IALA MARITIME BUOYAGE SYSTEM

INTRODUCTION AND DESCRIPTION

Introduction

General information

1.1

The severest test of a buoyage system occurs when the Mariner is confronted unexpectedly at night or in low visibility by the lights marking an uncharted danger, such as a recent wreck; immediately he must instinctively, positively and correctly decide what he must do.

In the Dover Strait in 1971 the Brandenburg struck the wreck of the Texaco Caribbean and sank, though the wreckage was appropriately marked. A few weeks later the wreckage, despite being marked by a wreck—marking vessel and many buoys, was struck by the Niki, which also sank. A total of 51 lives was lost. It was this disaster which gave rise to the development and implementation of the IALA Maritime Buoyage System.

Development

1.2

The beginnings of a uniform system of buoyage emerged in 1889, when certain countries agreed to mark the port hand side of channels with black can buoys and the starboard hand with red conical buoys.

Unfortunately, when lights for buoys were introduced, some European countries placed red lights on the black port hand buoys to conform with the red lights marking the port hand side of harbour entrances, whilst throughout North America red lights were placed on the red starboard hand buoys.

Thereafter various conferences sought a single buoyage system, but without success until 1936, when a system was drawn up under the League of Nations at Geneva. It established a Cardinal system, and a Lateral system, with the principle that red buoys should be used on the port hand and black buoys on the starboard hand. However, several countries were not signatories to this Convention and continued to develop their original, and opposite systems.

After World War II (1939–45) buoyage systems were re-established in North-west Europe based on the system devised by the 1936 Geneva Convention, but wide differences in interpretation of that system resulted in nine different systems coming into use in those waters.

In 1973, observing the need for urgency, a further attempt to find a single world-wide system of buoyage was made by the Technical Committee of the International Association of Lighthouse Authorities (IALA). IALA is a non-governmental body which brings together representatives from the aids to navigation services in order to exchange information and recommend improvements to navigational aids based on the latest technology.

IALA decided that agreement could not be achieved immediately, but concluded that the use of only two alternative systems was practicable by dividing the world into two Regions. It proposed a system allowing the use of both Cardinal and Lateral systems in each Region but, whereas in Region A the colour red of the Lateral system is used to mark the port hand side of channels and the colour green the starboard hand side when proceeding in the conventional direction of buoyage, in Region B the colours are reversed.

Implementation

1.3

In 1980, at a conference convened with the assistance of the Inter-Governmental Maritime Consultative Organization (IMCO), now the International Maritime Organization (IMO), and the International Hydrographic Organization (IHO), the lighthouse authorities from fifty countries and the representatives of nine international organizations concerned with aids to navigation agreed to adopt the rules of the new combined system, and reached decisions on the buoyage Regions.

The IALA System has now been implemented throughout much of the world. In some parts, however, conversion to the new system is still incomplete. An implementation diagram showing the latest position is included in the Supplement to The Mariner’s Handbook.

In certain areas, such as North America and the inland waterways of Western Europe, the IALA System is used with modifications which are described in Admiralty Sailing Directions.

Alterations to charts

1.4

In the past, when replacement of an existing buoyage system by the IALA System involved extensive changes, careful preparations and announcements were made so that the charts affected, corrected up-to-date for both old and new systems, could be available during the period of change.

However, whilst most major alterations of buoyage to the IALA System have now been completed, there are still some places where the buoyage does not conform to that System. Some ports will convert their buoyage piecemeal and only when other buoyage changes make it convenient, others have yet to announce plans to conform to the IALA System.
Progress towards completion of the change to the IALA System is, therefore, likely to be gradual, and notice of change, if given, is likely to be short.

When a system of buoyage is changed, however, corrections enabling charts to be kept up-to-date will be promulgated, as before, by the most appropriate means, either by Notices to Mariners or by issuing New Editions of affected charts.

**Description of the System**

**Scope**

**1.5**

The System applies to all fixed and floating marks, other than lighthouses, sector lights, leading lights and marks, lanbys, certain large light—floats, and light—vessels. It serves to indicate:

- Sides and centrelines of navigable channels;
- Navigable channels under fixed bridges;
- Natural dangers and other obstructions such as dangerous wrecks (which are described as ‘New Dangers’ when newly discovered and uncharted);
- Areas in which navigation may be subject to regulation;
- Other features of importance to the Mariner.

