



# 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

Published at Washington, D.C.

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

**SYMBOLS ABBREVIATIONS TERMS USED ON CHARTS**

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## 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.

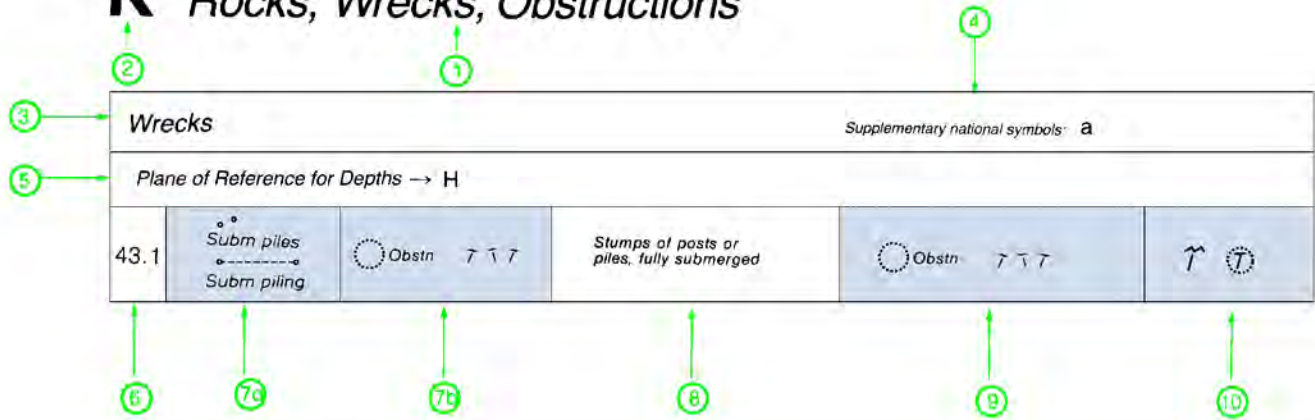
**Correction Date**—The date of each edition is shown below the lower left border of the chart. This is the date of the latest Notice to Mariners applied to the chart.

**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

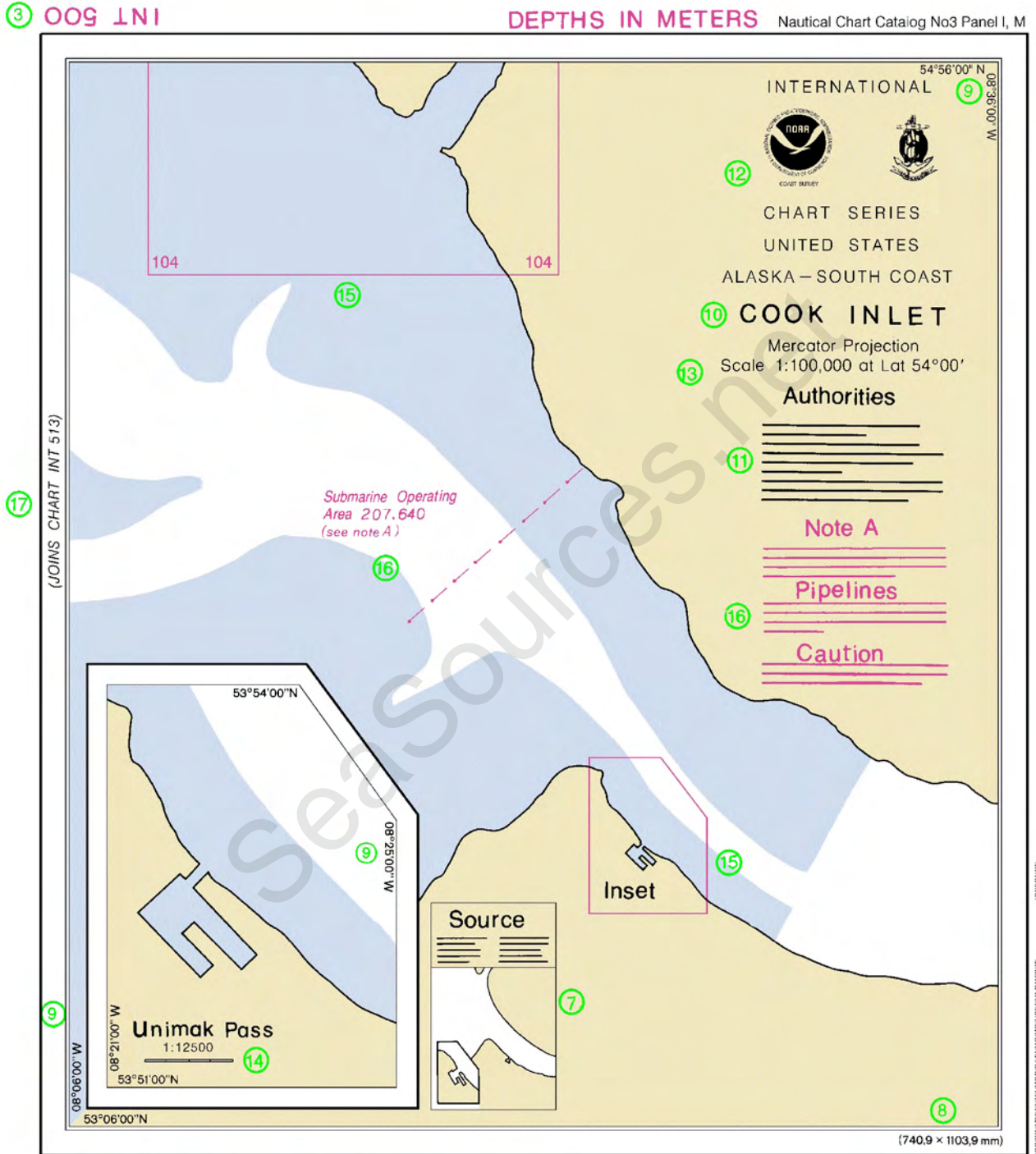


1	Section.
2	Section designation
3	Subsection.
4	Reference to "Supplementary national symbols" at the end of each section.
5	Cross reference to terms in other sections.
6	Column 1: Numbering system following the "Chart Specification of the IHO". A letter in this column indicates a supplementary national symbol or abbreviation for which there is no international equivalent.
7c	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

② LORAN-C OVERPRINTED  
 ① 412  
 ③ INT 500

Schematic layout of an NOS chart (reduced in size)



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

④

INT 500 ③  
 412 ① ⑤










ED. NO. 7  
 NSN 7642014009433  
 NIMA STOCK NO. WOBZC1

# 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		



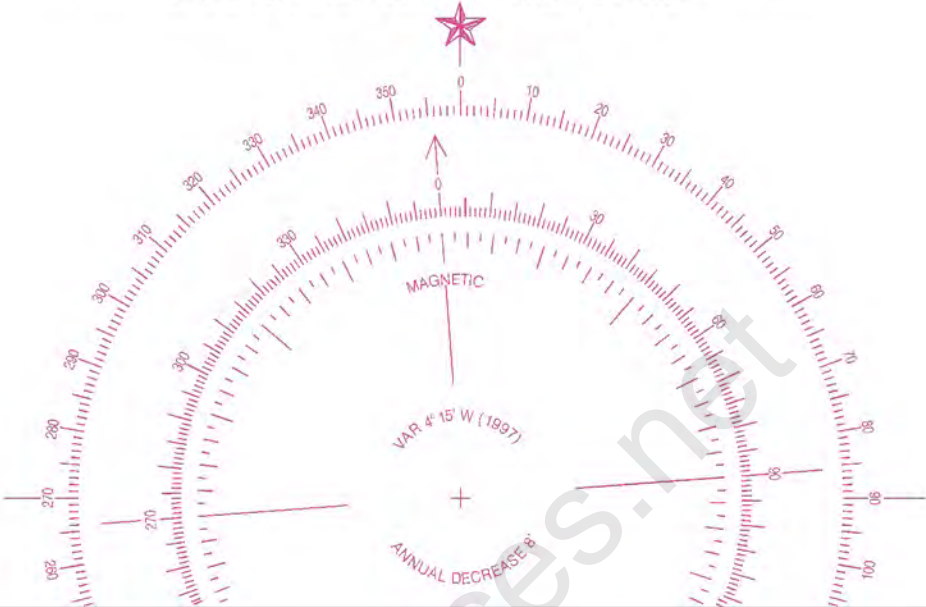
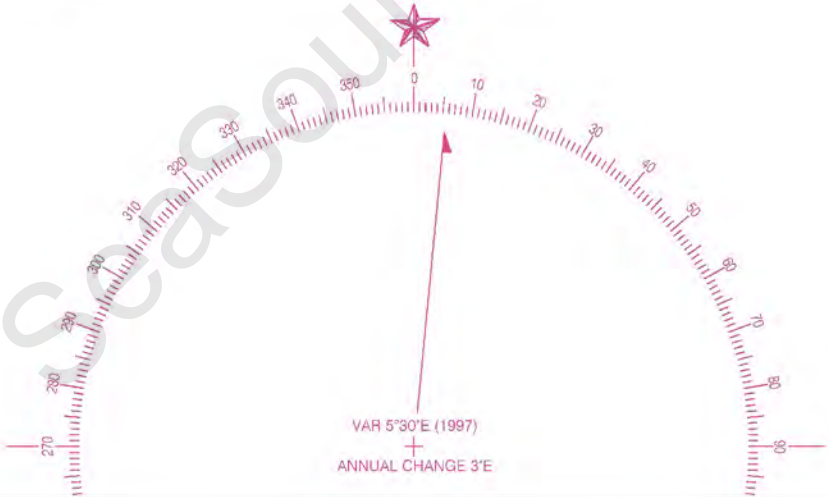
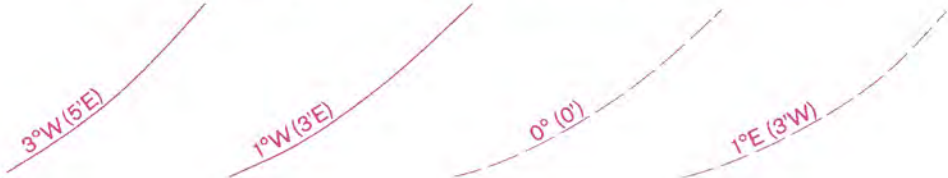
## B Positions, Distances, Directions, Compass

