

INTER-GOVERNMENTAL MARITIME
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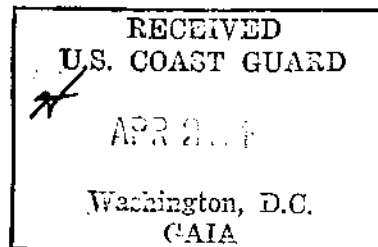


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SN/Ciro. 75
7 April 1975



PROPOSED COMBINED CARDINAL AND LATERAL
SYSTEM OF MARITIME BUOYAGE

1. At its twenty-seventh session the Maritime Safety Committee decided that the Organization should consider the subject of international unification of buoyage in collaboration with the International Association of Lighthouse Authorities (IALA) and with participation by the International Hydrographic Organization (IHO).
2. The first meeting on Unification of Buoyage was held in Paris at the Headquarters of UNESCO from 11 to 13 February 1975. A draft text of a "Proposed Combined Cardinal and Lateral System of Maritime Buoyage" was prepared and it was agreed that the following subjects need further examination:
 - (a) the marking of traffic separation schemes;
 - (b) the marking of "isolated dangers";
 - (c) light characteristics for cardinal buoys;
 - (d) special regulation marks;
 - (e) problems relating to the introduction and planning of any new system, including the promulgation and revision of nautical documents and charts.
3. Member Governments are invited to comment on the draft proposed system which is attached hereto. The text will be considered by the Sub-Committee on Safety of Navigation at its seventeenth session (21 - 25 July 1975).

ANNEX IIPROPOSED COMBINED CARDINAL AND LATERAL
SYSTEM OF MARITIME BUOYAGE

1. GENERAL

1.1 Scope

This system applies to all fixed and floating marks, other than lighthouses, sector lights, leading lights, lightships/large navigation buoys, serving to indicate:

- 1.1.1 The lateral limits of navigable channels.
- 1.1.2 Natural dangers and other obstructions such as wrecks.
- 1.1.3 Certain other points of navigational importance to the mariner.
- 1.1.4 New dangers.
- 1.1.5 Obstructions projecting into navigable waters.
- 1.1.6 Areas or features subject to special regulations.

1.2 Methods of application

The system of buoyage provides four categories of marks which may be used in any combination:

- 1.2.1 Lateral marks used in conjunction with a conventional direction of buoyage, generally used for well defined channels. These marks indicate the port and starboard sides of the route to be followed.
- 1.2.2 Cardinal marks used in conjunction with the mariners' compass. These marks indicate the quadrant where the mariner may find navigable water.
- 1.2.3 [Other navigational marks] indicating that there is navigable water all around that position, e.g. mid-channel mark.
- 1.2.4 Special regulation marks indicating the existence of a point of interest or area governed by special regulations.

1.3 Method of characterising marks

The significance of the mark depends upon one or more of the following features:

By night - Colour and rhythm of light

By day - Colour, shape, topmark

2. LATERAL MARKS

2.1 Conventional direction of buoyage

The conventional direction of buoyage may be defined where required, in one of two ways:

2.1.1 The general direction taken by the mariner when approaching a harbour, river, estuary or other waterway from seaward; or

2.1.2 in other areas it should be determined in detail by the appropriate authority in consultation with neighbouring countries. In principle it should follow a clockwise direction around land masses.

In all cases the conventional direction must be indicated in appropriate nautical documents.

2.2 Description of lateral marks

Lateral marks shall be characterised as follows:

2.2.1 Port hand:

Colour - Red
Shape (Buoys) - Can or spar
Topmark (if any) - Single red can

Light (when fitted):

Colour - Red
Rhythm - Any

2.2.2 Starboard hand:

Colour - Green (or black)
Shape (Buoys) - Conical or spar
Topmark (if any) - Single green (or black) cone point up

Light (when fitted):

Colour - Green
Rhythm - Any

Note: Where for technical or visibility reasons an Authority considers that a green colour is not satisfactory, the colour black may be used.

2.2.3 Where port or starboard buoys do not rely upon can or conical shapes for identification they should, where practicable, carry the appropriate topmark.

2.2.4 Numbering or lettering

If marks at the sides of a channel are numbered or lettered, the numbering or lettering shall follow the conventional direction of buoyage. If numbers only are used odd numbers should be placed on the starboard hand and even numbers on the port hand.

3. CARDINAL MARKS

3.1 Definition of cardinal quadrants

3.1.1 The four quadrants (North, East, South and West) are bounded by the true bearings NW-NE, NE-SE, SE-SW, SW-NW taken from the point of interest.

3.1.2 A cardinal mark is named after the quadrant in which it is placed.

3.1.3 The name of a cardinal mark indicates to the mariner that he will find navigable water to the named side of the mark.

