faylakah, Awhah, Maskin, Umm al Maradim, Bubiyan, and Al Warbah are dependencies of Kuwait. Ownership of Umm al Maradim and Qaruh is disputed by Saudi Arabia.

The terrain is mostly flat with some undulating desert plain.

The climate is dry desert, with intensely hot summers and short cool winters.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation off Kuwait are reported to be unreliable.

Aids may be missing, unlit, or out of position. Mariners are also cautioned that some buoys and beacons may not conform to the IALA Region A system.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Indian Ocean—Cautions** for further information.

Piracy

Acts of piracy, mostly against small merchant vessels, have been occurring in and around Iraqi territorial waters, including the Khor Abd Allah. For further information, see **Iraq—Cautions—Piracy**.

Locust Reports

See **Indian Ocean—Cautions** for further information.

Currency

The official unit of currency is the Kuwaiti dinar, consisting

of 1,000 fils.

Government

Flag of Kuwait

Kuwait is a constitutional monarchy. The country is divided into six governorates.

Kuwait is governed by an Amir. The Prime Minister, who is named by the Amir, appoints the Council of Ministers, with the approval of the Amir. The unicameral National Assembly consists of 50 directly-elected members, serving 4-year terms, and 15 ex-officio cabinet ministers appointed by the Prime Minister.

The legal system is based on a English common law, French civil law, and Islamic law.

The capital is Kuwait (Al Kuwayt).

Holidays

The following holidays are observed:

January 1	New Year's Day
February 25	Kuwait National Day
February 26	Liberation Day

Islamic holidays, which are subject to the appearance of the moon, include Al-Isra, Eid Al-Fitr (End of Ramadan), Waqfat Arafat, Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), and the Prophet's Birthday.

Industries

The main industries are petroleum, petrochemicals, cement, shipbuilding and repair, desalination, food processing, and construction materials.

The main exports are oil, refined petroleum products, and fertilizers. The main export-trading partners are South Korea, India, Japan, the United States, and China.

The main imports are food, construction materials, vehicles and parts, and clothing. The main import-trading partners are the United States, China, Saudi Arabia, South Korea, Japan, and Germany.

Languages

Arabic is the official language. English is widely used.

Mined Areas

A Mine Danger Area lies off the coast of Kuwait from close E of Hadd al Himarah (28°32.0'N., 48°25.9'E.) to W of Ard Bard Halq, extending NW for about 6 miles. No swept routes exist through this area.

Former Mine Danger Areas exist off the coast of Kuwait and in the entire Khalij al Kuwayt. Mines could still present a hazard in these areas; anchoring, fishing, or seabed operations are not recommended anywhere in this area. Additionally, drifting mines may be encountered anywhere.

Mine sightings should be reported to the naval authorities by INMARSAT (150-5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are promulgated by Navigation Notices issued by the Middle East Navigation Aids Service (MENAS) and MARAD advisories.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The only maritime territorial claim of Kuwait is a territorial sea of 12 miles.

Maritime Boundary Disputes

Kuwait and Saudi Arabia continue negotiating a joint maritime boundary with Iran.

No maritime boundary with Iraq exists in the Persian Gulf.

Pollution

General

Vessels shall not discharge into the water of the port any part of the content of their cargo, slop, ballast tanks or bilges which is liable to pollute the waters. Kuwait has stringent laws in force concerning the pollution of the sea by oil; persons responsible for pollution are liable to heavy fines.

Ballast Water Management

The coast of Kuwait lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Indian Ocean—Pollution—Persian Gulf Area Ballast Water Management Regulations.**

Regulations

General

The selling, giving, or taking out of the ship or transferring from one ship to another of alcohol is strictly prohibited by law. Alcoholic beverages are strictly prohibited to be held out of bond. The import of firearms and ammunition is forbidden.

Quarantine

Quarantine messages for Mina Abd Allah, Mina al Ahmadi, and Mina ash Shuaybah should contain the following information:

1. Vessel name.
2. Last port of call.
3. Health condition of crew.
4. Validity of Smallpox Certificate and Cholera Certificate.
5. Request for free pratique.

Reporting

Due to the prevailing situation in the Persian Gulf area, the Ports Public Authority now exempt vessels, proceeding for Kuwait, from sending cables through Kuwait shore stations giving details of ETA. It is now requested that the vessel's agent at the port of departure, from which the vessel sailed for Kuwait, notify the Director, Marine Operations Department, Ports Public Authority, Kuwait (Telex: HM SHP 22740 KT), as soon as the vessel departs. Messages should contain the following information:

1. Date and time of sailing.
2. Length of vessel.
3. Arrival draft.
4. Flag.
5. Last port of call.

When entering Kuwaiti territorial waters, vessels must contact the Marine Operations Department, Ports Public Authority, in the usual manner.

Every merchant ship entering a port between sunrise and sunset shall fly, in addition to the required national and courtesy flags, the vessel's signal letter flags.

Search and Rescue

The Maritime Affairs Department is responsible for coordinating search and rescue operations and can be contacted, as follows:

1. Telephone: 965-24814371
   965-24844102
2. Facsimile: 965-24814372
3. E-mail: marine-dept@mockw.net

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

Traffic Separation Schemes

An IMO-approved Traffic Separation Scheme is located off Kuwait in the approaches to Mina al Ahmadi, Ash Shuaybah, and Mina Abd Allah.

U.S. Embassy

The U.S. Embassy is situated in Bayan 36302, Block 13, Al-Masjed Al-Aqsa Street, Kuwait City.

The mailing addresses are, as follows:

1. Kuwait address—
   P.O. Box 77
   Safat 13001
2. U.S. address—
   PSC 1280
   APO AE (09880-9000)

U. S. Embassy Kuwait Home Page
http://kuwait.usembassy.gov

MADAGASCAR

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General

Madagascar, the world's fourth-largest island, lies in the Indian Ocean and is separated from the African continent by the Mozambique Channel. The island is about 980 miles long and attains a maximum width of about 360 miles. The coasts of the island are generally low with the E shore being bordered at many places by lagoons.

The W shore is broken by the estuaries of many rivers and is fringed by numerous small islands and islets. The interior is formed mostly by a plateau with an average height of 300m. Several isolated massifs, 2,640 to 2,880m high, rise in the N, central, and S parts.

The climate is tropical along the coasts, temperate inland, and arid in the S part.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Buoyage around the island cannot be relied upon and navigational lights on the coasts are frequently reported to be extinguished or irregular.

Cautions

Off-lying Dangers

Almost the entire W and NW coasts of Madagascar are fronted by steep-to banks or chains of shoals extending far offshore. Numerous dangers lie on these banks; there may also be other undiscovered dangers anywhere off these coasts.

Seismic Surveys

Vessels conducting seismic surveys may be encountered off the coast of Madagascar.

Magnetic Anomalies

Magnetic anomalies have been reported off the coast of Madagascar, as follows:

1. In the vicinity of Farafangana (22°49'S., 47°51'E.).
2. In the vicinity of Valomandry (19°20'S., 48°58'E.).

3. In the vicinity of Fenoariva (17°23'S., 49°25'E.).
4. In the vicinity of Ile Sainte-Marie (16°55'S., 49°53'E.).
5. In the vicinity of Iharana (13°21'S., 50°00'E.).

Currency

The official unit of currency is the ariary, consisting of 5 iraimbilanja.

Fishing Areas

Information on fishing activities in the vicinity of Madagascar is given in the table titled **Madagascar—Fishing Operations**.

Government

Flag of Madagascar

Madagascar is a republic. The country is divided into six provinces.

Madagascar is governed by a directly-elected President serving a 5-year term. The Prime Minister is appointed by the President. The cabinet is named by the Prime Minister.

The unicameral National Assembly consists of 151 members, of which 87 members are directly elected from single-seat constituencies and 64 members are directly elected from two-seat constituencies by proportional representation, all serving 4-year terms.

The legal system is based on French civil law and customary law.

The capital is Antananarivo (Tananarive).

Holidays

The following holidays are observed:

January 1	New Year's Day
March 29	Martyr's Day (Memorial Day)
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
Ascension Day	Variable
Whitsunday	Variable
Whitmonday	Variable
June 26	Independence Day
August 15	Assumption of the Blessed Virgin Mary
September 27	St. Vincent de Paul Day
November 1	All Saints Day
December 25	Christmas Day
December 30	Anniversary of the Democratic Republic of Madagascar

Industries

The main industries include agriculture, meat processing, seafood, soap, breweries, tanneries, sugar, textiles, glassware, cement, automobile assembly, paper, petroleum, tourism, and mining.

The main exports are coffee, vanilla, shellfish, sugar, cotton cloth, clothing, chromite, and petroleum products. The main export-trading partners are France, the United States, Belgium, the Netherlands, South Africa, Japan, and South Korea.

The main imports are capital goods, petroleum, consumer goods, and food. The main import-trading partners are China, France, Algeria, India, and Belgium.

Languages

French and Malagasy are the official languages.

Madagascar—Fishing Operations

Type of Fishing	Fishing Technique	Season
Sailing canoes	Traps, handlines, and gill nets	Year round
Motorized boats less than 10m long	Traps, handlines, trolling, and gill nets	Year round
Shrimp trawlers less than 25m long	Trawling (single rig and double rig)	Mainly from October/November to May
Tuna boats less than 30m long	Deep long lines	August to January—between Madagascar and the Equator January to June—south of Mauritius
Tuna boats (600 to 2,500 gross tons)	Purse seining	Year round. The main season is from September to March in the area of Madagascar/Seychelles Bank/Chagos Archipelago

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Madagascar are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or 100 miles from the 2,500m depth isobath.

* Claims straight baselines.

Maritime Boundary Disputes

Claims French-administered Iles Glorieuses (11°33'S., 47°18'E.),Ile Juan de Nova (17°03'S., 42°43'E.), Ile Europa (22°20'S., 40°21'E.), and Bassas da India (21°27'S., 55°27'E.).

Claims Banc du Geyser (12°41'S., 46°26'E.), a drying reef in the Mozambique Channel.

Pollution

The discharge of oil products into the sea is prohibited, as follows:

1. Within 100 miles of the coast of Madagascar W of the meridian of Tanjon i Vohimena, the S point of the island, and the meridian of Tanjon i Bobomby, the N point of the island.
2. Within 150 miles of the coast of Madagascar E of the meridian of Tanjon i Vohimena, the S point of the island, and the meridian of Tanjon i Bobomby, the N point of the island.

All vessels navigating in the coastal waters of Madagascar are requested to report oil pollution and accidents which could lead to pollution to the Organe de Lutte Contre l'Evenement de Pollution par les Hydrocarbures (OLEP), as follows:

1. Telephone:261-20-22-00303
2. Facsimile:261-20-22-64081
3. E-mail:info@olep.mg

The report should contain the following information:

1. Date and type of pollution.
2. Position.
3. Wind direction and speed at sea surface.
4. Sea state.
5. Origin of pollution.
6. Name, tonnage, and nationality of vessel causing pollution.
7. Name(s) of vessel(s) in vicinity.
8. Information on type of oil.
9. Dimensions of the oil slick (width and length) and the estimated amount of oil spilled.
10. Measures already taken by the vessel to stop the further spilling of oil or to combat the floating oil.
11. Details of observer.

Regulations

Except in case of emergency or distress, foreign fishing vessels are prohibited from entering the territorial waters off the ports of Antsiranana (Diego Suarez), Toamasina, Taolanaro, Hellville, Mahajanga, and Toliara. Anchorage may be authorized, temporarily, in certain circumstances.

Search and Rescue

A Joint Rescue Coordination Center (JRCC) located in Antananarivo can be contacted, as follows:

1. Telephone: 261-20-2244410
   261-20-2245909
2. Facsimile: 261-20-2245909
3. E-mail: jrccmad@moov.mg
   jrccmad@skyfile-c.com

Note.—The JRCC does not operate 24 hours.

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Madagascar—Storm Signals

Signal No.	Signal	Meaning
1	Cylinder above two cones, points upward	Between Antsiranana and Antalaha—E coast of Madagascar
2	Cylinder between two cones, points upward	Between Antalaha and Port Sainte Marie (Ambodifototra)—E coast of Madagascar
3	Cylinder below two cones, points upward	Between Port Sainte Marie (Ambodifototra) and Vatomandry—E coast of Madagascar
4	Cylinder above two cones, points downward	Between Vatomandry and Mananjary—E coast of Madagascar
5	Cylinder between two cones, points downward	Between Mananjary and Farafangana—E coast of Madagascar
6	Cylinder below two cones, points downward	Between Farafangana and Tolanaro (Faradofay)—E coast of Madagascar
7	Cylinder below two cones, with the upper cone point downwards and the lower cone point upwards	Between Antsiranana and Hellville (Andoany)—W coast of Madagascar

Madagascar—Storm Signals		
Signal No.	**Signal**	**Meaning**
8	Cylinder above a cone, points upwards	Between Hellville (Andoany) and Mahajanga (Majunga)—W coast of Madagascar
9	Cylinder below a cone, points upwards	Between Mahajanga (Majunga) and Maintirano—W coast of Madagascar
10	Cylinder above a cone, points downwards	Between Maintirano and Morondava—W coast of Madagascar
11	Cylinder below a cone, points downwards	Between Morondava and Toliari—W coast of Madagascar
12	Cylinder above two cones, with the upper cone point downwards and the lower cone point upwards	Between Toliari and Tolanaro (Faradofay)—S extremity of Madagascar
13	Cylinder between two cones, points towards the cylinder	Comoros
14	Cylinder between two cones, bases towards the cylinder	E part of the Comoros

Signals

Storm signals denoting the localities of the Comoros and Madagascar threatened by a cyclone are indicated by showing a black cylinder and black cones, displayed from a flagstaff, as described in the accompanying table titled Madagascar—Storm Signals. The signals are numbered from 1 to 14 to permit rapid transmission by radio.

These signals are displayed at the following ports:

1. Ananalaval (14°38'S., 47°46'E.).
2. Antalaha (14°55'S., 50°16'E.).
3. Baie d'Antsiranana (12°14'S., 49°22'E.).
4. Iharana (13°21'S., 50°01'E.).
5. Manakara (22°08'S., 47°01'E.).
6. Port de la Nievre (12°16'S., 49°18'E.).
7. Taolanara (25°02'S., 47°00'E.).
8. Toamasina (18°09'S., 49°24'E.).
9. Toliara (23°21'S., 43°40'E.).

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 207-A, Andranoro, Antananarivo.

The mailing address is B.P. 620, Antsahavola, Antananarivo.

U. S. Embassy Madagascar Home Page
http://www.antananarivo.usembassy.gov

MALAYSIA

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General

Malaysia consists of 11 states and one federal territory, located on the mainland (Malay Peninsula), and the states of Sabah and Sarawak, located on the island of Borneo. The two sections of the country are separated by the South China Sea and lie about 400 miles apart.

The mainland section of Malaysia is bounded on the N by Thailand and on the S by Singapore.

The island section is bounded on the S side by Indonesia (S part of Borneo) and Brunei lies about midway along its N coast.

Malaysia is involved in a complex territorial dispute with China, the Philippines, Taiwan, Vietnam, and Brunei concerning the Spratly Islands. In addition, Malaysia is involved in a dispute with Singapore concerning two islands, with Brunei concerning two islands, and with the Philippines concerning Sabah.

The terrain consists of coastal plains rising to hills and mountains. Most of the central part of the Malay Peninsula is covered by dense tropical jungle.

The climate is tropical, with a Southwest Monsoon from April to October and a Northeast Monsoon from October to February.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Fishing Devices

Fish aggregating devices are moored at a number of places off the E and W coasts of the Malay Peninsula. These devices lie in depths of up to 30m or up to 10 miles offshore and are usually marked by buoys. Vessels should give then a wide berth.

Fishing stakes are extensively employed off the coast within the 20m depth contour. During the Northeast Monsoon they are frequently destroyed; broken wooden stakes, often below water and dangerous to small craft, may be encountered anywhere along the coast.

Fish-trapping enclosures are common off the coast of Malaysia. They have a solid platform well above HW and consist of poles strengthened by crossbeams on which there may be a hut. The platform is usually at the apex of a V formed by poles embedded in the mud. The arms of the V may extend up to 0.5 mile from the apex, which usually points in the direction of the flood current. The platforms are rarely found in depths greater than 10m and may be useful in pointing out shallow water.

Single spars anchored to the bottom and showing a slender above-water extension, sometimes carrying a palm frond, may be encountered further offshore in depths up to 30m. Small craft lie to these during the strength of the current and catch fish attracted to the eddies caused by the spar.

Rigs

Movable oil drilling rigs and production platforms may be encountered off the coasts of Malaysia and in open waters. Buoys associated with the drilling operations are frequently moored in the vicinity of these structures. The positions of these rigs and buoys are frequently changed and are generally promulgated by radio navigational warnings.

Piracy

It was reported (1995) that vessels have been attacked by armed thieves in the vicinity of Malacca Strait and Singapore Strait, mainly near Phillip Channel. These attacks were usually made from fast motor boats approaching from astern. Loaded vessels with low freeboard seem to be particularly vulnerable. Vessels with low freeboard transiting the Strait of Malacca often use security lights to guard against piracy. These lights by their brilliance may obscure the vessel's navigation lights.

Incidents of piracy have been reported at Tanjung Pelepas (1°21'N., 103°33'E.) and Tanjung Pengelih (1°22'N., 104°06'E.).

The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur.

The center operates for the Southeast Asian Region and is able to receive reports from vessels concerning attacks and advise of danger areas. Piracy warnings originated by the Center will be broadcast daily to NAVAREA XI, VIII, and X through Enhanced Group Calling using the SafetyNET System.

For further details the IMB Center can be contacted, as follows:

IMB Piracy Reporting Center
ICC IMB (Asia Regional Office)
P.O. Box 12559
50782 Kuala Lumpur
Malaysia
Telephone: 60-3-2078-5763
Facsimile: 60-3-2078-5769
Telex: MA34199 IMBPCI
E-mail: imbkl@icc-ccs.org
piracy@icc-ccs.org

Web site: http://www.icc-ccs.org (click on IMB Piracy Reporting Center)

It should be noted that mariners can use the above web site to access the following information promulgated by the IMB Piracy Reporting Center:

1. IMB Piracy Alert.
2. IMB Weekly Piracy Report.
3. IMB Live Piracy Map.

A 24-hour Anti-Piracy Helpline has been established at the IMB Piracy Reporting Center to report information concerning maritime crime and security, including terrorism, piracy, and other illegal activities. All information will be treated in strict confidence and will be passed on to relevant authorities for further action. The Anti-Piracy Helpline can be contacted 24 hours, as follows:

1. Telephone: 60-3-2031-0014
2. Facsimile: 60-3-2078-5769
3. Telex: MA 34199 IMBPCI
4. E-mail: imbsecurity@icc-ccs.org

Sand Waves

Strong tidal currents in Malacca Strait, arising from the water exchange between the Indian Ocean and the South China Sea, cause large uniform sand waves on the sea bed. For further information, see **Singapore—Cautions—Sand Waves**.

General

For further information concerning dangers in the vicinity of the Malacca and Singapore Straits, see **Singapore—Cautions**.

Currency

The official unit of currency is the Malaysian ringgit, consisting of 100 sen.

Firing Areas

The following firing practice and exercise areas lie off the W coast of Malaysia:

1. **(WM) D1 Butterworth.—**Enclosed by a line joining the following positions:
   a. 5°43'N, 100°19'E.
   b. 5°43'N, 100°15'E.
   c. 5°57'N, 100°02'E.
   d. 6°02'N, 100°02'E.
   e. 6°04'N, 100°04'E.
   f. 6°04'N, 100°09'E.
   g. 5°53'N, 100°21'E.
2. **(WM) D16 Song Song.—**Enclosed by a line joining the following positions:
   a. 5°49'N, 100°17'E.
   b. 5°49'N, 100°18'E.
   c. 5°48'N, 100°20'E.
   d. 5°47'N, 100°21'E.
   e. 5°46'N, 100°19'E.
   f. 5°45'N, 100°18'E.
   g. 5°47'N, 100°17'E.
3. **(WM) D18 Butterworth.—**Enclosed by a line joining the following positions:
   a. 5°00'N, 99°00'E.
   b. 5°47'N, 99°00'E.
   c. 5°47'N, 99°47'E.
   d. 5°00'N, 99°47'E.
   e. 5°05'N, 99°05'E.
   f. 5°13'N, 99°05'E.
   g. 5°13'N, 99°42'E.
   h. 5°05'N, 99°42'E.
   i. 5°42'N, 99°05'E.
   j. 5°42'N, 99°42'E.
   k. 5°34'N, 99°42'E.
   l. 5°34'N, 99°05'E.
4. **(WM) P19 Bukit Serene.—**An area within a circle, with a radius of 2 miles, centered on 1°28'N, 103°46'E with the S border coinciding, with the coast line of South Johor.
5. **(WM) D30 Butterworth.—**Enclosed by a line joining the following positions:

a. 7°04'N, 98°00'E.
b. 5°45'N, 98°00'E.
c. 4°08'N, 100°18'E.
d. 5°00'N, 100°05'E.
e. 5°00'N, 100°00'E.
f. 6°15'N, 100°00'E.
g. 6°20'N, 99°55'E.
h. 6°17'N, 99°30'E.

6. **(WM) D41 Malaysian Naval Exercise Area.—**Enclosed by a line joining the following positions:
a. 1°25'N, 103°00'E.
b. 1°30'N, 103°00'E.
c. 1°27'N, 103°10'E.
d. 1°22'N, 103°10'E.

7. **(WM) R301 Lumpur.—**Enclosed by a line joining the following positions:
a. 3°20'N, 101°08'E counterclockwise along a 20-mile arc from the point of vortex (3°20'N., 101°28'E.) to
b. 2°59'N, 101°27'E direct to
c. 2°40'N, 101°25'E on a 40-mile arc from the point of vortex, then clockwise along the 40-mile arc to
d. 3°20'N, 100°48'E.

8. **(WM) R401 Lumpur.—**Enclosed by a line joining the following positions:
a. 3°20'N, 100°57'E.
b. 3°20'N, 100°37'E.
c. 4°00'N, 100°09'E.
d. 4°00'N, 100°29'E.
e. 3°48'N, 100°47'E then S for 2 miles to the W side of the coast line and then to
f. 3°35'N, 101°01'E.

9. **(WM) R402 Alor Setar.—**Enclosed by a line joining the following positions:
a. 6°15'N, 99°30'E.
b. 6°15'N, 100°05'E then W along the Alor Setar Control Zone boundary to
c. 6°26'N, 100°09'E then a straight line joining the Malaysia/Thailand border to
d. 6°26'N, 99°30'E.

10. **(WM) R403 Alor Setar.—**Enclosed by a line joining the following positions:
a. 5°58'N, 100°21'E then W along the coast to Alor Setar Control Boundary to
b. 6°24'N, 100°08'E then W along the same boundary to
c. 6°10'N, 100°04'E.
d. 5°58'N, 100°17'E.

For further information concerning firing practice areas lying off the E coast of the Malay Peninsula and off the N coast of East Malaysia, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Government

Malaysia is a constitutional monarchy. The country is divided into 13 states and one federal territory with three components.

Malaysia is governed by a paramount ruler (King) elected by and from the hereditary rulers of the states for a 5-year term. The Prime Minister is the leader of the party who wins a plurality in legislative elections for the House of Representatives.

Flag of Malaysia

The bicameral Parliament consists of a 70-member Senate (44 appointed by the King and 26 appointed by the state legislatures), serving 3-year terms, and a 222-member directly-elected House of Representatives, serving 5-year terms.

The legal system is based on English common law, Islamic law, and customary law.

The capital is Kuala Lumpur.

Holidays

The following holidays are observed:

January 1	New Year's Day (not observed in Johore, Kedah, Kelantan, Perlis, and Trengganu)
Chinese New Year	Variable
May 1	Labor Day
Wesak Day	Variable
First Saturday in June	King's Birthday
August 31	Independence Day
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

In addition, numerous local holidays, which vary from port to port, are also observed.

Industries

The main industries are, as follows:

1. Peninsular Malaysia—Rubber and oil-palm processing and manufacturing, petroleum and natural gas, light manufacturing industries, pharmaceuticals, medical technology, electronics and semi-conductors, and timber processing.
2. Sabah—Logging, petroleum production, and natural gas production.
3. Sarawak—Agricultural processing, petroleum production, natural gas production, and logging.

The main exports are semi-conductors and electronic equipment, petroleum and liquefied natural gas, wood and wood products, palm oil, rubber, textiles, chemicals, and solar panels.

The main export-trading partners are Singapore, China, Japan, the United States, and Thailand.

The main imports are electronics, machinery, petroleum products, plastics, vehicles, iron and steel products, and chemicals. The main import-trading partners are China, Singapore, Japan, the United States, and Thailand.

Languages

Bahasa Malaysia is the official language. Tamil, Chinese, and tribal dialects are also widely used. English is used in commerce, government, and secondary education.

Meteorology

Marine weather forecasts are available in English and Malay from the Malaysian Meteorological Department.

Malaysian Meteorological Department Home Page

http://www.met.gov.my

Navigational Information

Enroute Volumes

Pub. 161, Sailing Directions (Enroute) South China Sea and Gulf of Thailand.

Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Maritime Claims

The maritime territorial claims of Malaysia are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

* Claims straight baselines. Prior authorization required for nuclear-powered vessels or vessels carrying nuclear material to enter the territorial sea.

Maritime Boundary Disputes

Involved in a complex dispute with China, the Philippines, Taiwan, Vietnam, and Brunei over the

Spratly Islands (8°38'N., 111°55'E.)

. The 2002-issued *Declaration on the Conduct of Parties in the South China Sea* has eased tensions but falls short of a legally-binding code of conduct desired by several of the disputants. For further information, see **China—Navigational Information—Maritime Boundary Disputes in Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia**.

The International Court of Justice awarded sovereignty of Pedra Blanca (Pulau Batu Putih) (1°20'N., 104°24'E.) to Singapore and Middle Rocks to Malaysia but did not rule on maritime regimes, boundaries, or the disposition of South Ledge.

China and Taiwan both claim James Shoal (3°58'N., 112°20'E.), which has an average depth of about 17m, and lies about 50 miles off the coast of the Malaysian state of Sawarak on the NW side of the island of Borneo, despite the fact the shoal lies within the exclusive economic zone of Malaysia.

Pilotage

Pilotage is compulsory for all major ports and offshore terminals in Peninsular Malaysia, Sarawak, and Sabah.

Pollution

Reports of pollution can be made to the Department of the Environment by telephone, as follows:

1. Hot line: 60-1-800882727
2. Complaints: 60-3-88891972

Department of the Environment Home Page
http://www.doe.gov.my

Regulations

Vessels are advised not to anchor in the Strait of Malacca and Singapore Strait between the landward limit of the Traffic Separation Scheme or precautionary area and the adjacent port limits. Vessels are to anchor only in designated areas.

For information concerning Navigation Rules for the Malacca Strait and Singapore Strait, see **Singapore—Regulations**.

Routes

A Deep-Water Route, best seen on the chart, is located on the SW side of Port Dickson to the Tanjung Keling Traffic Separation Scheme in the Strait of Malacca.

Search and Rescue

The Malaysian Maritime Enforcement Agency is responsible for coordinating search and rescue operations.

Malaysia—MRCC/MRSC Contact Information

Station	Telephone	Facsimile	E-mail
MRCC Putrajaya	60-3-89413140	60-3-89413129	mrccputrajaya@mmea.gov.my
Peninsular Malaysia			
MRSC Langkawi	60-4-9665307	60-4-9669543	opsroomwiluta@mmea.gov.my

Malaysia—MRCC/MRSC Contact Information			
Station	**Telephone**	**Facsimile**	**E-mail**
MRSC Kuantan	60-9-5717368 60-9-5734066 60-9-5735587	60-9-5738476	opsroomwiltim@mmea.gov.my
MRSC Johor Bahru	60-7-2219231	60-7-2224739	mrccputrajaya@mmea.gov.my
Sabah and Sarawak			
MRSC Kota Kinabalu (Sabah)	60-88-429803 60-88-425073	60-88-427075 60-88-384164	mrsckkwilsab@ymail.com
MRSC Kuching (Sarawak)	60-82-367943	60-82-364941	mrscwilswk@mmea.gov.my

A network of Maritime Rescue Coordination Centers (MRCC) and Maritime Rescue Subcenters (MRSC) monitors VHF, MF DSC, 2182 kHz, and VHF channel 16 for distress traffic. Contact information can be found in the table titled **Malaysia—MRCC/MRSC Contact Information**.

Ship Reporting System

STRAITREP

STRAITREP is a joint Indonesia-Malaysia-Singapore mandatory ship reporting system in the Strait of Malacca and Singapore Strait. For further information on STRAITREP, see **Singapore—Ship Reporting System**.

Signals

General

Signals are used within the limits of ports in Malaysia are given in the accompanying table titled **Malaysia—Port Signals**.

Diving Operations

A vessel attending underwater swimmers or divers will display the following signals as a warning to proceed at reduced speed in the vicinity:

1. By day—A red flag with a white diagonal cross.
2. At night—A red light waved slowly from side to side.

Ammunition and Explosives

Vessels employed in dumping ammunition and other explosives at sea display the following signals:

1. By day—A red flag at a height of not less than 3.6m above the upper deck.
2. At night—A red flag at a height of not less than 3.6m above the upper deck.

These vessels should be given a wide berth.

Time Zone

The Time Zone description is HOTEL (-8). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) in Malaysia are, as follows:

1. **Sarawak—**Approaches to Bintulu Port. (Government of Malaysia)
2. **Strait of Malacca**
   a. At One Fathom Bank (Permatang Sedepa). (IMO adopted)
   b. Port Klang (Pelabuhan Klang) to Port Dickson. (IMO adopted)
   c. Port Dickson to Tanjung Keling. (IMO adopted)
   d. Melaka to Iyu Kecil. (IMO adopted)

Malaysia—Port Signals		
Day signals	**Night signals**	**Meaning**
A red flag	—	When displayed by a port service craft or buoytender—Indicates buoying, sweeping, or a diver down. Other vessels must keep well clear and reduce speed to dead slow when passing.
A red flag at both main yardarms	A red light at both main yardarms	When shown on a dredge—Indicates to keep well clear on either side.
A black ball on one main yardarm and a red flag on the opposite main yardarm	A white light on one main yardarm and a red light on the opposite main yardarm	When shown on a dredge—Indicates to not pass on the side of the red flag or red light.
Note.—All lights, shapes and signals required by the Regulations for Preventing Collision at Sea, and all the flags and meanings of the International Code of Signals will be recognized within the port limits with the above modifications and additions.		

Information on Traffic Separation Schemes off Singapore which affect traffic using the Strait of Malacca can be found in **Singapore—Traffic Separation Schemes**.

U.S. Embassy

The U.S. Embassy is situated at 376 Jalan Tun Razak, 50400 Kuala Lumpur.

The mailing addresses are, as follows:

1. Malaysia address—
   376 Jalan Tun Razak
   50400 Kuala Lumpur
2. U.S. address—
   American Embassy Kuala Lumpur
   APO AP (96535-8152)

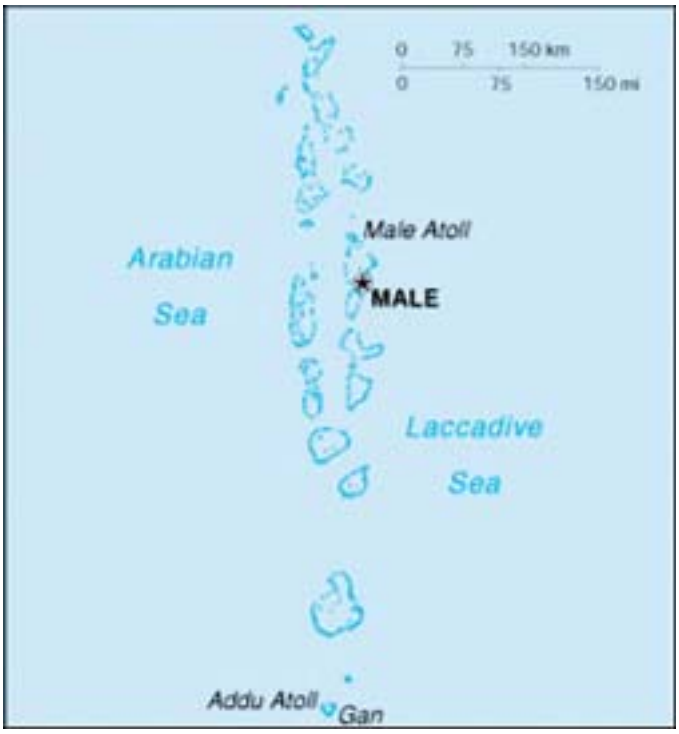
U. S. Embassy Malaysia Home Page
http://malaysia.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Management System is in operation in Pelabuhan Sungai Udang (2°15'N., 102°08'E.).

A Vessel Traffic Service is in operation in Port Klang (3°00'N., 101°22'E.), on the W coast of Malaysia. See Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera for further information.

MALDIVES



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General

Maldives, lying about 400 miles SW of Sri Lanka (Ceylon), consists of a chain of 19 atolls formed by about 2,000 low, coral islets. This chain extends N for about 470 miles from **Addu Atoll** (0°35'S., 73°05'E.). Only about 200 of the larger coral islets are inhabited.

The islets are seldom more than 2m high, so that the coconut palms standing on them appear, on first approach, to be growing out of the water.

The climate is tropical, being mostly hot and humid. There is a dry Northeast Monsoon, from November to March, and a rainy Southwest Monsoon, from June to August.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported that many lighted beacons, of limited range, have been erected on the reefs and atolls for the use of local fishermen.

Cautions

Maldives charts are based mainly on satellite imagery and aerial photography. Depths inside the atolls have been obtained through lead line surveys from as early as 1835. Many uncharted dangers exist and mariners should use extreme caution when navigating.

Depths, coastlines, and associated features may have changed since the tsunami of late 2004. Local knowledge should be obtained before navigating in these waters.

Currency

The official unit of currency is the rufiyaa (Maldivian rupee), consisting of 100 laari. It is reported that Sri Lankan currency is also used.

Fishing Areas

Fishing with traps, hand lines, and trolling gill nets is carried out in the vicinity of the atolls.

Fish Aggregating Devices are common in the deep waters surrounding the islands. These devices, which are moored 12 to 15 miles off the coast and are used to attract fish, are not normally charted.

Fishing vessels may be encountered in the vicinity of the following atolls and their associated islands:

1. Addoo Atoll (0°04'S., 73°10'E.).

2. Huvadhoo Atoll (0°30'N., 73°15'E.).
3. Hadhdhunmathee Atoll (1°55'N., 73°24'E.).
4. Kolhumatdulu Atoll (2°22'N., 73°07'E.).
5. Mulaku Atoll (3°00'N., 73°30'E.).
6. South Nilandhe Atoll (2°50'N., 72°55'E.).
7. North Nilandhe Atoll (3°12'N., 72°55'E.).
8. Ari Atoll (3°55'N., 72°55'E.).
9. Rasdhoo Atoll (4°18'N., 72°59'E.).
10. South Male Atoll (3°00'N., 73°30'E.).
11. Male Atoll (4°25'N., 73°30'E.).
12. Gaafaru (4°45'N., 73°26'E.).
13. Faadhippolhu Atoll (5°24'N., 73°30'E.).
14. South Maalhosmadulu Atoll (5°15'N., 73°00'E.).
15. North Maalhosmadulu Atoll (5°35'N., 72°55'E.).
16. Powell Islands (5°58'N.,72°57'E.).

Government

Flag of Maldives

Maldives is a republic. The country is divided into seven provinces and one municipality.

Maldives is governed by a directly-elected President serving a 5-year term. The Prime Minister is appointed by the President. The Cabinet of Ministers is appointed by the President. The unicameral People's Council consists of 85 directly-elected members serving 5-year terms.

The legal system is based on Islamic law, with elements of English common law, primarily in commercial matters.

The capital is **Male** (4°10'N., 73°30'E.), which stands on one of the islands of North Male Atoll.

Holidays

The following holidays are observed:

January 1	New Year's Day
July 26-27	Independence Days
November 3	Victory Day
November 11-12	Republic Days

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are fish processing, tourism, shipping, boat building, coconut processing, woven mats, rope, handicrafts, and coral and sand mining.

The main export is fish. The main export-trading partners are Thailand, France, the United States, Japan, Germany., the United Kingdom, and Italy.

The main imports are petroleum products, clothing, and intermediate and capital goods. The main import-trading partners are Singapore, the United Arab Emirates, India, Malaysia, China, Sri Lanka, and Thailand.

Languages

Maldivian Divehi is the official languages. English is used by most government officials.

Navigational Information

Enroute Volume

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of Maldives are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims archipelagic status. Requires advance permission or notification for innocent passage of warships in the territorial sea.

Regulations

Quarantine

Vessels with smallpox on board are placed under strict quarantine for 40 days after the recovery of the last person affected. In cases where the disease was prevalent at the vessel's previous port, quarantine is enforced for 12 days, even if there is no sickness on board.

Search and Rescue

The Maldives Coast Guard is responsible for coordinating search and rescue operations within the Maldives Search and Rescue Region and can be contacted, as follows:

1. Telephone: 960-3398898
   960-3395981
2. Facsimile: 960-3391665
3. E-mail: maldivescoastguard@defence.gov.mv

The GMDSS Operations Center (8Q2) maintains a continuous listening watch for distress traffic on 2182 kHz and VHF channel 16.

Rescue craft are located in Male.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is ECHO (-5). Daylight Savings Time is not observed.

U.S. Embassy

There is no diplomatic representative in Maldives. All matters are referred through the U.S. Embassy in Colombo, Sri Lanka, which is situated at 210 Galle Road, Colombo.

The mailing address is P.O. Box 106, Colombo.

U. S. Embassy Sri Lanka Home Page
http://srilanka.usembassy.gov

MAURITIUS

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General

Mauritius (20°17'S., 57°33'E.), an island of volcanic formation, lies about 500 miles E of Madagascar. The island has a small coastal plain that rises to mountains with heights of over 800m. The shores are mostly fringed with coral reefs.

The climate is tropical, being modified by the Southeast Trade winds. There is a dry season, from May to November, and a hot wet season, from November to May.

Ile Rodrigues (19°41'S., 63°25'E.), the **Agalega Islands** (10°26'S., 56°40'E.), and **Cargados Carajos** (Saint Brandon) (16°50'S., 59°30'E.) are dependencies of Mauritius.

Ile Rodrigues lies about 350 miles E of Mauritius. It is 9.5 miles long, 4.5 miles wide, and formed of volcanic formations. The island attains a height of about 400m;its shores are fringed by coral reefs. Ile Rodrigues produces salt and onions. Livestock raising and fishing are carried out.

The Agalega Islands, two in number, are low, wooded, and fringed by reefs.

Cargados Carajos is an extensive group of reefs, small islands, islets, and shoals. The main reef, mostly above water, extends about 26 miles in a SSW/NNE direction.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in Mauritius may be out of position due to frequent cyclonic activity.

Cautions

Rollers, long swell waves created by distant storms, affect Mauritius and Ile Rodrigues. This phenomenon occasionally lasts 4 to 5 days, frequently causing great damage and suspending all activities, though rarely for longer than 24 hours. During cyclone season, rollers may provide a good indication of a developing or approaching storm.

Currency

The official unit of currency is the Mauritius rupee, consisting of 100 cents. It is reported that British sterling and French francs can also be used.

Fishing Areas

Information on fishing activities in the vicinity of Mauritius is given in the table titled **Mauritius—Fishing Operations**.

Government

Flag of Mauritius

Mauritius is a parliamentary democracy. The country is divided into nine districts and three dependencies.

Mauritius is governed by a President who is elected for a 5-year term by the National Assembly. The Prime Minister and the Council of Ministers are appointed by the President. The unicameral National Assembly consists of 62 directly-elected members and eight members appointed by the election commission, serving 5-year terms.

The legal system is based on French civil law, with some elements of English common law.

The capital is Port Louis.

Holidays

The following holidays are observed:

January 1-2	New Year's Days
February 1	Abolition of Slavery
March 12	Independence Day (Republic Day)
Good Friday	Variable
May 1	Labor Day
September 9	Father Leval Day
November 1	All Saints' Day
November 2	Arrival of Indentured Laborers
December 25	Christmas Day (Natal)

Cavadee, Maha Shivaratree, Chinese New Year/Chinese Spring Festival, Holi, Ougadi and Varusha Piruppu, Ganesh Chaturthi, Mid-Autumn Festival, Divali, and Ganga Asnan are religious festivals, the dates of which vary from year to year depending on the appearance of the moon.

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The major industries are food processing (primarily sugar milling), textiles, clothing, mining, chemicals, metal products, transport equipment, non-electrical machinery, tourism, and agriculture.

The main exports are clothing and textiles, sugar, cut flowers, fish, and molasses. The main export-trading partners are France, the United Kingdom, the United Arab Emirates, the United States, South Africa, Italy, Madagascar, and Spain.

The main imports are manufactured goods, capital equipment, foodstuffs, petroleum products, and chemicals. The main import-trading partners are India, China, France, and South Africa.

Languages

English is the official language. French, Creole, and Bhojpuri are also widely used.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Mauritius are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

*Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.

Mauritius—Fishing Operations

Location	Type of Fishing	Fishing Technique	Season
Mauritius	Motorized boats less than 10m long	Traps, handlines, trolling, and gill nets	Year round
Rodriquez Island	Motorized boats less than 10m long	Traps, handlines, trolling, and gill nets	Year round

Mauritius—Fishing Operations			
Location	**Type of Fishing**	**Fishing Technique**	**Season**
Soudan Bank, Nazareth Bank, and Saya de Malha Bank	Dories less than 25m long operating from motherships	Traps and handlines	October to May
	Tuna boats less than 30m long	Deep long lines	August to January—between Madagascar and the Equator January to June—south of Mauritius
	Ocean-going trawlers	Trawling	Year round by trawlers en route to and from the Southern Ocean
South of Mauritius	Tuna boats (600 to 2,500 gross tons)	Deep long lines	January to June

Maritime Boundary Disputes

Claims, along with Seychelles, the Chagos Archipelago, part of the United Kingdom-administered British Indian Ocean Territory.

Claims French-administered Ile Tromelin (15°53'S., 54°31'E.).

Pollution

Mauritius is a signatory to the South Western Indian Ocean Regional Oil Spill Contingency Plan. Any incident of pollution that is observed by ships at sea is required to be reported by a POLREP message by facsimile, telephone, radio, or any other available means to any of the authorities listed. Mauritius Radio (3BM), MRCC Mauritius, and Port Louis Harbor Radio will assist in forwarding POLREP traffic and can be contacted, as follows:

1. Mauritius Radio:
   Telephone: 230-2110839
   230-2085950
   Facsimile: 230-2110838
   E-mail: 3bm.mrs@mauritiustelecom.com
2. MRCC Mauritius:
   INMARSAT-C: 464500096
   464500097
3. Port Louis Harbor Radio:
   Telephone: 230-2123041
   Facsimile: 230-2123094
   E-mail: HarbourRadio@mauport.com

POLWARN and POLINF are the two types of POLREPs that can be sent.

POLWARN is sent to report any pollution incident or threat of pollution. The message should give details of the person (originator) making the report and should be addressed to the Director of the National Oil Spill Contingency Plan (Director NOSCP). The message should contain the following information:

1. Date and time of observation (UTC).
2. Position in latitude/longitude and, if possible, as a range and bearing from a prominent shore mark.
3. Pollution incident or threat and nature of the incident (for example—damaged vessel).
4. Spill details, substances involved (for example—crude phenol), and the quantity. It should also indicate the rate of pollution and the potential threat.
5. Confirmation of receipt.

POLINF is sent to give more details on the pollution incident. The message should give details of the person (originator) making the report and should be addressed to Director NOSCP. The message should contain the following information:

1. Date and time of observation (UTC).
2. Position.
3. Characteristics of the pollution.
4. Source and cause of the pollution.
5. Wind speed and direction.
6. Current and tide in the area.
7. Sea state and visibility.
8. Slick drift/movement.
9. Predicted movement of slick.
10. Identity of the observing unit and vessels in the area.
11. What action has been taken, if any?
12. Have photographs been taken?
13. Any additional information.
14. Confirmation of receipt.

Regulations

Quarantine

Quarantine messages should be addressed to Port Health Inspection Service and sent through the vessel's agent not more than 36 hours before and not less than 4 hours before arrival. The message must include the following information:

1. A request for free pratique.
2. Name of vessel.
3. ETA.
4. Ports of loading during current voyage.
5. Ports of departure during current voyage.
6. Last port of call.
7. Number of crew on board, including the master.
8. Number of persons on board, including stowaways.
9. Whether a ship's surgeon is carried on board.
10. Confirmation that all personal vaccination or prophylaxis certificates are valid.
11. Expiration date of the Ship Sanitation Control Certificate (SSCC certificate) - this used to be the Deratting Certificate/Deratting Exemption Certificate.
12. The occurrence onboard of:
    a. Death of a person.
    b. Illness, where the person who is ill has:

i. A temperature, rash, or glandular swelling or jaundice for more than 24 hours.

ii. Diarrhea or vomiting (apart from that associated with sea sickness).

iii. Symptoms suggestive of any infectious or communicable disease.

13. The presence of animals, including birds or fish, on board.

14. Whether forestry products or grain have been carried in the last 3 months. Include the loading port(s), the discharge port(s), and a description of the cleaning performed since the cargo was discharged.

15. The presence of dunnage (wood) on board and whether covered by treatment certificate(s).

16. An undertaking to lodge an International Maritime Declaration of Health on arrival.

Free pratique is not granted to ships which arrive from countries where there is a threat of avian flu, SARS, or other infectious and communicable diseases.

Search and Rescue

The National Coast Guard coordinates search and rescue operations within the waters around Mauritius and can be contacted through Mauritius Coast Radio Station (3BM).

MRCC Mauritius can be contacted, as follows:

1. Telephone: 230-2088317
   230-2083935
2. Facsimile: 230-2122757
3. E-mail: ncgops.mpf@govmu.org
   opsncghq@orange.mu

Mauritius Coast Radio Station (3BM) maintains a continuous listening watch for distress traffic on VHF channel 16, VHF channel 70, 2182 kHz, and 2187.5 kHz and can be contacted, as follows:

1. Telephone: 230-2085950
   230-2110839 (SAR)
2. Facsimile: 230-2110838
3. E-mail: 3bm.mrs@mauritiustelecom.com

Time Zone

The Time Zone description is DELTA (-4). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 4th Floor, Rogers House, John Kennedy Street, Port Louis.

The mailing addresses are, as follows:

1. Mauritius address—
   P.O. Box 544
   Port Louis
2. U.S. address—
   American Embassy Port Louis
   Department of State
   Washington DC (20521-2450)

U. S. Embassy Mauritius Home Page
http://mauritius.usembassy.gov

MOZAMBIQUE

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General

Mozambique is located in the SE part of Africa. It is bounded on the E by the Indian Ocean, on the S by South Africa, and on the N by Tanzania.

The coast is mostly sandy, with several lagoons and inlets. The broad coastal plain rises to central plateaus and mountains stand along the W border. The country is crossed by a number of important rivers.

The climate varies from tropical to subtropical in all areas except the high plateaus and mountains. Warmer temperatures prevail during the rainy season (October to May). The rainfall is irregular, and some areas, particularly in the S, are subject to severe droughts and floods.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Sand Waves

Sand waves are similar to sand dunes on land; the action of the water movement forms the sand or gravel sea bed into a series of ridges. Fields of sand waves may be several miles in extent, varying in size from mere ripples to waves of up to 20m in amplitude. The waves forming the primary pattern may be several miles long. They usually lie nearly at right angles to the main direction of water movement, but small waves are sometimes found lying parallel to it. Secondary patterns are usually superimposed on the primary pattern, often at an angle; it is where the crests of the patterns coincide that the shallowest depths can be expected.

At the entrance to Sofala Bay, Mozambique, sand waves up to 26m high have been reported to exist.

Drill Rigs

Uncharted drill rigs and well head may be found off the coast from Mafia Island, Tanzania to Arquipelago das Querimbas, Mozambique.

Magnetic Anomalies

In Baie de Maputo (26°00'S., 33°00'E.) a magnetic anomaly

causes a rapid change in variation, with deflections from -2° to +3° from normal.

A magnetic anomaly has been reported ESE of Beira in the vicinity of position 20°00'S, 35°30'E.

Currency

The official unit of currency is the metical, consisting of 100 centavos.

Government

Flag of Mozambique

Mozambique is a republic. The country is divided into ten provinces and one city.

Mozambique is governed by a directly-elected President serving a 5-year term. The Prime Minister is appointed by the President. The unicameral Assembly of the Republic consists of 250 directly-elected members serving 5-year terms.

The legal system is based on Portuguese civil law, Islamic law, and customary law.

The capital is Maputo (formerly Lourenco Marques).

Holidays

The following holidays are observed:

January 1	New Year's Day
February 3	Heroes' Day
April 7	Day of the Mozambique Woman
May 1	Labor Day
June 25	Independence Day
September 7	Victory Day
September 25	Revolution Day
November 10	Maputo City Day (Maputo only)
December 25	Christmas Day/Family Day

Industries

The main industries are agriculture, beverages, chemicals (fertilizers, soap, paints), aluminum, petroleum products, textiles, cement, glass, asbestos, tobacco, and food.

The main exports are aluminum, prawns, cashews, cotton, sugar, citrus, timber products, and electricity. The main export-trading partners are China, South Africa, Italy, Belgium, India, and Spain.

The main imports are machinery and equipment, vehicles, fuels, chemicals, metal products, foodstuffs, and textiles. The main import-trading partners are South Africa, China, and India.

Languages

Portuguese is the official language. English is also widely spoken. There are many tribal languages.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Mozambique are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines.

Search and Rescue

The National Maritime Administration and Safety Authority (SAFMAR) coordinates all maritime search and rescue operations within the Maritime Search and Rescue Region of Mozambique and can be contacted, as follows:

1. Telephone: 258-21-301963
   258-21-320552
2. Facsimile: 258-21-324007
3. E-mail: ianmar@trcabo.co.mz

A Maritime Rescue Coordination Center (MRCC) located at Maputo maintains a continuous listening watch for distress traffic on 2182 kHz and VHF channel 16 and can be contacted, as follows:

1. Telephone: 258-21-494396
2. Facsimile: 258-21-494396
3. E-mail: safmar@zebra.uem.mz

Mozambique—Storm Signals

Day signal	Night signal	Meaning
One black triangle, point up	Two red lights, vertically disposed	Gale or storm from NW

Mozambique—Storm Signals		
Day signal	**Night signal**	**Meaning**
One black triangle, point down	Two yellow lights, vertically disposed	Gale or storm from SW
Two black triangles, points up, vertically disposed	One red light over one yellow light	Gale or storm from NE
Two black triangles, points down, vertically disposed	One yellow light over one red light	Gale or storm from SE
Two black triangles, bases together, vertically disposed	One red light between two yellow lights, vertically disposed	Gale, storm, or cyclone probable
One black ball	One red light	Gale or storm from undetermined direction
Square flag	—	Wind expected to veer
Two square flags	—	Wind expected to back
Black cylinder	One green light	Cyclone in Mozambique Channel

Signals

Storm signals used in Mozambique are given in the accompanying table titled **Mozambique—Storm Signals**.

Time Zone

The Time Zone description is BRAVO (-2). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Avenida Kenneth Kuanda 193, Maputo.

The mailing address is P.O. Box 783, Maputo.

U. S. Embassy Mozambique Home Page
http://maputo.usembassy.gov

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General

Namibia, located in the S part of Africa, is bounded on the N by Angola and Zambia, on the W by the South Atlantic Ocean, on the S and SE by South Africa, and on the E by Botswana.

The coast, about 800 miles long, extends between the mouth of the Kunene River (17°14'S., 11°45'E.) and the mouth of the Orange River.

The country consists of three main regions, as follows:

1. The Namib Desert, an extremely arid and desolate region, is 50 to 80 miles wide and stretches along the entire coast.
2. The Central Plateau, which covers about half of the total area, lies E of the Namib Desert. This plateau varies in elevation from 1,000 to 2,000m and consists of rugged mountains, sand-filled valleys, and plains.
3. The Kalahari Desert covers the E, NE, and N regions of the country.

The rainy season lasts from January to March with fewer showers from September to December.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Marine Mining Vessels

Marine Mining Vessels (MMVs), which process gravel for diamonds, may be encountered in fairly large numbers on the coast of Namibia close inshore from Saddle Hill (25°55.0'S., 14°55.0'E.) to Needle Point (27°40.5'S., 15°31.5'E.). The barges are normally moored with a spread of four anchors, which may be marked by unlighted anchor buoys extending up to 1,500m from the MMV, and display the lights and shapes prescribed in Rule 27 of *The International Regulations for Preventing Collisions at Sea (1972)*. The MMVs may move up to 0.5 mile within the anchor spread.

Lost mining gear, anchors, floating ropes, and other debris may be encountered in the mining area. Caution must be exercised by all vessels, but especially trawlers, transiting this area.

Currency

The official unit of currency is the Namibia dollar, consisting of 100 cents. The South African rand is also a legal tender of parity.

Fishing Areas

Crayfish trap fishing is common along the coast of Namibia S of Luderitz Bay.

Government

Flag of Namibia

Namibia a multi-party republic. The country is divided into 14 regions.

Namibia is governed by a directly-elected President serving a maximum of two 5-year terms. The bicameral legislature consists of a 104-member National Assembly, serving 5-year terms, with 96 directly-elected members using a system of proportional representation and eight members appointed by the President, and a 26-member National Council, composed of two appointed members from each of the 13 regions, serving 5-year terms. The National Council is expected to be expanded to 42 members in 2016.

The legal system is based on Roman-Dutch law and the 1990 constitution.

The capital is Windhoek.

Holidays

The following holidays are observed:

January 1	New Year's Day
March 21	Independence Day
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 4	Cassinga Day
Ascension Day	Variable
May 25	Africa Day
August 26	Heroes' Day
December 10	Human Rights Day
December 25	Christmas Day
December 26	Family Day

Industries

The main industries are agriculture, meat packing, fish processing, dairy products, food and beverages, and mining (diamonds, lead, zinc, tin, silver, tungsten, uranium, and copper).

The main exports are diamonds, copper, zinc, gold, lead, uranium, livestock, and processed fish. The main export-trading partners are South Africa and the United States.

The main imports are foodstuffs, petroleum products and fuel, machinery and equipment, and chemicals. The main import-trading partners are South Africa and the United States.

Languages

English is the official languages. Afrikaans and German are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Namibia are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Pollution

Pollution Reports

The Principal Officer South African Maritime Safety Authority (SAMSA) shall be notified of discharge of oil and/or damage to vessels when navigating within 50 miles of the coasts of South Africa and Namibia. For further information, see **South Africa—Regulations—Pollution Reports**.

Regulations

General

Vessels should send their ETA at least 72 hours in advance (excluding Sunday and public holidays) to their port of destination, stating the following information:

1. Vessel length, freeboard, and draft fore and aft.
2. Details on any dangerous cargo.
3. Type and quantity of cargo being landed or loaded.
4. Bunkers and other requirements.
5. Factors affecting the safe entry and/or berthing of the vessel.
6. Is the vessel engaged in towing or salvage? If yes, fur-

ther details are required.

Vessels should send their ETA to the appropriate Port Control on VHF channel 16 when within 20 miles of their destination.

A continuous listening watch is to be maintained on VHF channel 16 by all vessels anchored within or near the limits of a Namibian port.

Search and Rescue

The Namibian Search and Rescue Organization (NAMSAR) coordinates all search and rescue efforts within Namibian waters and works in close cooperation with the South African Search and Rescue Organization (SASAR). Walvis Bay Port Control acts as a Maritime Rescue Coordination Subcenter (MRSC) under control of the Maritime Rescue Coordination Center (MRCC) South Africa and can be contacted, as follows:

1. Telephone: 264-64-2082265
2. Facsimile: 264-64-2082325
3. E-mail: portc@namport.com.na

Walvis Bay Coast Radio Station (V5W) maintains a continuous listening watch for distress traffic on 2182 kHz, 4125 kHz, and VHF channel 16 and can be contacted, as follows:

1. Telephone: 264-64-203581
2. Facsimile: 264-64-207497
3. E-mail: wvsradio@telecom.na

Luderitz Coast Radio Station (V5L) maintains a continuous listening watch for distress traffic on 2182 kHz.

Inshore rescue craft are stationed at Walvis Bay and Swakopmund.

The waters of Namibia lie within the area of responsibility for the South African Ship Reporting System. For further information, see **South Africa—Search and Rescue—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time (BRAVO (-2)) is maintained from the first Sunday in September until the first Sunday in April of the following year.

U.S. Embassy

The U.S. Embassy is situated at 14 Lossen Street, Windhoek. The mailing address is Private Bag 12029, Windhoek.

U. S. Embassy Namibia Home Page
http://windhoek.usembassy.gov

NIGERIA

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General

Nigeria, located on the W coast of Africa, is bounded on the W by Benin, on the N by Niger, on the NE by Chad and Cameroon, and on the S by the Gulf of Guinea.

A belt, from 10 to 60 miles wide, fronts the coast and consists of dense mangroves and swamps. Tropical forests, rich in palm-oil trees and mahoganies, are located behind this belt.

A few mountains rise in the S portion of the country except along the E boundary. A large plateau, from 609 to 1,828m high, lies N and E of the junction of the Niger River and the Benue River.

The climate varies, being equatorial in the S part of the country, tropical in the central part, and arid in the N.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in Nigeria are unreliable. Lights may be extinguished; buoys and beacons may be missing, unlit, or out of position.

Cautions

Offshore oil and gas exploration is carried out in the coastal and deep-water areas off the coast of Nigeria, especially within the Bight of Biafra.

The West African Gas Pipeline lies off the coast of Nigeria. For further information, see **South Atlantic Ocean—Cautions**.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

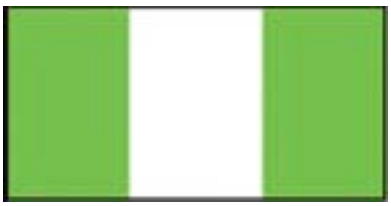
The official unit of currency is the naira, consisting of 100 kobo.

Fishing Areas

Fishing vessels, many of which are unlit, may be encountered off the coast.

When near the coast, a sharp lookout should be kept for canoes.

Government



Flag of Nigeria

Nigeria is a sovereign federal republic. The country is divided into 36 states and one federal territory.

Nigeria is governed by a directly-elected President serving a maximum of two 4-tear terms. The bicameral National Assembly consists of a directly-elected 360-member House of Representatives serving 4-year terms and a directly-elected 109-member Senate serving 4-year terms.

The legal system is based on English common law, traditional law, and Islamic law.

The capital is Abuja.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Good Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
May 29	Democracy Day
October 1	Independence Day
December 25	Christmas Day
December 26	Boxing Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), and the Prophet's Birthday.

Industries

The major industries include agriculture, crude oil, coal, tin, columbite, rubber products, wood, hides and skins, textiles, cement and other construction materials, food products, footwear, chemicals, fertilizer, printing, ceramics, and steel.

The main exports are petroleum and petroleum products, cocoa, and rubber. The main export-trading partners are India, Brazil, the Netherlands, Spain, South Africa, France, and Germany.

The main imports are machinery, chemicals, transport equipment, manufactured goods, food, and livestock. The main import-trading partners are China, the United States, and India.

Languages

English is the official languages. Numerous native dialects, of which Hausa is the most common, are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Nigeria are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

* Requires advance permission or notification for innocent passage of warships in the territorial sea.

Maritime Boundary Disputes

An equidistant settlement of the Cameroon-Equatorial Guinea-Nigeria maritime boundary was reached in 2002, but a dispute remains between Cameroon and Equatorial Guinea over an island at the mouth of the Riviere Ntem and imprecisely-defined maritime coordinates in the settlement.

Pilotage

Pilotage is compulsory within the four Sea Pilotage Districts within the Exclusive Economic Zones of the Nigerian coast. The districts are contained within an area bound by lines joining the following positions:

a. 4°30'19.8"N, 8°24'07.2"E.
b. 4°01'48.0"N, 8°20'25.2"E.
c. 3°26'30.0"N, 7°24'25.2"E.
d. 3°28'45.0"N, 6°00'00.0"E.
e. 4°49'07.2"N, 5°00'00.0"E.
f. 6°00'00.0"N, 4°30'00.0"E.
g. 6°00'00.0"N, 3°10'00.0"E.
h. 6°23'45.0"N, 3°10'00.0"E.

The boundaries of the four Sea Pilotage Districts are, as follows:

1. **District A (Calabar River Oil Terminal).—**The navigable area between 8°24'07.2"E and 7°24'25.2"E.

2. **District B (Bonny Offshore Oil Terminal and Brass Offshore Oil Terminal).—**The navigable area between 7°24'25.2"E and 6°00'00.0"E.

3. **District C (North Apoi Oil Terminal, Forcados Oil Terminal, and Escravos Oil Terminal).—**The navigable area between 6°00'00.0"E and 4°30'00.0"E.

4. **District D (Kuramo and Lekki).—**The navigable area between 4°30'00.0"E and 3°10'00.0"E.

Regulations

Ship Entry Notice (SEN)

Two months prior to arrival in Nigerian waters, agents must register vessels with the Nigerian Ports Authority (NPA) in order to obtain a Ship Entry Notice (SEN). This does not apply to vessels carrying petroleum products in bulk or in ballast. Vessels cannot enter the territorial waters of Nigeria without a SEN.

The SEN can be sent electronically through the Electronic Ship Entry Notice (eSEN) Portal at the Nigerian Ports Authority web site (http://www.nigerianports.org).

Night Navigation in Nigerian Ports

All Nigerian ports are closed from 2000 to 0600. Port signals stations display three red lights, vertically disposed, during this period to indicate the port is closed. No vessel may enter or depart a port when this signal is displayed except in an emergency with prior approval of the harbormaster.

In addition, vessels are prohibited from approaching, maneuvering, or anchoring in the following area from 2000 until 0600 unless they have been cleared to enter Nigerian ports and their ETA has been reported to the harbormaster, as follows:

1. Lagos.—An area extending 10 miles E and W of the harbor entrance to a distance of 5 miles from the coast.
2. Approaches to the Escravos River and the Forcados River.—An area lying between the parallels of 5°21'N and 5°45'N to a distance of 15 miles from the coast.
3. Approaches to the Bonny River and the New Calabar River.—An area extending 5 miles E and W of Fairway Lighted Buoy to a distance of 15 miles from the coast.
4. Approaches to the Calabar River.—An area extending 5 miles E and W of Fairway Lightfloat to a distance of 15 miles from the coast.

Due to the complicated nature of the regulations, vessels are advised to communicate with their local agents well in advance in order to ensure compliance.

Unauthorized vessels are prohibited to come alongside vessels in the above areas. Vessels should report any unauthorized craft to the harbormaster.

Special Requirement

Before entering any of the creeks, rivers, or channels in Nigerian waters, vessels are required to broadcast their intentions and keep a continuous watch on 2182 kHz as necessary.

Vessels should broadcast their positions frequently to facilitate safe navigation, but such messages must be discontinued on request by any naval, military, or port authority or any Nigerian radio station or authorized officer.

VHF Communications

All VHF communication is subject to the following regulations:

1. VHF channel 16—Used as a calling and listening frequency by vessels, the harbormaster, the pilot station, and the East Mole Signal Station.
2. VHF channels 9, 11, 12, 13, and 14—Reserved for the sole use of the NPA. Agents and vessels are not to use these channels unless required to do so by the NPA.
3. VHF channels 22, 23, 24, and 25—Reserved as working channels for vessel-to-vessel and agent-to-vessel communications.
4. VHF channel 21—Reserved as a calling and listening frequency for communication between agents and their land mobile station.
5. VHF channels 17, 18, 19, and 20—Reserved as working channels for communications between shore stations other than the NPA.

The manner of operation under these restrictions is, as follows:

1. All vessels will keep simultaneous listening watches on VHF channels 16 and 21. They will use VHF channel 16 when calling the harbormaster, pilot station, the East Mole Signal Station, or other vessels. Vessels will use VHF channel 21 when calling their agents.
2. All non-NPA fixed stations will keep watch on VHF channels 16 and 21. They will use channel 16 when calling the pilot station, harbormaster, and East Mole Signal Station. For calling their respective vessels, they will use VHF channel 21. After establishing contact, they will switch over to a mutually acceptable channel. Agents will only use VHF to contact the NPA station as a last resort and only when the more conventional methods such as telephones and messengers fail.
3. The NPA stations will use VHF channel 16 for contacting vessels, tugs, and operational centers. They will use VHF channel 11 for other NPA internal communications. After establishing contact, these stations will select a working channel other than VHF channel 11, 14, or 16. The fire service will continue to use VHF channel 14 while maintaining a listening watch on VHF channel 16.