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

## B Positions, Distances, Directions, Compass

<i>Units</i>		<i>Supplementary national symbols: a – m</i>	
40	km	<i>Kilometer(s)</i>	km
41	m	<i>Meter(s)</i>	m
42	dm	<i>Decimeter (s)</i>	dm
43	cm	<i>Centimeter (s)</i>	cm
44	mm	<i>Millimeter (s)</i>	mm
45	M, Mi, NMi, NM	<i>Nautical mile(s) (1852 m) or sea mile(s)</i>	M
46	cbl	<i>Cable (s) length</i>	
47	ft	<i>Foot/feet</i>	ft
48	f <sub>m</sub> , f <sub>ms</sub>	<i>Fathom(s)</i>	
49	h, hr	<i>Hour</i>	h
50	m, min	<i>Minute(s) of time</i>	m      min
51	s, sec	<i>Second(s) of time</i>	s      sec
52	kn	<i>Knot(s)</i>	kn
53	t	<i>Ton(s) (metric ton equals 2,204.6 lbs)</i>	t
54	cd	<i>Candela (new candle)</i>	cd
<i>Magnetic Compass</i>		<i>Supplementary national symbols: n</i>	
60	var    VAR	<i>Variation</i>	
61	mag	<i>magnetic</i>	
62	brg	<i>Bearing</i>	
63	T	<i>true</i>	
64		<i>decreasing</i>	
65		<i>increasing</i>	
66		<i>Annual change</i>	
67	dev	<i>Deviation</i>	
68.1		<i>Note of magnetic variation, in position</i>	Magnetic Variation 4°31' W 1995 (8'E)
68.2		<i>Note of magnetic variation, out of position</i>	Magnetic Variation at 65° W 30° W 4°31' W 1995 (8'E)



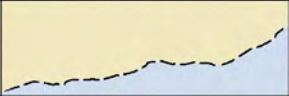

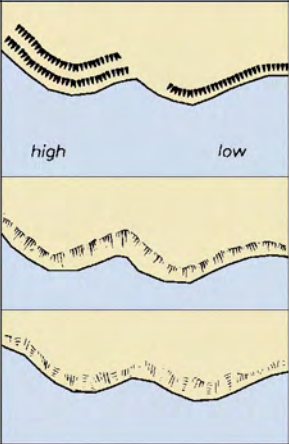
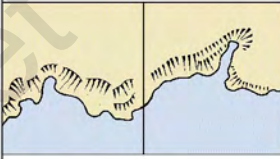










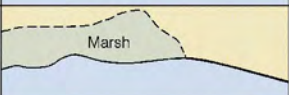

# B Positions, Distances, Directions, Compass

70	Compass rose, normal pattern (smaller patterns of compass rose may be used)
	<p>Magnetic Variation (example): <math>4^{\circ}15' \text{ W}</math> 1997 (<math>8' \text{ E}</math>) on magnetic north arrow means Magnetic Variation <math>4^{\circ}15' \text{ W}</math> in 1997, annual change <math>8' \text{ E}</math> (i.e. magnetic variation decreasing <math>8'</math> annually).</p> 
	<p>True north compass rose</p> 
71	Isogonic lines
	<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	 <p>high low</p>	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	 <p>Stones</p>
8		Sandhills, Dunes	 <p>Dunes</p>
9		Apparent Shoreline	
9.1		Vegetation or topographic Feature Area Limit in general	


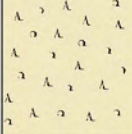



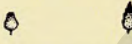






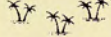









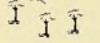

# C Natural Features

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)	

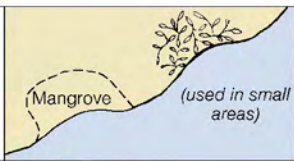
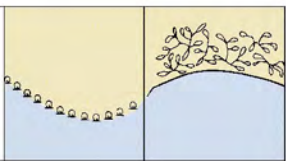
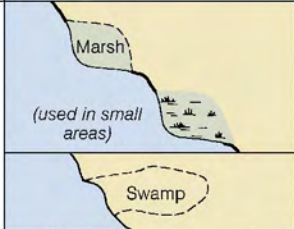
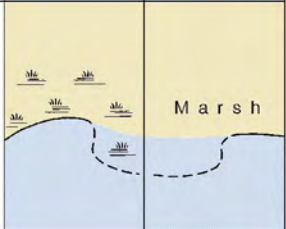

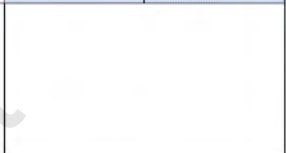

Water Features, Lava		Supplementary national symbols: h	
20		River, Stream	
21		Intermittent river	
22		Rapids, Waterfalls	
23		Lakes	

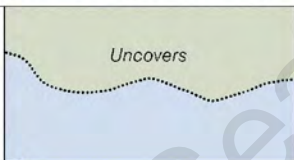

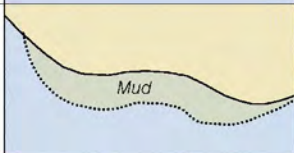
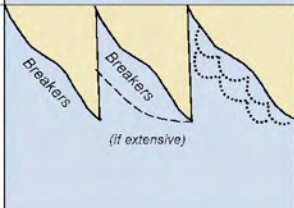
# C Natural Features

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	 







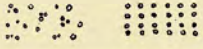




# C Natural Features

32	 <p>Mangrove (used in small areas)</p>	Mangrove	
33	 <p>Marsh (used in small areas)</p>	Marsh	
	 <p>Swamp</p>	Swamp	
34	 <p>Cypress</p>	Cypress	

<i>Supplementary National Symbols</i>		
a	 <p>Uncovers</p>	Chart sounding datum line (surveyed)
b		Approximate sounding datum line (inadequately surveyed)
c	 <p>Mud</p>	Foreshore; Strand (in general) Stones; Shingle; Gravel; Mud; Sand
d	 <p>Breakers (if extensive)</p>	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	Vil	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 	VERT CL 2 M 	Vertical clearance above High Water	
21	HOR CL 28 FT 	HOR CL 8 M 	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	
<b>General</b>					
1	○ TANK ○ Tk ● ●		Examples of landmarks	◆ Building ○ Hotel	
2	○ CAPITOL DOME ○ WORLD TRADE CENTER		Examples of conspicuous landmarks	◆ FACTORY ○ HOTEL WATER TR 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		
5		(30)	Height of structure above ground level		
<b>Landmarks</b>					
10.1		✚ Ch	Church	✚ Ch 	✚ Ch ✚ Ch
10.2			Church tower	✚ Tr 	
10.3	○ SPIRE ○ Spire		Church spire	✚ Sp 	✚ Sp ✚ Sp ✚ Sp
10.4	○ CUPOLA ○ Cup		Church cupola	✚ Cup 	♀
11		✚ Ch	Chapel		✚ Ch
12		✚	Cross, Calvary		✚ ✚
13		⊠	Temple	⊠	⊠
14		⊠	Pagoda	⊠	
15		⊠	Shinto shrine, Josshouse	⊠	卐



# E Landmarks

16			Buddhist temple	卍	
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	F S	
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  Radar Tr	<i>Radar tower</i>	 Radar Tr		
30.3		<i>Radar scanner</i>	 Radar Sc		
30.4	 DOME(RADAR)  Dome (RADAR)	 RADOME  Radome	<i>Radar dome</i>	 Radome	
31	 ANT (RADAR)  Ant (RADAR)		<i>Dish aerial</i>		
32	 TANK  Tk 		<i>Tanks</i>		<i>Tanks</i>
33	 SILO  Silo	 ELEVATOR  Elevator	<i>Silo, Elevator</i>	 Silo  Elevator	 
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	  Facy	Factory		
e	o Well	Well		
f	■ Sch	School		
g	■ Hosp	Hospital		
h	■ Univ	University		
i	⊙ GAB    o 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		


