

# CHART NO. 1

UNITED STATES OF AMERICA

# NAUTICAL CHART

## Symbols Abbreviations and Terms



TENTH EDITION

NOVEMBER 1997



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## INTRODUCTION AND SCHEMATIC LAYOUT

Selection of Symbols:

### GENERAL

A  
B

Chart Number, Title, Marginal Notes

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# Chart No.1

United States of America

## Nautical Chart Symbols Abbreviations and Terms

Tenth Edition  
NOVEMBER 1997

Prepared Jointly by

**DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service

**DEPARTMENT OF DEFENSE**  
**National Imagery and Mapping Agency**

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**DEPARTMENT OF COMMERCE**  
National Oceanic and Atmospheric Administration  
National Ocean Service



### *Record of Corrections*

<i>Supplement No.</i>	<i>Notice No.</i>	<i>Corrected on</i>	<i>Corrected by</i>



# **SYMBOLS   ABBREVIATIONS   TERMS   USED ON CHARTS**

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and Schematic Layout

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- A** Chart Number, Title, Marginal Notes
- B** Positions, Distances, Directions, Compass

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- D** Cultural Features
- E** Landmarks
- F** Ports
- G** Topographic Terms

### **HYDROGRAPHY**

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- I** Depths
- J** Nature of the Seabed
- K** Rocks, Wrecks, Obstructions
- L** Offshore Installations
- M** Tracks, Routes
- N** Areas, Limits
- O** Hydrographic Terms

### **AIDS AND SERVICES**

- P** Lights
- Q** Buoys, Beacons
- R** Fog Signals
- S** Radar, Radio  
Electronic Position-Fixing Systems
- T** Services
- U** Small Craft Facilities

### **ALPHABETICAL INDEXES**

- V** Index of Abbreviations
- W** International Abbreviations
- X** List of Descriptors



## INTRODUCTION

**General Remarks**—The tenth edition of Chart No. 1, Nautical Chart Symbols Abbreviations and Terms incorporates the symbols contained in the International Hydrographic Organization (IHO) Chart 1 (INT 1). The various sections comprising the Table of Contents follow the sequence presented in INT 1; therefore the numbering system in this publication follows the standard format approved and adopted by the IHO.

Where appropriate, each page lists separately the current preferred U.S. symbols shown on charts of the National Ocean Service (NOS) and the National Imagery and Mapping Agency (NIMA). Also shown in separate columns are the IHO symbols and symbols used on foreign charts reproduced by NIMA.

This edition includes a schematic layout of a typical page showing what kind of information each column presents. In addition, a typical layout of an NOS chart is shown (Section A); a page outlining tidal levels and other charted tidal data has also been included (Section H).

For more information on the use of the chart, the practice of navigation, chart sounding datum, and visual and audible aids to navigation, the user should refer to NIMA Pub. No. 9, American Practical Navigator (Bowditch).

Tide and current data is contained in the Tide Tables and Tidal Current Tables. Detailed information on lights, buoys, and beacons is available in the Coast Guard Light List and NIMA List of Lights. In addition, color plates of the U.S. Aids to Navigation System and the Uniform State Waterway Marking System are contained in the Coast Guard Light Lists.

Other important information that cannot be shown conveniently on the nautical chart can be found in the U.S. Coast Pilots and NIMA Sailing Directions.

**Metric Charts and Feet/Fathom Charts**—In January, 1972 the United States began producing a limited number of nautical charts in meters. Since then, some charts have been issued with soundings and contours in meters; however, for some time to come there will still be many charts on issue depicting sounding units in feet or fathoms. Modified reproductions of foreign charts are being produced retaining the sounding unit value of the country of origin. The sounding unit is stated in bold type outside the border of every chart and in the chart title.

**Soundings**—The sounding datum reference is stated in the chart title. In all cases the unit of depth used is shown in the chart title and in the border of the chart in bold type.

**Drying Heights**—On rocks and banks that cover and uncover, the elevations shown are above the sounding datum, as stated in the chart title.

**Shoreline**—Shoreline shown on charts represents the line of contact between the land and a selected water elevation. In areas affected by tidal fluctuation, this line of contact is usually the mean high-water line. In confined coastal waters of diminished tidal influence, a mean water level line may be used. The shoreline of interior waters (rivers, lakes) is usually a line representing a specified elevation above a selected datum. Shoreline is symbolized by a heavy line (Section C1).

Apparent Shoreline is used on charts to show the outer edge of marine vegetation where that limit would reasonably appear as the shoreline to the mariner or where it prevents the shoreline from being clearly defined. Apparent shoreline is symbolized by a light line (Sections C32, C33 and C34 ).

**Landmarks**—A conspicuous feature on a building may be shown by a landmark symbol with a descriptive label ( Sections E10 and E22 ). Prominent buildings that are of assistance to the mariner may be shown by actual shape as viewed from above ( Sections D5, D6, and E34 ). Legends associated with landmarks, when shown in capital letters, indicate that they are conspicuous; the landmark may also be labeled "CONSPIC" or "CONSPICUOUS."

**Buoys**—The buoyage systems used by other countries often vary from that used by the United States. U.S. Charts show the colors, lights and other characteristics in use for the area of the individual chart. In the U.S. system, on entering a channel from seaward, buoys on the starboard side are red with even numbers, on the port side, green with odd numbers. Lights on buoys on the starboard side of the channel are red, on the port side, green. Mid-channel buoys have red and white vertical stripes and may be passed on either side. Junction or obstruction buoys have red and green horizontal bands, the top band color indicating the preferred side of passage. This system may not apply to foreign waters or in areas of the U.S. which are in IALA, Region A.

**Light Visibility (Range)**—(Other than on the Great Lakes and adjacent waterways.) A light's visibility (range) is given in nautical miles. Where the visibility (range) is shown as x/x M for a two (2) color light, the first number indicates the visibility (range) of the first color, while the second number indicates the visibility (range) of the second color. For example, FI W G 12/8M indicates the visibility (range) of the white light to be 12 nautical miles and the green light to be 8 nautical miles. Where a light has three (3) colors, only the longest and shortest visibilities (ranges) may be given, in which case the middle visibility (range) is represented by a hyphen. For example, FI W R G 12-8M indicates the visibility (range) of the white light to be 12 nautical miles, the green light to be 8 nautical miles, and the red light to be between 12 and 8 nautical miles.

**IALA Buoyage System**—The International Association of Lighthouse Authorities (IALA) Maritime Buoyage System (combined Cardinal-Lateral System) is being implemented by nearly every maritime buoyage jurisdiction worldwide as either REGION A buoyage ( red to port ) or REGION B buoyage ( red to starboard ). The terms "REGION A" and "REGION B" will be used to determine which type of buoyage is in effect or undergoing conversion in a particular area. The major difference in the two buoyage regions will be in the lateral marks. In REGION A they will be red to port; in REGION B they will be red to starboard. Shapes of lateral marks will be the same in both REGIONS, can to port; cone (nun) to starboard. Cardinal and other marks will continue to follow current guidelines and may be found in both REGIONS. A modified lateral mark, indicating the preferred channel where a channel divides, will be introduced for use in both REGIONS. Section Q and the color plates at the back of this publication illustrate the IALA buoyage system for both REGIONS A and B.

**Aids to Navigation Positioning**—The aids to navigation depicted on charts comprise a system consisting of fixed and floating aids with varying degrees of reliability. Therefore, prudent mariners will not rely solely on any single aid to navigation, particularly a floating aid.

The buoy symbol is used to indicate the approximate position of the buoy body and the sinker which secures the buoy to the seabed. The approximate position is used because of practical limitations in positioning and maintaining buoys and their sinkers in precise geographical locations. These limitations include, but are not limited to, inherent imprecisions in position fixing methods, prevailing atmospheric and sea conditions, the slope of and the material making up the seabed, the fact that buoys are moored to sinkers by varying lengths of chain, and the fact that buoy body and/or sinker positions are not under continuous surveillance but are normally checked only during periodic maintenance visits which often occur more than a year apart. The position of the buoy body can be expected to shift inside and outside the charting symbol due to the forces of nature. The mariner is also cautioned that buoys are liable to be carried away, shifted, capsized, sunk, etc. Lighted buoys may be extinguished or sound signals may not function as the result of ice, running ice, other natural causes, collisions, other accidents, or vandalism.

For the foregoing reasons a prudent mariner must not rely completely upon the position or operation of floating aids to navigation, but will also utilize bearings from fixed objects and aids to navigation on shore. Further, a vessel attempting to pass close aboard always risks collision with a yawing buoy or with the obstruction the buoy marks.

**Colors**—Colors are optional for characterizing various features and areas on the charts. For instance the land tint in this publication is gold as used on charts of the NOS; however, most charts of the NIMA show land tint as gray.

**Heights**—Heights of lights, landmarks, structures, etc. are referred to the shoreline plane of reference. Heights of small islets or offshore rocks, which due to space limitations must be placed in the water area, are bracketed. The unit of height is shown in the chart title.

**Conversion Scales** — Depth conversion scales are provided on all charts to enable the user to work in meters, fathoms, or feet.

**Traffic Separation Schemes** — Traffic separation schemes show recommended lanes to increase safety of navigation, particularly in areas of high density shipping. These schemes are described in the International Maritime Organization publication "Ships Routing".

Traffic separation schemes are generally shown on nautical charts at scales of 1:600,000 and larger. When possible, traffic separation schemes are plotted to scale and shown as depicted in Section M.

**Correction Date** — The date of each edition is shown below the lower left border of the chart. This is the date of the latest Notice to Mariners applied to the chart.





**U.S. Coast Pilots, Sailing Directions, Light Lists, Lists of Lights** —These related publications furnish information required by the navigator that cannot be shown conveniently on the nautical charts.

**U.S. Nautical Chart Catalogs and Indexes**— These list nautical charts, auxiliary maps, and related publications and include general information relative to the use and ordering of charts.

**Corrections and Comments**—Notices of Corrections for this publication will appear in the weekly Notice to Mariners. **USERS SHOULD REFER CORRECTIONS, ADDITIONS, AND COMMENTS TO THE NIMA CUSTOMER HELP DESK: 1-800-455-0899, COMMERCIAL 314-260-1236, DSN 490-1236, OR WRITE TO: DIRECTOR, NATIONAL IMAGERY AND MAPPING AGENCY, ATTN: CO, 8613 LEE HIGHWAY, FAIRFAX, VA 22031-2137.**



# K Rocks, Wrecks, Obstructions

②		①	④
③	Wrecks <span style="float: right;">Supplementary national symbols: a</span>		
⑤	Plane of Reference for Depths → H		
	43.1  Subm piles Subm piling	 Obstrn $\gamma \gamma \gamma$	Stumps of posts or piles, fully submerged  Obstrn $\gamma \gamma \gamma$ 
	⑥	⑦a	⑦b
			⑧
			⑨
			⑩

①	Section.
②	Section designation.
③	Subsection.
④	Reference to "Supplementary national symbols" at the end of each section.
⑤	Cross reference to terms in other sections.
⑥	Column 1: Numbering system following the "Chart Specification of the IHO". A letter in this column indicates a supplementary national symbol or abbreviation for which there is no international equivalent.
⑦a	Column 2: Representation used on charts produced by the National Ocean Service (NOS). In certain instances, the representation is clarified by a label on the chart.
⑦b	Column 3: Representation used on charts produced by the National Imagery and Mapping Agency (NIMA).  Note: When the NOS and NIMA symbols are identical, Column 2 and Column 3 are combined to show only one set of symbols.
⑧	Column 4: Description of symbol, term, or abbreviation.
⑨	Column 5: Representation following the "Chart Specifications of the IHO".
⑩	Column 6: Representation of symbols that may appear on NIMA reproductions of foreign charts.

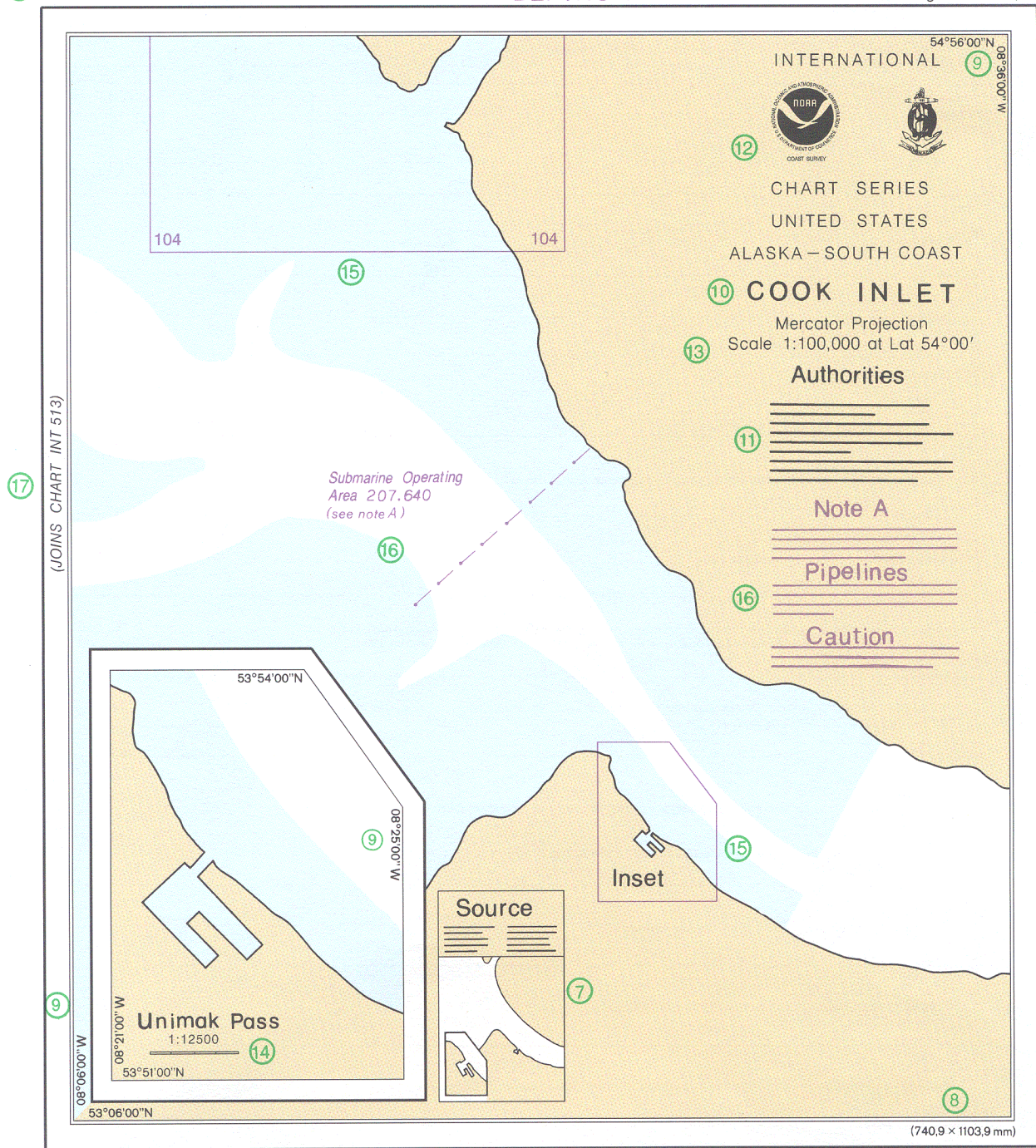
# A Chart Number, Title, Marginal Notes

Schematic layout of an NOS chart (reduced in size)

② LORAN-C OVERPRINTED  
① 412  
③ INT 500

DEPTHS IN METERS

Nautical Chart Catalog No3 Panel I, M



⑥ 7th Ed., June 1/96  
① 412  
② LORAN-C OVERPRINTED

INT 500  
412

# A Chart Number, Title, Marginal Notes

Magnetic Features → B		Tidal Data → H	Decca, Loran-C, Omega → S
①	Chart number in national chart series		
②	Identification of a latticed chart (if any): D for Decca      LC for Loran-C      Om for Omega		
③	Chart number in international chart series (if any)		
④	Publication note (imprint)		
⑤	Bar Code and Stock Numbers		
⑥	Edition note. In the example: Seventh edition published in June, 1996		
⑦	Source data diagram (if any). For attention to navigators: use caution where surveys are inadequate		
⑧	Dimensions of inner borders		
⑨	Corner co-ordinates		
⑩	Chart title      }      May be quoted when ordering a chart, in addition to chart number		
⑪	Explanatory notes on chart construction, etc. To be read before using chart		
⑫	Seals: In the example, the national and International Hydrographic Organization seals show that this national chart is also an international one. Purely national charts have the national seal only. Reproductions of charts of other nations (facsimile) have the seals of the original producer (left), publisher (center) and the IHO (right)		
⑬	Projection and scale of chart at stated latitude. The scale is precisely as stated only at the latitude quoted		
⑭	Linear scale on large-scale charts		
⑮	Reference to a larger-scale chart		
⑯	Cautionary notes (if any). Information on particular features, to be read before using chart		
⑰	Reference to an adjoining chart of similar scale		



## B Positions, Distances, Directions, Compass

Geographical Positions				
1	Lat	Latitude	Lat	
2	Long	Longitude	Long	
3		International meridian (Greenwich)		
4	°	Degree(s)	°	
5	'	Minute(s) of arc	'	
6	"	Second(s) of arc	"	
7	PA	Position approximate	PA	
8	PD	Position doubtful	PD	
9	N	North, Northern	N	
10	E	East, Eastern	E	
11	S	South, Southern	S	
12	W	West, Western	W	
13	NE	Northeast	NE	
14	SE	Southeast	SE	
15	NW	Northwest	NW	
16	SW	Southwest	SW	
Control Points				
20	△	Triangulation point	△	
21	⊕ Obs Spot	Observation spot	⊕	
22	⊙	Fixed point	⊙	
23	◦ BM	Benchmark	⌵	
24	◇ Bdy Mon	Boundary mark		
Symbolized Positions (Examples)				
30		# 18 Wk (PA)	Symbols in plan: position is center of primary symbol	⊕ # 18 Wk (PA)
31		↓ P	Symbols in profile: position is at bottom of symbol	⌵ ↓ P ⌵
32	⊙		Point symbols (accurate positions)	◦ Mast ⊙ MAST ☆
33	◦		Approximate position	◦ Mast PA