Oil Terminals—ETA Reporting

Vessels are required to report their ETA at the terminal anchorage or fairway lighted buoy 7 days, 72 hours, 48 hours, and 24 hours in advance. If the vessel is leaving the previous port less that 7 days prior to arrival at the terminal, the ETA should also be sent upon departure from the previous port.

Any amendments to the ETA of more than 12 hours should be sent immediately.

Vessels should contact the terminal directly when within VHF range.

Search and Rescue

The National Maritime Administration and Safety Agency (NAMASA) is responsible for coordinating search and rescue operations and can be contacted as follows:

1. Telephone: 234-1-2713622
   234-1-2713623
   234-1-2713624
   234-1-2713627
2. Facsimile: 234-1-2713625
3. E-mail: rmrccnigeria@nimasa.gov.ng

Maritime Rescue Coordination Center (MRCC) Lagos can be contacted, as follows:

1. Telephone: 234-705-3794383
   234-705-3794380
   234-803-0685167
   234-7000700010 (mobile)
   234-7000700020 (mobile)
   234-7000700030 (mobile)
2. E-mail: rmrccnigeria@yahoo.com
   rmrcc.lagos@nimasa.gov.ng

Maritime Rescue Coordination Subcenters (MRSC) have been established at Oron and Lokoja.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ALFA (-1). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Plot 1075, Diplomatic Drive, Central District Area, Abuja.

The mailing address is P.O. Box 5760, Garki, Abuja.

U. S. Embassy Nigeria Home Page
http://nigeria.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in the Bonny River (4°25'N., 7°09'E.). For further information, see Pub. 123, Sailing Directions (Enroute) West Coast of Africa.

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General

Oman is located in the SE part of the Arabian Peninsula. It is bordered on the W by Yemen and Saudi Arabia, on the S by the Arabian Sea, on the NE by the Gulf of Oman, and on the NW by the United Arab Emirates. The country includes the islands of Kuria Muria and Al Masirah which lie off the SE coast. In addition, the detached province of Ru' us al Jibal is located at the extremity of the promontory (Musandam Peninsula) forming the S side of the entrance to the Persian Gulf. This province also includes the islands lying close off the promontory. The Sultanate of Oman was formerly known as the Sultanate of Muscat and Oman until 1970.

The country consists of a vast central desert plain with rugged mountains in the N and S parts. Al Batinah, a fertile coastal plain, extends NW of Masqat for over 150 miles.

The climate is mostly dry desert; it is hot and humid along the coast, but is hot and dry inland. The southernmost part of the country is subject to a Southwest Monsoon in the summer (May to September).

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Indian Ocean—Cautions—Locust Reports** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Currency

The official unit of currency is the Omani rial, consisting of 1,000 baiza.

Firing Areas

Naval firing practices (surface-to-surface and surface-to-air) and other exercises take place within the following areas:

1. **Area Tahr (D37)**.—An area bounded by lines joining the following positions:
   a. 24°18.00'N,57°40.00'E.
   b. 24°00.00'N,58°39.00'E.
   c. 23°51.75'N,58°20.00'E.
   d. 23°51.75'N,58°06.00'E.
   e. 24°09.00'N,57°40.00'E.
2. **Daymaniyat Naval Gunfire Support Range.**—An area bounded by lines joining the following positions:
   a. 23°51.75'N,58°06.00'E.
   b. 23°51.75'N,58°20.00'E.
   c. 24°01.70'N,58°20.00'E.
   d. 23°53.90'N,58°02.60'E
3. **Area Umm al Fayyarin (D38)**.—An area bounded by the segment of a circle 10 miles in radius centered on 26°11'N, 56°30'E from 020° clockwise to 060°.
4. **Area Jazirat al Ghanam (R15).**—An area bounded by the segment of a circle 5 miles in radius centered on 26°24'N, 56°23'E from 040° clockwise to 250° and then 10 miles in radius centered on the same point from 250° clockwise to 040°.
5. **Area Qarzawit (Area Jazirat Ghazant) (D57)**.—An area bounded by the segment of a circle 10 miles in radius centered on position 17°36'25.2"N, 56°07.2'E beginning at position 17°35'49.8"N, 55°57'45.0"E and clockwise to position 17°28'30"N, 56°14'13.2"E, and then a straight line back to position 17°35'49.8"N, 55°57'45.0"E.
6. **Area Marbat (D65).**—An area bounded by lines joining the following positions:
   a. 16°53'N,54°30'E.
   b. 16°53'N,55°10'E.
   c. 16°13'N,55°10'E.
   d. 16°13'N,54°30'E.
7. **Area Ras Hamar (D67).**—An area bounded by lines joining the following positions:
   a. 16°42'N,53°55'E.
   b. 16°40'N,53°34'E.
   c. 16°25'N,53°37'E.
   d. 16°28'N,53°58'E.
8. **Area Abu Rasas (D20)**.—An area bounded by lines joining the following positions:
   a. 19°57.6'N,58°07.0'E.
   b. 20°18.4'N,58°29.3'E.
   c. 20°04.8'N,58°44.0'E.
   d. 19°43.8'N,58°21.7'E.
9. **Area Al Hadri (D41).**—An area of a circle with a radius of 1 mile centered on 20°35'20"N, 58°53'08"E.

These areas operate using clear range procedures, meaning that exercises and firings only take place when the ranges are clear of all shipping. The warnings are promulgated via Omani Notices to Mariners and, if necessary, radio navigational warnings.

Further details on firing areas can be obtained from the Royal Navy of Oman Headquarters (telephone: 968-2433-8805).

Fishing Areas

Significant fishing operations by local craft occur from Surto Khawr al Jaramah; nets may extend up to 2 miles off the coast. Many fishing vessels may also be encountered on a shallow coastal bank extending 1 miles offshore N of Ras al Junayz (22°25.4'N., 59°50.2'E.). Nets are marked by small inconspicuous white plastic floats. Many of the fishing vessels do not exhibit lights and a sharp lookout should be maintained.

Fish Havens.—Numerous fish havens are located in the inshore waters of Oman, usually within 5 miles of the coast and in the approaches to ports and anchorages.

Government

Flag of Oman

Oman is a hereditary monarchy. The country is divided into 11 governorates.

Oman is governed by a Sultan, who is both the chief of state and head of government. The Sultan legislates by decree and appoints a cabinet to assist him.

The Majlis al-Dwala (upper chamber) consists of 83 members, appointed by the Sultan, who have advisory powers only. The Majlis al-Shura (lower chamber) consists of 84 members serving 4-year terms who are directly elected by a limited number of voters; the Sultan has final authority over the make-up of the body, which debates domestic issues, but has no legislative or veto powers.

The legal system is based on English common law and Islamic law, with ultimate appeal to the Sultan.

The capital is Masqat (Muscat).

Holidays

The following holiday is observed:

January 1	New Year's Day
Third week of November (two days, as declared by the government)	Omani National Days
December 31	Bank Holiday

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are crude oil production and refining, natural and liquefied natural gas production, construction, cement, copper mining and smelting, steel, chemicals, and optical fiber.

The main exports are petroleum, re-exports, fish, metals, and textiles. The main export-trading partners are China, the United Arab Emirates, and South Korea.

The main imports are machinery and transport equipment, manufactured goods, food, livestock, and lubricants. The main import-trading partners are the United Arab Emirates, Japan, India, China, and the United States.

Languages

Arabic is the official language. English, Baluchi, Urdu, and several Indian dialects are also used.

Meteorology

Internet Weather Services

Marine weather forecasts are available in English and Arabic from the Oman Meteorological Department (http://www.met.gov.om).

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Oman are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Limit of Exploitation.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.

Pollution

General

The discharge of oil is prohibited within 50 miles of the Omani coast.

MARPOL Special Area

MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted. Several areas off the coast of Oman have been designated as MARPOL Special Areas, as follows:

1. An extensive area extending seaward from the SE coast of Oman.
2. The Gulf of Oman.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Reporting

Vessels navigating in Omani waters are required to report pollution incidents and oil slicks. These reports are to be sent directly to the Maritime Pollution Monitoring Operation Center (MPMOC) during working hours (0730 to 1430):

1. Telephone: 968-24-693666
   968-99219429 (24-hour mobile)
2. Facsimile: 968-24-691082

Contact can also be made through Masqat Maritime Radio Station (telephone: 968-24-24571400/968-24-24571500 or facsimile: 968-24-562995).

The following information should be included in the report whenever possible:

1. Date of observation.
2. Local time of observation.
3. Location of pollution:
   a. Latitude/longitude or grid reference.
   b. Distance from land.
   c. Nearest town/village.
4. Approximate size of pollution, in meters:
   a. Length.
   b. Width.
   c. Percentage of area covered by oil.
5. Oil type and description:
   a. Is it a continuous complete cover? (Yes/No).
   b. Is it broken cover (patchy, streaky)? (Yes/No).
   c. Tar balls (Yes/No).
   d. Other (Yes/No).
   e. Light brown (Yes/No).
   f. Dark brown (Yes/No).
   g. Black (Yes/No).
   h. Silver sheen on water (Yes/No).
   i. Rainbow colors on water. (Yes/No).
6. Direction and speed of surface winds.
7. Wave height.
8. Pollution source (if vessel involved in the incident is seen):
   a. Name of vessel.
   b. Type of vessel.
   c. Size of vessel.
   d. Nationality/port of registration.
   e. Course and speed of vessel.
   f. Photographs/oil sample taken?
   g. Is the vessel in distress?
   h. State nature of distress (fire, collision, etc.).

Ballast Water Management

The coast of Oman lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange require-

ments in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

The master or owner of every ship shall be held directly responsible for the proper conduct and behavior of the crew and for strict observance of the laws of the Sultanate of Oman, particularly those laws concerning the sale, transference or consumption of any narcotic or alcoholic or intoxicating drink of any kind.

Vessels calling at the ports of Oman are required to have a copy of the local rules and regulations aboard. Vessels without a copy must obtain one as early as possible on arrival.

Anchorage

All vessels anchoring within the territorial waters of the Sultanate of Oman (12 miles), for the purpose of waiting for orders or in order to carry out engine repairs, should anchor within the latitudes of 23°53'N and 23°40'N, and between the longitudes of 58°10'E and 58°27'E. No other anchorage in this area may be used except when actually loading or discharging at SBM buoys.

All vessels using this anchorage must contact Mina Qabus Port Control on VHF channel 16 and give the following information:

1. Flag or port of registry.
2. Call sign.
3. Deadweight tons, gt, and nrt.
4. Ports of call, including last port and next port.
5. Whether the vessel is carrying dangerous or hazardous cargo.

Quarantine (Pre-arrival Reporting)

Standard quarantine messages, giving the present health conditions and requesting free pratique, should be sent 24 hours prior to arrival.

The following ports accept quarantine reports:

1. Mina Raysut (Salalah) Harbormaster—By e-mail (info@slalahport.com).
2. Mina Qabus (Port Sultan Qaboos) Health Inspector—by e-mail (info@pscoman.com).
3. Sohar Health Inspector—by e-mail (info@portofsohar.com).

Search and Rescue

The Royal Air Force of Oman is responsible for coordinating search and rescue operations. Masqat (Muscat) Coast Radio Station (A4M) maintains a continuous listening watch on international distress frequencies.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Maritime Liaison Office (MARLO) Bahrain Recommended Reporting Procedures

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 48 hours prior to entering the Gulf of Aden recommended transit corridor. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy**.

Time Zone

The Time Zone description is DELTA (-4). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes in Oman are, as follows:

1. In the Strait of Hormuz. (IMO adopted)
2. Off Ras al Hadd. (IMO adopted)

U.S. Embassy

The U.S. Embassy is located on Jamait Ad Duwal Al Arabiyya Street, Al Khuwair area, Muscat.

The mailing address is P.O. Box 202, Postal Code 115, Madinat-al Sultan Qaboos, Muscat.

U. S. Embassy Oman Home Page
http://oman.usembassy.gov

PAKISTAN

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General

Pakistan is located in the S part of Asia. It is bounded on the W by Iran, on the NW by Afghanistan, on the N by China, on the NE by the disputed territory of Jammu and Kashmir, on the E by India, and on the SW by the Arabian Sea.

The N part of the country includes formidably mountainous terrain. At one point in this area, a narrow strip of Afghan territory, barely 20 miles wide, separates Pakistan from Tajikistan.

Between the Iranian frontier and Karachi, the coast consists chiefly of a wilderness area with hills and cliffs fronting the Baluchistan Plateau. Swamps and desert plains lie at the foot of the hills. Between the Indian frontier and Karachi, the Indus River enters the sea through many mouths, but is little used as a waterway.

The climate is mainly hot dry desert with almost arctic temperatures in the mountainous N part.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Some buoys and beacons may not conform to the IALA system.

Cautions

Special Warning 129 (Issued 19 November 2014)

1. Mariners calling on Pakistan are advised that levels of sectarian and factional violence remain high. Karachi, the main port, continues to be affected by politically motivated killings.
2. Anti-American sentiment can be provoked easily and spontaneously in response to international events that radicals misconstrue as directed against Islam.
3. Port facilities and vessels may offer targets of opportunity for terrorist attacks. U.S. mariners are advised to exercise heightened security awareness and prudent security precautions when in Pakistani ports and waters.
4. In September 2014, al-Qa'ida's new affiliate in South

Asia (AQIS) claimed responsibility for attempting to hijack a Pakistani frigate docked in Karachi and use it to target U.S. Navy vessels in the Arabian Sea.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Oil Exploration

Oil exploration activities are taking place off the coast of Pakistan in depths of up to 3,000m.

Currency

The official unit of currency is the Pakistan rupee, consisting of 100 paisas.

Firing Areas

Firing, bombing, and other defense practice exercises take place in a number of areas lying off the coast of Pakistan. In view of the responsibility of range authorities to avoid accidents, the limits of these practice areas may not be shown on charts and the descriptions may not appear in the Sailing Directions (Enroute).

When air to air, air to sea, or ground firings are being carried out by aircraft, a large white or red sleeve-banner, a winged target, or a large flag are towed by another aircraft on a steady course. Generally, these warning signals are shown when the targets are stationary, but not when towed targets are used.

All marine craft operating as range-safety craft or target towing vessels will display, for identification purposes while in or in the vicinity of the danger area, a large red flag at the masthead. The range authorities are responsible for ensuring that there should be no risk of damage from falling shell splinters, bullets, etc., to any vessel which may be in the practice area.

Firing practice exercise areas are located, as follows:

1. **Area ALPHA** (surface-to-surface and surface-to-air)—Enclosed by a line joining the following positions:
   a. 24°36'00"N, 66°47'50"E.
   b. 24°47'36"N, 66°58'36"E.
   c. 24°50'00"N, 66°40'00"E.
   Safety height—2,483m.
2. **Area BRAVO** (surface-to-surface and surface-to-air)—Enclosed by a line joining the following positions:
   a. 24°19'00"N, 66°58'00"E.
   b. 24°00'30"N, 66°39'00"E.
   c. 24°11'00"N, 66°27'00"E.
   d. 24°25'00"N, 66°42'00"E.
   Safety height—6,096m.
3. **Area ECHO** (surface-to-surface and surface-to-air)—Enclosed by a line joining the following positions:
   a. 25°07'N, 66°30'E.
   b. 25°07'N, 66°39'E.
   c. 24°50'N, 66°39'E.
   d. 24°50'N, 66°30'E.
   Safety height—1,524m.
4. **Area H1** (surface live ammunition)—Enclosed by a line joining the following positions:
   a. 24°36'N, 63°15'E.
   b. 24°36'N, 62°30'E.
   d. 24°21'N, 62°30'E.
   c. 24°21'N, 63°15'E.
   Safety height—6,800m.
5. **Area H2** (surface live ammunition)—Enclosed by a line joining the following positions:
   a. 24°36'N, 62°30'E.
   b. 24°36'N, 61°45'E.
   d. 24°21'N, 61°45'E.
   c. 24°21'N, 62°30'E.
   Safety height—6,800m.
6. **Sonmiani Range** (anti-aircraft live ammunition)—As follows:
   a. Centered on 25°11'N, 66°45'E.
   b. Arc of firing 220° to 310°.
   c. Safety range—14,000m (7.7 miles within arc).
   d. Safety height—10,000m.

Government

Flag of Pakistan

Pakistan is a republic. The country is divided into four provinces, one territory, and one capital territory.

Pakistan is governed by a President elected through an Electoral College comprising the Senate, the National Assembly, and the provincial assemblies to serve a 5-year term. The bicameral Parliament consists of a 104-member Senate, indirectly elected by provincial assemblies, serving 6-year terms, and a 342-member directly-elected National Assembly, serving 5-year terms.

The legal system is based on English common law, with provisions to accommodate the country's stature as an Islamic state.

The capital is Islamabad.

Holidays

The following holidays are observed:

March 23	Pakistan Day
May 1	Labor Day
August 14	Independence Day

September 6	Defense of Pakistan Day
September 11	Death Anniversary of Quaid-e-Azam
November 9	Iqbal Day
December 25	Birthday of Quaid-e-Azam

Christian holidays subject to the appearance of the moon include Good Friday, Easter Sunday, and Easter Monday. Christmas Day (December 25) and Boxing Day (December 26) are also celebrated.

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday. In addition, the Islamic holidays of Shab-e-Barat and 27th Ramzan are observed in Karachi.

Industries

The main industries are textiles and apparel, food processing, pharmaceuticals, construction materials, paper products, fertilizer, and shrimp.

The main exports are textiles, rice, leather goods, sporting equipment, chemicals, manufactured goods, carpets, and rugs. The main export-trading partners are the United States, China, the United Arab Emirates, Afghanistan, and the United Kingdom.

The main imports are petroleum and petroleum products, machinery, plastics, transportation equipment, edible oils, paper and paperboard, iron, steel, and tea. The main import-trading partners are China, Saudi Arabia, the United Arab Emirates, and Kuwait.

Languages

Urdu is the official language. Punjabi is also widely used. English is used in business and in most government ministries.

Navigational Information

Enroute Volumes

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of Pakistan are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea. Requires foreign supertankers, nuclear-powered ships, and ships carrying nuclear materials to give prior notice before entering the territorial sea.
** Also considered a Security Zone.

Maritime Boundary Disputes

A dispute with India over the terminus of the estuary of Sir Creek (23°38'N., 68°02'E.), at the mouth of the Rann of Kutch, has prevented the establishment of a maritime boundary. In 2004, this disputed area was resurveyed in preparations for discussions concerning the maritime boundary.

Pollution

The Maritime Security Agency in Pakistan is responsible for preventing and controlling marine pollution. Pakistan's Exclusive Economic Zone is under constant surveillance to monitor pollutants. Vessels found polluting the marine environment will be prosecuted in accordance with the law and will be held responsible for all consequences.

Mariners are advised to inform the following organizations immediately upon sighting or detecting marine pollution when passing through Pakistani waters:

Director General, Maritime Security Agency
1. Telephone: 92-21-992-14624
   92-21-992-14864
   92-21-992-14865
   92-21-992-14866
   92-21-992-14867
2. Facsimile: 92-21-992-14625
3. E-mail: mrccpmsa@cyber.net.pk
   hqmsa@cyber.net.pk
   hqmsa@msa.org.pk

Director General, Ministry of Ports and Shipping
1. Telephone: 92-21-992-04196
   92-21-992-06406
2. Facsimile: 92-21-992-06407
3. E-mail: dgpspk@gmail.com

Hydrographer of the Pakistan Navy
1. Telephone: 92-21-4850-6151
   92-21-4850-6152
2. Facsimile: 92-21-9920-1623
3. E-mail: hydropk@paknavy.gov.pk
4. Web site: http://www.paknavy.gov.pk/hydro

Regulations

International Ship and Port Facility (ISPS) Code

The ISPS Code applies to ships on international voyages and port facilities directly interfacing with these ships. All vessels intending to enter Pakistani territorial waters and ports should fully comply with the provisions of Chapter XI-Part 2 of the SOLAS Convention and Part A of the ISPS Code. Vessels shall demonstrate that appropriate maritime security measures are in place according to ISPS Code regulations. Vessels shall maintain compliance until leaving Pakistani territorial waters.

Joint Maritime Information and Coordination Center (JMICC)

The Pakistani navy operates the 24-hour JMICC from Karachi. The objective of the JMICC is to coordinate and harmonize maritime security efforts within the maritime jurisdiction of Pakistan in order to assist vessels transiting the northern Arabian Sea. Vessels are requested to report any illegal activity, including maritime pollution incidents, in Pakistan's Exclusive Economic Zone or in the northern Arabian Sea, in addition to notifying any other relevant authorities, as follows:

1. Telephone: 92-21-485-05272
2. Facsimile: 92-21-992-32195
   92-21-992-32196
3. E-mail: jmio@paknavy.gov.pk

Search and Rescue

The Pakistan Maritime Security Agency under the Ministry of Defense is responsible for coordinating search and rescue operations. The Maritime Rescue Coordination Center (MRCC) Pakistan can be contacted, as follows:

1. Telephone: 92-21-992-14624
   92-21-992-14964
   92-21-992-14965
   92-21-992-14966
   92-21-992-14967
   92-21-992-14865
2. Facsimile: 92-21-992-14625
3. E-mail: mrccpmsa@cyber.net.pk
   hqmsa@cyber.net.pk

Karachi Radio (ASK) maintains a continuous listening watch on all international distress frequencies and can be contacted, as follows:

1. Telephone: 92-21-345-91161
2. Facsimile: 92-21-345-91285

Rescue craft are stationed in Karachi.

Ship Reporting System

Pakistan Ship Reporting System (PASREPS)

The Pakistan Ship Reporting System (PASREPS) has been established to regulate the transport of hazardous and dangerous substances on vessels in order to prevent, reduce, and control marine pollution in Pakistani waters. All vessels regardless of tonnage or size carrying dangerous and hazardous cargo while transiting the Pakistan Exclusive Economic Zone (EEZ) or intending to call on any Pakistani port shall report the details of such cargo at least 24 hours prior to entering the Pakistan EEZ or 48 hours prior to transiting the territorial waters of Pakistan or entering any Pakistani port, whichever is earlier.

Dangerous and hazardous cargo to be declared include the following:

1. Explosives.
2. Gases.
3. Flammable liquids.
4. Flammable solids or substances.
5. Oxidizing substances.
6. Organic peroxides and toxic substances.
7. Radioactive materials.
8. Corrosive substances.
9. Miscellaneous dangerous substances and articles.
10. Substances and materials such as defined in the Explosives Act, 1884.
11. Materials that are hazardous only when carried in bulk (MHB).

The report of dangerous and hazardous cargo shall be made, in the format given in the accompanying table titled PASREPS Reporting Format, to the following offices:

1. Director General Maritime Security Agency
   Plot No. 34-A
   Dockyard, Karachi
   Telephone: 92-21-9921-4624
   92-21-9921-4864
   92-21-9921-4865
   92-21-9921-4866
   92-21-9921-4867
   Facsimile: 92-21-9921-4621
   92-21-9921-4625
   E-mail: hqmsa@cyber.net.pk
   Web site http://www.msa.org.pk
2. Director General (P and S)
   Ministry of Ports and Shipping
   Plot No. 12, Miscellaneous Area
   Mai Kolachi Bypass
   Near KESC Grid, Karachi
   Telephone: 92-21-9920-6406
   92-21-9920-4196
   Facsimile: 92-21-9920-6407
   E-mail: dgpspk@gmail.com
3. Hydrographer of the Pakistan Navy
   Hydrographic Department
   Naval Headquarters
   11 Liaquat Barracks, Karachi
   Telephone: 92-21-4850-6151
   92-21-4850-6152
   Facsimile: 92-21-9920-1623
   E-mail: hydropk@paknavy.gov.pk
   Web site: http://www.paknavy.gov.pk/hydro

PASREPS Reporting Format

Designator	Meaning
A	Name and type of ship
B	Port of registry
C	Position
D	IMO number
E	Port of departure

PASREPS Reporting Format	
Designator	**Meaning**
F	Next port-of-call
G	Type of packages (e.g.: steel drums, boxes, freight containers, portable tanks, etc.)
H	U.N. number(s)
I	Quantity, weight, and destination
J	Details of arms and ammunition being carried on board
K	Correct technical name of goods

Failure to report or declare the presence of dangerous and hazardous cargo on board or non-compliance with notices to mariners shall make the vessel considered to be unsafe. Vessels suspected of violating these rules or notices to mariners on marine pollution when in the Pakistani EEZ or along the coast shall be liable to visit and search by vessels or ships of the Pakistani navy or Maritime Security Agency (MSA) and may be diverted for this purpose. Vessels violating any provisions of the rules will be directed to the nearest Pakistani port or other place deemed appropriate by a Pakistani naval, MSA, or government vessel for further investigations and legal proceedings.

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Signals

Harbor Signals

Should it become necessary to control the movement of ships into and within ports in Pakistan, the signals described below will be displayed from a conspicuous position in or near the port approaches and/or from any Examination or Traffic Control Vessel operating in the approaches to the port, as follows:

1. Entry to port prohibited:
   - Day signal—Three red balls, vertically disposed.
   - Night signal—Three fixed red lights, vertically disposed.
2. Entry to port permitted:
   - Night signal—Three fixed green lights, vertically disposed.
3. Movement or anchorage within port prohibited:
   - Day signal—Blue flag.
   - Night signal—A fixed green light between two fixed red lights, vertically disposed.

Storm Signals

The General System is used in Karachi (24°49'N., 66°59'E.). For further information, see **India—Signals—Storm Signals**.

Submarine Operating Areas

Exercise Area

A submarine exercise area extends all along the Makran coast, W and SW of Ras Muari (Cape Monze), and is bounded by lines joining the following positions:

a. 25°08'N, 66°30'E.
b. 24°58'N, 66°30'E.
c. 24°43'N, 66°42'E.
d. 24°43'N, 66°56'E.
e. 24°15'N, 67°05'E.
f. 23°10'N, 67°05'E.
g. 23°10'N, 62°10'E.
h. 25°08'N, 62°10'E.

Warning Signals

Pakistani submarines may be encountered by day or at night while operating in any of the waters off the Pakistani coast. They may be encountered on the surface at night, particularly in the vicinity of Karachi. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by the local coastal radio stations.

Pakistan escort vessels fly the International Code Group "NE2" to denote that submarines, which may be submerged or surfaced, are exercising in the vicinity. Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

A submarine submerged at a depth too great to show the periscope may sometimes indicate its position by releasing a "smoke candle" that gives off a considerable volume of smoke on first reaching the surface.

Submarines may sometimes also indicate their positions by towing on the surface close astern a red-and-white or red-and-yellow float.

The following signals are used by submerged Pakistani submarines in exercise areas to indicate their positions:

1. Red pyrotechnic flares, which may be accompanied by smoke candles, repeated as often as possible indicate that vessels should clear the area immediately as the submarine is carrying out emergency surfacing procedure. Vessels must not stop their propellers and should standby to render assistance.
2. White smoke candles (with flame), yellow smoke candles, or yellow and green pyrotechnic flares indicate the position of the submarine in response to a request from a ship or aircraft.
3. Two yellow pyrotechnic flares or two white or two yellow smoke candles released singly about 3 minutes apart indicate that the submarine is preparing to surface. Vessels must not stop their propellers and should keep clear.

If the red pyrotechnic flare signal is sighted and the submarine does not surface within 5 minutes, it should be assumed that the submarine is in distress and has sunk. An immediate attempt should be made to fix the position in which the signal was sighted.

Navigation Lights

The masthead and side lights of Pakistani submarines are placed well forward and very low over the water in proportion to the length and tonnage of these vessels. In particular, the

masthead light may be lower than the side lights. The overtaking light (stern light) is placed very low indeed and may at times be partially obscured by spray and wash. These lights may also be invariably lower than the side lights.

The overall arrangement of the submarine's lights is therefore unusual and may well give the impression of a markedly smaller and shorter vessel. The vulnerability of submarines to collision when proceeding on the surface dictates particular caution when approaching such vessels.

While at anchor or moored to a buoy at night, Pakistani submarines exhibit normal anchor lights. In some submarines, the aft anchor light is mounted on the upper rudder, which is some distance astern of the hull's surface waterline. Care must be taken to pass well clear astern of the submarine as the propeller is placed aft of the rudder.

Pakistani submarines are also fitted with an all-round yellow quick flashing light. It is usually situated higher than the masthead light and shows about 120 flashes per minute. This light is used as an aid to identification in narrow waters, in areas of dense traffic, and in close quarters situations. Showing of the light is intended for indicating to an approaching vessel the need for added caution rather than immediate identification of the vessel exhibiting the light.

Sunken Submarine

A submarine which has bottomed and is unable to surface will try to indicate its position by the following methods:

1. On the approach of surface vessels and at regular intervals by firing candles giving off yellow or white smoke. As far as possible yellow candles will be used by day.
2. Pumping out fuel or lubricating oil.
3. Blowing out air.

In some circumstances it may be impossible for a submarine to fire smoke candles. Correspondingly, a partially-flooded submarine may have only a certain number of smoke candles available and searching ships should not therefore expect many to appear.

Since oil slicks or debris may be the only indication of the presence or whereabouts of the sunken submarine, it is vitally important that surface ships refrain from discharging anything that might appear to have come from a submarine while they are in the probability area.

Searching ships and aircraft can waste many valuable hours investigating these false contacts.

At any time after a submarine accident, survivors may start attempting to escape. Current policy dictates that survivors will wait before escaping until rescue vessels are known to be standing by or conditions inside the submarine deteriorate to such an extent that an escape attempt must be made. It should be noted that, in certain circumstances, the latter situation may not arise through lack of air supply until several days after the accident. However, if the submarine is badly damaged, survivors may have to make an escape attempt immediately. On arrival at the surface, crew members may be exhausted or ill, and, if circumstances permit, the presence of a boat already lowered is very desirable. Some crew members may require a decompression chamber. Therefore, it is the aim of the authorities to get such a chamber to the scene as soon as possible.

In order that those trapped in the submarine shall be made aware that help is at hand, naval vessels drop small charges into the sea which can be heard from inside the submarine. There is no objection to the use of small charges for this purpose, but it is vital that they are not dropped too close since crew members in the process of making ascents are particularly vulnerable to underwater explosions, and may easily receive fatal injuries.

A distance of about 0.3 mile is considered to be safe. If no small charges are available, the running of an echo sounder or the banging of the outer skin of the ship's hull with a hammer from a position below the waterline are likely to be heard in the submarine, and such banging and/or sounding should therefore be carried out at frequent intervals.

Submarine Indicator Buoy

The buoy, which floats on the surface, is semi-spherical in shape, about 43cm in diameter, and painted fluorescent orange. It carries a sign giving the name of the Pakistani submarine.

A light, which flashes twice every second, is mounted on the center of the top surface. This light has an endurance of about 60 hours.

The buoy is equipped with a radio transmitter operating at 243 MHz. The radio transmits a shrill noise at 1 second intervals, with a tone rising from 300 Hz to 3,000 Hz. The transmitter has an endurance of about 76 hours and a range of about 100 miles.

The buoy is also equipped with a radar responder on 9310 MHz if queried from 8500 MHz to 9600 MHz. The radar responder has an endurance of about 50 hours and a range of about 85 miles.

Vessels finding this buoy should not secure to or touch it. The Pakistani Navy or local police should be notified immediately.

Time Zone

The Time Zone description is ECHO (-5). Daylight Savings Time is not maintained.

U.S. Embassy

The U.S. Embassy is situated at the Diplomatic Enclave, Ramna 5, Islamabad.

The mailing address is 8100 Islamabad Place, Washington, DC (20521-8100).

U. S. Embassy Pakistan Home Page
http://islamabad.usembassy.gov

PARAGUAY

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General

Paraguay, located in the central part of South America, is bounded on the E and NE by Brazil; on the SE, S, and SW by Argentina; and on the NW by Bolivia.

The Chaco Boreal region, located W of the Rio Paraguay, is a uniformly flat area with swampy lowlands near the river. In other parts, it is covered with either dense jungle growth, isolated forests, or thorny scrub. Grassy plains and wooded hills are located in an area to the E of the river.

The climate is mostly tropical with an abundant rainfall. There is only a short dry season, from July to September, when temperatures are lowest. The far W part of the country is semi-arid.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Currency

The official unit of currency is the guarani, consisting of 100 centimos.

Government

Flag of Paraguay

Paraguay is a constitutional republic. The country is divided into 17 departments and the capital.

Paraguay is governed by a directly-elected President serving a 5-year term. The Council of Ministers is appointed by the President. The bicameral National Congress consists of an 80-member directly-elected Chamber of Deputies and a 45-member directly-elected Chamber of Senators; members of both chambers of Congress serve 5-year terms.

The legal system is based on Argentine, Roman, Spanish and French civil law.

The capital is Asuncion.

Holidays

The following holidays are observed:

January 1	New Year's Day
Heroes' Day	March 1
Holy Thursday	Variable
Good Friday	Variable
May 1	Labor Day
May 15	Independence Day
June 12	Chaco Armistice Day
August 15	Founding of Asuncion
September 29	Victory at Boqueron
December 8	Our Lady of Caacupe
December 25	Christmas Day

Industries

The main industries are sugar, cement, textiles, beverages, wood products, steel, metallurgy, and electric power.

The main exports are soybeans, feed, cotton, meat, edible oils, wood, and leather. The main export-trading partners are Brazil, Russia, Argentina, and Chile.

The main imports are motor vehicles, consumer goods, tobacco, petroleum products, electrical products, tractors, chemicals, and vehicle parts. The main import-trading partners are Brazil, China, Argentina, and the United States.

Languages

Spanish and Guarani are the official languages.

Time Zone

The Time Zone description is QUEBEC (+4). Daylight Savings Time (PAPA (+3)) is maintained from the beginning of October until the end of March of the following year; the exact changeover dates should be obtained from local authorities.

U.S. Embassy

The U.S. Embassy is situated at 1776 Avenida Mariscal Lopez, Asuncion.

The mailing addresses are, as follows:

1. Paraguay address—
   Casilla Postal 402
   Asuncion
2. U. S. address—
   Unit 3020
   APO AA (34036-0001)

U. S. Embassy Paraguay Home Page
http://paraguay.usembassy.gov

QATAR

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General

Qatar occupies the main peninsula projecting N into the Persian Gulf from the Saudi Arabian mainland. Qatar has a dispute with Bahrain concerning territorial claims over the Hawar Islands.

The country is mainly flat, barren, and covered with loose sand and gravel.

The climate is hot and humid. There is very little rainfall, vegetation is sparse, and temperatures are very high.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Magnetic Anomalies

A magnetic anomaly has been reported (2010) to exist in position 25°7.5'N, 52°5.3'E about 9 miles N of Jazirat Halul.

Currency

The official unit of currency is the Qatari riyal, consisting of 100 dirhams.

Government

Qatar is a traditional monarchy. The country is divided into seven municipalities.

Flag of Qatar

Qatar is ruled by an Amir. The Prime Minister and the Council of Ministers are appointed by the Amir. There is no parliament, but the Council of Ministers is assisted by a 15-member appointed Advisory Council.

The legal system consists of a discretionary form of law controlled by the Amir. Civil codes are being introduced. Islamic law is significant in personal matters.

The capital is Doha (Ad Dawhah).

Holidays

The following holiday is observed:

December 18	Qatari National Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are liquefied natural gas, crude oil production and refining, ammonia, fertilizers, petrochemicals, steel reinforcing bars, cement, and commercial ship repair.

The main exports are liquefied natural gas, petroleum products, fertilizers, and steel. The main export-trading partners are Japan, South Korea, India, China, Singapore, and the United Arab Emirates.

The main imports are machinery and transport equipment, food, and chemicals. The main import-trading partners are the United States, China, the United Arab Emirates, Germany, Japan, and the United Kingdom.

Languages

Arabic is the official language. English is also commonly used.

Mined Areas

Vessels are advised that mined areas exist in the N part of the Persian Gulf. Further information should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150-5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Qatar are, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone *	—
Continental Shelf *	—

* Extends to median line with neighboring states.

Pollution

Qatar Petroleum's Oil Spill and Emergency Response can be contacted, as follows:

1. Telephone: 974-4013-1565
   974-4013-1566
2. Facsimile: 974-4429-3766
3. E-mail: ashkanani@qp.com.qa

Any oil spill incidents occurring within Qatar should also be reported to the Qatar Petroleum Major Communication Center, which can be contacted, as follows:

1. Telephone: 974-4440-2000
2. Facsimile: 974-4440-2509

Ballast Water Management

The coast of Qatar lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see Red Sea and the **Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

Liquor is not allowed ashore and it is a serious offense to offer alcoholic beverages to a Qatari.

Smoking is not permitted in public places during Ramadan.

Quarantine (Pre-arrival Information)

Radio pratique can be obtained via the vessel's agent provided the master can declare that there has not been a serious illness on board during the previous 30 days and the following information is supplied to the Quarantine Officer via the agent:

1. Vessel name and flag.
2. Master's name and nationality.
3. Number and nationality of officers and crew.
4. Ports visited during the last 21 days.
5. Has the vessel any suspected cases of plague, cholera, yellow fever, typhus, or any other infectious disease?

All crew members are required to have a valid cholera certificate.

Search and Rescue

The Department of Customs and Ports General Authority is responsible for coordinating search and rescue operations.

Doha Port Search and Rescue can be contacted, as follows:

1. Telephone: 974-4443-4377
   974-4404-2375
2. Facsimile: 974-4404-2738
3. E-mail: marine.services@mwani.com.qa

JRCC Doha can be contacted, as follows:

1. Telephone: 974-4421-8649
   974-4498-0354
2. Facsimile: 974-4489-0379
   974-4421-8538

Doha Coast Radio Station (A7D) maintains a continuous listening watch for distress traffic on 2182 kHz and VHF channel 16 and can be contacted, as follows:

1. Telephone: 974-4440-4088
   974-4486-4444
2. Facsimile: 974-4498-0360
3. E-mail: a7d@ooredoo.qa

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated in the Al-Luqta District at 22 February Road, Doha.

The mailing address is 22 February Road, Al-Luqta District, P.O. Box 2399, Doha.

U. S. Embassy Qatar Home Page
http://qatar.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Service is in operation in Mesaieed (Umm Said) (24°56'N., 51°35'E.). For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

RED SEA AND THE PERSIAN GULF

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General

The Red Sea is bounded on the W by Egypt, Sudan, and Eritrea and on the E by Saudi Arabia. The Gulf of Aqaba, in the N part of the Red Sea, extends NW from the S end of the Sinai Peninsula and provides maritime access to Israel and Jordan. The Red Sea, a critical shipping like linking the Indian Ocean to the Mediterranean Sea., is entered from the S through the Bab al Mandeb and to the N through the Suez Canal.

The Gulf of Aden, lying in the E approach to Bab-al-Mandeb, is bounded on the N by Yemen and on the S by Somalia. The island of Suqutra, a part of Yemen, lies on the S side of the Gulf of Aden, about 130 miles ENE of Gwardafuy, the NE extremity of Somalia.

The Gulf of Oman, bounded on the S and W by Oman and the United Arab Emirates and on the N by Iran, lies in the E approach to the Strait of Hormuz. a significant amount of the world's oil transits through the Strait of Hormuz.

The Persian Gulf, entered from the S through the Strait of Hormuz, is bounded on the S and W by the United Arab Emirates., Qatar, Bahrain, Saudi Arabia, and Kuwait, and on the E and N by Iran and Iraq.

Buoyage System

Aids to navigation in many areas of the Persian Gulf are reported to be unreliable. They may be missing, unlit, or out of position.

Cautions

Special Warning 134 (Issued 3 October 2016)

Commercial vessels in the region of the Red Sea, Bab el-Mandeb, Strait, and the Gulf of Aden should operate under a

heightened state of alert as increasing tensions in the region escalate the potential for direct or collateral damage to vessels transiting the region. These threats may come from a variety of different sources such as missiles, projectiles, or waterborne improvised explosive devices. Houthi rebels claimed responsibility for an 01 Oct attack on a UAE vessel. Vessels in the region should report hostile activities immediately and contact coalition naval forces via VHF bridge-to-bridge radio, e-mail (catleader@me.navy.mil), or telephone (973-1785-3879).

Special Warning 132 (Issued 4 April 2015)

Information on Special Warning 132 can be found in **Yemen—Cautions**.

Special Warning 123 (Issued 11 November 2005; revised 24 November 2014)

Information on Special Warning 123 can be found in **Somalia—Cautions**.

Special Warning 122 (Issued 11 March 2005; reviewed 6 November 2014)

As of early 2005, the United States Government has received unconfirmed information that terrorists may attempt to mount a maritime attack using speedboats against a Western ship, possibly in East Africa. This information is unconfirmed and the United States is not aware of additional information on the planning, timing, or intended targets of the maritime attack.

Special Warning 120 (Issued 16 November 2001; reviewed 20 November 2014)

1. Due to recent events in the Middle East and the American homeland, U.S. forces worldwide are operating at a heightened state of readiness and taking additional defensive precautions against terrorist and other potential threats. Consequently, all aircraft, surface vessels, and subsurface vessels approaching U.S. forces are requested to maintain radio contact with U.S. forces on bridge-to-bridge channel 16, international air distress (121.5 MHz VHF), or MILAR Distress (243.0 MHz UHF)
2. U.S. forces will exercise appropriate measures in self-defense if warranted by the circumstances. Aircraft, surface vessels, and subsurface vessels approaching U.S. forces will, by making prior contact as described above, help make their intentions clear and avoid unnecessary initiation of such defensive measures.
3. U.S. forces, especially when operating in confined waters, shall remain mindful of navigational considerations of aircraft, surface vessels, and subsurface vessels in their immediate vicinity.
4. Nothing in this special warning is intended to impede or otherwise interfere with the freedom of navigation or overflight of any vessel or aircraft, or to limit or expand the inherent self-defense right of U.S. forces. This special warning is published solely to advise of the heightened state of readiness of U.S. forces and to request that radio contact be maintained as described above.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

A Coalition of Nations has responded to repeated calls by the International Community, though the United Nations, for action to combat international violent extremism. The CMF from these nations join together to conduct operations in the Middle East Region with the aim of maintaining maritime security and combating violent extremism. The Coalition headquarters is in Bahrain and CMF forces routinely conduct operations in the Red Sea, the Gulf of Aden, the Somali Basin, the Arabian Sea, the Gulf of Oman, the northern Indian Ocean, and the Arabian Gulf. These areas contain important sea lines of communication and as such are crucial to worldwide trade and economy. The CMF will, where possible, assist mariners in distress and attempt to keep the seas as safe as possible.

Coalition operations may include Maritime Awareness Calls, queries, approaches, or boardings of vessels on the high seas. Mariners are thanked for ensuring these activities are undertaken as swiftly, and with as little impact on the vessel as possible. The CMF routinely monitor the Automatic Identification System (AIS) to promote awareness and safety throughout the region. Improper or inaccurate use of such equipment is likely to draw specific interest to the relevant ship by CMF.

If illicit or unusual activities are observed by mariners in the region, this can be reported to Coalition naval vessels using VHF channel 16 or via CFMCC, as follows:

1. Telephone: 00-973-1781-2952
2. E-mail: mail@rewardsforjustice.net

More information can also be found, as follows:

Combined Maritime Forces

http://www.cusnc.navy.mil

All vessels and aircraft approaching the CMF are advised to maintain radio contact on bridge-to-bridge VHF channel 16, international air distress (121.5 MHz VHF), or military air distress (243.0 MHz UHF). This notice is effective immediately and will remain in effect until further notice.

The CMF appreciates the assistance of mariners in contributing to a lawful maritime order in this region.

Locust Reports

General.—Many countries in Africa and Southwest Asia are, from time to time, invaded by swarms of Desert Locust. These locusts are capable of traveling for hundreds of miles and have repeatedly been seen in flight at sea within the North Arabian Sea, the Red Sea, the Gulf of Aden, the Persian Gulf, and the N part of the Indian Ocean. For further information, see **Indian Ocean—Cautions—Locust Reports**.

Ras Bab al Mandeb—Terror Threat

Vessels transiting Ras Bab al Mandeb, the Red Sea, and the Gulf of Aden along the Yemeni coast should be aware that information suggests (2010) that Al-Qaeda remains interested in maritime attacks in this region. Although it is unclear how they would proceed, it may be similar in nature to the attack on the USS Cole in October 2000 or the M/V Limberg in October 2002, where a small to mid-size boat laden with explosives was detonated in the vicinity of the targeted ships. However, the use of more sophisticated targeting methods, such as the use of missiles or projectiles to target ships (including the mortars used to target a U.S. Navy vessel in Jordan in 2005) cannot be ruled out.

Vessels transiting the waters in this region should operate at a heightened state of readiness and should maintain 24-hour visual and radar watches. Vessels are at the greatest risk in areas of restricted maneuverability, while in port, or when at anchor. Vessels are also urged to regularly report their position, course, and speed to the United Kingdom Maritime Trade Organization (UKMTO).

Merchant vessels are requested to report any suspicious activity to the UKTMO or the IMB Piracy Reporting Center. This information may also be relayed to the Maritime Security Center—Horn of Africa (MSC-HOA).

Ras Bab al Mandeb—Contact Information		
	Telephone	**E-mail**
UKMTO	44-2392-222060	watchkeepers@ukmto.org
MSC-HOA	44-1923-958545	opscentre@mschoa.org
IMB Piracy Reporting Center	603-2031-0014	imbkl@icc-ccs.org
		piracy@icc-ccs.org

Piracy

General.—Acts of piracy are reported to occur within the waters off the coast of Somalia and in the Strait of Hormuz. The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur. This center operates for the Southeast Asian Region and is able to receive reports from vessels concerning attacks and advise of danger areas. Piracy warnings are broadcast by the center. For further information, see **Malaysia—Cautions—Piracy**.

Vessels are further cautioned to be especially alert for pirates in the waters off Egypt, in the Gulf of Aden and the Red Sea, off Somalia, in the Arabian Sea and the Gulf of Oman, and off Oman

Guidance regarding practices recommended for vessels operating in high risk areas have been published by the International Maritime Organization's (IMO) Revised Maritime Safety Committee (MSC) Circulars, which can be accessed on the Internet, as follows:

IMO Revised MSC Circulars

http://www.imo.org/safety/mainframe.asp?topic_id=1147

The European Union, in cooperation with Lloyd's Registry, has established a web-based resource for vessels to receive the latest alerts prior to transiting high risk areas in this region. Owners and operators are encouraged to register their vessels with the Maritime Security Center—Horn of Africa, as follows:

Maritime Security Center-Horn of Africa Home Page

http://www.mschoa.org

Industry bodies, including the National Maritime Bureau (IMB) have published *"Best Management Practices to Deter Piracy in the Gulf of Aden and off the Coast of Somalia (February 2009)."* This document can be accessed from the International Chamber of Commerce's web site, as follows:

International Chamber of Commerce Home Page

http://www.icc-ccs.org/images/stories/pdfs/bmp.pdf

Maritime Security Patrol Area (MSPA).—A Maritime Security Patrol Area (MSPA) has been established in the Gulf of Aden in support of the International Maritime Organization's (IMO) ongoing efforts to ensure the safety of ships and mariners at sea. The MSPA is a geographic region in the Gulf of Aden utilized by the Combined Maritime Forces (CMF) and positioned to maximize the deployment of available forces in areas of high risk. CMF forces patrol the MSPA on a routine basis.

The MSPA is not marked or defined by visual navigational means, nor is it intended to be a dedicated traffic separation scheme. The MSPA is a naval term for use by warships when communicating with each other and should not be confused with the Internationally Recommended Transit Corridor (IRTC) for the Gulf of Aden. The IRTC, which is described below, is the recommended path through the Gulf of Aden to allow minimal response time to attacks.

MSPA patrols are intended to monitor activity both inside and outside the transit corridor. Naval vessels patrolling the MSPA provide a measure of deterrence through their presence, but this deterrence is limited due to the vast area of the Gulf of Aden and even less effective in the open waters E of Somalia. Given the high volume of shipping in the region, the safety of all ships cannot be guaranteed due to the often long response times due to the considerable distances involved. Masters are recommended to continue to use all available defensive measures to make their vessels less vulnerable to attack when operating in the Gulf of Aden and off the E coast of Africa.

Internationally Recommended Transit Corridor. (IRTC)—An IRTC has been established in the Gulf of Aden by the CMF, in cooperation with the European Union Naval Force (EURNAVFOR) Atalanta and the United Kingdom Maritime Trade Organization (UKMTO). The corridor is designed to:

1. Deconflict commercial transit traffic with Yemeni fishermen.
2. Provide a measure of traffic separation.
3. Allow maritime forces to conduct deterrent operations in the Gulf of Aden with a greater degree of flexibility.

The IRTC is not marked or defined by visual navigational means, nor is it intended to be a dedicated traffic separation scheme, but in order for CMF patrols to be effective, vessels transiting the Gulf of Aden are strongly recommended to adhere to these guidelines regarding the use of the IRTC.

The transit corridor consists of separate eastbound and westbound transit lanes, each lane being 5 miles wide, separated by a 2-mile wide buffer zone, as follows:

1. Eastbound lane—Begins at longitude 45°00'E between latitude 11°48'N and latitude 11°53'N. The lane is oriented along a straight line course of 072°, ending at longitude 53°00'E between latitude 14°18'N and latitude 14°23'N. The lane should be entered at a position designated as Point A (11°50'N., 45°00'E.).
2. Westbound lane—Begins at longitude 53°00'E be-

Courtesy of http://www.mschoa.org

Internationally Recommended Transit Corridor (IRTC)

tween latitude 14°25'N and latitude 14°30'N. The lane is oriented along a straight line course of 252°, ending at longitude 45°00'E between latitude 11°55'N and latitude 12°00'N. The lane should be entered at a position designated as Point A (14°28'N., 53°00'E.).

Gulf of Aden Group Transits (GOAGT).—A designated Group Transit scheme has been put in place for transit through the Gulf of Aden, beginning at the following starting points:

1. Point A—position 11°50'N, 45°00'E.
2. Point B—position 14°28'N, 53°00'E.

Though this is not considered a naval convoy, following the GOAGT scheme will enhance mutual protection, optimize the coordination of military assets in support, and help vessels in avoiding the higher risk piracy areas during the most vulnerable time of the day.

Military assets (naval units with air support) will be strategically deployed within the area to provide protection and support to merchant vessels. However, vessels should not expect to see a routine military presence at point A or Point B and are unlikely to establish VHF contacts at these points.

Information on the transit schedule is given in the table titled **GOAGT Transit Schedule**.

GOAGT Transit Schedule		
Transit speed	**Start time (ZULU)**	**Start time (local)**
Eastbound transit starting at Point A		
10 knots	0100	0400
12 knots	0530	0830
14 knots	0830	1130
16 knots	1100	1400
18 knots	1300	1600
Westbound transit starting at Point B		
10 knots	1500	1800
12 knots	2100	0001
14 knots	0100	0400
16 knots	0530	0830
18 knots	0700	1000

There are no special procedures for joining a group transit; simply depart at the scheduled time from Point A or Point B and proceed through the transit corridor in company with any other vessels electing to use the transit scheme. When transiting the corridor, it is recommended that eastbound vessels navigate S of the corridor while westbound vessels navigate N of the corridor.

Vessels should comply with the COLREGS at all times. Vessels are not relieved of their obligation to maintain a 24-hour lookout using all available means to get early warnings of an approaching threat.

Some vessels have been attacked/hijacked in the corridor. It should be noted that there is no one particular ship for vessels to follow during the group transit. The idea is to depart at the

given time regardless of the number of ships in the area at the time of departure.

It is recommended that vessels send a position report every 4 hours to UKMTO and MARLO. Vessels are also encouraged to register with the Maritime Security Center—Horn of Africa, which can be contacted through the previously-given web site.

Recommended Reporting Procedures.—U.S.-flagged vessels should provide 2 weeks advance notice of arrival in the waters off the Horn of Africa to MARLO Bahrain. This more advanced notification provides naval forces more time to plan the use of available naval assets.

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 96 hours prior to entering the above-described IRTC, check in again when entering the IRTC, and check out upon exiting this same corridor. While in these waters, it is recommended that vessels report their position to the UKMTO a minimum of every 6 hours. Check-in points are, as follows:

1. Eastbound traffic—position 12°15'N, 45°00'E.
2. Westbound traffic—position 14°45'N, 53°00'E.

The following reporting format should be used:

A. Vessel name.
B. Call sign.
C. IMO Number.
D. Cargo.
E. Last port.
F. Noon position (UTC).
G. Next port.
H. Additional ports.
I. Security team aboard (Y/N).
J. Reporting via AMVER?
K. Publication 117 aboard?
L. Present position.

MARLO Bahrain can be contacted, as follows:

1. E-mail (preferred): marlo.bahrain@me.navy.mil
2. Telephone: 973-3940-1395

Information on the **Gulf of Aden Voluntary Reporting System** and the **Middle East Merchant Vessel Voluntary Reporting System** can be found under Ship Reporting Systems.

Anti-Piracy Distress Calling Procedures.—Commercial vessels transiting the Gulf of Aden and the E coast of Somalia and under piracy distress are recommended to use the following reporting procedures:

1. Call for help on VHF channel 16 (primary), VHF channel 8 (secondary), and MF/HF/DSC.
2. Immediately contact the United Kingdom Maritime Trade Office (UKMTO):
   - Telephone: 44-52392-222060
   - E-mail: watchkeepers@ukmto.org
3. If no answer, contact Naval Coordination and Guidance for Shipping (NCAGS) Bahrain:
   - Telephone: 973-1785-1023
     973-1785-824 (after office hours)
   - E-mail: cusng.ncags_bw@me.navy.mil
4. Activate the Ship Security Alert System.

Transit Recommendations off the E coast of Africa.—Pirates are attacking vessels, including yachts and other non-commercial vessels such as sail boats, in the Gulf of Aden, the Arabian Sea, the Indian Ocean, the southern Red Sea, and the Mozambique Channel. The pirates fire automatic weapons and rocket-propelled grenades in an attempt to board and hijack vessels. Once the attack is successful and the vessel hijacked, the pirates direct the vessel to the Somali coast and then demand a ransom for the safe return of the vessel and crew.

Pirates use hijacked fishing vessels and merchant vessels to conduct piracy operations as mother vessels to sail far from the Somali coast to attack and hijack vessels in transit or at anchor. Smaller skiffs are launched from the pirate mother vessels to attack the targeted vessels.

Seiches

Seiches (stationary oscillations superimposed upon the tide, having periods varying from a few minutes to about an hour) occur in the Persian Gulf. At Ras al Mishab, the height is about 0.1m, with periods of 30 to 60 minutes; at Ras Tannurah, the height is about 0.2m, with periods of 6 to 12 minutes.

Information on seiches in the Arabian Sea is not available; however, they should be expected because the Arabian Sea is similar in shape to the Bay of Bengal, where seiches do occur.

In the Red Sea, the water level is about 0.3m higher in winter than in summer because of the greater evaporation during the latter season. Also, strong winds and changes in barometric pressure may cause appreciable variations in the water level.

VHF Channel 16 Interference

In the Gulf of Oman, the S approach to the Strait of Hormuz, and particularly in the Persian Gulf itself, VHF channel 16 experiences an extreme level of over-the-air interference. This interference consists of a high volume of extraneous conversations not related to hailing and safety, as well as loud and prolonged episodes of whistling and the playing of music. This causes a severe degradation to the channel's intended function as a maritime hailing and distress frequency.

Abnormal Refraction

Excessive refraction and mirages are frequent in the Red Sea; lights, land, and other features may be sighted at distances beyond what would normally be expected.

Gulf of Aden/Horn of Africa—Contact Information

Organization	Telephone	Facsimile	Website	E-mail
UKMTO	44-2392-222060	971-4-309-4254	—	watchkeepersmto@ukmto.org ukmto@eim.ae

Gulf of Aden/Horn of Africa—Contact Information				
Organization	Telephone	Facsimile	Website	E-mail
MSC-HOA (EU NAVFOR Somalia)	44-1923-958545	44-1923-958520	http://www.mschoa.org	postmaster@mschoa.org opscentre@mschoa.org
NCAGS Bahrain	973-17851023 (O) 973-17858240 (C)	973-17854647	—	cusnc.ncags_bw@me.navy.mil cusnc.bwc@me.navy.mil
NATO Shipping Center	44-1923-956574	44-1923-956575	http://www.shipping.nato.int	info@shipping.nato.int

Refraction and mirages are frequently experienced in the Persian Gulf, especially in the early morning. Features become greatly distorted, villages may appear as clumps of rounded trees, and hillocks or dunes may appear as hills of considerable height.

Local Craft

Trading between ports in the Persian Gulf, India, the Red Sea, and the E coast of Africa is partly carried out by vessels known locally as bagalas and bums; similar vessels from India are known as kutiyahs and dangiyas, respectively. The term dhow, used to denote local craft, is of western origin and is not used by the local trading communities.

These local craft are usually between 100 and 400 tons, with a tall mainmast and lateen sail, and a small lateen mizzen. They sail well in moderate winds but do not operate during the Southwest Monsoon. Smaller local craft are similarly rigged but do not have a mizzen.

Magnetic Anomalies

Vessels are reminded to frequently check their magnetic compass errors when transiting through the Red Sea.

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

The following MARAD Advisories are in effect in the geographic area of the Red Sea and the Persian Gulf:

1. MARAD Advisory 2016-3 (issued 13 September 2016)—Zika Virus.
2. MARAD Advisory 2015-1 (issued 1 May 2015)—Vessel Guidance for the Strait of Hormuz.
3. MARAD Advisory 2013-3 (issued 13 March 2013)—Guidance to Vessels Operating in the Gulf of Oman, North Arabian Sea, Gulf of Aden, and Bab el Mandeb Regions.
4. MARAD Advisory 2011-5 (issued 31 August 2011)—Risk to Vessels Transiting High Risk Waters.
5. MARAD Advisory 2010-6 (issued 29 March 2010)—Guidance to Vessels Transiting High Risk Waters.
6. MARAD Advisory 2005-1 (issued 22 July 2005)—Reporting Maritime Terrorist Incidents.

Climatology

General

Routes through the Red Sea and Persian Gulf experience mostly good weather during the N summer. Prevailing NW through N winds rarely reach gale force. In the S waters of both bodies, winds are most variable early in the season. Through the Strait of Hormuz, SW through NW winds give way in July to SE winds. Wind speeds average 5 to 10 knots in the Persian Gulf and southern Red Sea. In the northern Red Sea, speeds of 8 to 13 knots are common, and gales may occur, particularly where the prevailing wind is reinforced by the sea breeze. Over the Persian Gulf the persistent NW winds from July on are known as the Great Shamal (40-day Shamal). The winds occasionally blow at near gale strength, bringing clouds of dust and sand over the Persian Gulf. Dust and haze can reduce visibilities to less than 2 miles, but generally visibilities are good over both the Red Sea and Persian Gulf. Skies are often cloudless, with only a few scattered showers to break the monotony of good weather.

There are few weather problems in the Persian Gulf and Red Sea during winter. One hazard occurs in Red Sea's narrow Bab el Mandeb from October through March, when winds in this area and N to 20°N blow out of the SE through S. This creates a funneling effect in the narrow channel, causing an increase in wind speeds. While winds reach gale force just 1 to 2 per cent of the time, they blow at 22 to 33 knots up to 34 per cent of the time. Farther N and in the Persian Gulf, mainly W through N winds blow at 6 to 12 knots on the average. Occasionally, a low pressure system or front may bring gales, rain, and cloudy skies. Most of the time skies are clear and visibilities are good.

In Somalia, the climate is divided into four seasons of about 3 months each, starting in mid August, as follows:

1. Der—The rainy Southwest Monsoon still prevails until the NE winds set in.
2. Jilal—A dry season with constant NE winds.
3. Gu—A wet season in which the NE winds prevail until

the Southwest Monsoon sets in.

4. Agai—A hot season, with lesser rains at intervals, in which the Southwest Monsoon is constant.

The Coasts of the Arabian Sea, the Red Sea, the Gulf of Aden, the Gulf of Oman, and the Persian Gulf

General.—Weather in this region is strongly seasonal, reflecting the monsoons. During winter, dry NE winds, out of a high over Siberia, bring cool temperatures with little rain or clouds. In the summer, strong SW winds bring warm humid air to all but the most N areas, which remain under the influence of a dry N flow. Rain and clouds are frequent along the W coast of India and the coast of Pakistan. In the Gulfs and the Red Sea, weather is often hot and oppressive. Extratropical cyclones bring some weather to N areas in winter, while tropical cyclones occur most often in spring and fall.

Tropical Cyclones.—Out of the five or six tropical cyclones (including tropical depressions) that move across the Arabian Sea in a normal year, usually just one will reach tropical storm or hurricane strength. This sparse activity is divided by the Southwest Monsoon into two seasons—May through June and October through November. Sometimes a tropical cyclone will form in the summer during a lull in the monsoon. It can also occur in winter; however, nearly 75 per cent of all tropical cyclones form during the four seasonal months.

Arabian Sea tropical cyclones usually develop in the SE waters or come across India from the Bay of Bengal. Their most common paths are either WNW toward the Arabian Peninsula or they recurve to the N or NE and come ashore over Pakistan or northwest India.

While these storms are most often tropical depressions, they can reach hurricane intensity, and winds up to 130 knots have been estimated. They often generate torrential rains which contribute significantly to otherwise sparse amounts along the S Arabian coast. One of the great dangers accompanying these storms, especially along a low-lying coast, is the storm surge. This rapid rise in water level is caused by the combination of low pressure and strong onshore winds.

Extra-tropical Cyclones.—Intense extra-tropical cyclones rarely occur in the Arabian Sea, although low-pressure systems from the eastern Mediterranean, and some from the Sahara and western Arabia, do pass through the Persian Gulf in winter. They are frequently accompanied by gales and thunderstorms, which are sometimes associated with their cold fronts. These lows may enter the northern Arabian Sea as weak systems. About 4 to 7 per month, from November through March, cross through the area.

General Winds.—During the N winter (December through March), the Northeast Monsoon prevails over most of this region. These winds, which flow from a high over India and Arabia to an equatorial low over Africa, are mainly out of the NE. However, they become SE through E in the southern Red Sea, E in the Gulf of Aden, and NW in the Persian Gulf and the Gulf of Oman. In the northern Red Sea, including the Gulf of Suez and the Gulf of Aqaba, NW through N prevailing winds are generated by an extension of the Azores High. Low-pressure systems introduce some variability in this area. Average wind speeds range from 6 to 12 knots, except along the Somalia coast, where they run 12 to 15 knots. Gales are infrequent, occurring less than 2 per cent of the time. They are most likely in the northern Red Sea and through the Bab al Mandeb. Strong local winds may be encountered.

March through May is a transition period as the Southwest Monsoon replaces the Northeast Monsoon. The "burst" of the summer monsoon usually takes place in early June. During the transition, winds are light, except in tropical cyclones.

By late June, the summer monsoon is well established and persistent. Off the Somalia and southern Arabian coasts, winds blow almost exclusively from the S through SW. Southwest and W winds are most common in the Gulf of Aden and along the W coast of India. The Gulf of Oman features SE through S winds, while in the Persian Gulf and Red Sea, winds are primarily out of the W through NW. These areas are under the influence of the low pressure area over India and Arabia.

The summer monsoon is the stronger and more persistent of the two. Nowhere is this more apparent than in the seas just E of Suqutra. During the July peak, wind speeds average an incredible 30 knots, while gales blow up to 30 per cent of the time. June and August are just slightly less devastating. From June through August, the area of gales occurring 5 per cent or more of the time extends from the coast of Somalia to near the entrance to the Gulf of Oman. Elsewhere along the Arabian Sea and northern Red Sea coasts, average speeds run 15 to 20 knots during the heart of the monsoon. Along the other coasts of this region, these averages drop to 8 to 12 knots, and gales are infrequent. Winds may be strong locally in many coastal areas.

October is the principal fall transition month as winds become unsteady and light. There is an increase in NW through NE winds and, in SE part of the region, the rather frequent NW winds are referred to as a "cross monsoon." Tropical cyclones can bring severe winds. In the northern, Red Sea mean wind speeds reach an annual peak in September, when they blow at 13 to 15 knots; gales occur a little more than 1 per cent of the time.

Coastal Winds.—The land-sea breeze effect is extensive, particularly when pressure gradients are slack. At these times, the winds blow perpendicular to the coasts—onshore during the afternoon and offshore at night. The land-sea breeze system can also deflect, reinforce, or retard the prevailing monsoon. At a few locations along the Somalia shores of the Gulf of Aden and Red Sea, the sea breeze overcomes the summer monsoon during the afternoon. At some places, like Djibouti, the sea breeze strengthens both monsoons, creating strong winds year-round. Along lie Sudan coast, the land breeze blows slightly offshore from October through May, while in July and August, it is perpendicular to the coast. The sea breeze is from the NE in winter and NE trough E in summer. In the Persian Gulf, land and sea breezes are most conspicuous in winter, between lows, while in summer they are masked by the prevailing NW winds. On the Makran Coast, they are noticeable from October through March. Along the W coast of India on the Kathiawar Coast and the Sind Coast, winter land breezes reinforce the Northwest Monsoon, while off the Konkan Coast the deflection of the NE wind toward the NW during the afternoon is attributed to the sea breeze. On the Malabar Coast, the sea breeze is from the W. After February, the sea breeze becomes more pronounced as it begins to strengthen the Southwest Monsoon.