**Chart symbols and abbreviations**

**1.6**

To meet the needs of the IALA Buoyage System, new symbols and abbreviations, and altered ones, are being incorporated in Admiralty charts when they are corrected or reprinted for use with the System. They are given in *Chart 5011 – Symbols and Abbreviations used on Admiralty Charts* and illustrated in Diagrams 9, 10 and 11.

**Marks**

**1.7**

Five types of mark are provided by the System: Lateral, Cardinal, Isolated Danger, Safe Water and Special marks. They may be used in any combination. The way in which Cardinal and Lateral marks can be combined is illustrated in Diagrams 10 and 11.

Most lighted and unlighted beacons, other than leading marks, are included in the System. In general, beacon topmarks have the same shapes and colours as those used on buoys. Because of the variety of beacon structures, the accompanying diagrams show mainly buoy shapes.

Wrecks are marked in the same way as other dangers; no unique type of mark is reserved for them in the IALA System.

**Colours**

**1.8**

Red and green are reserved for Lateral marks, and yellow for Special marks. Black and yellow or black and red bands, or red and white stripes, are used for other types of marks as described later.

**1.9**

**On Admiralty charts** the shading of buoy symbols formerly used to indicate the colours of buoys is omitted. A black (ie filled—in) symbol is used for predominantly green marks and for all spar buoys and beacons; an open symbol is used for all buoys and beacon towers of other colours, but with a vertical line to indicate striped Safe Water buoys.

The abbreviated description of the colour, or colours, of a buoy is given under the symbol.

Where a buoy is coloured in horizontal bands the colours are indicated in sequence from the top, eg East buoy – Black with yellow band – BYB. If the sequence of the bands is not known, or if the buoy is striped vertically, the colours are indicated with the darker colour first eg Safe Water buoy – Red and white stripes – RW.

**Shapes**

**1.10**

Five basic shapes were defined when the System was devised: Can, Conical, Spherical, Pillar and Spar.

To these must be added light—floats, as well as buoyant beacons (which are charted as light—beacons).

Variations in the basic shapes may be common for a number of years after the introduction of the IALA System to a particular locality, since much existing equipment will continue in use.

Can, conical and spherical buoys indicate by their shape the correct side to pass.

Marks that do not rely on their shape for identification carry the appropriate topmark whenever practicable. However, in some parts of the world, including US waters, light—buoys have identical shapes on both port and starboard hand sides of Laterally—marked channels, and are not fitted with topmarks. Also in US waters, a buoy with a conical or truncated conical top, known as a nun buoy, is used to mark the starboard hand side of the channel.

**On Admiralty charts** the symbol for a spar buoy is also used to indicate a spindle buoy. The symbol will, as before, be sloped to distinguish it from a beacon symbol which is upright.

If the shape of a buoy of the IALA System is not known, a pillar buoy symbol is used. See *Chart 5011*.

**Topmarks**

**1.12**

Can, conical, spherical and X—shaped topmarks are the only topmarks used.

On pillar and spar buoys the use of topmarks is particularly important, though ice or severe weather may at times prevent it.

**1.13**

**On Admiralty charts** topmarks are shown boldly in solid black, except when the topmark is red, when it is in outline only. See *Chart 5011*. 
Lights
1.14
Where marks are lighted red and green lights of the IALA System are reserved for Lateral marks and yellow lights for Special marks.

White lights, distinguished one from another by their rhythm, are used for other types of mark.

It is possible that some shore lights, specifically excluded from the IALA System may, by coincidence, have similar characteristics to those of the buoyage system. Care is needed in sighting such lights that they are not misinterpreted.

Retroreflectors
1.15
Two codes, the Standard Code and the Comprehensive Code, are used for distinguishing unlighted marks at night by securing to them, in particular patterns, retroreflective material to reflect back light. In any specified area only one of the codes is used. The code in use will, if known, be mentioned in Admiralty Sailing Directions.

Standard Code uses the following markings:

- **Red lateral marks**: One red band or red shape similar to the topmark.
- **Green Lateral marks**: One green band or green shape similar to the topmark.
- **Preferred Channel marks**: As for red or green Lateral marks, depending on the dominant colour of the mark.
- **Special marks**: One yellow band, yellow X or yellow symbol.
- **Cardinal, Isolated Danger and Safe Water marks**: One or more white bands, letters, numerals or symbols.

Comprehensive Code uses the same markings for Lateral and Special marks, but separate markings for distinguishing Cardinal, Isolated Danger and Safe Water marks, which are given later in the descriptions of those marks.

Radar reflectors
1.16
On the introduction of the System it was decided not to chart radar reflectors. It can be assumed that most major buoys are fitted with radar reflectors.