## B Positions, Distances, Directions, Compass


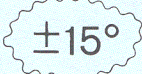
Units			Supplementary national symbols: a – m	
40	km	Kilometer(s)	km	
41	m	Meter(s)	m	
42	dm	Decimeter(s)	dm	
43	cm	Centimeter(s)	cm	
44	mm	Millimeter(s)	mm	
45	M, Mi, NMi, NM	Nautical mile(s) (1852 m) or sea mile(s)	M	
46	cbl	Cable(s) length		
47	ft	Foot/feet	ft	
48	fm, fms	Fathom(s)		
49	h, hr	Hour	h	
50	m, min	Minute(s) of time	m	min
51	s, sec	Second(s) of time	s	sec
52	kn	Knot(s)	kn	
53	t	Ton(s) (metric ton equals 2,204.6 lbs)	t	
54	cd	Candela (new candle)	cd	
Magnetic Compass			Supplementary national symbols: n	
60	var VAR	Variation		
61	mag	magnetic		
62	brg	Bearing		
63	T	true		
64		decreasing		
65		increasing		
66		Annual change		
67	dev	Deviation		
68.1		Note of magnetic variation, in position	Magnetic Variation 4°31'W 1995 (8'E)	
68.2		Note of magnetic variation, out of position	Magnetic Variation at 55°N 8°W 4°31'W 1995 (8'E)	

# B Positions, Distances, Directions, Compass

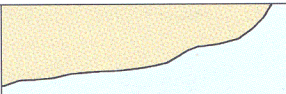



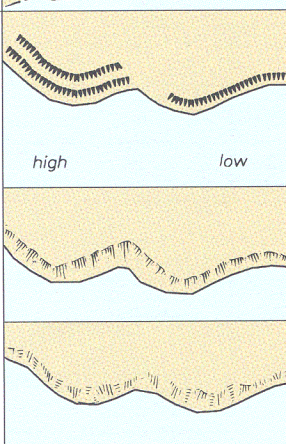
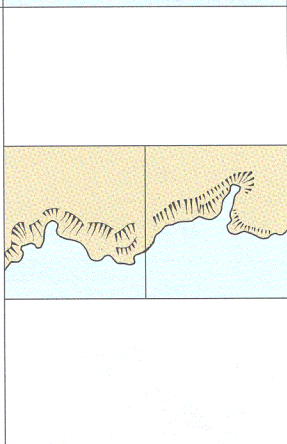




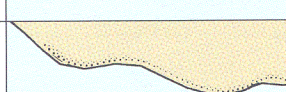
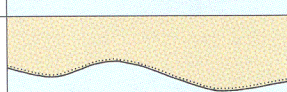

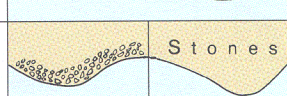



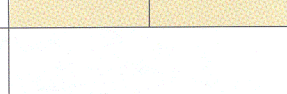

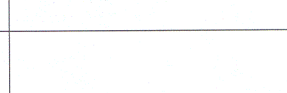
70	<p>Compass rose, normal pattern (smaller patterns of compass rose may be used)</p> <p>Magnetic Variation (example): 4°15' W 1997 (8' E) on magnetic north arrow means Magnetic Variation 4°15' W in 1997, annual change 8' E (i.e. magnetic variation decreasing 8' annually).</p>
	<p>True north compass rose</p>
71	<p>Isogonic lines</p> <p>Magnetic Variation Curves are for 1997</p> <p>The Magnetic Variation is shown in degrees, followed by the letter W or E, as appropriate, at certain positions on the curves. The annual change is expressed in minutes with the letter W or E and is given in brackets, immediately following the variation.</p>



## B Positions, Distances, Directions, Compass

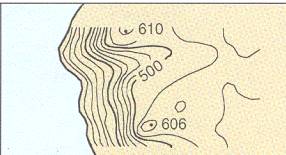
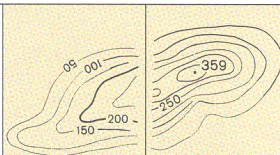

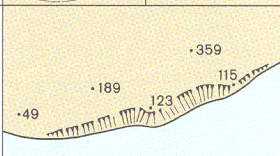

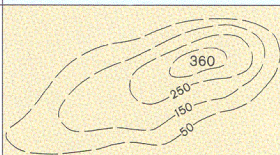
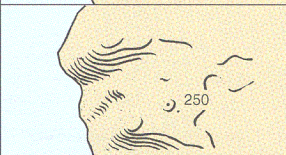
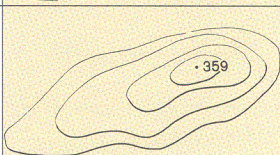
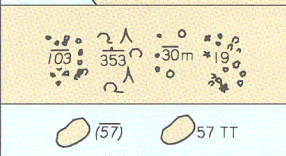
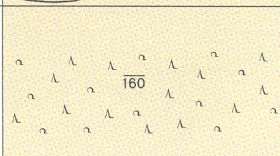
82.1		Local magnetic disturbance Within the enclosed area the magnetic variation may deviate from the normal by the value shown	
82.2	Local Magnetic Disturbance (see Note)	Where the area affected cannot be easily defined, a legend only is shown at the position	Local Magnetic Anomaly (see Note)
<b>Supplementary National Symbols</b>			
a	m <sup>2</sup>	Square meter	
b	m <sup>3</sup>	Cubic meter	
c	in, ins	Inch(es)	
d	yd, yds	Yard(s)	
e	St M, St Mi	Statute mile	
f	μsec, μs	Microsecond	
g	Hz	Hertz	
h	kHz	Kilohertz	
i	MHz	Megahertz	
j	cps, c/s	Cycles/second	
k	kc	Kilocycle	
l	Mc	Megacycle	
m	T	Ton (U.S. short ton equals 2,000 lbs)	
n	deg	Degree (s)	

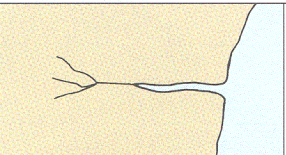
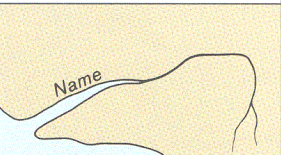
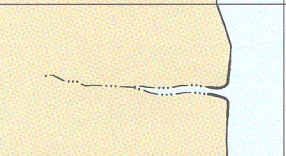

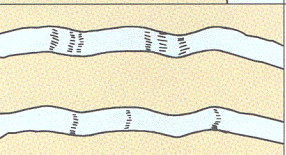
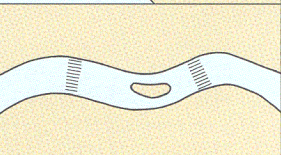
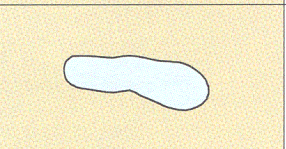
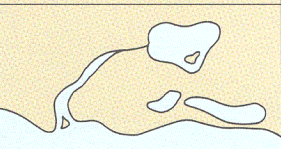
# C Natural Features

Coastline		Supplementary national symbols: a – e	
Foreshore → I, J			
1		Coastline, surveyed	
2		Coastline, unsurveyed	
3		Steep coast, Steep coast with rock cliffs, Cliffs	
4		Coastal hillocks, elevation not determined	
5		Flat coast	
6		Sandy shore	
7		Stony shore, Shingly shore	
8		Sandhills, Dunes	
9		Apparent Shoreline	
9.1		Vegetation or topographic Feature Area Limit in general	



# C Natural Features


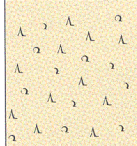






















Relief		Supplementary national symbols: f, g	
Plane of Reference for Heights → H			
10		Contour lines with spot height	
11		Spot heights	
12		Approximate contour lines with approximate height	
13		Form lines with spot height	
14		Approximate height of top of trees (above height datum)	

Water Features, Lava		Supplementary national symbols: h	
20		River, Stream	
21		Intermittent river	
22		Rapids, Waterfalls	
23		Lakes	

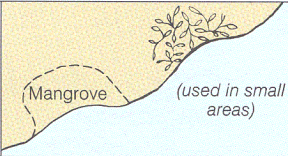
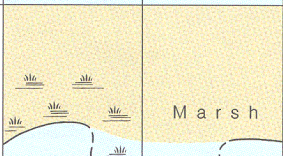


# C Natural Features

24		Salt pans		
25		Glacier		
26		Lava flow		

Vegetation			Supplementary national symbols: i - O	
30	Wooded 	Wood, in general		Wooded
31		Prominent trees (in groups or isolated)		
31.1		Deciduous tree		
31.2		Evergreen (except conifer)		
31.3		Conifer		
31.4		Palm		
31.5		Nipa palm		
31.6		Casuarina		
31.7		Filao		
31.8		Eucalyptus		

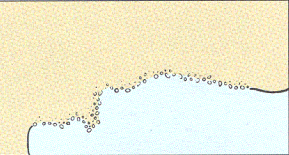
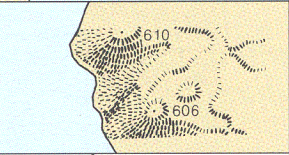




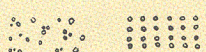




## C Natural Features

32		Mangrove	
33		Marsh	
		Swamp	
34		Cypress	

### Supplementary National Symbols

a		Chart sounding datum line (surveyed)	
b		Approximate sounding datum line (inadequately surveyed)	
c		Foreshore; Strand (in general) Stones; Shingle; Gravel; Mud; Sand	
d		Breakers along a shore	

# C Natural Features

e		Rubble	
f		Hachures	
g		Shading	
h		Lagoon	
i	Wooded 	Deciduous woodland	
j	Wooded 	Coniferous woodland	
k		Tree plantation	
l	Cultivated 	Cultivated fields	
m	Grass 	Grass fields	
n	Rice 	Paddy (rice) fields	
o	Bushes 	Bushes	



# D Cultural Features

Settlements, Buildings				
Height of objects → E			Landmarks → E	
1		Urban area		
2		Settlement with scattered buildings		
3		Settlement (on medium and small-scale charts)	○ Name	□ Name
4	VII	Village	✠ Name	■ Name HOTEL
5		Buildings in general		
6		Important building in built-up area		
7	Church Street	Street name, Road name St Ave Blvd Street Avenue Boulevard		
8		Ruins, Ruined landmark		

Roads, Railways, Airfields			Supplementary national symbols: A-C	
10		Motorway		
11		Road (hard surfaced)		
12		Track, Path (loose or unsurfaced)		
13		Railway, with station		
14		Cutting		

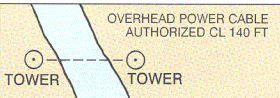
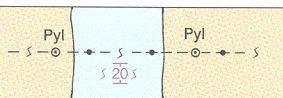
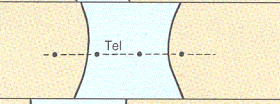
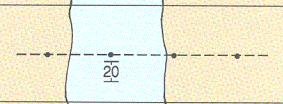
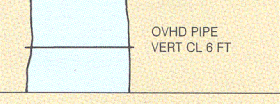
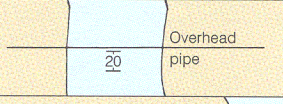
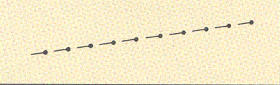
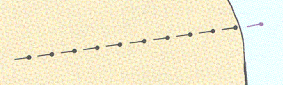
# D Cultural Features

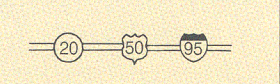
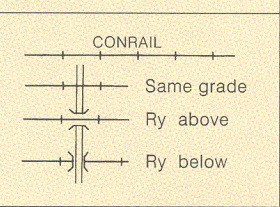
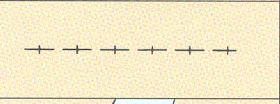
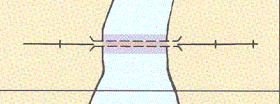
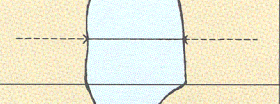
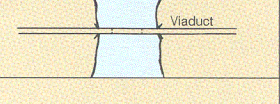
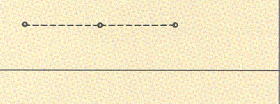
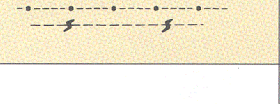
15		Embankment	
16		Tunnel	
17		Airport, Airfield	

Other Cultural Features			Supplementary national symbols: d-h
20	VERT CL 6 FT T 6 I	VERT CL 2 M T 2 I	Vertical clearance above High Water
21	HOR CL 28 FT I-28-I	HOR CL 8 M I-8-I	Horizontal clearance
22		Fixed bridge	
23.1		Opening bridge (in general)	
23.2		Swing bridge	
23.3		Lifting bridge	
23.4		Bascule bridge	
23.5		Pontoon bridge	
23.6		Draw bridge	
24		Transporter bridge	
25		Overhead transporter, Telepheric with vertical clearance	






















































# D Cultural Features

26		Power transmission line with pylons and safe overhead clearance	
27		Overhead cable, Telephone line, Telegraph line	
28		Overhead pipe with vertical clearance	
29		Pipeline on land	

Supplementary National Symbols			
a		Highway markers	
b		Railway (Ry) (single or double track) Railroad (RR)	
c		Abandoned railroad	
d		Bridge under construction	
e		Footbridge	
f		Viaduct	
g		Fence	
h		Power transmission line	














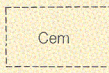























# E Landmarks

Plane of reference for Heights → H			Lighthouses → P	Beacons → Q	
General					
1	 TANK   		Examples of landmarks	 Building  	
2	 CAPITOL DOME  WORLD TRADE CENTER		Examples of conspicuous landmarks	 FACTORY  WATER TR  HOTEL  WATER TOWER	
3.1			Pictorial symbols (in true position)	 	
3.2			Sketches, Views (out of position)	 	
4		(30)	Height of top of a structure above plane of reference for heights	 (30)	
5		(30)	Height of structure above ground level	 (30)	
Landmarks					
10.1		 Ch	Church	  Ch  	
10.2			Church tower	 Tr  Tr	
10.3	 SPIRE  Spire		Church spire	 Sp  Sp	  
10.4	 CUPOLA  Cup		Church cupola	 Cup  Cup	
11		 Ch	Chapel		
12			Cross, Calvary		 
13			Temple		
14			Pagoda		
15			Shinto shrine, Josshouse		











































## E

## Landmarks



16			Buddhist temple	 	
17		  	Mosque, Minaret		 
18		 	Marabout	⊙ Marabout	
19			Cemetery (for all religious denominations)		
20	⊙ TOWER	⊙ Tr	Tower	 Tr	
21	⊙ STANDPIPE ⊙ S'pipe	⊙ WTR TR ⊙ Wtr Tr	Standpipe Water tower, Water tank on a tower		
22	⊙ CHIMNEY	⊙ Chy	Chimney	  Chy	
23	⊙ FLARE ⊙ Flare		Flare stack (on land)		
24	⊙ MONUMENT	⊙ Mon	Monument	 Mon	 
25.1	⊙ WINDMILL ⊙ Windmill	⊙ WINDMILL 	Windmill		 
25.2			Windmill (wingless)	 Ru	
26	⊙ WINDMOTOR ⊙ Windmotor		Windmotor		 
27	⊙ F S ⊙ F S	⊙ F P ⊙ F P	Flagstaff, Flagpole	 FS	
28	⊙ R MAST ⊙ R Mast	⊙ TV MAST ⊙ TV Mast	Radio mast, Television mast		
29	⊙ R TR ⊙ R Tr	⊙ TV TR ⊙ TV Tr	Radio tower, Television tower		
30.1	⊙ RADAR MAST ⊙ Radar Mast		Radar mast	⊙ Radar Mast	



# E Landmarks

30.2	 RADAR TR 	<i>Radar tower</i>		
30.3		<i>Radar scanner</i>		
30.4	 DOME(RADAR)   RADOME 	<i>Radar dome</i>		
31	 ANT (RADAR) 	<i>Dish aerial</i>		
32	 TANK   	<i>Tanks</i>	 	<i>Tanks</i>
33	 SILO  ELEVATOR  	<i>Silo, Elevator</i>	 	 
34.1	 	<i>Fortified structure (on large-scale charts)</i>		
34.2	 Cas	<i>Castle, Fort, Blockhouse (on smaller-scale charts)</i>		
34.3		<i>Battery, Small fort (on smaller-scale charts)</i>		
35.1		<i>Quarry (on large-scale charts)</i>		
35.2		<i>Quarry (on smaller-scale charts)</i>		
36		<i>Mine</i>		

## Supplementary National Symbols

a		<i>Moslem Shrine</i>		
b		<i>Tomb</i>		



# E Landmarks

c		Watermill		
d	 Facty	Factory		
e	 Well	Well		
f	 Sch	School		
g	 Hosp	Hospital		
h	 Univ	University		
i	 GAB  Gab	Gable		
j		Camping site		
k	Tel Tel Off	Telegraph Telegraph office		
l	Magz	Magazine		
m	Govt Ho	Government house		
n	Inst	Institute		
o	Ct Ho	Courthouse		
p	Pav	Pavilion		
q	T	Telephone		
r	Ltd	Limited		
s	Apt	Apartment		
t	Cap	Capitol		
u	Co	Company		
v	Corp	Corporation		

# F Ports

Hydraulic Structures in General			Supplementary national symbols: a—c
1		Dike, Levee	
2.1		Seawall (on large-scale charts)	
2.2		Seawall (on smaller-scale charts)	
3		Causeway	
4.1		Breakwater (in general)	
4.2		Breakwater (loose boulders, tetrapods, etc.)	
4.3		Breakwater (slope of concrete or masonry)	
5		Training wall (partly submerged at high water)	
6.1		Groyne (always dry)	
6.2		Groyne (intertidal)	
6.3		Groyne (always under water)	

Harbor Installations			
Depths → I	Anchorage, Limits → N	Beacons and other fixed marks → Q	Marina → U
10	Fishing harbor		

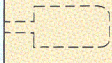
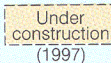

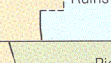


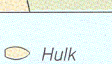
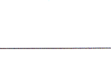



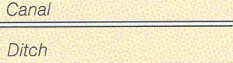

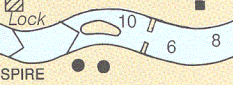
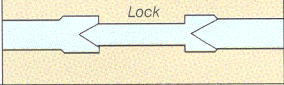
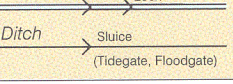
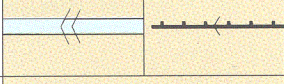