Local Winds.—The following local winds occur in this area and are described, as follows:

1. **Karif.—**A SW summer wind that blows on the S shores of the Gulf of Aden. It is strongest where highlands

back the coast, as they do near Berbera; from mid-July to mid-August they sometimes exceed 50 knots. The karif sets in suddenly during the night, increasing in strength until it reaches a peak in the morning, then decreases in the afternoon. However, it sometimes lows incessantly for 3 to 4 days. It brings 38° to 46°C temperatures and raises a great deal of sand and dust.

2. **Khamsin.—**A hot dry sand-laden wind that blows in both Djibouti and Egypt. In Djibouti, it is a violent NW wind that occurs from May through September, sometimes blowing for 3 or 4 days at a time. It usually begins in the early afternoon and slackens around midnight. Wind speeds have been known to exceed 50 knots. Temperatures rise sharply, making the weather unbearable during these spells. In Egypt, the khamsin blows from the S in advance of eastward-moving lows. These winds are most common from February to May.

3. **Saba.—**A cool violent W wind that blows along the Djibouti coast. It occurs only on summer mornings beginning and ending suddenly. It is often accompanied by a few raindrops, which help keep down the dust.

4. **Ha boob.—**A short-lived squall from the SE through W blowing over Sudan between July and September. This wind may reach gale force with little warning and can raise sand and dust.

5. **Belat.—**A strong sandy NW wind found in winter on the S coast of the Arabian Peninsula. It may reach gale force for a few minutes or several hours. It can persist for several days. It usually begins and ends abruptly.

6. **Shamal.—**A NW wind of the Persian Gulf, usually restricted to the stronger winds. It is most frequent in the N from early June to about mid-July, when it is referred to as the great or 40-day shamal because of its persistence. Hot dry winds under cloudless skies fill the air with a very fine dust that extends far out to sea. At other times, shamals occur in 1 to 5 day periods, setting in suddenly, dying down at night, and strengthening again during the day.

7. **Nashi.—**A strong NE winter wind that blows in the Strait of Hormuz region. It can also occur along the Iranian coast of the Persian Gulf, in the Gulf of Oman, and on the coast of Pakistan. It generally lasts from 3 to 5 days but can be much shorter. The nashi is feared by local fishermen along the Arabian coast, where there is a lack of shelter.

8. **Kaus (Arabic)/Sharqi (Persian).—**A strong SE, sometimes E, wind that occasionally reaches gale force over the Persian Gulf. It is mainly a winter wind that precedes lows to the W or NW of the Persian Gulf and brings humid cloudy weather with rain squalls. It is often followed by a clearing SW wind called a suahili.

Climate.—Precipitation is sparse from Muqdisho to Karachi. Annual averages range from less than 508mm on the E Somalia coast to less than 25mm in the northern Red Sea. Most amounts are in the 51 to 204mm range. In arid regions one or two showers may be responsible for the entire yearly total. Sometimes one heavy cloudburst can dump twice the average annual total on one location. There is also a wide variability from year to year. For example, at Bushehr, Iran, where 267mm is normal, as much as 686mm has fallen, and as little as no rain, has been recorded in a single year.

In the northern Red Sea, the meager rainfall usually comes on a few days during winter. The brief storms that bring the rain are often accompanied by thunder and occasionally by hail. In the southern Red Sea and the Gulf of Aden, winter is usually the wettest time, but not always. Some rain falls in a local winter convergence zone that oscillates between Bur Sudan and Aseb. Maximum 24-hour amounts range from 51 to 104mm along these coasts. Along the southern Arabian coast, late summer through early winter brings the 25 to 51mm that fall on about 7 to 14 days annually. The exception is Salalah, where most of the annual total of 91mm falls during July and August. The Persian Gulf has a definite winter (November through March) maximum, with ships reporting precipitation 1 to 4 per cent of the time. During this season, much of the annual total of 76 to 127mm falls along the Arabian coast, as does much of the 76 to 279mm along the coast of Iran. Along these coasts, maximum 24-hour amounts remain below 152mm, while thunderstorms occur on 3 to 9 days each year.

Along the coast of Pakistan and the W coast of India, wet and dry seasons are pronounced, particularly between 10° and 20°N. This is where the summer monsoon exerts its greatest influence. North of Mumbai (Bombay) and S of Cochin annual amounts decrease, and there is less of a seasonal difference. Between Cochin and Ratnagiri, annual averages range from 100 to 140 inches with 50 to 70 per cent falling in June and July. At Mumbai (Bombay), where 2,082mm fall each year on the average, less than 25mm per month falls from November through May. Thunderstorms are most frequent along the SW coast of India, where they occur on up to 100 days per year, mainly during the spring and fall changes of the monsoons. Maximum 24-hour amounts range from 102mm along the Pakistan coast to nearly 559mm at Mumbai (Bombay). Along the Pakistan coast, annual amounts of 152 to 203mm are common.

The Red Sea and the Persian Gulf are among the hottest places on earth. Air temperature over water averages 29.4°C to more than 32°C during the summer months. At several ports, extremes of 48.9°C or more have been recorded. In the northern Persian Gulf, at ports like Kuwait and Abadan, temperatures reach 38°C or more on 150 to 200 days annually and just about every day from June through August. These furnace-like conditions are also encountered along the S shores of the Gulf of Aden, where average daily maximums exceed 38°C in summer.

Throughout the area June through August is usually the warmest period, except where the Southwest Monsoon brings clouds or rain as it does along the SW coast of India, the southern Arabian coast, and the NE coast of Somalia. At these locations, spring is warmer. January is usually the coolest month. In general summer daytime temperatures range in the low to upper 30s (°C) except in the cloudy regions, where they are 6 to 9°C cooler. At night they are in the mid-20 to low-30 (°C) range. In midwinter, average daily maximums range from near 32°C on the NE coast of Somalia to the low mid-teens (°C) around Kuwait, while minimums range from the low to mid-20s (°C) to around 10°C.

Diurnal, annual, and extreme temperature ranges are influenced somewhat by latitude, but mainly by exposure. This continentality is most noticeable in the northern Red Sea and the Persian Gulf. Diurnal variations of up to 12°C are common. Annual variations in average maximums and minimums range from 18° to 24°C. Extremes vary from 48.9°C or more to near or below freezing.

In this region, relative humidities are a reflection of the com-

bination of the inverse effect of temperature and the direct effect of an onshore wind. They can be extremely misleading. The reputation of the Persian Gulf and the Red Sea as sweltering and sticky seems little deserved, with readings in the 25 to 50 per cent range. This figure, however, is due to the high temperatures of the area. The absolute humidity is quite high. The hot local winds discussed in a preceding section are capable of dropping relative humidities into the 10 per cent range.

In general, the Southwest Monsoon brings high summer relative humidities to the Arabian Sea, the coast of Somalia, Arabia, Pakistan, and India. Morning readings of 85 to 90 per cent fall into the 65 to 85 per cent range by afternoon. The winter monsoon drops these readings about 10 to 20 per cent, except at island locations, where the seasonal variation is often less than 10 per cent. The W shores of the Red Sea and the Persian Gulf and the S shores of the Gulf of Aden all record highest humidities in winter and lowest readings in summer. This is the result of low temperatures and an onshore low. This is often the case on the E shores of the Red Sea and the Persian Gulf. Here, however, conditions are more variable, as offshore winds blow in winter and summer winds are influenced by local conditions. In the N reaches of the Red Sea, particularly near the entrances to the Gulf of Suez and the Gulf of Aqaba, conditions are extremely local. In At Tur, from September through April, relative humidities increase during the day. This also occurs at Al Qusayr all year.

During winter dry stable air from the interior of Asia brings mostly clear skies, with cloud cover mainly confined to isolated patches. Maximum cloud cover is found in the Persian Gulf, where low pressure systems from the Mediterranean Sea spread stratus-type clouds; mean amounts average 2/8 or more. This also occurs in the southern Red Sea due to a local area convergence zone. The most cloud-free area is off the NW coast of India where air is extremely stable; average cloud amounts are usually less than 1/8. Cloud amounts are even less in early spring, but this changes with the onset of the Southwest Monsoon.

During the Southwest Monsoon, the W coast of India, particularly between the Kathiawar Peninsula and Mumbai (Bombay), is the cloudiest area. Cloud cover in his region averages 6/8 or more. The northern Red Sea and the Persian Gulf are the most cloud-free areas in summer; the average sky cover is 1/8 or less.

Visibility.—As is common in most tropical regions, visibilities are generally good. They are restricted briefly in showers and locally in early morning fog. However, dust storms and sand storms create a problem in this region.

The terms dust storms and sand storms are usually used interchangeably, although technically sand storms are composed of coarser particles which restrict their height and aerial spread. Dust storms can rise to 300m and carry far out to sea. Visibilities in these storms, along the coast, are often reduced below 6 miles but only occasionally below 1 mile. The most severe conditions occur in strong local winds. These storms are also caused by whichever monsoon acts as a land breeze in arid regions. Over the central and southern Red Sea they are mainly a summer phenomena, while to the N, where they are less frequent, they are more apt to occur with the khamsin from February through June. Across the Arabian Peninsula, the shamal creates summer sand storms. Along the Arabian Sea and Persian Gulf coasts, blowing dust or sand is reported on 20 to 30 days per month during spring and summer.

Visibility in the Persian Gulf is normally good, especially in winter, but haze caused by airborne dust can reduce visibility to as little as 5 miles, particularly in coastal areas. Dust haze is usually the most frequent in July. The frequency of haze in the region is, as follows:

1. Persian Gulf—Less than 5% in winter, rising to 17 to 25% in summer.
2. Gulf of Oman—About 1 to 3% in winter, rising to 11% in summer.

Fog is generally local. Ship reports indicate visibilities fall below 2 miles less than 10 per cent of the time. Some winter type early morning radiation fog occurs along the Pakistan and west Indian coasts on clear calm nights. Even advection fog, which forms over cool upwelled water, is mainly a morning phenomena. This type of fog occurs up to 5 per cent of the time in summer along the southern Arabian coast. A locally extreme condition exists at Salalah, where fog is reported on an average of 24 to 26 days per month during July and August; dust is also present on about 10 to 16 days. Visibilities remain below 6 miles most of the day; in the morning they fall below 0.7 mile 15 to 20 per cent of the time.

Currents

In the **Arabian Sea** from November through March, the current generally sets W in the open sea except in the N part, where a clockwise gyre develops during November, February, and March. Coastal currents are, as follows:

1. November—The coastal currents set NW along the W coast of India, E and W along the coast of Pakistan, and SW off the SE coast of the Arabian Peninsula.
2. December and January—The coastal currents set in a counterclockwise direction.
3. February and March—When the clockwise gyre is discernible, the coastal currents set in opposite directions to those of the two previous months.
4. April— A transition period between the monsoons; the currents are variable.
5. May through September—The coastal circulation remains the same as for March, but currents in the open sea set E.
6. October—a transition period between the monsoons; the currents are variable.

In the **Gulf of Oman**, current directions are variable; current velocities may attain 1.5 knots but usually do not exceed 1 knot. In the northernmost part of the gulf, tidal currents appear to predominate. The most common set is E from February to October and W from November to January.

Coastal currents are, as follows:

1. February and March—A branch of the coastal current off Ras al Hadd turns and sets NW along the S shore of the gulf. It then turns in the W part and sets E along the N shore.
2. April through October—The coastal current from the Arabian Sea appears to extend to the N shore of the gulf, where it sets W, turning in the W part of the gulf and setting SE along the S shore
3. November—The currents appear to set SE throughout the gulf.
4. December and January—The W current in the Arabian Sea continues along the N shore of the gulf, turns in the W

part, and sets SE along the S shore.

In the **Strait of Hormuz**, surface currents are mainly tidal; however, a net flow is caused by changes in the winds.

In the **Red Sea**, cross currents setting E or W are not infrequent. Currents are predominantly weak, and somewhat less so in the S towards Bab al Mandeb. The predominant set of the current is either NW or SE, but their is great variability caused by local eddies that may overcome the NW or SE flow.

Tidal Currents.—Tidal currents are generally weak, except at springs in the straits and in the vicinity of certain shoal regions. In nearshore waters, the tidal currents are usually reversing, flooding toward and ebbing away from the coast or alternately flooding and ebbing in opposite directions parallel to the coast. In regions of diurnal tides, one flood and one ebb period occur daily; in regions of semidiurnal or mixed tides, two flood and two ebb periods occur daily.

Rotary currents occur offshore where the direction of flow is not restricted; their speed varies and their direction rotates clockwise through all points of the compass during the tidal day.

In the N part of the **Gulf of Oman**, the flood current sets NNW with speeds up to 2 knots; however, the rate may be as much as 4 knots or more at extreme tides. The ebb current sets SSE at speeds of 1.8 knots but also may reach rates of 2 to 3 knots during extreme tides. Along the SW shore tidal currents are almost negligible.

In the **Strait of Hormuz**, tidal currents are strong. They are strongest off the E coast of Ras Masandam, where the current attains a speed of 4.8 knots.

In the **Persian Gulf**, surface currents appear to be mainly tidal. Inasmuch as the Persian Gulf has three types of tides (diurnal, semidiurnal, and mixed), the tidal currents may be complex and occasionally may differ in type at the same time in the same general location. Currents in adjacent regions are at times opposed to each other because of large differences between their times of slack water and unequal periods of flooding and ebbing. Under these circumstances, rips may occur where opposing currents converge. With strong persistent NW winds a SE set will be induced. This increases the strength of the ebb tidal current and decreases, or even reverses, the strength of the flood tidal current.

In the **Gulf of Aden**, tidal currents are weak and are frequently masked by nontidal currents. Along the N shore, as far E as Mirbat, the flood current sets SE; between Mirbat and Ras al Hadd it sets NE The ebb current probably sets in the opposite direction.

In **Bab al Mandeb**, the flood current sets NW and the ebb current sets SE. However, they are greatly affected by the winds; winds blowing in the same direction as the current increase its speed and duration while winds blowing in the opposite direction decrease its speed and duration.

At the SE extremity of **Barim Island**, the NW flood current divides; one part sets through Small Strait, while the other sets along the SW coast of Barim Island. The current flowing through Small Strait divides at the N extremity of Barim Island; one part sets NNW, while the other rounds Balfe Point, turns SE along the SW coast of Barim Island, and meets the branch of the NW current SW of Barim Island about 2 to 3 hours before high water. This convergence causes overfalls, which generally extend E to the entrance of False Bay. The behavior of the ebb current is not known.

In the **Red Sea**, tidal currents are negligible, except in some narrow channels.

Fishing Areas

Dhow fisherman in the Persian Gulf, particularly in the S between Abu Musa (25°52.7'N., 55°02.0'E.) and Qatar, deploy their nets in straight lines between 1 and 4 miles long, in up to three sections. Each section of up to 2 miles in length will have a float attached to either end, with either a single isophase yellow or white light or a quick flashing tricolor light (red, white, and blue) attached. The cable holding the net between the two lighted floats is held afloat by small buoyant floats spaced at intervals of about 1m; these floats will show up under a white search light at a distance of between 50 to 100m.

Fisherman will flash a white light at vessels coming towards their nets at night and will close at speed, to a range of about 50m, to try and divert vessels around the nets. Fisherman may also attempt to divert vessels on VHF channel 16 and sometimes use GPS positions to aid in identification. Mariners are advised to use caution due to communications difficulties and the limited situational awareness of the fishermen.

Navigational Information

International Ship and Port Facility (ISPS) Code

The ISPS Code applies to ships on international voyages and port facilities directly interfacing with these ships. All vessels should fully comply with the provisions of Chapter XI-Part 2 of the SOLAS Convention and Part A of the ISPS Code. Vessels shall demonstrate that appropriate maritime security measures are in place according to ISPS Code regulations. Further information can be found in Indian Ocean—Navigational Information.

Electronic Navigation and Communication

International Maritime Satellite Organization (INMARSAT).—Around the world satellite communication systems have now become synonymous with reliable and quality transfer of information. The International Maritime Satellite Organization (INMARSAT) is an international consortium comprising over 75 partners who provide maritime safety management and maritime communications services. Further information can be found in **Indian Ocean—Regulations**.

Global Maritime Distress and Safety System (GMDSS).—The Global Maritime Distress and Safety System (GMDSS) provides a great advancement in safety over the previous usage of short range and high seas radio transmissions. Further information can be found in **Indian Ocean—Navigational Information**.

Global Positioning System (GPS).—The NAVSTAR Global Positioning System (GPS) is a satellite-based system, operated by the US. Air Force, which provides very accurate positioning, time, and velocity information to multiple users. It is an all-weather system with world wide and continuous usage. Further information can be found in **Indian Ocean—Navigational Information**.

SafetyNET.—NAVTEX is an international automated direct printing service for the promulgation of navigational and meteorological warnings and urgent information to ships. It is a component of the World Wide Navigational Warning Service

(WWNWS) and is an essential element of GMDSS.

The SafetyNET broadcast system provides the same information as NAVTEX to vessels on the high seas beyond NAVTEX coverage (generally about 200 miles offshore) and is delivered by the INMARSAT-C system.

General Information.—For further information concerning the International Maritime Satellite Organization (INMARSAT), the Global Maritime Distress and Safety System (GMDSS), the SafetyNET system, and the Global Positioning System (GPS), see Pub. No. 9, The American Practical Navigator (Bowditch-2002 Edition); Pub. 117, Radio Navigation Aids; and Annual Notice to Mariners No. 1.

Automatic Identification System (AIS) Aids to Navigation (ATON)

For information, see **South Atlantic Ocean—Navigational Information**.

Enroute Volumes

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Offshore Drilling

Many oil and gas fields are located in the Persian Gulf. Numerous rigs and drilling platforms, most of which exhibit lights and sound fog signals, are located in these fields. Caution needs to be exercised as rigs, platforms, and other obstructions may be uncharted or unlit. Mobile drill rigs and vessels engaged in underwater surveys may be encountered anywhere in the Persian Gulf.

Some production platforms in the Persian Gulf have been removed and in many cases all that remains are pipes standing from 3 to 6m above sea level. These pipes do not show up well on radar and could be a hazard to navigation.

Pollution

MARPOL Special Areas

MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Vessels of 400 gross tons and over are prohibited from discharging into the sea any oil or oily mixtures except when the following conditions are satisfied:

1. The ship is proceeding en route.
2. The oily mixture is processed through oil-filtering equipment meeting the requirements of Regulation 14.7 of MARPOL Annex I.
3. The oil content of the effluent without dilution does not exceed 15 parts per million.
4. The oily mixture does not originate from cargo pumproom bilges on oil tankers.
5. The oily mixture, in the case of oil tankers, is not mixed with oil cargo residue.

Vessels of less than 400 gross tons shall retain on board any oil or oily mixtures for subsequent discharge to reception facilities or discharged into the sea with the following provisions:

1. The ship is proceeding en route.
2. The ship has in operation equipment of a design approved by the Administration that ensures that the oil content of the effluent without dilution does not exceed 15 parts per million.
3. The oily mixture does not originate from cargo pumproom bilges on oil tankers.
4. The oily mixture, in the case of oil tankers, is not mixed with oil cargo residue.

MARPOL Special Areas are defined, as follows:

1. **Red Sea Area.—**The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, bounded on the S by a line joining Ras Siyan (12°28.5'N., 43°19.6'E.) and Husn Murad (12°40.4'N., 43°30.2'E.).
2. **Gulfs Area.—**The sea area located NW of a line joining Ras al Hadd (22°30.0N., 59°48.0'E.) and Damagheh-ye Pas Bandar (Ras al Fasteh) (25°04.0'N., 61°25'E.).
3. **Gulf of Aden Area.—**That part of the Gulf of Aden between the Red Sea and the Arabian Sea bounded to the W by a line joining Ras Siyan (12°28.5'N., 43°19.6'E.) and Husn Murad (12°40.4'N., 43°30.2'E.) and to the E by a line joining Ras Asir (Gees Gwardafuy) (11°50.0'N., 51°16.9'E.) and Ras Fartak (15°35.0'N., 52°13.8'E.).
4. **Oman Area of the Arabian Sea.—**The sea area bounded by lines joining the following positions:
   a. 22°30'00.0"N, 59°48'00.0"E.
   b. 23°47'16.2"N, 60°35'43.8"E.
   c. 22°40'37.2"N, 62°25'17.4"E.
   d. 21°47'24.0"N, 63°22'13.2"E.
   e. 20°30'22.2"N, 62°52'24.6"E.
   f. 19°45'54.0"N, 62°25'58.2"E.
   g. 18°49'55.2"N, 62°02'56.4"E.
   h. 17°44'21.6"N, 61°05'31.8"E.
   i. 16°43'42.6"N, 60°25'37.2"E.
   j. 16°03'54.0"N, 59°32'14.4"E.
   k. 15°15'12.0"N, 58°58'31.2"E.
   l. 14°36'55.8"N, 58°10'13.8"E.
   m. 14°18'55.8"N, 57°27'01.8"E.
   n. 14°11'31.8"N, 56°53'45.0"E.
   o. 13°53'48.0"N, 56°19'14.4"E.
   p. 13°45'51.6"N, 55°54'31.8"E.
   q. 14°27'22.8"N, 54°51'25.2"E.
   r. 14°40'06.0"N, 54°27'20.8"E.
   s. 14°46'12.6"N, 54°08'33.6"E.
   t. 15°20'44.4"N, 53°38'20.0"E.
   u. 15°48'41.4"N, 53°32'04.2"E.
   v. 16°23'01.2"N, 53°14'49.2"E.
   w. 16°39'03.6"N, 53°06'31.2"E.

Further information on MARPOL Special Areas can be found in "MARPOL Consolidated Edition 2006."

Single-hull Tanker Phase-out Schedule

In accordance with Regulation 13G of Annex I of the MARPOL Convention, single-hull tankers should be phased out or converted to a double-hull configuration according to a schedule based on their year of delivery. These requirements are designed to reduce the risk of oil spills from tankers involved in low-energy collisions or groundings. Further information can be found in **Indian Ocean—Pollution**.

Ballast Water Management

International guidelines have been adopted by the IMO to prevent the introduction of unwanted aquatic organisms and pathogens from ships' ballast water and sediment discharge in-

to marine ecosystems. The guidelines include the retention of ballast water onboard, ballast exchange at sea, ballast management aimed at preventing or minimizing the uptake of contaminated water or sediment, and the discharge of ballast ashore. Particular attention is drawn to the hazards associated with ballast exchange at sea.

Ship owners and agents are strongly advised to comply with these guidelines, which were introduced under IMO Resolution A.868(20), titled *1997 Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens.*

In February 2004, a diplomatic conference adopted an *International Convention for the Control and Management of Ships' Ballast Water and Sediments*. This *Ballast Water Management (BWM) Convention* will come into force world wide after it has been signed by 30 states, representing 35 per cent of the world's merchant shipping tonnage.

Individual states are currently in the process of introducing national legislation in accordance with the BWM Convention. Upon implementation, this legislation will be applicable to commercial vessels that carry out ballast water discharge within a state's jurisdictional waters.

Typical legislation requires that all ships intending to discharge ballast water within a state's jurisdictional waters shall conduct any exchange at least 200 miles from the coast and in waters at least 200m deep. If this is not possible, the exchange should be carried out as far as possible from the nearest land and, in all cases, at least 50 miles from the coast. In cases where the ship is unable to comply, ballast water must be maintained on board, and only a minimum amount may be authorized for discharge, with the prior authorization of the appropriate national maritime authority.

Ballast water management will be conducted in accordance with a Ship's BMW Plan. In addition, a Ballast Water Reporting Form may be required by the relevant authority as directed, prior to the ETA. The Ship's BWM Plan will be approved by the flag administration or relevant classification society.

Violations of the legislation will be sanctioned according to national law, which can include warnings, fines, detentions, or prohibition of the ship's entry into a port or terminal.

Persian Gulf Area Ballast Water Management Regulations

All vessels, regardless of flag, are required to exchange, treat, or deliver to a shore reception facility all ballast water taken up outside the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. The ROPME Sea Area (RSA) is comprised of the countries of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates and is defined as the area bounded by the coast and lines joining the following positions:

a. 16°39'00"N, 53°03'30"E. (coast)
b. 16°00'00"N, 53°25'00"E.
c. 17°00'00"N, 56°30'00"E.
d. 20°30'00"N, 60°00'00"E.
e. 25°04'00"N, 61°25'00"E. (coast)

Vessels arriving from outside the RSA are to exchange ballast water in waters at least 200m deep and 200 miles from the nearest land. If this is not possible due to safety reasons, ballast may be exchanged in areas within the 200-mile limit, as long as such exchanges are made more than 50 miles from the nearest land and in waters deeper than 200m.

If a ship cannot exchange ballast in the required depths or at the required distance from land, it will be required to provide the respective port authority with the reason why the exchange cannot be achieved. Further ballast water management measures may also be required.

Ballast which has been treated with a ballast water treatment system approved in accordance with IMO standards need not be exchanged.

Ships are required to have on board an approved ballast water management plan in accordance with the IMO standards. Ships should also have and maintain a ballast water record book.

Regulations

Ship Sanitation Control Certificates

Information concerning Ship Sanitation Control Certificates (SSC) and Ship Sanitation Control Exemption Certificates (SSCEC) can be found in **Indian Ocean—Regulations**.

Routes

The route information in this section considers selected ports in the Red Sea and the Persian Gulf and routes to and from the Red Sea and the Persian Gulf to ports in the Indian Ocean.

In general these routes are as direct as safe navigation permits. However, in some instances a divergence is made to avoid dangers to navigation, to take advantage of favorable currents or to minimize the effects of adverse currents. In some cases several routes are recommended due to the effects of strong seasonal winds caused by the alternation of the monsoons. Where the same route may be followed either way, the reverse route is not described.

Detailed information on these routes can be found in the Appendix.

Seas

The Red Sea

Excessive refraction and mirages are frequent in the Red Sea. In November 1902, **Al Ikhwan** (The Brothers Islets) (26°19'N., 34°51'E.) was reported seen from a distance of over 100 miles. The excessive refraction causes an apparent elevation or depression of the horizon and this effect may introduce errors of up to 20' of longitude and 10' of latitude in the results of celestial observations.

Occasionally, the water in the Red Sea suddenly becomes brilliant at night because of bioluminescence. This effect may occur during both winds and calms.

During both monsoons, variable cross currents, which set E or W, occur in all months and are observed in all parts of the Red Sea. The velocity of the majority of these currents does not exceed 1 knot. However, rates exceeding 2 knots have been experienced on extremely rare occasions to the S of 20°N. In addition, currents with rates exceeding 2 knots may occur, at times, in the Strait of Bab al Mandeb during the Northeast Monsoon.

Water levels in the Red Sea may fluctuate as a result of changes in winds and atmospheric pressure. Onshore winds or a decrease in atmospheric pressure can cause an increase in the water level, whereas offshore winds or an increase in atmo-

spheric pressure can cause a lowering of the level. The maximum fluctuations in water level may be about 0.7m higher in winter than in summer. This phenomenon is especially noticeable in the vicinity of Jeddah, where numerous reefs only uncover during the summer.

The mean sea in the Red Sea is about 0.2m higher in January and about 0.2m lower in August and September; however, meteorological conditions, barometric pressure, and winds may cause noticeable local variations.

Numerous drilling and production platforms, oil wells, and associated structures, many of which are unlighted or lighted only by flares, are situated in the Red Sea and Gulf of Suez.

The S part of the Red Sea is one of the hottest areas on earth; temperatures as high as 47.7°C have been recorded.

The Red Sea is obstructed in places with rocky islets and coral reefs which extend into the main shipping routes, with the S part of the Red Sea being more obstructed than the N part. The reefs, which usually have depths of less than 1.5m, generally extend in long strips parallel to the coast. The outer edges of the reefs are generally steep-to and the sea seldom breaks on them. Water clarity in the Red Sea generally allows the reefs to be seen in good light from aloft.

The water outside the reefs, especially when moved by tidal currents or strong winds, is often a milky color due to the coral sand being disturbed. This whitish color frequently indicates a reef, although some reefs may be displayed as dark green.

At certain times in the summer during smooth seas tiny particles of seaweed cover large areas of water with a brown scum; many below-water reefs are also covered with these particles and have the same appearance. Caution is necessary as red or green discoloration caused by algae may make reef discoloration less noticeable.

The Gulf of Aden

Excessive refraction phenomena in all forms is common in the Gulf of Aden, but haze is infrequent, except in summer.

The currents in the gulf are seasonal, mainly depending on the monsoons of the N part of the Indian Ocean.

Numerous drilling and production platforms, oil wells, and associated structures, many of which are unlighted or lighted only by flares, are situated in the gulf.

Sand storms, known locally as “khamsin” may occur in the gulf without warning and frequently set in with great violence from the N.

The Arabian Sea

Care should be exercised during the Southwest Monsoon in the Arabian Sea when the weather may be stormy, the sea heavy, and the land often obscured by thick haze.

Great caution is advisable off Ras Aser (Capo Guardafui) and in the region of Suqutra (Socotra) due to the likelihood of some degree of onshore set at any time of the year. The East African current branches E into the ocean to the S of Suqutra and is very strong during the SW monsoon, especially from July to September. During these months, the area with strongest currents lies between 7°30'N and 10°30'N, and between 51°30'E and 54°30'E. Many of the currents have rates of 4 to 5 knots and occasionally some currents attain rates of 6 to 7 knots. Between Suqutra and 14°N, the currents usually attain maximum rates of 2 to 3 knots during the SW monsoon.

The most probable direction of movement of tropical storms off the SE coast of Arabia is towards the NW. However, individual storms are liable to move erratically on almost any course. Although tropical storms (cyclones) are rarely encountered in these waters, they are very dangerous due to the difficulty of forecasting their approach. Therefore, any unusually signs of bad weather should always be noted, especially at the change of the monsoons when cyclones are most likely to be experienced.

Small scale whirlwinds, which may give rise to dust-devils over land or waterspouts at sea, may occur in the region of the Arabian Sea.

Luminosity of the sea occurs in this region and a “white water” phenomena is quite common within the Arabian Sea. With a strong monsoon blowing and a high sea, the horizon has been reported to become suddenly very clear. In addition, a white bank that seemed to be rushing toward the ship has appeared dead ahead. A short time later, the sea was reported to be a sheet of pure white that lit up the surroundings to the brilliancy of a full moon. After an hour, this phenomena gradually faded away. Other reports described the surface of the sea being smooth with flashes of light giving it a violent, agitated appearance like breakers on a low beach.

The Gulf of Oman

Poor visibility may be experienced in the Gulf of Oman. It is caused by early morning fog, salt haze, or, more frequently, dust. The dust haze occurs most frequently from May through August; the visibility is usually reduced to 2 to 6 miles, but on occasion has been reduced to as little as 0.5 mile. The haze will often occur on the day after a severe dust storm, even though the strength of the wind at that time may be considered insufficient to create such a haze.

Strong tidal currents occur in the extreme N part of the gulf.

In the E approach to the gulf, the monsoonal character of the wind results in sea waves predominately from the S in summer and the NNW in winter.

Fish aggregating devices are reported to lie close off the coast in this area.

The Persian Gulf

A significant number of oil and gas fields exist in the Persian Gulf. Numerous drilling and production platforms, seismic survey vessels, oil wells, pipelines, and associated structures are situated in the gulf. Most are lit and sound found signals, but vessels should be aware that unlit and uncharted platforms and other obstructions may be encountered.

It should be noted that flares for burning off gas emanating from oil rigs are sometimes very bright and difficulty may be experienced in sighting navigational lights in their vicinity. Movements of mobile drilling rigs and vessels engaged in seismic surveys are promulgated by local notices to mariners issued by the Middle East Navigation Aids Services (MENAS). Notices are not issued for movements within existing fields or in areas of no navigational significance. In certain circumstances, MENAS will also broadcast their movements through local coast radio stations. The Iranian authorities also issue local notices. Movements of mobile rigs and survey vessels are also promulgated through NAVAREA IX radio navigation warnings.

Vessels are cautioned that many submarine pipelines within

the gulf are not buried and may rise up to 2m above the bottom.

Some oil production platforms in the Persian Gulf may have been removed. In many cases, all that remains of the structure are pipes extending 3 to 6m above the surface of the water. These pipes do not show up well on radar and may be a hazard to navigation.

Sand waves are known to exist in many parts of the Persian Gulf and caution is advised. Although the range of the tide in the gulf nowhere exceeds 3m and is less than 2m in the S part, such heights may be crucial to the underkeel clearance of deep-draft vessels that are required to predict the rise of tide for locations in the open sea at considerable distances from the reference stations in the tables. Because of the complex nature of the tides and the existence of amphidromic points in the gulf, predictions based on the nearest port may be considerably in error. In extreme cases, the HW at a port may coincide with the LW at a location in the open sea no more than 50 miles distant.

At some ports within the gulf, regulations stipulate the minimum underkeel clearance permissible for ships entering or leaving. It must be appreciated that such clearances are calculated allowing for ships following accurately surveyed channels in relatively sheltered waters with no heavy seas or swells and proceeding at low speeds. Under no circumstances should such regulations be taken as a guide to safe underkeel clearance in the open sea.

Strong winds blowing in a constant direction for a prolonged period can set up a surface current which can lower the sea level in one place and raise it in another. As the waters of the Persian Gulf are shallow and winds can blow for prolonged periods, it must be expected that unpredictable changes in sea level will occur and some allowance should be made for this fact.

Sea waves are predominantly from the NW. Wave heights become fully developed over the SE part of the gulf with NW winds and, to a lesser extent, over the NW part of the gulf with SE winds.

In the Strait of Hormuz, the strong tidal currents can cause opposing seas to steepen and break with strong NW or SE winds. These strong tidal currents combined with even a moderate opposing wind may result in a higher sea state than would normally be expected.

Haze, especially in summer and also during winter in the S part of the gulf, often completely obscures the land and reduces the visibility of shore lights. In addition, sand storms have been reported to suddenly reduce visibility to less than 1,000m.

Strong tidal currents setting near the entrance of the Persian Gulf necessitate caution. Off **Ras Musandam** (26°23'N., 56°32'E.), on the W side of the entrance, the current has been reported to attain rates of over 4 knots. Within the gulf, the set caused by the winds is sometimes so great that an opposing tidal current fails to overcome it. The resulting set continues in the same direction as before and merely changes its rate.

Except at the entrance, the Arabian coast of the gulf is low and, in places, shoals and reefs lie up to 50 miles offshore. Traffic Separation Schemes (TSS) and buoyed channels are provided for safe navigation in this area.

In addition to dust storms and haze, squalls with waterspouts are also common in the gulf, particularly in autumn. Wind gusts of up to 95 knots winds have been recorded during these squalls.

Temperatures are very high in the open gulf and may reach 45°C.

An unusual oceanographic phenomenon of the open gulf is the submarine spring formed off Bahrain. The source of this artesian fresh water upwelling is reported to be the Jabal Tuwayq in Arabia.

Part of the trade between the Persian Gulf, India, the Red Sea, and the E coast of Africa, is carried on by local vessels. Such small vessels, usually between 100 and 400 tons, with a tall mainmast and lateen sail and a small lateen mizen, are known as “bagala” or “bum boats” by the Arabs. Similar Indian-built vessels are called “kutiyah” or “dangiyah.” The term “dhow” (from the Swahili word “daw”) is mostly unknown to the inhabitants of the Persian Gulf littoral, but is used commonly by Europeans to denote any local sailing craft. They sail well in moderate winds but are not active during the Southwest Monsoon.

Local magnetic disturbances have been reported to occur within the gulf.

Vessels are advised that mined areas exist in the N part of the gulf. Swept routes are provided in the approaches to ports and information concerning them should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by IMARSAT (150-5612) or by VHF. Further details of areas reported to be dangerous due to mines are promulgated by Navigation Notices issued by the Middle East Navigation Aids Service (MENAS). In addition, see Annual U.S. Notice to Mariners No. 1 (MARAD Advisories).

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

Merchant vessels of any flag or ownership are invited and encouraged to report upon entering the voluntary reporting area from sea or when leaving a port within the reporting area. The system, which covers the Red Sea, the Indian Ocean N of 10°00'S, and the Arabian Sea, is bounded, as follows:

1. Northern limit—Gulf of Suez (30°00'N), S coast of the Arabian Peninsula, and the Persian Gulf (23°00'N).
2. Eastern limit—Longitude 78°00'E.
3. Southern limit—Latitude 10°00'S.
4. Western limit—East African coast.

When crossing a boundary of the reporting area or when leaving a port within the reporting area, the following reporting requirements are recommended:

1. Make an initial report, via facsimile or e-mail, to UKMTO Dubai. The following information should be included in the initial report:
   a. Vessel name.
   b. Flag.
   c. IMO number.
   d. INMARSAT telephone number.
   e. Time and position.
   f. Course.
   g. Speed.
   h. Freeboard.
   i. Cargo.
   j. Destination and ETA.
   k. Name and contact details of company security officer.
   l. Nationality of master and crew.
   m. Armed/unarmed security team embarked.

2. Register the vessel's movement, via facsimile or e-mail, with MSC-HOA.
3. Additionally, register the vessel's movement, via facsimile or e-mail, with MSC-HOA if planning to transit the Gulf of Aden or if navigating within an area bounded, as follows:
   a. Northern limit—Latitude 15°00'N for the Red Sea and latitude 22°00'N for the Gulf of Oman.
   b. Eastern limit—Longitude 65°00'E.
   c. Southern limit—Latitude 5°00'S.
   d. Western limit—East African coast.

After filing the initial reports to UKMTO Dubai and MSC-HOA, as applicable, vessels are asked to report the following information to UKMTO daily by 0800 UTC:

1. Vessel name.
2. Call sign.
3. IMO Number.
4. Noon position.
5. Course.
6. Speed.
7. ETA.
8. If calling at ports within the reported area, also report the date/time of arrival and the ETD.

All times referenced should be in UTC.

Vessels should also submit the information required in the daily report when transiting the Strait of Hormuz between longitudes 58°E and 53°E.

If planning to transit the Gulf of Aden, vessels are requested to add their ETA at the appropriate entry point (Point A or Point B) of the Internationally Recommended Transit Corridor (IRTC) to their daily report to UKMTO Dubai and MSC-HOA. Further information on the IRTC can be found under **Cautions—Piracy**.

Vessels are also encouraged to report at 6-hour intervals when within 6 hours of entering or navigating within the IRTC.

When reaching port or departing the voluntary reporting area, a final report should be sent. The following information should be included:

1. Vessel name.
2. Call sign and IMO number.
3. Time of report (UTC).
4. Port or position when leaving the voluntary reporting area.

Signals

For information on international port traffic signals and visual storm warning signals, see **Indian Ocean—Appendix II—International Port Traffic Signals and Visual Storm Warning Signals.**

Tides

General

Tides are negligible in the Red Sea.

Changes in Water Levels in the Persian Gulf

The shamal (NW wind) may lower the water level as much as 0.9m at the head of the gulf, raise it from 0.6 to 0.9m in the vicinity of Ras Tannurah and lower it about 0.6m on the E side of Qatar. The kaus (SE winds) may raise the water level about 0.9m at the head of the gulf, lower it as much as 0.2m in the vicinity of Ras Tannurah, and raise it about 0.2m on the E side of Qatar. Consequently, when the kaus precedes the shamal, the water level may be altered 1.5 to 1.8m at Shatt al Arab, 1.5 to 2.7m at Ras Tannurah, and about 1.2m on the E side of Qatar.

Appendix—Routes in the Red Sea/Persian Gulf

Routes in the Red Sea and the Persian Gulf are divided into the following sub-categories:

1. Routes within the Red Sea and the Gulf of Aden.
2. Routes between Aden and ports in the N part of the Indian Ocean.
3. Routes between Aden and the E part of the Indian Ocean.
4. Aden to the S and SE coasts of Africa.
5. Approaches to the Persian Gulf.
6. Routes in the Persian Gulf.
7. The Persian Gulf to ports in the Indian Ocean and the Red Sea.

1. ROUTES WITHIN THE RED SEA AND THE GULF OF ADEN

As Suways (Suez) to Bab al Mandeb.—Ships from As Suways (Suez) proceeding through the Red Sea first steer through the dredged channel leading from Bahr al Quzum (Suez Bay) into Khalij as Suways (Gulf of Suez). When in the gulf the ship's position should be constantly checked as the tidal currents tend to set toward the reefs when a short distance from them. In the vicinity of some of the large reefs the direction of these currents is uncertain; in mid-channel the currents generally set in the direction of the gulf.

From a position about 1 mile S of Newport Rock Light, steer 196° for 7 miles; then alter course S to enter the southbound traffic lane as shown on the chart. Follow the traffic lane to its S terminus, about 3 miles E of Jazirat Shadwan (Shakir).

Following the main ship channel of the Red Sea, steer SE about 81 miles to pass 3 miles E of Al Ikhwan (The Brothers) Light, then alter course to pass a short distance off on either side of Daedalus Reef Light. When abeam the light, a course can then be shaped to pass about 1.5 miles W of Jabal at Ta'ir Light.

The Suakin Archipelago and Dahlach (Dahlak) Bank on the Wand Farasan Bank on the E tend to narrow the central channel to some extent, and crosscurrents must be guarded against. If a vessel wished to proceed about midway between these banks it should steer for position 17°00'N, 40°40'E and then toward Jabal at Ta'ir.

From W of Jabal at Ta'ir a course should be set to pass SW of Jaza'ir az Zubayr. Centre Peak, the S island of the latter group, should be passed about 2.5 miles to the SW. During S winds the Zubayr group should not be closed to less than 1 mile as the set of the sea is then toward them.

From a position 2.5 miles SW of Centre Peak, a vessel can steer direct for Abu Ail Channel. This course if made good passes about 6 miles W of Avocet Rock, which is 18 miles NNW of Abu Ail Channel. Vessels desiring to give this rock more clearance can make good a course of about 148° from 2.5 miles SW of Centre Peak toward the summit of Jazirat Zuqar. When about 18 miles off Jazirat Zuqar, alter course to pass 1.25 miles E of High Island. A lighthouse stands on the summit of Quoin Island, the latter lying on the E side of Abu Ail Channel.

From Abu Ail Channel steer to pass 1.25 miles E of East Point on Jazirat Zuqar, and then head SSE passing about 2.75 miles E of Low Island, then 4 miles E of Mushajjara, and 7.5 miles WSW of the conspicuous South Fort tower at Al Mukha. Because both Low Island and Mushajjara are low and flat, they should be given a wide berth at night unless the weather is clear. Soundings of 30m or over will keep a vessel outside the shoals extending about 4.5 miles W of Al Mukha. From abeam of Al Mukha continue SSE, passing 2 miles W of Barim. Depths on the E side of the N approach to Bab al Mandeb are fairly regular, and sounding is a good guide. If a vessel wishes to keep nearer the E shore to avoid the force of the wind and sea, a sufficient berth must be given to the shoals S of Zi Hill; Chiltern Shoal, the outermost of these dangers, lies 2.5 miles offshore within the 20m curve. Precautions should be taken and proper allowances made for the strong currents when nearing Barim. Sandstorms have been reported to obscure the lights on Barim.

Alternate route.—An alternative route to Bab al Mandeb leads from about 8 miles S of Centre Peak, passing W of Jazirat Zuqar and the Hanish islands group, and then between Isolotto Haycock Sud-Ovest and Isola Aha (High Island) of the Isole Mohabbacah group. If using this route it is advisable to remain in the deeper water between Jabal at Ta'ir and Al Hanish al Kabir because of the possible existence of unknown dangers. After passing Isolotto Haycock Sud-Ovest, steer SE to pass NE of Secca Fieramosca and Secche Scilla.

To a vessel approaching Bab al Mandeb, Ra's Bab el Mandeb appears as an island with several peaks sloping to a low point, off which is the islet Sheikh Malu. Barim becomes visible from a distance of about 20 miles. There is a lighthouse on its W extremity and another near its E end. Large Strait should be used instead of Small Strait, where numerous casualties have occurred in the past. At times the currents are strong in the straits.

During the Northeast Monsoon, when strong SE winds prevail in the S part of the Red Sea, low-powered vessels proceeding S should pass through Canale di Mitsiwa. When a vessel is through The Narrows, the channel opens and a SW swell is met; keep as close to the W shore as safety permits, taking advantage of the lee afforded by the headlands and islands until off Ras Darma; then steer to pass N of Secca Fieramosca and join the main track.

Bab al Mandeb to As Suways.—The track from Bab al Mandeb through the Red Sea toward Khalij as Suways is essentially the reverse of the N to Strack already given. When about 3 miles E of AI Ikhwan Light, steer NW to pass about 7 miles E of Jazirat Shakir. Between these islands a strong W current and occasionally an E current have been experienced. The steep and brown Jazair Jiftun, about 15 miles S of Jazirat Shakir, can usually be seen. From about 7 miles E of Jazirat Shakir, enter the northbound traffic lane as shown on the chart. Follow the traffic lane to its N terminus; then steer N and proceed toward Bar al Quzum (Suez Bay).

The E shore of the gulf between Ra's Mal'ab and As Suways is gravel-colored, low, and bordered by extensive plains rising gradually to the hills; this makes the distance from the shore very deceptive, and at night when in this vicinity caution should be used. In general, the E side of the gulf should be avoided if possible.

Should there be strong N winds in the S part of the Red Sea, which is rarely the case, Canale di Mits'iwa may be used by low-powered vessels; they can also use one of the channels W of Jazirat Shakir if entering the Khalij as Suways against the strong NW winds often prevailing in this vicinity. These channels can only be used by day, but several good anchorages are available should it be necessary to anchor at dusk.

Caution.—If the weather is misty and a westerly set is experienced, Jaza'ir Jiftun may be mistaken for Jazirat Shakir. These islands can be approached off their E side in deep water. If in doubt as to their identity, however, pass close enough to be able to see Jazirat Shakir Light. If no lighthouse is seen it would indicate that this island is Jaza'ir Jiftun.

2. ROUTES BETWEEN ADEN AND PORTS IN THE NORTHERN PART OF THE INDIAN OCEAN

Aden to al Basrah, Iraq.—From Aden, proceed as direct as safe navigation permits along the SE coast of the Arabian Peninsula and through the Persian Gulf to destination.

Aden to Karachi, Pakistan.—From Aden, proceed as direct as safe navigation permits along the SE coast of Arabia until SE of Jaza'ir Khuriya Muriya (Kuria Muria Islands), then proceed direct to Karachi.

Aden to Mumbai (Bombay), India.—From October to April, vessels should proceed direct to Mumbai (Bombay). During this season it is advisable to approach Mumbai (Bombay) at night, because of the coastal features being obscured by haze in the morning and during the day. Vessels westbound during this season can follow the reverse of the above route.

From May to September, vessels should proceed to position 13°10'N, 54°50'E and then direct to Mumbai (Bombay).

During the strength of the Southwest Monsoon, from June to August, vessels can make a better passage westbound by steering directly W from Mumbai (Bombay) until about 100 miles off the Arabian coast; then keep from 20 to 30 miles offshore to destination.

Low-powered vessels westbound during the strength of the Southwest Monsoon should proceed to position 6°00’N, 67°00'E, then proceed due W to 60°00'E, and then to position 8°00'N, 52°40'E. From the latter position vessels should steer to round Ras Aser (Capo Guardafui), and on to destination.

At all seasons of the year a strong onshore set of current is frequently experienced by vessels making Aden.

Aden to Colombo, Sri Lanka.—From October to April vessels should steer direct for a position N of Ras Aser (Capo Guardafui); then proceed by rhumb line to a position S of Minicoy, passing S of Suqutra (Socotra). Then proceed to destination. On the return route vessels should follow the reverse of the above until after rounding Ras Aser (Capo Guardafui); then, if preferred, smoother water and more favorable currents will be found by keeping close along the African shore as far as Mait Island (11°13'N., 47°13'E.) when course should be altered for Aden.

A dangerous local N current is experienced just E of the port of Aden.

Vessels proceeding from Aden to Colombo during May to September should make for position 13°10'N, 54°50'E, and then as direct as safe navigation permits to destination. It should be noted that a heavy cross sea will be experienced S of Suqutra during the SW monsoon.

Vessels westbound from Colombo pass about 55 miles S of Minicoy; then proceed by rhumb line to position 8°00'N, 60°00'E; then by rhumb line to position 8°30'N, 53°00'E; round Ras Aser (Capo Guardafui) and set a course for Aden. On this route the utmost caution is necessary when rounding Ras Aser (Capo Guardafui) from the S or SE during the Southwest Monsoon, because of stormy weather, a heavy sea and strong current, and the land is generally obscured by thick haze. Care must also be taken not to mistake Ras Hafun for Ras Aser (Capo Guardafui).

Alternate route.—Follow the above route to position 8°00’N., 60°00’E. Then proceed by rhumb line to position 13°10'N, 54°50'E (40 miles NE of Suqutra), and then direct to destination. A second alternate route leads from S of Minicoy to position 10°00'N., 60°00'E., and then to the position off the NE end of Suqutrao If these routes are used, no attempt should be made for a landfall off Suqutra because of the strength of the SW monsoon, the strong and irregular currents, the frequent deceptive haze, and the lack of any definite banks for fixing a vessel's position by soundings. A vessel should not expect to sight the island when westbound. During the Southwest Monsoon, better conditions of wind and sea are undoubtedly found in the route S of Suqutra, via Ras Hafun and Ras Aser (Capo Guardafui). An alternate route passing well N of Suqutra is, however, preferred by some navigators because of the unpredictable variation of currents to the S and the uncertainty of the sea horizon making it difficult to obtain sights for accurate fixes.

Low-powered vessels, after passing S of Minikoy, proceed to position 6°00'N, 67°00'E; then due W to position 6°00'N, 60°00'E; then to position 8°00'N, 52°40'E; round Ras Aser (Capo Guardafui); and proceed to destination. Slow vessels can pass through Kardiva Channel in the Maldive Islands and keep well S of the above routes.

3. ROUTES BETWEEN ADEN AND THE EASTERN PART OF THE INDIAN OCEAN

Aden to Calcutta, Rangoon, and Singapore.—The routes between the Aden and Calcutta, Rangoon, and Singapore are substantially the same as those described for all types of vessels and seasons in the Aden to Colombo route, with the exception that E of Minicoy and the Maldive Islands, course should be shaped to pass around the S end of Sri Lanka, and then as direct as safe navigation permits to the destinations.

Aden to Torres Strait and northern Australian ports.—From October to April, vessels eastbound to Torres Strait or N Australian ports should steer first for position 12°10'N, 50°45'E, then after rounding Capo Guardafui proceed to pass through One and A Half Degree Channel in the S Maldive Islands. From here proceed to position 7°30'N, 106°20'E, and then as direct as safe navigation permits to the destination.

Vessels westbound from October to April should proceed as direct as safe navigation permits to position 7°20'N, 73°00'E in the S part of Eight Degree Channel in the Maldive Islands. From this position vessels should proceed direct to Ras Aser (Capo Guardafui) and then to Aden.

Vessels eastbound from May to September should first steer for position 13°10'N, 54°50'E, about 40 miles NE of Suqutra; then proceed direct to a position at the S part of Eight Degree Channel, and then direct to destination.

Vessels westbound from May to September should proceed as direct as safe navigation permits to One and Half Degree Channel in the Maldive Islands; then direct to position 8°00'N, 52°40'E, round Ras Aser (Capo Guardafui), and proceed to destination.

Vessels westbound can, in all seasons, pass either N or S of Timor. Vessels bound to Torres Strait have a choice of three routes: via Singapore; via S of Jawa and Timor; or via Selat Sunda and north of Jawa. Smoother water will be found on the routes leading N of Jawa.

Low-powered vessels eastbound from October to April should steer to round Ras Aser (Capo Guardafui), round the S Maldive Islands, making for position 2°20'S, 76°30'E, and then as direct as safe navigation permits to destination.

Low-powered vessels eastbound from May to September should steer for a position about 40 miles NE of Suqutra; then proceed through Eight Degree Channel and to a point off the S end of Sri Lanka. Cross the Equator at about 96°30'E, and then, use the route either between the main coast of Sumatera (Sumatra) and the off-lying islands, or directly W of the off-lying islands. Smoother water will be found in the inner route. From Selat Sunda proceed N of Jawa and Timor to destination.

Low-powered vessels westbound during July and August should proceed to Selat Sunda; steer direct to position 2°30'S, 65°00'E, and then to position 8°00'N, 52°40'E, passing through position l°10'S, 61°30'E. From position 8°00'N, 52°40'E round Ras Aser (Capo Guardafui) to destination.

Low-powered vessels westbound during April, May, June, September, and October should, from Selat Sunda, proceed direct to position 8°00'S, 68°00'E. From this position proceed to position 8°00'N, 52°40'E, and round Ras Aser (Capo Guardafui) to destination. These westbound routes for low-powered vessels are also recommended for vessels of small size.

Low-powered vessels westbound from May to September can also proceed as direct as safe navigation permits from Torres Strait, passing S of Timor to position 11°30'S, 118°00'E. Then proceed direct to position 4°00'S, 65°30'E, and on to position 8°00'N, 52°40'E; passing through position l°10'S, 61°30'E; round Ras Aser (Capo Guardfui), and proceed direct to destination.

Aden to Cape Leeuwin and southern Australian ports.—Vessels eastbound can, during all seasons, round Ras Aser (Capo Guardafui) and proceed direct to destination. The route to Cape Leeuwin leads N of the Chagos Archipelago.

From October to April, vessels westbound use the reverse of the above route. Caution is necessary in the vicinity of the Chagos Archipelago during this season because of the uncertain currents.

From May to September vessels westbound should proceed to position 8°00'S, 68°00'E, SW of the Chagos Archipelago. Then proceed to position 8°00'N, 52°40'E, and round Ras Aser (Capo Guardafui) to destination.

Alternate route.—An alternate westbound route from May to September leads from position 8°00'S, 68°00'E to position 8°00'N, 60°00'E, and then to a position about 40 miles NE of Suqutra, and from there on to destination.

4. ADEN TO THE SOUTH AND SOUTHEAST COASTS OF AFRICA

Aden to the Cape of Good Hope.—Vessels southbound after rounding Ras Aser (Capo Guardafui), should proceed as direct as safe navigation permits to position 15°45'S, 40°45'E; then keep from 20 to 30 miles off the African coast to get the full benefit of the Agulhas Current to destination.

During May to September, low-powered vessels should round Ras Aser (Capo Guardafui) and then proceed to position 8°00'N, 52°40'E. From this position proceed to position 1°10'N, 55°00'E; and then to a position off the W side of Grande Comore. From here the route is the same for all vessels. Although the low-powered route is longer, the strength of the Southwest Monsoon and the NE current will be avoided.

Vessels northbound should avoid the strength of the Agulhas Current by keeping as close to the coast as safe navigation permits as far as Durban. When abeam Durban haul off to about 100 miles from shore where the current is weak, steer direct for the middle of Mozambique Channel E of Ile Europa and on to destination, passing W of Grande Comore.

Alternate route.—An alternate northbound route is to steer S of the Cape of Good Hope, across the Agulhas Current to position 36°30'S, 20°00'E; then to position 34°30'S, 32°30'E; and to position 30°00'S, 38°20'E. From the latter position proceed N in the strength of the Madagascar Current to a position off Ile Juan de Nova, passing E of Ile Europa and Bassas da India. From position 17°00'S, 42°15'E off Ile Juan de Nova, proceed to pass W of Grande Comore and then to destination. This alternative route, although longer, avoids the Agulhas Current, and full advantage will be received from the Madagascar Current, which sets N up the E side of Mozambique Channel.

Aden to Mombasa, Kenya.—Vessels should proceed around Ras Aser (Capo Guardafui) and S along the African coast as direct as safe navigation permits.

Vessels northbound should follow the reverse of the above route. The N current will be generally carried as far as the Equator during the Northeast Monsoon, and as far as Ras Aser (Capo Guardafui) during the Southwest Monsoon.

5. APPROACHES TO THE PERSIAN GULF

Entering the Gulf of Oman from the S or SE.—Vessels entering the Gulf of Oman from the S or SE usually make the Arabian coast in the vicinity of Ra's al Hadd. In the fine season the coast from this cape to Muscat is generally visible from a great distance, especially at sunset. The high land between Sur and Ras Abu Daud is conspicuous, and Wadi Hail al Ghaf may be identified. During the Southwest Monsoon, vessels should pass about 3 miles off Ra's al Hadd; the high land will probably not be seen until off Sur or Kalhat, and, because of the haze, it may not be seen at all from a vessel far offshore except possibly around sunset.

After passing Ra's al Hadd, vessels proceeding direct to the entrance of the Persian Gulf should steer to pass about 7 miles SW of Ra's al Kuh and enter the westbound lane of the traffic separation scheme for the Strait of Hormuz about 6 miles E of Jazirat Musandam.

Vessels bound for Muscat.—Vessels bound for Muscat should, after passing Ra's al Hadd, steer for a position about 4 miles NE of Ra's al Khayran and then proceed to the anchorage.

Entering the Persian Gulf from the E.—Vessels approaching the entrance of Persian Gulf from the E should pass at least 6 miles S of Ra's-e Jask and about 7.5 miles SW of Ra's al Kuh; then they should proceed as previously directed for vessels approaching the entrance from a position directed for vessels approaching the entrance from a position off Ra's al Hadd.

Caution.—Because of volcanic disturbances in 1945, vessels navigating along the N side of the Arabian Sea between 66°00'E and 61°10'E, are advised to keep outside the 20m curve. If it is necessary to close the land, vessels should do so with caution as the charted depths are reported to be unreliable.

Vessels bound for Bandar Abbas from the Gulf of Oman should pass E of As Salama wa Banat-ha and Jazireh-ye Larak and then proceed to the anchorage.

6. ROUTES IN THE PERSIAN GULF

Vessels proceeding between the Strait of Hormuz and the NW part of the Persian Gulf should keep along the Iranian coast, which is generally high and steep-to, and has few outlying dangers.

Except at the entrance, the Arabian coast of the gulf is low, and from it, for most of its length, shoals and reefs extend as much as 30 to 50 miles in places. Among these dangers are channels, marked by navigational aids, that lead to the ports and petroleum installations on the Arabian side.

During a shamal, especially in summer, and while the nashi is blowing in the S part of the gulf in winter, the haze so completely obscures the land that the surf on the beach may be the first indication of its proximity.

Caution.—A large number of oil structures have been placed in the Persian Gulf some of which lie on or near suggested routes and must be avoided.

Large tankers with heavy drafts may in some cases find the routes described of insufficient depth and must therefore proceed via alternate courses which will maintain the safety of the vessel.

Traffic Separation Schemes have been established between the Quoin Islands and the Musandam Peninsula and N and S of Jazireh-ye Tonb and Jazireh-ye Forur. All vessels are advised to use these zones day and night and in all weather conditions to reduce the possibility of collisions.

Strait of Hormuz to Shatt al Arab.—From Ra's al Kuh to Jazireh-ye Hengam the tidal currents set strongly across the entrance of the Persian Gulf. When passing S of As Salama wa Banat-ha, vessels should guard against the N current.

In this area the suhaili blows from between SW and WSW.

Proceeding W from the Strait of Hormuz, vessels should enter the westbound lane of the traffic separation scheme N of Jazireh-ye Tonb-e Bozorg. Care should be taken to keep clear of The Flat and Mariner Shoal, which lie off the SW end of Qeshm; the edge of The Flat is marked by discolored water.

After passing Jazireh-ye Forur, vessels should pass S of Jazireh-ye Qeys, Jazireh-ye Hendorabi, and Jazireh-ye Sheykh Sho'eyb and steer for a position about 18 miles S of the islet of Nakhilu. A northerly set is sometimes experienced between Jazireh-ye Tonb-e Bozorg and Jazireh-ye Sheykh Sho'eyb.

Great caution is necessary in making or passing any of the islands when the visibility is reduced by the haze that accompanies a shamal; soundings are of little use. The most easily seen of the off-lying islands is Jazireh-ye Forur; it is high and dark-colored and steep-to, except for a small ledge on its W side.

In thick weather or at night, vessels passing SW of Ra's al Motaf should not approach within a depth of 27.4m. The mud-colored water on the shoal extends some distance outside it and indicates its location in daylight when the visibility is good.

From the position about 18 miles S of the islet of Nakhilu vessels bound for Shatt al Arab should steer as safe navigation permits to, and then through, Khawr al Amaya to the entrance of Outer Bar Reach.

Strait of Hormuz to Al Bahrayn and Ra's at Tannurah.—A vessel bound for Al Bahrayn or Ra's at Tannurah from the entrance of the Persian Gulf should proceed as for Shatt al Arab until N of Jazireh-ye Forur, when it should steer for a position about 2 miles N of Stiffe Bank Light Float. From this position proceed direct to Bahrain Lighted Buoy or to Ras Tanurah Light Float.

Strait of Hormuz to Ras al Mishab, Mina al Ahmandi, and Al Kuwayt.—A vessel bound for Ras al Mish'ab should proceed to a position about 7 miles S of Jazireh-ye Queys and then steer for a position about 2 miles SW of Jazireh-ye Farsi. From the latter position the vessel should make for the entrance of the channel leading to the facilities at Ras al Mishab.

From a position about 2 miles SW of Jazireh-ye Farsi a vessel bound for Mina al Ahmadi or Al Kuwayt should steer to pass E of Ahmadi Lighted Buoy (28°56'N., 48°53'E.) and then steer to enter the charted traffic separation scheme beginning about 14 miles E of Jazirat Kubbar. From here the vessel may either approach Mina al Ahmadi or enter the harbor of Al Kuwayt.

Strait of Hormuz to Khowr-e Musa and Bushehr.—A vessel bound for either Khowr-e Musa or Bushehr from the entrance of the gulf should proceed as directed for the route to Shatt al Arab as far as the position about 18 miles S of the islet of Nakhilu. From this position a vessel bound for Khowr-e Musa should proceed as direct as safe navigation permits to the pilot station off the entrance. If bound for Bushehr from the position S of Nakhilu, steer to pass about 10 miles SW of that islet and about 6 miles WSW of Ra's-e Halileh. After passing Ras-e Halileh, the vessel should proceed to the anchorage off Bushehr.

7. THE PERSIAN GULF TO PORTS IN THE INDIAN OCEAN AND THE RED SEA

Persian Gulf to Aden and Bur Said.—Vessels bound for Aden should, after passing Ra's al Hadd, proceed as direct as safety permits along the SE coast of Arabia to destination. During the Southwest Monsoon it is advisable to keep as close as possible to the coast, for by so doing the full force of the wind and the northeasterly current will be felt only in the vicinity of Jaza'ir Khuriya Muriya (Kuria Muria Islands) and off Ras al Kalb.

Vessels continuing past Aden to Bur Said enter the Red Sea through Bab al Mandeb and then proceed through the Red Sea and the Suez Canal to destination.

Caution.—When navigating along the SE coast of Arabia, vessels should avoid a close approach to Khalij Masirah because of the numerous dangers and strong tidal currents in that vicinity. Thick fogs are prevalent in this area during the Northeast Monsoon.

Vessels bound for or passing Aden are cautioned against a current which sets strongly to the N off the E side of Aden Peninsula during both monsoons.

Persian Gulf to the Cape of Good Hope.—Vessels southbound from the Persian Gulf to the Cape of Good Hope should round Ra's al Hadd and then steer for position 21°00'N, 59°27'E. From here proceed to position 15°45'S, 40°45'E, passing E of Suqutra and W of the Grande Comore. Then proceed to a position about 20 miles S of Cape Agulhas, keeping from 20 to 30 miles off the African coast after passing Cape St. Lucia in order to get the benefit of the Agulhas Current. From the position S of Cape Agulhas vessels can steer a direct course for a position in 34°22'S, 18°23'E, which is the junction point (see Pub. 151 Distances Between Ports) off the Cape of Good Hope of the routes in the Indian Ocean and South Atlantic Ocean that pass S of Africa.

Cape of Good Hope to the Persian Gulf.—Vessels northbound from the Cape of Good Hope to the Persian Gulf should avoid the strength of the Agulhas Current by keeping as close to the coast as safe navigation permits as far as Durban. When abeam Durban steer away from the coast on an ENE course until about 100 miles offshore, where the current is weak, and then proceed through the middle of Mozambique Channel, passing E of Ile Europa and W of Ile Juan de Nova, until about 5 miles E of the S end of Anjouan. From this position proceed direct to position 21°00'N, 59°27'E, and then follow the reverse of the southbound route to destination.