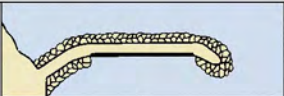


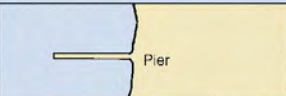


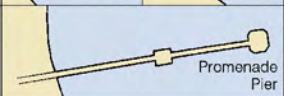
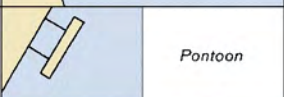
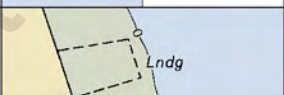





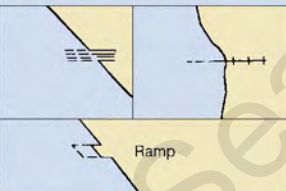
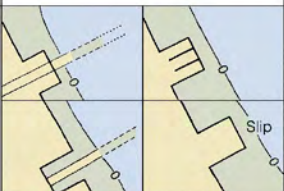


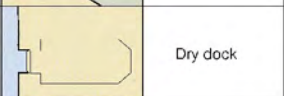
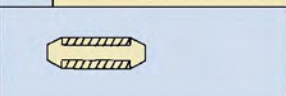
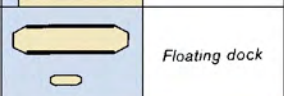
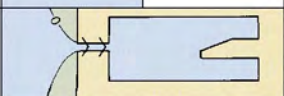
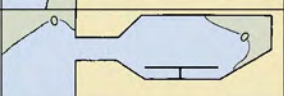


# F Ports

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		Groin (always dry)	
6.2		Groin (intertidal)	
6.3		Groin (always under water)	

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

# F Ports

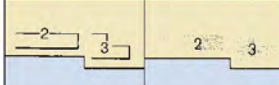









12		Mole	
13		Quay, Wharf	
14		Pier, Jetty	
15		Promenade pier	
16		Pontoon	
17	Ldg, Lndg	Landing for boats	
18		Steps, Landing stairs	
19	3 A      3 (A)	Designation of berth	
20	• Dol • Dol (Great Lakes)	Dolphin	
21		Deviation dolphin	
22	• Pile    • Pile (Great Lakes)	Minor post or pile	
23		Slipway, 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	
31		Works at sea, Area under reclamation, with year date	
32		Works under construction, with year date	
33.1		Ruins	
33.2		Ruined pier, partly submerged at high water. Submerged ruins	
34		Hulk (actual shape on large scale charts)	

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		 (4t)	Crane with lifting capacity, crane (on railway)	 (3 t)
53.2		 (14t)	Container crane with lifting capacity	 (50 t)
53.3			Sheerlegs (conspicuous)	 SHEERLEGS

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	 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>		
<b>Road, Rail and Air Traffic</b>			
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>		
<b>Ports, Harbors</b>			
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

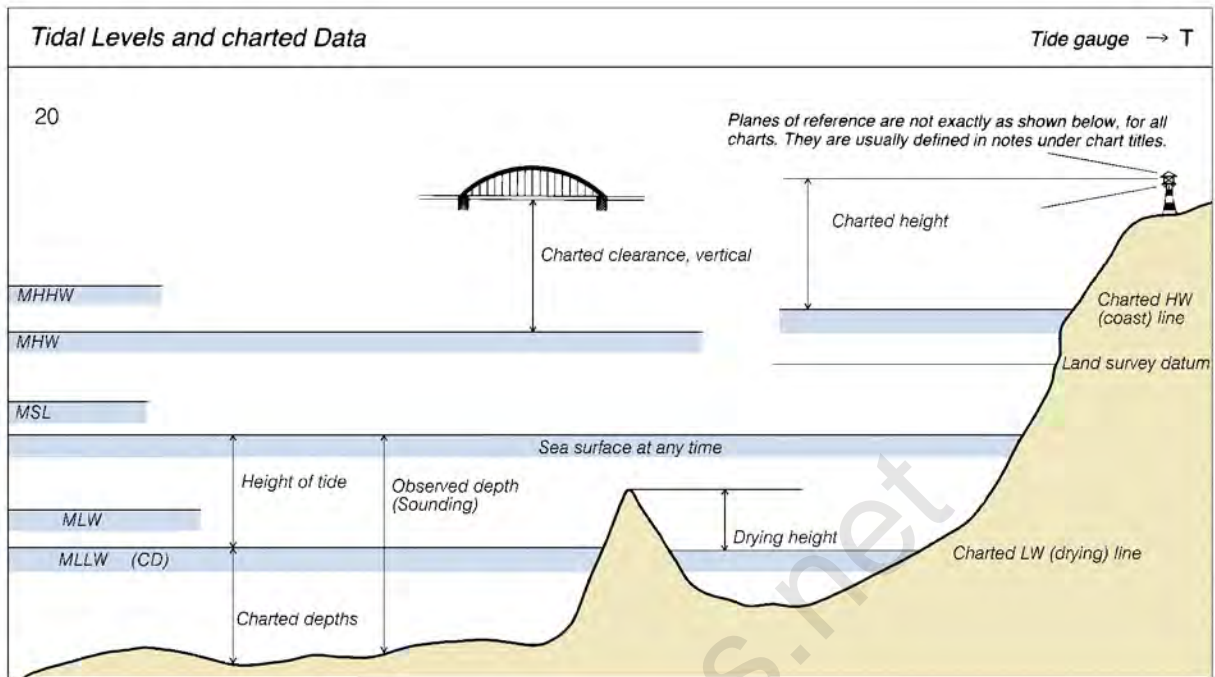
134	<i>Basin</i>	147	<i>Commercial port, Trade port</i>
135	<i>Reservoir</i>	148	<i>Building harbor</i>
136	<i>Reclamation area</i>	149	<i>Oil harbor</i>
137	<i>Port</i>	150	<i>Ore harbor</i>
138	<i>Harbor</i>	151	<i>Grain harbor</i>
139	<i>Haven</i>	152	<i>Container harbor</i>
140	<i>Inner harbor</i>	153	<i>Timber harbor</i>
141	<i>Outer harbor</i>	154	<i>Coal harbor</i>
142	<i>Deep water harbor</i>	155	<i>Ferry harbor</i>
143	<i>Free port</i>	156	<i>Police</i>
144	<i>Customs harbor</i>		
145	<i>Naval port</i>		
146	<i>Industrial harbor</i>		
<i>Harbor installations</i>			
170	<i>Terminal</i>	185	<i>Liquefied Natural Gas - LNG</i>
171	<i>Building slip</i>	186	<i>Liquefied Petroleum Gas - LPG</i>
172	<i>Building yard</i>	187	<i>Very Large Crude Carrier - VLCC</i>
173	<i>Buoy yard, Buoy dump</i>		
174	<i>Bunker station</i>		
175	<i>Reception facilities for oily wastes</i>		
176	<i>Tanker cleaning facilities</i>		
177	<i>Cooling water intake/outfall</i>		
178	<i>Floating barrier Boom</i>		
179	<i>Piling</i>		
180	<i>Row of piles</i>		
181	<i>Bollard</i>		
182	<i>Conveyor</i>		
183	<i>Storage tanker</i>		
184	<i>Lighter Aboard Ship - LASH</i>		

# H Tides, Currents

Terms Relating to Tidal Levels			Supplementary national symbols: a-k
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 . .**







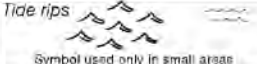

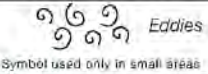



Hours	Geographical Position
Before High Water	Directions of streams (degrees)
5	
4	Rates at spring tides (knots)
3	
2	Rates at neap tides (knots)
1	
High Water	
After High Water	Directions of streams (degrees)
1	
2	Rates at spring tides (knots)
3	
4	Rates at neap tides (knots)
5	
6	

*Tidal stream table*

**Tidal streams referred to . .**

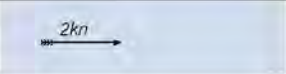



Hours	Geographical Position
Before High Water	Directions of streams (degrees)
5	
4	Rates at spring tides (knots)
3	
2	Rates at neap tides (knots)
1	
High Water	
After High Water	Directions of streams (degrees)
1	
2	Rates at spring tides (knots)
3	
4	Rates at neap tides (knots)
5	
6	

# H Tides, Currents





Tidal Streams and Currents		Supplementary national symbols: m-t	
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		Overfalls, tide rips, races	
45		Eddies	
46		Position of tabulated tidal data with designation	

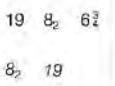
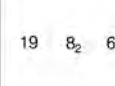







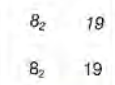


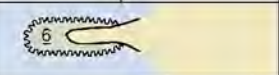
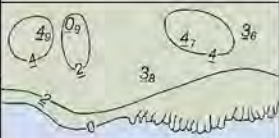
Supplementary National Symbols			
a	HW	High water	
b	HHW	Higher high water	
c	LW	Low water	
d	LWD	Low-water datum	
e	LLW	Lower low water	
f	MTL	Mean tide level	
g	ISLW	Indian spring low water	
h	HWF&C	High-water full and change (vulgar establishment of the port)	
i	LWF&C	Low-water full and change	