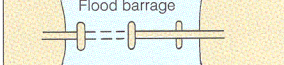


# F Ports

12		Mole	
13		Quay, Wharf	
14		Pier, Jetty	
15		Promenade pier	
16		Pontoon	
17	Ldg, Lndg	Landing for boats	
18		Steps, Landing stairs	
19	3 A	3 (A)	Designation of berth
20	<ul style="list-style-type: none"> <li>Dol</li> <li>Dol (Great Lakes)</li> </ul>	Dolphin	
21		Deviation dolphin	
22	<ul style="list-style-type: none"> <li>Pile</li> <li>Pile (Great Lakes)</li> </ul>	Minor post or pile	
23		Slipway, Patent slip, Ramp	
24		Gridiron, Scrubbing grid	
25		Dry dock, Graving dock	
26		Floating dock	
27		Non-tidal basin, Wet dock	
28		Tidal basin, Tidal harbor	

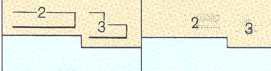




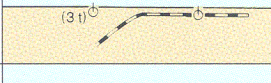



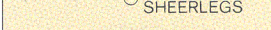








# F Ports

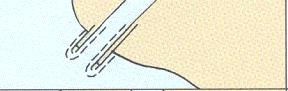
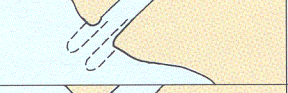



30		Works on land, with year date	 Dock under construction (1996)
31		Works at sea, Area under reclamation, with year date	 Area under reclamation (1996)
32		Works under construction, with year date	Under construction (1996) Works in progress (1996)
33.1	 Ruins	Ruins	 Ru
33.2	 Pier	Ruined pier, partly submerged at high water. Submerged ruins	 Pier (Ru)
34	 Hk	Hulk (actual shape on large scale charts)	 Hulk

Canals, Barrages			
Clearances → D		Signal Stations → T	
40		Canal	
41.1		Lock (on large-scale charts)	
41.2		Lock (on smaller-scale charts)	
42		Caisson	
43		Flood barrage	
44		Dam	

# F Ports

Transshipment Facilities				Supplementary national symbol : d
Roads → D		Railways → D		Tanks → E
50		RoRo	Roll-on. Roll-off Ferry (Ro Ro Terminal)	RoRo
51			Transit shed. Warehouse (with designation)	
52			Timber yard	
53.1			Crane with lifting capacity. crane (on railway)	
53.2			Container crane with lifting capacity	
53.3			Sheerlegs (conspicuous)	

Public Buildings				Supplementary national abbreviation : e
60	Hbr Mr		Harbormaster's office	
61	■ Cus Ho		Customhouse	
62.1	 Health Office		Health officer's office	
62.2	■ Hosp		Hospital	
63	■ PO		Post office	

Supplementary National Symbols			
a		Jetty (partly below MHW)	
b		Submerged jetty	
c		Jetty (small scale)	
d		Pump-out facilities	
e	 Quar	Quarantine	

# G Topographic Terms

<i>Coast</i>	
1 <i>Island</i>	8 <i>Head, Headland</i>
2 <i>Islet</i>	9 <i>Point</i>
3 <i>Cay</i>	10 <i>Spit</i>
4 <i>Peninsula</i>	11 <i>Rock</i>
5 <i>Archipelago</i>	12 <i>Salt marsh, Saltings</i>
6 <i>Atoll</i>	13 <i>Lagoon</i>
7 <i>Cape</i>	
<i>Natural Inland-Features</i>	
20 <i>Promontory</i>	30 <i>Plateau</i>
21 <i>Range</i>	31 <i>Valley</i>
22 <i>Ridge</i>	32 <i>Ravine, Cut</i>
23 <i>Mountain, Mount</i>	33 <i>Gorge</i>
24 <i>Summit</i>	34 <i>Vegetation</i>
25 <i>Peak</i>	35 <i>Grassland</i>
26 <i>Volcano</i>	36 <i>Paddy field</i>
27 <i>Hill</i>	37 <i>Bushes</i>
28 <i>Boulder</i>	38 <i>Deciduous woodland</i>
29 <i>Table-land</i>	39 <i>Coniferous woodland</i>
<i>Settlements</i>	
50 <i>City, Town</i>	53 <i>Farm</i>
51 <i>Village</i>	54 <i>Saint</i>
52 <i>Fishing village</i>	
<i>Buildings</i>	
60 <i>Structure</i>	62 <i>Hut</i>
61 <i>House</i>	



# G *Topographic Terms*

63	<i>Multi-story building</i>	82	<i>Cement works</i>
64	<i>Castle</i>	83	<i>Water mill</i>
65	<i>Pyramid</i>	84	<i>Greenhouse</i>
66	<i>Column</i>	85	<i>Warehouse, Storehouse</i>
67	<i>Mast</i>	86	<i>Cold store, Refrigerating storage house</i>
68	<i>Lattice tower</i>	87	<i>Refinery</i>
69	<i>Mooring mast</i>	88	<i>Power station</i>
70	<i>Floodlight</i>	89	<i>Electric works</i>
71	<i>Town hall</i>	90	<i>Gas works</i>
72	<i>Office</i>	91	<i>Water works</i>
73	<i>Observatory</i>	92	<i>Sewage works</i>
74	<i>Institute</i>	93	<i>Machine house, Pump house</i>
75	<i>Cathedral</i>	94	<i>Well</i>
76	<i>Monastery, Convent</i>	95	<i>Telegraph office</i>
77	<i>Lookout station, Watch tower</i>	96	<i>Hotel</i>
78	<i>Navigation school</i>	97	<i>Sailors' home</i>
79	<i>Naval college</i>	98	<i>Spa hotel</i>
80	<i>Factory</i>		
81	<i>Brick kiln, Brick works</i>		
<i>Road, Rail and Air Traffic</i>			
110	<i>Street, Road</i>	116	<i>Runway</i>
111	<i>Avenue</i>	117	<i>Landing lights</i>
112	<i>Tramway</i>	118	<i>Helicopter landing site</i>
113	<i>Viaduct</i>		
114	<i>Suspension bridge</i>		
115	<i>Footbridge</i>		
<i>Ports, Harbors</i>			
130	<i>Tidal barrier</i>	132	<i>Loading canal</i>
131	<i>Boat lift, Ship lift, Hoist</i>	133	<i>Sluice</i>

# G Topographic Terms

134	Basin	147	Commercial port, Trade port
135	Reservoir	148	Building harbor
136	Reclamation area	149	Oil harbor
137	Port	150	Ore harbor
138	Harbor	151	Grain harbor
139	Haven	152	Container harbor
140	Inner harbor	153	Timber harbor
141	Outer harbor	154	Coal harbor
142	Deep water harbor	155	Ferry harbor
143	Free port	156	Police
144	Customs harbor		
145	Naval port		
146	Industrial harbor		

## Harbor Installations

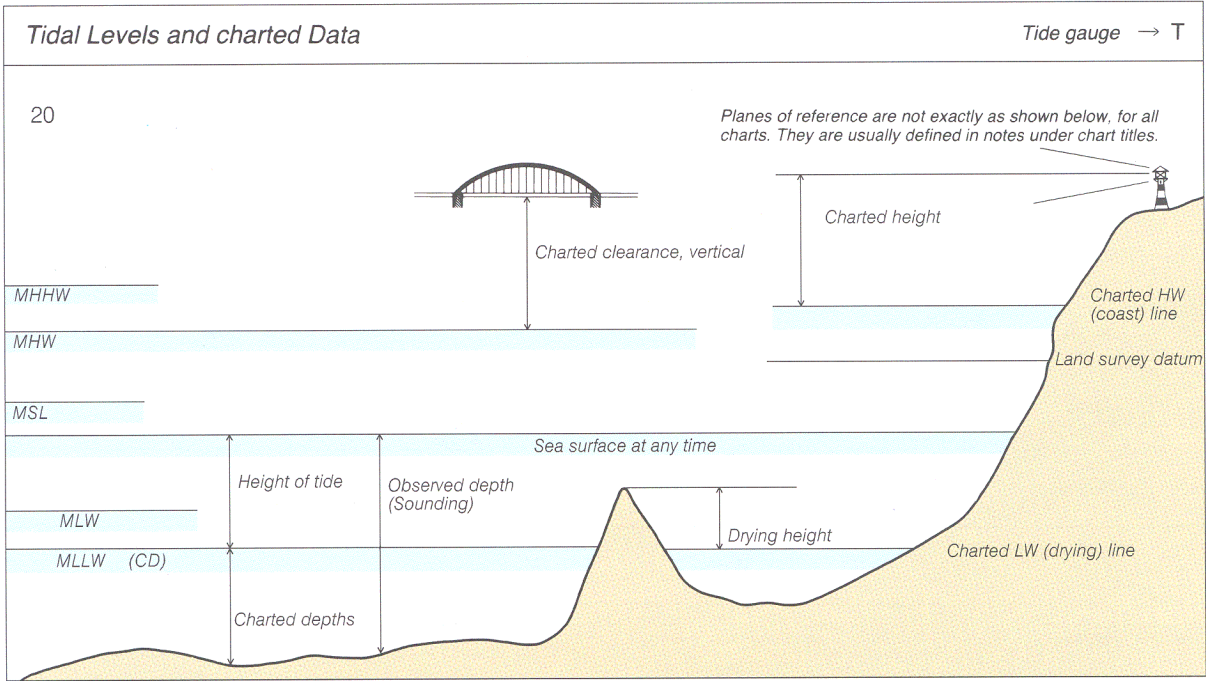
170	Terminal	185	Liquified Natural Gas LNG
171	Building slip	186	Liquified Petroleum Gas LPG
172	Building yard	187	Very Large Crude Carrier VLCC
173	Buoy yard, Buoy dump		
174	Bunker station		
175	Reception facilities for oily wastes		
176	Tanker cleaning facilities		
177	Cooling water intake/outfall		
178	Floating barrier Boom		
179	Piling		
180	Row of piles		
181	Bollard		
182	Conveyor		
183	Storage tanker		
184	Lighter Aboard Ship - LASH		

# H *Tides, Currents*

<i>Terms Relating to Tidal Levels</i>			<i>Supplementary national symbols: a-k</i>
1		<i>Chart Datum, Datum for sounding reduction</i>	CD
2		<i>Lowest Astronomical Tide</i>	LAT
3		<i>Highest Astronomical Tide</i>	HAT
4	MLW	<i>Mean Low Water</i>	MLW
5	MHW	<i>Mean High Water</i>	MHW
6	MSL	<i>Mean Sea Level</i>	MSL
7		<i>Land survey datum</i>	
8	MLWS	<i>Mean Low Water Springs</i>	MLWS
9	MHWS	<i>Mean High Water Springs</i>	MHWS
10	MLWN	<i>Mean Low Water Neaps</i>	MLWN
11	MHWN	<i>Mean High Water Neaps</i>	MHWN
12	MLLW	<i>Mean Lower Low Water</i>	MLLW
13	MHHW	<i>Mean Higher High Water</i>	MHHW
14		<i>Mean Higher Low Water</i>	MHLW
15		<i>Mean Lower High Water</i>	MLHW
16	Sp	<i>Spring tide</i>	Sp
17	Np	<i>Neap tide</i>	Np



# H Tides, Currents



Tide Tables

30

Tidal Levels referred to Datum of Soundings

Place	Lat N/S	Long E/W	Heights in meters above datum			
			MHWS	MHWN	MLWN	MLWS
			MHHW	MLHW	MHLW	MLLW

Tabular statement of semi-diurnal or diurnal tides

Note:  
The order of the columns of levels will be the same as that used in national tables of tidal predictions.

31

Tidal streams referred to . .









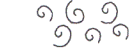



Hours	Geographical Position
Before High Water 6 5 4 3 2 1	Directions of streams (degrees) Rates at spring tides (knots) Rates at neap tides (knots)
High Water	
After High Water 1 2 3 4 5 6	

Tidal stream table

Tidal streams referred to . .

Hours	Geographical Position
Before High Water 6 5 4 3 2 1	Directions of streams (degrees) Rates at spring tides (knots) Rates at neap tides (knots)
High Water	
After High Water 1 2 3 4 5 6	




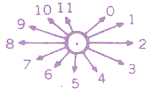
# H Tides, Currents

Tidal Streams and Currents			
Breakers → K		Tide Gauge → T	
40		Flood stream (current) with rate	
41		Ebb stream (current) with rate	
42		Current in restricted waters	
43		Ocean current with rates and seasons	
44	 Tide rips Symbol used only in small areas	Overfalls, tide rips, races	
45	 Eddies Symbol used only in small areas	Eddies	
46		Position of tabulated tidal data with designation	





Supplementary National Symbols			
a	HW	High water	
b	HHW	Higher high water	
c	LW	Low water	
d	LWD	Low-water datum	
e	LLW	Lower low water	
f	MTL	Mean tide level	
g	ISLW	Indian spring low water	
h	HWF&C	High-water full and change (vulgar establishment of the port)	
i	LWF&C	Low-water full and change	

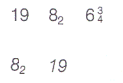




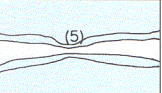
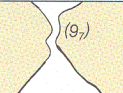





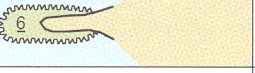



# H Tides, Currents

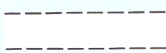
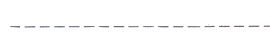
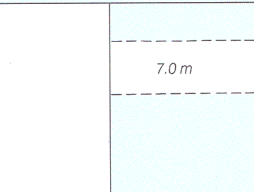
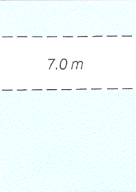
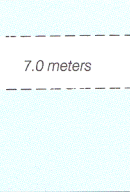
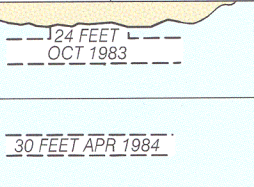
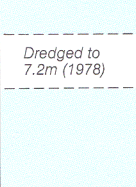
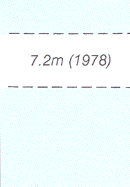
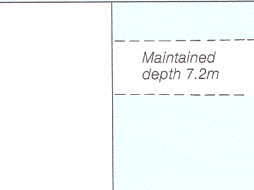
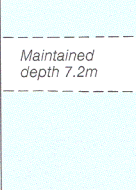

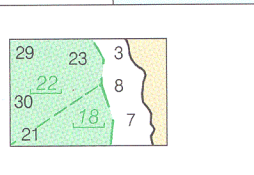
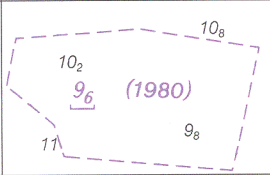
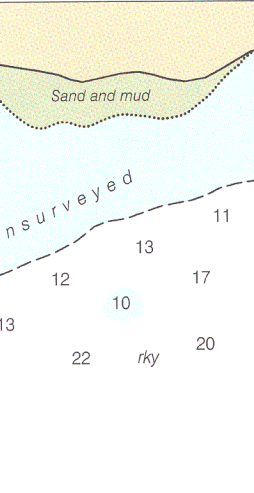
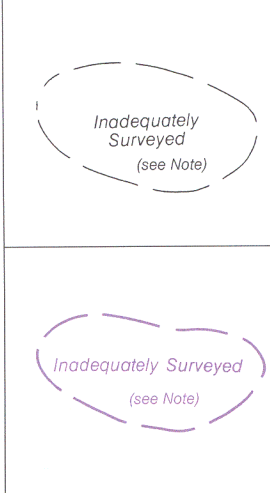

j	CRD	Columbia River Datum	
k	GCLWD	Gulf Coast Low Water Datum	
l	Str	Stream	
m		Current, general, with rate	
n	vel	Velocity; Rate	
o	kn	Knots	
p	ht	Height	
q	fl	Flood	
r		New moon	
s		Full moon	
t		Current diagram	

# Depths

General			
1	ED	Existence doubtful	ED
2	SD	Sounding doubtful	SD
3.1	Rep	Reported, but not surveyed	Rep
3.2	 Rep (1983)	Reported with year of report, but not surveyed	Rep (1973)
4	 Rep	Reported but not confirmed sounding or danger	 

Soundings				Supplementary national symbols: a - c
Plane of Reference for Depths → H		Plane of Reference for Heights → H		
10			Sounding in true position (NOS uses upright soundings on English unit charts and sloping soundings on Metric charts).	
11			Sounding out of position	
12			Least depth in narrow channel	
13			No bottom found at depth shown	
14			Soundings which are unreliable or taken from a smaller-scale source (NOS uses sloping soundings on English unit charts and upright soundings on Metric charts).	
15			Drying heights above chart datum	

# Depths

Depths in Fairways and Areas			Supplementary national symbols: a, b	
Plane of Reference for Depths → H				
20		Limit of dredged area		
21		Dredged channel or area with depth of dredging in meters		
22		Dredged channel or area with depth and year of the latest control survey		
23		Dredged channel or area with maintained depth		
24		Depth at chart datum, to which an area has been swept by wire drag. The latest date of sweeping may be shown in parentheses		
25		Unsurveyed or inadequately surveyed area; area with inadequate depth information		
				

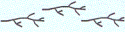


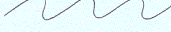





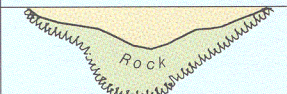
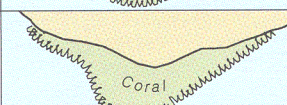
# Depths

Depth Contours					
30	Feet	Fm/Meters		<p>Low water line</p> <p>One or two lighter blue tints may be used instead of the 'ribbons' of tint at 10 or 20 m</p>	
	0	0			0
	6	1			2
	12	2			3
	18	3			5
	24	4			8
	30	5			10
	36	6			15
	60	10			20
	120	20			25
180	30			30	
240	40			40	
300	50			50	
600	100			75	
1,200	200			100	
1,800	300			200	
2,400	400			300	
3,000	500			400	
6,000	1,000			500	
31	Approximate depth contour			Approximate depth contours	
	Continuous lines, with values				
<p>Note: The extent of the blue tint varies with the scale and purpose of the chart, or its sources. On some charts, contours and figures are printed in blue.</p>					

Supplementary National Symbols			
a		Swept channel	
b		Swept area, not adequately sounded (shown by purple or green tint)	
c		Stream	

# J Nature of the Seabed

Types of Seabed			
Rocks → K		Supplementary national abbreviations: a-ag	
1	S	Sand	S
2	M	Mud	M
3	Cy; Cl	Clay	Cy
4	Si	Silt	Si
5	St	Stones	St
6	G	Gravel	G
7	P	Pebbles	P
8	Cb	Cobbles	Cb
9	Rk; rky	Rock; Rocky	R
10	Co	Coral and Coralline algae	Co
11	Sh	Shells	Sh
12	S/M	Two layers, eg. Sand over mud	S/M
13.1	Wd	Weed (including Kelp)	Wd
13.2	 Kelp	Kelp, Seaweed	
14	 Sandwaves	Mobile bottom (sand waves)	
15	 Spring	Freshwater springs in seabed	