Alternate route.—An alternative northbound route from the Cape of Good Hope to the position about 5 miles E of the S end of Anjouan, although longer than the route described in the preceding paragraph, avoids most of the Agulhas Current and has the advantage of favorable currents in the E part of Mozambique Channel. Vessels following this route should steer a S course across the Agulhas Current from a position off the Cape of Good Hope to about position 36°30'S, 20°00'E. They should then proceed to position 34°30'S, 32°30'E and then to position 30°00'S, 38°20'E. From the latter position a course should be set for a position about 13 miles W of Ile Juan de Nova, passing E of Ile Europa and Bassas da India. After passing Ile Juan de Nova, steer for the position E of Anjouan and then continue to destination as previously directed.

Persian Gulf to Karachi.—Vessels bound for Karachi should, after passing Ra's al Kuh, steer to pass not less than 6 miles S of Ra's-e Jask and then proceed E to the harbor of Karachi, passing about 15 miles S of Ra's Jiwani and about 5 miles S of Ras Muari. Vessels should keep outside the 18.3m curve off the coasts of Iran and Pakistan between the meridians of 61°10'E and 66°00'E.

Persian Gulf to Mumbai (Bombay).—From about 10 miles SW of Ras-e Jask vessels can proceed direct to a position off the entrance of the harbor at Mumbai (Bombay).

Persian Gulf to Colombo.—After passing Ra's al Kuh, vessels bound for Colombo should proceed to a position about 10 miles NE of Kiltan Island and then to position 8°22'N, 76°44'E. From the latter position steer to pass about 8 miles off Muttam Point (Muttum Point(, on the Indian coast, and proceed direct to destination.

Alternate route.—A safer though slightly longer route avoids the Laccadive Islands altogether. Remain W of the Laccadive Islands until clear, then proceed through Nine Degree Channel and direct to Colombo.

Persian Gulf to ports in the Bay of Bengal.—Vessels bound for ports in the Bay of Bengal should proceed to position 8°22'N, 76°44'E or through Nine Degree Channel as directed in the foregoing paragraph. Then round the S end of Sri Lanka at a safe distance offshore and proceed to destination as direct as safe navigation permits.

Persian Gulf to Cape Leeuwin.—From a position off Ra's al Kuh vessels should steer for a position about 10 miles NE of Minicoy Island and proceed direct to position 34°32'S, 115°08'E about 10 miles S of Cape Leeuwin. Due to the strong N-S component of this route, the distance saved by great circle sailing is of little consequence.

Persian Gulf to Singapore.—Vessels from the Persian Gulf bound for Singapore should proceed to a position off the S end of Sri Lanka, as directed for the route to ports in the Bay of Bengal. From this position steer an E course to about position 6°00'N, 95°20'E, passing between Pulau Rondo and Pulau We, and then proceed through the Strait of Malacca and the W part of Singapore Strait to Singapore by as direct a route as safety permits.

REUNION

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General

Reunion (formerly Ile Bourbon) lies about 360 miles E of Madagascar and is a dependent territory of France (an Overseas Department of France). The island has an area of 968 square miles.

Mayotte (Ile Mayotte), the easternmost island of the Comoros, is a Territorial Collectivity of France. After referendums in 1976, the island rejected inclusion into the Comoros. The island is attached for administrative purposes to Reunion.

Iles Eparses, consisting of Ile Tromelin (15°53'S., 54°31'E.), Iles Glorieuses (11°33'S., 47°18'E.), Ile Juan de Nova (17°03'S., 42°43'E.), Ile Europa (22°20'S., 40°21'E.), and Bassas da India (21°27'S., 55°27'E.), are all administratively attached to Reunion, but have no permanent inhabitants.

The terrain is mostly rugged and mountainous, with fertile lowlands near the coasts. The island is composed of volcanic formations. Piton des Neiges, 3,069m high, is the summit. Piton de la Fournaise rises in the SE part of the island and is an active volcano.

The climate is tropical, being moderated by the high elevations. It is usually cool and dry from May to November, and wet and rainy from November to April. However, the Northeast Monsoon sometimes brings heavy rains to the E side of the island from October to April.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Rollers, long swell waves created by distant storms, affect Reunion. This phenomenon occasionally lasts 4 to 5 days, frequently causing great damage and suspending all activities, though rarely for longer than 24 hours. During cyclone season, rollers may provide a good indication of a developing or approaching storm.

Currency

The official unit of currency is the Euro.

Firing Areas

Reunion

A firing area, identified as FM-D50, is bounded by lines joining the following positions:

a. 21°12'45.0"S,54°56'39.0"E.

b. 21°26'45.0"S,55°02'09.0"E.
c. 21°31'57.6"S,54°47'03.0"E.
d. 21°17'57.6"S,54°41'39.0"E.

Mayotte

The Baldamiers Firing Range is located between the E side of Mayotte and the W side of Petite Terre (Ile Pamandzi) between the bearings of 280° and 350° extending from position 12°46.4'S, 45°16.6'E. The outer boundary of the area is delineated by the arc of a circle, with a radius of 4,000m, centered on position 12°46.4'S, 45°16.6'E; the inner boundary of the area is delineated by the arc of a circle, with a radius of 500m, centered on the same position.

Fishing Areas

Motorized fishing boats less than 10m long, utilizing traps, handlines, trolling gear, and gill nets, operate year round off the coast of Reunion.

Fish aggregating devices, marked by strings of orange, red, or yellow buoys fitted with radar reflectors, lie up to 14 miles off the W coast of Reunion, up to 6.5 miles off the N coast of Reunion, and up to 6 miles off the E coast of Reunion. Vessels should keep at least 1 mile clear of them.

Government

Flag of Reunion

Reunion is an Overseas Department of France.

Reunion elects three representatives to the French Senate and five deputies to the French National Assembly. Locally, the island is governed by a 49-member directly-elected General Council, whose members serve 6-year terms, and a 45-member directly-elected Regional Council, whose members serve 6-year terms.

The legal system is based on French civil law.

The capital is Saint-Denis.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Monday	Variable
Easter Monday	Variable
May 1	Labor Day
May 8	Victory Day (1945)
Ascension Day	Variable
Whitsunday	Variable
Whitmonday	Variable
July 14	Bastille Day
August 15	Assumption Day
November 1	All Saints' Day
November 11	Victory Day (1918)
December 20	Slavery Abolition Day
December 25	Christmas Day

Industries

The main industries are sugar processing, rum distilling, cigarettes, handicrafts, and flower oil extraction.

The main exports are sugar, rum, molasses, perfume essences, and lobster. The main export-trading partners are France and Japan.

The main imports are manufactured goods, food, beverages, tobacco, machinery and transport equipment, raw materials, and petroleum products. The main import-trading partner is France.

Languages

French is the official language, but Creole is also widely used.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

As a dependent territory of France, the maritime territorial claims of Reunion are identical to the maritime territorial claims of France, as follows:

Territorial Sea	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

Maritime Disputes

Ile Tromelin is claimed by Mauritius.

Iles Glorieuses, Ile Juan de Nova, Ile Europa, and Bassas da India are claimed by Madagascar.

Regulations

Anchorage Regulations

Vessels with a length of 25m and over are prohibited from anchoring in the waters surrounding Reunion except in authorized anchoring areas, as follows:

1. Northeast of Port Est.—An area bounded by lines joining the following positions:
   a. 20°51'33.0"S, 55°23'06.0"E.
   b. 20°52'40.8"S, 55°23'28.8"E, then SE along the 20m curve to
   c. 20°55'06.0"S, 55°20'18.0"E.
   d. 20°53'54.0"S, 55°19'54.0"E.
2. Baie de Saint-Paul.—An area bounded by lines joining the following positions:
   a. 21°00'39.0"S, 55°15'06.0"E, then WSW along the 20m curve to
   b. 21°00'48.0"S, 55°14'36.0"E.
   c. 21°00'36.0"S, 55°14'36.0"E.
   d. 21°00'36.0"S, 55°12'00.0"E.
   e. 20°58'36.0"S, 55°12'00.0"E.
   f. 20°58'36.0"S, 55°12'39.0"E.
   g. 20°59'42.0"S, 55°14'30.0"E.
3. West of Pointe des Aigrettes.—An area bounded by lines joining the following positions:
   a. 20°59'09.0'S, 55°10'15.0'E.
   b. 20°58'48.0'S, 55°12'00.0'E.
   c. 21°00'36.0'S, 55°12'00.0'E.
   d. 21°00'36.0'S, 55°13'42.0'E.
   e. 21°01'54.0'S, 55°12'00.0'E.
   f. 21°05'00.0'S, 55°12'00.0'E.
   g. 21°05'00.0'S, 55°10'15.0'E.

All vessels over 25m long must submit an anchorage request to MRCC Reunion stating the following information:

1. Vessel name.
2. Call sign.
3. Vessel type.
4. Flag.
5. Length overall.
6. Gross tonnage.
7. Number of persons on board.
8. Maximum draft.
9. Last port.
10. Destination port.
11. Cargo on board.
12. Position and time when submitting anchorage request.
13. Route and speed.
14. Reason for anchoring.
15. Requested duration.
16. Position of anchorage requested.
17. Possible damage.
18. Other information.

All vessels over 25m long awaiting entry to a port or awaiting authorization to leave a port must advise the La Reunion harbormaster of their anchorage within the areas of La Possession, Saint-Paul Bay, and Cap la Houssaye and to advise the harbormaster and CROSSRU of their intention to cast off 6 hours in advance.

All vessels over 25m long at anchor must do the following:

1. Maintain a continuous listening watch on VHF channel 16.
2. Respond to all requests and instructions made by the maritime authorities.
3. Conform to all instructions made by the maritime authorities.
4. Report all incidents or events affecting the environment, security, and safety.

The Reunion harbormaster can be contacted, as follows:

1. Call sign:	Capitainerie La Reunion
2. VHF:	VHF channels 12 and 16
3. Telephone:	262-262-711470
4. Facsimile:	262-262-711477
5. E-mail:	dde974capitainerie@wanadoo.fr

Single-Hull Tankers

Single-hull tankers carrying heavy petroleum products are not permitted to enter, leave, or anchor in Reunion, Mayotte, and Iles Esparses.

Search and Rescue

The Centre Operational de Sauvetage en Mer de la Reunion (COSRU) at the Maritime Rescue Coordination Center (MRCC) Reunion maintains a continuous listening watch on VHF channel 16, 2182 kHz, and 8291 kHz for distress traffic. MRCC Reunion can also be contacted, as follows:

Telephone:	262-262-434343
	262-262-711468
Facsimile:	262-262-711595
E-mail:	lareunion@mrccfr.eu
	lareunion.mrcc@developpement-durable.gouv.fr

Ship Reporting System

SURNAV.—Vessels bound to and from the French-administered territories listed below are all subject to the reporting requirements of SURNAV.

The SURNAV system is intended to prevent accidental pollution in French territorial waters of the South Indian Ocean, hereafter known as the Area, and the waters within 50 miles of the coast of the Area. The Area includes the following:

1. Reunion, including Mayotte and Iles Esparses.
2. The Crozet Islands.
3. Amsterdam Island.
4. Saint-Paul Island.
5. The Kerguelen Islands.
6. Bassas da India.
7. Europa Island.
8. The Glorioso Islands.
9. Juan de Nova Island.
10. Tromelin Island.

For further information, see the Appendix.

Time Zone

The Time Zone description is DELTA (-4). Daylight Savings Time is not observed.

U.S. Embassy

Reunion is an Overseas Department of France. There is no diplomatic representation.

Appendix—SURNAV

Vessels bound to and from the French-administered territories listed below are all subject to the reporting requirements of SURNAV.

The SURNAV system is intended to prevent accidental pollution in French territorial waters of the South Indian Ocean, hereafter known as the Area, and the waters within 50 miles of the coast of the Area. The Area includes the following:

1. Reunion, including Mayotte and Iles Esparses.
2. The Crozet Islands.
3. Amsterdam Island.
4. Saint-Paul Island.
5. The Kerguelen Islands.
6. Bassas da India.
7. Europa Island.
8. The Glorioso Islands.
9. Juan de Nova Island.
10. Tromelin Island.

Covered Vessels.—The regulations are mandatory for the following vessels:

1. Vessels carrying hydrocarbons or the gaseous residues of hydrocarbons as specified in Annex 1 of MARPOL 73.
2. Non-inert tankers and vessels carrying the following:
   a. Noxious liquid substances as specified in Annex 2 of MARPOL 73 and classed in Category A and Category B in Chapter 17 of the IBC Code.
   b. Liquefied gas in bulk.
   c. Plutonium-239, uranium-233, uranium-235, uranium-238, thorium, or any material containing them with the exception of ores.
   d. Acetaldehyde (UN 1089), alcoholic ether (UN 1155), ethylvinylic ether (UN 1302), monoethylamine (UN 1036), ammonium nitrate (UN 0222), or propylene oxide (UN 1280).
   e. Composite organochlorides, such as organochloride pesticides (UN 2761, UN 2762, UN 2995, and UN 2996).
3. Vessels carrying the following:
   a. Harmful liquid substances as specified in Annex 2 of MARPOL 73 and not listed above.
   b. Noxious liquid substances as specified in Annex 3 of MARPOL 73.
   c. Dangerous cargo as specified in the International Maritime Code of Dangerous Goods (IMDG), including radioactive materials specified in the INF Code.
   d. Dangerous cargo as specified in Chapter 17 of the IBC Code and Chapter 19 of the IGC Code.

SURNAV-FRANCE Messages.—All vessels listed in paragraph 1 and paragraph 2 of **Covered Vessels** preparing to pass through of stay in the territorial waters of the Area must contact CROSSRU 6 hours prior to entering the territorial waters of the Area or 4 hours prior to departing from a port or anchorage in the Area.

SURNAV messages should be addressed to SURNAV CROSSRU and headed RAPPORT SURNAV—CIRCULATION EAUX TERRITORIALES/SIGNALEMENT CARGAISON TRANSPORTEE by telephone, facsimile, telex, e-mail, or INMARSAT-C, as follows:

1.	Call sign:	CROSSRU
2.	VHF:	VHF channel 16
3.	Telephone:	262-262-434343
4.	Facsimile:	262-262-711595
5.	Telex:	961-916140 (COSRU 916140F)
		583-422799193 (INMARSAT-C)
6	E-mail:	lareunion.mrcc@eqiipement.gouv.fr

If the vessel is in a French port, the message can be sent as directed by the Port Authority. Radio frequencies 2182 kHz and 8291 kHz should be used only as a last resort.

Messages should be sent in the format given in the table below and should also include the following additional information:

1. Intended movements within territorial waters.
2. Current ability to maneuver and navigate.

Any subsequent changes to the above information should be reported immediately.

SURNAV-FRANCE Message	
Designator	**Information required**
ALFA	Vessel's name, call sign, MMSI, and flag.
BRAVO	Date and time (UTC), suffixed ZULU (6 figures DD/HH/MM).
CHARLIE	Position (latitude/longitude).
ECHO	Course.
FOXTROT	Speed.
GOLF	Last port of call.
HOTEL	1. Date and time (UTC) and position of entering territorial waters or 2. Date and time (UTC) and place of getting underway.
INDIA	Destination and ETA.
KILO	1. Date and time (UTC) and position of leaving territorial waters or 2. Date and time (UTC) of arrival at destination (port, anchorage, waiting position, deballasting position) within territorial waters.
LIMA	Intentions.
MIKE	Radio watch maintained.
PAPA *	Detailed description of dangerous cargo or pollutants carried on board.
QUEBEC	Any defects, damage, faults, or restrictions.

SURNAV-FRANCE Message	
Designator	**Information required**
SIERRA	Weather conditions in the area.
TANGO	Notification to the authorities holding information (lists, manifest, cargo plan) relating to dangerous cargo on board.
UNIFORM	Type of vessel, loa, and draft.
WHISKEY	Number of people on board.
XRAY	Other remarks.
ZULU	End of message.
* Vessels should refer to IMO Resolution A.851(20) in order to correctly give the information requested.	

Incident/Accident Report.—Vessels of 300 gross tons and over on a commercial voyage and navigating with the limits of the Economic Zone must immediately report the following:

1. Every incident or accident affecting the safety of the vessel (collision, stranding, damage, breakdown or failure, piracy, shifting of cargo, or all defects within the hull or damage to the structure).
2. Every incident or accident affecting the safety of navigation (damage likely to affect the vessel's maneuverability or navigation, or every defect affecting the propulsion systems, steering gear, the production of power, or the navigation or communication equipment).
3. Every situation likely to lead to pollution (discharge or risk of discharge of pollutants into the sea).
4. Every slick of pollution and every drifting container or package seen in the sea.

Messages should be addressed to CROSSRU, prefixed SURNAV-AVARIES, in the format given below.

Incident/Accident Report	
Designator	**Information required**
ALFA	Vessel's name, call sign, MMSI, and flag.
BRAVO	Date and time (UTC) suffixed ZULU (6 figures DD/HH/MM).
CHARLIE	Position (latitude/longitude).
ECHO	Course.
FOXTROT	Speed.
GOLF	Last port of call.
INDIA	Destination and ETA.
MIKE	Radio watch maintained.
OSCAR	Draft.
PAPA *	Cargo and details enabling information to be obtained about dangerous or pollutant cargo on board.
QUEBEC *	Nature of incident or situation, with damage or problem suffered.

Incident/Accident Report	
Designator	**Information required**
ROMEO *	Description of the pollution caused or observed and of all containers, parcels, or cargo lost overboard or observed drifting and presenting a danger to navigation and/or the environment.
SIERRA	Weather conditions.
TANGO	Name and details of owner, charter company, and possible consignees in France.
UNIFORM	Vessel type.
WHISKEY	Number of people on board.
XRAY *	Date and time (UTC) of call for assistance or towing, presence and name of assisting vessel, time (UTC) of arrival of assisting vessel, or other information.
YANKEE	Request transmission of report to another system (AMVER, JASREP, MAREP, etc.).
ZULU	End of message.
* Vessels should refer to IMO Resolution A.851(20) in order to correctly give the information requested.	

Assisting Vessel Report.—Vessels providing assistance to vessels of 300 gross tons and over less than 50 miles from the coast must immediately contact CROSSRU with a message prefixed SURNAV-AVAIRES, with the following information:

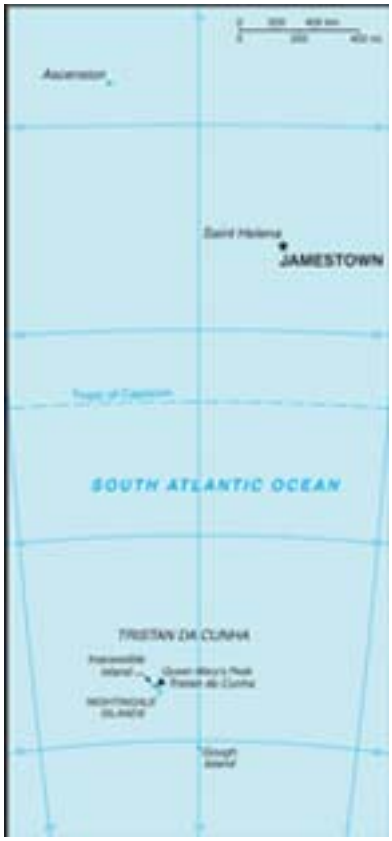
Assisting Vessel Report	
Designator	**Information required**
ALFA	Vessel's name, call sign, MMSI, and flag.
BRAVO	Date and time (UTC) suffixed ZULU (6 figures DD/HH/MM).
CHARLIE	Position (latitude/longitude) of assisting vessel.
ECHO	Course of assisting vessel.
FOXTROT	Speed of assisting vessel.
INDIA	Destination and ETA.
MIKE	Available means of communication.
OSCAR	Draft.
PAPA	Cargo of vessel being assisted.
QUEBEC	Damage sustained to vessel being assisted, if known.

Assisting Vessel Report	
Designator	**Information required**
TANGO	Name and details of owner, charter company, and possible consignees of the assisting vessel in France.
UNIFORM	Type of assisting vessel.
XRAY	Date and time (UTC), position, weather, name, call sign, flag of vessel, course and speed of vessel involved in the accident, or other information.

Assisting Vessel Report	
Designator	**Information required**
YANKEE	Request transmission of report to another system (AMVER, JASREP, MAREP, etc.).
ZULU	End of message.

Listening watch—Vessels must maintain a continuous listening watch, except when alongside, on 2182 kHz, VHF channel 16, and any other frequency they are advised to listen on.

SAINT HELENA/ASCENSION ISLAND



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General

Saint Helena

Saint Helena(15°56'S., 5°42'W.), 1,200 miles off the coast of West Africa, is a dependency of the United Kingdom.

The island is of volcanic origin and has an area of 47 square miles. From a distance, it resembles a high pyramidal-shaped fortress rising abruptly from the sea. A line of precipitous and almost inaccessible cliffs, intersected by chasms, fronts the shores. The island is divided into two unequal parts by a ridge of mountains from 600 to 820m high.

The island, which was the place of exile and first burial site of Napoleon Bonaparte, harbors at least 40 species of plants unknown anywhere else in the world. Numerous small fish, about 15cm long, swim around anchored vessels in large schools. They are known locally as "Black Fish" and eat anything thrown into the water within seconds. The fish will only attack humans if they have an open cut or wound letting blood into the water, but caution should be exercised.

The climate is mild with little variation.

Ascension Island

Ascension Island (7°57'S., 14°22'W.) is of volcanic origin and lies about 700 miles NW of Saint Helena. It has an area of about 34 square miles and most of the surface is barren, rocky, and almost destitute of vegetation. Green Mountain, 857m highest, forms the summit of the island and is surrounded by numerous craggy peaks. The shores are fronted in many places by white sandy beaches; the sand being composed of shell and coral.

The island is noted for sea turtles, feral donkeys, and rabbits.

The island is the location of an important telecommunications center. In addition, the Royal Air Force (RAF) and the United States Air Force (USAF) have small military bases on the island.

Tristan da Cunha Group

Tristan Island (37°06'S., 12°17'W.) is the largest of a group of five islands lying 1,320 miles SW of Saint Helena, about halfway between the Cape of Good Hope and South America. Inaccessible Island, the second largest, lies 18 miles SW of Tristan Island. Nightingale Island, Middle Island, and Stoltenhoff Island lie close together, 17 miles SSW of Tristan Island.

Tristan Island consists of a volcano, 2,060m high, and its

coast is fronted by a line of inaccessible cliffs, 300 to 610m high. The settlement of Edinburgh is situated on the largest of the lowland strips, near the NW extremity of the island.

In 1961, the volcano, which was believed to be extinct, erupted unexpectedly. The entire population of the island was evacuated and settled temporarily in the United Kingdom, almost all returning in 1963.

Gough Island

Gough Island (40°19'S., 9°56'W.) lies about 230 miles SSE of Tristan da Cunha. This island, which is about 7 miles long and 4.3 miles wide, is of volcanic origin and wooded. Edinburgh Peak, 910m high, is the summit and rises from a central plateau bordered by a series of deep valleys and craggy ridges. The coast of the island is fronted by narrow beaches backed by cliffs, 61 to 457m high. Waterfalls cascade over the cliffs in numerous places.

A meteorological and scientific station, manned by South African personnel, is situated on the island and may be contacted by VHF.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Rollers

Dangerous swells, known as rollers, affect Ascension Island and St. Helena; these swells may be up to 3m high and make landing dangerous on both islands. On Ascension Island, rollers occur about every 2 weeks. On St. Helena, the most dangerous time is from December to March. Further information can be found in Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Kelp

Tristan da Cunha is surrounded by kelp; out to the 36m curve, it is thick enough to block sea water intakes.

Currency

The official unit of currency is the Saint Helenian pound.

Government

Flag of Saint Helena

Saint Helena is an overseas territory of the United Kingdom. The country consists of three administrative areas.

Flag of Ascension Island

Elizabeth II, recognized as the Chief of State, appoints a Governor. The unicameral Legislative Council consists of three ex-officio members of the Executive Council, a Speaker and Deputy Speaker elected by the Legislative Council, and 12 directly-elected members serving 4-year terms.

Ascension Island and the Tristan da Cunha Group each have their own separate Island Council.

The legal system is based on English common law.

The capital is Jamestown.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Monday	Variable
May 1	May Day
Whitmonday	Variable
December 25	Christmas Day
December 26	Boxing Day

Industries

The main industries are construction, handicrafts, fishing, and philatelic sales.

The main exports are fish, coffee, and handicrafts. The main export-trading partners are Tanzania, the United States, Japan, and the United Kingdom.

The main imports are food, beverages, tobacco, fuel oil, animal feed, building material, motor vehicles and parts, and machinery and parts. The main import-trading partners are the United Kingdom, South Africa, Spain, and Tanzania.

Languages

English is the official language.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of St. Helena, including its

dependencies of Ascension Island, Tristan da Cunha Group, and Gough Island, are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.

Regulations

Visitors are not allowed to land on Ascension Island without permission of the Administrator of Ascension Island.

Gough Island has been declared a nature reserve and visitors are not allowed without permission of the Administrator of Tristan da Cunha.

Quarantine

St. Helena.—Vessels shall notify the harbormaster, using the standard pratique message, 24 hours in advance by one of the following:

1. Telephone: 290-2825
2. E-mail: harbourmaster@cwimail.sh

Ascension.—Vessels shall notify the harbormaster, using the standard pratique message, 48 hours in advance by one of the following:

1. Telephone: 247-7000101 (Harbormaster)
   247-6244 (Assistant Harbormaster)
2. Facsimile: 247-6152 (Harbormaster)
   247-6271 (Assistant Harbormaster)
3. E-mail: ross.denny@ascension.gov.ac (Harbormaster)
   kitty.george@ascension.gov.ac (Assistant Harbormaster)

Search and Rescue

Saint Helena Coast Radio Station (ZHH) can offer assistance for distress traffic, but does not maintain continuous listening watches on any international distress frequencies.

Ascension Island Coast Radio Station (ZBI), with a range of about 200 miles, maintains a continuous listening watch on 2182 kHz and will relay relevant messages by request.

Time Zone

The Time Zone description is ZULU. Daylight Savings Time is not observed.

U.S. Embassy

Saint Helena is a dependent territory of the United Kingdom. There is no diplomatic representation.

SAO TOME AND PRINCIPE

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General

The two islands of Sao Tome and Principe are located in the Gulf of Guinea. They lie 275 miles and 125 miles, respectively, off the N coast of Gabon and combine to form one of Africa's smallest countries. These islands are part of an extinct volcanic mountain range, which also includes the island province of Equatorial Guinea, located to the N, and the towering mass of Mount Cameroon, rising on the W coast of continental Africa. The country also includes the islets of Pedras Tinhosas, lying close off Principe, and Ilheu Gago, lying close off Sao Tome.

Sao Tome, the larger and most mountainous island, is 30 miles long and 20 miles wide. It is oval-shaped, with elevations of up to 2,024m. Principe is 10 miles long and 4 miles wide. Both islands have prominent needle-shaped peaks and are covered by luxuriant vegetation and dense forests.

The climate is tropical, being very hot and humid, but is somewhat modified in the higher elevations. The rainy season normally occurs from October to May.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

It is reported that lights and navigational aids on Ilha do Principe and Ilha do Sao Tome are unreliable.

Currency

The official unit of currency is the dobra, consisting of 100 centimos.

Government

Flag of Sao Tome and Principe

Sao Tome and Principe is a republic. The country is divided

into the province of Sao Tome and the province of Principe.

Sao Tome and Principe is governed by an directly-elected President who serves a 5-year term. The National Assembly chooses the Prime Minister, with the approval of the President. The President appoints a Council of Ministers. The unicameral National Assembly is composed of 55 directly-elected members serving 4-year terms. Since 1995, Principe has had internal self-rule, with a 5-member regional government and an elected assembly.

The legal system is based on Portuguese law and customary law.

The capital is Sao Tome.

Holidays

The following holidays are observed:

January 1	New Year's Day
February 3	Martyrs' Day
Easter Holiday	Variable
July 12	Independence Day
Ascension Day	Variable
Corpus Christi	Variable
December 25	Christmas Day/Family Day

Industries

The main industries are agriculture, light construction, textiles, soap, beer, fish processing, and timber.

The main exports are cocoa, copra, coffee, and palm oil. The main export-trading partners are the Netherlands, Belgium, Turkey, Spain, the United States, and Germany.

The main imports are machinery and electrical equipment, food products, and petroleum products. The main import-trading partners are Portugal, Gabon, and China.

Languages

Portuguese is the official language. Lungwa, a Portuguese creole, and Fang, a Bantu dialect, are also spoken.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Sao Tome and Principe are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims archipelagic status.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ZULU. Daylight Savings Time is not observed.

U.S. Embassy

There is no U.S. Embassy; however, the Ambassador to Gabon is accredited to the country on a non-resident basis and makes periodic visits to the islands.

U. S. Embassy Gabon Home Page
http://libreville.usembassy.gov

SAUDI ARABIA

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General

Saudi Arabia is located in Southwest Asia and occupies most of the Arabian Peninsula. It is bordered on the N by Jordan, Iraq, and Kuwait; on the W by the Red Sea; and on the S and E by Yemen, Oman, the United Arab Emirates, and the Persian Gulf.

A narrow plain, rising in Al Hijaz and the Asir Highlands, extends along the Red Sea coast and then gradually slopes E as a desert plateau to a low-lying coastal region along the Persian Gulf. The highlands attain heights of up to about 2,750m; the desert plateau is 760 to 1,070m high.

The climate is mostly harsh, dry desert with great extremes of temperature.

Areas to be Avoided

Approaches to Jizan

Two IMO-adopted Areas to be Avoided are located within the deep-water route in the approaches to Jizan (16°54'N., 42°31'E.), as follows:

1. A circle, with a radius of 650m, centered on position 17°08'20.4"N, 41°24'20.4"E.
2. A circle, with a radius of 650m, centered on position 17°10'22.8"N, 41°53'57.6"E.

Fasht Buldani

An IMO-adopted Area to be Avoided is located off the E coast of Saudi Arabia and is bounded by lines joining the following approximate positions:

a. 27°54.0'N, 49°20.0'E.
b. 27°51.0'N, 49°04.0'E.
c. 28°06.0'N, 49°51.5'E.
d. 28°11.0'N, 48°53.5'E.
e. 28°13.5'N, 48°55.0'E.

f. 28°18.0'N, 49°08.5'E.
g. 28°08.5'N, 49°19.0'E.

All tankers, gas carriers, and chemical tankers, regardless of their size, and all other vessels greater than 50,000 gross tons, should avoid the area.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Magnetic Anomalies

A local magnetic anomaly of between 2°E and 3°E has been reported along the entire length of the E side of the Gulf of Aqaba.

A magnetic anomaly has been reported in the vicinity of position 24°18'N, 37°00'E.

Maritime Security Patrol Area

The Commander, U.S. Navy Central Command has directed the establishment of a Maritime Security Patrol Area (MSPA) in the Gulf of Aden. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy—Maritime Security Patrol Area.**

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Currency

The official unit of currency is the riyal, consisting of 100 halalah.

Government

Saudi Arabia is a monarchy. The country is divided into 13 provinces

Saudi Arabia is governed by a King in consultation with the royal family, a Council of Ministers, and religious leaders. A 150-member Majlis al-Shura (Consultative Council), headed by a chairman, is appointed by the King for a term of 4 years. A process is underway to allow the direct election of one-third of the members of the Majlis al-Shura, but no implementation date has been announced.

Flag of Saudi Arabia

The legal system is based on Islamic law. Several secular codes have been introduced. Commercial disputes are handled by special committees.

The official capital is Riyadh. The religious capital is Mecca.

Holidays

The following holiday is observed:

September 24	Unification of the Kingdom

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are crude oil production, petroleum refining, basic petrochemicals, ammonia, industrial gases, caustic soda, cement, fertilizer, plastic, metals, commercial ship and aircraft repair, and construction.

The main exports are petroleum and petroleum products. The main export-trading partners are China, Japan, the United States, South Korea, and India.

The main imports are machinery and equipment, foodstuffs, chemicals, motor vehicles, and textiles. The main import-trading partners are China, the United States, India, Germany, South Korea, and Japan.

Languages

Arabic is the official language.

Mined Areas

Vessels are advised that Mined Danger Areas exist in the N part of the Persian Gulf. Further information should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150-5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Saudi Arabia are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	No specified limit.
Continental Shelf	No specified limit.

* Claims straight baselines. Claims power to regulate nuclear-powered vessels in the territorial sea and to require prior authorization for such vessels.

** Also considered a Security Zone.

Maritime Boundary Disputes

Kuwait and Saudi Arabia continue negotiating a joint maritime boundary with Iran.

Saudi Arabia claims the Egyptian-administered islands of **Tiran** (27°56'N., 34°33'E.) and **Sanafir** (27°56'N., 34°43'E.) on the E side of the Strait of Tiran.

Pilotage

Pilotage is compulsory for all vessels of 150 nrt and over, except pleasure craft, entering or navigating within or leaving the pilot zones of Saudi Arabia.

Pollution

Every port authority shall, in order to prevent or mitigate any threat to maritime safety, the safety of individuals and property, or the environment, ensure that the master of a vessel sailing within Saudi territorial waters immediately report, as follows:

1. Any incident or accident affecting the safety of the vessel, such as collision, fire, running aground, damage, malfunction or breakdown, flooding or shifting of cargo, any defects in the vessel's steering equipment or hull or structural failure, or any other damages.
2. Any incident or accident which compromises shipping safety, such as failures likely to affect the vessel's maneuverability or seaworthiness.
3. Any situation likely to result in pollution of the water or coastline.
4. Any slick of oil or other polluting materials and containers or packages seen drifting at sea.

The report should include the following details:

1. Vessel's identity.
2. Position.
3. Port of departure.
4. Port of destination.
5. The address from where the information may be obtained on the danger, hazard, or threat of dangerous and polluting cargo carried on board.
6. Number of persons on board.
7. Details of the incident and any relevant information in compliance with pertinent updated IMO requirements.

It is illegal to discharge oil or oily mixtures within 100 miles of the coast of Saudi Arabia.

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas.**

Ballast Water Management

The E coast of Saudi Arabia lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

General

Vessels calling at ports in Saudi Arabia are required to have a copy of *Rules and Regulations for Saudi Arabian Seaports, Parts 1-4*, produced by the Kingdom of Saudi Arabia Ports Authority, on board. Every vessel entering a port should have a copy or obtain one immediately on arrival. These rules and regulations are extensive and extracts are given below:

1. Guidelines concerning standards of dress and behavior are laid down and strictly enforced.
2. The import of certain articles is strictly prohibited and includes such items as religious matter not pertaining to the Muslim faith; playing cards or other gambling devices; narcotics; printed matter, photographic matter, or video tapes depicting what could be considered pornographic; and alcoholic beverages, including beer, table wines, and liquor.

Any of the above items on board any vessel calling at Saudi ports must be secured in appropriate locked storerooms which will be sealed by the authorities who may carry out inspections to ensure that the seals are intact and that none of the above articles are in use. Penalties for violations are severe and major delays to vessels can be incurred.

Vessels equipped with VHF should contact the Port Control Signal Station as soon as the vessel enters within VHF range.

Traffic Control Areas have been established in areas within a radius of 25 miles from Port Control Signal Stations. Vessels are prohibited from moving within a Traffic Control Area without prior permission from the Port Control Signal Station.

Vessels more than 15 years old may not discharge cargo at Saudi Arabian ports unless an approved surveyor has established that the vessel complies with all Saudi Arabian standards.

All vessels are required to display the Saudi Arabian flag from the vessels foremast 24 hours when in Saudi Arabian waters.

Tankers which have loaded ballast water in the sea areas of Japan and are en route to ports in Saudi Arabia should exchange ballast water prior to entering the Persian Gulf or the Red Sea. These vessels are subject to random testing of their ballast water for radioactivity.

All vessels approaching a Saudi Arabian port must display the Quarantine flag, by day, or the appropriate lights, at night, until free pratique has been granted.

The Saudi Seaports Authority advises mariners not to enter the restricted areas, best seen on the chart, surrounding Saudi oil fields.

Notification

The owners of vessels bound for a port within Saudi Arabia with cargo must give preliminary notice of the vessel's intended arrival to the Port Management of the discharge port(s) by telex or cable, either directly or through the vessel's agents, on arrival at the first or sole loading port, before loading commences. Estimated time of arrival and estimated quantity of cargo by type must be given with the preliminary notice.

On completion of loading cargo for Saudi ports, the following information must be sent to the Port Management of the discharge port(s) by telex or cable, either directly or through the vessel's agents:

1. Vessel's name and former names, if any.
2. Flag, port of registry, and call sign.
3. Length overall, gt, nrt, and dwt.
4. Expected draft on arrival.
5. Expected time of arrival.
6. Cargo particulars, including nature, weight, tonnage, and stowage by hatches; car carriers, ro-ro, and container vessels to give both number and weight in tons of each type of unit.
7. Any other cargo being carried for other destinations.
8. If dangerous cargo is being carried, the quantity and class must be indicated in accordance with the IMDG Code and it must be stated whether this cargo is to be discharged or is in transit.
9. Number, position, and SWL of derricks and/or cranes, and particulars and positions of ramps.
10. The number and nationalities of passengers to be disembarked or in transit.
11. Expected requirements for bunkers and water.
12. Name of the vessel's agent.
13. Vessels intending to call at Saudi ports must submit to the Port Management a detailed list of arms and ammunition carried on board for the purpose of self-defense, at least 48 hours prior to arrival. Failure to comply with this procedure will result in heavy fines and seizure of the arms by the Saudi authorities.

A further notice of ETA is to be sent 5 days, 2 days, and 1 day prior to arrival at the port.

Tankers must also report the following information:

1. The flash point of any cargo to be discharged.
2. If the vessel is in ballast, whether gas-free or not, or whether in an inert condition.
3. Any other relevant information concerning special conditions, difficulties, defective equipment, or defective gear which would create special hazards when mooring, unmooring, or handling cargo.

Having complied with the above and received the necessary permission to proceed with loading, the vessel's agent must submit to the relevant Port Management full details of all cargo on board, whether to be discharged in Saudi ports or elsewhere.

Any vessel that fails to comply with these procedures, or is found to be carrying weapons, explosives, and ammunition without prior permission will be detained.

The discharge of cargo for transshipment to another port, whether in or outside the waters of Saudi Arabia, is strictly forbidden.

Vessels calling at any commercial port in Saudi Arabia, with cargo destined for non-Saudi ports, must submit manifests declaring the nature of such cargo. Violation of this requirement may lead to the detention of the vessel.

Routes

Deep-Water Routes, best seen on the chart, are located, as follows:

1. In the approach to King Abdullah Port (22°31'N., 39°05'E.) in the northern Red Sea.
2. In the approach to Jizan (16°54'N., 42°31'E.) in the southern Red Sea.

Search and Rescue

A network of coast radio stations in the Persian Gulf and the Red Sea maintains a continuous listening watch on international distress frequencies.

Ship Reporting System

Saudi Ship Reporting System (SSRS)

The Saudi Ship Reporting System (SSRS) is a voluntary service for vessels navigating in the Red Sea. Such vessels are requested to report to the SSRS center via Jeddah Coast Radio Station (HZH) by facsimile or e-mail, as follows:

1. Facsimile: 966-12647-4675
2. E-mail: jeddahradio@stc.com.sa

Reports should be sent every 24 hours, either between 0700 and 0730 UTC or between 1900 and 1930 UTC, and consist of the following format:

Identifier	Content
A	Vessel name, call sign, flag, and cargo.
B	Date and time (UTC) of report.
C	Latitude and longitude.
E	Course.

Identifier	Content
F	Speed.
G	Port of departure (name of last port of call).
I	Port of destination, including latitude and longitude, and ETA.
K	Port of arrival, including latitude and longitude, and time of arrival.
L	Route.
M	Details of frequencies guarded.
V	Medical resources.
X	Remarks.
Y	Remarks.
Z	Crew nationality and number.

Vessels are also requested to provide contact details on the owner. This information may be used during an emergency.

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Maritime Liaison Office (MARLO) Bahrain Recommended Reporting Procedures

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 48 hours prior to entering the Gulf of Aden recommended transit corridor. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy**.

Signals

Every vessel approaching the limits of a port must hoist the ship's signal letters (in case of VHF failure), the International code "Q" flag in accordance with health regulations; the International code "B" flag in accordance with the carrying of dangerous goods or hazardous materials, and the national flag of the country to which the ship belongs.

In addition, every vessel entering a port must display the flag of Saudi Arabia from the foremast and keep it flying at all times while the vessel is in port. The Saudi Arabian flag is properly displayed when the writing appears on top and the sword on the bottom.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

The capital and all major port cities keep the Zone Time. It is reported that much of the remainder of the country keeps Islamic sun time or "Arabic Time." (All clocks are set daily to 12 midnight at sunset.)

Traffic Separation Schemes

Traffic Separation Schemes (TSS) in Saudi Arabia are, as follows:

1. **Red Sea**
   a. Approaches to Yanbu. (Royal Commission for Jubail and Yanbu—Kingdom of Saudi Arabia)
   b. Approaches to Jizan. (IMO adopted)
   c. In the Entrance to the Gulf of Aqaba. (IMO adopted)
2. **Persian Gulf**
   a. Approaches to Ras Tannurah. (IMO adopted)
   b. Approaches to Ras al Juaymah. (IMO adopted)
   c. Approaches to Ras al Khafji. (IMO adopted)
   d. Between Zuluf Oil Field and Marjan Oil Field. (IMO adopted)

U.S. Embassy

The U.S. Embassy is located on Collector Road M, Diplomatic Quarter, Riyadh.

The mailing addresses are, as follows:

1. Saudi Arabia address—
   P.O. Box 94309
   Riyadh 11693
2. U.S. address—
   6300 Riyadh Place
   Washington, DC (20521-6300)

U. S. Embassy Saudi Arabia Home Page
http://riyadh.usembassy.gov

Vessel Traffic Service

Vessel Traffic Services are in operation, as follows:

1. Strait of Tiran (28°00'N., 34°27'E.)—operated by Egypt.
2. Ad Damman (26°31'N., 50°12'E.), including the ports of Ras Tannurah and Ras al-Juaymah.
3. King Abdullah Port (22°31'N., 39°05'E.), including the ports of Ras Tannurah and Ras al-Juaymah.

For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

SEYCHELLES

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General

Seychelles, a group consisting of 115 main islands and islets, lies scattered over the W part of the Indian Ocean, about 600 miles NE of Madagascar. **Mahe Island** (4°37'S., 55°27'E.), the largest of the group, is the site of Victoria, the capital.

The Granitic Islands, 32 in number, are part of the group and lie within about 30 miles of Mahe Island. These islands are mostly hilly, mountainous, and fringed in places by rocks and extensive reefs. Many small coral islands, which are dependencies of Seychelles, lie as far as 600 miles SW and S of Mahe Island. These islands are low and consist of sand cays or raised reefs with no permanent population. Some of the coral islands are waterless and uninhabitable. Aldabra, with a lagoon, is a rare example of a coral atoll largely untouched by man; many of its animal, plant, and insect species exist nowhere else on earth.

The climate is tropical. The hot, wet, and humid season (Northwest Monsoon) lasts from December to May. The cooler season of trade winds (Southeast Monsoon) lasts from June to November.

Areas to be Avoided

Assumption Island and Aldabra Island.—An IMO-adopted Area to be Avoided has been established around Assumption Island and Aldabra Island. The area consists of a circle, with a radius of 30 miles, centered on position 9°36'S, 46°21'E.

Vessels over 500 gross tons carrying oil or hazardous material should avoid entering the area.

Seychelles Banks.—Two IMO-adopted Areas to be Avoided have been established on Seychelles Bank. Vessels over 200 gross tons should avoid entering these areas. These areas are separated by a N-S channel, varying from 6 to 20 miles in width, which allows access to the port of Victoria, on the E coast of Mahe.

The Areas to be Avoided are, as follows:

1. **West of Mahe—**An area bounded by the low water line on the W coast of Mahe and lines joining the following positions:
   a. 4°40.8'S, 55°32.2'E. (coast)

b. 4°49.5'S, 55°34.5'E.
c. 5°06.8'S, 55°08.5'E.
d. 4°42.0'S, 53°52.0'E.
e. 4°00.0'S, 54°22.0'E.
f. 3°40.0'S, 54°58.0'E.
g. 3°40.0'S, 55°25.0'E.
h. 4°33.5'S, 55°25.9'E. (coast)

2. **East of Mahe—**An area bounded by lines joining the following positions:
a. 5°10.0'S, 57°13.0'E.
b. 5°50.0'S, 57°00.0'E.
c. 5°50.0'S, 56°24.0'E.
d. 5°12.0'S, 55°36.0'E.
e. 4°49.0'S, 55°41.5'E.
f. 4°31.0'S, 55°40.0'E.
g. 4°26.0'S, 55°32.0'E.
h. 3°42.0'S, 55°38.0'E.
i. 3°45.0'S, 56°02.0'E.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Seismic Surveys
Vessels conducting seismic surveys may be encountered on Seychelles Bank and on the banks of Mascarene Plateau SSE of Seychelles Bank.

Currency

The official unit of currency is the Seychelles rupee, consisting of 100 cents.

Fishing Areas

Fishery rafts, which display a red flag, are moored in various locations throughout the group.

Information on fishing activity in the Seychelles is given in the table titled **Seychelles—Fishing Operations**.

Government

Seychelles is a republic. The country is divided into 25 administrative districts.

Seychelles is governed by a directly-elected President who serves a 5-year term. The President appoints the Council of Ministers. The unicameral Legislative Assembly consists of 34 directly-elected members serving 5-year terms.

The legal system is based on French civil law, English common law, and traditional practices.

The capital is Victoria.

Flag of Seychelles

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
May 1	Labor Day
Corpus Christi	Variable
June 5	Liberation Day
June 29	Independence Day
August 15	Assumption Day
November 1	All Saints' Day
December 8	Immaculate Conception
December 25	Christmas Day

Industries

The main industries are fishing, tourism, and beverages.

The main exports are canned tuna, frozen fish, and re-exports of petroleum products. The main export-trading partners are France, the United Kingdom, Italy, Japan, and Mauritius.

Seychelles—Fishing Operations

Type of Fishing	Fishing Technique	Season
Motorized boats less than 10m long	Traps, handlines, trolling, and gill nets	Year round
Auxiliary sloops 9 to 14m long	Traps, handlines, and trolling	Year round, with maximum activity from October to May
Dories, less than 25m long, operating from motherships	Traps and handlines	October to May, on the Mascarene Plateau between Mauritius and Seychelles

Seychelles—Fishing Operations		
Type of Fishing	**Fishing Technique**	**Season**
Tuna boats less than 30m long	Deep long lines	August to January—between Madagascar and the Equator January to June—south of Mauritius
Tuna boats (600 to 2,500 gross tons)	Purse seining	Year round. The main season is from September to March in the area of Madagascar/Seychelles Bank/Chagos Archipelago

The main imports are machinery and equipment, foodstuffs, petroleum products, and chemicals. The main import-trading partners are Saudi Arabia, Spain, and France.

Languages

English, French, and Creole are the official languages. Creole is spoken by 89 per cent of the population.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Seychelles are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims archipelagic status. Requires advance permission or notification for innocent passage of warships in the territorial sea.

Maritime Boundary Disputes

Claims, along with Mauritius, the Chagos Archipelago, part of the United Kingdom-administered British Indian Ocean Territory.

Regulations

Entry

No vessels may call at any island of the Seychelles group unless permission has first been obtained from the authorities at Mahe.

Search and Rescue

The Seychelles Coast Guard coordinates search and rescue operations.

The Maritime Rescue Coordination Center (MRCC) Seychelles Coast Guard maintains a continuous listening watch for distress traffic on VHF channel 16 and can be contacted, as follows:

1. Telephone: 248-429-0900
   248-422-4616
2. Facsimile: 248-432-3288
3. E-mail: mrcc.seycoast@email.sc

Seychelles Coast Radio Station (S7Q) maintains a continuous listening watch for distress traffic on international distress frequencies.

It has been reported (2009) that a Maritime Rescue Coordination Subcenter (MRSC) is now in operation in Victoria.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is DELTA (-4). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. does not have an embassy in Seychelles. The U.S. ambassador to Mauritius is accredited to Seychelles.

U. S. Embassy Mauritius Home Page
http://mauritius.usembassy.gov

SINGAPORE

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General

Singapore lies at the S extremity of Asia and is located at the SE end of the Malay Peninsula. It is separated from the Malaysian mainland by the Johore Strait and from Indonesia by the Singapore Strait. The country consists of one large island and about 64 nearby islets.

The terrain consists mostly of lowland, originally swamp and jungle in many areas, with a gentle undulating central plateau.

The climate is tropical, being hot, humid, and rainy. There are no pronounced rainy or dry seasons; thunderstorms occur on 40 per cent of all days, including 67 per cent of all days during April.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Fishing Devices

Fishing stakes and enclosures may be encountered along most of the coastal banks and shores of the Indonesian islands, particularly off the mouths of rivers. These devices are generally found in depths of 5 to 10m, but in some cases may be laid in greater depths. The positions of such devices are only charted when their locations are permanent.

Fish aggregating devices may be encountered at a number of places off the E and W coasts of the Malay Peninsula. These devices are moored in depths of up to 30m and are usually marked by buoys.

Haze

Thick haze often occurs in the vicinity of Singapore, particularly in the early morning and late afternoon. Vessels are advised to send an accurate ETA, as it is difficult to identify ships approaching the pilot boarding stations during such periods. Occasionally, smoke from fires on the nearby islands reduces visibility in the approaches to the port area.

Piracy

It was reported (1995) that vessels have been attacked by armed thieves in the vicinity of the Strait of Malacca and Singapore Strait, mainly near Phillip Channel. These attacks were usually made from fast motor boats approaching from astern. Loaded vessels with low freeboards seem to be particularly vulnerable.

Vessels with low freeboards transiting the Strait of Malacca and Singapore Strait often use security lights to guard against piracy. These lights by their brilliance may obscure the vessel's navigation lights.

The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur. for further information, see **Malaysia—Cautions—Piracy**.

Sand Waves

Strong tidal currents in Strait of Malacca, arising from the water exchange between the Indian Ocean and the South China Sea, cause large uniform sand waves on the sea bed. The height of these sand waves, which form at right angles to the water flow, can be up to 13m in the One Fathom Bank Traffic Separation Scheme and vary from 4 to 15m elsewhere; the wavelengths of these sand waves range from 250 to 950m.

Surveys in the traffic separation schemes have shown the following areas, which are significant to the safe navigation of deep-draft vessels, to be the most subject to sand waves:

1. Northwest and SSW of Permatang Sedepa (One Fathom Bank) (2°53'N., 101°00'E.).
2. Southwest of Tanjung Tuan (Cape Rachado) (2°24'N., 101°51'E.).
3. South of Muar (2°03'N., 102°34'E.).

In addition, there are also long sand waves running parallel with the tidal currents.

Currency

The official unit of currency is the Singapore dollar, consisting of 100 cents.

Firing Areas

The following Firing Exercise Areas lie in the S approaches to Singapore:

1. **Southern Islands Live Firing Area.**
   a. 1°13'49"N, 103°42'25"E.
   b. 1°12'41"N, 103°42'56"E.
   c. 1°12'09"N, 103°43'10"E.
   d. 1°11'47"N, 103°43'20"E.
   e. 1°11'47"N, 103°44'17"E.
   f. 1°10'32"N, 103°44'58"E.
   g. 1°09'50"N, 103°44'51"E.
   h. 1°09'37"N, 103°44'19"E.
   i. 1°09'37"N, 103°43'45"E.
   j. 1°11'31"N, 103°42'19"E.
   k. 1°12'12"N, 103°40'49"E

then to a point where it meets an arc having a radius of 6,126.5m, and then gradually NE following the aforesaid arc for a distance of 4,277.1m back to point a.

2. **Pulau Sudong Live Firing Area**.
   a. 1°12'43"N, 103°42'55"E.
   b. 1°12'53"N, 103°43'26"E.
   c. 1°12'41"N, 103°43'56"E.
   d. 1°12'16"N, 103°44'10"E.
   e. 1°11'47"N, 103°44'19"E.
   f. 1°11'47"N, 103°44'20"E.
   g. 1°12'43"N, 103°42'55"E.

3. **Pulau Sudong Maneuvering Area.**
   a. 1°12'43"N, 103°42'55"E.
   b. 1°13'30"N, 103°42'34"E.
   c. 1°13'49"N, 103°43'09"E.
   d. 1°13'31"N, 103°43'51"E.
   e. 1°13'28"N, 103°44'10"E.
   f. 1°12'16"N, 103°44'10"E.
   g. 1°12'41"N, 103°43'56"E.
   h. 1°12'53"N, 103°43'26"E.
   i. 1°12'43"N, 103°42'55"E.

For information concerning firing areas and restricted areas in the outer approaches to Singapore, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Government

Flag of Singapore

Singapore is a republic.

Singapore is governed by a directly-elected President serving a 6-year term. The President appoints the Prime Minister and the Cabinet. The unicameral Parliament consists of 87 directly-elected members serving 5-year terms and, to ensure the representation of parties not in the government, up to 12 appointed members.

The legal system is based on English common law.

The capital is Singapore.

Holidays

The following holidays are observed:

January 1	New Year's Day
Good Friday	Varies
May 1	Labor Day
August 9	National Day
December 25	Christmas Day

Other religious public holidays, which vary depending on the appearance of the moon, are Chinese New Year, Good Friday, Hari Raya Haji (Eid Al Adha), Vesak (Buddha Pumima), Deepavali (Diwali), and Hari Raya Puasa (Eid Al Fitr).

Industries

The main industries are electronics, chemicals, financial services, oil-drilling equipment, petroleum refining, rubber processing and rubber products, food and beverage processing, ship repair, offshore platform construction, and life sciences.

The main exports are machinery and equipment (including electronics and telecommunications equipment), pharmaceuticals, chemicals, refined petroleum products, and food and beverages. The main export-trading partners are China, Malaysia, Hong Kong, Indonesia, and the United States.

The main imports are machinery and equipment, mineral fuels, chemicals, foodstuffs, and consumer goods. The main import-trading partners are China, Malaysia, the United States, South Korea, Japan, and Indonesia.

Languages

Malay, Mandarin Chinese, Tamil, and English are the official languages. English is used in government and commerce.

Mined Areas

For information concerning mined areas in the outer approaches to Singapore, see **Indonesia—Mined Areas.**

Navigational Information

Enroute Volume

Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Maritime Claims

The maritime territorial claims of Singapore are, as follows:

Territorial Sea *	12 miles.
Fisheries or Economic Zone *	200 miles.

* To boundaries provided for in international law. Has stated its intention to negotiate agreed maritime boundary delineations with neighboring countries whose territorial sea and exclusive economic zone claims overlap with Singapore's claims.

Maritime Boundary Disputes

A dispute with Malaysia over Singapore's extensive land reclamation, bridge construction, and maritime boundaries in Johor Strait and Singapore Strait.

Singapore and Indonesia have agreed (2005) to finalize their 1973 maritime boundary agreement by defining unresolved areas N of Pulau Batam.

Pilotage

Pilotage is compulsory for all liquefied gas carriers and chemical carriers. For the purpose of compulsory pilotage, a chemical carrier means any vessel which is carrying or has previously carried as a whole or part of the cargo in bulk any of those dangerous chemicals listed in Chapter 17 of the IBC Code. A vessel shall remain to be considered a chemical carrier so long as any of its tanks or cargo system is not completely cleaned and removed of any such residual cargo.

Pilotage is also compulsory for other vessels in the three pilotage districts of Singapore. For further information, see Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Pollution

Bunker Convention Certificate (BCC)

All vessels greater than 1,000 gross tons entering or leaving the port of Singapore are required to carry a Bunker Convention Certificate (BCC) on board to attest that insurance or other financial security to cover liability for bunker oil pollution is in place.

Oil tankers greater than 1,000 gross tons, whether actually carrying oil in bulk (i.e. when laden) or with oil residues on board during the voyage after carrying oil (i.e. on ballast voyage) are already covered by the convention on Civil Liability for Oil Pollution damage (CLC 92) and need not carry a BCC when entering or leaving the port of Singapore.

However, oil tankers greater than 1,000 gross tons would be required to carry a BCC in the exceptional circumstance when they are operating in a completely "clean" condition, such as when it can be proven that there are no residues from carrying oil in, or remaining in, its oil tanks; an example of this exceptional circumstances would be a vessel making its maiden voyage as a new-build from a shipyard.

Reporting Marine Incidents in Port

In the event of a marine emergency, such as collision, grounding, oil pollution, fire, sinking, or other marine incident, the owner, agent, or master shall immediately report to the Port Master's Department by one of the methods given in the table titled Marine Incident Contact Information.

When making this report, the following information shall be provided:

1. Vessel name, call sign, and type.
2. Any casualties?
3. Location of the vessel.
4. Nature of marine incident (collision, fire, man overboard, grounding, flooding, oil pollution, or other incident).
5. Nature of assistance required, if any.
6. If there are chemicals or dangerous cargo on board:
   a. Name and quantity of chemicals or dangerous cargo (MSDS or IMO class and UN Number, if any).
   b. Stowage or method of stowage (ISO tanks, containers, etc.).

Marine Incident Contact Information		
	Marine Safety Control Center	**Port Operations Control Center**
Telephone	65-6325-2488 65-6325-2489	65-6325-2493 65-6325-2494
Facsimile	65-6325-2484	65-6224-5776
VHF	VHF channel 7	VHF channels 5, 9, 12, 16, 18, 21, 22, and 68
Telex	—	RS 87-22896 PORTPM
		RS 87-32124 PORTPM
E-mail	pms_mpa@mpa.gov.sg	pocc@mpa.gov.sg

Regulations

Pre-Arrival Notification (PAN)

The following vessels are required to submit a PAN 24 hours prior to the vessel's arrival at Singapore:

1. Passenger ships, including high-speed passenger ships.
2. Cargo ships, including high-speed craft, of 500 gross tons and over.
3. Mobile offshore drilling units (MODUs).

Owners, agents, or masters of these vessels shall complete the PAN form contained in *MPA Port Marine Circular No. 5 of 2013* (http://www.mpa.gov.sg/sites/circulars_and_notices/pdfs/port_marine_circulars/pc13-05.pdf) and forward it at least 24 hours prior to arrival to the MPA Port Security Department by one of the following methods:

1. Facsimile: 65-6221-3036
2. E-mail: isps@mpa.gov.sg

The ship's agent based in Singapore may also submit the PAN through MPA's Marinet (http://marinet.mpa.gov.sg)

Vessels coming from a port with less than 24 hours sailing time from Singapore shall notify the Port Security Department of the Maritime and Port Authority (MPA) of Singapore immediately upon departure from such a port.

An electronic PAN form (ePAN) can be found on the web site of the Maritime and Port Authority (MPA) of Singapore.

Maritime and Port Authority (ePAN form)

http://www.mpa.gov.sg/circulars_and_notices/pdfs/port_marine_circulars/epan.html

This electronic document allows mariners to fill out and submit the PAN form electronically. The web page listed above includes links to the ePAN form, which contains submission instructions, and its corresponding instruction manual.

The following information is required in the PAN:

1. IMO number.
2. Vessel name.
3. Port of registry.
4. Flag.
5. Vessel type.
6. Call sign.
7. Length overall.
8. Arrival draft (forward, midships, and aft).
9. Air draft.
10. INMARSAT number.
11. MMSI number.
12. Gross tonnage.
13. Company name.
14. Name and 24-hour contact number of company Security Officer.
15. Ship safety conditions, such as:
    a. Conditions affecting the safe navigation of the vessel (defective propulsion machinery/steering gear, list, awkward tows, etc.).
    b. Any accident affecting vessel safety.
    c. Any fire hazards, including hazards involving dangerous cargo.
16. Voyage number.
17. Previous port.
18. Name of anchorage or port facility bound for, ETA, ETD, and purpose of call.
19. General description of the cargo.
20. Is the ship carrying any dangerous cargo? Y/N
21. Has the Dangerous Cargo Manifest has been forwarded to the MPA Hazardous Cargo Section? Y/N/NA
22. Has the Crew List has been forwarded to the Immigration and Checkpoints Authority? Y/N/NA.
23. Has the Passenger List has been forwarded to the Immigration and Checkpoints Authority? Y/N/NA.
24. Does vessel have an approved security plan on board? Y/N.
25. Current security level of the vessel.
26. For the last ten ports of call, give the port name, facility name, arrival date, departure date, and the security level the vessel operated at these ports where it has conducted a ship/port interface.
27. Were any special or additional security measures taken during any ship/port interfaces at the ports listed in No. 26 above? If yes, give the details.
28. Were any ship/ship interfaces conducted during the time frame listed in No. 26 above? If yes, list the five most recent ship/ship interfaces and include details about dates, locations, activities conducted, and security measures applied.
29. Are there any privately-contracted security personnel on board the vessel? Y/N
30. Does the vessel have any refugees, stowaways, or persons rescued from sea on board? Y/N.
31. Is the vessel carrying arms or ammunition on board? Y/N.
32. Does the vessel have the following valid certificates

(include issuer and expiration date) on board? Y/N

a. Certificate of Registry.
b. Passenger Ship Safety Certificate.
c. Cargo Ship Safety Construction Certificate.
d. Cargo Ship Safety Radio Certificate.
e. Document of Compliance.
f. Safety Management Certificate.
g. International Oil Pollution Prevention Certificate.
h. Certificate of Fitness for Carriage of Dangerous Chemicals in Bulk.
i. International Sewage Pollution Prevention Certificate.
j. International Air Pollution Prevention Certificate.
k. International Load Line Certificate.
l. International Tonnage Certificate.
m. International Anti-fouling System Certificate.
n. Bulker Convention Certificate.
o. CLC92 Certificate.
p. International Ship Security Certificate (ISSC).

33. Name, title, and location of person reporting.
34. Present vessel position.
35. Date and time (UTC) of PAN.

Navigation through the Strait of Malacca and the Strait of Singapore

An IMO-approved Routing System has been established in the Strait of Malacca and Singapore Strait. This system consists of several Traffic Separation Schemes (TSS) and a Deep Water (DW) Route which may best be seen on the chart. The following rules apply to vessels transiting this routing system:

1. For the purpose of these rules, the following definitions apply:

a. A vessel having a draft of 15m or more shall be deemed to be a deep-draft vessel.

b. A tanker of 150,000 dwt or more shall be deemed to be a Very Large Crude Carrier (VLCC).

The above definitions do not prejudice the definition of "Vessels constrained by their draft" as described in Rule 3 (h) of the 72 COLREGS.

2. The following general provisions apply:

a. Deep-draft vessels and VLCCs shall allow for an underkeel clearance of at least 3.5m at all times during the entire passage through the Strait of Malacca and Singapore Strait and shall also take all necessary safety precautions, especially when navigating through the TSSs.

b. Masters of deep-draft vessels and VLCCs shall have particular regard for navigational constraints when planning their passages through the straits.

c. All deep-draft vessels and VLCCs navigating within the TSSs are recommended to use the pilotage services of the respective countries when they become available. (Indonesia, Malaysia, and Singapore.)

d. Vessels shall take into account the precautionary areas where crossing traffic may be encountered and be in a maximum state of maneuvering readiness in these areas.

3. The following rules apply:

a. **Rule 1—**Eastbound deep-draft vessels shall use the designated deep-water routes.

b. **Rule 2—**Eastbound deep-draft vessels navigating in the deep-water routes in Phillip Channel and Singapore Strait shall, as far as practicable, avoid overtaking.

c. **Rule 3—**All vessels navigating within the TSS shall proceed in the appropriate traffic lane in the general direction of traffic flow for that lane and maintain as steady a course as possible, consistent with safe navigation.

d. **Rule 4—**All vessels having defects affecting operational safety shall take appropriate measures to overcome these defects before entering the Strait of Malacca and Singapore Strait.

e. **Rule 5—**In the event of an emergency or breakdown of a vessel in the traffic lane, the vessel shall, as far as practicable and safe, leave the lane by pulling out to the starboard side.

f. **Rule 6—**

(i) Vessels proceeding in the westbound lane of the In the Singapore Strait TSS when approaching Raffles Light shall proceed with caution, taking note of the local warning system, and, in compliance with Rule 18(d) of the International Regulations for Preventing Collisions at Sea, 1972, avoid impeding the safe passage of a vessel constrained by its draft which is exhibiting the signals required in Rule 28 and which is obliged to cross the westbound lane of the scheme in order to approach the SPM facility (in approximate position 1°11'28.2"N, 103°47'25.8"E) from Phillip Channel.

(ii) Vessels proceeding in the TSSs when approaching any of the precautionary areas shall proceed with caution, taking note of the local warning system, and, in compliance with Rule 18(d) of the International Regulations for Preventing Collisions at Sea, 1972, avoid impeding the safe passage of a vessel constrained by its draft which is exhibiting the signals required in Rule 28 and which is obliged to cross that precautionary area.

(iii) Information relating to the movement of ships constrained by their draft as referred to in paragraphs (i) and (ii) above will be given by radio broadcasts. The particulars of such broadcasts are promulgated by Notices to Mariners. All vessels navigating in the area of the TSS should monitor those radio broadcasts and take account of the information received.

g. **Rule 7—**VLCCs and deep-draft vessels navigating in the Strait of Malacca and Singapore Strait shall, as far as it is safe and practicable, proceed at a speed of not more than 12 knots over the ground in the following areas:

(i) At One Fathom Bank TSS.