# H Tides, Currents

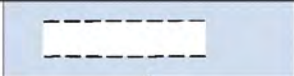

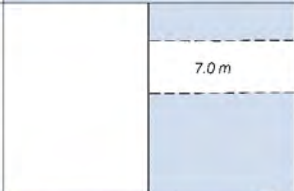
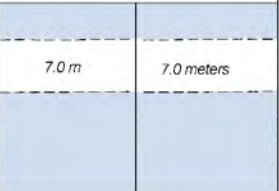
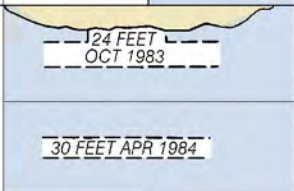
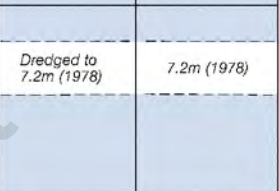
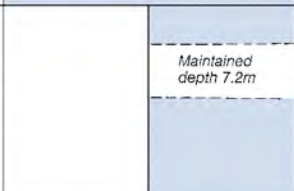
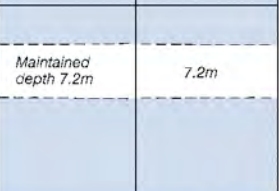
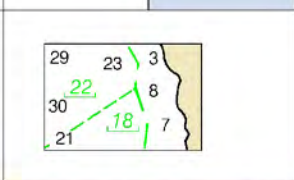
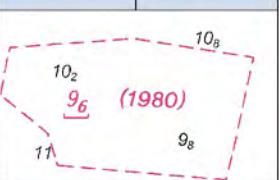
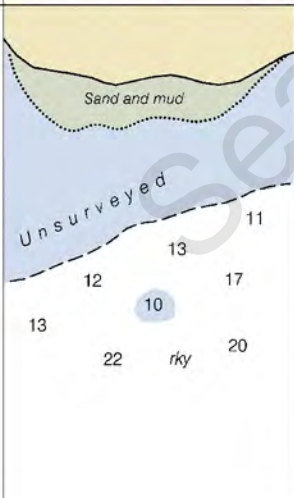
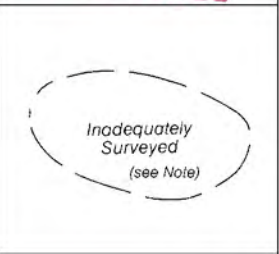

j	CRD	Columbia River Datum	
k	GCLWD	Gulf Coast Low Water Datum	
l	Str	Stream	
m		Current, general, with rate	
n	vel	Velocity; Rate	
o	kn	Knots	
p	ht	Height	
q	fl	Flood	
r		New moon	
s		Full moon	
t		Current diagram	

# 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

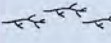


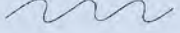


Depths in Fairways and Areas		Supplementary national symbols: a, b	
Plane of Reference for Depths → H			
20		Limit of dredged area	
21		Dredged channel or area with depth of dredging in meters	
22		Dredged channel or area with depth and year of the latest control survey	
23		Dredged channel or area with 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	 


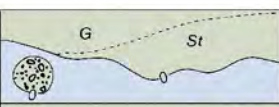

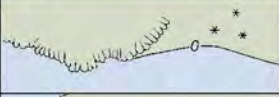


# Depths

Depth Contours																																										
30	<table border="1"> <thead> <tr> <th>Feet</th> <th>Fm/Meters</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>6</td><td>1</td></tr> <tr><td>12</td><td>2</td></tr> <tr><td>18</td><td>3</td></tr> <tr><td>24</td><td>4</td></tr> <tr><td>30</td><td>5</td></tr> <tr><td>36</td><td>6</td></tr> <tr><td>60</td><td>10</td></tr> <tr><td>120</td><td>20</td></tr> <tr><td>180</td><td>30</td></tr> <tr><td>240</td><td>40</td></tr> <tr><td>300</td><td>50</td></tr> <tr><td>600</td><td>100</td></tr> <tr><td>1,200</td><td>200</td></tr> <tr><td>1,800</td><td>300</td></tr> <tr><td>2,400</td><td>400</td></tr> <tr><td>3,000</td><td>500</td></tr> <tr><td>6,000</td><td>1,000</td></tr> </tbody> </table>	Feet	Fm/Meters	0	0	6	1	12	2	18	3	24	4	30	5	36	6	60	10	120	20	180	30	240	40	300	50	600	100	1,200	200	1,800	300	2,400	400	3,000	500	6,000	1,000		<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>	
	Feet	Fm/Meters																																								
0	0																																									
6	1																																									
12	2																																									
18	3																																									
24	4																																									
30	5																																									
36	6																																									
60	10																																									
120	20																																									
180	30																																									
240	40																																									
300	50																																									
600	100																																									
1,200	200																																									
1,800	300																																									
2,400	400																																									
3,000	500																																									
6,000	1,000																																									
31	<p>Approximate depth contour</p> <p>Continuous lines, with values</p>		<p>Approximate depth contours</p>																																							
<p><i>Note:</i> 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

<i>Types of Seabed</i>			
Rocks → K		Supplementary national abbreviations: a–ag	
1	S	Sand	S
2	M	Mud	M
3	Cy; Cl	Clay	Cy
4	Sl	Silt	Sl
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	

<i>Types of Seabed, Intertidal Areas</i>			
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	f; fne	fine	f
31	m	medium <i>only used in relation to sand</i>	m
32	c; cts	coarse	c
33	bk, brk	broken	bk
34	sy; stk	sticky	sy
35	so; stt	soft	so
36	stf	stiff	stf
37	Vol	volcanic	v
38	Ca	calcareous	ca
39	n; nra	hard	n

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



# J Nature of the Seabed

ab	<i>Rad</i>		<i>Radiolaria</i>
ac	<i>Pt</i>		<i>Pteropods</i>
ad	<i>Pol</i>		<i>Polyzoa</i>
ae	<i>Cir</i>		<i>Cirripedia</i>
af	<i>Fu</i>		<i>Fucus</i>
ag	<i>Mat</i>		<i>Mattes</i>
ah	<i>sm</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>gry</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; blk</i>		<i>Black</i>
at	<i>vi</i>		<i>Violet</i>
au	<i>blu</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>var</i>		<i>Varied</i>
bf	<i>unev</i>		<i>Uneven</i>

# K Rocks, Wrecks, Obstructions

General				
1			<i>Danger line, in general</i>	
2		<i>21, Rk</i> <i>21, Obstr</i>	<i>Swept by wire drag or diver</i>	

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

# 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		19 Br 18

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 known, 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.		

<b>Obstructions</b>						
Plane of Reference for Depths → H				Kelp, Sea-Weed → J		
40			Obstruction, depth unknown			#
41			Obstruction, least depth known			
42			Obstruction, least depth known, swept by wire drag or diver			
43.1			Stumps of posts or piles, all or part of the time submerged			
43.2			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			Fish haven (artificial fishing reef)			
46.2			Fish haven with minimum depth			
47			Shellfish cultivation (stakes visible)			

# K Rocks, Wrecks, Obstructions

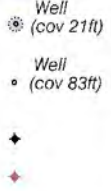





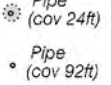







Supplementary National Symbols					
a			Rock awash (height unknown)		
b			Shoal sounding on isolated rock or rocks		
c			Sunken wreck covered 20 to 30 meters		
d			Submarine volcano		
e			Discolored water		
f			Sunken danger with depth cleared (swept) by wire drag		
g			Reef of unknown extent		
h			Coral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

# L Offshore Installations

Offshore Installations					
General					
Areas, Limits → N					
1		DURRAH OILFIELD	Name of oilfield or gasfield	Oil field	
2			Platform with designation/name		
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)		
12			Mooring tower, Articulated Loading Platform (ALP), Single Anchor Leg Mooring (SALM)		
13			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			Moored storage tanker		





# L Offshore Installations

Underwater Installations				Supplementary national symbols: a	
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