Types of Seabed, Intertidal Areas		
20		Area with stones, gravel or shingle
21		Rocky area, which covers and uncovers
22		Coral reef, which covers and uncovers

# J Nature of the Seabed

Qualifying Terms			Supplementary national abbreviations: ah - bf
30	<i>f; fine</i>	<i>fine</i>	<i>f</i>
31	<i>m</i>	<i>medium</i> <i>only used in relation to sand</i>	<i>m</i>
32	<i>c; crs</i>	<i>coarse</i>	<i>c</i>
33	<i>bk; brk</i>	<i>broken</i>	<i>bk</i>
34	<i>sy; stk</i>	<i>sticky</i>	<i>sy</i>
35	<i>so; sft</i>	<i>soft</i>	<i>so</i>
36	<i>stf</i>	<i>stiff</i>	<i>sf</i>
37	<i>Vol</i>	<i>volcanic</i>	<i>v</i>
38	<i>Ca</i>	<i>calcareous</i>	<i>ca</i>
39	<i>h; hrd</i>	<i>hard</i>	<i>h</i>

Supplementary National Abbreviations				
a	<i>Grd</i>		<i>Ground</i>	
b	<i>Oz</i>		<i>Ooze</i>	
c	<i>Ml</i>		<i>Marl</i>	
d	<i>Sn</i>		<i>Shingle</i>	
e	<i>Blds</i>		<i>Boulders</i>	
f	<i>Ck</i>		<i>Chalk</i>	
g	<i>Qz</i>		<i>Quartz</i>	
h	<i>Sch</i>		<i>Schist</i>	
i	<i>Co Hd</i>		<i>Coral head</i>	
j	<i>Mds</i>		<i>Madrepores</i>	
k	<i>Vol Ash</i>		<i>Volcanic ash</i>	
l	<i>La</i>		<i>Lava</i>	
m	<i>Pm</i>		<i>Pumice</i>	
n	<i>T</i>		<i>Tufa</i>	
o	<i>Sc</i>		<i>Scoriae</i>	
p	<i>Cn</i>		<i>Cinders</i>	
q	<i>Mn</i>		<i>Manganese</i>	
r	<i>Oys</i>		<i>Oysters</i>	
s	<i>Ms</i>		<i>Mussels</i>	
t	<i>Spg</i>		<i>Sponge</i>	
u	<i>K</i>		<i>Kelp</i>	
v	<i>Grs</i>		<i>Grass</i>	
w	<i>Stg</i>		<i>Sea - tangle</i>	
x	<i>Spi</i>		<i>Spicules</i>	
y	<i>Fr</i>		<i>Foraminifera</i>	
z	<i>Gl</i>		<i>Globigerina</i>	
aa	<i>Di</i>		<i>Diatoms</i>	



# J *Nature of the Seabed*


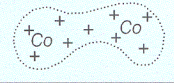



ab	<i>Rd</i>		<i>Radiolaria</i>	
ac	<i>Pt</i>		<i>Pteropods</i>	
ad	<i>Po</i>		<i>Polyzoa</i>	
ae	<i>Cir</i>		<i>Cirripedia</i>	
af	<i>Fu</i>		<i>Fucus</i>	
ag	<i>Ma</i>		<i>Mattes</i>	
ah	<i>sml</i>		<i>Small</i>	
ai	<i>lrg</i>		<i>Large</i>	
aj	<i>rt</i>		<i>Rotten</i>	
ak	<i>str</i>		<i>Streaky</i>	
al	<i>spk</i>		<i>Speckled</i>	
am	<i>gty</i>		<i>Gritty</i>	
an	<i>dec</i>		<i>Decayed</i>	
ao	<i>fly</i>		<i>Flinty</i>	
ap	<i>glac</i>		<i>Glacial</i>	
aq	<i>ten</i>		<i>Tenacious</i>	
ar	<i>wh</i>		<i>White</i>	
as	<i>bl; bk</i>		<i>Black</i>	
at	<i>vi</i>		<i>Violet</i>	
au	<i>bu</i>		<i>Blue</i>	
av	<i>gn</i>		<i>Green</i>	
aw	<i>yl</i>		<i>Yellow</i>	
ax	<i>or</i>		<i>Orange</i>	
ay	<i>rd</i>		<i>Red</i>	
az	<i>br</i>		<i>Brown</i>	
ba	<i>ch</i>		<i>Chocolate</i>	
bb	<i>gy</i>		<i>Gray</i>	
bc	<i>lt</i>		<i>Light</i>	
bd	<i>dk</i>		<i>Dark</i>	
be	<i>vard</i>		<i>Varied</i>	
bf	<i>unev</i>		<i>Uneven</i>	





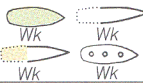


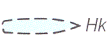




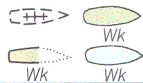



















# K Rocks, Wrecks, Obstructions

General					
1			Danger line, in general		
2			Swept by wire drag or diver		

Rocks					
Plane of Reference for Heights → H			Plane of Reference for Depths → H		
10			Rock (islet) which does not cover, height above height datum		
11			Rock which covers and uncovers, height above chart datum		
12			Rock awash at the level of chart datum		
13			Dangerous underwater rock of uncertain depth		
14			Dangerous underwater rock of known depth in the corresponding depth area		
14.1	12 Rk	27 Rk			
14.2			Dangerous underwater rock of known depth outside the corresponding depth area		



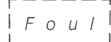




# K Rocks, Wrecks, Obstructions




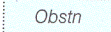


























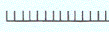
























15	+ 35 Rk	35 Rk 35 R	Non-dangerous rock, depth known	21 R	35 R. 35 R + (35)
16			Coral reef which covers		
17			Breakers		18 19 Br

Wrecks					
Plane of Reference for Depths → H					
20			Wreck, hull always dry, on large-scale charts		
21			Wreck, covers and uncovers, on large-scale charts		
22			Submerged wreck, depth known, on large-scale charts		
23			Submerged wreck, depth unknown, on large-scale charts		
24			Wreck showing any portion of hull or superstructure at level of chart datum		
25			Wreck showing mast or masts above chart datum only		
26			Wreck, least depth known by sounding only		
27			Wreck, least depth known, swept by wire drag or diver		
28			Dangerous wreck, depth unknown		
29			Sunken wreck, not dangerous to surface navigation		
30			Wreck, least depth unknown, but considered to have a safe clearance to the depth shown		


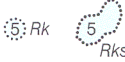






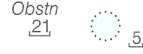










# K Rocks, Wrecks, Obstructions

31		 Foul # 	Foul ground, non-dangerous to navigation but to be avoided by vessels anchoring, trawling etc.	#   #
32	  		Foul area, Foul with rocks or wreckage, dangerous to navigation.	

Obstructions					
Plane of Reference for Depths → H			Kelp, Sea-Weed → J		
40	 Obstrn	 Obstrn	Obstruction, depth unknown	 Obstrn 	#
41	 Obstrn	 Obstrn	Obstruction, least depth known	 Obstrn  Obstrn	
42	 Obstrn  Obstrn	 Obstrn	Obstruction, least depth known, swept by wire drag or diver	 Obstrn  Obstrn	
43.1	 Subm piles  Stakes, Perches	 Obstrn  	Stumps of posts or piles, all or part of the time submerged	 Obstrn  	  Subm piles
43.2	 Snags  Deadhead	 Stumps	Submerged pile, stake, snag, well, deadhead or stump (with exact position)		  
44.1	 Fish stks		Fishing stakes	 	
44.2			Fish trap, fish weirs, tunny nets		
45		 	Fish trap area, tunny nets area	 	
46.1	 Obstruction (fish haven)  (actual shape)	 Obstrn (fish haven) 	Fish haven (artificial fishing reef)	 	
46.2	  Obstrn Fish haven (Auth min 42ft)	 	Fish haven with minimum depth	 	
47			Shellfish cultivation (stakes visible)	 (see Note)	

# K Rocks, Wrecks, Obstructions

Supplementary National Symbols					
a			Rock awash (height unknown)		
b			Shoal sounding on isolated rock or rocks		
c			Sunken wreck covered 20 to 30 meters		
d	 Sub vol		Submarine volcano		
e	 Discol water		Discolored water		
f			Sunken danger with depth cleared (swept) by wire drag		
g	Reef		Reef of unknown extent		
h			Coral reef, detached (uncovers at sounding datum)		
i	 Subm Crib	 Crib	Submerged Crib		
j	 Crib	 Duck Blind	Crib, Duck Blind (above water)		
k	 Duck Blind		Submerged Duck Blind		
l	 Platform		Submerged Platform		

















# L Offshore Installations

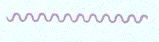

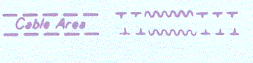

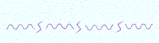





Offshore Installations					
General					
Areas, Limits → N					
1		DURRAH OILFIELD	Name of oilfield or gasfield	Oil field	
2		"Hazel"	Platform with designation/name	Z-44	
3			Limit of safety zone around offshore installation		
4			Limit of development area		

Platforms and Moorings					
Mooring Buoys → Q					
10			Production platform, Platform, Oil derrick		
11			Flare stack (at sea)	Fla	
12			Mooring tower, Articulated Loading Platform (ALP), Single Anchor Leg Mooring (SALM)	SPM	
13		"Tuna"	Observation/research platform (with name)		
14			Disused platform		
15			Artificial island		
16			Oil or Gas installation buoy, Catenary Anchor Leg Mooring (CALM), Single Buoy Mooring (SBM)		
17		Tanker	Moored storage tanker		



# L Offshore Installations

Underwater Installations					
Plane of Reference for Depths → H				Obstructions → K	
20	  	 Well	Submerged production well	 Prod. Well	
21.1	 Pipe	 Well	Suspended well, depth over wellhead unknown	 Well	
21.2	 	 Well	Suspended well, with depth over wellhead	 Well	
21.3			Wellhead with height above the bottom	 Well (5.7)	
22			Site of cleared platform	#	
23	 Pipe		Above water wellheads	  Pipe	

Submarine Cables				
30.1			Submarine cable	
30.2			Submarine cable area	
31.1			Submarine power cable	
31.2			Submarine power cable area	
32			Disused submarine cable	

# L Offshore Installations

Submarine Pipelines					
40.1		Oil, Gas pipeline			
40.2		Oil, Gas pipeline areas			
41.1		Waterpipe, sewer, outfall pipe, intake pipe			
41.2		Discharge pipeline areas			
42		Buried pipeline/pipe (with nominal depth to which buried)			
43		Potable Water intake, diffuser, or crib			
44		Disused pipeline/pipe			

Supplementary National Symbol					
a	Well	Well	Well	Submerged well (buoyed)	

# M Tracks, Routes

Tracks					
Tracks Marked by Lights → P			Leading Beacons → Q	Supplementary national symbols: a – c	
1		Lights in line 090°	Leading line (solid line is fairway)		
2		Beacons in line 090°	Transit, clearing line		
3		Lights in line 090°	Recommended track based on a system of fixed marks		
4			Recommended tracks not based on a system of fixed marks		
5.1			One-way track		
5.2			Two-way track (including a regulation described in a note)		
6			Track, recommended track with maximum authorized draft stated		

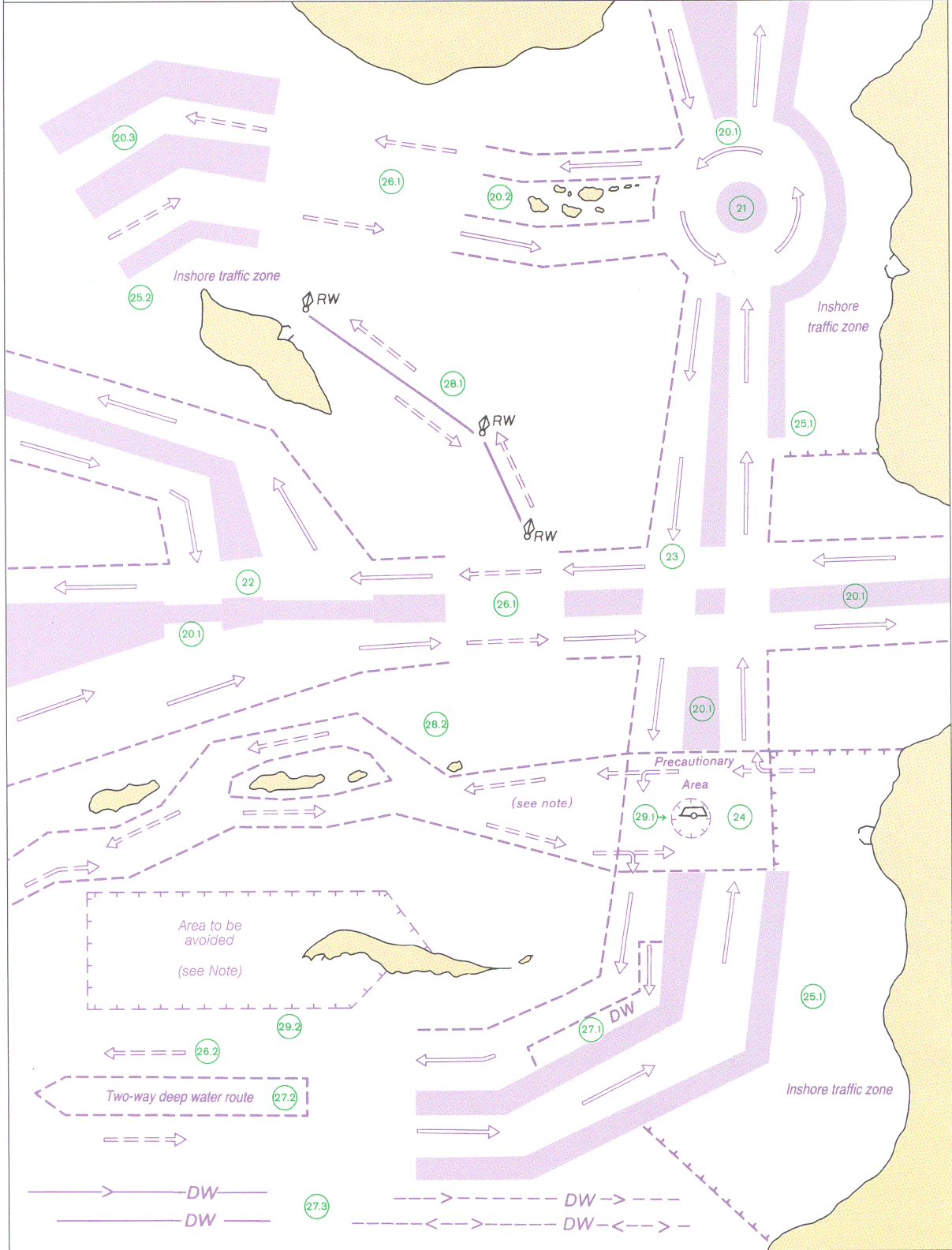
Routing Measures				
Basic Symbols			Supplementary national symbols: d – e	
10		Established (mandatory) direction of traffic flow		
11		Recommended direction of traffic flow		
12		Separation line		
13		Separation zone		
14		Limit of restricted area		
15		Maritime limit in general		
16		Precautionary area		Precautionary Area



## NOTES

# M Tracks, Routes

Examples of Routing Measures




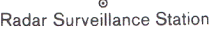




# M Tracks, Routes



## Examples of Routing Measures

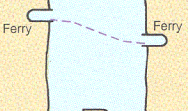
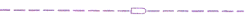

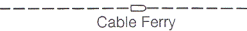
(20.1)	Traffic separation scheme, traffic separated by separation zone
(20.2)	Traffic separation scheme, traffic separated by natural obstructions
(20.3)	Traffic separation scheme, with outer separation zone, separating traffic using scheme from traffic not using it
(21)	Traffic separation scheme, roundabout
(22)	Traffic separation scheme, with "crossing gates"
(23)	Traffic separation schemes crossing, without designated precautionary area
(24)	Precautionary area
(25.1)	Inshore traffic zone, with defined end-limits
(25.2)	Inshore traffic zone without defined end-limits
(26.1)	Recommended direction of traffic flow, between Traffic separation schemes
(26.2)	Recommended direction of traffic flow, for ships not needing a deep water route
(27.1)	Deep water route, as part of one-way traffic lane
(27.2)	Two-way deep water route, with minimum depth stated
(27.3)	Deep water route, centerline as recommended One-way or Two-way track
(28.1)	Recommended route (often marked by centerline buoys)
(28.2)	Two-way route with one-way sections
(29.1)	Area to be avoided, around navigational aid
(29.2)	Area to be avoided, because of danger of stranding

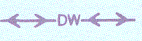
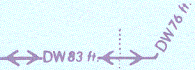
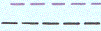
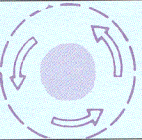



# M Tracks, Routes

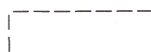



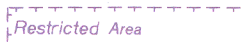

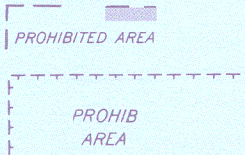

Radar Surveillance Systems					
30			Radar Surveillance Station		
31			Radar range		
32.1			Radar reference line		
32.2			Radar reference line coinciding with a leading line		















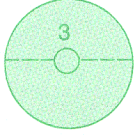




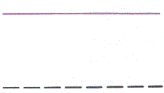
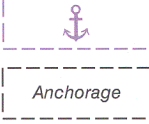
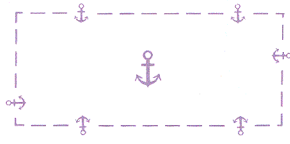
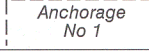

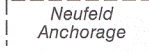


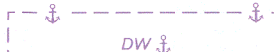
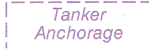

Radio Reporting Points		
40		

Ferries		
50		
51		

Supplementary National Symbols			
a			Recommended track for deep draft vessels (track not defined by fixed marks)
b			Depth is shown where it has been obtained by the cognizant authority
c			Alternate course
d			Established traffic separation scheme: Roundabout
e			If no separation zone exists, the center of the roundabout is shown by a circle

# N Areas, Limits

Dredged and Swept Areas → I		Submarine Cables, Submarine Pipelines → L		Tracks, Routes → M	
General					
1.1		Maritime limit in general usually implying: Permanent obstructions			
1.2		Maritime limit in general usually implying: No permanent obstructions			
2.1		Limit of restricted area			
2.2		(Screen optional)  Limit of prohibited area (no unauthorized entry)			