(ii) Deep-water routes in Phillip Channel and in Singapore Strait.

(iii) Westbound lanes between positions 1°12' 30.6"N, 103°52'09.0"E and 1°11'35.4"N, 103°50'12.6'E and between positions 1°11'07.8"N, 103°49'04.8"E and 1°08'39.0"N, 103°44'18.0"E.

h. **Rule 8—**All vessels navigating in the routing system of the Strait of Malacca and Singapore Strait shall maintain at all times a safe speed consistent with safe navigation, shall proceed with caution, and shall be in a maximum state of maneuvering readiness.

i. **Rule 9—**

(i) Vessels which are fitted with VHF radio communications are to participate in the ship reporting system adopted by the Organization.

Note.—Information on this reporting system, known

as STRAITREP, can be found in the Appendix.

(ii) VLCCs and deep-draft vessels navigating in the Strait of Malacca and Singapore Strait are advised to broadcast, 8 hours before entering the TSSs, navigational information giving name, deadweight tonnage, draft, speed, and times of passing One Fathom Bank Light, Raffles Light, and Horsburgh Light. Difficult and unwieldy tows are also advised to broadcast similar information

j. **Rule 10—**All vessels navigating in the Strait of Malacca and Singapore Strait are requested to report by radio to the nearest shore authority any damage to or malfunction of the aids to navigation in the straits, or any aids out of position in the straits.

k. **Rule 11—**Flag states, owners, and operators should ensure that their vessels are adequately equipped in accordance with the appropriate international conventions/recommendations.

4. Mariners are warned that local traffic, which could be unaware of the internationally-agreed regulations and practices of seafarers, may be encountered in or near the TSSs. Therefore, mariners should take any precautions which may be required by the ordinary practice of seamen or by the special circumstances of the case.

Interim Recommendations for Vessels Crossing the Traffic Separation Scheme (TSS) and Precautionary Areas in the Singapore Strait During Hours of Darkness

The following IMO-adopted regulations are in effect:

1. Vessels are recommended to display, if carried, night signals consisting of three all-around green lights, vertically disposed, in the following situations:

a. Vessels departing from ports or anchorages when crossing the westbound or eastbound lane of the TSS or precautionary areas in the Singapore Strait to join the eastbound or westbound traffic lane, respectively.

b. Eastbound or westbound vessels in the TSS or precautionary areas in the Singapore Strait crossing to proceed to ports or anchorages in the Singapore Strait.

2. Night signals are recommended to be displayed by:

a. Vessels of 300 gross tons and over.

b. Vessels 50m or greater in length.

c. Vessels engaged in towing or pushing with a combined size of 300 gross tons and over or with a combined length of 50m and over.

3. Vessels crossing the TSS and precautionary areas in the Singapore Strait to proceed to or from ports or anchorages should comply with the following procedures:

a. A vessel in the Singapore Strait which intends to cross the eastbound or westbound traffic lanes in the TSS or precautionary areas, respectively, should comply with the following:

i. Report to the VTIS to indicate its intention in advance, allowing the VTIS to alert ships in the vicinity of the crossing vessel.

ii. Display the signals consisting of three all-around green lights, vertically disposed, in ample time prior to crossing for other vessels to note the intention to cross the TSS or precautionary area.

iii. When traffic conditions are favorable, alter course boldly, if necessary, to be readily apparent to other vessels in the vicinity observing by sight or radar, and cross the traffic lane on a heading as nearly as practicable at right angles to the general directions of traffic flow.

iv. Report to the VTIS and extinguish the night signal when it has safely left, crossed, or joined the appropriate traffic lane.

b. Display of the night signals shall not exempt the crossing vessel of its obligation to give way to other vessels in a crossing situation or any other rules under COLREGS.

General

Vessels are advised not to anchor in the Strait of Malacca and Singapore Strait between the landward limit of the Traffic Separation Scheme or precautionary area and the adjacent port limits. Vessels are to anchor only in designated areas.

For details concerning Pilotage Regulations and Rules of Navigation for the Port of Singapore, see Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Single-hulled Tankers—Pre-arrival Notification

Single-hulled oil tankers of 5,000 dwt and over must submit a pre-arrival notification to the Port Master at least 24 hours prior to arrival. Single-hulled tankers of 5,000 dwt and over sailing from a port less than 24 hours sailing time to Singapore must submit the pre-arrival notification to the Port Master immediately upon departure from that port.

The pre-arrival declaration shall be addressed to the Port Master and shall be transmitted by any of the following means:

1. Telefax: 65-6224-5776
2. Telex: RS34970 (Answer Back PORTPM 34970)

Pre-arrival Quarantine Reporting

The following categories of vessels will NOT be granted free/radio pratique and must anchor on arrival at the Western Quarantine and Immigration Anchorage for inspection by the Port Health Office:

1. Vessels which have been in a plague-infected area within 60 days prior to arrival in Singapore.

2. Vessels which report the occurrence of illness on board with the following symptoms:

a. Temperature of 38°C or greater which was accompanied or followed by any one or more of the following—rash, jaundice, glandular swelling which has persisted for more than 48 hours.

b. Diarrhea which has been severe enough to interfere with work or normal activity.

3. Vessels with a death on board.

4. Vessels with dead rodents.

5. Vessels with refugees on board.

The master, owner, or agent of a vessel under any of the categories listed above shall:

1. Notify the Singapore Port Health Office not less than 4 hours and not more than 12 hours before arrival.

2. Display the appropriate day and night signal when the vessel enters the Singapore port limits.

3. Anchor at the Western Quarantine and Immigration Anchorage and wait until port health clearance is obtained from the Port Health Officer.

4. Ensure no person, other than a pilot, immigration offi-

cer, or customs officer, boards or leaves the vessel without the permission of the Port Health Officer.

The following categories of vessels are exempted from Port Health Clearance:

1. Passenger vessels with no sickness or death (other than deaths from accidents) on board.
2. Vessels arriving from a non-infected port with no sickness or death on board.
3. Warships.
4. Vessels going out of the port limits for sea trials.

All vessels arriving in Singapore are required to be in possession of a valid Ship Sanitation Control Certificate/Ship Sanitation Control Exemption Certificate. All vessels arriving from plague-infected ports must be inspected and fumigated if found to be infested with rodents.

The Port Health Office can be contacted, as follows:

1. VHF: VHF channel 14
2. Telephone: 65-622-26924
   65-622-22585
3. Facsimile: 65-622-28543

Immigration

All arriving vessels, with the exception of those vessels which have been given Advance Immigration Clearance, bound for any shipyard or waterfront facilities (excluding PSA wharves, the Cruise Center, ferry terminals, and the Jurong Fisheries Port), are required to anchor to complete onboard immigration clearance procedures prior to proceeding alongside, as follows:

1. Vessels bound for shipyards and facilities W of the Jurong Island Road Link:
   a. West Jurong Anchorage (WJ-30)—General cargo vessels, tugs, barges, gas-free tankers, and dredges.
   b. LNG/LPG/Chemical Gas Carrier Anchorage (LGAS-29)—LNG carriers, LPG carriers, chemical tankers, and oil tankers.
   c. Sudong Special Purpose Anchorage (SSP-26)-VLCCs above 75,000 gross tons.

   Vessels using these anchorages and requiring immigration clearance are to contact Singapore Immigration and Registration (call sign: Jurong Immigration) on VHF channel 74.
2. Vessels bound for shipyards and facilities E of the Jurong Island Road Link:
   a. Western Quarantine and Immigration Anchorage (WQI-18)—General cargo vessels, tugs, and barges.
   b. Western Petroleum Anchorage B (WPB-19)—Oil tankers.

   Vessels using these anchorages and requiring immigration clearance are to contact Singapore Immigration and Registration (call sign: Western Immigration) on VHF channel 74.
3. Vessels bound for shipyards and facilities inn East Johor Strait—Changi General Purposes Anchorage (CGP-1). Vessels using this anchorage and requiring immigration clearance are to contact Singapore Immigration and Registration (call sign: Changi Immigration) on VHF channel 74.
4. Foreign yachts and pleasure craft—Western Quarantine and Immigration Anchorage (WQI-18) or Changi General Purposes Anchorage (CGP-1).

Vessels requiring immigration clearance should also display the following signals:

1. By day—International Code Number 2 over Number 5 for vessels not carrying passengers.
2. By day—International Code Number 3 over Number 4 for vessels carrying passengers.
3. At night (all vessels)—two vertical green lights.

Routes

A Deep-Water Route, best seen on the chart, forms part of the eastbound traffic lane of the In Singapore Strait Traffic Separation Scheme.

Search and Rescue

The Maritime and Port Authority of Singapore is responsible for coordinating search and rescue operations.

Singapore Port Operations Control Center (POCC) maintains a continuous listening watch for distress traffic on VHF channels 16 and 70 and can be contacted, as follows:

1. Telephone: 65-622-65539
   65-632-52493
   65-632-52494
2. Facsimile: 65-622-79971
   65-622-45776
3. Telex: 87-20021 MARTEL RS
4. E-mail: pocc@mpa.gov.sg

Ship Reporting System

STRAITREP is a joint Indonesia-Malaysia-Singapore mandatory ship reporting system in the Strait of Malacca and Singapore Strait. Further information can be found in the Appendix.

Signals

Traffic signals are occasionally displayed from a steel framework tower, 36m high, standing 91m N of Raffles Light (1°10'N., 103°45'E.). The signals are intended to warn vessels that a VLCC is crossing Singapore Main Strait bound for Shell SBM, situated about 4 miles NE of Raffles Light. The VLCC may approach either through West Raffles Fairway or through Phillip Channel.

The signals are, as follows:

1. Day signal—black cone, point up, over a black cylinder.
2. Night signal—white isophase light shown every 10 seconds in the shape of an X.

Vessels should keep a good lookout for these signals and should avoid impeding the passage of a VLCC by reducing speed or stopping if necessary and should in no circumstances cross ahead of such a vessel.

Time Zone

The Time Zone description is HOTEL (-8). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) in Singapore are, as follows:

1. Port of Singapore Traffic Systems—Sinki Fairway. (Maritime and Port Authority of Singapore)
2. Port of Singapore Traffic Systems—Southern Fairway. (Maritime and Port Authority of Singapore)
3. In Singapore Strait (Main Strait). (IMO adopted)
4. In Singapore Strait off St. John's Island (Pulau Sakijang Bendera). (IMO adopted)
5. In Singapore Strait off Changi and Pulau Batam. (IMO adopted)
6. At Horsburgh Lighthouse Area. (IMO adopted)

Information on Traffic Separation Schemes in the Strait of Malacca can be found in **Malaysia—Traffic Separation Schemes**.

U.S. Embassy

The U.S. Embassy is situated at 27 Napier Road, Singapore.

The mailing addresses are, as follows:

1. Singapore address—
   27 Napier Road
   Singapore 258508
2. U. S. address—
   FPO AP (96507-0001)

U. S. Embassy Singapore Home Page
http://singapore.usembassy.gov

Vessel Traffic Service

A Vessel Traffic Information Service (VTIS) is in operation in Singapore. See Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera for further information.

Appendix—STRAITREP

STRAITREP is a joint Indonesia-Malaysia-Singapore mandatory ship reporting system in the Strait of Malacca and Singapore Strait. The objectives of the system are, as follows:

1. To enhance the safety of navigation.
2. To protect the marine environment.
3. To facilitate the movement of vessels.
4. To support search and rescue operations and oil pollution response operations.

The following categories of vessels are required to participate in STRAITREP:

1. Vessels of 300 gross tons and over.
2. Vessels 50m long and over.
3. Vessels engaged in towing or pushing with a combined gross tonnage of 300 gross tons and above, or with a combined length of 50m or greater.
4. Vessels of any tonnage carrying hazardous cargo in accordance with the definitions of paragraph 1.4 of Resolution MSC 43(64).
5. All passenger vessels fitted with VHF, regardless of length or gross tonnage.
6. Any category of vessels less than 50m long or less than 300 gross tons which are fitted with VHF and, in an emergency, uses the appropriate traffic lane or separation zone, in order to avoid immediate danger.

The operational area of STRAITREP covers the Strait of Malacca and Singapore Strait between longitude 100°40'E and longitude 104°23'E, as shown in Chartlet 1 and Chartlet 2. This area includes the routing system in the Strait of Malacca and Singapore Strait.

A STRAITREP shall be made to the appropriate VTS authority, as follows:

1. When entering the W limit of the STRAITREP operational area.
2. When entering the E limit of the STRAITREP operational area.
3. When crossing a line joining Tanjung Piai and Pulau Karimun Kecil.
4. When approaching from the S:
   a. Via Selat Riae—when abeam of Karang Galang Light.
   b. Via Selat Durian—when abeam of Pulau Jangkat Lighted Beacon.
5. When approaching from East Johor Strait—when abeam of Eastern Lighted Buoy.
6. When leaving a port or anchorage in the area
7. Prior to joining the traffic lane of the TSS.
8. A ship approaching from a direction other than stated in 1 through 7 above shall, upon reaching Sector 7, 8, or 9, report by giving the vessel's position as a bearing and distance from one of the following reference points:
   a. Pulau Iyu Kechil Light.
   b. Sultan Shoal Light.
   c. Raffles Light.
   d. Sakijang Lighted Beacon.
   e. Bedok Light.
   f. Tanjung Setapa Light.
   g. Horsburgh Light.

As an alternative, the position may also be given in latitude and longitude.

The format for a STRAITREP is, as follows:

Designator	Information	Remarks
A	Vessel name, call sign, and IMO Number (if available).	
C	Latitude (4 figures with N) and longitude (5 figures with E).	The format in C or D may be used.
D	True bearing (3 figures) and distance in nautical miles from identified landmark.	The format in C or D may be used.
E	Course (3 figures)	When requested by the VTS authority.
F	Speed, in knots and tenths of knots (3 figures).	When requested by the VTS authority.
P	Hazardous cargo on board.	Indicate if YES@ or NO@. If YES@, then indicate class, if applicable, and information in Q and/or R, as applicable.
Q	Defects, damage, deficiencies, or other limitations.	
R	Pollution or dangerous cargo lost overboard.	Give brief details. Indicate position as in C or D above.

The following designators contain information essential to meeting the operations of STRAITREP and shall be included in all STRAITREP reports—A, C or D, P, and Q or R.

The following designators are required when requested by the VTS authority—E and F.

A STRAITREP will be based on VHF voice radio communication. The call to the appropriate VTS authority shall be made on the VHF channel assigned to the sector where the ship is located, as follows:

STRAITREP Communications		
Sector	**VHF channel**	**VTS authority**
1 (Angsa)	66	Klang VTS
2 (Jugra)	88	Klang VTS
3 (Cape Rachado)	84	Klang VTS

STRAITREP Communications		
Sector	**VHF channel**	**VTS authority**
4 (Undan)	61	Klang VTS
5 (Segenting)	88	Klang VTS
6 (Piai)	88	Johor VTS
7 (VTIS West)	73	Singapore VTS
8 (VTIS Central)	14	Singapore VTS
9 (VTIS East)	10	Singapore VTS

The STRAITREP shall be submitted on that channel or on another available. All reports shall be transmitted in English.

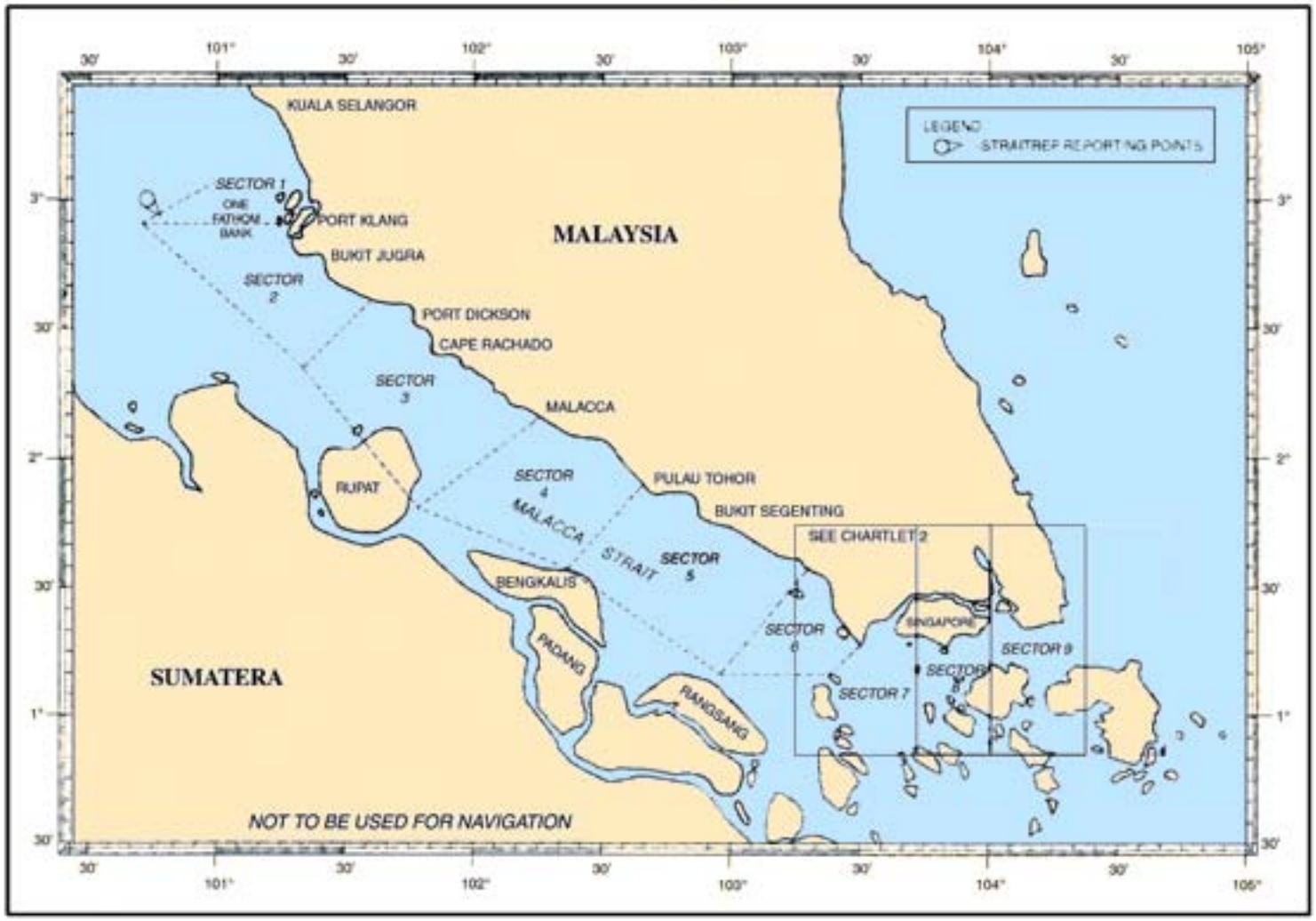
Depending on the sector, every ship shall also maintain a listening watch on the appropriate VHF channel of that sector. Information of general interest to ships will be broadcast on VHF channel 16 and any other channel as may be specified by the appropriate VTS authority. This broadcast will be preceded by an announcement on the appropriate VHF channel assigned to that sector.

STRAITREP also provides information to ships about specific and critical situations which could cause conflicting traffic movements and other information concerning the safety of navigation

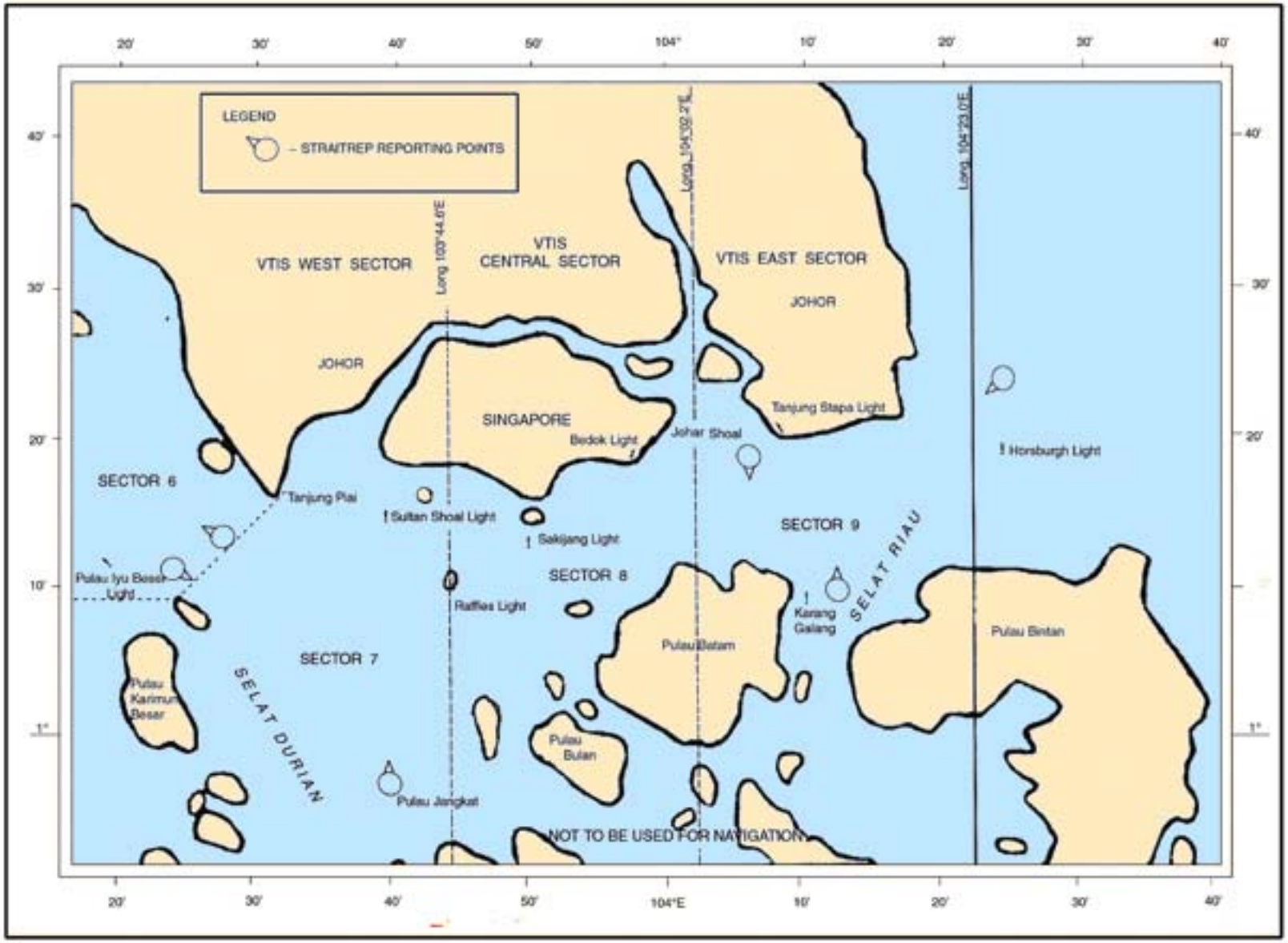
General

For information concerning the Vessel Traffic Information Service System (VTIS) for the Port of Singapore and the inner approaches, see Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

CHARTLET 1


KUALA SELANGOR
LEGEND
STRAITREP REPORTING POINTS
SECTOR 1
ONE FATHOM BANK
PORT KLANG
BUKIT JUGRA
MALAYSIA
SECTOR 2
PORT DICKSON
CAPE RACHADO
SECTOR 3
MALACCA
RUPAT
SECTOR 4
MALACCA STRAIT
PULAU TOHOR
BUKIT SEGENTING
SEE CHARTLET 2
SECTOR 5
BENGKALIS
SECTOR 6
SINGAPORE
SECTOR 9
SECTOR 8
SECTOR 7
PADANG
RANGSANG
SUMATERA
NOT TO BE USED FOR NAVIGATION

CHARTLET 2


LEGEND
– STRAITREP REPORTING POINTS
VTIS WEST SECTOR
VTIS CENTRAL SECTOR
VTIS EAST SECTOR
JOHOR
JOHOR
SINGAPORE
Bedok Light
Johor Shoal
Tanjung Stapa Light
Horsburgh Light
SECTOR 6
Tanjung Piai
Sultan Shoal Light
Sakijang Light
SECTOR 9
SECTOR 8
Raffles Light
Pulau Iyu Besar Light
SELAT RIAU
Karang Galang
Pulau Bintan
Pulau Batam
SECTOR 7
Pulau Karimun Besar
SELAT DURIAN
Pulau Bulan
Pulau Jangkat
NOT TO BE USED FOR NAVIGATION
Long 103°44.6'E
Long 104°32.2'E
Long 104°23.0'E
104°E

SOMALIA

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General

Somalia is located on the E coast of Africa and, with Ethiopia and Djibouti, is often referred to as the Horn of Africa.

The country is bounded on the N by the Gulf of Aden, on the E and S by the Indian Ocean, on the NW by Djibouti, and on the W by Ethiopia and Kenya.

The N part of the country is hilly, with elevations of up to 2,100m, while the central and S parts are flat and low.

The Guiba River and the Scebeli River rise in Ethiopia and flow S across Somalia; however, the latter river does not reach the ocean. Much of the country is arid, although rain is more adequate in the S part.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Navigational lights in Somalia have been reported to be unreliable.

Cautions

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Special Warning 132 (Issued 4 April 2015)

Information on Special Warning 132 can be found in **Yemen—Cautions**.

Special Warning 123 (Issued 11 November 2005; revised 24 November 2014)

1. Due to continuing conditions of armed conflict and lawlessness in Somalia and waters off its coast, mariners are advised to avoid the port of Mogadishu and remain at least 200 nautical miles distant from the Somali coast. The U.S. government does not have an embassy in Somalia and cannot provide services to U.S. citizens. Travelers to Somalia should enroll with the U.S. Embassy in Nairobi, Kenya. U.S. citizens traveling by sea to the area of high threat are urged to inform MSCHOA by emailing POSTMASTER@MSCHOA.ORG, with the subject line 'Yacht Vessel Movement.' The U.S. Embassy in

Nairobi is located on United Nations Avenue, Gigiri, Nairobi, Kenya; telephone (254)(20)363-6000; after hours emergencies (254)(20)363-6170. The mailing address is P.O. Box 606 Village Market 00621, Nairobi, Kenya.

2. Recent vessel hijackings off the E coast of Somalia demonstrate that pirates are able to conduct sea hijackings from as far S as Kismaayo (Chisimayu) (0°22'S.), though vessels are advised to transit no closer than 2°00'S, to as far N as Eyl (8°00'N.) and out to a distance of 170 miles. The first known attempt to hijack a cruise vessel occurred in November 2005. All merchant vessels transiting the coast of Somalia, no matter how far offshore, should increase anti-piracy precautions and maintain a heightened state of vigilance. Pirates are reported to have used previously-hijacked ships as bases for further attacks.

3. Another reported pirate tactic has been to issue a false distress call to lure a ship closer inshore. Therefore, caution should be taken when responding to distress calls keeping in mind it may be a tactic to lure a vessel into a trap

4. Victimized vessels have reported two to three (2-3) speedboats measuring six to nine meters (6-9m) in length. Each vessel has a crew of three to six (3-6) armed men with AK-47s and shoulder-launched rockets, which are opening fire on vessels in broad daylight in order to intimidate them into stopping.

5. To date, vessels that increase speed and take evasive maneuvers avoid boarding while those that slow down are boarded, taken to the Somali coastline, and released after successful ransom payment, often after protracted negotiations of as much as 11 weeks.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Piracy

Mariners are advised that acts of piracy and armed robbery by armed boarders are occurring off the coast of Somalia. Several incidents have been reported (2007) by vessels up to 190 miles off the coast.

Pirates apparently have lain in wait for potential victims, primarily waiting along shipping lanes for targets of opportunity. Pirates have previously been concentrated in an area bounded roughly by lines joining the following positions:

a. 1°00'N, 45°00'E.
b. 7°30'N, 49°30'E.
c. 7°30'N, 51°30'E.
d. 1°00'N, 51°30'E.

These boundaries reflect not only the area in which actual seizures have occurred, but also reflect the area in which known pirate attacks have occurred.

Based on distance from shore and weather conditions, it has been assessed (2007) that pirates may be utilizing a larger merchant vessel as a mother ship to launch attacks by small boats. Vessels are advised to stay at least 50 miles from position 1°20'N, 48°10'E until the mother ship threat has been fully evaluated.

General information on the timing of these attacks, based on 2005 statistics, is given below:

1. Attacks tend to occur in early daylight hours (0400 to 0900 UTC).
2. There have been fewer attacks in late daylight hours (0900 to 1200 UTC).
3. No attacks have been reported at night.
4. Attacks have been heaviest on Sundays, followed by Thursdays and Saturdays. Minimal attacks have occurred on Mondays or Tuesdays, with no reported attacks occurring on Wednesdays or Fridays.

The attacks have typically been carries out by multiple "fast boats" about 3 to 9m long. They typically approach from aft of their victim to maximize surprise in order to come alongside and board before the intended victim can increase its own speed. Although they approach from aft, the final attack has often been from multiple/different directions.

Vessels are advised to keep at least 200 miles from the coast of Somalia. Radio communications, including the use of VHF, should be kept to a minimum while in Somali waters.

Vessels are also cautioned that piracy tactics have included issuing false distress calls to lure a ship closer inshore. Caution should be used when responding to distress calls, as this may be a tactic used to lure a vessel into a trap. Vessels that increase speed and take evasive action are less likely to be boarded than those vessels who slow down.

It has also been reported (2007) that pirates may be using previously-hijacked vessels as bases for further attacks.

Maritime Security Patrol Area

The Commander, U.S. Navy Central Command has directed the establishment of a Maritime Security Patrol Area (MSPA) in the Gulf of Aden. For further information, see Red Sea and the **Persian Gulf—Cautions—Piracy—Maritime Security Patrol Area**.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Currency

The official unit of currency is the Somali shilling, consisting of 100 cents.

Government

Flag of Somalia

Somalia currently has no functioning government. The present political situation is one of anarchy, marked by interfactional fighting and banditry. The country is divided into 18 regions.

Somalia is nominally governed by a President elected by the National Parliament to a 4-year term. The President chooses the Prime Minister and the Cabinet, subject to approval by the National Parliament. The unicameral National Parliament consists of 275 members appointed by clan elders.

There is no national legal system; local legal procedures are based on a mixture of English common law, Italian law, Islamic law, and Somali customary law.

The capital is Mogadishu (Mogadiscio).

Holidays

The following holidays are observed:

January 1	New Year's Day
June 26	Independence Day of Northern Regions
July 1	Independence Day of Southern Regions

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are agriculture, sugar refining, textiles, and wireless communications.

The main exports are livestock, bananas, hides, fish, charcoal, and scrap metal. The main export-trading partners are the United Arab Emirates, Yemen, Oman, and India.

The main imports are manufactured goods, petroleum products, foodstuffs, construction materials, and qat. The main import-trading partners are Djibouti, India, Oman, China, and Kenya

Languages

Somali and Arabic are the official languages. English and Italian are also extensively used.

Navigational Information

Enroute Volumes

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Somalia are, as follows:

Territorial Sea *	200 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea.

Pollution

MARPOL Special Area

The Gulf of Aden has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Maritime Liaison Office (MARLO) Bahrain Recommended Reporting Procedures

U.S.-flagged vessels, vessels under effective U.S. control, and other maritime interests are advised to check in with the Maritime Liaison Office (MARLO) Bahrain 48 hours prior to entering the Gulf of Aden recommended transit corridor. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy in Mogadishu was closed in 1991. U.S. interests are managed by the U.S. Embassy in Nairobi, Kenya.

U. S. Embassy Kenya Home Page
http://nairobi.usembassy.gov

SOUTH AFRICA

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General

South Africa, located at the S extremity of the African continent, is bounded on the N by Namibia, Botswana, and Zimbabwe; on the NE by Mozambique and Swaziland; on the E by the Indian Ocean; and on the S and W by the South Atlantic Ocean.

South Africa has a narrow coastal zone and a vast interior plateau, 915 to 1,830m high, rimmed by rugged hills. The river mouths are unpromising due to the universal presence of large sandbars that block entry for most of the year. The Drakensberg Range, with peaks over 3,000m, rises in the SE part of the country.

The Prince Edward Islands, consisting of Marion Island and Prince Edward Island, were given to South Africa in 1947 by Great Britain and lie isolated in the South Atlantic Ocean, about 1,200 miles SE of Cape Town.

Lesotho, the former British colony of Basutoland, is a landlocked enclave within South Africa.

The climate is abundant with sunshine and relatively low rainfall. The SW part of the country has a Mediterranean climate, with rain mainly in the winter. It is subtropical along the E coast, with sunny days and cool nights.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Shark Nets

Shark nets made of polyethylene rope and twine, marked by red buoys, may be encountered at beaches around the S and E coasts of South Africa from Richards Bay (28°48'S., 32°05'E.) to Port Edward. The nets are laid about 20m apart and parallel to the coastline between 200 and 400m offshore, in depths of about 11 to 15m. These nets may or may not be charted. Vessels on passage are advised to remain at least 1 mile offshore in order to avoid them.

Freak Waves

An area in the Indian Ocean lying between the Cape of Good Hope and Durban has long been regarded as dangerous due to large swells and the occurrence, without warning, of abnormally high freak waves. For further information, see **Indian Ocean—Cautions—Freak Waves**.

Icebergs

Iceberg sightings near longitude 20°E have been reported as far N as 35°S. Although extremely rare, ice may be encountered near the S coast of South Africa.

Magnetic Anomaly

Abnormal variations have been reported to exist between Dumford Point (28°53'S., 32°00'E.) and Cape Vidal (28°08'S., 32°34'E.), especially in Saint Lucia Bay (28°23'S., 33°26'E.).

Currency

The official unit of currency is the rand, consisting of 100 cents.

Firing Areas

Defense exercises, including firing and bombing practices, take place within a number of areas lying off the coast of South Africa.

The principal types of practice include the following:

1. **Bombing practice from aircraft.—**Warning signals usually shown.

2. **Air-to-air and air-to-sea or ground firing.—**Air-to-air firing is carried out by aircraft at a large white or red sleeve, a winged target, or a flag towed by another aircraft moving on a steady course. Air-to-sea firing or air-to-ground firing is carried out from an aircraft at towed or stationary targets on sea or land. The firing in each case being directed seawards. As a general rule, warning signals are shown when the targets are stationary, but not when towed targets are used. All marine craft operating as range safety vessels, or towing targets, or managing radio controlled targets will display, for identification purposes while in or close to the danger area, a large red flag at the masthead and a painted canvas strip, 2m long and 1m wide, on the fore deck or cabin roof with red and white checkered squares.

3. **Antiaircraft firing.—**This may be directed at a target towed by an aircraft, a pilotless aircraft, a balloon, or a kite. Firing may take place from shore batteries or ships. Warning signals as a rule are shown from shore batteries and ships fly red flags.

4. **Firing from shore batteries or ships at fixed or floating targets.—**Warning signals, when given, usually consist of red flags by day and red fixed or red flashing lights at night. However, the absence of any such signals cannot be accepted as evidence that a practice area does not exist. Warning signals are usually shown from shortly before the practice starts until it stops. Ships and aircraft carrying out night exercises may illuminate with bright red or orange flares.

Vessels may be unaware of the existence of a practice area and may fail to observe the warning signals. However, the range authorities are responsible for ensuring that there should be no risk of damage to any vessels which may be in the practice area. If vessels find themselves to be within an area where practice is in progress, they should maintain their course and speed, and try to clear the area as quickly as possible.

Fishing vessels operating in or near firing practice and exercise areas may occasionally bring unexploded missiles or parts of missiles to the surface in their nets or trawls. These objects may be dangerous and should be treated with great circumspection.

Coastal radio navigational warnings are broadcast whenever military exercises take place.

Firing exercises are carried out in the following areas:

1. **Doringbaai (Papendorp)**—Antiaircraft weapons. Bound by lines joining the following positions:
   a. 31°42.4'S, 18°11.7'E.
   b. 31°37.5'S, 18°05.0'E.
   c. 31°44.0'S, 18°02.0'E.
   d. 31°50.0'S, 18°06.0'E.
   e. 31°52.0'S, 18°13.5'E.
   f. 31°43.5'S, 18°12.5'E.

2. **Saldanha (Langebaan Road Range)**—Air-to-air weapons. Bound by lines joining the following positions:
   a. 32°45.0'S, 17°40.0'E.
   b. 32°45.0'S, 17°49.0'E.
   c. 32°58.0'S, 17°55.0'E.
   d. 33°06.0'S, 17°56.0'E.
   e. 33°08.2'S, 17°58.0'E.
   f. 33°14.9'S, 18°05.8'E.
   g. 33°21.0'S, 18°09.0'E.
   h. 33°29.0'S, 18°04.5'E.
   i. 33°27.0'S, 17°59.0'E.
   j. 33°00.0'S, 17°40.0'E.

3. **Saldanha**—Air-to-air weapons. Bound by lines joining the following positions:
   a. 32°45.0'S, 17°49.0'E.
   b. 33°26.0'S, 18°05.0'E.
   c. 33°29.0'S, 17°54.0'E.
   d. 32°48.0'S, 17°38.0'E.

4. **Saldanha (North Head)**—Weapons. Bound by lines joining the following positions:
   a. 33°03'00.6"S, 17°54'30.6"E.
   b. 33°03'00.6"S, 17°53'13.8"E.
   c. 33°00'42.0"S, 17°53'07.8"E.
   d. 33°01'13.8"S, 17°54'15.0"E.

5. **Saldanha (Tooth Rock)—Jacobs Reef Bombing Area**—Air-to-ground weapons and test firing of illuminants. A circle, with a radius of 3.5 miles, centered on position 32°59.0'S, 17°51.0'E.

6. **Cape Point (Western Cape)**—Naval exercises. Bound

by lines joining the following positions:

a. 34°15.0'S, 18°23.0'E.
b. 34°24.0'S, 17°44.5'E.
c. The arc of a circle, with a radius of 50 miles and its center at position 33°58.1'S, 18°36.0'E, extending clockwise from position 34°24.0'S, 17°44.5'E to position 34°44.0'S, 19°00.0'E.
d. 34°30.0'S, 19°00.0'E.
e. 34°30.0'S, 18°48.0'E.
f. 34°15.0'S, 18°48.0'E.
g. 34°15.0'S, 18°28.3'E.

7. **Cape Point (Bellows Rock)**—Naval weapons. Rock in position 34°23.3'S, 18°29.6'E used as target.

8. **False Bay (Garden No. 1)**—Sound Testing Range. Bound by lines joining the following positions:

a. 34°08'36"S, 18°27'06"E.
b. 34°08'36"S, 18°28'15"E.
c. 34°09'36"S, 18°28'15"E.
d. 34°09'36"S, 18°27'06"E.

9. **False Bay (Garden No. 2)**—Sound Testing Range. Bound by lines joining the following positions:

a. 34°10'51.6"S, 18°27'06.6"E.
b. 34°10'52.8"S, 18°27'08.4"E.
c. 34°10'52.8"S, 18°27'00.6"E.
d. 34°10'54.0"S, 18°27'07.2"E.

10. **False Bay (Simon's Town)**—Seaward range. Bound by lines joining the following positions:

a. Arc of a circle, with a radius of 11 miles (20,384m) centered on position 34°10'30.0"S, 18°25'45.0"E, between the bearings of 254° and 291°
b. 34°15'00.0"S, 18°37'51.0"E.
c. 34°11'13.2"S, 18°26'19.2"E. (T-Wall)
d. 34°10'30.0"S, 18°25'45.0"E.

11. **False Bay (Swartklip)—**Test range. Bound by lines joining the following positions:

a. 34°04.4'S, 18°42.1'E.
b. 34°05.0'S, 18°41.0'E.
c. 34°06.0'S, 18°41.2'E.
d. 34°06.2'S, 18°45.3'E.
e. 34°05.0'S, 18°45.0'E.
f. 34°04.5'S, 18°43.9'E.

12. **False Bay (Simon's Town)**—Shallow water demolition range. Bound by lines joining the following positions:

a. 34°11'15.9"S, 18°26'39.0"E.
b. 34°11'19.0"S, 18°26'59.5"E.
c. 34°11'25.0"S, 18°26'56.4"E.
d. 34°11'23.0"S, 18°26'42.0"E.

13. **Cape Agulhas—DeHoop (Potberg)**—Weapons testing range. The sea area at right angles to the coast for a distance of 500m from position 34°30'28.2"S, 20°26'55.8"E to position 34°35'04.8"S, 20°21'49.8"E and the sea area that runs at right angles from the shore for a distance of 5,000m from position 34°35'04.8"S, 20°21'49.8"E to position 34°38'03.0"S, 20°16'10.2"E.

14. **Port Elizabeth (Cape Recife)**—Rifle range. Bound by lines joining the following positions:

a. 34°01.0'S, 25°39.0'E.
b. 34°01.0'S, 25°40.0'E.
c. 34°03.0'S, 25°40.0'E.
d. 34°03.0'S, 25°39.0'E.

15. **Durban**—Naval weapons. Bound by lines joining the following positions:

a. 29°51'54.0"S, 31°03'52.2"E.
b. 29°47'36.0"S, 31°20'24.0"E.
c. 30°00'00.0"S, 31°18'48.0"E.
d. 30°08'12.0"S, 31°07'42.0"E.
e. 29°53'45.0"S, 31°02'28.8"E.

16. **Saint Lucia**—Naval weapons. Bound by lines joining the following positions:

a. 27°42'57.0"S, 32°37'45.0"E.
b. 27°40'19.8"S, 32°31'00.0"E.
c. 27°52'34.8"S, 32°24'12.0"E.
d. 27°55'34.8"S, 32°24'30.0"E.
e. 28°03'49.8"S, 32°23'00.0"E.
f. 28°05'00.0"S, 32°27'49.2"E.
g. 28°05'30.0"S, 32°29'37.8"E.
h. 28°06'40.2"S, 32°33'34.8"E.
i. 28°07'19.8"S, 32°48'00.0"E.
j. 27°38'00.0"S, 32°54'00.0"E.
k. 27°38'00.0"S, 32°45'45.0"E.

17. Test firings of minor illuminants of various colors, with or without parachutes, frequently occur without warning along the coast in the vicinity of Swartklip (34°04.5'S., 18°41.2'E.).

Fishing Areas

Crayfish trap fishing is common along the Atlantic coast of South Africa. Mariners should navigate with caution when within 3 miles of the coast due to the presence of numerous anchored or drifting small fishing boats and their unlit bottom gear, marker buoys, and recovery lines. Vessels process their catch at night. During this period lighting on board may be poor and a large vessel not keeping a good lookout could easily run down a small craft without being aware of it.

Extensive fishing is carried out on the continental shelf of South Africa. Lighted and unlighted buoys marking trawler-fishing areas may be encountered.

Crayfishing is carried out seasonally, but may vary in time of year and location. In general it extends, as follows:

1. Port Nolloth area—15 October to 30 June.
2. All other areas—1 November to 30 June.

Fishing vessels often operate off Cape Agulhas (34°50'S., 20°01'E.) and should be given a wide berth.

Government

Flag of South Africa

South Africa is a republic. The country is divided into nine

provinces.

South Africa is governed by a President elected to a 5-year term by the National Assembly. The President appoints the Cabinet. The bicameral Parliament consists of the National Assembly, which is composed of 400 directly-elected members (using a system of proportional representation) serving 5-year terms, and the National Council of Provinces, which is composed of 90 indirectly-elected members (ten members elected by each provincial legislature) serving 5-year terms.

The legal system is based on Roman-Dutch law, English common law, and customary law.

The administrative capital is Pretoria. The legislative capital is Cape Town. The judicial capital is Bloemfontein.

Dependent Islands

Marion Island and **Prince Edward Island** (46°38'S., 37°56'E.), known as the Prince Edward Islands, lie about 1,200 miles SE of Cape Town and are the twin peaks of a submerged volcano. These two islands, which are usually surrounded by kelp, have a total area of 125 square miles and are separated by a passage, 11 miles wide.

The islands are bounded by rocky cliffs, which are generally low on the E side and high on the W. Marion Island, the southernmost, is covered by mosses, ferns, and peat bogs. Its volcanic peak is 1,230m high and covered by snow and ice. Prince Edward Island has a rounded summit, 672m high. Penguins, seals, and various birds, including albatrosses, inhabit the islands. Vessels approaching the islands from the NW should steer SE between them in order to pass clear of Solglimt Blinders (Aldebert Reef), a dangerous off-lying reef that may not break, even in calm conditions.

The island group is a possession of South Africa; a meteorological and radio station is situated on Marion Island. The climate is generally cloudy or dull with rain or snow on most days of the year and high winds.

Holidays

The following holidays are observed:

January 1	New Year's Day
March 21	Human Rights Day
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
Family Day	Variable
April 27	Freedom Day
May 1	Workers Day
June 16	Youth Day
August 9	National Women's Day
September 24	Heritage Day
December 16	Day of Reconciliation
December 25	Christmas Day
December 26	Day of Goodwill

Industries

The main industries are mining (platinum, chromium, gold, and diamonds), automobile assembly, metalworking, machinery, textiles, iron and steel, chemicals, fertilizer, foodstuffs, and commercial ship repair.

The main exports are gold, diamonds, platinum, other metals and minerals, and machinery and equipment. The main export-trading partners are China, the United States, Japan, Botswana, Germany., and Namibia

The main imports are machinery and equipment, chemicals, petroleum products, scientific equipment, and foodstuffs. The main import-trading partners are China, Germany, Saudi Arabia, the United States, and Nigeria.

Languages

The 11 official languages, in order of predominance, are IsiZulu, IsiXhosa, Afrikaans, English, Sepedi, Setswana, Sesotho, Xitsonga, Siswati, Tshivenda, and IsiNdebele.

English is the sole language of command in the armed forces.

Meteorology

Internet Weather Services

Marine forecasts are available in English from the South African Weather Service (http://www.weathersa.co.za).

Navigational Information

Enroute Volumes

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of South Africa are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines.

Offshore Drilling

Offshore oil and gas exploration production is carried out of the coast of South Africa, especially between Cape Agulhas and Durban, as follows:

1. Sable Oil Field (35°12.3'S., 21°18.4'E.).
2. Oribi Oil Field and Onyx Oil Field (35°14.0'S., 21°29.9'E.).
3. EM Control Buoy (34°54.8'S., 21°42.6'E.).

4. FA Production Platform (34°58.2'S., 22°10.2'E.).

Numerous underwater obstructions, as well as abandoned or suspended well heads, extending to a height of 4.6m above the sea bed, exist in these areas.

Pollution

General

Regulations are in force prohibiting the discharge of oil or oil mixed with any other substance into the internal or territorial waters of South Africa (12 miles from the coast), and any oil or mixture containing more than 100 parts per million of oil from the limit of the territorial sea to 50 miles from the coast.

MARPOL Special Area

An extensive area extending seaward from the W and S coasts of South Africa has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Indian Ocean—Pollution—MARPOL Special Areas**.

Pollution Sightings

Vessels navigating off the coast of South Africa or lying in an anchorage at the various ports are requested to report the following:

1. Oil slicks sighted.
2. Oil accidentally discharged.
3. Oil discharged in the interest of the safety of life at sea.
4. Vessels in distress likely to cause pollution.

Reports can be passed through any South African maritime radio station and should be addressed to The Principal Officer, Port Control, via VHF channel 16, at the South African Maritime Safety Authority (SAMSA) via MRCC Cape Town. SAMSA will ensure that MRCC Cape Town has an up-to-date duty roster for Principal Officers at the following ports:

1. Richards Bay.
2. Durban.
3. East London.
4. Port Elizabeth.
5. Mossel Bay.
6. Cape Town.
7. Saldanha Bay.

Reports of pollution incidents should contain as much of the following information as possible:

1. Name of person reporting the incident.
2. Telephone number (work/home) or other means of contact.
3. Date and time of observation.
4. Details of observation.
5. Location (latitude/longitude or position relative to the coastline).
6. Source and cause of pollution (name and type of vessel; collision or grounding).
7. Type and estimated quantity of oil spilled and the potential and probability of further pollution.
8. Weather and sea conditions.
9. Action taken or intended action in response to the incident.

The following is a guide as to the appearance of oil on the water and the method of reporting such oil:

1. Effect of the oil on the appearance of the water, given by one of the following conditions:
   - Condition 1—Barely visible under most favorable light conditions.
   - Condition 2—Visible as a silvery sheen on the surface of the water.
   - Condition 3—First trace of color may be observed.
   - Condition 4—Bright bands of color observed.
   - Condition 5—Colors begin to turn dull natural to color of oil.
   - Condition 6—Colors natural to color of oil.
2. Position.
3. Extent of the slick.
4. Weather or direction of the wind.
5. Vessel involved.

No master or crew member making or associated with a report of this type would be called upon to give evidence in a court of law if the vessel is due to sail before the trial.

MRCC Cape Town can be contacted, as follows:

1. Telephone: 27-21-938-3300
2. Facsimile: 27-21-938-3309
3. E-mail: mrcc.ct@samsa.org.za

Pollution Reports

The following information is required for a radio report of discharge of oil and/or damage to vessels when navigating within 50 miles of the coasts of South Africa and Namibia:

1. Name, call sign, official number, and port of registry.
2. Position, course, and speed.
3. Nature of damage (see note below).
4. Prevailing weather and sea conditions.
5. Whether bound for a port in South Africa.

If applicable, the particulars contained in the certificate which, in terms of Article VII of the International Convention on Civil Liability for Oil Pollution,1969, is required to be carried on board.

Note.—Damage to a vessel shall be deemed to have created the likelihood of a discharge of oil if it is of such a nature as to detrimentally affect, in any way, the vessel's seaworthiness or efficient working.

In addition to oil pollution, vessels not under command and vessels suspected of not being under innocent passage shall also be reported to SAMSA.

Regulations

General

Vessels should send their ETA at least 72 hours in advance (excluding Sunday and public holidays) to their port of destination, stating the following information:

1. Vessel length, freeboard, and draft fore and aft.
2. Details on any dangerous cargo.
3. Type and quantity of cargo being shipped, landed, or trans-shipped.
4. Bunkers and other requirements.
5. Factors affecting the safe entry and/or berthing of the vessel.
6. Is the vessel engaged in towing or salvage? If yes, further details are required.

Vessels should send their ETA to the appropriate Port Con-

trol on VHF channel 16 when within 20 miles of their destination.

Vessels at anchor within or near the port limits of South African harbors must maintain a continuous listening watch on VHF channel 16, unless in the area of a VTS System, when the watch should be on the appropriate designated frequency, as follows:

1. Saldanha Bay: VHF channel 12
2. Table Bay (Cape Town): VHF channel 14
3. Durban: VHF channel 9
4. Port Elizabeth/Ngqura: VHF channel 12
5. Richards Bay: VHF channel 12

Navigational safety calls, comprising the vessel's name, position, and intended course of action, are to made on VHF channel 16, or the appropriate VTS frequency, in the event of any of the following:

1. Risk of collision.
2. A call from another vessel indicating that a close quarters situation is developing.
3. Overtaking, or being overtaken, in a narrow channel.
4. Doubt about another vessel's intentions.
5. An obstruction or bend in the channel which may obscure approaching vessels.
6. In restricted visibility, approaching charted routes or groups of vessels.
7. If vessel is restricted in its ability to maneuver.
8. Approaching dredges and floating plants in restricted waters, which are not covered by a VTS system.
9. Leaving a berth, anchorage, mooring area, etc.
10. Any other occasion when a call could contribute to safe navigation.

Tankers

The following regulations, as promulgated by the South African authorities, concern the navigation of laden tankers.

In these regulations, a "laden tanker" means any tanker other than a tanker in ballast having in its cargo tanks residual cargo only.

In addition, "summer months" refers to that period from 16 October to 15 April and "winter season" refers to that period from 16 April to 15 October.

The winter zone boundary line is the northernmost limit of the South Winter Seasonal Zone, as defined by the International Convention on Load Lines, 1966.

The following rules apply to laden tankers navigating off the South African coast:

1. Laden tankers, westbound, should adhere to the following:
   a. Maintain a minimum distance of 20 miles off the following points:
      i. South Sand Bluff.
      ii. Bashee River (Mbashe Point).
      iii. Hood Point.
      iv. Cape Recife.
   b. Steer to pass through the westbound (northern) lanes of the Traffic Separation Schemes off FA Platform and the Alphard Banks and then maintain a minimum distance of 20 miles from the following points:
      i. Cape Agulhas.
      ii. Quoin Point.
      iii. Cape Point.
      iv. Slangkop Point.
      v. Cape Columbine.
2. Laden tankers, eastbound, should also maintain a minimum distance of 25 miles off when passing the points listed in 1a and 1b and, when between Cape Agulhas and Cape Recife, steer a course to pass through the eastbound (southern) lanes of the Traffic Separation Schemes off FA Platform and the Alphard Banks.
3. The following exemptions to the laden tanker rules apply:
   a. Vessels calling at Cape Town (Table Bay) to rendezvous with service craft or helicopters should follow the recommended routes until, in the case of laden tankers when proceeding W, Cape Point Light bears 000° at a distance of 20 miles. Vessels should then alter course towards a position where Slangkop Point Light bears 250° at a distance of 20 miles. Course may then be altered to the rendezvous area 6 miles W of Green Point Light.
   b. Laden tankers engaged solely between South African ports are exempted from the provisions of paragraphs 1 and 2 of these regulations and are to maintain a distance of 10 miles off the salient points of the coast, subject to weather, sea, and current conditions, when setting courses to their ports of loading and discharging.
   c. During the winter season, westbound laden tankers should maintain the minimum distance of 20 miles off the appropriate landmarks in paragraph 1a. However, on approaching the winter zone, they may remain within the summer zone as close to the separation zone as possible, and for the minimum period necessary, to ensure that they can remain on their summer loadline throughout. In the vicinity of FA Platform and the Alphard Banks, they are to adjust their course to pass through the westbound traffic lanes.

Proclaimed Guano Islands

It is prohibited to land on or disturb sea birds or seals between the high water mark and low water mark of the following Proclaimed Guano Islands:

1. Algoa Bay—Bird Island, Stag Island, Seal Island, and Black Rocks.
2. Mossel Bay—Seal Island.
3. Quoin Point—Quoin Rock.
4. Danger Point—Dyer Island and Geyser Island.
5. False Bay—Seal Island.
6. Hout Bay—Duikerklip.
7. Melkbos Point—Robbesteen.
8. Dassen Island.
9. Saldanha Bay—Jutten Island, Marcus Island, Malgas Island, Meeu Island, Skaap Island, Vondeling Island, and Jacob Rock.
10. Cape Columbine—Paternoster Rocks.
11. Lamberts Bay—Penguin Island.
12. Olifants River—Elephant Rock.
13. Prince Edward Island Group.

Quarantine

The standard quarantine message must be sent 48 hours prior to arrival.

Search and Rescue

The South African Department of Transport is responsible for coordinating search and rescue operations. MRCC Cape Town, located at Plattekloof near Cape Town, can be contacted, as follows:

1. Telephone: 27-21-938-3300
2. Facsimile: 27-21-938-3309
3. E-mail: mrcc.ct@samsa.org.za

Port control offices at the following major ports act as Maritime Rescue Coordination Subcenters (MRSC) operating under the control of MRCC Cape Town, as follows:

1. MRSC Saldanha Bay.
2. MRSC Cape Town.
3. MRSC Port Elizabeth.
4. MRSC East London.
5. MRSC Durban.
6. MRSC Richards Bay.

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

The South African Search and Rescue Organization (SASAR) is the responsible authority for coordinating the efforts of other means of search and rescue at the port captain's disposal; namely, tugs, police launches, and the resources of the South African Navy and Air Force. Commercial aircraft operated by affiliated organizations are also available when requested.

The National Sea Rescue Institute of South Africa (NSRI) has been established and is administered by the Department of Transport. The NSRI provides sea rescue facilities inshore and offshore at all ports and operates under the control of the South African Search and Rescue Organization (SASAR) through the port captains of the areas concerned. All NSRI vessels and boats, all of which are equipped with VHF radios, with some equipped with HF radios, are controlled by NSRI through its shore-based transmitters. Vessels range from 3 to 7m long rigid inflatables, for rapid response in inshore waters, to self-righting all-weather craft up to 13m long, which have an operating range of 50 miles.

The NSRI operates rescue stations at the following locations:

1. Agulhas.
2. Table Bay.
3. Bakoven.
4. Hout Bay.
5. Kommetjie.
6. Lambert's Bay.
7. Melkbosstrand.
8. Simon's Town.
9. Strandfontein.
10. Gordon's Bay.
11. Hermanus.
12. Stilbaai.
13. Mossel Bay.
14. Witsand.
15. Wilderness.
16. Knysna.
17. Plettenbergbaai.
18. Oyster Bay.
19. Port Saint Francis.
20. Port Elizabeth.
21. Port Alfred.
22. East London.
23. Jeffrey's Bay.
24. Port St. John's.
25. Port Edwards.
26. Shelly Beach.
27. Durban.
28. Richards Bay.

Ship Reporting System

South African Maritime Safety Authority (SAMSA) Reporting System

South Africa has implemented maritime security requirements through the *South African Merchant Shipping (Maritime Security Regulations, 2004* and the *International Ship and Port Facility (ISPS) Code*.

For further information on SAMSA, see Appendix I.

South African Ship Reporting System (SAFREP)

The South African Ship Reporting System (SAFREP) has been established to identify and monitor the positions and movements of vessels participating in the system within the SAFREP area. All vessels operating within the SAFREP area are welcome to participate in the system, although emphasis is placed on trading vessels of over 100 gt.

For further information on SAFREP, see Appendix II.

Signals

At times, it may be necessary to control the entrance of vessels into and the movement of vessels within certain ports of South Africa. The signals denoting the controls will be displayed from a conspicuous position in or near the port concerned and may also be displayed by examination or traffic control vessels. The signals are, as follows:

1. Entrance prohibited—
   a. Day signal—Three red balls, vertically disposed.
   b. Night signal—Three flashing red lights, vertically disposed.
2. Entrance permitted—The night signal is three green lights, vertically disposed.
3. Movement within the port prohibited—
   a. Day signal—A blue flag.
   b. Night signal—One green light between two red lights, vertically disposed.

Submarine Operating Areas

South African submarines may be encountered by day or at night while operating in the waters off the South African coast. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by local coastal radio stations.

Submarines frequently exercise off the SW coast of South Africa in an area generally bounded by lines joining the following positions.

a. 32°00'S, 16°00'E.
b. 32°00'S, 20°00'E.
c. 36°00'S, 20°00'E.
d. 36°00'S, 16°00'E.

South African submarines may be encountered on the sur-

face at night, particularly in the vicinity of the ports of Saldanha Bay, Cape Town, Simon's Town, Hout Bay, Port Elizabeth, East London, and Durban.

South African warships fly the International Code Group "NE2" to denote that submarines, which may be submerged or surfaced, are in the vicinity. Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

Warning Signals

A submarine submerged at a depth too great to show the periscope may indicate its position by means of an underwater lantern, which will illuminate the sea surface from below.

The following signals are used by submerged submarines while in submarine exercise area:

1. White smoke markers (with flare) indicate the position in response to a request from a ship or aircraft, or as required.
2. Green parachute flares (fired 130m into the air) indicate the position from which a practice torpedo has been fired. All vessels are requested to keep clear as the submarine may want to surface after the firing.
3. Red parachute flares (fired 130m into the air), which may be accompanied by smoke candles repeated as often as possible, indicate that vessels should keep clear as the submarine is carrying out emergency surfacing procedure. Vessels must not stop their propellers, but should clear the area immediately and stand by to render assistance.

Note.—If the red parachute flare is sighted and the submarine does not surface within 5 minutes, it should be assumed that the submarine is in distress and has sunk. An immediate attempt should be made to fix the position in which the signal was sighted, after which the actions to be taken in the event of a sunken submarine should be initiated. The flare and marker signals will float for 1 hour and then self-scuttle and sink.

4. Two white smoke signals released 3 minutes apart indicate that vessels should keep clear as the submarine is preparing to surface. Vessels must not stop their propellers and should clear the immediate vicinity.

Navigation Lights

The steaming and side lights of South African submarines appear to be placed well forward and very low above the water in proportion to the length and tonnage of these vessels. South African submarines are fitted with an amber quick-flashing light situated 1 to 2m above the steaming light as an aid to identification. This light will also be used when snorkeling. While at anchor or moored to a buoy at night, submarines display normal anchor lights.

The overall arrangements of submarine lights is unusual and may well give the impression of markedly smaller and shorter vessels. Their vulnerability to collision when proceeding on the surface dictates particular caution when approaching such vessels.

South African submarines may exhibit a quick flashing amber light showing about 80 flashes per minute.

Collisions with Submarines

Most submarine losses during peace time have been caused by collisions with other vessels. Submarines, with their low buoyancy factor, if involved in a collision, may sink or be unable to surface because of their ballast tanks being ruptured.

Because of their size and low profile, surfaced submarines are often difficult to see. Submarines operating at periscope depth are obviously even more difficult to detect.

A collision or suspected collision with a submarine must be reported by the fastest means available to the nearest coast radio station. The position of the collision, together with the estimated current, wind force, and sea state, as well as any other relevant information, must be included in the report.

The report should be sent by radio using emergency clearance procedures on distress or normal frequencies. The message can be passed direct to NAVCOMCENCAPE, via a coast radio station or harbor radio network, whichever is considered faster, as speed of handling is essential. The message will then be sent to the Submarine Operations Authority (SUBOPAUTH), Private Bag X1, Simon's Town, 7995 or signals address, Force Preparation Operations Center, telephone (Cape Town) 27-21-787-4126 or 27-21-787-4129, facsimile (Cape Town) 27-21-787-4002.

Sunken Submarine

A South African submarine which is bottomed and unable to surface will try to indicate its position by the following methods:

1. Releasing two life rafts, which are equipped with EPIRBS, as soon as the incident occurs.
2. By firing the smoke signals, described under **Warning Signals** above, on the approach of surface vessels and at regular intervals.
3. Pumping out fuel or lubricating oil.
4. Blowing out air.
5. Activating its sonar beacon.
6. Transmitting on its underwater telephone.

It may be impossible for a submarine to fire smoke candles. Correspondingly, a partially-flooded submarine may only have a certain number of smoke candles available and searching ships should not therefore expect many to appear.

Since oil slicks or debris may be the only indication of the presence or whereabouts of the sunken submarine, it is vitally important that surface ships refrain from discharging anything which appear to have come from a submarine while they are in the probability area. Searching ships and aircraft can waste valuable time investigating these false contacts.

Some South African submarine pyrotechnics can be fitted with message carriers. These may be recovered as soon as they have finished burning. The contents of the message, as well as the position and time of recovery, should be passed by the most rapid means of communication available to one of the following:

1. The nearest Naval vessel in the vicinity.
2. NAVCOMCENCAPE, Private Bag X1, TOKAI, 7966, telephone (Cape Town) (021-787-2911 or 021-787-2459) or by e-mail (navcomcen@sanavy.co.za).
3. COMFLEET, Naval Base, Simon's Town.
4. The nearest branch of the South African Police Service.

South African submarines are fitted with two life rafts, each fitted with its own EPIRB, which can be released from inside in case of emergencies or if for any reason the submarine is un-

able to surface. They are described later in this section under **Submarine Rescue Devices**.

South African submarines carry an indicator buoy that can be released if the submarine is unable to surface. It is cylindrical, about 0.6m long, about 0.2m in diameter, painted orange, and topped by an antenna.

In any submarine accident, time is the most vital factor affecting the chances for rescue of the survivors, and, as the sighting of life rafts may be the first intimation that an accident has in fact occurred, it is vital that no time should be lost in taking action.

The sighting of any smoke signals and/or life rafts should at once be reported at once to Naval authorities or a Port Office by the quickest available means. If known, the name of the submarine should be included in the report. However, if vessels are unable to establish communication without leaving the vicinity of the submarine, it should be borne in mind that the primary consideration should be for vessels to remain standing by to rescue survivors and not leave the scene of the accident.

South African submarines are equipped smoke signals and life rafts. It is therefore of the utmost importance that the position, together with the estimated current and the strength and direction of the wind at that position, and the time of first sighting of the buoy be accurately and speedily reported to the appropriate authorities.

At any time after a submarine accident, survivors may start attempting to escape. Current policy dictates that survivors will wait before escaping until:

1. Rescue vessels are known to be standing by,
2. Conditions inside the submarine deteriorate to such an extent that an escape must be attempted, or
3. It is determined whether or not a DSRV rescue is possible.

It should be noted that, in certain circumstances, condition 2 above may not arise through lack of air supply until several days after the accident. However, if the submarine is badly damaged, survivors may have to make an escape attempt immediately. On arrival at the surface, crew members may be exhausted or ill, and, if circumstances permit, the presence of a boat already lowered is very desirable. Some crew members may require a decompression chamber. Therefore, it is the aim of the authorities to get such a chamber to the scene as soon as possible.