New Dangers

Definition
1.17
A newly discovered hazard to navigation not yet shown on charts or included in Sailing Directions, nor sufficiently promulgated by Notices to Mariners, is termed a New Danger. The term covers naturally occurring obstructions such as sandbanks or rocks, and man-made dangers such as wrecks.

Marking
1.18
**Cardinal or Lateral marks**, one or more, are used to mark New Dangers in accordance with the IALA System.

If the danger is especially grave at least one of the marks will be duplicated, as soon as practicable, by an identical mark, until the danger has been sufficiently promulgated.

**A quick or very quick light** will be exhibited from a New Danger mark if it is lighted. If it is a Cardinal mark, it will exhibit a white light, if a Lateral mark, a red or a green light.

**A racon, Morse code D**, showing a signal length of 1 nautical mile on a radar display, may be used to mark a New Danger.

See Diagrams 10 and 11.

LATERAL MARKS

Use
2.1
Lateral marks are generally used for well defined channels, in conjunction with a Conventional Direction of Buoyage. They indicate the port and starboard hand sides of the route to be followed.

Conventional Direction of Buoyage
2.2
The Conventional Direction of Buoyage is defined in one of two ways:

**Local Direction of Buoyage**. The direction taken by the Mariner when approaching a harbour, river, estuary, or other waterway from seaward;

**General Direction of Buoyage**. The direction determined by the buoyage authorities, based wherever possible on the principle of following a clockwise direction around continents. It is usually given in Admiralty Sailing Directions and, if necessary, indicated on charts by the appropriate symbol. Diagram 1 illustrates how the General Direction gives way to the Local Direction at the outer limit of the Thames Estuary.

Around the British Isles the General Direction of Buoyage runs N along the W coast and through the Irish Sea; E through the English Channel and N through the North Sea.
2.3 **On Admiralty charts** the Conventional Direction of Buoyage may be indicated by magenta arrow symbols.

In some straits (e.g., Menai Strait and The Solent) and in the open sea (e.g., off the Irish coast at Malin Head), where direction changes, attention is drawn to its reversal by magenta arrow symbols confronting each other.

On many coasts and in some straits, world-wide, buoyage authorities have not yet established or promulgated General Direction of Buoyage. It is, therefore, not possible to chart the magenta symbol in such areas. This could be hazardous if a New Danger were to be marked by Lateral buoys.

**Buoyage Regions**

2.4 The boundaries of the two Buoyage Regions, A and B, in which the colours of Lateral marks and their lights are reversed, are shown in Diagram 2.

**Preferred Channels**

2.5 When proceeding in the Conventional Direction of Buoyage, at the point where a channel divides to form two alternative channels to the same destination, the Preferred Channel is indicated by a modified Lateral mark. The System does not provide for a Preferred Channel mark where the two channels re-join.

**Colours**

2.6 Red and green are the colours reserved for Lateral marks.

**Topmarks**

2.7 Port-hand marks carry can-shaped topmarks, and starboard-hand marks carry conical topmarks, when fitted.

**Lights**

2.8 When exhibited, red and green lights are used for Lateral marks.

Lighted Lateral marks used for certain purposes have lights with specified rhythms:
- Composite Group Flashing $(2 + 1)$ for Preferred Channel marks;
- Quick or Very Quick for New Danger marks.

Other Lateral marks may have lights of any rhythm.

**Sequence**

2.9 If marks at the side of a channel are numbered or lettered, the sequence follows the Conventional Direction of Buoyage.

**Special marks**

2.10 Can and cone shapes coloured yellow may be used as Special marks in conjunction with the Lateral marks for special types of channel marking. See 6.1.
LATERAL MARKS — REGION A

This diagram is schematic and in the case of pillar buoys in particular, their features will vary with the individual design of the buoys in use.

PORT HAND

Colour: Red.
Shape: Can, pillar or spar.
Topmark (when fitted): Single red can.
Retroreflector: Red band or square.

STARBOARD HAND

Colour: Green.
Shape: Conical, pillar or spar.
Topmark (when fitted): Single green cone point upward.
Retroreflector: Green band or triangle.

LIGHTS, when fitted, may have any rhythm other than composite group flashing (2+1) used on modified Lateral marks indicating a preferred channel. Examples are:

Red light
Q.R  Continuous-quick light
Fl.R Single-flashing light
LFl.R Long-flashing light
Fl(2)R Group-flashing light

Green light
Q.G  Continuous-quick light
Fl.G Single-flashing light
LFl.G Long-flashing light
Fl(2)G Group-flashing light

The lateral colours of red or green are frequently used for minor shore lights, such as those marking pierheads and the extremities of jetties.