Anchorages, Anchorage Areas					
10			Anchorage (large vessels)		  
			Anchorage (small vessels)		
11.1			Anchor berths	  	 No1 
11.2			Anchor berths, swinging circle may be shown	  	
12.1		 Anchorage	Anchorage area in general		
12.2		 Anchorage No 1	Numbered anchorage area	 No1	
12.3		 Neufeld Anchorage	Named anchorage area	 Neufeld	
12.4		 DW Anchorage	Deep Water Anchorage area, Anchorage area for Deep Draft Vessels	 DW	
12.5		 Tanker Anchorage	Tanker anchorage area	 Tanker	

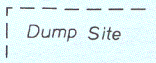

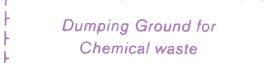
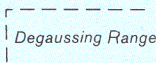

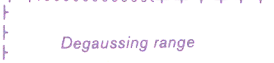


# N Areas, Limits

12.6			Anchorage for periods up to 24 hours		
12.7			Explosives anchorage area		
12.8			Quarantine anchorage area		
12.9			Reserved anchorage		
Note: Anchors as part of the limit symbol are not shown for small areas. Other types of anchorage areas may be shown.					
13			Sea-plane landing area		
14			Anchorage for sea-planes		









Restricted Areas					
20			Anchoring prohibited		
21			Fishing prohibited		
22			Limit of nature reserve: Nature reserve, Bird sanctuary, Game preserve, Seal sanctuary		
23.1			Explosives dumping ground		
23.2			Explosives dumping ground (disused) Foul (explosives)		



# N Areas, Limits

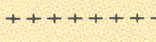

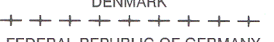

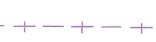


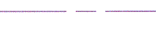



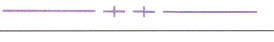

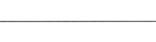
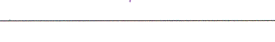
24			Dumping ground for chemical waste		
25			Degaussing range		
26			Historic wreck and restricted area		

## Military Practice Areas







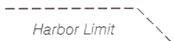
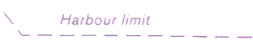

30			Firing danger area		
31			Military area, entry prohibited		
32			Mine-laying practice area		
33			Submarine transit lane and exercise area		
34			Mine field		

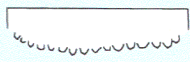


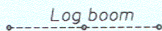

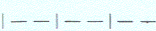
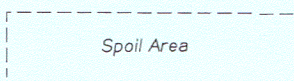

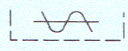
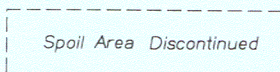
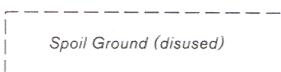



## International Boundaries and National Limits

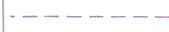


Supplementary national symbols: a, b

40			International boundary on land		
41			International maritime boundary		
42			Straight territorial sea baseline		
43			Seaward limit of territorial sea		
44			Seaward limit of contiguous zone		

# N Areas, Limits

45			Limits of fishery zones		
46			Limit of continental shelf		
47			Limit of Exclusive Economic Zone		
48			Customs limit		
49			Harbor limit		

Various Limits			Supplementary national symbols: C-g		
60.1		Limit of fast ice, Ice front			
60.2		Limit of sea ice (pack ice)-seasonal			
61		Log pond			
62.1		Spoil ground			
62.2		Spoil ground (disused)			
63		Dredging area			
64		Cargo transhipment area			
65		Incineration area			

Supplementary National Symbols				
a			COLREGS demarcation line	
b			Limit of fishing areas (fish trap areas)	
c			Dumping ground	

N Areas, Limits

d	<div>Disposal Area 92 depths from survey of JUNE 1972 85</div>	Disposal area (Dump Site)	
e	<div></div>	Limit of airport	
f	<div></div>	Reservation line (Options)	
g	<div>Dump Site</div>	Dump site	



















# Hydrographic Terms

1		<i>Ocean</i>
2		<i>Sea</i>
3	G	<i>Gulf</i>
4	B	<i>Bay , Bayou</i>
5	Fd	<i>Fjord</i>
6	L	<i>Loch, Lough , Lake</i>
7	Cr	<i>Creek</i>
8	Lag	<i>Lagoon</i>
9	C	<i>Cove</i>
10	In	<i>Inlet</i>
11	Str	<i>Strait</i>
12	Sd	<i>Sound</i>
13	Pass	<i>Passage, Pass</i>
14	Chan	<i>Channel</i>
15		<i>Narrows</i>
16	Entr	<i>Entrance</i>
17	Est	<i>Estuary</i>
18		<i>Delta</i>
19	Mth	<i>Mouth</i>
20	Rd	<i>Roads, Roadstead</i>
21	Anch	<i>Anchorage</i>
22	Apprs	<i>Approach , Approaches</i>
23	Bk	<i>Bank</i>
24		
25	Shl	<i>Shoal</i>
26	Rf Co rf	<i>Reef, Coral reef</i>
27		<i>Sunken rock</i>
28	Le	<i>Ledge</i>
29		<i>Pinnacle</i>
30		<i>Ridge</i>
31		<i>Rise</i>
32	Mt	<i>Mountain , Mount</i>
33		<i>Seamount</i>
34		<i>Seamount chain</i>
35	Pk	<i>Peak</i>
36		<i>Knoll</i>
37		<i>Abyssal hill</i>
38		<i>Tablemount</i>
39		<i>Plateau</i>
40		<i>Terrace</i>
41		<i>Spur</i>
42		<i>Continental shelf</i>

























43		<i>Shelf-edge</i>
44		<i>Slope</i>
45		<i>Continental slope</i>
46		<i>Continental rise</i>
47		<i>Cont:inental borderland</i>
48		<i>Basin</i>
49		<i>Abyssal plain</i>
50		<i>Hole</i>
51		<i>Trench</i>
52		<i>Trough</i>
53		<i>Valley</i>
54		<i>Median Valley</i>
55		<i>Canyon</i>
56		<i>Seachannel</i>
57		<i>Moat, Sea moat</i>
58		<i>Fan</i>
59		<i>Apron</i>
60		<i>Fracture zone</i>
61		<i>Scarp, Escarpment</i>
62		<i>Sill</i>
63		<i>Gap</i>
64		<i>Saddle</i>
65		<i>Levee</i>
66		<i>Province</i>
67		<i>Tideway, Tidal gully</i>
68		<i>Sidearm</i>
<b>Other Terms</b>		
80		<i>projected</i>
81		<i>lighted</i>
82		<i>buoyed</i>
83		<i>marked</i>
84	anc	<i>ancient</i>
85	dist	<i>distant</i>
86		<i>lesser</i>
87		<i>closed</i>
88		<i>partly</i>
89	approx	<i>approximate</i>
90	Subm, subm	<i>submerged</i>
91		<i>shoaled</i>
92	exper	<i>experimental</i>
93	D, Destr	<i>destroyed</i>

# P Lights






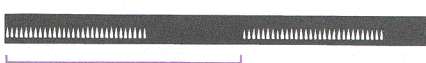
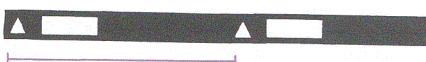

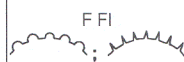
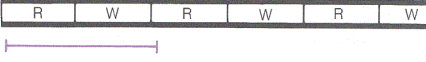

## Light Structures, Major Floating Lights

1			Major light, minor light light, lighthouse		
2	■ PLATFORM (lighted)		Lighted offshore platform		
3	○ Marker (lighted)		Lighted beacon tower		
4			Lighted beacon		
5	○ Art		Articulated light Buoyant beacon, resilient beacon		
6			Light vessel; Lightship Normally manned light-vessel		
7			Unmanned light-vessel; light float		
8			LANBY, superbuoy as navigational aid		


# P Lights

Light Characters					
Light Characters on Light Buoys → Q					
	Abbreviation		Class of light	Illustration	Period shown 
	International	National			
10.1	F	F	Fixed		
10.2	Occulting (total duration of light longer than total duration of darkness)				
	Oc	Oc	Single-occulting		
	Oc(2) Example	Oc (2)	Group-occulting		
	Oc(2+3) Example	Oc(2+3)	Composite group-occulting		
10.3	Isophase (duration of light and darkness equal)				
	Iso	Iso	Isophase		
10.4	Flashing (total duration of light shorter than total duration of darkness)				
	FI	FI	Single-flashing		
	FI(3) Example	FI (3)	Group-flashing		
	FI(2+1) Example	FI (2+1)	Composite group-flashing		
10.5	LFI	L FI	Long-flashing (flash 2 s or longer)		
10.6	Quick (repetition rate of 50 to 79 – usually either 50 or 60 – flashes per minute)				
	Q	Q	Continuous quick		
	Q(3) Example	Q(3)	Group quick		
	IQ	IQ	Interrupted quick		


# P Lights

	Abbreviation		Class of light	Illustration	Period shown	
	International	National				
10.7	Very quick (repetition rate of 80 to 159 – usually either 100 or 120 – flashes per min)					
	VQ	VQ	Continuous very quick			
	VQ(3) Example	VQ (3)	Group very quick			
	IVQ	IVQ	Interrupted very quick			
10.8	Ultra quick (repetition rate of 160 or more – usually 240 to 300 – flashes per min)					
	UQ	UQ	Continuous ultra quick			
	IUQ	IUQ	Interrupted ultra quick			
10.9	Mo (A) Example	Mo (A)	Morse Code			
10.10	FFI	F FI	Fixed and flashing			
10.11	AIWR	AIWR	Alternating			
Colors of Lights						
11.1	W	W	White (only on sector- and alternating lights)			
11.2	R	R	Red			
11.3	G	G	Green			
11.4	Bu	Bu	Blue			
11.5	Vi	Vi	Violet			
11.6	Y	Y	Yellow			
11.7	Y	Or	Y	Or	Orange	
11.8	Y	Am	Y	Am	Amber	


Colors of lights shown on standard charts



on multicolored charts





on multicolored charts at sector lights

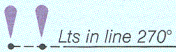
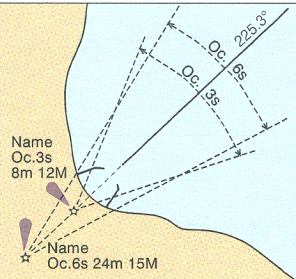
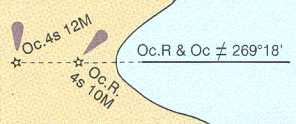



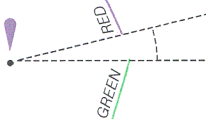
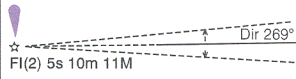
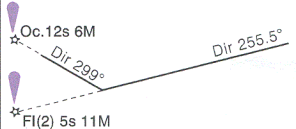
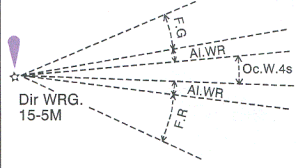
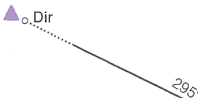




# P Lights

<i>Period</i>				
12	90s	<i>Period in seconds</i>		90s
<i>Elevation</i>				
<i>Plane of Reference for Heights → H</i>			<i>Tidal Levels → H</i>	
13	12m 36ft	<i>Elevation of light given in meters or feet</i>		12m
<i>Range</i>				
<i>Note: Charted ranges are nominal ranges given in Nautical miles</i>				
14	15M	15M	<i>Light with single range</i>	15M
	10M	15/10M	<i>Light with two different ranges NOS: only lesser of two ranges is charted</i>	15/10M
	7M	15-7M	<i>Light with three or more ranges NOS: only least of three ranges is charted</i>	15-7M
<i>Disposition</i>				
15		(hor)	<i>horizontally disposed</i>	(hor)
		(vert)	<i>vertically disposed</i>	(vert)




<i>Example of a full Light Description</i>				
16	 <b>Name</b> FI (3) WRG 15s 21ft 11M FI (3) WRG 15s 21m 15-11M-NIMA		 <b>Name</b> FI(3)WRG.15s 21m 15-11M	
	FI(3)	<i>Class of light: group flashing repeating a group of three flashes</i>	FI(3)	<i>Class of light: group flashing repeating a group of three flashes</i>
	WRG	<i>Colors: white, red, green, exhibiting the different colors in defined sectors</i>	WRG	<i>Colors: white, red, green, exhibiting the different colors in defined sectors</i>
	15S	<i>Period: the time taken to exhibit one full sequence of 3 flashes and eclipses: 15 seconds</i>	15s	<i>Period: the time taken to exhibit one full sequence of 3 flashes and eclipses: 15 seconds</i>
	21ft } 21m }	<i>Elevation of focal plane above datum: 21 feet or 21 meters</i>	21m	<i>Elevation of focal plane above datum: 21 meters</i>
	11M } <i>Nominal range NIMA: white 15M, green 11M, red between 15 and 11M.</i> 15-11M }		15-11M <i>Nominal range: white 15M, green 11M, red between 15 and 11M</i>	





Lights Marking Fairways			
Leading Lights and Lights in Line			
20.1		Leading lights with leading line (firm line is fairway) and arcs of visibility Bearing given in degrees and tenths of a degree	
20.2		Leading lights $\neq$ : any two objects in line Bearing given in degrees and minutes	
20.3		Leading lights on small-scale charts	
21		Lights in line, marking the sides of a channel	
22		Rear or upper light	Rear Lt or Upper Lt
23		Front or lower light	Front Lt or Lower Lt
Direction Lights			
30.1		Direction light with narrow sector and course to be followed, flanked by darkness or unintensified light	
30.2		Direction light with course to be followed, uncharted sector is flanked by darkness or unintensified light	
30.3		Direction light with narrow fairway sector flanked by sectors of different character	
31		Moiré effect light (day and night) Arrows show when course alteration needed	
Note: Quoted bearings are always from seaward.			

# P Lights

Sector Lights			
40		Sector light on standard charts	
41.1		Sector lights on standard charts, the white sector limits marking the sides of the fairway	
41.2		Sector lights on multicoloured charts, the white sector limits marking the sides of the fairway	
42		Main light visible all-round with red subsidiary light seen over danger	
43		All-round light with obscured sector	
44		Light with arc of visibility deliberately restricted	
45		Light with faint sector	
46		Light with intensified sector	





















































# P Lights

Lights with limited Times of Exhibition					
50	Occas	! F R (occas)	Lights exhibited only when specially needed (for fishing vessels, ferries) and some private lights	☆ F.R. (occas)	
51		! F Bu 9m 6M • (F by day)	Daytime light (charted only where the character shown by day differs from that shown at night)	! Fl.10s 40m 27M ☆ (F.37m 11M Day)	
52			Fog light (exhibited only in fog, or character changes in fog)	! Name ☆ Q.WRG.5m 10-3M Fl.5S (in fog)	
53			Unwatched (unmanned) light with no standby or emergency arrangements	! Fl.5s (U)	
54			Temporary	(temp)	
55			Extinguished	(exting)	
Special Lights					
Flare Stack (at Sea) → L		Flare Stack (on Land) → E		Signal Stations → T	
60	! AERO	! AERO AI WG 7½s 108m 13M	Aero light	☆ Aero AI.Fl.WG.7.5s 11M	☆ AERO
61.1		! AERO F R 77m 11M	Air obstruction light of high intensity	! Aero F.R.313m 11M ☆ RADIO MAST (353)	
61.2		⊙ TR (R Lts)	Air obstruction lights of low intensity	(89) ⬇ (R Lts)	
62		Fog Det Lt	Fog detector light	Fog Det Lt	
63			Floodlight, floodlighting of a structure	 (Illuminated)	
64			Strip light		
65	! Priv	! F R (priv)	Private light other than one exhibited occasionally	! F.R.(priv)	☆ Priv maintd




































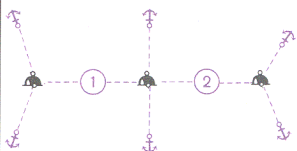



Supplementary National Symbols					
a			Riprap surrounding light		
b			Short - Long Flashing		S-L Fl 
c			Group - Short Flashing		MA MA MA 
d			Fixed and Group Flashing		F Gp Fl 




























# Q Buoys, Beacons

Buoys and Beacons				
IALA Maritime Buoyage System, which includes Beacons → Q 130				
1			Position of buoy	
Colors of Buoys and Beacon Topmarks				
Abbreviations for Colors → P				
2	 G 	 B  G 	Green and black	 G  B  G 
3	 R 	 R  Y 	Single colors other than green and black	 R  R  Y  Y 
4	 RG 	 BY  GRG	Multiple colors in horizontal bands, the color sequence is from top to bottom	 BY  GRG  BRB
5	 RW 	 RW 	Multiple colors in vertical or diagonal stripes, the darker color is given first	 RW  RW  RW
6			Retroreflecting material	
Note: Retroreflecting material may be fitted to some unlit marks. Charts do not usually show it. Under IALA Recommendations, black bands will appear blue under a spotlight.				
Lighted Marks				
Marks with Fog Signals → R				
7		 FI R  FI G	Lighted marks on standard charts	 FI G  FI R
8			Lighted marks on multicolored charts	 FI R  RW /so  FI G
Topmarks and Radar Reflectors				
For Application of Topmarks within the IALA-System → Q 130			Topmarks on Special Purpose Buoys and Beacons → Q	
9			IALA System buoy topmarks (beacon topmarks shown upright)	
10		 No 2	Beacon with topmark, color, radar reflector and designation	 No 2 Name
11		 No 3	Buoy with topmark, color, radar reflector and designation	 No 3
Note: Radar reflectors on floating marks are usually not charted.				






































# Q Buoys, Beacons

Buoys <i>Features Common to Buoys and Beacons</i> → Q 1–11					
Shapes of Buoys					
20			Conical buoy, nun buoy		
21			Can or cylindrical buoy		
22			Spherical buoy		
23			Pillar buoy		
24			Spar buoy, spindle buoy		
25			Barrel buoy		
26			Super buoy		
Light Floats					
30		 FI G 3s Name	Light float as part of IALA System	 FI.G.3s No 3 Name	
31		 FI(2) 10s 11M	Light float (unmanned light-vessel) not part of IALA System	 FI.10s 12m 26M	
Mooring Buoys					
Oil or Gas Installation Buoy → L			Small Craft Mooring → U		
40			Mooring buoys	   	
41		 FI Y 2s	Lighted mooring buoy (example)	 FI.Y.2.5s	
42			Trot, mooring buoys with ground tackle and berth numbers		
43	See Supplementary national symbols M,N		Mooring buoy with telegraphic or telephonic communication		
44		 (5 buoys) Moorings	Numerous moorings (example)		