Survivors escaping from a submarine may surface at a distance from the smoke signals and/or life rafts marking the submarine's position due to the effects of wind and current.

In order that those trapped in the submarine shall be made aware that help is at hand, naval vessels drop small charges into the sea which can be heard from inside the submarine. There is no objection to the use of small charges for this purpose, but it is vital that they are not dropped too close since crew members in the process of making ascents are particularly vulnerable to underwater explosions, and may easily receive fatal injuries. A distance of about 0.3 mile is considered to be safe.

If no small charges are available, the running of an echo sounder or the banging of the outer skin of the ship's hull with a hammer from a position below the waterline are likely to be heard in the submarine, and such banging and/or sounding should therefore be carried out at frequent intervals.

In summary, the aims of a submarine rescue operation are, as follows:

1. Fixing the exact position of the submarine.
2. Getting a ship standing by to pick up survivors, if practicable, with boats already lowered.
3. Getting medical assistance to survivors picked up.
4. Getting a diver's decompression chamber to the scene in case this is required by those seriously ill after being exposed to great pressure.
5. Informing the trapped crew that help is at hand.
6. Getting a Deep Sea Rescue Vessel (DSRV) to the scene of the submarine incident.

Submarine Rescue Devices

South African submarines are fitted with two life rafts, which can be released in case of emergency. Each life raft has the following characteristics:

1. The life raft pops out of a pressure-proof GRP container. The GRP container will be visible on the surface.
2. The life raft can carry 25 persons.
3. The life raft is tethered to the submarine by 600m of rope.
4. The life raft is fitted with the following devices:
   a. EPIRB.—An Emergency Position Indicating Radio Beacon is tethered to the life raft and is activated as soon as it comes into contact with sea water. The EPIRB transmits a signal of warbling notes on 406 MHz. Ships hearing this signal should report the fact, giving their position and, if possible, an indication of signal strength.
   b. SART.—The Search and Rescue Radar Transponder is used to locate survival craft or distressed vessels by creating a series of dots on a rescuing ship's radar display. The response frequency is 9.2 to 9.5 GHz.
   c. A portable VHF radio.

The submarine's sonar beacon serves to alert rescue authorities to the submarine's position and to provide a homing signal for the DSRV. It operates a at frequency of 3.5 khz and 12 kHz.

The submarine is fitted with an underwater telephone, which is capable of voice and Morse communications.

The DSRV is a mini-submersible capable of rescuing personnel from the submarine should the submarine have bottomed or fouled underwater. The submarine's forward hatch is configured to receive the DSRV skirt and form a watertight connection. This allows the forward hatch to be opened and for the trapped personnel to be transferred to the DSRV.

Time Zone

The Time Zone description is BRAVO (-2). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) in South Africa are, as follows:

1. Approaches to Port Elizabeth/Ngqura. (Government of South Africa)
2. Approaches to Saldanha Bay. (Government of South Africa)
3. Approaches to Table Bay. (Government of South Africa)
4. Alphard Banks (South of Cape Infanta). (IMO adopted)

5. Platform FA (South of Cape St. Blaize). (IMO adopted)

U.S. Embassy

The U.S. Embassy is situated at 877 Pretorius Street, Arcadia, Pretoria.

The mailing address is P.O. Box 9536, Pretoria 0001.

U. S. Embassy South Africa Home Page
http://za.usembassy.gov

Vessel Traffic Service

Vessel Traffic Services are in operation, as follows:

1. Saldanha Bay [1] (33°02'S., 17°59'E.).
2. Table Bay (Cape Town) [1] (33°54'S., 18°26'E.).
3. Durban [2] (29°53'S., 31°03'E.).
4. Port Elizabeth/Ngqura [2] (33°58'S., 25°39'E.).
5. Richards Bay [2] (28°48'S., 32°05'E.).

[1] For further information, see Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

[2] For further information, see Pub. 171 (Sailing Directions (Enroute) East Africa and the South Indian Ocean.

The following information applies to all South African Inshore VTS systems (as distinct from an offshore system; i.e., for Laden Tankers off the Alphard Bank), unless otherwise stated:

1. **Description.—**Participation in these VTS systems is mandatory for the following:

a. Vessels of 15m or more in length.

b. Towing vessels where the tow is 15m or more in length, or the overall length of vessel and tow is 30m or more.

c. Any passenger-carrying vessels.

d. All vessels carrying dangerous or pollutant cargo.

2. **Procedure.—**Vessels may be required to report the following information:

a. Vessel's name.

b. Call sign.

c. Position.

d. ETA at the Reporting Point of vessel entering the VTS zone.

e. Destination.

f. ETA at destination.

g. Whether any pollutant or dangerous goods cargo is carried on board or on any vessel or object being towed or pushed.

h. ETD from a berth.

i. ETA at a location requiring a report (such as a Reporting Point).

The above information must be reported, as follows, when:

i. Entering a VTS Zone.—Fifteen (15) minutes before entering a VTS zone, a vessel must apply for Traffic Clearance, stating 2a through 2g as specified above.

ii. Arriving at a Reporting Point (RP).—On arriving at an RP, a vessel must report 2a, 2c, and 2i as specified above.

iii. Arriving at a berth.—As soon as practicable after arriving, a vessel must report 2a and 2c as specified above.

iv. Departing a berth.—Five (5) minutes prior to departing a berth, a vessel must report 2a through 2c and 2e through 2h as specified above.

v. Immediately prior to departing a berth.—A vessel must report 2a, 2c, and 2i as specified above.

vi. Maneuvers.—Fifteen (15) minutes prior to commencing any maneuver listed below, a vessel must apply for traffic clearance stating 2a, and 2c as specified above, plus a description of their intended maneuvers:

A. Compass adjustment.

B. The calibration and servicing of navigational aids.

C. A sea trial.

D. A dredging operation.

E. The laying, picking up, and servicing of a submarine cable or navigation mark.

F. Any other maneuver that may be detrimental to safe navigation.

As soon as possible after the maneuver is completed, a description of the maneuver (just completed) must be communicated to the VTS Center.

3. **Incident Reports.—**Vessels should immediately report any of the following and include 2a and 2c as specified under Procedure:

a. An onboard fire that may impair safe navigation.

b. The involvement of the vessel in a collision, grounding, or striking that may impair safe navigation.

c. Any defect to the vessel's hull, main propulsion equipment, steering, radars, compass, radio equipment, anchors, or cables that may impair safe navigation.

d. Any discharge or threat of discharge of a pollutant from the vessel.

e. Another vessel in apparent difficulty.

f. The presence of any other vessel which may impede the movement of other vessels.

g. Any obstruction to navigation.

h. Any aid to navigation that is functioning improperly, damaged, off-position, or missing.

i. The presence of any pollutant in the water.

j. Any weather condition which may impair safe navigation.

Items g, h, and i need not be reported if the information has been previously reported by Notice to Mariners or Coastal Navigation Warnings.

4. **VHF Equipment Failure.—**In the event of VHF radio failure, the VTS Center should be alerted immediately by sending a message through a Coast Radio Station, another vessel, or by other means, stating that there is a failure and giving the vessel's position and destination.

5. **Note.—**All times should be given in local time.

Appendix I—SAMSA

South African Maritime Safety Authority (SAMSA) Reporting System

South Africa has implemented maritime security requirements through the South African Merchant Shipping (Maritime Security) Regulations, 2004 and the International Ship and Port Facility Security (ISPS) Code.

Certain vessels are required to submit either a pre-arrival report or a pre-entry report to the Maritime Rescue Coordination Center (MRCC) Cape Town at least 96 hours in advance of the vessel's ETA in its first South African port. If the vessel is arriving from a foreign port where the voyage time is less than 96 hours, the vessels must ensure that the pre-arrival/pre-entry information is sent in compliance with the 96-hour requirements and is updated when the vessel clears the last foreign port. The pre-arrival/pre-entry information required is, as follows:

1. Pre-arrival information is required from vessels on international voyages bound for South African ports, as follows:
   a. Foreign passenger vessels.
   b. Cargo vessels of 500 gross tons or greater.
   c. Mobile offshore drilling units (MODUs).
   d. Vessels calling at the Outer Port Limits (OPL) at a South African port for the transfer of stores, crew, landing an ill crew member, offshore bunkering, and any interaction between the vessel and the shore.
2. Pre-entry information is required from vessels bound for South African ports, as follows:
   a. Foreign-going South African passenger vessels.
   b. Cargo vessels of 500 gross tons or greater.
   c. Mobile offshore drilling units (MODUs) bound for a South African port.

The following vessels are exempt from the pre-arrival/pre-entry reporting requirements:

1. Fishing vessels.
2. Vessels used only for recreation or sport.
3. Government vessels on non-commercial voyages.
4. Coastal vessels not departing South African waters.
5. Vessels transiting South African territorial waters.

The information required must be in English. It must be in writing and must be transmitted to MRCC Cape Town. MRCC Cape Town will only accept reports directly from the vessel; no reports by voice communications will be accepted.

The preferred means of ship-to-shore communication for pre-arrival/pre-entry information reports must be by e-mail and sent as an attachment (Excel format) to MRCC Cape Town (pan@samsa.org.za). The vessel's name should be included in the subject line of the e-mail.

When a vessel transits between South African ports, pre-arrival/pre-entry information is only required if the vessel interfaces with another ship between ports or visits a port in another country. If this occurs, the pre-arrival/pre-entry information must be transmitted as soon as possible but at least 5 hours before the vessel's ETA.

Failure to submit complete and timely pre-arrival/pre-entry information could result in delays to the vessel. Failure to submit pre-arrival/pre-entry information will result in the vessel being denied entry to the port.

An amended report must be made, as follows:

1. If the ETA date changes. A change in time on the same date need not be reported.
2. If there has been a ship-to-port or ship-to-ship interface after the original report was made.
3. If any other information in the original report changes.

Any vessel arriving at the OPL of a South African port 12 hours later than the ETA given on a pre-arrival report must submit an amendment to its pre-arrival notification. Any vessels that has not arrived at the OPL of its first South African port indicated on its pre-arrival report within 108 hours of submitting its pre-arrival information and has not submitted an amendment will be required to submit a new pre-arrival notification.

MRCC Cape Town does not security-clear vessels. Its function is to check pre-arrival/pre-entry information reports to ensure relevance and completeness. If MRCC Cape Town has any questions reporting the vessel's report, it will communicate with the vessel by e-mail. MRCC Cape Town forwards reports to the Department of Transportation's Maritime Security Coordination Center (MSCC) in Pretoria, which is responsible for informing Port Security Officers (PSO) about a vessel's security clearance status. The vessel's agent is not allowed to contact the MSCC directly; agents should obtain security clearance information from the relevant PSO.

Port Security Officers are located in Cape Town, Durban, East London, Mossel Bay, Ngqura, Port Elizabeth, Richards Bay, and Saldanha.

Note.—It has been reported (2007) that vessels must also include full ETA details (date and time) of all port calls in South Africa, the name of the next port-of-call after leaving South Africa, and a detailed crew list. The crew list may not be sent as an attachment.

For further information, SAMSA can be contacted, as follows:

1. Telephone: 27-21-938-3300
2. Facsimile: 27-21-938-3309
3. E-mail: mrcc.ct@samsa.org.za
4. Web site: http://www.samsa.org.za

Pre-Arrival/Pre-entry Report Format	
Code Prefix	**Required Information**
A	Vessel name, call sign, port of registry, and current security level on board.
B	Time of report in UTC (6 digit group-DDHHMM). See **Note** below.

Pre-Arrival/Pre-entry Report Format	
Code Prefix	**Required Information**
C	Position (latitude is 4-digit group in degrees and minutes with N or S; longitude is 5-digit group in degrees and minutes E or W).
D	Type of vessel.
E	Course (3 digits).
F	Speed in knots and tenths (3 digits, with the decimal point omitted).
G	IMO number.
H	ISSC certificate on board (Y/N) and issuing authority.
I	Business name of vessel's agent at intended port of call.
J	Name of and ETA at first South African port of call and name of next port of call. See **Note** below.
P1	Last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P2	Second to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P3	Third to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P4	Fourth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P5	Fifth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P6	Sixth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P7	Seventh to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P8	Eighth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P9	Ninth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
P10	Tenth to last port of call, departure date (8-digit group-DDMMYYYY), ship security level, any special or additional security measures taken, and were appropriate security measures maintained during ship-to-ship activity in the port (Y/N).
Q	Name of registered owner or bareboat charterer, contact address, telephone number, facsimile number, and e-mail address, if applicable.
R	Name and rank of Ship Security Officer.
S	Name of Company Security Officer, contact telephone number, mobile telephone number, and e-mail address, if applicable.
U	General description of cargo on board and hazardous cargo as per the IMDG Code.

Pre-Arrival/Pre-entry Report Format	
Code Prefix	**Required Information**
W	Details of persons on board who are designated as crew, giving full name, surname, gender, date of birth (DDMMYYYY), nationality, travel document number, and document expiration date.
X	Details of persons on board who are designated as passengers, giving full name, surname, gender, date of birth (DDMMYYYY), nationality, travel document number, and document expiration date.
Y	Details of persons on board who are neither passengers nor crew, giving full name, surname, date of birth (DDMMYYYY), nationality, travel document number, and the reason they are on board.
Note.—There must be a time difference of at least 96 hours between Field B and Field J.	

Appendix II—SAFREP

South African Ship Reporting System—SAFREP

The South African Ship Reporting System (SAFREP) has been established to identify and monitor the positions and movements of vessels participating in the system within the SAFREP area. All vessels operating within the SAFREP area are welcome to participate in the system, although emphasis is placed on trading vessels of over 100 gross tons

Vessels within the SAFREP area are requested to provide regular position reports. This information, which is used to maintain a computer plot of the vessel's last position and to calculate future DRs, is used to:

1. Limit the search area for a rescue at sea.
2. Provide accurate information on shipping resources in the area, in the event of a marine casualty.

The SAFREP area is bound by lines joining the following positions:

a. 17°15'S, 11°45'E. (The mouth of the Kunene River—on the W coast of Africa at the Angola/Namibia border)
b. 17°15'S, 10°00'W.
c. The coast of Antarctica at longitude 10°00'W.
d. The coast of Antarctica at longitude 75°00'E.
e. 50°00'S, 75°00'E.
f. 50°00'S, 45°00'E.
g. 30°00'S, 45°00'E.
h. 30°00'S, 40°00'E.
i. 26°50'S, 40°00'E.
j. 26°50'S, 32°54'E. (Ponta do Ouro—on the E coast of Africa at the South Africa/Mozambique border)

The SAFREP coordinator can be contacted, as follows:

1. Signal address: SAFREPCC CAPE TOWN
2. Telephone: 27-21-787-2245.
3. Facsimile: 27-21-787-2473.

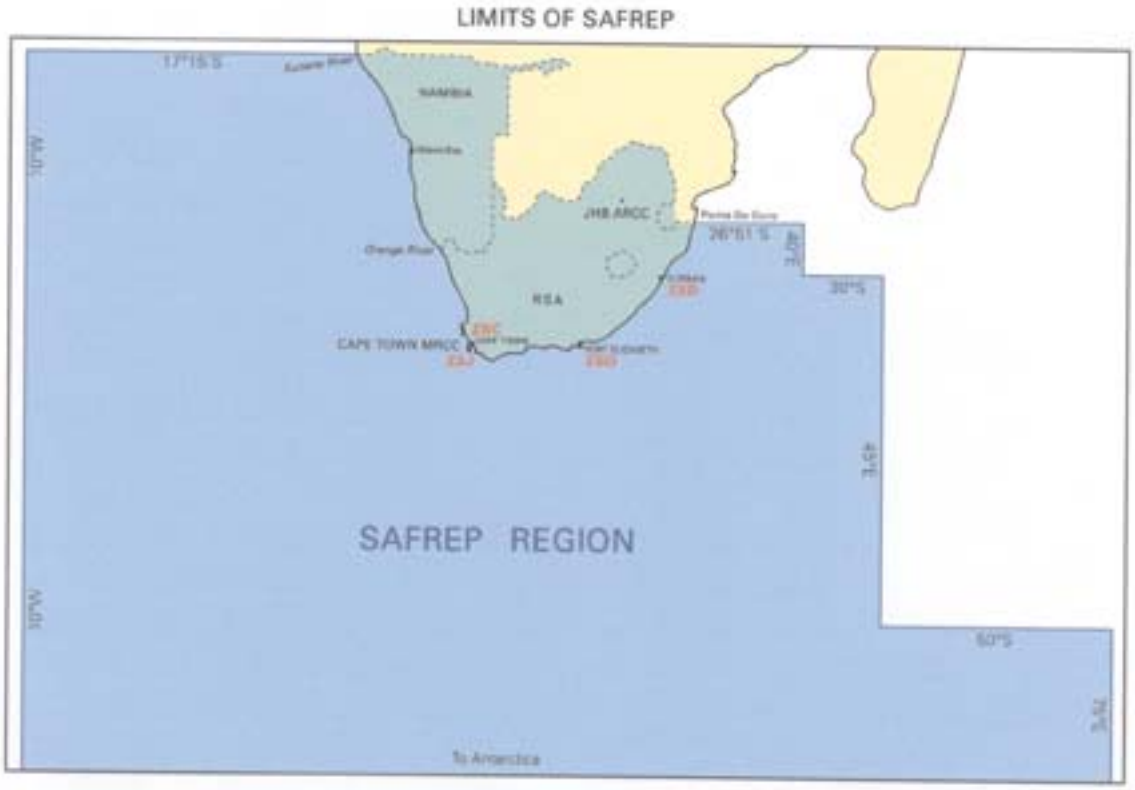
SAFREP operating principles.—The SAFREP system operates under the assumption that vessels transiting the SAFREP area will send, at a minimum, the following three basic reports to Cape Town Radio, who will, in turn, forward the information to MRCC Cape Town and other relevant authorities:

1. When entering the SAFREP area.
2. When crossing 20°E longitude S of Cape Agulhas.
3. When departing the SAFREP area.

Vessels wishing to report more frequently are encouraged to do so by submitting a Position Report (SAFREP PR), as this will increase the accuracy of the SAFREP computer plot.

Vessels should be aware that the SAFREP system is a passive reporting system. Should further SAFREP reports not be received from a vessel, SAR actions will not automatically be initiated.

Coastal vessels and vessels arriving at and departing from South African and Namibian ports will make Arrival Reports (SAFREP AR) and Departure Reports (SAFREP DPR) to Cape Town Radio. Ports of South Africa and Namibia are considered to lie outside the SAFREP area; when a vessel enters any of these ports, it is considered to have departed from the SAFREP area.



Message requirements.—Vessels participating in the SAFREP system are requested to send the reports listed below in Types of Reports. All reports should include the system identifier SAFREP and the code for the appropriate report (e.g. SAFREP PR). A report should be sent at least once every 2 days, especially when significant course and/or speed changes are made, in order to update the SAFREP computer plot and ensure a quicker response in the event of a maritime emergency.

Types of Reports.—The requested reports for vessels participating in the SAFREP system are, as follows:

1. **Sailing Plan (SAFREP SP)—**Sent to the SAFREPCC for any vessel entering the SAFREP area from a port outside South Africa or Namibia.
2. **Position Report (SAFREP PR)—**Sent when crossing 20°E longitude S of Cape Agulhas or when the master considers it necessary for updating the SAFREP computer plot.
3. **Final Report (SAFREP FR)—**Sent when leaving the SAFREP area bound for a port outside South Africa or Namibia.
4. **Arrival Report (SAFREP AR)—**Sent within 3 hours of a vessel arriving at a port in the SAFREP area.
5. **Departure Report (SAFREP DRP)—**Sent within 3 hours of a vessel departing from a port in the SAFREP area.
6. **Deviation Report (SAFREP DR)—**Sent when the vessel's position varies significantly from the position that would have been predicted from previous reports or as decided upon by the master.
7. The following reports are also sent in the event of a maritime incident:
   a. **Maritime Pollutants Report (SAFREP MP)—**Sent in the event of a pollution incident.
   b. **Dangerous Goods Report (SAFREP DG)—**Sent in the event of the loss of dangerous cargo.
   c. **Harmful Substance Report (SAFREP HS)—**Sent in the event of the discharge of a harmful substance.

Message Formats.—All reports should be sent in the standard reporting coded format. All reports should include the system identifier SAFREP and the code for the appropriate report (e.g. SAFREP SP). All dates and times entered in SAFREP reports are to be in Universal Coordinated Time (UTC). Message formats are given in the accompanying table titled **SAFREP—Message Formats**.

SAFREP—Message Formats

Identifier	Content	SP	PR	FR	AR	DPR	DR	DG	HS	MP
A/	Name/call sign/MMSI number/flag//—(for flag, use as defined in Lloyd's publications)	X	X	X	X	X	X	X	X	X
B/	Time (UTC)//—(date and time of report 6 digits-day of month 2 digits; hour and minutes 4 digits)	X	X	X	X	X	X	X	X	X
C/	Lat/Long//—(latitude is 4-digit group in degrees and minutes with N or S; longitude is 5-digit group in degrees and minutes E or W)	X	X	X	X		X	X	X	X
E/	Course//—(true heading is a 3-digit group)	X	X	X		X[1]	X		X	
F/	Speed//—(knots and tenths of knots e.g. 155=15.5)	X	X	X		X[1]	X		X	
G/	Port of departure//(name of last port of call)	X								
H/	Date/Time/Position of entry into the SAFREP area or name of port when departing a port in the SAFREP area//—(date and time as expressed in B; position as expressed in C)	X				X				
I/	Destination/ETA//—(port and ETA as expressed in B)	X	X	X		X	X			
K/	Date/Time/Position of departure from SAFREP area or name of the port when entering a port within the SAFREP area//—(date and time as expressed in B; position as expressed in C)			X		X[1]	X[2]			

SAFREP—Message Formats										
Identifier	**Content**	**SP**	**PR**	**FR**	**AR**	**DPR**	**DR**	**DG**	**HS**	**MP**
M/	Radio communications//—(Name(s) or call sign(s) of coast radio stations and frequencies guarded)	X				X[3]		X	X	X
O/	Draft//—(in meters)	X			X	X[1]				
P/	Pollution details, as described in the Key below							X[4]	X[5]	X[4]
Q/	Defects, damages, deficiencies, and other limitations//—(brief details)							X	X[6]	X[6]
R/	Pollution, dangerous cargo lost overboard//							X[7]	X[8]	X[7]
S/	Weather//—(sea state (1-9), wind speed (in knots), wind direction {N/NE/E/SE/S/SW/W/NW}, and visibility {good/moderate/poor})	X	X	X				X	X	X
T/	Vessel's agent//—(name and particulars)	X						X	X[9]	X[9]
U/	Vessel size/type//—(vessel's gross tonnage and type)	X						X	X	X
V/	Medical personnel//—(doctor, physician's assistant, nurse, or NIL)	X				X				
W/	Persons//—(State number of persons on board)	X				X				
X/	Remarks//—(Any other useful information)	X				X	X	X	X[10]	X[10]

Key	
X	Required information.
X[1]	When sailing from a port in the SAFREP area, this information is not required for coastal vessels but is required from vessels departing from a port outside South Africa or Namibia.
X[2]	This information is not required for coastal vessels.
X[3]	Coastal vessels sailing in the SAFREP area for the first time should include this information.
X[4]	**DG—**This information is required if the condition of the vessel is such that there is danger additional losses of packaged dangerous cargo into the sea. **MP—**This information is required in the event of probable discharge. The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo. Information not immediately available should be sent in a supplementary message or messages.

Key	
X^5	The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid substance on board. 2 UN number(s). 3 Pollution category (A, B, C) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 Quantity.
X^6	The following details should be included: 1 Condition of the vessel. 2 Ability to transfer cargo/ballast/fuel.
X^7	The following details should be included: 1 Correct technical name(s) of cargo. 2 UN number(s). 3 IMO hazard class(es). 4 Name(s) of manufacturer(s), when known, or consignee(s) or consignor(s). 5 Types of packages, including identification marks. Specify whether portable tanks or tank vehicles, whether vehicle or freight container, or other transport unit containing packages. Include official registration marks and numbers assigned to the unit. 6 An estimate of the quantity and likely condition of the cargo. 7 Whether loss is continuing. 8 Whether lost cargo floated or sank. 9 Cause of loss.
X^8	The following details should be included: 1 Type of oil or the correct technical name(s) of the noxious liquid discharges into the sea. 2 UN number(s). 3 Pollution category (A, B, C) for noxious liquid substances. 4 Name(s) of manufacturer(s) of substances, if appropriate, when known, or consignee(s) or consignor(s). 5 An estimate of the quantity of the substances. 6 Whether lost substances floated or sank. 7 Whether loss is continuing. 8 Cause of loss. 9 Estimate of the movement of the discharge or lost substances, giving current position, if known. 10 Estimate of the surface area of the spill, if possible.
X^9	Name, address, telex number, and telephone number of the vessel's owner and representative (charterer, manager, or operator of the vessel or their agent).
X^{10}	The following details should be included: 1 Action being taken with regard to the discharge and the movement of the vessel. 2 Assistance or salvage efforts which have been requested or which have been provided by others. 3 The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned. After the transmission of the information referred to in the initial report, as much as possible of the information essential for the protection of the marine environment as is appropriate should be reported in a supplementary message as soon as possible. That information should include items P, Q, R, S, and X. The master of any vessel engaged in or requested to engage in an operation to render assistance or undertake salvage, should report as far as practicable, using the standard reporting format, the following items: • **HS—**Items A, B, C, E, F, M, P, Q, R, S, T, U, and X. • **MP—**Items A, B, C, M, P, Q, R, S, T, U, and X. The master should also keep the coastal state informed of any developments.

The forward slash (/) should be used to separate each element of the component; the double forward slash (//) should be used at the end of each component. This facilitates the automatic entry of this information into the SAFREP computer data base. An example is:

SAFREP PR A/EXAMPLE/XXXX/12345678//B/... etc.

Reports should only include those components as listed in the SAFREP Message Formats table.

For reports submitted by telex or INMARSAT-C, all typing should be done in uppercase.

Transmission of Messages.—SAFREP messages can be sent through Telkom SA Ltd coast radio stations at Cape Town, Port Elizabeth, and Durban.

SOUTH ATLANTIC OCEAN

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General

The South Atlantic Ocean is bounded on the E by Africa, on the S by Antarctica, and on the W by South America. Its SE limit is considered to be the meridian of 20°00'E extending between Cape Agulhas and the Antarctic Continent. Its SW limit is considered to be the meridian of Cape Horn (67°16'W.) extending between Tierra del Fuego and the Antarctic Continent. The N limit is formed by the Equator and the NE limit by the SW border of the Gulf of Guinea., which extends from Cape Palmas, in Liberia, to **Cape Lopez** (0°38'S., 8°42'E.).

The Mid-Atlantic Ridge, an immense median mountain range, is the most outstanding feature of the ocean floor. It extends throughout the length of the Atlantic Ocean, claiming the center third of the sea bed and reaching 1,000 miles in width. A central valley, 900m deep, cuts into the crest of the ridge and extends its full length. This valley is intersected at nearly right angles by deep fissures which stretch from continent to continent. In some areas these fracture zones provide conduits for the flow of the deep waters from basin to basin. The area of the Mid-Atlantic Ridge includes the volcanic islands of Ascension, St. Helena, Tristan da Cunha, Gough, and Bouvetoya.

The Walvis Ridge extends in a SW direction from the African coast, in the vicinity of **Cape Frio** (18°26'S., 12°00'E.), to join the Mid-Atlantic Ridge in the latitude of Tristan da Cunha. Several banks lie along this ridge including **Valdivia Bank** (25°55'S., 5°30'E.), which has a least reported depth of 23m, and Wust Seamount, with a reported depth of 22m. Another ridge, the Biafra Ridge, extends SW from the Bay of Biafra. The Angola Basin, with depths of over 5,000m, lies between the Walvis Ridge and the Biafra Ridge. It possesses a generally flat and featureless bottom, except in the N part, where there are a series of seamounts with minimum depths of about 77m.

Cautions

Abnormal Refraction

Extraordinary refraction occurs at times near the coast, especially near the shores of Namibia and South Africa, which may be sufficient to produce mirages. This refraction is likely to cause errors when taking sights.

Prediction and Research Moored Array in the Atlantic (PIRATA) Buoys

The National Oceanic and Atmospheric Administration (NOAA) maintains an array of PIRATA buoys, in the equatorial Atlantic Ocean. PIRATA buoys are white and orange toroid buoys, 2.3m in diameter and surmounted by a 4m high instrument tower, with radar reflectors, and visible on radar at ranges of 4 to 8 miles, depending on conditions; the buoys, which

should be given a berth of 5 miles, are located in the following positions:

a. 6°00.1'S, 8°00.4'E.
b. 0°01.0'S, 0°00.5'E.
c. 0°01.2'N, 9°49.7'W.
d. 6°02.3'S, 10°00.5'W.
e. 9°54.6'S, 9°59.1'W.
f. 4°02.2'N, 22°59.1'W.
g. 0°00.5'S, 22°59.2'W.
h. 7°58.0'S, 30°35.1'W.
i. 13°30.9'S, 32°35.5'W.
j. 18°52.0'S, 34°41.4'W.
k. 0°01.6'N, 34°59.1'W.
l. 4°00.3'N, 37°55.5'W.

Banks and Seamounts

The Cape Rise consists of a series of isolated seamounts and plateaus extending from Protea Seamount, about 150 miles SW of Cape Agulhas, to Andre Seamount, located about 600 miles further SW. The Cape Basin is bounded by the Walvis Ridge, to the NW, and Cape Rise, to the SE and S. The floor of the basin is somewhat irregular in depth. Vema Seamount, with a least depth of 11m, lies about 400 miles WSW of the mouth of the Orange River.

The deep sea bottom normally consists of inorganic red clay or the organic oozes that have been derived from decayed pelagic and benthic organisms.

The continental shelf lying off the W coast of South Africa is generally very narrow, with long stretches being less than 50 miles in width. This shelf disappears between 13°S and 16°S. At the mouths of the Congo River and the Orange River and off Walvis Bay, the shelf has widths of 70 to 100 miles. A sandy bottom predominates along the shelf, often occurring over inshore rocks, while mud is dominant beyond the shelf. The Congo Submarine Canyon crosses the entire shelf, the sediment being muddy in the vicinity of the mouth of the Congo River.

The continental shelf lying along the E coast of South America extends to a maximum width of 270 miles in the vicinity of the **Golfo de San Jorge** (46°00'S., 65°30'W.). To the N, the shelf decreases in width and reaches a minimum of 6 miles off **Salvador** (12°58'S., 38°30'W.). It increases again to a width of 150 miles off the mouth of the Amazon River.

There are numerous off-lying islands, banks, and seamounts along the E coast of South America. **Penedos de Sao Pedre e Sao Paulo** (0°55'N., 29°21'W.), an isolated group of rocks, lies on the SE most of a chain of three seamounts which extend 230 miles NW. This group is also the SW most of a chain of four seamounts that extend 320 miles NE.

Arquipelago de Fernando de Noronha (3°52'S., 32°24'W.) lies at the end of a chain of banks and seamounts, which includes Atol das Rocas. This chain extends 200 miles NE from Cabo de Sao Roque, the NE extremity of the continent.

Numerous banks and dangers, including **Arquipelago dos Abrolhos** (17°58'S., 38°42'W.), extend up to 210 miles offshore between 15°S and 22°S. These dangers culminate in a chain of banks and seamounts extending over 600 miles E and terminating in **Ilhas Martin Vaz** (20°31'S., 28°51'W.).

The Bromley Plateau is a wide area with depths of less than 2,000m. It has a minimum depth of 598m and lies 500 to 700 miles SE of **Cabo Frio** (23°01'S., 42°00'W.).

Currents—Gulf of Guinea

Solitions (internal waves), which can give rise to extremely rapid current changes of 3 to 4 knots in opposing directions over a distance of 300 to 400m, have been experienced in the Gulf of Guinea. This phenomenon can be extremely hazardous to vessels conducting offshore operations.

Solitons are believed to affect installations more than 10 miles off the coast and can have serious adverse effects on vessels operating in tandem, vessels at anchor, or vessels moored to offshore buoys or oil installations by causing mooring failures, collisions, or dragging anchors.

Solitons appear as alternate bands of smooth and rippled water at intervals of about 200 to 300m stretching across the surface of the water; they can be identified on X-band radar as parallel bands on the screen. Solitons tend to form on the leading edge of the incoming tide and generally travel from SW to NE, but they may be experienced from any direction. Occasionally solitons may be very localized.

Fishing

Numerous fishing vessels may be encountered year round off the coast of West Africa. In addition, vessels should navigate with caution when within 3 miles of the shore on account of the existence of small fishing craft. These boats may be anchored or drifting with unlit bottom gear, crayfish traps, marker buoys, or numerous recovery lines.

High Waves—Benguela Current

There is a sharp persistent wave height anomaly in the midst of the Benguela Current. The continued existence of the phenomenon for wave heights greater than 6m is of particular interest. The winds from larger storms which generate those high waves appear to be reinforced by the same mechanisms that reinforce the day-to-day general circulation. Very few other areas of the world ocean show a climatological macroscale wave structure with such sharp regular gradients. Generally, waves are heightened and steepened when winds oppose ocean surface currents, which is not the case in the Benguela Current wave anomaly, where the waves follow the winds.

The driving mechanism for the steady high winds is the semi-permanent South Atlantic Ocean subtropical high-pressure area. Subtropical highs are extremely persistent features of the general circulation. The E portions of these high-pressure systems are observed to be marked by subsidence, high stability, and steady winds. Augmenting these effects in the case of southwest Africa are the following:

1. A high plateau on the continent effectively cuts off zonal flow and channels the winds along the axis of the Benguela Current.
2. A thermal low over the continent intensifies the pressure gradient along the coastal area and, therefore, intensifies the winds.
3. Coastal upwelling, which results from the longshore (equatorward) component of wind and the Coriolis effect, causes cold sea-surface temperature and, therefore, cold surface air temperature. This cold relatively dense air offshore helps maintain a strong pressure gradient and, therefore, strong winds. The high degree of stability, resulting from cool air near the surface, helps maintain the steady direction of the surface flow.

Kelp

Vessels should not pass over kelp, as it is always a sign of danger unless the spot where it grows has been carefully sounded. The least depth will usually be found within a clear spot in the middle of a thick patch of fixed kelp. Live kelp usually indicates depths of less than 18m.

ODAS Buoys

The term Ocean Data Acquisition System (ODAS) covers a wide range of devices for collecting weather and oceanographic data. However, the devices of most concern to vessels consist of buoy systems which support instruments. These buoy systems may be expected to become more numerous each year and may be found in most oceans.

The buoy systems vary considerably in size and are either moored or free-floating. As far as possible, positions of the former will always be widely promulgated, and, if considered to be of a permanent enough nature, will be charted. In both types, the instruments may be either in the float or attached at any depth beneath it. The buoys are colored yellow and marked ODAS with an identification number. The moored buoys usually display a yellow light, showing a group of five flashes every 20 seconds. ODAS may be encountered in unexpected areas and often in deep water where navigational buoys would not be found. It should be noted that valuable instruments are often suspended beneath these systems or attached to the mooring lines. In some cases, the moorings have been cut loose beneath the buoy by unauthorized persons, with the consequent loss of the most valuable part of the system. The moored buoys may be up to 7.5m in diameter and 2 to 3m in height. The free-floating buoys are usually much smaller, 2m wide, and do not display a light.

Piracy

The security of vessels off the West African coast and at some ports is a serious problem. Numerous attacks by gangs of thieves, some of whom were armed, have occurred. These attacks generally took place in the outer roadsteads, but some were carried out on vessels berthed alongside, anchored in inner harbors, or at sea. In addition to the loss of property and injury to crew members, the thieves used naked lights for illumination which created a serious fire risk.

Vessels are further cautioned to be especially alert for pirates in the waters off Benin, Cameroon, Ivory Coast, Nigeria, Togo, Democratic Republic of Congo (Zaire), and the island of Bioko (Equatorial Guinea).

The International Maritime Bureau (IMB) of the International Chamber of Commerce has established a Piracy Countermeasures Center at Kuala Lumpur. This center operates for the Southeast Asian Region and is able to receive reports from vessels concerning attacks and advise of danger areas. Piracy warnings are broadcast by the center. For further information, see **Malaysia—Cautions—Piracy**.

Guidance regarding practices recommended for vessels operating in high risk areas have been published by the International Maritime Organization's (IMO) Revised Maritime Safety Committee (MSC) Circulars.

IMO Revised MSC Circulars

http://www.imo.org/safety/mainframe.asp?topic_id=114

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.

The following MARAD Advisories are in effect in the geographic area of the South Atlantic Ocean:

1. MARAD Advisory 2016-3 (issued 13 September 2016)—Zika Virus.
2. MARAD Advisory 2013-5 (issued 23 July 2013)—High Risk Waters of the Gulf of Guinea.
3. MARAD Advisory 2005-1 (issued 22 July 2005)—Reporting Maritime Terrorist Incidents.

Maritime Administration (MARAD) Home Page

http://www.marad.dot.gov

Rollers—West Coast of Africa

There are few places on Earth that are exposed to such heavy surf as the W coast of Africa and the offshore islands, including Ascension and St. Helena. This surf results from deep swells generated by distant storms. On the lower Guinea and Moroccan coasts it is called "Raz de Maree."

During the S winter, these swells are generated by the circumpolar storms of the "roaring forties" and "whistling fifties." This SW swell extends to the Equator and sometimes across it. It is reinforced by the Southwest Monsoon, creating high seas along the upper Guinea coast, particularly at times of full and changing moon. From Pointe Noire to Mocamedes conditions are worst from July through September; it is dangerous to anchor in open bays where water is shallow. Along the coast of southwest Africa, the rollers frequently set in from the WSW with great fury as a heavy surf pounds the shore. On the W coast of the Province of Good Hope, even in calm weather a SW swell keeps up a constant surf. The rollers on Ascension Island and St. Helena Island break with great violence on leeward shores. Rollers have also been noted in December and January from the NW, triggered by distant storms in the North Atlantic.

Magnetic Anomalies

Local magnetic anomalies have been reported in the areas listed in the table titled **Local Magnetic Anomalies**.

Local Magnetic Anomalies

Angola	Baie dos Tigres (16°36'S., 11°46"E.)
	Ponta dal Palmeirinhas (9°04'S., 13°00'E.)
Cameroon	Off Limbe (3°47'N., 9°06'E.)
	Off Cap Cameroon (3°55'N., 9°29'E.)
Namibia	Ewing Seamount (23°15'S., 8°15'E.)
Saint Helena	Munden's Point (15°55'S., 5°43'W.)

Local Magnetic Anomalies	
Sao Tome and Principe	Baie de Santo Antonio (1°39'N., 7°26'E.)
	Fernao Dias (0°25'N., 6°41'E.)
	Ponta Praiao (0°18'N., 6°46'E.)
South Africa	Cape Columbine (32°50'S., 17°51'E.)
Tristan da Cunha	Edinburgh Anchorage (37°03'S., 12°19'W.)

Special Warning 120 (Issued 16 November 2001; reviewed 20 November 2014)

1. Due to recent events in the Middle East and the American homeland, U.S. forces worldwide are operating at a heightened state of readiness and taking additional defensive precautions against terrorist and other potential threats. Consequently, all aircraft, surface vessels, and subsurface vessels approaching U.S. forces are requested to maintain radio contact with U.S. forces on bridge-to-bridge channel 16, international air distress (121.5 MHz VHF), or MILAIR Distress (243 MHz UHF)
2. U.S. forces will exercise appropriate measures in self-defense if warranted by the circumstances. Aircraft, surface vessels, and subsurface vessels approaching U.S. forces will, by making prior contact as described above, help make their intentions clear and avoid unnecessary initiation of such defensive measures.
3. U.S. forces, especially when operating in confined waters, shall remain mindful of navigational considerations of aircraft, surface vessels, and subsurface vessels in their immediate vicinity.
4. Nothing in this special warning is intended to impede or otherwise interfere with the freedom of navigation or overflight of any vessel or aircraft, or to limit or expand the inherent self-defense right of U.S. forces. This special warning is published solely to advise of the heightened state of readiness of U.S. forces and to request that radio contact be maintained as described above.

West African Gas Pipeline

The West African Gas Pipeline is laid from the Ghanian coast 7.5 miles NE of Takoradi (4°53'N., 1°45'W.), through the coastal waters of Togo and Benin, to the Nigerian coast 6.75 miles ESE of Badagri (6°25'N., 2°53'E.). The position of the pipeline, which lies from 6 to 15 miles off the coast in depths of 12 to 60m, is best seen on the chart.

The pipeline is not buried in the sea bed; depths in the vicinity of the pipeline may be as much as 2m less than charted.

Vessels are advised to use caution when anchoring and to avoid anchoring within 1 mile of the pipeline. Local authorities may establish prohibited anchorage areas in the vicinity of the pipeline.

Maritime Administration (MARAD} Advisories

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The following MARAD Advisories are in effect in the geographic area of the South Atlantic Ocean:

1. MARAD Advisory 2014-3 (issued 13 November 2014)—Ebola Guidance Update.
2. MARAD Advisory 2014-2 (issued 2 September 2014)—Ebola Virus.
3. MARAD Advisory 201335 (issued 25 July 2015)—High Risk Waters in the Gulf of Guinea.

Maritime Administration (MARAD) Home Page

http://www.marad.dot.gov/newsroom

Climatology

General

As the climate of the land depends upon its proximity to the ocean, so is the ocean's climate regulated by land distribution. Since the Southern Hemisphere lacks the large land masses of the Northern Hemisphere, many differences occur in the climate of the oceans.

In the South Atlantic Ocean, the result is less variability in climate, both seasonally and latitudinally, than its North Atlantic Ocean counterpart. With no land protection from colder high-latitude seas, the South Atlantic Ocean is generally colder, particularly to the S of 30°. However, Antarctica is the sole source of frigid air and the surrounding oceans quickly modify any outbreaks before they reach the lower latitudes. The lack of land also allows low pressure systems to travel a circumpolar route S of 50°S. The seasons in the Southern Hemisphere are the reverse of those in the Northern Hemisphere.

The Naval Research Laboratory Monterey, a corporate research laboratory for the United States Navy and Marine Corps, publishes port studies and forecaster handbooks that may be of use to the mariner. These publications can be accessed at the Naval Research Laboratory web site.

Naval Research Laboratory Monterey Home Page

http://www.nrlmry.navy.mil/pubs.htm

The African Severe Weather Port Guide contains information on the following ports:

1. Cameroon—Douala and Limbe.
2. Gabon—Port Gentil.
3. Sao Tome and Principe—Sao Tome.
4. South Africa—Cape Town.
5. Togo—Lome.

West Coast of Africa

General.—The South Atlantic Anticyclone is the dominant pressure system in this area. Its influence, which varies seasonally, covers a general range of latitudes from 10°S to 35°S. To the N lies the equatorial trough. The extreme S portion of the area, under the influence of the circumpolar westerlies, is besieged with extra-tropical lows which, with associated frontal systems, influence weather as far N as the S tip of Africa.

The equatorial trough is a belt of low pressure lying between the South Atlantic Anticyclone and North Atlantic Anticyclone. Its most important feature is the Inter-tropical Convergence Zone (ITCZ), which represents the area of convergence of the Northern Hemisphere's Northeast Trade Winds with the Southern Hemisphere's Southeast Trade Winds. Although the ITCZ is not found at the surface in the Southern Hemisphere, its effects are felt well into the area due to its S slop aloft. Its effect is most evident in the summer (December-March), when the equatorial trough lies just N of the Equator. In the winter (June-September), the equatorial trough moves to near 20°N, and only the portion of the area N of the Equator is affected.

The almost continual W flow S of 35°S restricts most extra-tropical lows poleward of this latitude. The mean track of these small intense cyclones is just below 50°S. The high frequency of these storms which encircle the globe gives rise to the expressions "roaring forties" and "whistling fifties." Occasionally, frontal systems associated with these lows will affect the S tip of Africa and the waters to the W. These fronts are much the same as experienced in the North Atlantic Ocean. Warm fronts are for the most part ill-defined, with stratiform precipitation and clouds, while the cold front is generally well marked and sometimes violent. The cold front is usually accompanied by heavy overcast skies, rain, strong winds, and often squalls, with a sharp backing of winds and a rise in pressure with the frontal passage. Frontal activity can be expected as far N as 25°S.

Winds.—The most significant of the local wind regimes along the coast is the Southwest Monsoon. This large-scale sea breeze occurs in the N sections over the Gulf of Guinea and adjacent coasts extending 100 to 200 miles inland. It is strongest during the northern summer (June-August), but is prevalent year-round. The monsoon is a deflection of the Southeast Trade Winds toward the heated continental interior. Its influence is felt to about 10°S and acts very much like the land-sea breeze regime. At Douala, for example, while SW winds are prevalent during the afternoon, their frequency drops to 5 per cent during the early morning hours.

The harmattan, a hot dry wind of continental origin from the NE quadrant, reaches the shores of the Gulf of Guinea and extends seaward. It is prevalent from December through early March and is usually laden with fine dust which can seriously impair visibility in the form of haze. This may occur at times when other than a NE wind is blowing, since the harmattan may be forced aloft by the Southwest Monsoon, but the dust will still settle out. The harmattan is found mainly from Cape Palmas to Douala.

From Luanda to Alexander Bay the land-sea breeze regime is part of the daily weather throughout the year. During the day, the land heats faster than the water, resulting in an onshore circulation known as the sea breeze. At night, the land cools faster than the water, resulting in an offshore circulation known as the land breeze. Along this coast from late morning to about 2100, a SW or W breeze is prevalent. The land breeze begins from the E or SE around midnight and becomes light and variable by morning.

South of Walvisbaai to Cape Town, land and sea breezes are a part of the seasonal weather picture. The sea breeze is most prevalent during the summer (December-March), while the land breeze is most prevalent during the winter (June-September).

Although the land-sea breeze regime produces wind speeds which average from 8 to 12 knots or less, the section of the coast from Walvisbaai to Alexander Bay occasionally experiences gale-force winds from this effect combined with prevailing winds. The sea breeze is capable of attaining speeds of 40 to 50 knots along this stretch of coast, particularly from October to March.

The African coast from southern Angola S is subject to berg (foehn-type) winds, which blow down from inland plateaus at nearly right angles to the coast. These hot dry winds usually come from an E or NE direction. They are gusty and sometimes strong, reaching 20 knots or more. Berg winds usually last for a few hours, but can continue for several days at a time. They generally do not extend beyond coastal waters. Although most frequent in spring and fall, they can occur any season.

A local wind, occurring from the Congo River N, is known as a tornado. This should not be confused with the phenomena known by the same name which occurs in the United States. African tornadoes are violent wind squalls often accompanying thunderstorms. They are most frequent from January to early May and from September to November. Tornadoes can originate either on land and move seaward or over water and move onshore.

Indication of the approach of a tornado is a dark bank of cumulonimbus clouds, with tops reaching 6,100m or more. The barometer gives no warning. At the base of the cloud bank there is usually a roll of low cloud. The atmosphere is still and oppressive; the line approaches at about 10 to 25 knots. As the roll of low cloud passes overhead, there is a sudden wind squall with gusts to 50 knots or more; a few minutes later rain begins, accompanied by thunder and lightning. The rain is often heavy and may reduce visibility to practically zero. The wind is usually less than 1 hour in duration, but the rain may continue longer. These tornadoes may be local or may have the characteristics of a squall line 100 miles or more long. Occasionally the tornado occurs without rain, known appropriately as a dry tornado.

Gales are infrequent over most of the area. Along the coast, N of the Equator, they occur on about 1 to 6 days annually. From the Equator to Walvisbaai, gales occur less than 1 day per year. At Walvisbaai, gales can be expected on about 14 days annually; 7 of these days occur in October. South into the subtropics, gale frequencies increase; Cape Town records an annual average of about 22 days, with a maximum in the summer from December to March.

Climate.—The African coast is influenced by a variety of climatic regimes. The South Atlantic Anticyclones, the heated continental interior, the extra-tropical storms are not found in these waters. Because of its broad latitudinal extent this is an area of extremes. From the equatorial doldrums to the "roaring forties" and "whistling fifties," from the soaking monsoonal rains of the Cameroon coast to the arid deserts of Namibia, the variety is endless. However, while there is a great deal of variety, its sameness can be just as striking. For example, along the coast it is just as possible to sail for days in rain and drizzle as it is to sail for days without seeing a cloud. Ironically, coastal Namibia, mainly arid desert, has an average relative humidity as high as most equatorial regions.

Precipitation.—The W coast of Africa experiences a wide variation in precipitation amounts and is under the influence of several types of rainfall regimes. For example, Debunja averages over 10,160mm annually, while Walvisbaai has a yearly av-

erage of 10.7mm.

The coastline N of the Equator is under the influence of an equatorial regime and a monsoonal regime. In the equatorial type, there is usually two rainfall maxima occurring shortly after the equinoxes (spring and fall), while the monsoon regime results in a strong summer maximum. The combination of these two regimes results in an extended rainy season with a summer maximum. Douala, with an average annual rainfall of 4,064mm, experiences a monthly average of 152mm inches or more from March through November, reaching a peak of 737mm in July. Precipitation in this area falls on more than 160 days annually; Douala averages 205 precipitation days per year. West of Douala, rainfall decreases and the equatorial regime is prevalent. For example, Accra has an annual average of 737mm of rain over an average of 52 days.

From Libreville S to Luanda, annual precipitation totals decrease. While Libreville records an annual average of about 2,794mm, this falls off to about 1,270mm at Point-Noire and diminishes to 406mm annually at Luanda. This section of the coast is under the influence of the equatorial rainfall regime, resulting in spring and autumn maxima. The maxima usually occur in early fall (February or March) and late spring (October or November). The dry season extends from June through August when monthly averages drop below 35.5mm. A "little dry season" or secondary minimum occurs in midsummer (December-January).

Annual rainfall decreases rapidly S of Luanda; Mocamedes receives an average of 50mm, while Walvisbaai averages 10.7mm. The coastal strip from the ever-narrowing coastal plain of Angola along the barren beaches of Namibia is a bleak desert receiving moisture mainly in the form of an occasional heavy dew. Sparse though precipitation may be, the area from 10°S to just N of the Orange River has a rainfall maximum in summer or shortly after the sun has reached the zenith. The dry season occurs during winter. Rain occurs on about 13 days annually at Mocamedes and 4 days at Walvisbaai.

From Alexander Bay to Cape Town, rainfall amounts increase from an annual average total of 44.7mm at Alexander Bay to about 635mm at Cape Town. Summer is the dry season and winter is the rainy season. The average number of rainy days ranges from about 16 annually in the Alexander Bay-Port Nolloth area to 100 in the Cape Town area.

Precipitation over the island regions varies quite like the coastal areas. Heaviest rainfall occurs in the equatorial regions, decreasing to scanty amounts in the tropics, and then increasing again in the subtropics.

North of 5°S, the frequency of precipitation reaches a maximum in spring and fall. At Ascension Island (07°55'S., 14°24'W.), average annual precipitation is 114mm, much less than coastal stations at this latitude. Maximum rainfall here occurs in April. South of 20°S to about 40°S, precipitation is most likely during the winter. Tristan da Cunha (37°03'S., 12°19'W.) has an annual average rainfall of 1,727mm, reaching a maximum in August. Rain falls on an average of 185 days annually.

Thunderstorms along the coast are most common from Cameroon to the Congo, occurring on about 100 to 150 days a year. Many are associated with tornadoes. They usually approach the coast from the interior, frequently toward evening. These storms are often violent and accompanied by heavy rain. Farther S, thunderstorms are less frequent and often of shorter duration. At Luanda, the mean annual average is 20 days; they are most frequent in April and rare from June through August. On the coasts of southern Angola and Namibia, thunderstorms are infrequent. The frequency increases toward the Cape Town area, but the average number of days per month from April through June, when they are most frequent, is less than 2.

Cloud Cover.—Cloudiness, similar to rainfall, decreases S along the coastal sections of this area. From an annual average of 7 oktas at Douala cloudiness diminishes to less than 4 oktas at Walvisbaai, Port Nolloth and Cape Town. West of Douala, the average cloudiness decreases to 6 oktas at Calabar and to near 5 oktas at Cape Palmas.

In the Gulf of Guinea and along the coast from Cape Palmas to Libreville, the sun is hardly seen from July through September; coastal scenery, along with inland mountain ranges, is usually shrouded in a gray mist. At Douala, for example, overcast skies prevail on 20 to 23 days per month during this period. From December through February, there is a decrease in afternoon cloudiness, while at night average cloudiness drops to about 4 oktas. South of Libreville, coastal areas exhibit a characteristic diurnal variation in cloudiness. Early morning cloud cover remains high. However, afternoon cloud cover begins to taper off. Seasonal variations show minimum cloud cover from about May through July, while cloudiness is most extensive from about October through March. From Mocamedes S, morning as well as afternoon cloudiness begins to diminish. From Port Nolloth to Cape Town, there is no pronounced seasonal variation, except for a slight increase in winter cloud cover locally at Cape Town. This is a reflection of the N shift of cyclonic activity.

Temperature.—Temperature is principally controlled by the incoming solar radiation and is therefore dependent to a large degree upon latitude. It is also influenced by the nature of the Earth's surface, the latitude, and the prevailing winds. In the tropical and subtropical regions of this area, average annual temperatures decrease very little with latitude. The average temperature difference between the Equator and 30°S is only about 9.5°C compared to a 20.0°C difference between 30°S and 60°S. This temperature decrease is greatest in the winter. For example, the average temperature difference between Libreville and Cape Town is 6.1°C in January and 12.2°C in July. The annual range of temperatures also varies with latitude. Near the Equator the range is small, from 2.2 to 3.3°C, increasing to 4.4 to 6.6°C from 10°S to 30°S.

Along the coast from Cape Palmas to Luanda, the warmest months are February through April; the coldest months are July and August. Daytime temperatures of 29.4° to 32.2°C, with nighttime readings in the low-20s (°C), are common from November through May. From June through September, average maximums range from the low-20s to upper-20s (°C), and average minimums range from the upper teens to low-20s (°C). Extreme temperatures are generally 3.3° to 5.5°C above or below the average maximum or minimum. For instance, none of the major ports from Douala to Luanda have ever recorded a 37.8°C reading.

South of 10°S temperatures begin to decrease more rapidly, show more daily variability, and exhibit more pronounced seasonal tendencies. There is definite summertime (December-March) maxima and wintertime (June-September) minima. At Mocamedes, average wintertime maximums around 20°C warm to the upper-20s (°C) during the summer, while mini-

mums range from the low teens to about 20°C. From 20°S to 30°S, upwelling of the cold Benguela Current plays an important part in determining coastal temperatures. Port Nolloth, for example, has an average annual temperature of 13.9°C, about 3°C cooler than Cape Town, which is much farther S. In the summer, Port Nolloth is generally 5.5° to 8.4°C cooler than Cape Town. Extreme temperatures along the coast have a wide range. Berg winds, from the interior, account for some incredibly hot days. In April at Mocamedes, a normal maximum of 28.3°C gave way to an extreme of 38.9°C. Walvisbaai, normally with a 23.3°C maximum in May, recorded 40.0°C. Port Nolloth's temperature reached 40.6°C one September day; the normal maximum is 17.2°C.

Humidity.—In general, relative humidity, at a maximum near the Equator, decreases S, reaching a minimum near the subtropical high, then increases again toward the higher latitudes. The increase in relative humidity between 30°S and 60°S is a result of the rapid decrease in temperature. In equatorial regions, maximum relative humidities usually occur during the summer, with minimum values in the winter. South of Luanda, where the temperatures show a marked seasonal variation, relative humidities usually exhibit wintertime maxima and summertime minima. The diurnal variation of relative humidity is usually opposite to that of temperature. The maximum occurs in the early morning hours; the minimum occurs in the early afternoon. A sea breeze or island climate may raise the afternoon minimum or wipe it out entirely.

Along the southern Namibia/northern South Africa coast, where relative humidities are expected to be a minimum, the cold Benguela Current raises relative humidities to the level of equatorial regions. From Walvisbaai to Port Nolloth, maximum values are in the 90 per cent bracket from spring to fall, exhibiting an equatorial summertime maximum.

The islands and exposed coastal ports exhibit very little annual or diurnal variation. The influence of the ocean has a stabilizing effect on relative humidity much the same as it does on temperature. Quite often relative humidity is highest in the afternoon, since there is relatively little change in temperature but the sea breeze increases moisture. Ascension Island, for example, has an annual average morning relative humidity of 66 per cent, which rises to 70 per cent in the afternoon. Luanda, an exposed coastal port, also has only an average 4 per cent spread between average morning and afternoon humidities.

Visibility.—Visibility in this region is most often reduced by fog, mist, haze, and drizzle. Precipitation also reduces visibility, but usually for just a brief period. Fog is usually present when the visibility is below 0.5 mile for sustained periods. The other factors usually reduce visibility to 2 to 3 miles, although they will occasionally bring it down below 1 mile.

Along the Gulf of Guinea coast, in the Bight of Biafra, and along the Cameroon coast, visibility below 1 mile occurs on about 30 to 40 days annually and is most common from October through February (the dry season). During the dry season, drizzle and mist are prevalent and visibilities are frequently reduced by dust or haze from the harmattan from December to early March. Fog, often present during the early morning hours, will quite frequently lift by afternoon during the dry season. Although not as prevalent in the rainy season (May-October), fog and mist are more persistent, often hanging on for several days at a time. Along the Gabon coast, fog is extremely rare, occurring only about 2 to 5 days annually.

From Point Noire to Mocamedes, phenomena known as the "cacimbo" and "neveiro" are the most frequent causes of poor visibility. The cacimbo is a uniform layer of low stratus cloud from which fine drizzle is falling, while the neveiro is similar but with no precipitation; the stratus near the surface results in fog. This wet mist or fog forms over the cold Benguela Current much in the same manner, but to a lesser degree, as the fog banks along the Newfoundland coast form over the cold Labrador Current in North America. This low stratus and fog drift in over the coastal areas during the night and early morning hours. By late morning, the stratus has lifted and visibility has improved. This effect is most pronounced at Luanda, where fog can be expected on about 40 days annually; 33 of these days occur from May through September.

These phenomena persist along the Namibia coast, where Walvisbaai experiences a total of 59 days of fog per year. From May through August, visibility may occasionally be reduced by haze from berg winds, as well as fog from the neveiro. Farther S, fall is the worst time of the year, but fog does occur in every month. In this region fog is most likely to be of a frontal or advective type.

East Coast of South America

General.—Throughout the year, a semipermanent subtropical anticyclone influences the weather along the E coast of South America. A broad belt of low pressure to the S is also a year-round influence, while a thermal low develops over the continent in the summer. To the N lies the equatorial belt of low pressure and the Inter-tropical Convergence Zone (ITCZ).

The South Atlantic Anticyclone, like the sun, is farthest N during the winter, when its axis reaches a mean latitude of 25°N. It is strongest during this season, with an average central pressure around 1023mb. This high moves S and weakens in the summer months; by November it is about 30°S, and by January, the average central pressure is near 1015mb.

The circumpolar zone S of 40°S is a region where cold antarctic and warm tropical air masses are transformed by the circulation around migratory lows and highs. During the winter there are successive passages of southeast-moving cyclones in the Bellingshausen Sea region along the Antarctic front. Each series of lows is followed by an outbreak of polar continental air from Antarctica. These cold anticyclones sometimes invade the Patagonia region, but are usually displaced into the Atlantic Ocean.

Along the Pacific polar front during the winter, cyclones form in the mid-Pacific and move SE, generally reaching the continent as occluded lows. The resultant precipitation over southern Chile is generally the warm front occlusion type. The passage of these cyclones over the Andes brings little precipitation to the E coast of Argentina due to the downslope motion. However, occluded fronts that cross the mountains often trigger frontogenesis on the E coast, followed by the development of a new cyclone in the Rio de la Plata area. This is particularly prevalent in autumn when deep lows form in this area.

Most bad weather along the E coast areas N of Montevideo is not caused by the passage of well-developed cyclones, but by intrusions of cold air into the region behind the cold fronts. In contrast to North America and Europe, where anticyclones are usually associated with fair settled weather, and cyclones are the "weather producers," in South America relatively small, vigorous, and fast-moving anticyclones are responsible for

much of the disturbed weather. Cold fronts are followed by these highs, which may cause strong winds as far N as about 30°S, where the highs usually slow down and later become absorbed into the semipermanent South Atlantic Anticyclone.

The ITCZ is located in the N of the area from July to October, then moves slowly S to the delta of the Amazon River and reaches to San Luis do Maranhao by March, then slowly moves N again. Continental heating during summer (January) results in a semipermanent heat low over southern Brazil.

The regular diurnal pressure variation is prominent in the undisturbed tropical regions. On the N coast of Brazil, the average daily range exceeds 3mb, reaching almost 4mb in the dry season; in Rio de la Plata it is between 2 and 3mb and is sometimes obscured by larger irregular changes associated with traveling highs and lows.

Winds.—The coastal wind regime is quite intricate and is complicated largely by topography. Exposed coastal ports may be subject to the same influences as the open sea, while sheltered ports may never experience gales and winds can be deflected by 180°. Narrow channels and passages, however, can create dangerous squalls with a funneling effect. The rapid heating and cooling of land during the summer months often sets up a land-sea breeze regime, with an onshore wind during the afternoon, which blows offshore in the evening.

The general wind distribution in the subtropical and tropical portions of this region is governed by the predominant South Atlantic Anticyclone. The easternmost portions of the Brazilian coast are under the influence of the Southeast Trade Winds in all seasons. The area affected is limited in summer to between about 3°S and 13°S latitudes; in winter (July) the Southeast Trade Winds spread both N and S to the coast N of about Rio de Janeiro.

As summer approaches, the SE winds are replaced gradually by NE winds (the trade winds of the North Atlantic Ocean) along the N coast of Brazil. The Northeast Trade Winds and the Southeast Trade Winds approach each other in the ITCZ. This area migrates in position according to season. In the southern winter, it lies to the N of this region, but it moves S as summer approaches, reaching Cabo Orange at the end of November. During the next 2 to 3 months, the Northeast Trade Winds extend E along the coast to about Parnaiba.

Farther S along the Brazilian, Uruguayan, and Argentine coasts, another belt of weakly prevailing NE winds is present during most of the year. In autumn and winter (May-August), this belt extends only over the area from about 20°S to 30°S, but in summer it expands to S of 35°S near the coast. Although NE winds are frequent over this region, they are not predominant at any season. Wind directions, in fact, could better be classified as variable during most of the year. This is in contrast to the much higher persistence in wind direction found in the two trade wind belts farther N and results from the intrusions of polar air masses into this area.

Land and sea breeze effects are well developed during much of the year along this whole coastline. These are fair weather phenomena, so they are felt most intensely when weather is fair and pressure gradients are small; these conditions are most frequent in the tropics and subtropics. South of Rio de Janeiro, the land and sea breezes become less prevalent as the mean wind force and unsettled weather conditions increase.

On the NE coast, the sea breeze intensifies the NE wind during the hot afternoons; where southeasterly winds are prevalent, the sea breeze acts to deflect the wind toward the NE in the afternoon. Night land breezes are generally weaker and much of the time only serve to reduce the speed of the prevailing E winds.

From the mouth of the Rio de la Plata to Bahia Blanca, winds are variable. This area lies within a transitional zone, between two subtropical highs and on the N border of the circumpolar westerlies. The pressure gradient is slack and results in light winds, except with cyclone and frontal passages. This is reflected in average wind speeds of 4 to 6 knots along this coast. There are a few prevalent features, however. From April through August, when the South Atlantic Anticyclone is strongest, N to NW winds are common. During the spring and summer months from La Plata to Mar del Plata, E and NE winds prevail.

In the La Plata area, a phenomenon occurs similar to the squall line in the Northern Hemisphere. Known as a "pampero," it often accompanies a cold frontal pas.sage, bringing strong gusty W to S winds. Shortly before its arrival, calm winds may prevail and there is often a roll of cumulus clouds to the SW, followed by heavy cumulonimbus which gradually cover the whole sky. As the clouds move overhead, there is a violent wind squall from the W or S, followed by torrential rains and often thunder and lightning. The duration is usually less than 2 hours. The main hazard to navigation is the sudden onset of a gusty wind which can reach more than 70 knots. These storms, while generally experienced along the coast, can be felt 400 miles seaward. Pamperos are most common in the winter. While summer pamperos are of shorter duration, they are usually more sudden and violent. Although 80 to 100 cold fronts move through this area each year, only about 20 of them are accompanied by a pampero.

Along the stretch of coast, from about La Plata to Bahia Blanca, is another wind phenomenon recognized as a danger to navigation. Known locally as the "susestada," it is a strong SE gale accompanied by rough seas, rain, and poor visibilities. These usually occur when a low moving SE across Uruguay deepens near the mouth of the Rio de la Plata. Fortunately, these dangerous storms, which are similar to lows that intensify off Cape Hatteras in the United States, occur only about five to eight times per year.