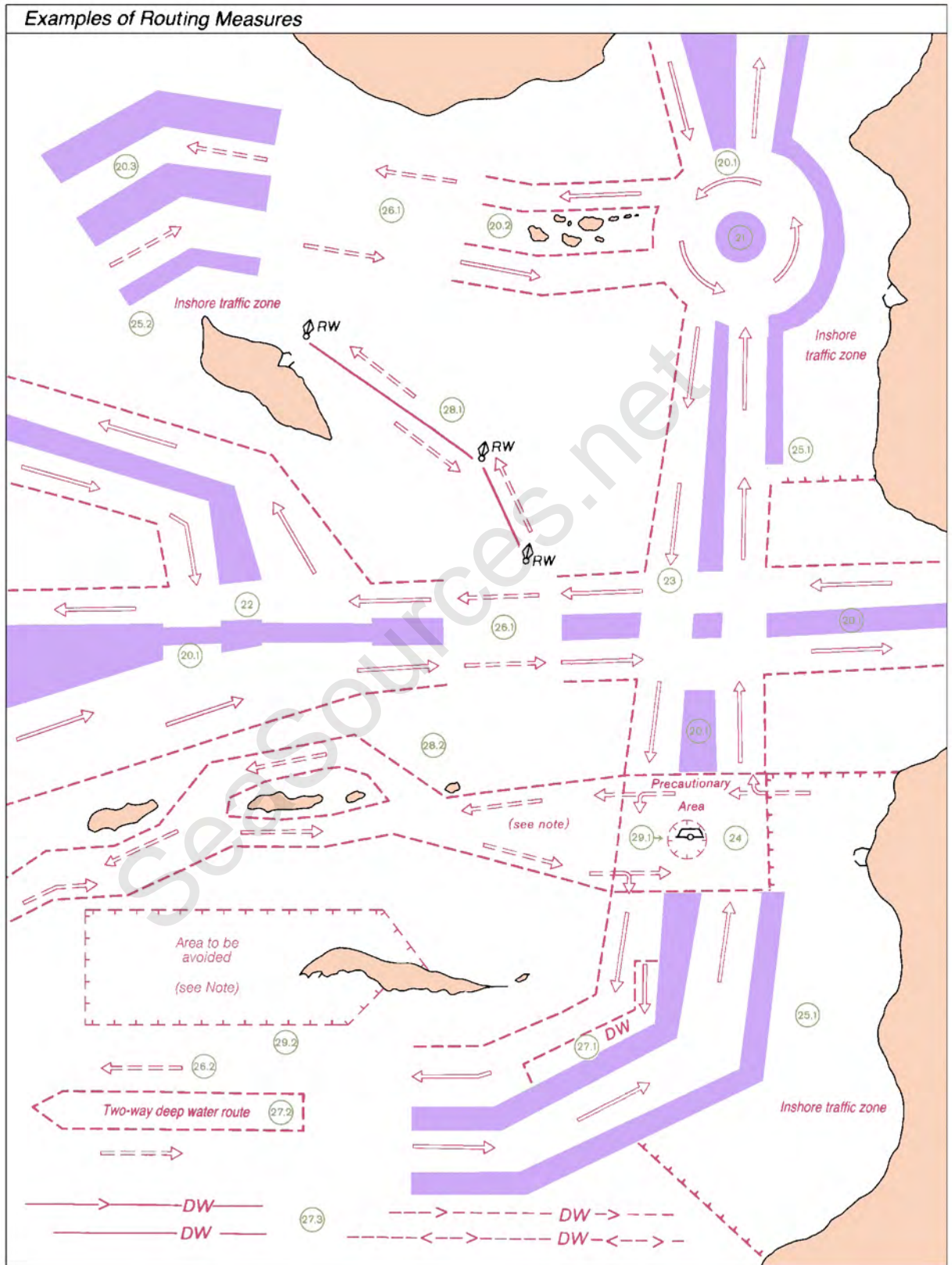
Tracks					
Tracks Marked by Lights → P		Leading Beacons → Q		Supplementary national symbols: a – c	
1		Lights in line 090°	Leading line (solid line is fairway)	 2 Bns ≠ 270.5°  2 Bns ≠ 270°30'	
2		Beacons in line 090°	Transit, clearing line	 2 Bns ≠ 270°30'  2 Bns ≠ 270.5°	
3		Lights in line 090°	Recommended track based on a system of fixed marks	 2 Bns ≠ 090.5°–270.5°	
4			Recommended tracks not based on a system of fixed marks	 090.5°–270.5° 	
5.1			One-way track	 	
5.2			Two-way track (including a regulation described in a note)	 SEE NOTE  SEE 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

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# M Tracks, Routes











# M Tracks, Routes

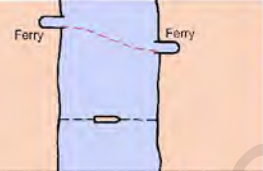


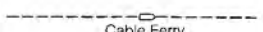
## Examples of Routing Measures

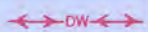
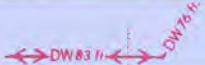



	Traffic separation scheme, traffic separated by separation zone
	Traffic separation scheme, traffic separated by natural obstructions
	Traffic separation scheme, with outer separation zone, separating traffic using scheme from traffic not using it
	Traffic separation scheme, roundabout
	Traffic separation scheme, with "crossing gates"
	Traffic separation schemes crossing, without designated precautionary area
	Precautionary area
	Inshore traffic zone, with defined end-limits
	Inshore traffic zone without defined end-limits
	Recommended direction of traffic flow, between Traffic separation schemes
	Recommended direction of traffic flow, for ships not needing a deep water route
	Deep water route, as part of one-way traffic lane
	Two-way deep water route, with minimum depth stated
	Deep water route, centerline as recommended One-way or Two-way track
	Recommended route (often marked by centerline buoys)
	Two-way route with one-way sections
	Area to be avoided, around navigational aid
	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		Radio reporting (calling-in or way) points showing direction(s) of vessel movement with designation (if any)	

Ferries			
50		Ferry	
51		Cable Ferry	

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	
<b>General</b>					
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)			

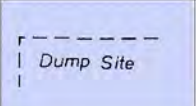

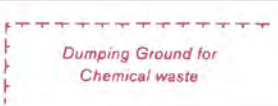
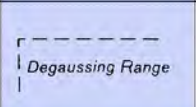
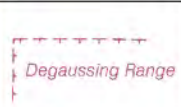
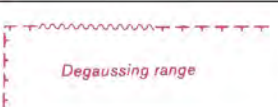


<b>Anchorage, Anchorage Areas</b>					
10			Anchorage (large vessels)		
			Anchorage (small vessels)		
11.1			Anchor berths		
11.2			Anchor berths, swinging circle may be shown		
12.1			Anchorage area in general		
12.2			Numbered anchorage area		
12.3			Named anchorage area		
12.4			Deep Water Anchorage area, Anchorage area for Deep Draft Vessels		
12.5			Tanker anchorage area		


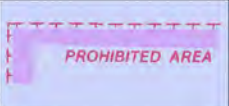


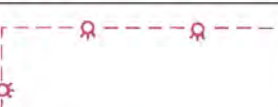


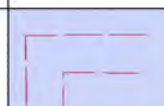
# N Areas, Limits

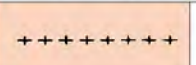

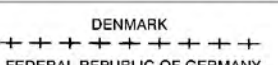



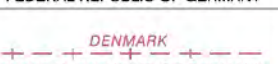

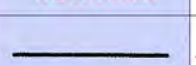




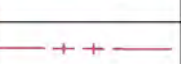



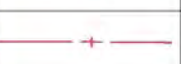
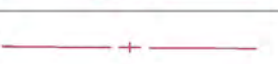

12.6			Anchorage for periods up to 24 hours		
12.7			Explosives anchorage area		
12.8			Quarantine anchorage area		
12.9			Reserved anchorage		
Note: Anchors as part of the limit symbol are not shown for small areas. Other types of anchorage areas may be shown.					
13			Sea-plane landing area		
14	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







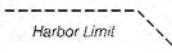


24			Dumping ground for chemical waste		
25			Degaussing range		
26			Historic wreck and restricted area		


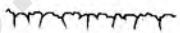
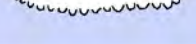

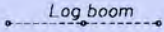
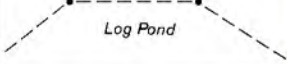

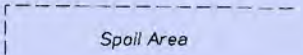
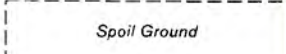
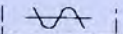
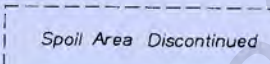
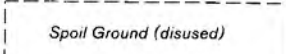



Military Practice Areas					
30			Firing danger area		
31			Military area, entry prohibited		
32			Mine-laying practice area		
33			Submarine transit lane and exercise area		
34			Mine field		




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		



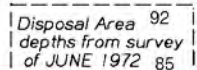


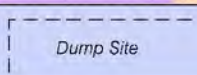
# N Areas, Limits

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		Disposal area (Dump Site)	
e		Limit of airport	
f		Reservation line (Options)	
g		Dump site	

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# O Hydrographic Terms
























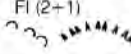










1		<i>Ocean</i>
2		<i>Sea</i>
3	G	<i>Gulf</i>
4	B	<i>Bay, Bayou</i>
5	Fd	<i>Fjord</i>
6	L	<i>Loch, Lough, Lake</i>
7	Cr	<i>Creek</i>
8	Lag	<i>Lagoon</i>
9	C	<i>Cove</i>
10	In	<i>Inlet</i>
11	Str	<i>Strait</i>
12	Sd	<i>Sound</i>
13	Pass	<i>Passage, Pass</i>
14	Chan	<i>Channel</i>
15		<i>Narrows</i>
16	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	La	<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>Shell-edge</i>
44		<i>Slope</i>
45		<i>Continental slope</i>
46		<i>Continental rise</i>
47		<i>Continental 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			F 
<i>Occulting (total duration of light longer than total duration of darkness)</i>						
10.2	Oc	Oc	Single-occulting			Oc 
	Oc(2) Example	Oc (2)	Group-occulting			Oc (2) 
	Oc(2+3) Example	Oc(2+3)	Composite group-occulting			Oc(2+3) 
<i>Isophase (duration of light and darkness equal)</i>						
10.3	Iso	Iso	Isophase			Iso 
<i>Flashing (total duration of light shorter than total duration of darkness)</i>						
10.4	Fl	Fl	Single-flashing			Fl 
	Fl(3) Example	Fl (3)	Group-flashing			Fl (3) 
	Fl(2+1) Example	Fl (2+1)	Composite group-flashing			Fl (2+1) 
10.5	LFl	L Fl	Long-flashing (flash 2 s or longer)			L Fl 
<i>Quick (repetition rate of 50 to 79 – usually either 50 or 60 – flashes per minute)</i>						
10.6	Q	Q	Continuous quick			Q 
	Q(3) Example	Q(3)	Group quick			
	IQ	IQ	Interrupted quick			IQ 