3.2 Description of cardinal marks

Marks in each of the different quadrants are characterised as follows:

3.2.1 Northern Quadrant (NW-NE)

Topmark (obligatory) - 2 cones, one above the other, points upwards, painted black

Colour - Yellow with a single broad horizontal black band

Shape - Pillar or spar

Light (when fitted):

Colour - White

Rhythm - 1st choice } To be decided
2nd choice }

3.2.2 Eastern Quadrant (NE-SE)

Topmark (obligatory) - 2 cones, one above the other, base to base, painted black

Colour - Yellow above black

Shape - Pillar or spar

Light (when fitted):

Colour - White

Rhythm - 1st choice } To be decided
 2nd choice }

3.2.3 Southern Quadrant (SE-SW)

Topmark (obligatory) - 2 cones, one above the other,
 points downward, painted black

Colour - Black with a single broad
 horizontal yellow band

Shape - Pillar or spar

Light (when fitted):

Colour - White

Rhythm - 1st choice } To be decided
 2nd choice }

3.2.4 Western Quadrant (SW-NW)

Topmark (obligatory) - 2 cones, one above the other,
 point to point, painted black

Colour - Black above yellow

Shape - Pillar or spar

Light (when fitted):

Colour - White

Rhythm - 1st choice } To be decided
 2nd choice }

Note: The double cone topmark is the most important feature of every cardinal mark by day, and should be as large as practicable, with a clear separation between each cone.

4. OMNI-DIRECTIONAL MARKS

4.1 Definition of omni-directional marks

Omni-directional marks serve to indicate that ships have navigable water all around the mark; these include mid channel marks and landfall marks.

4.2 Description of omni-directional marks

Omni-directional marks shall be characterised as follows:

Colour	- Red and white vertical stripes
Shape	- Spherical (or pillar with spherical topmark)
Topmark (if any)	- Single sphere painted red
Light (when fitted):	
Colour	- White
Rhythm	- Occulting or isophase

5. NEW DANGERS

5.1 Definition of new dangers

The term "new danger" applies to all naturally occurring obstructions such as sandbanks or rocks. It also applies to man made dangers such as wrecks or other hazards to navigation.

5.2 Marking of new dangers

5.2.1 Where it is necessary to draw attention to the presence of a new or recently discovered danger it shall be marked as decided by the appropriate Authority and at least one of the marks shall be duplicated.

5.2.2 Any mark used for this purpose shall have an appropriate cardinal or lateral quick flashing light character.

5.2.3 Any duplicate mark shall be identical to its partner in all respects.

5.2.4 The duplicate mark may be removed when the appropriate Authority is satisfied that information concerning the new danger has been sufficiently promulgated.

5.3 Use of Racons

5.3.1 If a requirement exists for Racons to be used to supplement the marking of new dangers then as few Racons as possible should be used for this purpose, their use being limited to warning mariners of dangers and not for the purpose of being used as navigational aids.

5.3.2 The period during which Racons are used for marking new dangers should be kept as short as possible, bearing in mind the time required to promulgate fully to mariners the information about the new dangers to enable them to amend their charts accordingly.

5.3.3 To distinguish them from standard navigation Racons, those used for marking new dangers can have an increased frequency sweep speed, and the length of the signal can be reduced to 1 nautical mile on the radar display.

5.3.4 The Morse code letter "W" (for warning) should be reserved for Racons marking new dangers and not used for any other purpose, bearing in mind that under certain circumstances the first dot of the Morse code signal can be lost.

5.4 Vessels marking new dangers

Authorized stationary vessels marking new dangers may display cardinal or lateral lights and/or shapes as appropriate. Stationary vessels may also operate the Racon described in paragraph 5.3.

6. SPECIAL REGULATION MARKS

6.1 Definition of special regulation marks

Marks not primarily intended to assist navigation but which indicate an area or feature subject to special regulations. Such marks include among others:

6.1.1 Ocean Data Acquisition Systems (ODAS) marks

6.1.2 Spoil ground marks

6.1.3 Military or danger zone marks

6.1.4 Cable or pipe line marks

6.2 Description of special regulation marks

Special regulation marks shall be characterised as follows:

Colour	- Blue or blue and white
Shape	- Optional but not conflicting with navigational marks in the area
Topmark (if any)	- Optional but not conflicting with navigational marks in the area

Light (when fitted):

Colour - Blue

Rhythm - Any

7. UNDEFINED MARKS

In national pilotage waters in exceptional cases where this system is insufficient to give navigators relevant information and/or where it is incompatible with local conditions, the Administration responsible may establish marks not defined in this system.

The characteristics of these marks should be chosen in such a way as to avoid confusion with the marks contained in this system; in particular in no circumstances should the colours red or green be used.

8. MISCELLANEOUS

8.1 Fixed lights

The use of single fixed lights, especially white lights on fixed and floating marks, which serve the sole purpose of the marking of a channel should be avoided wherever practicable.

8.2 Coloured sector lights and leading lights

Where coloured sectors are used in lights forming part of a buoyage system, it is desirable, when circumstances permit, that their colours and rhythms are compatible with the provisions of paragraph 2.2.

In cases where it is not considered practicable, the colours should preferably be allocated in accordance with a definite rule laid down for a particular region, in order that the sectors may be arranged in the same manner when the circumstances are similar.

Where a leading light or lights might be mistaken for a light or lights forming part of a buoyage system, the colours and rhythms should be in accordance with one or other of the principles laid down in the preceding paragraphs.

8.3 Fixed supports for lights

Fixed supports for lights forming part of the lateral system of buoyage should, as far as practicable, be painted in the colour characteristic of the position of the light in that system. If the correct characteristic colour cannot be used, the opposite characteristic colour should be avoided.