Gale force winds are infrequent along the N coast of Argentina. They occur on the average about 5 per cent of the time. The frequency increases S; Bahia Blanca experiences winds of force 7 or greater on about 4 to 6 days per month. Spring and winter are the seasons with maximum gale frequencies coinciding with the high frequency of frontal passages.

There is a definite land-sea breeze regime in this area during the summer (December-March). It is particularly noticeable during periods. of clear weather, when pressure gradients are slack. The sea breeze usually develops in the afternoon from an E or SE direction. In the evening, it will often shift to the NE before dying down. A light N to NW wind during the night gives way to a NW to W land breeze in the morning hours.

South of Bahia Blanca to Cape Horn, including the Falkland Islands, W winds prevail, followed closely by NW and SW winds. Since a good portion of the coast lies within the zone of the "roaring forties" mean wind speeds are high. They generally increase with increasing latitude, from an annual mean of around 8 knots just S of Bahia Blanca to 15 to 17 knots at exposed S coastal ports, such as Isla de los Estados and Port Stan-

ley. At protected S ports, average wind speeds drop considerably; at Punta Arenas in the Straits of Magellan, the annual mean wind speed is 10 knots. At Cumberland Bay, a well-sheltered port on the E shore of South Georgia Island, the annual average wind speed is 4.5 knots, compared to an average of more than 18 knots in the surrounding seas. Most of the Patagonian-Tierra Del Fuego coast experiences highest average winds in late summer along the N coast and early spring along the S coast. Exposed ports, such as Isla de los Estados, experience a winter maximum and slight summer minimum, like the open ocean areas in this region.

Along the Rio Negro coast, the land-sea breeze regime is noticeable during the summer on clear and otherwise windless days. The E or onshore wind at Patagones, for example, increases from 2 per cent in the winter to 11 per cent in the summer. Farther S, as the gradient for W winds intensifies, the effect of the sea breeze becomes one of reducing the strength of the afternoon W wind.

Gales along the Patagonian-Tierra del Fuego coast, although more frequent than along the coast to the N, are less frequent than over adjacent open waters. Gales become more frequent with increasing latitude and are more prevalent in the winter months. From Bahia Blanca to the Gulf of San Jorge, gales occur less than 5 per cent of the time from September to January and from 5 to 10 per cent of the time the rest of the year. South of this region, gale frequencies increase rapidly. Along the Tierra del Fuego coast and in the Falkland Islands, gales occur 20 to 30 per cent of the time during the winter (June-September) and 10 to 20 per cent of the time during the summer (December-March). Gales are most prevalent with SW winds, but are also common with NW and W winds. Gale frequencies are quite high in the seas surrounding South Georgia Island, but in the sheltered waters of Cumberland Bay, gales occur on less than 4 days per year.

The Straits of Magellan offer a completely local problem for both wind direction and speed. In the many countless passages the wind follows the run of the passage, having only two possible directions in anyone location. This is particularly true in the narrow passages W of Cape Froward. Sustained gales are seldom encountered except in the widest passages. Punta Arenas experiences gales on about 10 days annually. This frequency increases E to Punta Dungeness, where they occur on about 35 days per year. The funneling effect of narrow passages and surrounding mountains W of Punta Arenas causes violent unpredictable squalls known as williwaws. The williwaw depends largely upon the existence of strong winds at sea or aloft. As these winds strike the rugged mountains of the Chilean Archipelago, eddies of varying duration and intensity develop. The result is squalls, with wind gusts sometimes exceeding 100 knots, from varying directions. The occurrence of one or more of the squalls from one direction is no assurance that the next one might not come from an entirely different direction. Even in a sheltered inlet where the general slope of the land is fairly regular, the wind often changes speed and direction from minute to minute. These squalls are even more dangerous in the presence of rain, sleet, or snow and can seriously impair visibility. Since the williwaw is extremely local, an open passage a few miles from a narrow one may afford much better protection.

The rugged sparsely-populated coast of southern Chile is a stormy windy region where, in many places, trees are stunted and indicate the direction of the prevailing wind by their distorted shapes, much like trees high on a mountain which lean with the prevailing wind.

The coastline is under the influence of migratory cyclones, as well as the South Pacific Anticyclone, resulting in variable wind directions and high wind speeds. West winds still prevail however, occurring about 50 per cent of the time in all seasons; NW through SW winds occur nearly 75 per cent of the time. Average wind speeds increase poleward and exposed coastal sections S of the Gulf of Penas experience average speeds of 14 to 18 knots year-round. North to the Gulf of Corcovado, average annual wind speeds decrease to about 8 to 12 knots.

The frequency of gales along this coast is high but widely variable, depending on the exposure. The frequency in exposed coastal waters is well represented by Grupo Evangelistas, which consists of four rugged barren rocks. This exposed cluster is subjected to gale force winds on about 70 days annually. Gales here are the least frequent from October through January, when the average is 4 to 5 days per month, increasing to 6 to 7 days per month for the balance of the year. Poleward of the Gulf of Corcovado, gale frequencies range from 10 per cent to more than 20 per cent in the winter and from less than 5 per cent to more than 10 per cent in the summer. Gales are most common with NW winds brought on by cyclones moving SE in the Pacific and with SW winds which follow cold frontal passages.

Climate.—The entire E coast of South America is especially favored in regard to climatic conditions by its location outside any main storm track. The primary path of storms in the South Atlantic Ocean extends SE from Cape Horn. Local bad weather does occur on the E coast at times. It is associated with cold fronts, small high-pressure areas, and low-pressure troughs, but the region is completely free of the tropical cyclones so destructive in other tropical and subtropical regions of the world, and of the larger middle latitude disturbances which occasionally extend into the subtropics elsewhere.

Over much of the Guianas and the N coast of Brazil, a tropical climate prevails, with uniformly high temperatures, high humidity, and heavy rainfall throughout the year. Between Natal and Montevideo, weather is controlled during most of the year by semipermanent subtropical high pressure centered over E and central South Atlantic. The principal features of this subtropical area are the relative mildness and equability of the weather.

Southern South America, tapering to Cape Horn, relies almost entirely on surrounding seas for its climate. Unlike North America and Eurasia, South America is never invaded by extremely cold polar continental air masses. On the other hand, S of 40°S, summer heating is not very pronounced. Consequently, southern South America lacks the continental temperate climate that characterizes Northern Hemisphere land masses. Topographic and oceanographic features are important factors in the climate of southern South America. The W coast, with its lofty mountains rising directly out of the sea experiences a contrasting climate to the E coast, with its seaward sloping plains. The S end of the Andes, although less magnificent than the N chain, still exerts considerable influence on east-moving weather systems.

Precipitation.—A large portion of eastern South America is subject to heavy rainfall. Brazil has, over certain areas chiefly in the Amazon Valley, rainfall higher than any land area of

comparable size. More than 2,032mm per year are recorded in the upper reaches of the Amazon and along the coasts of Para and Maranhao N into the Guianas, where Cayenne has an average of almost 3,800mm per year. Rainfall in this N area is seasonal, with the wet period lasting from December or January to May or June (extending into July in coastal sections of the Guianas); the driest months are from September to November.

Farther S, from Cape San Roque to the Bahia area, about 60 to 70 per cent of the annual total of 1,500 to 1,800mm falls from April to August. Around Rio de Janeiro the wet season is again summer, and the dry season is winter, with the annual total near 1,000mm. In the region from southern Brazil S to Rio de la Plata, the distribution of rainfall is fairly regular, with amounts between 1,000 and 1,500mm per year, becoming slightly less in the S portion.

Snowfall is not of regular occurrence over the region. However, on the coast it has occurred as far N as Rio de Janeiro in a cold air outbreak moving far to the N. The State of Santa Catarina is about the farthest N that measurable amounts have fallen.

Along the coast of Argentina, from Bahia Blanca N, annual precipitation ranges from 508 to 762mm on about 70 days per year. There is little seasonal variation in this region as monthly averages are generally 25 to 75mm, with slight spring and autumn maximums. South of Bahia Blanca, precipitation amounts fall off sharply; Puerto Madryn has an annual average of about 178mm Rainfall amounts remain scanty, with no seasonal variability S to Puerto Gallegos. On the E coast of Tierra del Fuego, precipitation averages between 508 and 635mm annually, with a rainy season from December through June; averages of 25 to 76mm occur during these months. Along this coast, precipitation falls on about 250 days per year, spread out evenly on about 18 to 23 days per month.

The Falkland Islands and their dependencies experience variable precipitation amounts. Port Stanley receives 686mm annually on about 226 days. This is probably less than the more exposed W coasts. At Cumberland Bay, also a sheltered E coast port, an annual average of 1,320mm falls on 154 days. In the Falkland Islands, there is little seasonal variability, while on South Georgia Island, maximum amounts occur from March through August.

Snow is rare along the Argentine coast N of Tierra del Fuego. Around the E entrance to the Magellan Straits it occurs on about 6 days annually; this increases to about 50 days per year along the Tierra del Fuego coast. Seaward of the Argentine coast, snow occurs generally less than 1 per cent of the time N of 50°S. From 50°S to 55°S, it is observed about 1 per cent of the time near shore, increasing to 6 per cent seaward. In the open waters E of the Falkland Islands, snow occurs on about 22 per cent of observations in midwinter, while W of the islands, it occurs from 5 to 13 per cent of the time.

Snow is more prevalent in the Atlantic islands than on the mainland. At Port Stanley, which is sheltered, snow falls on about 54 days annually and can occur in any month except January and February, usually melting quickly in all seasons. On South Georgia Island, snow is frequent, even in mid-summer, although it melts rapidly during this season. During the winter, there is heavy and frequent snowfall, occurring more than 30 per cent of the time; the land is usually covered to a depth of 1.8 to 3.1m, except in exposed areas where it is swept away by the wind.

In the region of the ITCZ thunderstorms are frequent and are often accompanied by torrential downpours of up to 250mm in 24 hours. Northwest of Sao Luis, they occur on about 70 to 80 days annually, with most in the period May through December. Between Parnaiba and Carvelas, thunderstorms are infrequent, occurring on less than 20 days a year. Activity picks up again to the S. Between Rio de Janeiro and Montevideo expect about 35 days of thunderstorms, mostly between October and March. Near the mouth of the Rio de la Plata, they occur on about 50 days annually and are most frequent from October through March, when the average is about 6 to 8 days per month. These thunderstorms are often associated with cold front activity, particularly with the pamperos. Thunderstorm activity rapidly decreases S. Bahia Blanca experiences only about 16 thunder storm days annually; its highest frequency, about 2 days per month, occurs from October through March. From 45°S to 55°S, both along the coast and seaward, thunderstorm activity is negligible.

Cloud Cover.—Days are mostly partly cloudy in the region of the ITCZ. Skies are usually cloudiest during the afternoon. Seasonal variations are similar to those of rainfall; average cloud cover ranges from 4 to 6 oktas.

Farther S, cloudiness increases with increasing latitude and also increases seaward. Cloud amounts usually reach a maximum in winter; however, S of 50°S there is little seasonal variation. Cloudiness is most extensive in the early morning hours and reaches a minimum around midnight.

Annual averages range from about 4.5 oktas along the N coasts to between 5 and 6 oktas in the S. From 40°S to 50°S, maximum cloudiness occurs from May through December, both along the coast and seaward. South of 50°S to the Straits of Magellan, cloudiness becomes more uniform, but a slight maximum is exhibited from November through March. Uniform cloudiness is present S of this area, with very little seasonal variation. Overcast conditions also become more prevalent S. The average annual number of days with overcast skies ranges from 50 along the E coast of Brazil and Argentina to more than 175 days along the Tierra del Fuego coast. North of 50°S there exists a winter maximum in overcast conditions, but to the S there is uniform distribution.

The southern oceans, S of 55°S, are marked by a uniform grayness. There is little variation either seasonal or latitudinally, and 6 to 7 oktas is the average condition year-round.

Port Stanley and Cumberland Bay experience between 150 and 160 days of overcast skies annually, while clear conditions occur on 9 to 12 days per year.

Temperature.—North of about 15°S the mean temperature is very uniform, averaging between 25.6°C and 27.2°C. At Georgetown the average daily maximum is only between 28.9°C and 30.6°C, and the average daily minimum between 23.3°C and 24.4°C, throughout the year. At Salvador the mean daily maximum reaches 30.0°C from January through March, and the mean daily minimum is 20.6°C in July and August.

Farther S average temperatures decrease and the range from maximum to minimum increases. At Rio de Janeiro, the mean daily maximum is 28.3°C in February, while the mean daily minimum is 18.3°C in July. At Buenos Aires, the range is much greater.

Average winter temperatures along the Argentine coast range from the upper single digits (°C) near La Plata to the lower single digits (°C) around Cape Horn. Average daily maximums in

the lower-teens (°C) extend as far S as Camorones, as do minimums above freezing (°C). Temperature readings below freezing (°C) become frequent poleward of 45°S. South of 50°S to Cape Horn, average daytime temperatures are in the low single digits (°C), while nighttime readings are around the freezing mark (°C). Freezing temperatures (°C) have occurred along the entire coast, with extreme minimum temperatures varying from just below freezing (°C) in the N to -21.1°C at Ushuaia. In the Falkland Islands, temperatures are even milder than on the mainland. Port Stanley has a midwinter average maximum of 4.4°C. Cumberland Bay on South Georgia Island has an average mid-winter maximum of 1.1°C and an average minimum of -5.0°C.

Average summer temperatures along the coast of Argentina are about 14°C higher than average winter temperatures in the N, and about 8°C higher along the S coast. Average daily maximum temperatures are in the upper-20s (°C) as far S as Puerto Madryn, in the mid-20s (°C) to Rio Gallegos, and in the upper-teens (°C) to the Tierra del Fuego coast. Average minimums range from the mid-teens (°C) in the N to the mid-single digits (°C) near Cape Horn. Extreme maximum temperatures of 37.8°C or more have been recorded as far S as Deseado. There is an average maximum in the low-teens (°C) and an average minimum in the mid-single digits (°C) at Port Stanley, while at Cumberland Bay average maximums are in the upper-single digits (°C), with average minimums in the low-single digits (°C).

Humidity.—In the tropics, relative humidities are high throughout the year, particularly in the mornings. Humidities are lowest in the afternoon when temperatures are at a peak. These lower values are in the 70 per cent range compared to the 90 per cent range in the morning. Seasonally, lowest humidities occur from August through November, when temperatures are often at their peak.

Along the coast S of Natal, humidities are less and there are more apparent seasonal variations. This is most noticeable at the more continental locations, where relative humidities are highest in winter, with low temperatures, and lowest during the period of maximum temperatures. At the more exposed locations, there is less temperature fluctuation, more moisture, and hence steadier relative humidities. The diurnal variation is also less than at the continental locations. Along the Brazilian coasts, humidities in the 80 per cent range during the morning fall into the 70 per cent range by the afternoon. Farther S is a wider variation. While winter morning humidities may reach the 80 per cent range, in summer, they only climb into the upper 50 to 60 per cent range. Afternoon readings are 20 to 25 per cent lower.

Average winter relative humidities along the Argentine coast range from the upper 60 per cent range at sheltered ports to near 85 per cent at exposed locations. At exposed ports, latitude has little effect. Buenos Aires, for example, has an average June relative humidity of 83 per cent, while Isla de Los Estados has an 85 per cent average relative humidity in June. On the coast of Chile, average relative humidities are around 90 per cent in June. The sheltered island ports also record a definite winter maximum; Port Stanley has a morning average of 90 per cent in July. Average summertime readings range from 48 per cent at Puerto Madryn to 87 per cent at Cape Raper.

The largest differences in average summer and winter relative humidities lie between Bahia Blanca and Puerto Gallegos, with a range from about 18 to 25 per cent. Around the S tip of South America, this difference is on the average 1 to 3 per cent, while along the Chilean coast the range is generally 2 to 5 per cent and as much as 10 to 20 per cent at more sheltered locations. Port Stanley has an average annual variation of 14 per cent, but Cumberland Bay records only a 5 per cent difference.

The diurnal variation of relative humidity is, in general, opposite to that of temperature. The maximum occurs in the early morning hours, while the minimum occurs during the afternoon. At Bahia Blanca, in June, the average 0800 relative humidity is 80 per cent, dropping to 61 per cent by 1400. At ports exposed to an increasing onshore flow or afternoon sea breeze, this variation is decreased and, in some cases, the relative humidity may actually increase during the day. For example, at Grupo Evangelistas, the average relative humidity at 0700 is 83 per cent, while at 1400 it is 82 per cent.

Visibility.—Fog, which is a stratus cloud in contact with the surface, occurs when the horizontal visibility in this cloud is less than 0.5 mile. The formation of fog is due to either the evaporation of water into the air or cooling of the air. Evaporation of water can occur when cold air comes into contact with warmer water or when warm rain falls through colder air. Cooling of the air is accomplished when warm air is advected over cold water, when radiational cooling takes place, or when air is forced aloft. Advection and frontal fogs are the predominant types for maritime regions. Since all types of fog dissipate with sufficiently strong heating, there is an early morning maximum and afternoon minimum in fog frequency.

Haze, smoke, and precipitation are other visibility reducing factors, but in general they are either less restricting or of shorter duration than fog.

The highest frequency of fog is found in the Falkland Islands, where Port Stanley experiences 47 days of fog annually. Cumberland Bay, on South Georgia Island, experiences 28 days of fog per year. An annual average of 20 to 25 fog days occurs along the Chilean coast, while 10 to 20 days annually are experienced from La Plata to Bahia Blanca. Fog is rare from S of Bahia Blanca to Comodoro R.ivadavia; less than 5 days occur annually. From Deseado to Cape Horn, fog occurs on 10 to 15 days per year.

Along the Argentine coast from La Plata to Cape Virgenes, fog is most common from May through September. During these months, it occurs on average of 3 to 5 days per month N of Bahia Blanca md 1 to 2 days per month from Deseado to Cape Virgenes. Fog also occurs on 4 to 6 days per month at Port Stanley during the winter season. Along the S coast of Tierra del Fuego and N along the exposed coastal sections of Chile, fog exhibits a summer maximum. Warm air moving over relatively cold water is responsible for this increase; 3 to 5 days of fog per month is common during the summer season.

Fog is rare N of Porto Alegre; however, it occasionally creeps as far N as Caravelas in summer. Mist, haze, and showers are responsible for infrequent reductions in visibility in the tropics.

Currents

General

Non-tidal Currents.—The major surface currents of the South Atlantic Ocean are, as follows:

1. Guiana Current along the NE coast of South America.

2. Brazil Current off the coast of Brazil.
3. Falkland Current along the coasts of Uruguay and Argentina.
4. Cape Horn Current S of Cape Horn.
5. Atlantic Equatorial Countercurrent N of the Equator.
6. Guinea Current N of the Equator.
7. Benguela Current off the W coast of Africa.
8. Agulhus Current along the coast of South Africa.
9. Atlantic South Equatorial Current N of 25°S.
10. South Atlantic Current between 30°S and 40°S.
11. West Wind Drift S of 40°S.

The surface flow is generally westward N of about 25°S and eastward S of about 30°S, except along the coasts of South America and Africa. The typical speed in both the E and W flow is about 0.6 knot. Off the E coast of Brazil, the current sets S and SW to about 35°S, where it turns SE after meeting the NE-setting current off the coast of Argentina. A narrow rapid-flowing current sets SW and then W, at 1 to 2 knots, along the immediate South African coast. The flow off the Atlantic coast of Africa is NE or N as far N as the Nigerian border. Along the immediate African coast from 15°W to about 8°E, the flow is generally SE and then E. The seasonal variation in the current pattern is slight except, at scattered locations along the immediate coasts.

Tidal Currents.—Tidal currents are usually weak, except in inlets along the coast, where speeds are highest. In nearshore waters, the tidal currents are usually reversing, flooding toward and ebbing away from the coast, or flooding and ebbing in opposite directions parallel with the coast. In regions of mixed or semidiurnal tides, two flood and two ebbs occur daily. In the region of diurnal tides, one flood and one ebb occur daily.

Rotary tidal currents occur offshore where the direction of flow is not restricted; speed will vary as direction changes continuously through all points of the compass during the tidal day. The change in direction is generally clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere.

Northwest South Atlantic Ocean

Non-tidal Currents.—During summer (January, February, and March), the flow is westward N of 10°S and NW along the N coast of Brazil. South of 10°S, along the SE coast of Brazil, the flow is SW to about 35°S. Current speeds may reach 2 knots in the NW flow along the N coast of Brazil; otherwise, speeds are about 0.6 knot. In winter (July, August, and September), the flow changes to E in the extreme N due to the establishment of the Atlantic Equatorial Countercurrent. Along the SE coast of Brazil, the flow changes to NE as the Falkland Current extends NE to about 25°S.

The non-tidal surface currents in this area are, as follows:

1. **Atlantic Equatorial Countercurrent—**Flows E between the west-setting Atlantic North Equatorial Current and the Atlantic South Equatorial Currents. Its position changes considerably from month to month. The W part nearly disappears in January, February, and March. At this time, it sinks and flows under the North Atlantic Equatorial Current, which establishes itself as a west-setting current on the surface. The speed of the Atlantic Equatorial Countercurrent is about 0.9 knot during July, August, and September, the period of its greatest strength and extent.
2. **Guiana Current—**A strong persistent northwest-flowing current along the NE coast of Brazil. Speeds average 2 knots in many areas and occasionally reach 4 knots. The direction is constant year round, but the speed is slightly stronger in winter (July, August, and September).
3. **Atlantic South Equatorial Current—**Flows W across the Atlantic Ocean along and just S of the Equator. The current expands N during January, February, and March. Speeds average 1.0 to 1.2 knots in the N portion and about 0.7 knot over the remaining part.
4. **Brazil Current—**The extension of the Atlantic South Equatorial Current which flows SW off the coast of Brazil to about 35°S. It is slightly stronger during the Southern Hemisphere winter (July, August, and September), even though countercurrents, caused in part by a N extension of the Falkland Current, persist along the immediate coast as far N as 23°S.

Tidal currents.—Tidal currents in nearshore waters are usually reversing, flooding inward and ebbing away from the coast, or alternately flooding and ebbing in opposite directions parallel to the coast. Since the tides are semi-diurnal, there will usually be two flood-ebb cycles daily.

Ebb currents of 2 to 4 knots may be experienced at the mouths of major rivers.

Northeast South Atlantic Ocean

Non-tidal Currents.—The flow is generally NW or N off the coast of Africa. West of 5°E it turns W. The speed of this flow is about 0.5 knots generally and increases to about 0.9 knots along the Equator. North of the Equator along the Gulf of Guinea coast, the Guinea Current flows E at about 1 knot.

The non-tidal surface currents in this area are, as follows:

1. **Guinea Current—**Flows E along the African coast from 14°W to 8°E during the Northern Hemisphere summer, at a mean speed of 1.2 knots; from December through February, E winds reduce the speed considerably and sometimes reverse the current. The current widens considerably between 10°W and 20°W.
2. **Benguela Current—**A slow-moving northwest-setting current which flows along the W coast of Africa from Cape Agulhas to 17°S, and then off the coast to just N of the Equator at 10°W. The direction gradually turns toward the west N of 10°S. The mean speed is about 0.6 knot.
3. **Atlantic South Equatorial Current—**Flows NW just W of the Benguela Current from about 30°S to about 10°S and then W, reaching the Equator at about 10°W. The mean speed is about 0.7 knot, except in the extreme N, where it exceeds 1 knot.

Tidal currents.—Tidal currents in nearshore waters are usually reversing, flooding inward and ebbing away from the coast, or alternately flooding and ebbing in opposite directions parallel to the coast. Since the tides are semi-diurnal, there will usually be two flood-ebb cycles daily.

Ebb currents of 2 to 4 knots may be experienced at the mouths of major rivers.

Southeast South Atlantic Ocean and the Western Indian Ocean

Non-tidal Currents.—The non-tidal surface currents in this area are, as follows:

1. **Agulhas Current—**Sets S and SW along the SE coast of Africa. West of 25°E, the direction shifts to the W. The av-

erage speed is about 2 knots, except in the extreme SW part, where it drops to 1 knot. In the vicinity of 30°W, speeds occasionally reach 5 knots.

2. **South Atlantic Current—**Sets E or ENE over a large area between 32°S and 42°S west of 10°E, with an average speed of about 0.7 knot. It is apparently maintained by prevailing W winds with a high degree of constancy. The current turns sharply to the NW into the Benguela Current a couple of hundred miles E of the Cape of Good Hope.

3. **West Wind Drift—**A broad global circulation of water with a N boundary between 40°S and 45°S, and extending S almost to Antarctica. The water is entirely of high latitude origin as contrasted with the South Atlantic Current, where the flow originates from the low latitude Brazil Current. The flow is E or ENE, at an average speed of 0.5 knot in the S to about 0.8 knot in the N.

Tidal currents.—Tidal currents in nearshore waters are usually reversing, flooding inward and ebbing away from the coast, or alternately flooding and ebbing in opposite directions parallel to the coast. Since the tides are semi-diurnal, there will usually be two flood-ebb cycles daily.

Ebb currents of 2 to 4 knots may be experienced at the mouths of major rivers.

Southwest South Atlantic Ocean

Non-tidal Currents.—The flow is generally eastward S of55°S. East of Cape Horn, it turns NNE between the Argentine coast and the Falkland Islands and then NE off the Argentine coast as far N as 35°S, where it turns SE. The average current speed in this flow is 0.6 knot, generally, and increases to 1 knot in the vicinity of Cape Horn. Along the immediate Argentine coast S of 39°S, there is usually a south-setting countercurrent. East of 50°W, the flow is generally E at about 0.5 knot.

The non-tidal surface currents in this area are, as follows:

1. **Cape Horn Current—**Sets continuously E close to the tip of South America and enters Drake Passage at about 70°W, with observed speeds of up to 2.4 knots. The set veers NNE and the current slows considerably after it crosses longitude 65°W. North of 54°S, some of the current merges into the Falkland Current; the remainder fades into the West Wind Drift.

2. **Falkland Current—**Sets NE off the coast of Argentina from 54°S to 35°S in December, January, and February, and to 25°S in April, May, and June. The mean speed is 0.8 knot in July and August and 0.6 knot in January and February. Along the immediate coast currents are tidal, with a slight S set.

3. **South Atlantic Current.—**A broad area of east-setting current E of 40°W to 45°W between 30°S and 40°S. The set is SE in the NW portion. The average speed ranges from 0.5 knot in the N to 0.7 knot in the S. The current shrinks considerably in January and February.

4. **West Wind Drift—**The area of east-setting current S of 41°S, E of the Falkland Islands, and S of the Cape Horn Current. The mean speed is about 0.5 knot, generally, and 0.7 knot in the Drake Passage S of the Cape Horn Current. The West Wind Drift is composed of water originating in high latitudes and circles the world as far S as 60°S to 65°S.

Tidal currents.—Tidal currents in nearshore waters are usually reversing, flooding toward, and ebbing away from the coast or alternately flooding and ebbing in opposite directions parallel to the coast. Since the tides are mixed or semi-diurnal, there will usually be two flood-ebb cycles daily.

Ebb currents of 1 to 1.5 knots may be experienced at the mouth of the River Plate; the flood current may be slightly less.

Fishing Areas

The International Commission for Southeast Atlantic Fisheries (ICSEAF) has established an inspection service used for the control of trawl net size. The area where vessels are subject to inspection is bounded by the coast and lines joining the following positions:

a. 6°04.7'S, 12°19.6'E. (Ponta Padrao Light)
b. 6°00.0'S, 12°00.0'E.
c. 6°00.0'S, 20°20.0'W.
d. 50°00.0'S, 20°00.0'W.
e. 50°00.0'S, 40°00.0'E.
f. 16°12.0'S, 40°00.0'E. (coast)

Inspection vessels display the following pennant:

Vessels flying the inspection pennant should be given a wide berth as they may be unable to maneuver.

Government

Dependent Island Groups

Saint Helena

Saint Helena (15°56'S., 5°42'W.) and its dependencies of Ascension Island, Tristan da Cunha Group, and Gough Island are described in Saint Helena/Ascension Island.

Bouvetoya

Bouvetoya (54°26'S., 3°25'E.). also known as Bouvet Island, is a dependency of Norway. This island lies 1,360 miles SW of the Cape of Good Hope and 997 miles SE of Gough Island. It is uninhabited and the most isolated piece of land on the earth's surface.

Bouvetoya has an area of about 19 square miles and consists of a single volcanic cone with a wide indented crater. Olav Peak, 780m high, stands at the center of the island. The slopes of the central cone terminate on all sides in precipitous cliffs or glaciers, which descend abruptly to the sea. The E side of the island is entirely covered with an ice sheet. The N and W sides of the island are comparatively free from ice, except for isolated glaciers, but are much steeper than the S and E sides. Bou-

Bouvetoya

vetoya lies in the path of the strongest W winds and thick clouds usually obscure its highest elevations. Snow is frequent and temperatures rarely exceed 2°C in the summer, averaging 1.5°C in the winter.

Ice

The N limit of drift ice averages about 40°S during autumn and 37°S during winter. Drift ice reaches 33°S about 150 miles off the coast of Uruguay and southern Brazil during spring and summer, but the blocking action of Tierra del Fuego keeps the coast of Argentina free of drift ice as far as 50°S, as currents generally set NNE away from the coast. On the other side of the Atlantic Ocean, drift ice makes it almost to Cape Agulhas on the South African coast during winter.

Large tabular icebergs having areas of 1 square nautical mile or more extend N to about 45°S. The seasonal variation in the N penetration is about 2° of latitude with the northernmost drift occurring in winter and spring (July through December). The longitudinal zones of maximum N drift of large tabular bergs are between 35°W and 45°W, and E of 0°E.

Navigational Information

International Ship and Port Facility (ISPS) Code

For information concerning the International Ship and Port Facility (ISPS) Code, see **Indian Ocean—Navigational Information**.

Electronic Navigation and Communication

For information concerning electronic navigation and communication, see Indian Ocean—Navigational Information.

Automatic Identification System (AIS) Aids to Navigation (ATON)

All types of buoys and fixed structures, such as offshore platforms and wind power construction, can be supplemented with AIS. Ships equipped with an AIS transponder can, as a minimum, receive the following information:

1. MMSI number of the AIS ATON.
2. Name of the ATON.
3. Position of the ATON.
4. Bearing and distance to the observer.

The three types of AIS ATON are, as follows:

1. Physical—The AIS device is located on the ATON.
2. Synthetic—The AIS information is transmitted from a location different from the ATON.
3. Virtual—The ATON does not physically exist.

Virtual AIS ATON are useful, as follows:

1. For time-critical situations and in marking or delineating dynamic areas where navigation conditions frequently change.
2. When physical ATON are removed temporarily until permanent ATON can be established.
3. To mark areas where navigation features change frequently and would require dynamic marking.

Virtual AIS ATON can be used in different situations, as follows:

1. Instant (wreck marking).
2. Temporary (marking works in progress).
3. Dynamic (channel formerly marked by buoys but now marked by virtual AIS ATON which are moved as required).
4. Seasonal (ice buoys).
5. Permanent (when environmental or ecological factors make it desirable not to place a physical aid).

Enroute Volumes

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Offshore Drilling

Oil exploration and production rigs, usually exhibiting lights, may be encountered off the West African coast, inside the 200m curve, especially within the Bight of Biafra and along the coasts of Cameroon, Equatorial Guinea, Gabon, Congo, and Angola.

Anchors, sometimes buoyed, are placed a considerable distance from rigs and should be given a wide berth.

Pollution

Single-hull Tanker Phase-out Schedule

In accordance with Regulation 13G of Annex I of the MARPOL Convention, single-hull tankers should be phased out or converted to a double-hull configuration according to a schedule based on their year of delivery. These requirements are designed to reduce the risk of oil spills from tankers involved in low-energy collisions or groundings. Further information can be found in **Indian Ocean—Pollution**.

Ballast Water Management

International guidelines have been adopted by the IMO to prevent the introduction of unwanted aquatic organisms and pathogens from ships' ballast water and sediment discharge into marine ecosystems. The guidelines include the retention of ballast water on board, ballast exchange at sea, ballast management aimed at preventing or minimizing the uptake of contaminated water or sediment, and the discharge of ballast ashore. Particular attention is drawn to the hazards associated with ballast exchange at sea.

Ship owners and agents are strongly advised to comply with these guidelines, which were introduced under IMO Resolution A.868(20), titled *1997 Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens.*

In February 2004, a diplomatic conference adopted an *International Convention for the Control and Management of Ships' Ballast Water and Sediments*. This *Ballast Water Management (BWM) Convention* will come into force world wide after it has been signed by 30 states, representing 35 per cent of the world's merchant shipping tonnage.

Individual states are currently in the process of introducing national legislation in accordance with the BMW Convention. Upon implementation, this legislation will be applicable to commercial vessels that carry out ballast water discharge within a state's jurisdictional waters.

Typical legislation requires that all ships intending to discharge ballast water within a state's jurisdictional waters shall conduct any exchange at least 200 miles from the coast and in waters at least 200m deep. If this is not possible, the exchange should be carried out as far as possible from the nearest land and, in all cases, at least 50 miles from the coast. In cases where the ship is unable to comply, ballast water must be maintained on board, and only a minimum amount may be authorized for discharge, with the prior authorization of the appropriate national maritime authority.

Ballast water management will be conducted in accordance with a Ship's BMW Plan. In addition, a Ballast Water Reporting Form may be required by the relevant authority as directed, prior to the ETA. The Ship's BWM Plan will be approved by the flag administration or relevant classification society.

Violations of the legislation will be sanctioned according to national law, which can include warnings, fines, detentions, or prohibition of the ship's entry into a port or terminal.

Ballast Water Exchange Requirements off South America

To avoid spreading disease to endangered species, all vessels with ballast water originating in foreign countries must exchange ballast water at least once prior to arriving in South American territorial waters. The exchange must take place at least 12 miles from the coast.

Vessels originating from areas which are affected by cholera or other epidemics of a similar infectious nature must also follow the above ballast water exchange procedures.

MARPOL Special Areas

A MARPOL Special Area (Particularly Sensitive Sea Area) has been established off the coast of South Africa. For further information, see Indian Ocean—Pollution—MARPOL Special Areas.

Regulations

Ship Sanitation Control Certificates

Information concerning Ship Sanitation Control Certificates (SSC) and Ship Sanitation Control Exemption Certificates (SSCEC) can be found in **Indian Ocean—Regulations**.

Routes

The route information in this section considers selected ports in the South Atlantic Ocean and routes to and from the South Atlantic Ocean and ports in the North Atlantic Ocean and the Indian Ocean.

In general, these routes are as direct as safe navigation permits. However, in some instances, a divergence is made to avoid dangers to navigation, to take advantage of favorable currents or to minimize the effects of adverse currents. It should not be inferred that recommendations in this chapter necessarily represent adopted or established sea lanes. Routes between ports consist of a series of rhumb lines unless stated otherwise. When a route may be followed in either direction the reverse route is not described.

Detailed information on these routes can be found in the Appendix.

On an eastbound voyage, a countercurrent to the strong W-running Agulhas Current may be found from 1 to 6 miles offshore. This passage affords some shelter from the heavy seas which occasionally run in the waters near the cape but is subject to variable coastal currents which often set shoreward, particularly during or after extended periods of onshore winds.

An eastbound vessel can also avoid the strength of the Agulhas Current by keeping seaward of it, passing through position 36°30'S, 20°00'E and then steering by great circle to position 34°30'S, 32°30'E.

On westbound passages around the cape, vessels should remain 20 to 30 miles off the coast until abreast of Mossel Bay. From there, continue by coastal piloting, passing Cape Agulhas and the Cape of Good Hope at a safe distance.

The Republic of South Africa has recommended that laden tankers follow certain regulations regarding their transit off the coast of south Africa. Informations on these regulations can be found in South Africa—Regulations—Tankers.

Seas

Adjacent Waters

Adjacent waters include the Gulf of Guinea, the Strait of Magellan, and the Rio de la Plata.

The Gulf of Guinea

The Gulf of Guinea is that part of the South Atlantic Ocean lying E of a line extending SE from Cape Palmas, in Liberia, to Cape Lopez, in Gabon. In the upper part of this gulf between Ghana and the Niger delta, a broad indentation forms the Bight of Benin. In the NE corner of the gulf, a line of volcanic islands extends NE from Oagalu to Bioko (Macias Nguema Biyogo) and forms the Bight of Biafra. The warm Guinea Current flows E near the coast and swings around in this latter bight to join the South Equatorial Current, which is composed mainly of cooler water from the Benguela Current moving up from the S.

The Strait of Magellan

The Strait of Magellan separates Archipelago de Tierra del Fuego from the Patagonian mainland and Archipelago Reina Adelaide. This strait was named after its discoverer, Hernando de Magallanes, in 1520.

The strait is entered at the E end between **Punta Dungeness** (52°24'S., 68°25'W.) and Cabo Espiritu Santo, 16.5 miles SW. The W entrance lies between **Cabo Victoria** (52°17'S., 74°54'W.) and Cabo Pilar, 28 miles SSE. The distance between these entrances is about 310 miles.

Vessels must exercise caution when transiting the strait in either direction because during bad weather, which is most likely to be the case, the navigation is particularly difficult and dangerous. Generally, the anchorages are foul and rocky throughout the strait. In addition, the strait offers problems concerning both local wind directions and speeds. In the many countless passages, the wind usually follows the run of the channel, having only two possible directions in any one location. This is particularly true within the narrow passages lying W of Cape Froward.

The rugged sparsely-populated S coast of Chile is a stormy and windy region where, in many places, trees are stunted and indicate the direction of the prevailing wind by their distorted shapes, much like trees high on a mountain which lean with the prevailing wind.

The Rio de La Plata

The Rio de La Plata is a broad estuary comprising an enormous drainage basin which includes the Paraguay River, the Parana River, and the Uruguay River, as well as numerous small streams. The estuary is entered between **Punta del Este, Uruguay** (34°58'S., 54°57'W.) and Cabo San Antonio, Argentina, located 120 miles SW. It extends in a WNW direction for about 140 miles.

Despite the enormous amount of water discharged into the ocean, the Rio de la Plata is relatively shallow. Seasonal rates of flow, winds, and tides have a considerable effect on depths.

The expanse of the low plain, known as the pampas, on the S side permits violent winds, called pamperos, to build up and whip the waters of the estuary into violent storms at certain times of the year. A large portion of the river cannot be used except by very shallow draft vessels. Navigation in the lower reaches is only maintained by constant dredging.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System

The Maritime Domain Awareness of Trade—Gulf of Guinea (MDAT—GoG) is a reporting system designed to improve maritime security, provide support to the mariner, and to maintain freedom of navigation for vessels in the waters off the W coast of Africa. All information reported to MDAT—GoG is treated in strict commercial confidence.

The MDAT—GoG Voluntary Reporting Area (VRA) is bounded by the coast and lines joining the following positions:

1. Cape Blanc (20°46'20.4"N., 17°02'52.8"W.).
2. Position 20°46'20.4"N, 29°00'00.0"W.
3. Position 14°00'00.0"N, 29°00'00.0"W.
4. Position 17°15'00.0"S, 8°00'00.0"E.
5. The Angola/Namibia border at latitude 17°15'00.0"S.

All merchant vessels within the VRA are encouraged to report to MDAT—GoG by telephone (33-2-98228888) or by e-mail (watchkeepers@mdat-gog.org), as follows:

1. Initial Report—When entering the VRA or departing a port within the VRA.
2. Daily Position Report—Daily by 1200 UTC.
3. Final Report—On arrival at a port within the VRA or upon departing the VRA.
4. Suspicious or Irregular Activity Report—On sighting such activity or when under direct attack.

The Initial Report should contain the following information:

1. Vessel name.
2. Flag.
3. Call sign and IMO Number.
4. INMARSAT telephone number.
5. MMSI.
6. Time of report (UTC).
7. Position.
8. Course.
9. Passage speed.
10. Maximum speed.
11. Freeboard.
12. Cargo.
13. Destination and estimated date and time of arrival.
14. Name and contact details of Company Security Officer.
15. Nationality of master and crew.
16. Armed/unarmed security team embarked.

The Daily Position Report should contain the following information:

1. Vessel name.
2. Call sign and IMO number.
3. Time of report (UTC).
4. Position.
5. Course and speed.
6. Any other important information.
7. Estimated time of leaving the VRA (if applicable).

The Final Report should contain the following information:

1. Vessel name.
2. Call sign and IMO Number.
3. Time of report (UTC).
4. Port/anchorage or position when leaving the VRA.

The Suspicious or Irregular Activity Report should contain the following information:

1. Own vessel's name.
2. Own vessel's call sign and IMO Number.
3. Time of report (UTC).
4. Own vessel's position.
5. Own vessel's course and speed.
6. Details of suspicious or irregular activity.

Vessels within the VRA should ensure their INMARSAT-C terminals are set to receive navigational warnings from both NAVAREA II and NAVAREA VII to be sure they receive all relevant navigational warnings.

Signals

For information on international port traffic signals and visual storm warning signals, see **Indian Ocean—Appendix II—International Port Traffic Signals and Visual Storm Warning Signals.**

Tides

General

The tide is semidiurnal along the coast of Africa, the E end of the Strait of Magellan, and the coast of Brazil S to 21°30'S; tides are mixed along the remaining coast of Brazil and Argentina.

The tidal range varies from less than 0.6m along the coast of Uruguay and southern Brazil to around 9.1m at the E end of the Strait of Magellan.

Northwest South Atlantic Ocean

The tide is semi-diurnal (two high and two low tides daily) along the coast of Brazil N of 21° 30'S, and mixed (part diurnal and part semi-diurnal) to the S.

The tide range varies from less than 0.6m S of 25°S to about 3.1m near the Equator.

Northeast South Atlantic Ocean

The tide is semi-diurnal along the W coast of Africa from Cape Agulhas to 10°N.

The mean tide range is from 0.9 to 1.5m in most places except the extreme N, where it exceeds 2.1m.

Southeast South Atlantic Ocean and the Western Indian Ocean

The tides are semi-diurnal along the coasts of southern Africa.

The average range is about 1.2m, except for an increase to 2.1m along the coast of Mozambique.

Southwest South Atlantic Ocean

The tide is mixed, except at the E end of the Strait of Magellan, where it is semi-diurnal.

The mean tide range varies from 0.3m along the coast of Uruguay to 9.1m at the E end of the Strait of Magellan. From 41°S to 54°S, the mean range is from 3.1 to 6.2m; at 55°S, it drops to under 1.5m.

Appendix—Routes in the South Atlantic Ocean

Routes in the South Atlantic Ocean are divided into the following sub-categories:

1. Cape of Good Hope to ports within the South Atlantic Ocean.
2. Cape of Good Hope to ports in the North Atlantic Ocean.
3. Rounding Cape Horn.
4. Strait of Magellan to ports within the South Atlantic Ocean.
5. Strait of Magellan to ports in the North Atlantic Ocean.
6. Routes between ports on the W coast of Africa.
7. Routes between ports on the E coast of South America.
8. Routes across the South Atlantic Ocean.
9. African ports to ports in the North Atlantic Ocean.
10. South American ports to ports in the North Atlantic Ocean.

1. CAPE OF GOOD HOPE TO PORTS WITHIN THE SOUTH ATLANTIC OCEAN

Cape of Good Hope to Cape Horn.—Proceed by rhumb line as far as position 35°00'S, 40°00'W and then by great circle to position 50°40'S, 62°00'W, a position NW of the Falkland Islands. From there, shape a course to pass through the Strait of Le Maire and then direct to position 56°06'S, 66°34'W and position 56°52'S, 68°44'W, the latter a position 20 miles S of Islas Diego Ramirez. See Rounding Cape Horn for additional information.

Cape of Good Hope to the Strait of Magellan.—Proceed by rhumb line as far as position 35°00'S, 40°00'W and then by great circle to the E entrance of the strait.

Cape of Good Hope to Walvis Bay.—Proceed by rhumb lines along the SW coast of Africa to a point off the entrance to Walvis Bay.

Cape of Good Hope to Pointe Noire.—Proceed by rhumb lines along the SW coast of Africa to a position W of Ponta Albina (l5°52'S., 11°45'E.) and then direct to Pointe Noire.

Cape of Good Hope to Port Harcourt.—Proceed by rhumb lines along the SW coast of Africa to a position seaward of the 200m curve off Cape Fria, and then direct to the entrance of the Bonny River (4°22'N., 7°06'E.) passing E of Ilha do Principe (1°38'N., 7°25'E.).

Cape of Good Hope to Lagos.—Proceed by rhumb lines along the SW coast of Africa to a position seaward of the 100-fathom curve off Cape Fria, and then by rhumb line direct to Lagos, passing between Pagalu and Sao Tome (0°15'N., 6°35'E.).

Cape of Good Hope to Tema, Takoradi, and Abidjan—Proceed by rhumb line direct to destination.

Cape of Good Hope to Port Harcourt.—Proceed by rhumb lines along the SW coast of Africa to a position seaward of the 200m curve off Cape Fria, and then direct to the entrance of the Bonny River (4°22'N., 7°06'E.) passing E of Ilha do Principe (1°38'N., 7°25'E.).

Cape of Good Hope to Lagos.— Proceed by rhumb lines along the SW coast of Africa to a position seaward of the 200m curve off Cape Fria, and then by rhumb line direct to Lagos, passing between Pagalu and Sao Tome (0°15'N., 6°35'E.).

Cape of Good Hope to Tema, Takoradi and Abidjan.—Proceed by rhumb line direct to destination.

Cape of Good Hope to Rio de Janeiro, Santos, and Rio de la Plata.—Proceed by rhumb line direct to destination. Although somewhat longer, a rhumb line track avoids the less favorable winds and currents encountered on a westbound passage along a great circle track.

Cape of Good Hope to Salvador.—Proceed by great circle to destination, passing S of Vema Seamount.

Cape of Good Hope to Belem.—Proceed along a great circle track to position 5°00'S., 34°40'W; then by rhumb lines to position 1°47'S, 40°00'W and position 0°08'S, 44°00'W; and then direct as safe navigation permits to the Rio Para pilot station at approximate position 0°29'S, 4°22'W.

2. CAPE OF GOOD HOPE TO PORTS IN THE NORTH ATLANTIC OCEAN

Cape of Good Hope to Ushant Island.—Proceed by great circle to position 10°48'N, 17°37'W a position outside the 200m curve off the coast of Guinea-Bissau, and then by rhumb line to a point 10 miles W of Cape Vert. When abreast of Cape Vert, set a course around Cap Blanc, remaining seaward of the 200m curve, and then steer for and through the passage between Gran Canaria and Tenerife in the Canary Islands Group. After clearing the islands, follow a great circle track to a point 10 miles W of Cape Finisterre,and then shape a rhumb line course direct to Ushant.

Cape of Good Hope to the Strait of Gibraltar.—Follow the route for Cape of Good Hope to Ushant Island as far as Cap Blanc, and then proceed coastwise, as safe navigation permits, to a point NW of Cape Bojador. From this position, shape a course to pass 10 miles NW of Cap Bedouzza (Cap Cantin) (32°33'N., 9°17'W) and then on to the strait, passing Cabo Expartel at a distance of about 5 miles.

Cape of Good Hope to Cayenne, Paramaribo, and Georgetown.—Follow a great circle track to position 5°00'S, 34°40'W and then rhumb line to position 4°30'N, 50°00'W. From this position, proceed coastwise as safe navigation permits to the pilot station off the desired port:

1. Cayenne (5°03'N., 52°18'W.).
2. Paramaribo (6°05'N., 55°13'W.).
3. Georgetown (6° 57'N., 58°03'W.).

Cape of Good Hope to the Gulf of Mexico.—Proceed by great circle to St. Lucia Channel, passing through position 4°55'S, 34°30'W (about 45 miles off Cabo de Sao Roque) and N of Barbados. After clearing the channel, set a course across the Caribbean to pass 10 miles SW of Cabo Rojo and through Mona Passage. From there, continue by coastal piloting along the N coast of Haiti and Cuba (via Old Bahamas Channel and Nicholas Channel) to the Straits of Florida.

Alternate route.—An alternate route which has more favorable currents is by great circle as far as position 0°00'N, 37°00'W and then by rhumb line to a position 5 miles off Galera Point, the NE extremity of Trinidad. From there, shape a course to pass S of Jamaica, through Yucatan Channel and on to destination, as directly as safe navigation permits.

Cape of Good Hope to ports on the E coast of the United States.—Proceed by great circle to the approaches of the desired port. For Boston, proceed by great circle to position 41°00'N., 69°00'W then as safe navigation permits around Cape Cod to destination.

3. ROUNDING CAPE HORN

The recommended route around Cape Horn which avoids the N limits of icebergs off the S, E, and NE coasts of the Falkland Islands follows a track that runs about 20 miles S of Islas Diego Ramirez, passes 20 miles seaward of lsla Hornos and through the Strait of Le Maire to a position W of the Falkland Islands. However, a radar-equipped vessel should encounter no difficulty by amending the route to pass between Cape Horn and Isla Diego Ramirez, providing a wide berth is given the SW coast of Chile. Additionally, passage can be taken E of Isla de los Estados vice the Strait of Le Maire, sea conditions permitting.

The route around Cape Horn (Drake Passage) carries some risks, notably the risk of damage as a result of the region's characteristically poor weather conditions, and furthermore the risk of encountering icebergs, the unpredictability of which is compounded by the absence of ice patrols.

It has been reported that many masters, experienced in the Strait of Magellan and the passage around Cape Horn, favored the use of the strait for both an eastbound and westbound voyage, and especially for westbound vessels in ballast. In the case of VLCC-sized vessels, however, passage of the strait demands constant attention and precision over a prolonged period of time. Moreover, the VLCC is continuously exposed to numerous submerged hazards, both charted and uncharted, tidal currents of up to 8 knots and limited room for maneuvering. Consequently, the route around Cape Horn offers a feasible alternative for the VLCC.

Routes between Cape Horn and destinations in the South Atlantic Ocean and the North Atlantic Ocean are best shaped by joining the route from the Strait of Magellan to the desired port as directly as possible. In the case of Cape Horn to the Cape of Good Hope, after passing through the Strait of Le Maire, steer by rhumb line courses to pass W of the Falkland Islands and join the **Strait Of Magellan-Cape of Good Hope** route (described below) at position 43°00'S, 47°00'W.

4. STRAIT OF MAGELLAN TO PORTS WITHIN THE SOUTH ATLANTIC OCEAN

General.—For information concerning the transit of the Strait of Magellan, including recommended routes, see Pub. 124, Sailing Directions (Enroute) West Coast of South America (Sector 8).

Strait of Magellan to the Cape of Good Hope.—Upon rounding Cape Virgins at the E entrance of the strait, follow rhumb line tracks through the following positions:

a. 47°50'S, 60°00'W.
b. 43°50'S, 50°00'W
c. 41°10'S, 40°00'W.
d. 40°20'S, 33°00'W.

From there, proceed along a great circle track to the cape, passing S of Gough Island.

Caution.—The extreme limit of iceberg migration in the South Atlantic is in about latitude 36°S, near Cape Agulhas, and latitude 39°S, near the Tristan da Cunha Group.

Strait of Magellan to Belem.—Follow a great circle track to position 18°00'S, 38°10'W passing at least 20 miles E of the dangers at Parcel dos Abrolhs, then shape a rhumb line course through the following positions:

a. 7°40'S, 34°20'W.
b. 5°00'S, 34°40'W.
c. 1°47'S, 40°00'W.
d. 0°08'S, 44°00'W.

Thereafter, proceed as directly as navigation permits to the pilot station off Belem at approximate position 0°29'S, 47°22'W.

Strait of Magellan to ports on the E coast of South America.—These routes are as direct as safe navigation permits and in general follow a great circle track to the most salient point between the strait and the port of destination, and then by rhumb line to the port. South of Rio de La Plata, advantage can be gained from the NNE set of the Falkland Current by remaining at least 50 miles off the coast. During the period May-July it may be beneficial to close the coast N of Rio de La Plata to take advantage of the Brazil Inshore Countercurrent running N.

Strait of Magellan to ports on the W coast of Africa S of the Equator.—Steer by rhumb line through the following positions:

a. 47°50'S, 60°00'W.
b. 43°50'S, 50°00'W.
c. 41°00'S, 40°00'W.

and then by great circle to destination.

5. STRAIT OF MAGELLAN TO PORTS IN THE NORTH ATLANTIC OCEAN

Strait of Magellan to ports on the W coast of Africa N of the Equator.—Follow a rhumb line course to position 47°50'S, 60°00'W, a position about 200 miles N of the Falkland Islands, and then, as navigation permits, by great circle to destination.

Strait of Magellan to Cayenne, Paramaribo, or Georgetown.—Follow the route for Strait of Magellan to Belem as far as position 5°00'S, 34°40'W and then steer by rhumb line to position 5°00'N, 51°00'W. From there, proceed coastwise to the appropriate pilot station, as follows:

1. Cayenne (5°03'N., 52°18'W.).
2. Paramaribo (6°05'N., 55°13'W).
3. Georgetown (6°57'N., 58°03'W.)

Strait of Magellan to the Gulf of Mexico.—Proceed along a great circle track to position 22°18'S, 40°30'W and then by rhumb lines to the following positions:

a. 18°00'S, 38°20'W.
b. 7°40'S, 34°20'W
c. 5°00'S, 34°40'W.

After rounding Cabo de Sao Roque, proceed by great circle so as to pass between St. Vincent and St. Lucia. From there, steer by rhumb line to pass 10 miles SW of Cabo Rojo and through Mona Passage; then by coastal piloting along the N coast of Haiti and Cuba (via Old Bahamas Channel and Nicholas Channel) to the Straits of Florida.

Alternate route.—An alternate route which is shorter for vessels bound for Mexican ports would be to follow a rhumb line course from Cabo de Sao Roque to Galera Point, the NE extremity of Trinidad, and then proceed across the Caribbean by rhumb lines, passing S of Jamaica and through the Yucatan Channel to destination.

Strait of Magellan to ports on the E coast of the United States.—Follow the route prescribed above for the Gulf of Mexico as far as position 5°00'S, 34°00'W. From there, continue by rhumb line to position 0°00'N, 37°00'W and then by great circle to the approaches of the desired port. For Boston, proceed by great circle to position 41°00'N, 69°00'W and then, as safe navigation permits, around Cape Cod to destination.

Strait of Magellan to Ushant Island.—Proceed by great circle to position 19°10'S, 38°20'W. After passing the dangers in the vicinity of the ArquipeIago dos Abrohlos, continue by great circle to position 17°05'N, 25°30'W a position W of Santo Antao in the Cape Verde Islands. From there, follow a great circle track to Ushant, passing W of Madeira Island.

Strait of Magellan to the Strait of Gibraltar.—Follow a great circle track to a position about 30 miles W of Cape Blanc, on the NW coast of Africa. From there, proceed by rhumb lines along the coast of the entrance of the strait.

6. ROUTES BETWEEN PORTS ON THE WEST COAST OF AFRICA

For the most part, routes between the ports on the W coast of Africa are coastwise and, on the occasion of a voyage between ports on opposite sides of the Equator, by rhumb line courses across the Gulf of Guinea, as direct as navigation permits.

The effect of the NNW set of the Benguela Current on coastal passages N of 15°S is minimal. Vessels transiting the coast in the vicinity of Cape Palmas and Cape Three Points may experience an ENE set as a result of the Guinea Current, particularly from July to September.

7. ROUTES BETWEEN PORTS ON THE EAST COAST OF SOUTH AMERICA

For the most part, routes between the ports on the E coast of South America are coastwise as direct as safe navigation permits. However, the presence of off-lying shoals, which poses a hazard to coastal navigation, may require a major seaward adjustment in the intended track, particularly in the area of Parcel dos Abrolhos (l8°00'S., 38°35'W.), Cabo de Sao Tome (22°00'S., 41°05'W.), and Banco do Albardao (33°12'S., 52°10'W.). In addition, care should be exercised when transiting the coast between Cabo de Sao Roque and Cabo Frio because of the prevalence of onshore currents. When transiting along the NE coast of South America, it is advisable to remain outside the 20m curve at all times.

8. ROUTES ACROSS THE SOUTH ATLANTIC OCEAN

Routes between South American ports N of Rio de La Plata and ports on the African coast N of 25°S are by great circle in both directions. A great circle track is also recommended in either direction between the port of Recife or Salvador and the Cape of Good Hope. Otherwise, eastbound transits should follow a great circle track while westbound vessels should normally proceed by rhumb line so as to avoid the strength of the eastgoing South Atlantic Current and the Prevailing Westerlies. Mid-ocean transits S of 42°S should be avoided in either direction.

Caution.—The extreme limit of iceberg migration in the South Atlantic Ocean is in about latitude 36°S, near Cape Agulhas, and latitude 39°S, near the Tristan da Cunha Group, and extends to within 200 miles of the mouth of the Rio de La Plata.

9. AFRICAN PORTS TO PORTS IN THE NORTH ATLANTIC OCEAN

Lagos to the Gulf of Mexico.—Proceed coastwise, as navigation permits, to a position S of Cape Palmas and then follow a great circle track to either the N coast of Hispaniola, if proceeding via Old Bahama Channel, or to Northeast Providence Channel, if proceeding via the Straits of Florida.

Note.—Routes to the Gulf of Mexico from other West African ports N of the Equator join the Lagos to Gulf of Mexico route at an expeditious position, by the most direct track possible. Routes to the Gulf of Mexico from ports S of the equator are by great circle to either St. Lucia Channel (passing N of Barbados) or, in the case of vessels bound for Mexican ports, to Galera Point, the NE extremity of Trinidad; thereafter, the routes continue across the Caribbean as in the Cape of Good Hope to the Gulf of Mexico.

Lagos to Boston.—Proceed coastwise S of Cape Three Points to a position off Cape Palmas, and then by rhumb line courses outside the 200m curve to the following positions off the NW coast of Africa:

1. 7°55'N, 14°30'W.
2. 10°48'N, 17°3TW.

From there, shape a course to pass N of Sal Island in the Cape Verde Group, and then follow a great circle track to Cape Cod, passing SW of the Georges Bank.

Lagos to New York.—Follow the route for Lagos to Boston as far as Sal Island in the Cape Verde Islands. From there, proceed by great circle to Ambrose Light.

Lagos to Philadelphia.—Follow the route for Lagos to Boston as far as position 7°55'N, 14°30'W; then shape a rhumb line course to a position 10 miles SW of Brava Island in the Cape Verde Islands. From there, proceed by great circle to the entrance of Delaware Bay.

Lagos to Hampton Roads.—Follow the route for Lagos to Boston as far as position 7°55'N, 14°30'W; then shape a rhumb line course to a position 10 miles SW of Brava Island in the Cape Verde Islands. From there, proceed by great circle to the entrance of Chesapeake Bay.

Lagos to Charleston.—Follow the directions for the Lagos to Boston route as far as position 7°55'N, 14°30'W; then proceed by great circle to the entrance to Charleston Harbor.

Lagos to Ushant Island.—Proceed coastwise S of Cape Three Points and Cape Palmas and then by rhumb line outside the 200m curve to the following positions off the NW coast of Africa:

1. 7°55'N, 14°30'W.
2. 10°48'N, 17°37'W.
3. 21°00'N, 18°00'W.

When abreast of Cap Blanc, steer for and through the passage between Gran Canaria and Tenerife in the Canary Islands Group. After clearing the islands, follow a great circle track to a point 10 miles W of Cape Finisterre, and then shape a rhumb line course direct to Ushant.

Note.—Routes to Ushant Island from other West African ports join the **Lagos to Ushant** route at an expeditious position, by the most direct track possible.

Lagos to the Strait of Gibraltar.—Follow the route for Lagos to Ushant until abreast of Cap Blanc. From there, proceed coastwise to a point NW of Cape Bojador and then by rhumb lines, as directly as navigation permits, to the entrance of the strait.

Note.—Routes to the Strait of Gibraltar from other West African ports join the **Lagos to the Strait of Gibraltar** route at an expeditious position, by the most direct track possible.

10. SOUTH AMERICAN PORTS TO PORTS IN THE NORTH ATLANTIC OCEAN

Rio de la Plata to the Gulf of Mexico.—Proceed as direct as navigation permits to position 22°18'S, 40°30'W (a position 35 miles SE of Cabo de Sao Tome); then to position 18°00'S, 38°10'W passing at least 20 miles E of Parcel dos Abrohlos; then by rhumb line to position 7°40'S, 34°20'W and position 5°00'S, 34°40'W. After rounding Cabo de Sao Roque, steer by great circle to pass between St. Vincent and St. Lucia, and then by rhumb lines, passing 10 miles SW of Cabo Rojo and through Mona Passage. Steer by coastal piloting along the N coast of Haiti and Cuba (via Old Bahamas and Nicholas Channels) to the Straits of Florida and then to the destination.

Alternate route.—An alternate route which is shorter for vessels bound for Mexican ports would be to follow a rhumb line course from Cabo de Sao Roque to Galera Point, the NE extremity of Trinidad; then proceed across the Caribbean by rhumb lines passing S of Jamaica and through the Yucatan Channel to destination, as navigation permits.

Rio de la Plata to ports on the E coast of the United States.—Proceed coastwise as navigation permits to position 22°18'S, 40°30'W taking care to remain seaward of the dangers at Banco do Albardao. From there, shape a course for position 18°00'S, 38°10'W passing at least 20 miles E of Parcel dos Abroholas. Then proceed by rhumb lines to position 7°40'S, 34°20'W and position 5°00'S, 34°40'W. After rounding Cabo de Sao Roque, follow a great circle track to a position off the entrance to the desired port.

From May to July advantage can be gained from the N-going Brazil Inshore Countercurrent by remaining closer to the coast, particularly between Rio de la Plata and Cape Frio.

Rio de la Plata to Ushant.—Follow the route prescribed for Rio de la Plata to the Gulf of Mexico as far as position 7°40'S, 34°20'W and then proceed by great circle to position 17°50'N, 25°07'W (off Santo Antao in the Cape Verde Islands). From there, continue by great circle to Ushant.

From May to July advantage can be gained from the N-going Brazil Inshore Countercurrent by remaining closer to the coast, particularly between Rio de la Plata and Cape Frio.

Rio de la Plata to the Strait of Gibraltar.—Proceed coastwise, as navigation permits, to position 22°18'S, 40°30'W taking care to remain seaward of the dangers at Banco do Albardao. From this position, follow a great circle track to position 28°00'N, 15°00'W close E of Gran Canaria in the Canary Islands, and then directly as possible to the strait. Extreme care should be exercised in making the passage along the E coast of Brazil, particularly in the vicinity of Parcel dos Abrohlos (l8°00'S., 38°40'W.) and Banco Minerva (l7°00'S., 37°25'W.), which should be given wide berths.

Rio de Janeiro or Santos to the Gulf of Mexico.—Proceed as direct as navigation permits to position 22°18'N, 40°30'W a position 35 miles SE of Cabo de Sao Tome; then to position 18°00'S, 38°10'W passing at least 20 miles E of Parcel dos Abrohlos; then by rhumb line to position 7°40'S, 34°20'W and position 5°00'S, 34°40'W. After rounding Cabo de Sao Roque, proceed as in the Rio de la Plata to the Gulf of Mexico route.

Rio de Janeiro or Santos to ports on the E coast of the United States.—Proceed coastwise as navigation permits to position 22°18'S, 40°30'W a position 35 miles SE of Cabo de Sao Tome. After rounding Cabo de Sao Tome, steer by rhumb line to position 18°00'S, 38°10'W passing no less than 20 miles E of Parcel dos Abrohlos, and then to position 7°40'S, 34°20'W and position 5°00'S, 34°40'W. From there, follow a great circle track to a position off the entrance to the desired port.

Rio de Janeiro or Santos to the Strait of Gibraltar.—Proceed coastwise as navigation permits to position 22°18'S, 40°30'W a position 33 miles SE of Cabo de Sao Tome; then by great circle to position 28°00'N, 15°00'W close E of Gran Canaria in the Canary Islands. From this position, shape a course direct to the entrance of the strait. Extreme care should be exercised in making the passage along the E coast of Brazil, particularly in the vicinity of Parcel dos Abrohlos (18°00'S., 38°40'W.) and Banco Minerva (17°00'S., 37°25'W.), which should be given wide berths.

Salvador to the Gulf of Mexico—Proceed by coastal piloting to position 7°40'S, 34°20'W and then to position 5°00'S, 34°40'W. After rounding Cabo de Sao Roque, proceed as in the **Rio de la Plata to the Gulf of Mexico** route

Salvador to ports on the E coast of the United States.—Proceed coastwise as navigation permits to position 7°40'S, 32°20'W and then by rhumb line to position 5°00'S, 34°40'W a position about 60 miles ENE of Cabo de Sao Roque. From there follow a great circle track to a position off the entrance to the desired port.