# P Lights


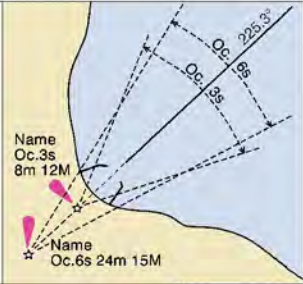
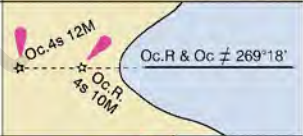




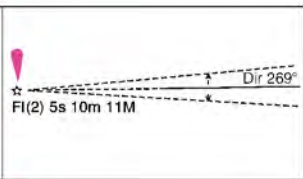
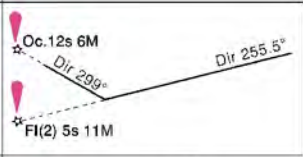
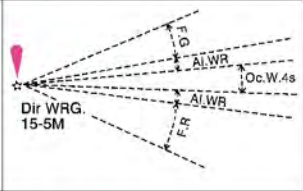
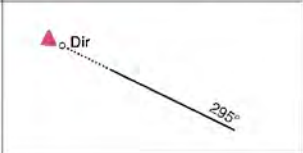
	Abbreviation		Class of light	Illustration	Period shown		
	International	National					
<p><i>Very quick (repetition rate of 80 to 159 – usually either 100 or 120 – flashes per min)</i></p>							
10.7	VQ	VQ	Continuous very quick			VQ	
	VQ(3) Example	VQ (3)	Group very quick				
	IVQ	IVQ	Interrupted very quick				
<p><i>Ultra quick (repetition rate of 160 or more – usually 240 to 300 – flashes per min)</i></p>							
10.8	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			FFI	
10.11	AIWR	AIWR	Alternating			AIWR	
<p><b>Colors of Lights</b></p>							
11.1	W	W	White (only on sector- and alternating lights)		<p>Colors of lights shown on standard charts</p> <p>on multicolored charts</p> <p>on multicolored charts at sector lights</p>		
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

# P Lights

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

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




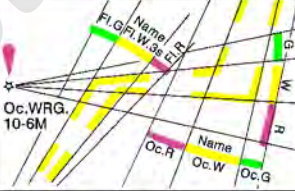

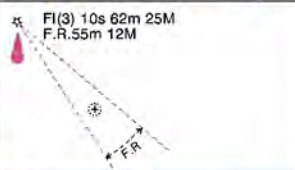

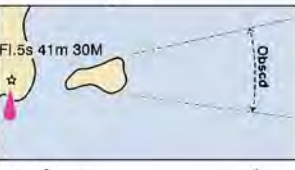

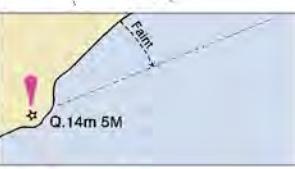
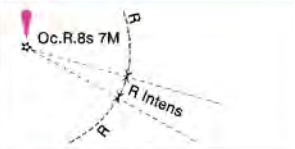
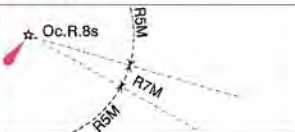
# P Lights

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 ±: 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

<i>Lights with limited Times of Exhibition</i>				
50	Occas	! FR (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 (L)
54			Temporary	(temp)
55			Extinguished	(exting)
<i>Special Lights</i>				
<i>Flare Stack (at Sea) → L</i>		<i>Flare Stack (on Land) → E</i>		<i>Signal Stations → T</i>
60	! AERO	! AERO Al WG 7½s • 108m 13M	Aero light	! ✦ Aero Al.Fl.WG.7.5s 11M ★ AERO
61.1		! AERO FR 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

<i>Supplementary National Symbols</i>				
a			Riprap surrounding light	
b			Short-Long Flashing	S-L Fl 
c			Group-Short Flashing	
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			Green and black	
3			Single colors other than green and black	
4			Multiple colors in horizontal bands, the color sequence is from top to bottom	
5			Multiple colors in vertical or diagonal stripes, the darker color is given first	
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			Lighted marks on standard charts	
8			Lighted marks on multicolored charts	
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			Beacon with topmark, color, radar reflector and designation	
11			Buoy with topmark, color, radar reflector and designation	
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			Light float as part of IALA System		
31			Light float (unmanned light-vessel) not part of IALA System		
Mooring Buoys					
Oil or Gas Installation Buoy → L			Small Craft Mooring → U		
40			Mooring buoys		
41			Lighted mooring buoy (example)		
42			Trot. mooring buoys with ground tackle and berth numbers		
43	See Supplementary national symbols $\Pi$ , $\Pi$		Mooring buoy with telegraphic or telephonic communication		
44			Numerous moorings (example)		

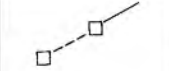
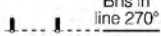



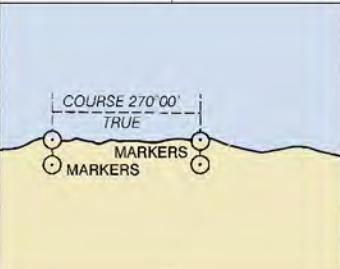
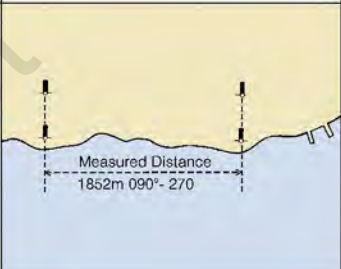





# Q Buoys, Beacons

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		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
	 or  or  or 	Special-purpose buoys	
59		Wave recorder, current meter	
60		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

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







# Q Buoys, Beacons

Special Purpose Beacons				
Leaing Lines, Clearing Lines → M				
Note: Topmarks and colors shown where scale permits.				
120		 Bns in line 270°	Leading beacons	
121		 Bns in line 270°	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	

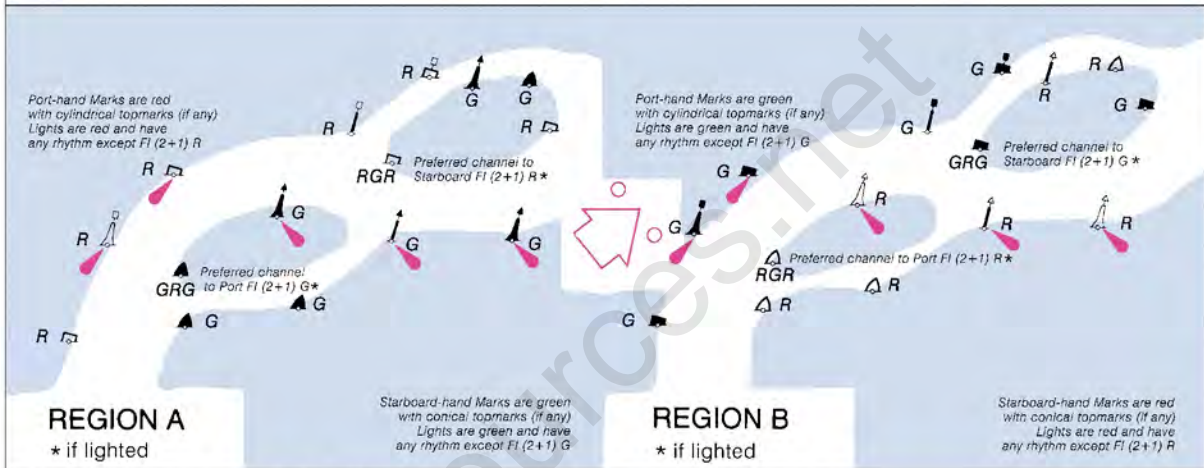
# Q Buoys, Beacons

## 130 IALA Maritime Buoyage System

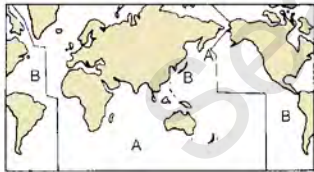
IALA International Association of Lighthouse Authorities

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 lanbys. 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

North Mark N *or* *or* VQ or Q

East Mark E *or* *or* VQ(3)5s or Q(3)10s

South Mark S *or* *or* VQ(6)+LF1 10s or Q(6)+LF1 15s

West Mark W *or* *or* VQ(9)10s or Q(9)15s

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



F(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

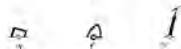


Oc, or  
Iso, or  
L Fl 10s, or  
Mo (A)

white light

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

Body (shape optional): yellow †  
Topmark (if any): yellow ×



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. (minor beacon) or, on smaller-scale charts: .

