# Q Buoys, Beacons

Special Purpose Buoys			
Note: Shapes of buoys are variable. Lateral or Cardinal buoys may be used in some situations.			
50		Firing danger area (Danger Zone) buoy	 DZ
51		Target	 Target
52		Marker Ship	 Marker Ship
53		Barge	 Barge
54		Degaussing Range buoy	
55	 Tel	Cable buoy	
56		Spoil ground buoy	
57		Buoy marking outfall	
58	 ODAS	ODAS-buoy (Ocean-Data-Acquisition System). Data-Collecting buoy of superbuoy size	 ODAS
	 W or  Y  Y  W or  Y  Y	Special-purpose buoys	
59		Wave recorder, current meter	
60	 AERO	Seaplane anchorage buoy	
61		Buoy marking traffic separation scheme	
62		Buoy marking recreation zone	
Seasonal Buoys			
70	 Priv (maintained by private interests, use with caution)	Buoy privately maintained (example)	 (priv)
71		Seasonal buoy (example)	 (Apr–Oct)

# Q Buoys, Beacons

Beacons					
Lighted Beacons → P			Features Common to Beacons and Buoys → Q 1–11		
80	□ Bn	 ○ Bn	Beacon in general, characteristics unknown or chart scale too small to show	 ○ Bn	
81	□ RW  	 BW	Beacon with color, no distinctive topmark	 BW	
82		 R  BY	Beacons with colors and topmarks (examples)	 R  BY  BRB	
83			Beacon on submerged rock (topmark as appropriate)	 BRB	 BRB
Minor impermanent Marks usually in drying Areas (Lateral Mark of Minor Channel)					
Minor Pile → F					
90	◦ Pole • Pole		Stake, pole		
91	◦ Stake • Stake		Perch. stake	PORT HAND 	STARBOARD HAND 
92			Withy		
Minor Marks, usually on Land					
Landmarks → E					
100	 CAIRN  Cairn	 CAIRN  Cairn 	Cairn		
101			Colored or white mark	□ Mk	
Beacon Towers					
110	□ RW	 R  G  R  G	Beacon towers without and with topmarks and colors (examples)	 R  G  R  G  BY  BRB	
111			Lattice beacon		









# Q Buoys, Beacons

Special Purpose Beacons				
Leading Lines, Clearing Lines → M				
Note: Topmarks and colors shown where scale permits.				
120			Leading beacons	
121			Beacons marking a clearing line	
122			Beacons marking measured distance with quoted bearings	
123			Cable landing beacon (example)	
124			Refuge beacon	
125			Firing danger area beacons	
126			Notice board	

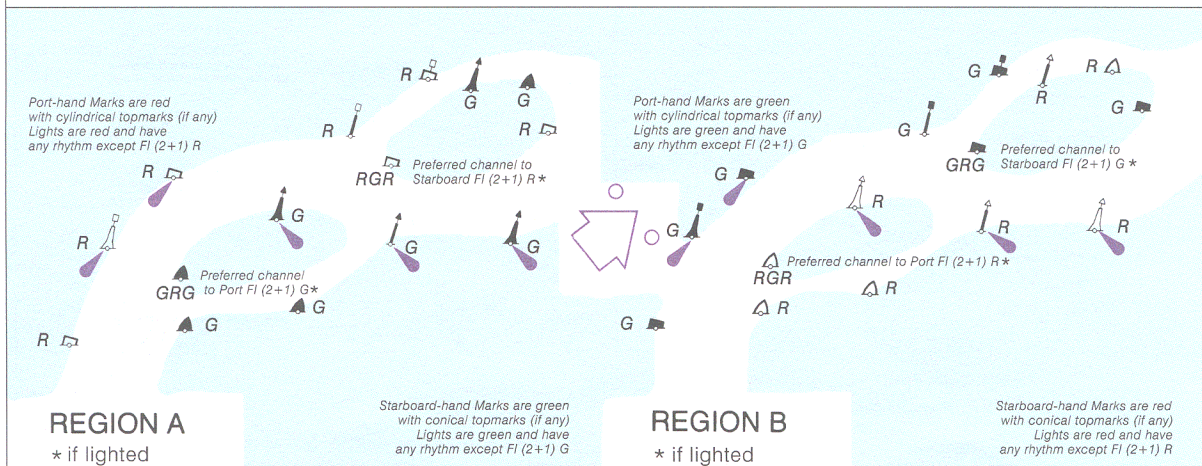
# Q Buoy, Beacons

## 130 IALA Maritime Buoyage System

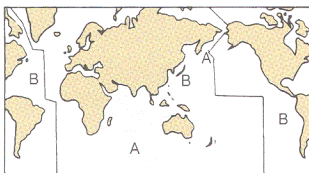
IALA International Association of Lighthouse Authorities

Where in force, the IALA System applies to all fixed and floating marks except lighthouses, sector lights, leading lights and leading marks, light-vessels and lanbyss. The standard buoy shapes are cylindrical (can) , conical , spherical , pillar , and spar , but variations may occur, for example: light-floats . In the illustrations below, only the standard buoy shapes are used. In the case of fixed beacons (lit or unlit) only the shape of the topmark is of navigational significance.

130.1 **Lateral marks** are generally for well-defined channels. There are two international Buoyage Regions – A and B – where Lateral marks differ.



A preferred channel buoy may also be a pillar or a spar. All preferred channel marks have horizontal bands of color. Where for exceptional reasons an Authority considers that a green color for buoys is not satisfactory, black may be used.



IALA Buoyage Regions A and B

## 130.2 Direction of Buoyage

The direction of buoyage is that taken when approaching a harbor from seaward or along coasts, the direction determined by buoyage authorities, normally clockwise around land masses.



Symbol showing direction of buoyage where not obvious.



Symbol showing direction of buoyage on multicolored charts.

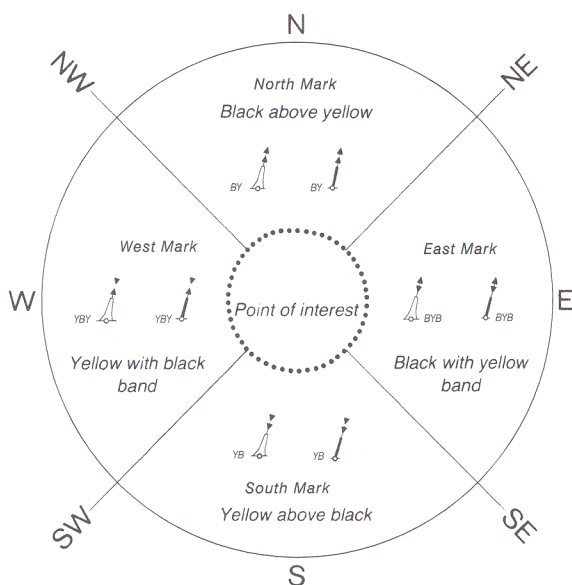
# Q Buoys, Beacons

In the illustrations below all marks are the same in Regions A and B.

## 130.3 Cardinal Marks indicating navigable water to the named side of the marks.

### UNLIT MARKS

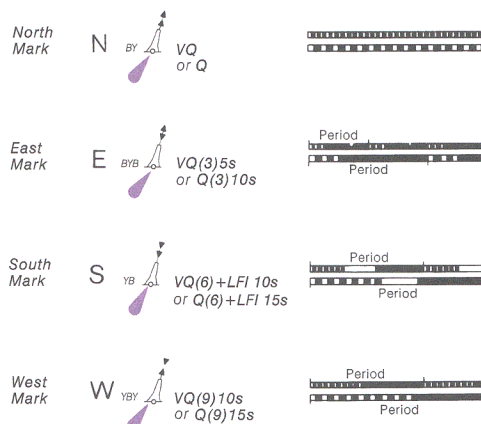
Topmark: 2 black cones



### LIGHTED MARKS

Time (seconds)  
0 5 10 15

White Light



The same abbreviations are used for lights on spar buoys and beacons.  
The periods 5s, 10s and 15s, may not always be charted.

## 130.4 Isolated Danger Marks stationed over dangers with navigable water around them.

Body: black with red horizontal band(s)  
Topmark: 2 black spheres

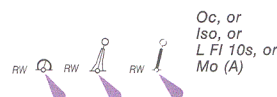


Fl(2)

white light

## 130.5 Safe Water Marks such as mid-channel and landfall marks.

Body: red and white vertical stripes  
Topmark (if any): red sphere



Oc, or  
Iso, or  
L Fl 10s, or  
Mo (A)

white light

## 130.6 Special Marks not primarily to assist navigation but to indicate special features.

Body (shape optional): yellow ‡  
Topmark (if any): yellow X



Fl.Y etc.

yellow light (rhythm optional)

‡ In special cases yellow can be in conjunction with another color.

BEACONS with IALA System topmarks are charted by upright symbols, eg.
































Beacon towers are charted: etc. (occasionally lighted)

RADAR REFLECTORS on buoys and beacons are not generally charted.

COLOR ABBREVIATIONS under symbols, especially those of spar buoys, may be omitted, or may be at variance with symbols shown above.




LIGHT FLOATS: The IALA System is not usually applied to large lightfloats (replacing manned lightships) but may be applied to smaller lightfloats.

# Q BuOys, Beacons










Supplementary National Symbols			
a	 BELL  BELL	Bell buoy	
b	 GONG  GONG	Gong buoy	
c	 WHIS  WHIS	Whistle buoy	
d	 RW	Fairway buoy (RWVS)	
e	 RW	Midchannel buoy (RWVS)	
f	 R "2"	Starboard - hand buoy (entering from seaward - US waters)	
g	 "1"  "1"	Port - hand buoy (entering from seaward - US waters)	
h	 BR  RG  GR  G	Bifurcation, Junction, Isolated danger, Wreck and Obstruction buoys	
i	 Y	Fish trap (area) buoy	
j	 Y	Anchorage buoy (marks limits)	
k	B	Black	
l	 R Bn  RG Bn	Triangular shaped beacons	
	 G Bn  GR Bn  W Bn  B Bn	Square shaped beacons	
	 Bn	Beacon, color unknown	
m	 Tel  Tel	Mooring buoy with telegraphic communications	
n	 T  T	Mooring buoy with telephonic communications	
o		Lighted beacon	 Bn 



# R Fog Signals

General				
Fog Detector Light → P			Fog Light → P	
1	Fog Sig 		Position of fog signal. Type of fog signal not stated	 etc.










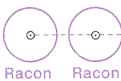










Types of Fog Signals, with Abbreviations			Supplementary national symbols: a
10	GUN	Explosive	Explos
11	DIA	Diaphone	Dla
12	SIREN	Siren	Siren
13	HORN	Horn (nautophone, reed, tyfon)	Horn
14	BELL	Bell	Bell
15	WHIS	Whistle	Whis
16	GONG	Gong	Gong







Examples of Fog Signal Descriptions				
20	 FI 3s 70m 29M SIREN Mo(N) 60s	 FI 3s 70m 29M SIREN	Siren at a lighthouse, giving a long blast followed by a short one (N), repeated every 60 seconds	 FI.3s 70m 29M Siren Mo(N)60S ‡
21	 BELL	 BELL	Wave-actuated bell buoy	 Bell ‡
22	 Q(6)+LFI 15s HORN(1) 15s WHIS	 Q(6)+LFI 15s HORN WHIS	Light buoy, with horn giving a single blast every 15 seconds, in conjunction with a wave-actuated whistle	 Q(6)+LFI.15s Horn(1) 15s Whis ‡
‡ The fog signal symbol may be omitted when a description of the signal is given.				

# R *Fog Signals*











Supplementary National Symbols				
a	Mo		Morse Code fog signal	

# S Radar, Radio, Electronic Position-Fixing Systems

Radar				
Radar Structures Forming Landmarks → E			Radar Surveillance Systems → M	
1	 Ra	Coast radar station, providing range and bearing service on request	 Ra	
2	 Ramark	Ramark, radar beacon transmitting continuously	 Ramark	
3.1	 RACON	Radar transponder beacon, with morse identification, responding within the 3-cm(X-)band	 Racon(Z)	
3.2		Radar transponder beacon, with morse identification, responding within the 10-cm(S-)band	 Racon(Z) (10cm)	
3.3		Radar transponder beacon, responding within the 3-cm(X-) and the 10-cm(S-)band	 Racon(Z) (3&10cm)	
3.4		Radar transponder beacon, responding on a fixed frequency outside the marine band	 F Racon	
3.5		Radar transponder beacons with bearing line	 Racons $\nless 270^{\circ}$	
3.6	 RACON (-) R "2" FI R 4s	 Racon	 Racon	 Racon
4	 Ra Ref			
5	 Ra (conspic)			

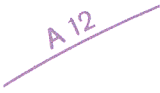
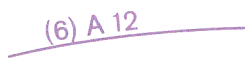
Radio				
Radio Structures Forming Landmarks → E		Radio Reporting (Calling-in or Way) Points → M		
10	 R Bn, RC	Circular (non-directional) marine or aeromarine radiobeacon	 Name RC	
11	 RD 072°30' RD	Directional radiobeacon with bearing line	 RD 269.5°	
12	 RW	Rotating-pattern radiobeacon	 RW	

# S Radar, Radio, Electronic Position-Fixing Systems

13	 CONSOL Bn 190 kHz MMF.	 CONSOL	Consol beacon	 Consol
14	 RDF		Radio direction-finding station	 RG
15	 R Sta	 R	Coast radio station providing QTG service	 R
16	 AERO R Bn		Aeronautical radiobeacon	 Aero R C

## Electronic Position-Fixing Systems

### Decca

20		AB AC AD	Identification of Lattice Patterns	AB AC AD
21		_____	Line of Position (LOP)	_____
22			Line of Position representing Zone Limit (or, on larger scales) other intermediate LOPs	_____
23			Half-lane LOP	_____
24			LOP from adjoining Chain (on Interchain Fixing Charts)	_____
25			Lane value, with Chain designator (Interchain charts only) and Zone designator	





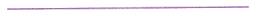


Note: A Decca Chain Coverage Diagram is given when patterns from more than one Chain appear on a chart. LOPs are normally theoretical ones: if Fixed Error is included, an explanatory note is given.













### Loran-C















30	9960-Y 9960-Z		Identification of Loran-C-Rates	7970-X
31	_____		Line of Position (LOP)	_____
32			LOP representing time difference value of an integral thousand $\mu$ s (microseconds)	_____
33			LOP beyond reliable groundwave service area	_____



































# S Radar, Radio, Electronic Position-Fixing Systems

34		LOP from adjoining Chain	
35		LOP from adjoining Chain beyond reliable groundwave service area	
36	<u>9960-Z-58000</u>	LOP labelled with rate and full us value	<u>7970-X 33000</u>
37		LOP labelled with final three digits only	
Note: A Loran-C Chain Diagram may be given if rates from more than one Chain appear on a chart. An explanatory note is given if LOPs include propagation delays.			
Omega			
40	<b>DF CF AC</b>	Charted station pairs	<b>AB BC</b>
41		Line of Position (LOP)	
42	<u>DF - 702</u>	Lane values	
Note: A cautionary note draws attention to the need to consult Propagation Prediction Correction (PPC) tables. An explanatory note draws attention to the unreliability of LOPs within 450 n miles of a transmitter.			
Satellite Navigation Systems			
50	WGS WGS 72 WGS 84	World Geodetic System, 1972 or 1984	WGS WGS 72 WGS 84
Note: A note may be shown to indicate the shifts of latitude and longitude, in hundredths of a minute, which should be made to satellite-derived positions (which are referred to WGS) to relate them to the chart.			