Salvador to Ushant.—Follow the route prescribed for Salvador to the Gulf of Mexico as far as position 7°40'S, 34°20'W and then proceed by great circle to position 17°50'N, 25°07'W (off Santo Antao in the Cape Verde Islands). From there, continue by great circle to Ushant.

Rio de Janeiro or Santos to Ushant.—Follow the route prescribed for Rio de Janeiro or Santos to the Gulf of Mexico as far as position 7°40'S, 34°20'W and then proceed by great circle to position 17°50'N, 25°07'W (off Santo Antao in the Cape Verde Islands). From there, continue by great circle to Ushant.

Belem to ports in the Gulf of Mexico.—From the Rio Para pilot station (0°29'S., 47°22'W.), proceed directly to position 5°00'N, 51°00'W allowing for a WNW set by the South Equatorial Current. From this position, steer by rhumb line courses to pass between Galera Point, the N E extremity of Trinidad, and the island of Tobago. After passing abreast of Galera Point, shape a course to pass S of Jamaica, N of Grand Cayman and through the Yucatan Channel, W of Cabo San Antonio. Once clear of the channel, proceed as direct as safe navigation will permit to destination.

Belem to ports on the E coast of the United States.—From the Rio Para pilot station (0°29'S., 47°22'W.) proceed directly to position 5°00'N, 51°00'W allowing for a WNW set by the South Equatorial Current; then proceed as direct as safe navigation permits to destination. Generally, for destinations N of the 35th parallel, a great circle course can be set at departure.

Belem to Ushant.—From the Rio Para pilot station, follow a great circle track to Ushant.

Belem to the Strait of Gibraltar.—From the Rio Para pilot station (0°29'S., 47°22'W.), proceed by great circle to the strait, passing between La Palma and Hierro (Ferro) in the Canary Islands.

Georgetown, Paramaribo, and Cayenne to the Gulf of Mexico.—From a position off the pilot station of the port of departure, steer by rhumb line courses to pass between Galera Point, the NE extremity of Trinidad, and the island of Tobago; care should be taken to remain outside the 20m curve along the South American coast. After passing abreast of Galera Point, proceed as in the **Belem to the Gulf of Mexico** route.

Georgetown to ports on the E coast of the United States.—From a position off the pilot station at Georgetown, steer as directly as possible to pass between St. Vincent and St. Lucia, and then along the Antilles chain to position 18°31'N, 63°36'W passing between St. Eustatius and Saba. From there proceed by the safest and most convenient route to destination.

Alternate route.--For ships bound for ports along the SE Atlantic coast, steer to pass between Galera Point, the NE extremity of Trinidad, and the island of Tobago, taking care to remain seaward of the 20m curve. From there, shape a course across the Caribbean Sea to pass through Mona Passage, then N to position 20°30'N, 68°00'W. From this position proceed as directly as safe navigation permits to destination.

Georgetown to Ushant.—Proceed by great circle, passing SE of Terceira Island in the Azores.

Georgetown to the Strait of Gibraltar.—Proceed by great circle to the strait, passing between Ilha da Madeira and Isla Chao (32°35'N., 16°33'W.) in the Arquipelago da Madeira.

Paramaribo and Cayenne to ports on the E coast of the United States.—From a position off the pilot station of the port of departure, proceed as directly as safe navigation permits to destination, passing E of the Antilles chain.

SRI LANKA

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General

Sri Lanka, formerly Ceylon, is a large pear-shaped island lying off the SE coast of India. The central part of the S half is mountainous, while elsewhere the island is practically flat. Extensive fresh and salt water lagoons lie close inland along much of the coast. Slight earthquake shocks are occasionally felt in Sri Lanka, but they are not sufficiently intense to cause serious damage. The climate is tropical monsoon; the Northeast Monsoon lasts from December to March, while the Southwest Monsoon lasts from June to October.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Lighted aids to navigation may be extinguished in parts of Sri Lanka, particularly in Palk Strait and its environs.

Cautions

Fish Traps

Many fish traps, with large blocks of wood and strong moorings attached, are laid off the N coast of Sri Lanka and are a danger to vessels, especially at night.

Piracy

Attacks on all classes of vessels occur in the waters of Sri Lanka, particularly off the N and NE coasts of the island. They also occur at a considerable distance offshore.

Oil Exploration

Oil exploration activities are taking place in the Gulf of Mannar, between the SE coast of India and the W coast of Sri Lanka.

Currency

The official unit of currency is the Sri Lankan rupee, consisting of 100 cents.

Firing Areas

Naval gun firing exercises are carried out in areas bounded by lines joining the following positions:

1. **Area D2.**
   a. 6°50'N, 79°25'E.
   b. 6°50'N, 79°39'E.
   c. 6°35'N, 79°39'E.
   d. 6°35'N, 79°25'E.
2. **Area D3.**
   a. 7°19'N, 79°10'E.
   b. 7°16'N, 79°30'E.
   c. 7°06'N, 79°30'E.
   d. 7°03'N, 79°10'E.
3. **Area D4.**
   a. 8°50'N, 81°20'E.
   b. 8°50'N, 81°30'E.
   c. 8°40'N, 81°30'E.
   d. 8°40'N, 81°20'E.
4. **Area D5.**
   a. 8°30'N, 81°30'E.
   b. 8°30'N, 81°40'E.
   c. 8°20'N, 81°40'E.
   d. 8°20'N, 81°30'E.

Details of operating/activation times for the above areas will be transmitted by Colombo Radio.

Government

Flag of Sri Lanka

Sri Lanka is a republic. The island is divided into nine provinces.

Sri Lanka is governed by a directly-elected President, who serves a 6-year term. The Cabinet is appointed by the President. The unicameral Parliament consists of 225 directly-elected members, under a modified system of proportional representation, serving 6-year terms.

The legal system is based on a highly complex mixture of English common law, Roman-Dutch law, Islamic law, and Sinhalese customary law.

The capital is Colombo.

Holidays

The following holidays are observed:

February 4	National Day
Good Friday	Variable
April 13	New Year's Eve (Tamil and Sinhala)
April 14	New Year's Day (Tamil and Sinhala)
May 1	May Day
December 25	Christmas Day

Religious holidays, the dates of which vary from year to year depending on the appearance of the moon, include Thai Pongal, Eid Al-Fitr, Maha Sivarathri, Eid Al-Adha, Deepavali, Milad-Un-Nabi (Prophet's Birthday), and 12 days during the year known as Full Moon Poya Days.

Industries

The main industries are the processing of rubber, tea, tobacco, coconuts, and other agricultural commodities; telecommunications; insurance; banking; tourism; shipping; clothing; textiles; cement; petroleum refining; information technology services; and construction.

The main exports are textiles and apparel, tea and spices, precious gems (diamonds, emeralds, and rubies), rubber manufacturing, coconut products, and fish. The main export-trading partners are the United States, the United Kingdom, India, and Italy.

The main imports are petroleum, textile fabrics, machinery and transportation equipment, building materials, mineral products, and foodstuffs. The main import-trading partners are India, China, the United Arab Emirates, and Singapore.

Languages

Sinhala and Tamil are the official languages. English is also widely used.

Mined Areas

Reports have been received that waters near Sri Lankan ports may be mined.

Navigational Information

Enroute Volume

Pub. 173, Sailing Directions (Enroute) India and the Bay of Bengal.

Maritime Claims

The maritime territorial claims of Sri Lanka are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims Palk Bay, Palk Strait, and the Gulf of Mannar as historic waters.
** Also considered a Security Zone.

Regulations

East Coast—Security Zone

Mariners are cautioned that the government of Sri Lanka has declared a 3-mile wide territorial security zone off the E coast between **Point Pedro** (9°50'N., 80°15'E.) and **Komari** (Sangamankanda Point) (7°00'N., 81°53E.). All merchant vessels approaching Sri Lanka from the E should be aware of the possible presence of naval patrol vessels which may request identification and details of destination.

The government of Sri Lanka has issued the following regulations:

1. No vessel shall enter or remain within Sri Lanka's territorial waters other than:
   a. Those entering or leaving Sri Lanka's ports of Colombo, Galle, Trincomalee, and Kankesanturai.
   b. Vessels navigating through the traffic separation scheme off Dondra Head.
   c. Vessels engaged in Sri Lanka's coastal trade.
   d. Vessels laid up inside Trincomalee Harbor.
   e. Vessels waiting in the roads off the port of Colombo with the approval of the harbormaster.
   f. Vessels navigating through Sri Lanka's territorial sea and internal waters in the Palk Strait with the permission of the commander of the Sri Lanka Navy.
2. Any vessel which enters Sri Lanka's territorial waters in contravention of these rules shall do so at their own risk, and the Sri Lanka government shall not be liable for any loss or damage such vessels may suffer.
3. The master of any vessel which enters Sri Lanka's territorial waters shall identify the vessels if challenged by:
   a. Any vessel responsible for the performance of coast guard duties.
   b. Any Sri Lanka aircraft.
   c. Any Sri Lanka authority from land by radio.
4. Any vessel which has to enter Sri Lanka's territorial waters for purposes other than those described in the rules shall do so only with the approval of the harbormaster.

The above regulations are promulgated for information only and should in no way be construed as in derogation of the right of navigation on the high seas.

Palk Strait

Entrance by unauthorized vessels into the waters of Palk Strait and the E territorial waters of Sri Lanka is prohibited because of increased acts of terrorism against shipping and Sri Lankan naval vessels. Vessels in the vicinity must contact the Sri Lankan Command for written authorization to enter these areas.

West Coast

A restrictive zone has been established in the coastal waters of the W coast of Sri Lanka from Kalpitiya (8°14'N., 79°46'E.) to the S backwaters of Colombo, about 80 miles S. Vessels must contact the Sri Lankan Command for written authorization to enter these waters. Violators will be fired on by the Sri Lankan navy.

Search and Rescue

Maritime search and rescue operations are coordinated by the Sri Lankan Navy. A Maritime Rescue Coordination Center (MRCC) is located in Colombo and can be contacted, as follows:

1.	Telephone:	94-11-244-5368
		94-11-221-2230
		94-11-221-2231
2.	Facsimile:	94-11-244-1454
		94-11-244-9718
3.	E-mail:	nhqdno@navy.lk
		nhqdno@yahoo.com
		mrcccolombo@gmail.com

Colombo Coast Radio Station (4PB) maintains a continuous listening watch for distress calls on 2182 kHz and VHF channel 16.

Galle Coast Radio Station (4PG), a remote-controlled station operated from Colombo Coast Radio Station, maintains a continuous listening watch for distress calls on VHF channel 16.

Rescue craft are located in Jaffna, Galle, and Colombo.

Time Zone

The observed Standard Time is 5 hours 30 minutes fast of UTC. Daylight Savings Time is not observed.

Traffic Separation Schemes

An IMO-adopted Traffic Separation Scheme is located off Dondra Head, the S extremity of Sri Lanka.

U.S. Embassy

The U.S. Embassy is situated at 210 Galle Road, Colombo. The mailing address is P.O. Box 106, Colombo.

U. S. Embassy Sri Lanka Home Page
http://srilanka.usembassy.gov

SUDAN

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General

Sudan, the largest country in Africa, is located in the NE part of Africa. It is bounded on the SE by Ethiopia and Eritrea, on the E by the Red Sea, on the N by Egypt, and on the NW by Libya. The country may be divided into two regions, as follows:

1. The region lying N of 16°N is a continuation of the Sahara Desert.
2. The region lying S of 16°N is fertile, abundantly watered, and densely wooded in places.

Sudan is traversed from S to N by the Nile River; the Nubian Desert extends between the valley of this river and the Red Sea. This desert consists of a rugged and barren wasteland scored with ravines where there is scanty vegetation.

The climate is tropical in the S part, with a rainy season of April to October, and arid desert in the N part.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Special Warning 127 (Issued 7 November 2014)

1. The Department of State warns U.S. citizens of the risks of traveling to Sudan, urges U.S. citizens to avoid all travel to the Darfur region of Sudan, the Blue Nile and Southern Kordofan states, and advises U.S. citizens to consider carefully the risks of travel in other areas of Sudan. While the Government of Sudan has taken steps to limit the activities of terrorist groups, elements of these groups remain in Sudan and have threatened to attack Western interests..
2. The U.S. government maintains a comprehensive sanctions regime on Sudan. Among the prohibited activities are "any transaction by a United States person relating to transportation of cargo to or from Sudan." "United States person" is defined as any U.S. citizen, permanent resident, entity organized under U.S. law, or person in the United States.
3. The United States Maritime Administration (MARAD) has advised that regional tensions entail the risk of maritime attacks being conducted against vessels operating in the Gulf of Oman, North Arabian Sea, Gulf of Aden, and the Bab el Mandeb regions.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Magnetic Anomalies

A magnetic anomaly has been reported in the vicinity of position 22°15'N, 35°15'E.

Currency

The official unit of currency is the dinar, although the former Sudanese pound remains legal tender.

Government

Flag of Sudan

Sudan is a sovereign independent republic. The country is divided into 18 states.

Sudan is governed by a directly-elected President serving a 5-year term. The Council of Ministers is appointed by the President. The National Legislature consists of a 426-member National Assembly (members serving 6-year terms) and an appointed 36-member Council of States (two members from each state serving 6-year terms).

The legal system is based on Islamic law and English common law.

The capital is Khartoum.

Holidays

The following holidays are observed:

January 1	Independence Day
March 3	National Unity Day
April 6	Uprising Day
May 25	Revolution Day
June 30	National Salvation Revolution Day
December 25	Christmas Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are agriculture, oil, cotton ginning, textiles, cement, edible oils, sugar, soap, footwear, petroleum refining, pharmaceuticals, armaments, and automobile/light truck assembly.

The main exports are gold, oil and petroleum products, cotton, sesame, livestock, peanuts, gum arabic, and sugar. The main export-trading partners are Macau, the United Arab Emirates, Saudi Arabia, and Egypt.

The main imports are foodstuffs, manufactured goods, refinery and transport equipment, medicines, chemicals, textiles, and wheat. The main import-trading partners are Macau, India, the United Arab Emirates, India, Malaysia, and Egypt.

Languages

Arabic and English are the official languages.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Sudan are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	18 miles.
Continental Shelf	Depth of 200m or the Limit of Exploitation.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.

** Also considered a Security Zone.

Pollution

MARPOL Special Area

The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba, has been designated as a MARPOL Special Area. MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Regulations

Quarantine

The standard quarantine code message should be send 8 to 12 hours prior to arrival. The Ports and Quarantine Health Unit Port Sudan can be contacted, as follows:

1. Telephone: 249-311-825207
2. Facsimile: 249-311-831572
3. E-mail: PQHU@hotmail.com

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Kilo 10, Soba, Khartoum. The mailing addresses are, as follows:

1. Sudan address—
   P.O. Box 699
   Kilo 10, Soba
   Khartoum
2. U.S. address—
   APO AE (09829)

U. S. Embassy Sudan Home Page
http://sudan.usembassy.gov

SURINAME

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General

Suriname, located in the N part of South America, is bounded on the E by French Guiana, on the W by Guyana, on the S by Brazil, and on the N by the Atlantic Ocean.

The majority of the population inhabits the flat and fertile coastal area, 210 miles long, where dikes permit agriculture. The country inland is hilly and covered with dense tropical forests.

The climate is equatorial with uniformly high temperatures and rainfall. There is no recognized dry season.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Exposed light structures marking the approaches to river ports are liable to be destroyed.

Cautions

Heavy rollers may occur along the coast from December through February, but especially in December and January, when the NE trade winds are strong. Rollers appear where the depths decrease irregularly or in depths of about 9m over coastal sand banks and mud banks.

Currency

The official unit of currency is the Suriname guilder, consisting of 100 cents.

Fishing Areas

Large-scale shrimp fishing is carried out off the coast of Suriname.

Government

Flag of Suriname

Suriname is a constitutional democracy. The country is divided into ten districts.

Suriname is governed by a president elected by the National Assembly for a 5-year term.The President appoints the Cabinet of Ministers. The unicameral National Assembly consists of 51 directly-elected members serving 5-year terms.

The legal system is based on Dutch civil law incorporating French penal theory.

The capital is Paramaribo.

Holidays

The following holidays are observed:

January 1	New Year's Day
February 25	Revolution Day
Easter Sunday	Variable
Easter Monday	Variable
Holy Phagwa	Variable
May 1	Labor Day
July 1	Emancipation Day
August 9	Indigenous People of Suriname Day
November 25	Independence Day
December 25	Christmas Day
December 26	Boxing Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are bauxite and gold mining, aluminum smelting, oil, lumber, food processing, and fishing.

The main exports are aluminum, gold, crude oil, lumber, shrimp and fish, rice, and bananas. The main export-trading partners are the United States, the United Arab Emirates, Belgium, Canada, Guyana, and France.

The main imports are capital equipment, petroleum, foodstuffs, cotton, and consumer goods. The main import-trading partners are the United States, the Netherlands, China, and Trinidad and Tobago.

Languages

Dutch is the official language, but English is widely spoken. Surinamese (Taki-Taki) is a native language spoken by the Creoles and many young people.

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of Suriname are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Maritime Boundary Disputes

Suriname and Guyana seek United Nations arbitration to resolve a long-standing dispute over the axis of the territorial sea in potentially oil-rich waters.

Pollution

Dirty ballast must not be pumped overboard within 50 miles of the coast.

Vessels in ballast must carry sufficient clean ballast to allow safe handling over the bars and up the rivers.

Regulations

General

In all ports, vessels must maintain a sufficient state of readiness to get underway at full power at short notice.

Dangerous cargo must have the method of packing and stowage indicated on the manifest.

Pratique

Vessels are normally cleared when berthed alongside or at the inner anchorage. A doctor will board only if contact with disease has been reported in the ETA message.

Search and Rescue

A Maritime Rescue Coordination Center (MRCC) is located in Paramaribo and can be contacted, as follows:

1. Telephone: 597-474575
2. Facsimile: 597-472845

MRCC Paramaribo maintains a continuous listening watch for distress traffic on VHF channels 12 and 16.

Time Zone

The Time Zone description is PAPA (+3). Daylight Savings Time is not observed.

U.S. Embassy

The U. S. Embassy is situated at 129 Dr. Sophie Redmondstraat, Paramaribo.

The mailing address is Department of State, P.O. Box 1821, Paramaribo.

U. S. Embassy Suriname Home Page
http://suriname.usembassy.gov

TANZANIA

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General

Tanzania, consisting of Tanganyika and the off-lying islands of Zanzibar and Pemba, is located on the E coast of Africa between the great lakes of the central part of the continent and the Indian Ocean. It is bounded on the NE by Kenya; on the NW by Uganda, Rwanda, and Burundi; on the W by Democratic Republic of the Congo (Zaire); on the SW by Zambia and Malawi; and on the S by Mozambique.

The mainland consists of a low-lying coastal area, a high central plateau, and several scattered mountainous zones. Mount Kilimanjaro, the tallest peak in Africa, stands in the NE part of Tanzania, near the Kenyan border, and is 5,895m high.

Zanzibar is the largest and most important of the many islands lying off the E coast of Africa. This island is undulating, fertile, and has a harbor on its W side. Pemba, a low island, lies 24 miles NE of Zanzibar.

The climate varies from tropical along the coast to temperate in the highlands.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Drill Rigs

Uncharted drill rigs and well heads may be found off the coast from Mafia Island, Tanzania to Arquipelago das Querimbas, Mozambique.

Magnetic Anomaly

A local magnetic anomaly has been reported between Mwamba Kitugamue (4°48.5'S., 39°21.5'E.) and Ksaite Island (4°44.3'S. 39°22.2'E.).

Currency

The official unit of currency is the Tanzanian shilling, consisting of 100 cents.

Fishing Areas

In 2005, a number of fish aggregating devices (FAD) were moored along sections of the Tanzanian coast, in depths of 300 to 650m, as part of a fisheries development trial.

On the surface, a FAD is marked by a line of up to 25 yellow plastic floats on a 30m-long wire; the end of the float line may be marked by a 2m-long pole with a radar reflector. During the Southeast Monsoon, all or part of the float section may be submerged; the float section resurfaces during the Northeast Monsoon. Vessels should remain at least 0.5 mile clear of a FAD.

Government

Flag of Tanzania

Tanzania is a republic. The country is divided into 30 regions.

Tanzania is governed by a directly-elected President serving a 5-year term. The Prime Minister and the cabinet are named by the President from members of the National Assembly. The unicameral 357-member National Assembly consists of 239 directly-elected members, 102 female members appointed by the President, ten additional members appointed by the President, one seat reserved for the Attorney General, and five members from the Zanzibar House of Representatives; all members serve 5-year terms.

Zanzibar has its own directly-elected President, as well as a directly-elected 61-member House of Representatives, with 50 directly-elected members and 11 appointed members, all serving 5-year terms; they enact laws that apply only to Zanzibar.

The legal system is based on English common law.

The official capital is Dodoma; all legislative offices are located here. Dar es Salaam is the chief port and former capital; the Executive Branch and all ministries and diplomatic representatives are located here.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 12	Zanzibar Revolution Day
Good Friday	Variable
Holy Saturday	Variable
Easter Sunday	Variable
Easter Monday	Variable
April 28	Union Day
May 1	Labor Day
July 7	Saba Saba (Peasants' Day)
October 14	Mwalimu Nyerere Day
December 9	Independence Day
December 25	Christmas Day
December 26	Boxing Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), and Maulid.

Industries

The main industries are food processing, mining (diamonds, gold, and iron), salt, soda ash, cement, oil refining, shoes, apparel, wood products, and fertilizer.

The main exports are gold, coffee, cashews, manufactured goods, and cotton. The main export-trading partners are India, China, Japan, and Germany.

The main imports are consumer goods, machinery and transportation equipment, industrial raw materials, and crude oil. The main import-trading partners are China and India.

Languages

English and Swahili are the official languages. English is the principal language of commerce, administration, and higher education.

Swahili, the principal language of communication and primary education, is widely used by numerous ethnic groups. There are many tribal languages.

Navigational Information

Enroute Volume

Pub. 171, Sailing Directions (Enroute) East Coast of Africa.

Maritime Claims

The maritime territorial claims of Tanzania are, as follows:

Territorial Sea	12 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Offshore Drilling

The Songo Songo Gas Field lies NNW of Songo Songo Island (8°31'S., 39°30'E.). A gas pipeline connects the island to Somanga Funga, 12 miles WSW. The Marine Terminal is located on the W side of Songo Songo Island.

Regulations

Vessels are advised that it is prohibited to transmit on HF or MF frequencies when anchored in or navigating within 15 miles of Tanzanian ports. Only VHF transmissions are allowed unless prior permission has been obtained from the Chief Marine Radio Inspector, Maritime Communications Division, P.O. Box 2260, Dar es Salaam. Other methods for requesting the Chief Marine Radio Inspector are, as follows:

Facsimile:	255-51-50463
Telex:	989-41908 MBUGI (addressed to the attention of the Chief Marine Radio Inspector)

Search and Rescue

The Tanzania Harbor Authority is responsible for search and rescue operations within the coastal waters of Tanzania. Dar es Salaam Port Control maintains a continuous listening watch for distress traffic on VHF channel 16.

Maritime Rescue Coordination Subcenter (MRSC) Dar es Salaam can be contacted, as follows:

1. Telephone: 255-222-129325
   255-222-129326
   255-222-129327
2. Facsimile: 255-222-129326
3. E-mail: mrccdar@sumatra.or.tz

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 686 Old Bagamoyo Road, Msasani, Dar es Salaam.

The mailing address is P.O. Box 9123, Dar es Salaam.

U. S. Embassy Tanzania Home Page
http://tanzania.usembassy.gov

THAILAND

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General

Thailand, formerly Siam, is located in Southeast Asia and borders the Gulf of Thailand and the Andaman Sea. It is bounded on the W by Burma (Myanmar), on the E by Laos and Kampuchea (Cambodia), and on the S by Malaysia.

The terrain consists of a central plain, with a plateau in the E part and mountains elsewhere.

The climate is mostly tropical. It is rainy and warm during the Southwest Monsoon, from mid-May to September. It is dry and cool during the Northeast Monsoon, from November to mid-March. The S part is always hot and humid.

Buoyage System

The IALA Buoyage System (Region A) is in effect, although

some beacons and buoys which do not conform to this system continue to exist. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Piracy is prevalent in the Strait of Malacca.

Currency

The official unit of currency is the baht, consisting of 100 satang.

Firing Areas

Military firing practice areas have been established off the W coast of Thailand from SW of Ko Surin to W of Ko Phuket, as follows:

1a.	9°15.0'N, 97°10.0'E
b.	9°15.0'N, 97°40.0'E
c.	8°45.0'N, 97°40.0'E
d.	8°45.0'N, 97°10.0'E
2a.	9°00.0'N, 97°50.0'E
b.	9°00.0'N, 98°05.0'E
c.	8°40.0'N, 98°05.0'E
d.	8°40.0'N, 97°50.0'E
3a.	8°33.0'N, 98°12.5'E
b.	8°33.0'N, 97°50.0'E
c.	8°27.0'N, 97°50.0'E
d.	8°27.0'N, 98°14.0'E

An anti-submarine exercise area has been established about 45 miles WSW of Ko Phuket and is bounded by lines joining the following positions:

a. 7°05'N, 97°18'E.
b. 7°05'N, 97°48'E.
c. 8°05'N, 97°48'E.
d. 8°05'N, 97°18'E.

Fishing Areas

Heavy concentrations of large and small fishing vessels will be encountered, especially from September to May, off the ports and harbors of Thailand.

Mariners should keep a good lookout, especially at night and around sunrise and sunset, when navigating in coastal waters.

Fishing stakes and enclosures are generally found on off-lying banks and off the coast in depths of 5 to 10m, but occasionally in greater depths. Their positions are subject to considerable change.

Numerous marine farms are located in the coastal waters of Thailand.

Government

Flag of Thailand

Thailand is a constitutional monarchy. The country is divided into 76 provinces and one municipality.

Thailand is governed by a King. The Prime Minister is appointed by the King.

In 2014, the bicameral National Assembly was replaced by the National Legislative Assembly, consisting of not more than 220 members. Elections for a permanent legislature are currently unscheduled and may not occur until mid-2017.

The legal system is based on civil law, with influences of common law.

The capital is Bangkok.

Holidays

The following holidays are observed:

January 1	New Year's Day
May 1	Labor Day
May 5	Coronation Day
July 1	Mid-year Day
August 12	Her Majesty the Queen's Birthday
December 5	His Majesty the King's Birthday
December 10	Constitution Day
December 25	Christmas Day
December 31	New Year's Eve

Industries

The main industries are tourism, textiles and clothing, agricultural processing, beverages, tobacco, cement, furniture, plastics, automobiles and automotive parts, tin and tungsten ore mining, and light manufacturing (jewelry, appliances, integrated circuits, and parts).

The main exports are electronics, computer parts, automobiles and parts, electrical appliances, machinery and equipment, textiles, footwear, fish products, rice, and rubber. The main export-trading partners are China, the United States, Ja-

pan, Malaysia, and Hong Kong,

The main imports are capital goods, intermediate goods and raw materials, consumer goods, and fuels. The main import-trading partners are China, Japan the United States, Malaysia, and the United Arab Emirates.

Languages

Thai is the official language. There are also several ethnic and regional dialects. English is used widely by the elite and in commerce.

Meteorology

Shipping forecasts are available in English and Thai from the Thailand Meteorological Department.

Thailand Meteorological Department Home Page

http://www.tmd.go.th

Navigational Information

Enroute Volumes

Pub. 161, Sailing Directions (Enroute) South China Sea and Gulf of Thailand.

Pub. 174, Sailing Directions (Enroute) Strait of Malacca and Sumatera.

Maritime Claims

The maritime territorial claims of Thailand are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.

* Claims straight baselines. Claims the inner Gulf of Thailand to 12°35'45"N as a historical bay.

Regulations

The laws relating to the production, possession, distribution, and use of narcotic drugs are extremely severe in Thailand. Penalties for infringement range from prison sentences and fines to life imprisonment and even execution.

Crew members, when on shore leave, must not carry sheath knives or other dangerous weapons.

Requirements for vessels visiting Thai waters are contained in the *Act on Navigation in Thai Waters (BE 2456)*. A copy of the regulations can be accessed at http://thailaws.com/law/t_law420.pdf.

Search and Rescue

Search and rescue operations in Thailand are coordinated by the Department of Civil Aviation at Krung Thep (Bangkok) Rescue Coordination Center with the Royal Thai Navy, the Thai Marine Police Division, and the Harbor Department.

Contact information for RCC Bangkok and its associated Maritime Rescue Coordination Subcenters (MRSC) is given in the table titled **Thailand—Search and Rescue Contact Information.** RCC Bangkok can also be contacted through Bangkok Radio.

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Signals

General

Thailand requires that vessels preparing to leave port or Thai waters shall fly the International Code flag "P" indicating that the vessel is about to proceed to sea. If the vessel is to depart in the morning, this flag is to be flown in the afternoon of the previous day. If departure is in the afternoon, the flag is to be flown in the morning.

The vessel shall notify the harbormaster at least 6 hours before the expected time of departure.

Within Thai territorial waters, merchant vessels may be signaled by Thai naval craft to stop, or to proceed in a certain direction, for the purpose of a search, as follows:

1. By day, signals from the International Code will be used by naval patrol craft. By night, repeated short and long flashes will be made by naval patrol craft, or a rocket, from which a red flare is ejected, will be fired. Vessels that do not stop in answer to these signals will be fired on.

Thailand—Search and Rescue Contact Information

	Telephone	Facsimile	E-mail
RCC Bangkok	66-2-2860506	66-2-2873186	bkkrcc@aviation.go.th
	66-2-2860594		
	66-2-2869353		
Bangkok Radio	66-2-4022001	66-2-4022000	—
	66-2-4022002		
	66-2-4022003		
	66-2-4022004		
MRSC Songkhla	—	66-74-325805	—
MRSC Phuket	—	66-76-391598	—

2. Thai naval aircraft will make the appropriate signal from the International Code. They will fly low round the vessel and then proceed towards a certain direction indicating that the vessel must proceed in that direction. Vessels ignoring this signal will be warned by a burst of machine-gun fire directed ahead of the vessel.

Storm Signals

Signals indicating the presence of storms in the Gulf of Thailand and adjacent waters and their intensity are displayed at Bangkok. These signals, consisting of a pennant and a flag, are hoisted on the same yardarm; the pennant is displayed above the flag. The pennant indicated the intensity of the storm while the flag indicated the location. The signals are, as follows:

1. Yellow pennant—Tropical depression or storm with winds near the center not exceeding 33 knots
2. Blue pennant—Tropical depression or storm with winds near the center between 34 and 63 knots.
3. Red pennant—Tropical depression or storm with winds near the center exceeding 64 knots
4. Yellow flag—Area 1—West coast of the Gulf of Thailand to latitude 5°N and longitude 105°E.
5. Blue flag—Area 2—West coast of the Gulf of Thailand to latitude 5°N.
6. Red flag—Area 3—The Andaman Sea.
7. Blue flag with yellow square center—Area 4—The South China Sea in an area bound by lines joining the following positions:
   a. 5°00'N,105°00'E.
   b. 12°00'N,105°00'E.
   c. 12°00'N,112°00'E.
   d. 5°00'N,112°00'E.

Submarine Signals

Thai vessels display a red triangular flag when submarines, either surfaced or submerged, are in the vicinity.

Time Zone

The Time Zone description is GOLF (-7). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 120-122 Wireless Road, Bangkok 10330.

The mailing address is APO AP (96546).

U. S. Embassy Thailand Home Page
http://bangkok.usembassy.gov

TOGO

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General

Togo is located on the W coast of Africa. It is bounded on the W by Ghana, on the N by Burkina Faso, and on the E by Benin.

The seacoast, 28 miles long, lies between a position about 0.8 mile SW of **Lome** (6°07'N., 1°13'E.) and a point 2 miles E of Anecho.

Togo is traversed from SW to NE by a mountain range, which divides the country into two nearly equal triangles. The NW region consists of lowlands drained by rivers and bounded on the N by hills. The SE region is made up of low-lying coastal districts, with lagoons in the S part and an interior plateau in the N. There are long stretches of forest and bushwood. The dry plains alternate with arable land.

The tropical climate produces wet seasons from March to July and from October to November in the S part.

The N part has one wet season, from April to July. The heaviest rainfall occurs in the mountains of the W, SW, and central parts.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Aids to navigation in Togo are unreliable. Lights may be extinguished; buoys and beacons may be missing, unlit, or out of position.

Cautions

General

Offshore oil and gas exploration is carried out in the coastal and deep-water areas off the coast of Togo.

The West African Gas Pipeline lies off the coast of Togo. For further information, see **South Atlantic Ocean—Cautions**.

MARAD Advisory No. 10-7, containing guidance for vessels transiting territorial waters of the Gulf of Guinea, is in effect. For further information, see **South Atlantic Ocean—Cautions**.

Currency

The official unit of currency is the French African Commu-

nity franc, consisting of 100 centimes.

Fishing Areas

Fishing vessels, many of which are unlit, may be encountered off the coast.

When near the coast, a sharp lookout should be kept for canoes.

Government

Flag of Togo

Togo is a republic. The country is divided into five regions.

The country is governed by a directly-elected President serving a 5-year term. The Prime Minister and the Council of Ministers are appointed by the President. The unicameral National Assembly consists of 91 directly-elected members serving 5-year terms.

The legal system is based on French civil law and customary law.

The capital is Lome.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 13	Liberation Day
January 24	Sarakawa (Economic Liberation Day)
Good Friday	Variable
Easter Sunday	Variable
Easter Monday	Variable
April 27	Independence Day
May 1	Labor Day
May 8	Victory Day
Ascension Day	Variable
Whitsunday	Variable
Whitmonday	Variable
June 21	Martyrs' Day
August 15	Assumption Day
November 1	All Saints' Day
December 25	Christmas Day

Ramadan and Tabaski are Islamic holidays, the dates of which vary depending on the appearance of the moon.

Industries

The main industries are phosphate mining, agricultural processing, cement, handicrafts, textiles, and beverages.

The main exports are re-exports, cotton, phosphates, coffee, and cocoa. The main export-trading partners are Burkina Faso, Ghana, India, Nigeria, Benin, and Niger.

The main imports are machinery and equipment, foodstuffs, and petroleum products. The main import-trading partners are China, Belgium, France, India, and the United States.

Languages

French is the official language The major African languages spoken are Ewe and Mina, in the S part of the country, and Dagomba and Kabye, in the N part of the country.

Navigational Information

Enroute Volume

Pub. 123, Sailing Directions (Enroute) Southwest Coast of Africa.

Maritime Claims

The maritime territorial claims of Togo are, as follows:

Territorial Sea	30 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

Ship Reporting System

Gulf of Guinea Voluntary Reporting System.—For further information, see **South Atlantic Ocean—Ship Reporting System**.

Time Zone

The Time Zone description is ZULU. Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at 4332 Boulevard Gnassingbe Eyadema, Cite OUA, Lome.

The mailing addresses are, as follows:

1. Togo address—

BP 852
Lome

2. U. S. address—
Department of State
2300 Lome Place
Washington DC (20521-2300)

U. S. Embassy Togo Home Page
http://togo.usembassy.gov

UNITED ARAB EMIRATES

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General

The United Arab Emirates is located on the E side of the Arabian Peninsula. It is bounded on the N by the Persian Gulf, on the E by Oman and the Gulf of Oman, and on the S and W by Saudi Arabia.

The United Arab Emirates has a dispute with Iran concerning the territorial claims of several islands in the Persian Gulf.

The country consists of a flat barren coastal plain that merges into a vast desert with rolling dunes. Some mountains rise in the E part.

The climate is mostly hot dry desert being somewhat cooler in the mountains.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Cautions

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Currency

The official unit of currency is the Emirian dirham, consisting of 100 fils.

Firing Areas

Naval firing practices (surface-to-surface and surface-to-air) and other exercises take place within **Area No. 1** (NE of Abu Dhabi) enclosed by the following positions:

a. 24°47'N, 54°35'E.
b. 25°02'N, 54°30'E.
c. 25°02'N, 54°07'E.

Details of firing exercises within the above area will be broadcast as warnings by Bahrain Radio (A9M) on 500 kHz, normally 3 days in advance. Vessels are advised to avoid the area, or if it is necessary to enter, to proceed with caution.

Government

The United Arab Emirates is a federation of seven emirates, each with its own ruler.

The United Arab Emirates is governed by a President elected by the Federal Supreme Council (composed of the rulers of the

Flag of United Arab Emirates

seven emirates) serving a 5-year term. The President appoints a Council of Ministers.

The unicameral Federal National Council (FNC) consists of 40 members (20 members are appointed by the rulers of the emirate; 20 members are indirectly elected using an electoral college) serving 4-year terms. The FNC may propose amendments to legislation and the federal budget drafted by the Council of Ministers, but has no executive power.

The legal system consists of a federal court introduced in 1971. All emirates except Dubayy and Ras al Khaymah have joined this federal system. All emirates have secular and Islamic law for civil and high courts.

The capital is Abu Dhabi.

Holidays

The following holidays are observed:

January 1	New Year's Day
December 2-3	U.A.E. National Day

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, Ascension of the Prophet, and the Prophet's Birthday.

In some regions, the holiday of Ruler's Accession Day (August 6) is observed.

Industries

The main industries are petroleum and petrochemicals, fishing, aluminum, cement, fertilizers, commercial ship repair, construction materials, handicrafts, and textiles.

The main exports are crude oil, natural gas, re-exports, dried fish, and dates. The main export-trading partners are Japan, Iran, India, South Korea., China, and Singapore

The main imports are machinery and transport equipment, chemicals, and food. The main import-trading partners are China, India, the United States, and Germany.

Languages

Arabic is the official language. Farsi and English are widely used in the major cities. Hindi and Urdu are also used.

Mined Areas

Vessels are advised that mined areas exist in the N part of the Persian Gulf. Further information should be obtained from the local authorities. Mine sightings should be reported to the naval authorities by INMARSAT (150-5612) or to Coalition naval vessels on VHF channel 13 or 16. Details of areas reported to be dangerous due to mines are also promulgated by Notice to Mariners issued by the Middle East Navigation Aids Service (MENAS) and by MARAD advisories.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of the United Arab Emirates are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone **	200 miles.
Continental Shelf	200 miles or median lines.

* Claims straight baselines. Requires advance permission or notification for innocent passage of warships in the territorial sea.

** The Exclusive Economic Zone extends to agreed Continental Shelf boundaries or to median lines.

Maritime Boundary Disputes

The United Arab Emirates and Iran are conducting talks to resolve disputes over Iran's occupation of Jazireh-ye Tonb-e Bozorg (26°16'N., 55°18'E.), Jazireh-ye Tonb-e Kuchek (26°14'N., 55°09'E.), and Jazireh-ye Abu Musa (25°53'N., 55°02'E.). It has been reported (2014) an agreement has been reached where Iran will return sovereignty of the islands to the United Arab Republic while retaining the sea bed rights surrounding the islands.

Pollution

General

All vessels navigating in the territorial waters of the United Arab Emirates are required to report any sighting of oil pollution. Oil observed surrounding a vessel, which has failed to report its presence, will render this vessel liable to a fine.

Ballast Water Management

The coast of the United Arab Emirates lies within the Regional Organization for the Protection of the Marine Environment (ROPME) Sea Area. For further information on the ballast water exchange requirements in this area, see **Red Sea and the Persian Gulf—Pollution—Persian Gulf Area Ballast Water Management Regulations**.

Regulations

Masters are warned that public consumption of alcoholic drinks is strictly prohibited in the United Arab Emirates and its territorial waters. Crew members must not be allowed to offer alcohol to any Muslim for any reason whatsoever.

It has been reported (2003) that vessels calling at ports in Sharjah and Sharjah waters should appoint a local agent to advise the port of the vessel's ETA, particulars, and purpose of call.

Search and Rescue

Dubai Ports and Emirates Coast Radio Station (A6L) maintains a continuous listening watch on VHF DSC and VHF channel 16 for distress traffic.

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is DELTA (-4). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes in the United Arab Emirates are, as follows:

1. In the Strait of Hormuz. (IMO adopted)
2. Between Zaqqum Oil Field and Umm Shaif (Umm ash Shayf) Oil Field. (IMO adopted)
3. Das Deep-Water Channel. (Government of United Arab Emirates)

U.S. Embassy

The U.S. Embassy is situated in the Safarat District (Embassy District), Plot 38, Sector W59-02, Road 4, Abu Dhabi.

The mailing address is P.O. Box 4009, Abu Dhabi.

U. S. Embassy United Arab Emirates Home Page
http://abudhabi.usembassy.gov

Vessel Traffic Service

Vessel Traffic Services are in operation, as follows:

1. Abu Dhabi (29°32'N., 54°23'E.)—for Mina Zayid Channel and Khowr al Bighal Channel.
2. Musaffah (24°18'N., 54°26'E.)—for Musaffah Channel and New Musaffah Channel.

For further information, see Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

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General

Uruguay, located on the SE side of South America, is bounded on the NE by Brazil, on the S by the Rio de la Plata, on the W by Argentina, and on the SE by the Atlantic Ocean. It has a coast about 300 miles long, including the N shore of the Rio de la Plata. The shores are mostly fronted by sandy beaches, separated by rocky points.

Generally, the country is composed of rolling grassy plains and low hills. The land is well-watered by several rivers.

The climate is temperate with mild winters and warm summers. The wettest period is from March to June, but there is really no dry season.

Buoyage System

The IALA Buoyage System (Region B) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Mariners are cautioned that the buoyage in those parts of the Rio Uruguay that are the responsibility of the Uruguayan authorities is being changed to IALA Region B. Mariners are further cautioned that they might encounter both buoyage systems until the changeover is complete and should contact local authorities for the latest information.

Cautions

High Speed Craft

High speed craft, with speeds in excess of 30 knots, operate in the following areas:

1. Colonia-Buenos Aires.
2. Montevideo-Buenos Aires.
3. Piriapolis-Buenos Aires.

Currency

The official unit of currency is the Uruguayan peso, consisting of 100 centesimos.

Firing Areas

A firing practice area extends SW from Punta Lobas (34°54'S., 55°16'W.).

Government

Flag of Uruguay

Uruguay is a constitutional republic. The country is divided into 19 departments.

Uruguay is governed by a directly-elected President serving a 5-year term. The Council of Ministers is appointed by the President with the approval of the General Assembly. The bicameral General Assembly consists of the directly-elected 31-member Chamber of Senators, serving 5-year terms, and the directly-elected 99-member Chamber of Representatives, serving 5-year terms.

The legal system is based on Spanish civil law.

The capital is Montevideo.

Holidays

The following holidays are observed:

January 1	New Year's Day
January 6	Three Kings Day (Epiphany)/ Children's Day
Carnival (two days)	Variable
Holy Thursday	Variable
Good Friday	Variable
Holy Saturday	Variable
Easter Sunday	Variable
April 19	Desembarco de los 33 Orientales
May 1	Labor Day
May 18	Battle of Las Piedras
June 19	Birthday of Artigas
July 18	Constitution Day
August 25	Independence Day
October 12	Battle of Sarandi/Dia de la Raza/ Discovery of America Day
November 1	All Saints' Day
December 25	Christmas Day/Family Day

Industries

The main industries are food processing, electrical machinery, transportation equipment, petroleum products, textiles, chemicals, and beverages.

The main exports are meat, soybeans, cellulose, rice, wheat, wood, dairy products, and wool. The main export-trading partners are China, Brazil, Argentina, and Venezuela.

The main imports are crude oil, refined oil, motor vehicles and parts, and cellular phones. The main import-trading partners are Brazil, China, Argentina, and the United States.

Languages

Spanish is the official language. Brazilero, a mixture of Portuguese and Spanish, is spoken in the region bordering Brazil.

Navigational Information

Enroute Volume

Pub. 124, Sailing Directions (Enroute) East Coast of South America.

Maritime Claims

The maritime territorial claims of Uruguay are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Claims straight baselines. Claims, jointly with Argentina, the estuary of the Rio de la Plata as internal waters.

Pilotage

Pilotage is compulsory W of Montevideo. The pilots board near the **Practicos Recalada Lightfloat** (35°06'27.0"S., 55°57'52.2"E.).

Pollution

Oil pollution regulations are strictly enforced. Among other measures, vessels are prohibited from discharging or dumping oil within fifty miles of the coast.

Regulations

Vessels in all ports must hoist the Uruguayan flag. It is recommended that the prescribed times for raising and lowering this courtesy flag be correctly established in order to avoid fines.

In Rio de la Plata, it is recommended that vessels have an underkeel clearance of at least 0.6m.

Search and Rescue

The Maritime Rescue Coordination Center (MRCC) Uruguay is responsible for coordinating search and rescue operations and can be contacted, as follows:

1. Telephone: 598-2-9161389
2. Facsimile: 598-2-9161389
   598-2-9167922
3. E-mail: mrccuruguay@gmail.com

A network of coast radio stations maintains a continuous listening watch on international distress frequencies.

Lifesaving stations are located, as follows:

1. Punta del Este (34°58'S., 54°57'W.).
2. Piriapolis (34°52'S., 55°18'W.).
3. Montevideo (34°54'S., 56°13'W.).
4. Rio Santa Lucia (34°50'S., 56°26'W.).
5. La Paloma (34°39'S., 54°09'W.).
6. Puerto Sauce (34°27'S., 57°26'W.).
7. Colonia (34°28'S., 57°50'W.)

Ship Reporting System

The Maritime Movement Control and Information System applies to all vessels entering or leaving Uruguayan waters. It encompasses the area W of longitude 50°50'W and SW of a line bearing 128° from **Chui Light** (33°45'S., 53°22'W.). For further information, see the Appendix.

Time Zone

The Time Zone description is PAPA (+3). Daylight Savings Time is not observed.

U.S. Embassy

The U.S. Embassy is situated at Lauro Muller 1776, Montevideo.

The mailing addresses are, as follows:

1. Uruguay address—
   Lauro Muller 1776
   Montevideo, 11200
2. U. S. address—
   APO AA (34035)

U. S. Embassy Uruguay Home Page
http:/uruguay.usembassy.gov

Appendix—Maritime Movement Control and Information System

The Maritime Movement Control and Information System applies to all vessels entering or leaving Uruguayan waters. It encompasses the area W of longitude 50°50'W and SW of a line bearing 128° from **Chui Light**. (33°45'S., 53°22'W.)

The system is divided into various zones, each containing a Port Control Center concerned with control and information within a port or within its surrounding area up to a distance of 50 miles. Information on each Port Control Center is given in the accompanying table titled **Maritime Movement Control and Information System Reporting Points**.

The following procedures are in effect for the Maritime Movement Control and Information System:

1. Vessels should contact the appropriate Port Control Center when entering each zone, giving the following information:
   a. Vessel name, flag, call sign, and port of origin.
   b. Position (latitude/longitude), course, and speed.
   c. Destination port, ETA, type of vessel, and maximum draft.
2. The following information should also be reported to the Port Control Center:
   a. Any significant changes to the vessel's course, speed, or destination port.
   b. If transporting dangerous cargo (hydrocarbons or their by-products, chemical products, etc.).
   c. Any changes to loading or unloading forecasts.
   d. A request for anchoring, if required.
   e. A request for carrying out maneuvers in the Port Operations Area. This permission expires 20 minutes after being granted.
   f. Any accident, fire, or damage on board the vessel.
   g. Assistance rendered to other vessels in distress or difficulty.
   h. Unmarked or uncharted hazards to navigation.
   i. Any sightings of pollution (contaminating or dangerous substances).
   j. Significant reduction in visibility.
   k. The start and completion of any authorized operation (trans-shipment, load consignment, etc.).
3. Vessels should maintain a continuous listening watch on VHF channel 16 when within the zone. If a vessel cannot maintain a listening watch on VHF channel 16, they should use VHF channel 11 or VHF channel 13 and advise the Port Control Center accordingly.
4. Clearance should be obtained from the Port Control Center prior to any movements. This clearance expires automatically after 15 minutes.

All Port Control Centers can be contacted on VHF channels 11, 13, and 16.

Spanish or English should be used when communicating with the Control Centers. Reports should be made by telex if VHF contact is not made. A log of all reports made should be maintained.

Maritime Movement Control and Information System Reporting Points

Port Control Center	Call sign	Zone	Geographic area
La Paloma	La Paloma Prefectura Radio Control (CWC 30)	Kilo	The Atlantic Ocean located between the coast and 200 miles seaward bounded to the E by a line bearing 128° from Chui Light, to the W by longitude 54°15'W up to the Argentinian Maritime Limit, and to the S by the Argentina-Uruguay Lateral Maritime Limit. The area excludes Zone Lima.
La Paloma [1]	La Paloma Prefectura Radio Control (CWC 30)	Lima	The port area of La Paloma bounded by the coast and a circle with a radius of 1.3 miles centered on the light on the outermost breakwater.
[1] Vessels should report to La Paloma Control when abeam of the breakwater light.			
Punta del Este	Control Punta del Este Prefectura Radio (CWC 34)	Golf	The area of the Rio de la Plata and the Atlantic Ocean between the coast and 200 miles seaward bounded to the E by longitude 54°15'W up to the Argentinian Maritime Limit and to the W by longitude 55°30'W. The area excludes Zone Hotel and Zone Tango.
Punta del Este [2]	Control Punta del Este Prefectura Radio (CWC 34)	Hotel	Maldonado Bay—The area between the coast and the imaginary line joining Punta del Este and Punta Ballena, including Boca Grande and Boca Chica.
			Port area—The area between the coast and the imaginary line joining the end of the breakwater and N of Playa Mansa, including the whole mooring buoy zone.

Maritime Movement Control and Information System Reporting Points			
Port Control Center	**Call sign**	**Zone**	**Geographic area**
[2] Vessels should report to Punta del Este Control when abeam of Bajo del Monarca Lighted Buoy and when abeam of Isla de Gorriti Light			
Piriapolis	Control Piriapolis Prefectura Radio	Tango	The area of the Rio de la Plata between longitudes 55°16'07.8"W (passing through Punta Iman) and 55°14'00.0"W (passing through Punta Rasa); and N of latitude 34°56'30.0"S.
Puerto del Buceo	Control Buceo Prefectura Radio	Oscar	The area of the Rio de la Plata between longitudes 56°00'W and 56°09'W; and N of latitude 34°57'S.
Montevideo	Control Montevideo Prefectura Radio (CWC 39)	Alfa	The area of the Rio de la Plata between the Uruguayan coast and longitudes 55°30'W and 57°21'W, and bounded to the S by the Argentinian Maritime Limit. This area excludes Zone Bravo, Zone Oscar, and Zone Papa.
Montevideo [3]	Control Montevideo Prefectura Radio (CWC 39)	Bravo	The area of the Rio de la Plata between the lines of longitude passing through Punta Sayago and Punta Brava, the coast, and N of latitude 35°01'S. The area includes the access channel to the port of Montevideo and the Outer Port.
[3] Vessels should report to Montevideo Control when abeam of Fairway Entrance Lighted Buoy and when abeam of the breakwater.			
Santiago Vazquez	Control Santiago Vazquez Prefectura Radio (CWC 38)	Papa	The area of the Rio de la Plata between the coast, longitudes 56°20'W and 56°40'W; and N of latitude 34°56'S.
Colonia	Control Colonia Prefectura Radio (CWC 23)	Charlie	The area of the Rio de la Plata bounded by longitude 57°21'W (passing through Punta Rosario), Km 0 of the Rio Uruguay, and the midline equidistant from both coasts. This area excludes Zone Delta.
Colonia	Control Colonia Prefectura Radio (CWC 23)	Delta	The area of the Rio de la Plata bounded by the imaginary line joining Punta San Carlos, Isla Lopez Oeste, Isla Farallon, Viena Green Lighted Buoy, position 34°30.0'S, 57°43.3'W (passing through Punta Riachuelo), and the coast.
Puerto Sauce (Juan Lacaze)	Control Sauce Prefectura Radio (CWC 27)	Echo	The area of the Rio de la Plata between longitudes 57°25.8'W and 57°33.0'W, the coast, and latitude 34°29.3'S.
Arroyo Riachuelo	Control Riachuelo Prefectura Radio	—	The Arroyo Riachuelo and its mouth.
Rio San Juan	Control San Juan Prefectura Radio	—	The Rio San Juan and its mouth.

Maritime Movement Control and Information System Reporting Points			
Port Control Center	**Call sign**	**Zone**	**Geographic area**
Carmelo [4]	Control Carmelo Prefectura Radio (CWC 22)	Mike	The area bounded to the W by the E bank of Principal Channel, to the N by Km 0 of the Rio Uruguay, to the S by a line joining Punta Martin Chico and Buoy Km 104, and to the E by the N bank of Canal del Este, the coast, and Arroyo de la Vacas.
[4] Vessels should report to Carmelo Control Center when entering or leaving the S channel of Isla Sola, when entering or leaving Canal Santo Domingo, and when entering or leaving Canal Camacho.			
Nueva Palmira	Control Nueva Palmira Prefectura Radio (CWC 31)	Zulu	The area of the Rio Uruguay between Km 0 and Km 33 and the midline equidistant from both coasts. This area excludes Zone Foxtrot.
Nueva Palmira	Control Nueva Palmira Prefectura Radio (CWC 31)	Foxtrot	The port of Nueva Palmira and the water area including port infrastructure.
Fray Bentos	Control Fray Bentos Prefectura Radio (CWC 25)	Yankee	The area of the Rio Uruguay between Km 33 and Km 153 and the midline equidistant from both coasts. This area excludes Zone Juliet.
Fray Bentos	Control Fray Bentos Prefectura Radio (CWC 25)	Juliet	The port of Fray Bentos and the water area bounded to the S by the coast, to the E by Km 100, to the W by Km 96, and to the N by the Argentinian border.
Paysandu	Control Paysandu Prefectura Radio (CWC 32)	X-ray	The area of the Rio Uruguay between Km 153 and Km 270. This area excludes Zone November.
Paysandu	Control Paysandu Prefectura Radio (CWC 32)	November	The area of the Rio Uruguay between latitude 32°20'S (passing through the mouth of the Rio Sacra) to latitude 32°14'S (passing through the mouth of Arroyo San Francisco).
Salto	Control Salto Prefectura Radio (CWC 37)	Whiskey	The area of the Rio Uruguay between Km 270 and Km 368.
Belen	Control Belen Prefectura Radio (CWC 45)	Victor	The area of the Rio Uruguay between Km 368 and Km 426.
Bella Union	Control Bella Union Prefectura Radio (CWC 21)	Uniform	The area of the Rio Uruguay between Km 426 and Km 501.

YEMEN

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General

Yemen is located in the SW part of the Arabian Peninsula. It is bordered on the N by Saudi Arabia, on the E by Oman, on the S by the Gulf of Aden, and on the W by the Red Sea.

It also includes the island of Suqutra (Socotra), in the Arabian Sea, and the islands of Mayyun and Kamaran, in the Red Sea.

The coastal areas are sandy and flat, while the interior is mountainous.

The climate is mostly desert; hot and humid along the W coast and extraordinarily hot and dry in the E. The W mountain area is temperate and subject to a seasonal monsoon.

Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

Navigational lights in Yemen have been reported to be unreliable.

Cautions

Special Warning 134 (Issued 3 October 2016)

Information on Special Warning 134 can be found in **Red Sea and the Persian Gulf—Cautions**.

Special Warning 133 (Issued 15 August 2015)

1. The U.S. Department of State warns U.S. citizens of the high security threat level in Yemen due to terrorist activities, civil unrest, and Operation Decisive Storm/Restoring Hope. On 11 Feb 15, due to the deteriorating security situation in Sanaa, the Department of State suspended embassy operations and U.S. Embassy Sanaa American staff were relocated out of the country. All consular services, routine and/or emergency, have been suspended until further notice. Commercial transport options are limited. The department urges U.S. citizens to defer travel to Yemen and those U.S. citizens currently living in Yemen to shelter in place until it is safe to depart.

2. The level of risk for foreigners in Yemen remains high.

Yemen based Al Qaida Arabian Peninsula (AQAP) maintains an interest in conducting attacks against port facilities, commercial vessels, or transiting warships, and are engaged in general planning in this regard. However, it cannot be ruled out 438 Yemen Pub. 160 that the extremists may be capable of other more sophisticated methods of targeting, such as the use of mortars or projectiles to target ships such as the rockets used to unsuccessfully strike a Navy ship in Jordan in 2005. Although the time and location of such an attack is unknown, it is likely that ships in the Babal- Mandeb strait, southern Red Sea, and the Gulf of Aden along the coast of Yemen, as well as in associated ports or at offshore facilities are at the greatest risk of becoming targets of such an attack. Port facilities, commercial vessels, or transiting warships may also be in range of rocket or mortar (indirect) fire or become the targets of attacks from entities and factions engaged in and involved with the civil unrest and fighting. As as result, commercial vessels transiting the Red Sea, Bab al Mandeb, and Gulf of Aden should maintain vigilance.

3. U.S. citizens who are able to depart Yemen for another country and are in need of emergency assistance may contact a U.S. embassy or consulate in that country. While they do not have an ability to provide departure assistance to U.S. citizens who are in Yemen, they can provide assistance to U.S. citizens by relaying urgent messages with loved-ones, enrolling U.S. citizens in our smart traveler enrollment program to provide informational updates by e-mail, and to facilitate consular services to U.S. citizens who arrive in that neighboring country. for U.S. citizen inquiries, you may send an email to yemenemergencyusc@state.gov. The current travel warning for Yemen is posted at http://www.travel.state.gov/content/passports/english/alertswarnings/yemen-travel-warning.html.

4. Travel by boat through the Red Sea or near the Socotra Islands in the Gulf of Aden also presents a continuing high risk of pirate attacks. In 2011, over 15 vessels were reportedly attacked in this area. While the number of attacks has diminished over the last four years, there have been suspicious activities indicating the possible presence of pirates.

5. Additional information from the U.S. Maritime Administration may be available at http://www.marad.dot.gov/newsroom/advisory.

Gulf Region—Combined Maritime Forces (CMF) Special Warning

See **Red Sea and the Persian Gulf—Cautions** for further information.

Locust Reports

See **Red Sea and the Persian Gulf—Cautions** for further information.

Magnetic Anomalies

A local magnetic anomaly of up to 1.5°E has been reported in the vicinity of Jazirat at Tair (15°32.3'N., 41°50.1'E.).

Maritime Security Patrol Area

The Commander, U.S. Navy Central Command has directed the establishment of a Maritime Security Patrol Area (MSPA) in the Gulf of Aden. For further information, see **Red Sea and the Persian Gulf—Cautions—Piracy—Maritime Security Patrol Area**.

Currency

The official unit of currency is the Yemen riyal, consisting of 100 fils.

Firing Areas

It is reported that military vessels may be encountered exercising in areas centered 50 miles WSW and 18 miles ENE of Aden.

Government

Flag of Yemen

Yemen is a republic. The country is divided into 21 governor ates and one municipality. It has been reported (2014) Yemen will create a federal system of government dividing the country into six regions.

Yemen is governed by a directly-elected President serving a 7-year term. The Prime Minister is appointed by the President. The bicameral legislature consists of a 111-member Shura Council appointed by the President and a directly-elected 301-member Assembly of Representatives serving 6-year terms.

The legal system is based on Islamic law, Turkish law, English common law, and local tribal customary practices.

The official political capital is Sanaa. The economic and commercial capital is the port city of Aden.

Holidays

The following holidays are observed:

January 1	New Year's Day
May 1	Labor Day
May 22	National Unity Day
September 26	Revolution Day (North Yemen)
October 14	Revolution Day (Aden)
November 30	Independence Day (South Yemen)

Islamic holidays, which are subject to the appearance of the moon, include Eid Al-Fitr (End of Ramadan), Eid Al-Adha (End of Pilgrimage), Hijrah (Islamic New Year), Ashoora, and the Prophet's Birthday.

Industries

The main industries are crude oil production and refining, agriculture, textiles, leather goods, food processing, handicrafts, aluminum products, cement, commercial ship repair., and natural gas production.

The main exports are crude oil, coffee, dried and salted fish, and liquefied natural gas. The main export-trading partners are China, South Korea, Thailand, Japan, and the United Arab Emirates.

The main imports are food, livestock, machinery and equipment, and chemicals. The main import-trading partners are China, the United Arab Emirates, India, Saudi Arabia, and Kuwait.

Languages

Arabic is the official language. English is widely understood in the commercial city of Aden.

Navigational Information

Enroute Volume

Pub. 172, Sailing Directions (Enroute) Red Sea and the Persian Gulf.

Maritime Claims

The maritime territorial claims of Yemen are, as follows:

Territorial Sea *	12 miles.
Contiguous Zone **	24 miles.
Fisheries or Economic Zone	200 miles.
Continental Shelf	200 miles or the Continental Margin.

* Requires advance permission or notification for innocent passage of warships in the territorial sea. Claims a notice requirement for warships, nuclear-powered vessels, and vessels transporting nuclear materials or other radio-active substances prior to entering the territorial sea.
** Also considered a Security Zone.

Pollution

Officials from Yemen's Maritime Affairs Authority (MAA) conduct random inspections of vessels calling at Yemeni ports and terminals to check oil log books and the oil residue receipt issued by the vessel's last port of call for comparison with the vessel's slop tanks to ensure the vessel has not discharged waste oil into Yemeni territorial waters, economic zone, or continental shelf.

The Maritime Affairs Authority requires all foreign vessels and oil tankers carrying more than 2,000 tons of crude oil to provide an insurance certificate or a statement of financial guarantee to cover their civil responsibility regarding the harmful effects of oil pollution damage.

Officials from the MAA also inspect vessels to ensure that all ship wastes, such as oily waste, engine room waste water, and garbage, are discharged to a competent authority. Vessels must provide, upon request, documents proving the indicated ship waste was delivered to a competent authority at the current or previous port. Vessels failing to provide this documentation will be deemed to have discharged the ship waste into Yemeni territorial waters and be subject to legal action.

MARPOL Special Area

MARPOL Special Areas are sea areas where special mandatory methods for the prevention of oil pollution in the sea have been adopted. Several areas off the coast of Yemen have been designated as MARPOL Special Areas, as follows:

1. The Red Sea proper, including the Gulf of Suez and the Gulf of Aqaba.
2. The Gulf of Aden.

Further information can be found in **Red Sea and the Persian Gulf—Pollution—MARPOL Special Areas**.

Regulations

All vessels calling at Yemeni ports should first obtain entry permission from the Ministry of Transport through the ship's agent prior to arrival.

A copy of the Ministry of Transport form *Request for Commercial and Relief Vessels to Yemeni Ports* should be completed by the master and sent directly to the Ministry of Transport by e-mail (yemen.transport@gmail.com).

Vessels calling at Yemeni ports will only be allowed to enter Yemeni territorial waters following an inspection by the Saudi Arabian coalition forces.

The Saudi Arabian coalition forces require a notification of arrival on VHF channel 16 when 3 miles outside Yemeni territorial waters and at the entrance to the Bab al Mandeb Strait Traffic Separation Scheme. Upon granting approval, an anchorage position outside of Yemeni territorial waters will be specified by coalition forces until final approval for port entry is issued.

The following information is required in the notification of arrival submitted to coalition forces:

1. Name of vessel.
2. Call sign.
3. IMO number.
4. Port of registry.
5. Type of vessel.
6. Number of crew on board.
7. Last port of call.
8. Next port of call.
9. Nationality of master and crew.
10. Cargo type and quantity.
11. Loading port.
12. Are armed guards on board? If yes, state their nationality.
13. Type and number of arms and ammunition.

Vessels are required to keep their AIS equipment on at all times.

Once the vessel is allowed to enter port, the master is required to register the vessel's arrival with Port Control Services on VHF channel 14 or 16 and await the assignment of an anchorage position until a berth is confirmed by the harbormaster.

Search and Rescue

Rescue Coordination Center (RCC) Sanaa can be contacted, as follows:

1. Telephone: 967-1-344671
   967-1-344672
   967-1-344673
2. Facsimile: 967-1-345916
3. E-mail: moh.ali001@yahoo.com

Ship Reporting System

Middle East Merchant Vessel Voluntary Reporting System

A voluntary reporting system covers the Red Sea and the Indian Ocean N of 10°00'S, as well as the Arabian Sea. Merchant vessels of any flag or ownership are invited to participate in this system. For further information, see **Red Sea and the Persian Gulf—Ship Reporting System**.

Time Zone

The Time Zone description is CHARLIE (-3). Daylight Savings Time is not observed.

Traffic Separation Schemes

Traffic Separation Schemes (TSS) off Yemen are, as follows:

1. In Bab-el-Mandeb. (IMO adopted)
2. West and South of Jazirat al Hanish al Kubra. (IMO adopted)
3. East of Jazirat Jabal Zuqar. (IMO adopted)

U.S. Embassy

The U.S. Embassy is situated at Sa'awan Street, Dhahr Himyar Zone, Sheraton Hotel District, Sanaa.

The mailing address is P.O. Box 22347, Sanaa, Yemen.

U. S. Embassy Yemen Home Page
http://yemen.usembassy.gov

Note.—Embassy operations have been suspended since February, 2015.