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

Types of Fog Signals, with Abbreviations			Supplementary national symbols: a
10	GUN	Explosive	Explos
11	DIA	Diaphone	Dia
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.			



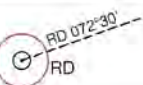



# R Fog Signals

<i>Supplementary National Symbols</i>			
a	Mo		<i>Morse Code fog signal</i>

SeaSources.net

# 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 ± 200
3.6	 RACON (-) R 2° Fl R 4s	 Racon	 Racon
4	 Ra Ref	Radar reflector	
5	 Ra (conspic)	Radar-conspicuous feature	



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 OTG service	 R
16	 AERO R Bn		Aeronautical radiobeacon	 Aero R C







## Electronic Position-Fixing Systems

### Decca

20		Identification of Lattice Patterns	
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 	Identification of Loran-C-Rates	
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>9960-2-58000</u>	LOP labelled with rate and full us value	<u>7970-X 33000</u>
37	<u>050</u>	LOP labelled with final three digits only	<u>050</u>
<p>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.</p>			
<p><b>Omega</b></p>			
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	<u>897 AB - 900</u>
<p>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.</p>			
<p><b>Satellite Navigation Systems</b></p>			
50	WGS WGS 72 WGS 84	World Geodetic System, 1972 or 1984	WGS WGS 72 WGS 84
<p>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.</p>			






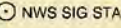
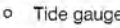

# T Services


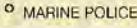
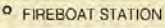




Pilotage				
1.1	 Pilots		Boarding place, position of a Pilot-Cruising Vessel	
1.2		 Name	Boarding place, position of a Pilot-Cruising Vessel, with name (e.g. District, Port)	 Name
1.3		 (see note)	Boarding place, position of a Pilot-Cruising Vessel, with note (e.g. for Tanker, Disembarkation)	 Note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

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



# T Services

Signal Stations				
20			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			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			Storm signal station	⊙ SS (Storm)
29			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 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 (on land)	
b				
c			Marine police station	
d			Fireboat station	
e			Notice board	
f			Lookout station; Watch tower	
g			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>	



# 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
AI	<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 FI	<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 10.8
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	Liquefied natural gas	G 185
Long, long	Longitude	B 2
LOP	Line of position	S 21, S 31, S 41
LPG	Liquefied petroleum gas	G 186
LSS	Life saving station	T 12
Lt	Light	P 1

Li 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	O 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	O 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>	Q 13
PD	<i>Position doubtful</i>	B 8
PLT STA	<i>Pilot station</i>	T 3
Pk	<i>Peak</i>	O 35
Past Off	<i>Past 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
Pyj	<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
Ro	<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>	Q 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>	Q 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>	Q 12
SD	<i>Sounding doubtful</i>	I 2
SE	<i>Southeast</i>	B 14
sec	<i>Second of time</i>	B 51
sl	<i>Stiff</i>	J 36
sft	<i>Soft</i>	J 35
Sh	<i>Shells</i>	J 12
Shl	<i>Shoal</i>	Q 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
Spipe	<i>Standpipe</i>	E 21
SPM	<i>Single point mooring</i>	L 12
SS	<i>Signal station</i>	T 20
sl	<i>Stones</i>	J 5
stf	<i>Stiff</i>	J 36
stk	<i>Sticky</i>	J 34
Str	<i>Strait</i>	Q 11
Subm	<i>Submerged</i>	Q 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	Apartment	Es
B	Black	Qq
bk	Black	Jas
bl	Black	Jas
Blds	Boulders	Je
br	Brown	Jaz
bu	Blue	Jau
Cap	Capitol	Et
ch	Chocolate	Jba
Chec	Checked	Qc
Ck	Chalk	Jl
Cn	Cinders	Jp
Co	Company	Eu
Co Hd	Coral head	Ji
COLREGS	Collision regulations	Na
Corp	Corporation	Ev
cps	Cycles per second	Bj
CRD	Columbia River Datum	Hj
c/s	Cycles per second	Bj
CI Ho	Court house	Eo
dec	Decayed	Jan
deg	Degree(s)	Bn
Dj	Diatoms	Jaa
Diag	Diagonal bands	Qp
Discol water	Discolored water	Ke
dk	Dark	Jbd
Explos Anch	Explosives anchorage	Qk
Facty	Factory	Ed
F Gp FI	Fixed and group flashing	Pd
fl	Flood	Hq
fly	Flinty	Jaa
Fr	Foraminifera	Jy
Fu	Fucus	Jaf
GAB, Gab	Gable	Ei
GCLWD	Gulf Coast Low Water Datum	Hk
Gl	Globigerina	Jz
glac	Glacial	Jap
gn	Green	Jav
Govt Ho	Government house	Em

Grd	Ground	J6
Grs	Grass	Jv
gty	Gritty	Jam
GUN	Fog gun	Rd
gy	Gray	Jbb
HECP	Harbor entrance control point	Tb
HHW	Higher high water	Hb
HS	High school	Eg
ht	Height	Hp
HW	High water	Hq
HWF & C	High water full and change	Hh
Hz	Hertz	Bg
in	Inch	Bc
ins	Inches	Bc
inst	Institute	En
ISLW	Indian springs low water	Hg
K	Kelp	Ju
kc	Kilocycle	Bk
kHz	Kilohertz	Bh
kn	Knot(s)	Ho
La	Lava	Jl
LLW	Lower low water	He
LOOK TR	Lookout tower	Tf
lrg	Large	Jai
lt	Light	Jbc
Ltd	Limited	Er
LW	Low water	Hc
LWD	Low water datum	Hd
LWF & C	Low water full and change	Hi
m <sup>2</sup>	Square meter(s)	Ba
m <sup>3</sup>	Cubic meter(s)	Bb
Ma	Mattes	Jag
Magz	Magazine	Ei
Mc	Megacycle(s)	Bi
Mds	Madrepores	Jj
MHz	Megahertz	Bi
Ml	Marl	Jc
Mn	Manganese	Jq
Mo	Morse code	Rt
Ms	Mussels	Js
MTL	Mean Tide Level	Hf



# V Index of Abbreviations

Supplementary National Abbreviations:

NAUTO	<i>Nautophone</i>	Rc	unev	<i>Uneven</i>	.Jbl
or	<i>Orange</i>	Jax	Univ	<i>University</i>	Eh
Oys	<i>Oysters</i>	Jr	us	<i>Microsecond(s)</i>	Bf
Oz	<i>Ooze</i>	Jb	usec	<i>Microsecond(s)</i>	Bf
Pav	<i>Pavilion</i>	Ep	vard	<i>Varied</i>	.Jbe
Pm	<i>Pumice</i>	Jm	vel	<i>Velocity</i>	Hn
Pa	<i>Polyzoa</i>	Jad	vi	<i>Violet</i>	.Jat
Pt	<i>Pteropods</i>	Jac	Vol Ash	<i>Volcanic ash</i>	.Jk
Quar	<i>Quarantine</i>	Fd	wh	<i>White</i>	.Jar
Qz	<i>Quartz</i>	Jg	WHIS	<i>Whistle</i>	Qc
Rd	<i>Radiolaria</i>	Jab	yd	<i>Yard</i>	Bd
rd	<i>Red</i>	Jay	yds	<i>Yards</i>	Bd
rt	<i>Rotten</i>	Jaj	yl	<i>Yellow</i>	Jaw
Ry	<i>Railway, railroad</i>	Db			
Sc	<i>Scoriae</i>	Jo			
Sch	<i>Schist</i>	Jh			
Sch	<i>School</i>	Et			
Sem	<i>Semaphore</i>	Tg			
Sh	<i>Shingle</i>	Jd			
S-LFI	<i>Short-long flashing</i>	Pb			
sml	<i>Small</i>	Joh			
Spg	<i>Sponge</i>	Jt			
Spi	<i>Spicules</i>	Jx			
spk	<i>Speckled</i>	Jai			
Stg	<i>Sealange</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 tag bell</i>	Ro			
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>Tuta</i>	Jn			
Te	<i>Telegraph</i>	Qs			
Tel off	<i>Telegraph office</i>	Ek			
ten	<i>Tenacious</i>	Jaq			

# 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
Obstr	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

<b>P</b> <i>Lights</i>		
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

<b>Q</b> <i>Buoys, Beacons</i>		
B	Black	Q 81
Mk	Mark	Q 101
IALA	International Association of Lighthouse Authorities	Q 130

<b>R</b> <i>Fog Signals</i>		
Explos	Explosive	R 10
Dia	Diaphone	R 11
Whis	Whistle	R 15