<i>Pilotage</i>				
1.1			<i>Boarding place, position of a Pilot-Cruising Vessel</i>	
1.2		 <i>Name</i>	<i>Boarding place, position of a Pilot-Cruising Vessel, with name (e.g. District, Port)</i>	 <i>Name</i>
1.3		 (see note)	<i>Boarding place, position of a Pilot-Cruising Vessel, with note (e.g. for Tanker, Disembarkation)</i>	 <i>Note</i>
1.4			<i>Pilots transferred by helicopter</i>	 <i>H</i>
2			<i>Pilot office with Pilot look-out, Pilot look-out</i>	 Pilot look-out
3	 PIL STA	 Pilots	<i>Pilot office</i>	 Pilots
4			<i>Port with Pilotage-Service</i>	Port name (Pilots)

<i>Coast Guard, Rescue Stations</i>				
10	 CG		<i>Coast Guard station</i>	 CG  CG  CG
	 R TR CG WALLIS SANDS			
11			<i>Coast Guard station with Rescue station</i>	 CG  CG  CG
12			<i>Rescue station, Lifeboat station, Rocket station</i>	
	 LS S			
13			<i>Lifeboat lying at a mooring</i>	  
14			<i>Refuge for shipwrecked mariners</i>	Ref

Signal Stations					
20	 SS		Signal station in general	 SS	 Sig Sta
21			Signal station, showing International Port Traffic Signals	 SS (INT)	
22			Traffic signal station. Port entry and Departure signals	 SS (Traffic)	
23	 HECP		Port control signal station	 SS (Port control)	
24			Lock signal station	 SS (Lock)	
25.1			Bridge passage signal station	 SS (Bridge)	
25.2			Bridge lights including traffic signals	 F Traffic-Sig	
26			Distress signal station	 SS	
27			Telegraph station	 SS	
28	 S Sig Sta		Storm signal station	 SS (Storm)	
29	 NWS SIG STA		National Weather Service signal station, Wind signal station	 SS (Weather)	
30			Ice signal station	 SS (Ice)	
31			Time signal station	 SS (Time)	
32.1		 Tide gauge	Tide scale or gauge		
32.2			Automatically recording tide gauge	 Tide gauge	
33			Tidal signal station	 SS (Tide)	
34			Tidal stream signal	 SS (Stream)	
35			Danger signal station	 SS (Danger)	
36			Firing practice signal station	 SS (Firing)	

Supplementary National Symbols				
a		BELL	Bell (on land)	
b				
c		MARINE POLICE	Marine police station	
d		FIREBOAT STATION	Fireboat station	
e			Notice board	
f		LOOK TR	Lookout station; Watch tower	
g		Sem	Semaphore	
h			Park Ranger station	

# U *Small Craft Facilities*

<i>Small Craft Facilities</i>			
<i>Traffic Features, Bridges → D</i>		<i>Public Buildings, Cranes → F</i>	<i>Pilots, Coastguard, Rescue, Signal Stations → T</i>
1.1		<i>Boat harbor, Marina</i>	
1.2		<i>Yacht berths without facilities</i>	
2		<i>Visitors' berth</i>	
3		<i>Visitors' mooring</i>	
4		<i>Yacht club, Sailing club</i>	
5		<i>Slipway</i>	
6		<i>Boat hoist</i>	
7		<i>Public landing, Steps, Ladder</i>	
8		<i>Sailmaker</i>	
9		<i>Boatyard</i>	
10		<i>Public inn</i>	
11		<i>Restaurant</i>	
12		<i>Chandler</i>	
13		<i>Provisions</i>	
14		<i>Bank, Exchange office</i>	
15		<i>Physician, Doctor</i>	
16		<i>Pharmacy, Chemist</i>	
17		<i>Water tap</i>	
18		<i>Fuel station (Petrol, Diesel)</i>	
19		<i>Electricity</i>	



U

Small Craft Facilities

20		Bottle gas	
21		Showers	
22		Laundrette	
23		Public toilets	
24		Post box	
25		Public telephone	
26		Refuse bin	
27		Car park	
28		Parking for boats and trailers	
29		Caravan site	
30		Camping site	
31		Water Police	

Marina facilities

		TIDES	DEPTH	SERVICES										SUPPLIES									
				ALONGSIDE - FEET (REPORTED)	RAMP SURFACED - FEET (REPORTED)	REPAIRS - HULL - MOTOR - BERTHS	MARINE RAILWAY - FEET	LIFT CAPACITY - TONS	BOAT RENTAL	FOOD - LODGING - CAMPING	TOILETS - SHOWERS - LAUNDRY	WINTER STORAGE	NATURAL CHART SALES	WATER - ICE	GROCERIES - HARDWARE	BAIT - TACKLE	DIESEL OIL - GASOLINE						
				APPROACH - FEET (REPORTED)	ELECTRICITY METERINGS (TRANSIENTS)				CANOE - ROW - MOTOR	CHARTER - HOUSE - SAIL				WE - DRY									
No	LOCATION																						
1	LAS VEGAS BOAT				80	20		S	HM			M		F C	T P	WD	C W I GH BT G						
2	LAKE MEAD MAR				80	15	B E	S	HM			M		FL	T P	WD	C W I GH BT G DG						
3	HEMENWAY HARBOR				80			S															
4	TEMPLE BAR HAR				80	15		SN				M	H	FLC	TSL P	WD	C W I GH BT G						
5	ECHO BAY RESORT				35	35	BM	S	M			M	H	FLC	TSL P	WD	C W I GH BT G						
6	OVERTON BEACH				100			S				M		F C	TSL	WD	W I G BT G						
7	CALLVILLE BAY M				100	40		S				M	H	F C	TS P	WD	W I G B G						

(+) DENOTES HOURS LATER (-) DENOTES HOURS EARLIER  
THE LOCATIONS OF THE ABOVE PUBLIC MARINE FACILITIES ARE SHOWN ON THE CHART BY LARGE PURPLE NUMBERS.  
THE TABULATED "APPROACH - FEET REPORTED" IS THE DEPTH AVAILABLE FROM THE NEAREST NATURAL OR DREDGED CHANNEL TO THE FACILITY.  
THE TABULATED "PUMPING STATION" IS DEFINED AS FACILITIES AVAILABLE FOR PUMPING OUT BOAT HOLDING TANKS.  
(H) APPROACH DEPTH FLUCTUATES WITH LAKE LEVELS.

# V *Index of Abbreviations*

AERO, Aero	<i>Aero light</i>	P 60
AERO RBn	<i>Aeronautical radiobeacon</i>	S 16
Aero RC	<i>Aeronautical radiobeacon</i>	S 16
Al	<i>Alternating</i>	P 10.11
ALP	<i>Articulated Loading Platform</i>	L 12
Alt	<i>Alternating</i>	P 10.11
Am	<i>Amber</i>	P 11.8
anc	<i>Ancient</i>	O 84
ANCH, Anch	<i>Anchorage</i>	N 20, O 21
approx	<i>Approximate</i>	O 90
Apprs	<i>Approaches</i>	O 22
B	<i>Bay, bayou</i>	O 4
Bdy Mon	<i>Boundary monument</i>	B 24
bk	<i>Broken</i>	J 33
Bkw	<i>Breakwater</i>	F 4.1
Bl	<i>Blue</i>	P 11.4
BM	<i>Bench mark</i>	B 23
Bn	<i>Beacon</i>	O 4
Bn Tr	<i>Beacon tower</i>	O 3
Br	<i>Breakers</i>	K 17
brg	<i>Bearing</i>	B 62
brk	<i>Broken</i>	J 33
Bu	<i>Blue</i>	P 11.4
c	<i>Course</i>	J 32
C	<i>Can, cylindrical</i>	Q 21
C	<i>Cove</i>	O 9
CALM	<i>Centenary Anchor Leg Mooring</i>	L 16
Cas	<i>Castle</i>	E 34.2
Cb	<i>Cobbles</i>	J 8
cbl	<i>Cable</i>	B 46
cd	<i>Candela</i>	B 54
CD	<i>Chart datum</i>	H 1
Cem	<i>Cemetery</i>	E 19
CG	<i>Coast Guard station</i>	T 10
Chan	<i>Channel</i>	O 14
Ch.	<i>Church</i>	E 10.1
Chy	<i>Chimney</i>	E 22
Cl	<i>Clay</i>	J 3
CL	<i>Clearance</i>	D 20, D 21
cm	<i>Centimeter(s)</i>	B 43
Co	<i>Coral</i>	J 10
Co rf	<i>Coral reef</i>	O 26
Cr	<i>Creek</i>	O 7
crs	<i>Course</i>	J 32

Cup, Cup.	<i>Cupola</i>	E 10.4
Cus Ho	<i>Customs house</i>	F 61
Cy	<i>Clay</i>	J 3
D	<i>Destroyed</i>	O 94
Destr	<i>Destroyed</i>	O 94
dev	<i>Deviation</i>	B 67
DIA, Dia	<i>Diaphone</i>	R 11
Dir	<i>Direction</i>	P 30, P 31
dist	<i>Distant</i>	O 85
dm	<i>Decimeter(s)</i>	B 42
Dn.	<i>Dolphin</i>	F 20
Dol	<i>Dolphin</i>	F 20
DW	<i>Deep Water route</i>	M 27.1, N 12.4
DZ	<i>Danger Zone</i>	Q 50
E	<i>East, eastern</i>	B 10
ED	<i>Existence doubtful</i>	I 1
EEZ	<i>Exclusive Economic Zone</i>	N 47
E Int	<i>Equal interval, isophase</i>	P 10.3
Entr	<i>Entrance</i>	O 16
Est	<i>Estuary</i>	O 17
exper	<i>Experimental</i>	O 93
Explos	<i>Explosive</i>	R 10
Exting, exting	<i>Extinguished</i>	P 55
f	<i>Fine</i>	J 30
F	<i>Fixed</i>	P 10.1
Fd	<i>Fjord</i>	O 5
F Fl	<i>Fixed and flashing</i>	P 10.10
FISH	<i>Fishing</i>	N 21
Fl	<i>Flashing</i>	P 10.4
Fla	<i>Flare stack</i>	L 11
fm	<i>Fathom</i>	B 48
fms	<i>Fathoms</i>	B 48
fne	<i>Fine</i>	J 30
Fog Det Lt	<i>Fog detector light</i>	P 62
Fog Sig	<i>Fog signal</i>	R 1
FP	<i>Flagpole</i>	E 27
FS, FS.	<i>Flagstaff</i>	E 27
ft	<i>Foot, feet</i>	B 47
G	<i>Gravel</i>	J 6
G	<i>Green</i>	P 11.3
G	<i>Gulf</i>	O 3

# V *Index of Abbreviations*

Gp Fl	Group flashing	P 10.4
Gp Occ	Group occulting	P 10.2
h	Hard	J 39
h	Hour	B 49
H	Pilot transferred by helicopter	T 1.4
HAT	Highest astronomical tide	H 3
Hbr Mr	Harbormaster	F 60
Historic Wk	Historic wreck	N 26
Hk	Hulk	F 34
Hor	Horizontally disposed	P 15
Hor Cl	Horizontal clearance	D 21
Hosp	Hospital	F 62.2
hr	Hour	B 49
hrd	Hard	J 39
IALA	International Association of Lighthouse Authorities	Q 130
In	Inlet	O 10
Intens	Intensified	P 45
Int Qk Fl	Interrupted quick flashing	P 10.6
IQ	Interrupted quick flashing	P 10.6
I Qk Fl	Interrupted quick flashing	P 10.6
Iso	Isophase	P 10.3
IUQ	Interrupted ultra quick	P 10.8
km	Kilometer(s)	B 40
kn	Knot(s)	B 52
L	Loch, lough, lake	O 6
Lag	Lagoon	O 8
LANBY	Large Automatic Navigational Buoy	P 8
Lat, lat	Latitude	B 1
LASH	Lighter aboard ship	G 184
LAT	Lowest astronomical tide	H 2
Ldg	Landing	F 17
Ldg	Leading	P 21
Le	Ledge	O 28
L Fl	Long flashing	P 10.5
Lndg	Landing	F 17
LNG	Liquified natural gas	G 185
Long, long	Longitude	B 2
LOP	Line of position	S 21, S 31, S 41
LPG	Liquified petroleum gas	G 186
LSS	Life saving station	T 12
Lt	Light	P 1

Lt Ho	Lighthouse	P 1
Lt V	Light vessel	O 6
m	Meter(s)	B 41
m	Minute(s) of time	B 50
m	Medium (in relation to sand)	J 31
M	Mud, muddy	J 2
M	Nautical mile(s)	B 45
mag	Magnetic	B 61
MHHW	Mean higher high water	H 13
MHLW	Mean higher low water	H 14
MHW	Mean high water	H 5
MHWN	Mean high water neaps	H 11
MHWS	Mean high water springs	H 9
Mi	Nautical mile(s)	B 45
min	Minute of time	B 50
Mk	Mark	Q 101
MLHW	Mean lower high water	H 15
MLLW	Mean lower low water	H 12
MLW	Mean low water	H 4
MLWN	Mean low water neaps	H 10
MLWS	Mean low water springs	H 8
mm	Millimeter(s)	B 44
Mo	Morse	P 10.9
MON, Mon	Monument	B24, E 24
MSL	Mean sea level	H 6
Mt	Mountain	O 32
Mth	Mouth	O 19
N	North, northern	B 9
N	Nun	Q 20
NE	Northeast	B 13
NM	Nautical mile(s)	B 45
N Mi	Nautical mile(s)	B 45
No	Number	N 12.2
Np	Neap tide	H 17
NW	Northwest	B 15
NWS SIG STA	Weather signal station	T 29
Obsc	Obscured	P 43
Obscd	Obscured	P 43
Obs spot	Observation spot	B 21
Obstr	Obstruction	K 40, K 41, K 42
Obstr	Obstruction	K 41
Oc	Occulting	P 10.2
Occ	Occulting	P 10.2

# V *Index of Abbreviations*

Occas	<i>Occasional</i>	P 50
ODAS	<i>Ocean Data Acquisition System</i>	Q 58
Or	<i>Orange</i>	P 11.7
P	<i>Pebbles</i>	J 7
P	<i>Pillar</i>	Q 23
PA	<i>Position approximate</i>	B 7
Pass	<i>Passage, pass</i>	O 13
PD	<i>Position doubtful</i>	B 8
PLT STA	<i>Pilot station</i>	T 3
Pk	<i>Peak</i>	O 35
Post Off	<i>Post office</i>	F 63
Priv, priv	<i>Private</i>	P 65, Q 70
Prod. well	<i>Production well</i>	L 20
PROHIB	<i>Prohibited</i>	N 2.2, N 20, N 21
Pyl	<i>Pylon</i>	D 26
Q	<i>Quick flashing</i>	P 10.6
Qk Fl	<i>Quick flashing</i>	P 10.6
R	<i>Coast radio station providing QTG services</i>	S 15
R	<i>Red</i>	P 11.2
R	<i>Rocky</i>	J 9
Ra	<i>Radar reference line</i>	M 32
Ra (conspic)	<i>Radar conspicuous object</i>	S 5
Ra Antenna	<i>Dish aerial</i>	E 31
Racon	<i>Radar transponder beacon</i>	S 3
Radar Sc.	<i>Radar scanner</i>	E 30.3
Radar Tr.	<i>Radar tower</i>	E 30.2
Radome, Ra Dome	<i>Radar dome</i>	E 30.4
Ra Ref	<i>Radar reflector</i>	S 4
RBn	<i>Circular radiobeacon</i>	S 10
RC	<i>Circular radiobeacon</i>	S 10
Rd	<i>Roads, roadstead</i>	O 22
RD	<i>Directional radiobeacon</i>	S 11
RDF	<i>Radio direction finding station</i>	S 14
Ref.	<i>Refuge</i>	Q 124
Rep	<i>Reported</i>	I 3
Rf	<i>Reef</i>	O 26
RG	<i>Radio direction finding station</i>	S 14
Rk	<i>Rock</i>	J 9
Rky	<i>Rocky</i>	J 9
R Mast	<i>Radio mast</i>	E 28
Ro Ro	<i>Roll on Roll off</i>	F 50
R Sta	<i>Coast radio station providing QTG services</i>	S 15

R Tower	<i>Radio tower</i>	E 29
Ru	<i>Ruins</i>	D 8, F 33.1
RW	<i>Rotating radiobeacon</i>	S 12
S	<i>Sand</i>	J 1
S	<i>South, southern</i>	B 11
S	<i>Spar, spindle</i>	Q 24
s	<i>Second of time</i>	B 51
SALM	<i>Single Anchor Leg Mooring</i>	L 12
SBM	<i>Single Buoy Mooring</i>	L 16
Sc	<i>Scanner</i>	E 30.3
Sd	<i>Sound</i>	O 12
SD	<i>Sounding doubtful</i>	I 2
SE	<i>Southeast</i>	B 14
sec	<i>Second of time</i>	B 51
sf	<i>Stiff</i>	J 36
sft	<i>Soft</i>	J 35
Sh	<i>Shells</i>	J 12
Shl	<i>Shoal</i>	O 25
Si	<i>Silt</i>	J 4
so	<i>Soft</i>	J 35
Sp	<i>Spring tide</i>	H 16
SP	<i>Spherical</i>	Q 22
Sp.	<i>Spire</i>	E 10.3
Spice	<i>Standpipe</i>	E 21
SPM	<i>Single point mooring</i>	L 12
SS	<i>Signal station</i>	T 20
st	<i>Stones</i>	J 5
stf	<i>Stiff</i>	J 36
stk	<i>Sticky</i>	J 34
Str	<i>Strait</i>	O 11
Subm	<i>Submerged</i>	O 93
Subm piles	<i>Submerged piles</i>	K 43.1
Subm ruins	<i>Submerged ruins</i>	F 33.2
sy	<i>Sticky</i>	J 34
SW	<i>Southwest</i>	B 16
T	<i>True</i>	B 63
t	<i>Metric ton(s)</i>	B 53
Tel	<i>Telephone, telegraph</i>	D 27
Temp, temp	<i>Temporary</i>	P 54
Tk	<i>Tank</i>	E 32
Tr, Tr., TR	<i>Tower</i>	E 10.2, E 20
TT	<i>Tree tops</i>	C 14
TV Mast	<i>Television mast</i>	E 28
TV Tower	<i>Television tower</i>	E 29



# V *Index of Abbreviations*

Uncov	<i>Uncovers</i>	K 11
UQ	<i>Ultra quick</i>	P 10.8
v	<i>Volcanic</i>	J 37
var	<i>Variation</i>	B 60
Vert	<i>Vertically disposed</i>	P 15
Vert Cl	<i>Vertical clearance</i>	D 20
Vi	<i>Violet</i>	P 11.5
Vil	<i>Village</i>	D 4
VLCC	<i>Very large crude carrier</i>	G 187
vol	<i>Volcanic</i>	J 37
VQ	<i>Very quick</i>	P 10.7
V Qk Fl	<i>Very quick flash</i>	P 10.7
W	<i>West, western</i>	B 12
W	<i>White</i>	P 11.1
Wd	<i>Weed</i>	J 13.1
WGS	<i>World Geodetic System</i>	S 50
Whf	<i>Wharf</i>	F 13
WHIS, Whis	<i>Whistle</i>	R 15
Wk	<i>Wreck</i>	K 20-23, K 26-27, K 30
Y	<i>Yellow</i>	P 11.6

# V Index of Abbreviations

Supplementary National Abbreviations:

Apt	<i>Apartment</i>	Es	Grd	<i>Ground</i>	Ja
			Grs	<i>Grass</i>	Jv
			gty	<i>Gritty</i>	Jam
B	<i>Black</i>	Qq	GUN	<i>Fog gun</i>	Rd
bk	<i>Black</i>	Jas	gy	<i>Gray</i>	Jbb
bl	<i>Black</i>	Jas			
Blds	<i>Boulders</i>	Je	HECP	<i>Harbor entrance control point</i>	Tb
br	<i>Brown</i>	Jaz	HHW	<i>Higher high water</i>	Hb
bu	<i>Blue</i>	Jau	HS	<i>High school</i>	Eg
			ht	<i>Height</i>	Hp
Cap	<i>Capitol</i>	Et	HW	<i>High water</i>	Hq
ch	<i>Chocolate</i>	Jba	HWF & C	<i>High water full and change</i>	Hh
Chec	<i>Checkered</i>	Qo	Hz	<i>Hertz</i>	Bg
Ck	<i>Chalk</i>	Jf			
Cn	<i>Cinders</i>	Jp	in	<i>Inch</i>	Bc
Co	<i>Company</i>	Eu	ins	<i>Inches</i>	Bc
Co Hd	<i>Coral head</i>	Ji	Inst	<i>Institute</i>	En
COLREGS	<i>Collision regulations</i>	Na	ISLW	<i>Indian springs low water</i>	Hg
Corp	<i>Corporation</i>	Ev			
cps	<i>Cycles per second</i>	Bj	K	<i>Kelp</i>	Ju
CRD	<i>Columbia River Datum</i>	Hj	kc	<i>Kilocycle</i>	Bk
c/s	<i>Cycles per second</i>	Bj	kHz	<i>Kilohertz</i>	Bh
Ct Ho	<i>Court house</i>	Eo	kn	<i>Knot(s)</i>	Ho
dec	<i>Decayed</i>	Jan	La	<i>Lava</i>	Jl
deg	<i>Degree(s)</i>	Bn	LLW	<i>Lower low water</i>	He
Di	<i>Diatoms</i>	Jaa	LOOK TR	<i>Lookout tower</i>	Tf
Diag	<i>Diagonal bands</i>	Qp	lrg	<i>Large</i>	Jai
Discol water	<i>Discolored water</i>	Ke	lt	<i>Light</i>	Jbc
dk	<i>Dark</i>	Jbd	Ltd	<i>Limited</i>	Er
			LW	<i>Low water</i>	Hc
Explos Anch	<i>Explosives anchorage</i>	Qk	LWD	<i>Low water datum</i>	Hd
			LWF & C	<i>Low water full and change</i>	Hi
Facty	<i>Factory</i>	Ed	m <sup>2</sup>	<i>Square meter(s)</i>	Ba
F Gp FI	<i>Fixed and group flashing</i>	Pd	m <sup>3</sup>	<i>Cubic meter(s)</i>	Bb
fl	<i>Flood</i>	Hq	Ma	<i>Mattes</i>	Jag
fly	<i>Flinty</i>	Jao	Magz	<i>Magazine</i>	EI
Fr	<i>Foraminifera</i>	Jy	Mc	<i>Megacycle(s)</i>	Bl
Fu	<i>Fucus</i>	Jaf	Mds	<i>Madrepores</i>	Jj
			MHz	<i>Megahertz</i>	Bi
GAB, Gab	<i>Gable</i>	Ei	MI	<i>Marl</i>	Jc
GCLWD	<i>Gulf Coast Low Water Datum</i>	Hk	Mn	<i>Manganese</i>	Jq
Gl	<i>Globigerina</i>	Jz	Mo	<i>Morse code</i>	Rf
glac	<i>Glacial</i>	Jap	Ms	<i>Mussels</i>	Js
gn	<i>Green</i>	Jav	MTL	<i>Mean Tide Level</i>	Hf
Govt Ho	<i>Government house</i>	Em			

# V *Index of Abbreviations*

*Supplementary National Abbreviations:*

NAUTO	<i>Nauphone</i>	Rc
or	<i>Orange</i>	Jax
Oys	<i>Oysters</i>	Jr
Oz	<i>Ooze</i>	Jb
Pav	<i>Pavilion</i>	Ep
Pm	<i>Pumice</i>	Jm
Po	<i>Polyzoa</i>	Jad
Pt	<i>Pteropods</i>	Jac
Quar	<i>Quarantine</i>	Fd
Qz	<i>Quartz</i>	Jg
Rd	<i>Radiolaria</i>	Jab
rd	<i>Red</i>	Jay
rt	<i>Rotten</i>	Jaj
Ry	<i>Railway, railroad</i>	Db
Sc	<i>Scoriae</i>	Jo
Sch	<i>Schist</i>	Jh
Sch	<i>School</i>	Ef
Sem	<i>Semaphore</i>	Tg
Sh	<i>Shingle</i>	Jd
S-LFI	<i>Short-long flashing</i>	Pb
sml	<i>Small</i>	Jah
Spg	<i>Sponge</i>	Jt
Spi	<i>Spicules</i>	Jx
spk	<i>Speckled</i>	Jal
Stg	<i>Seatangle</i>	Jw
St M	<i>Statute mile(s)</i>	Be
St Mi	<i>Statute mile(s)</i>	Be
Str	<i>Stream</i>	Hi
str	<i>Streaky</i>	Jak
SUB-BELL	<i>Submarine fog bell</i>	Ra
Subm crib	<i>Submerged crib</i>	Ki
SUB-OSC	<i>Submarine oscillator</i>	Rb
Sub vol	<i>Submarine volcano</i>	Kd
T	<i>Telephone</i>	Eq,Qt
T	<i>Short ton(s)</i>	Bm
T	<i>Tufa</i>	Jn
Tel	<i>Telegraph</i>	Qs
Tel off	<i>Telegraph office</i>	Ek
ten	<i>Tenacious</i>	Jaq

unev	<i>Uneven</i>	Jbf
Univ	<i>University</i>	Eh
us	<i>Microsecond(s)</i>	Bf
usec	<i>Microsecond(s)</i>	Bf
vard	<i>Varied</i>	Jbe
vel	<i>Velocity</i>	Hn
vi	<i>Violet</i>	Jat
Vol Ash	<i>Volcanic ash</i>	Jk
wh	<i>White</i>	Jar
WHIS	<i>Whistle</i>	Qc
yd	<i>Yard</i>	Bd
yds	<i>Yards</i>	Bd
yl	<i>Yellow</i>	Jaw

# W International Abbreviations

<b>B</b> <i>Positions, Distances, Directions, Compass</i>		
PA	Position approximate	B 7
PD	Position doubtful	B 8
N	North	B 9
E	East	B 10
S	South	B 11
W	West	B 12
NE	Northeast	B 13
SE	Southeast	B 14
NW	Northwest	B 15
SW	Southwest	B 16
km	Kilometer(s)	B 40
m	Meter(s)	B 41
dm	Decimeter(s)	B 42
cm	Centimeter(s)	B 43
mm	Millimeter(s)	B 44
M	Nautical mile(s), Sea mile(s)	B 45
ft	Foot/feet	B 47
h	Hour	B 49
m, min	Minute(s) of time	B 50
s, sec	Second(s) of time	B 51
kn	Knot(s)	B 52
t	Ton(s)	B 53
cd	Candela (new candela)	B 54

<b>D</b> <i>Cultural Features</i>		
Ru	Ruin	D 8

<b>F</b> <i>Ports</i>		
Lndg	Landing for boats	F 17
RoRo	Roll-on, Roll-off Ferry	F 50

<b>I</b> <i>Depths</i>		
ED	Existence doubtful	I 1
SD	Sounding doubtful	I 2

<b>K</b> <i>Rocks, Wrecks, Obstructions</i>		
Br	Breakers	K 17
Wk	Wreck	K 20
Obstn	Obstruction	K 40

<b>L</b> <i>Offshore Installations, Submarine Cables, Submarine Pipelines</i>		
Fla	Flare stack	L 11
Prod Well	Submerged Production Well	L 20

<b>M</b> <i>Tracks, Routes</i>		
Ra	Radar	M 31
DW	Deep Water	M 27.2

<b>N</b> <i>Areas, Limits</i>		
No	Number	N 12.2
DW	Deep Water	N 12.4

<b>O</b> <i>Hydrographic Terms</i>		
SMt	Seamount	O 33



# W International Abbreviations

P	Lights	
Lt	Light	P 1
F	Fixed	P 10.1
Oc	Occulting	P 10.2
Iso	Isophase	P 10.3
Fl	Flashing	P 10.4
LFI	Long-flashing	P 10.5
Q	Quick	P 10.6
IQ	Interrupted quick	P 10.6
VQ	Very quick	P 10.7
IVQ	Interrupted very quick	P 10.7
UQ	Ultra quick	P 10.8
IUQ	Interrupted ultra quick	P 10.8
Mo	Morse Code	P 10.9
W	white	P 11.1
R	red	P 11.2
G	green	P 11.3
Bu	blue	P 11.4
Vi	violet	P 11.5
Y	yellow/orange/Amber	P 11.6
Or	orange	P 11.7
Am	Amber	P 11.8
Ldg	Leading light	P 20.3
Dir	Direction light	P 30
occas	occasional	P 50
R Lts	Air obstruction lights	P 61.2
Fog Det Lt	Fog detector light	P 62
Aero	Aeronautical	P 60/ 61.1

Q	Buoys, Beacons	
B	Black	Q 81
Mk	Mark	Q 101
IALA	International Association of Lighthouse Authorities	Q 130

R	Fog Signals	
Explos	Explosive	R 10
Dia	Diaphone	R 11
Whis	Whistle	R 15

S	Radar, Radio, Electronic Position-Fixing Systems	
Ra	Coast Radar Station	S 1
Racon	Radar transponder beacon	S 3
RC	Circular (non-directional) marine radiobeacon	S 10
RD	Directional radiobeacon	S 11
RW	Rotating-pattern radiobeacon	S 12
RG	Radio direction-finding stations	S 14
R	QTG service, Coast radio stations	S 15
Aero RC	Aeronautical radiobeacon	S 16
WGS	World Geodetic System	S 50

T	Services	
H	Pilots transferred by helicopter	T 1.4
SS	Signal station	T 20
INT	international	T 21

# X *List of Descriptors*

## Abbreviations

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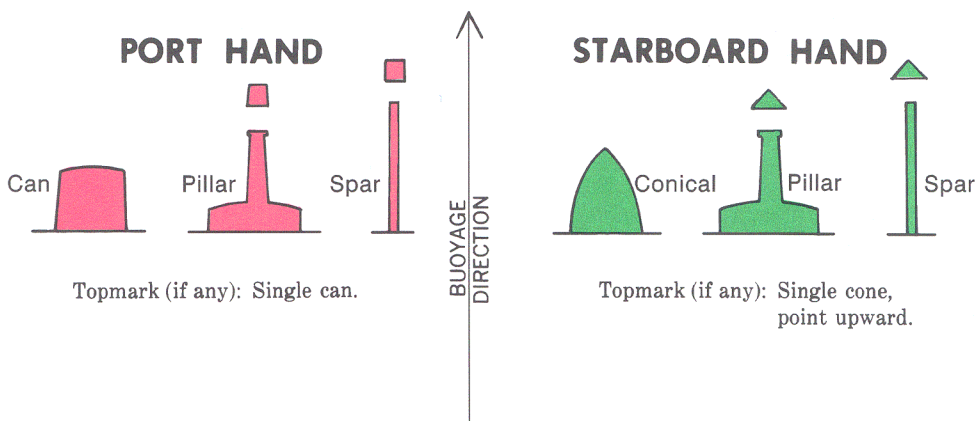
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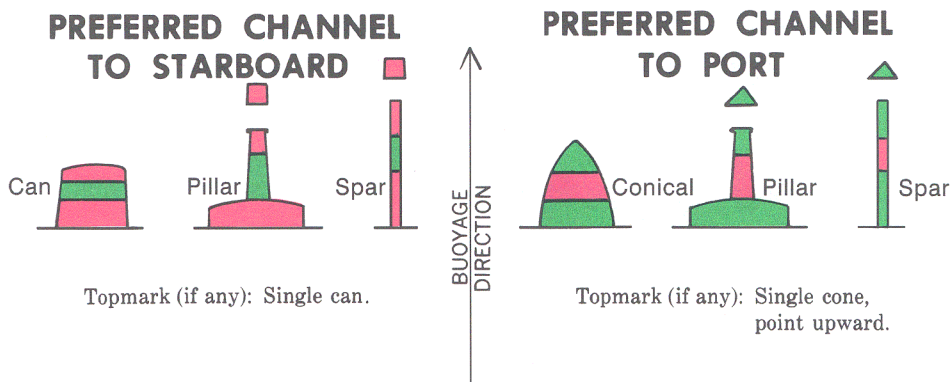
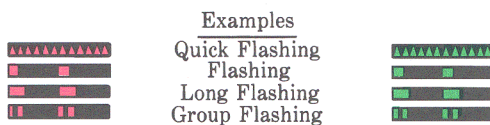


# IALA MARITIME BUOYAGE SYSTEM

## LATERAL MARKS REGION A



Lights, when fitted, may have any phase characteristic other than that used for preferred channels.

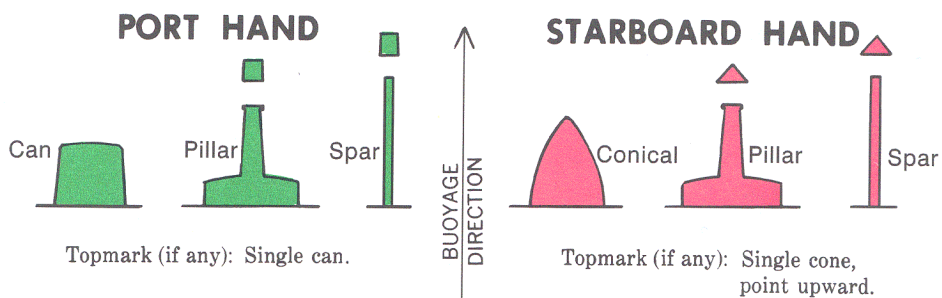


Lights, when fitted, are composite group flashing Fl (2 + 1).

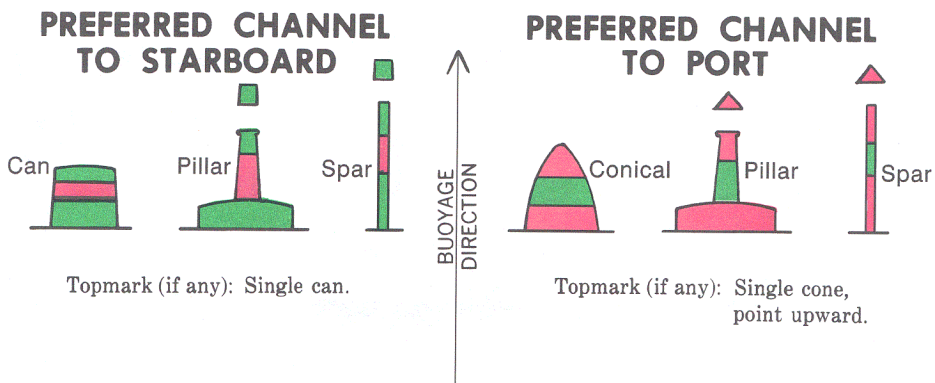
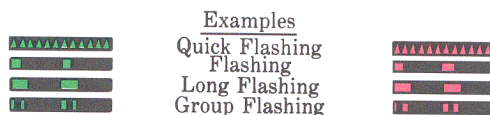


# IALA MARITIME BUOYAGE SYSTEM

## LATERAL MARKS REGION B



Lights, when fitted, may have any phase characteristic other than that used for preferred channels.

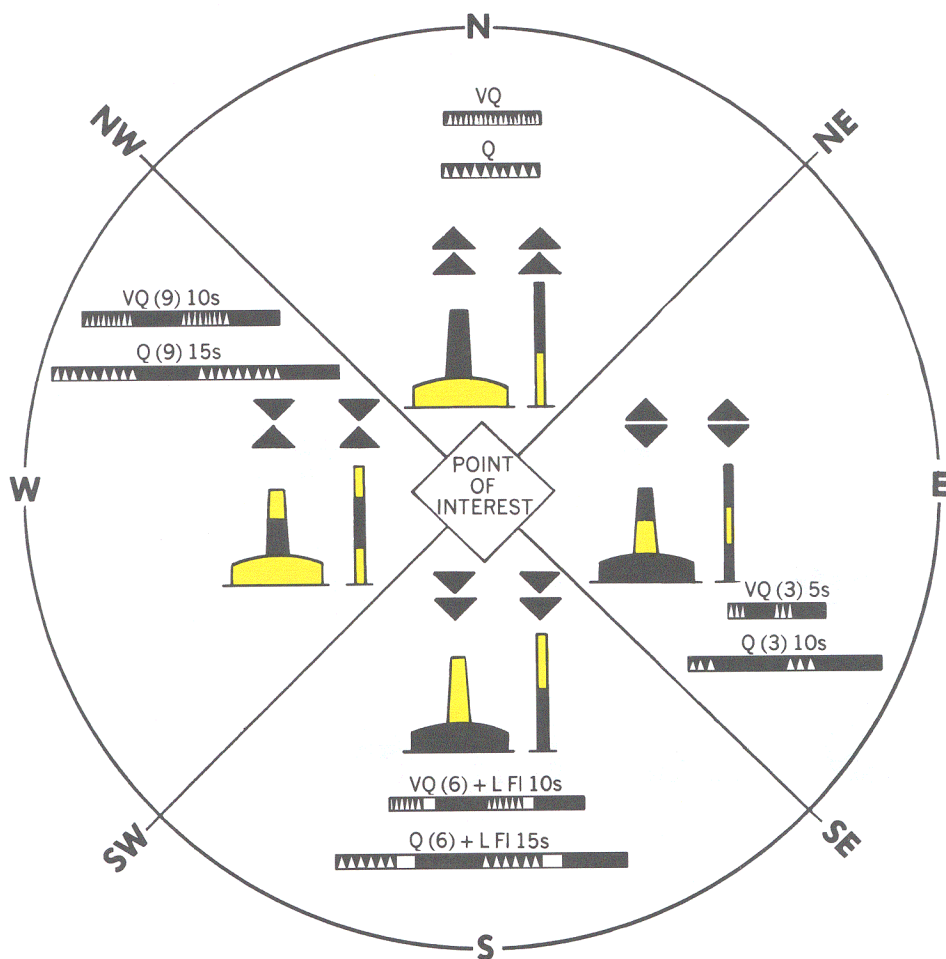


Lights, when fitted, are composite group flashing Fl (2+1).



# IALA MARITIME BUOYAGE SYSTEM CARDINAL MARKS REGIONS A AND B

Topmarks are always fitted (when practicable).  
Buoy shapes are pillar or spar.

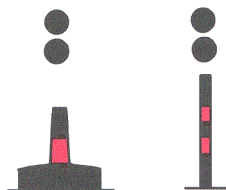


Lights, when fitted, are **white**, Very Quick Flashing or Quick Flashing; a South mark also has a Long Flash immediately following the quick flashes.

# IALA MARITIME BUOYAGE SYSTEM REGIONS A AND B

## ISOLATED DANGER MARKS

Topmarks are  
always fitted  
(when practicable).



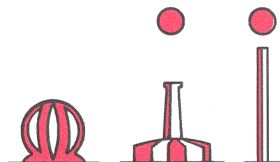
Light, when fitted, is  
**white**  
Group Flashing (2)



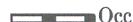
Shape: Optional, but not  
conflicting with lateral  
marks; pillar or spar  
preferred.

## SAFE WATER MARKS

Topmark (if any):  
Single sphere.



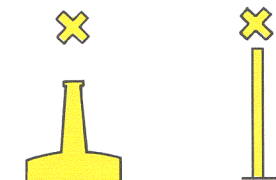
Light, when fitted,  
is **white**  
Isophase or Occulting,  
or one Long Flash  
every 10 seconds or  
Morse "A"



Shape: Spherical  
or  
pillar or spar.

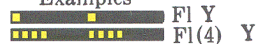
## SPECIAL MARKS

Topmark (if any):  
Single X shape.



Light (when fitted) is  
**yellow** and may have  
any phase characteristic  
not used for white lights.

Examples



Shape: Optional, but not  
conflicting with  
navigational marks.