<b>S</b> <i>Radar, Radio, Electronic Position-Fixing Systems</i>		
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
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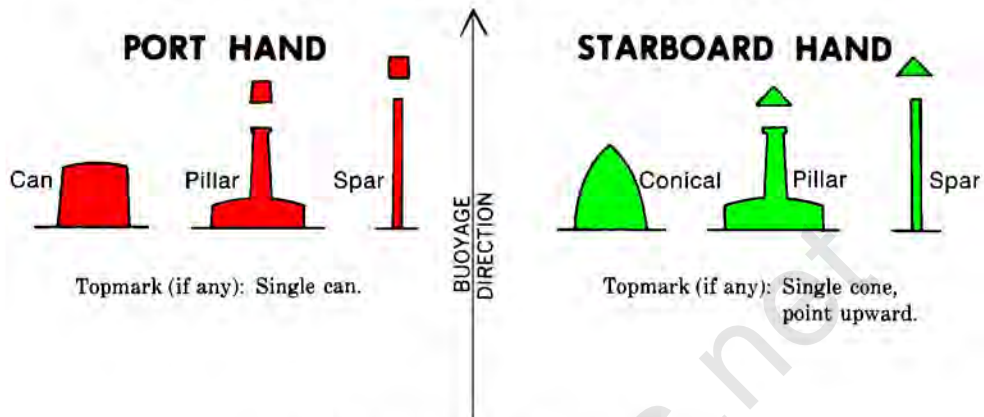
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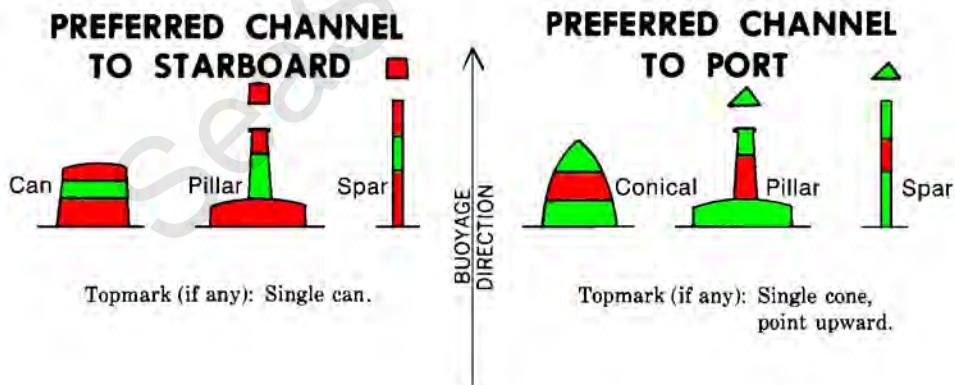
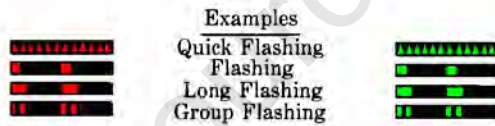
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# IALA MARITIME BUOYAGE SYSTEM LATERAL MARKS REGION A



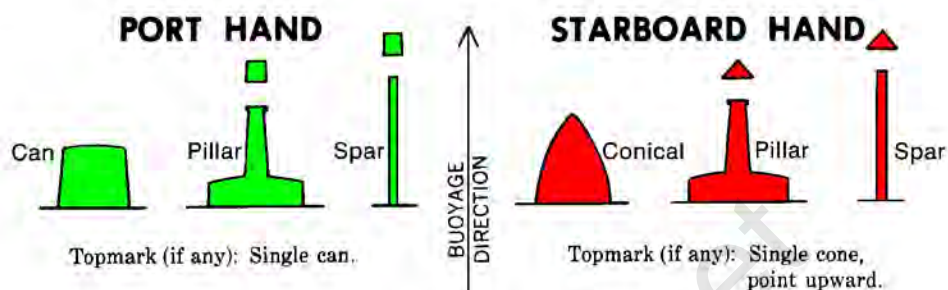
Lights, when fitted, may have any phase characteristic other than that used for preferred channels.



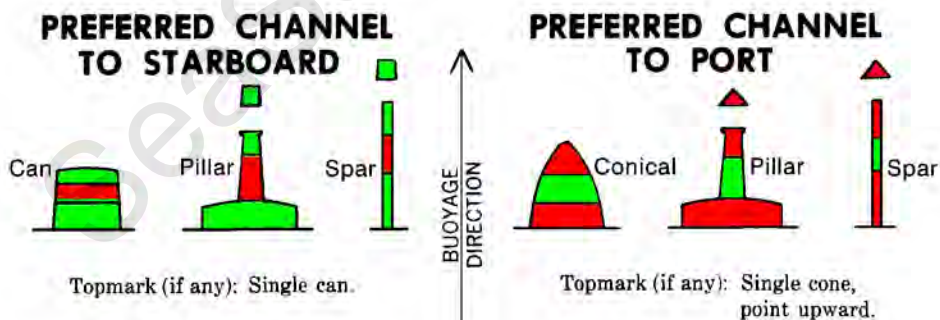
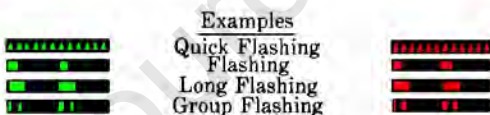
Lights, when fitted, are composite group flashing Fl (2 + 1).



# IALA MARITIME BUOYAGE SYSTEM LATERAL MARKS REGION B



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



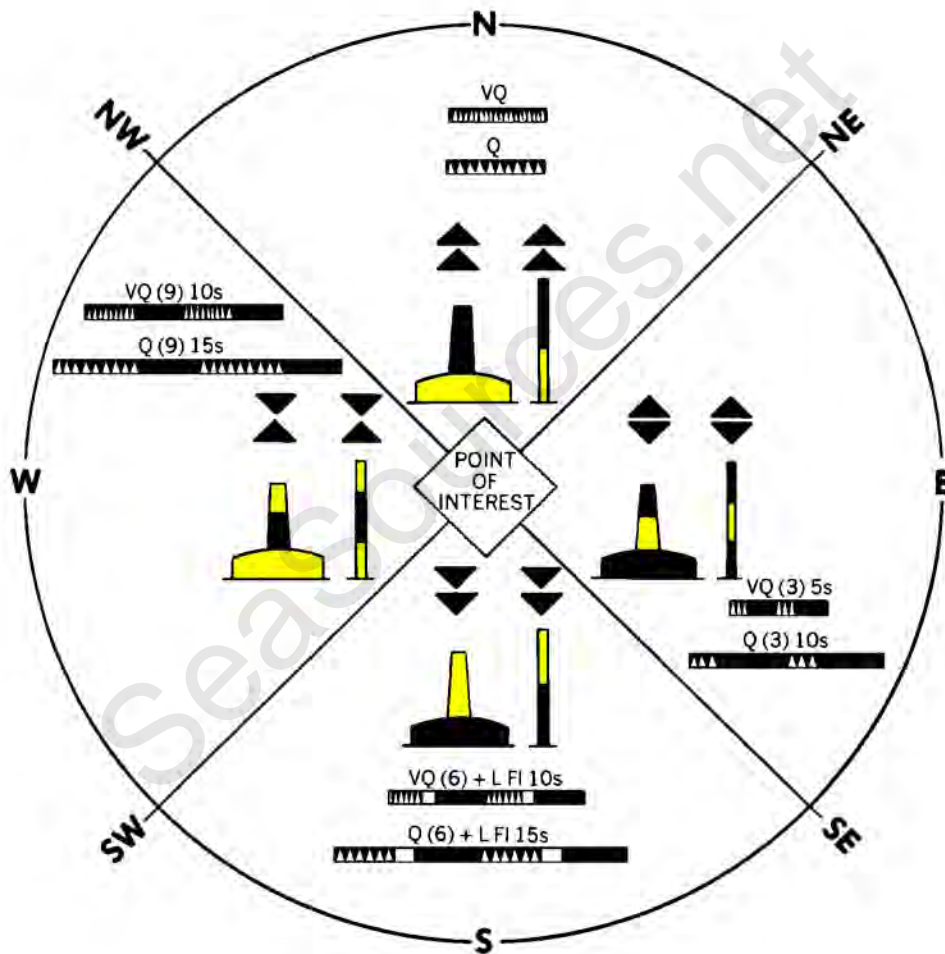
Lights, when fitted, are composite group flashing Fl (2+1).





# IALA MARITIME BUOYAGE SYSTEM CARDINAL MARKS REGIONS A AND B

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

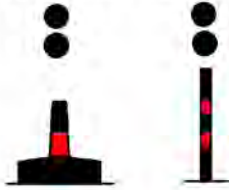


Lights, when fitted, are **white**. Very Quick Flashing or Quick Flashing; a South mark also has a Long Flash immediately following the quick flashes.

# IALA MARITIME BUOYAGE SYSTEM REGIONS A AND B

## ISOLATED DANGER MARKS

Topmarks are always fitted (when practicable).



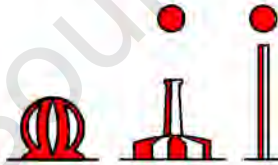
Light, when fitted, is **white**  
Group Flashing (2)



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"

— Iso

— Occ

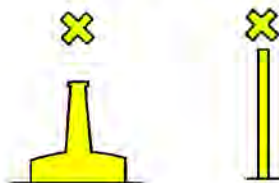
— L Fl 10s

— 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

— Fl Y  
— Fl(4) Y

Shape: Optional, but not conflicting with navigational marks.

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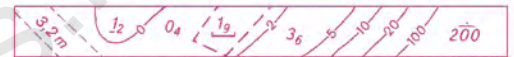
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