PREFERRED CHANNELS

At the point where a channel divides, when proceeding in the conventional direction of buoyage, a preferred channel is indicated by a modified port or starboard hand Lateral mark as follows:

Preferred channel to starboard
Colour: Red with one broad green band.
Shape: Can, pillar or spar.
Topmark (when fitted): Single red can.
Retroreflector: Red band or square.

Preferred channel to port
Colour: Green with one broad red band.
Shape: Conical, pillar or spar.
Topmark (when fitted): Single green cone point upward.
Retroreflector: Green band or triangle.

NOTES

Where port or starboard marks do not rely on can or conical buoy shapes for identification, they carry the appropriate topmark where practicable.

If marks at the sides of a channel are numbered or lettered, the numbering or lettering follows the conventional direction of buoyage.

Special marks, with can and conical shapes but painted yellow, may be used in conjunction with the standard Lateral marks for special types of channel marking; see 2.10.

Diagram 3
LATERAL MARKS — REGION B

This diagram is schematic and in the case of pillar buoys in particular, their features will vary with the individual design of the buoys in use.

PORT HAND

Colour: Green.
Shape: Can, pillar or spar.
Topmark (when fitted): Single green can.
Retroreflector: Green band or square.

STARBOARD HAND

Colour: Red.
Shape: Conical, pillar or spar.
Topmark (when fitted): Single red cone, point upward.
Retroreflector: Red band or triangle.

LIGHTS, when fitted, may have any rhythm other than composite group flashing (2+1) used on modified Lateral marks indicating a preferred channel. Examples are:

Green light
Q.G
F.L.G
L.F.L.G
F.L(2).G

Continuous-quick light
Single-flashing light
Long-flashing light
Group-flashing light

Red light
Q.R
F.L.R
L.F.L.R
F.L(2).R

The lateral colours of red or green are frequently used for minor shore lights, such as those marking pierheads and the extremities of jetties.

PREFERRED CHANNELS

At the point where a channel divides, when proceeding in the conventional direction of buoyage, a preferred channel is indicated by a modified port or starboard hand Lateral mark as follows:

Preferred channel to starboard
Colour: Green with one broad red band.
Shape: Can, pillar or spar.
Topmark (when fitted): Single green can.
Retroreflector: Green band or square.

Preferred channel to port
Colour: Red with one broad green band.
Shape: Conical, pillar or spar.
Topmark (when fitted): Single red cone point upward.
Retroreflector: Red band or triangle.

Green light
F.L(2+1).G

Composite group flashing (2+1) light

Red light
F.L(2+1).R

NOTES

Where port or starboard marks do not rely on can or conical buoy shapes for identification, they carry the appropriate topmark where practicable.

If marks at the sides of a channel are numbered or lettered, the numbering or lettering follows the conventional direction of buoyage.

Special marks, with can and conical shapes but painted yellow, may be used in conjunction with the standard Lateral marks for special types of channel marking; see 2.10.

Diagram 4

7
CARDINAL MARKS

Names
3.1
Cardinal marks are used in conjunction with the compass to indicate where the Mariner may find the best navigable water. They are placed in one of the four quadrants (North, South, East and West) bounded by inter-cardinal bearings, from the point marked. Cardinal marks take their name from the quadrant in which they are placed.

The Mariner is safe if he passes N of a North mark, E of an East mark, S of a South mark and W of a West mark.

Uses
3.2
Cardinal marks may be used to:
Indicate that the deepest water in an area is on the named side of the mark;
Indicate the safe side on which to pass a danger;
Draw attention to a feature in a channel such as a bend, junction, bifurcation, or end of a shoal.

Topmarks
3.3
Black double-cone topmarks are a very important feature of Cardinal marks; they are carried whenever practicable, with cones as large as possible and clearly separated.

The arrangement of the cones must be memorised. More difficult to remember than North ‡ and South § are East ‡ and West § topmarks; ‘W for Wineglass’ may help.

Colours
3.4
Black and yellow bands are used to colour Cardinal marks.

The position of the black band, or bands, is related to the points of the black topmark, thus:

<table>
<thead>
<tr>
<th>Direction</th>
<th>Points Up</th>
<th>Points Down</th>
<th>Points Inward</th>
<th>Points Outward</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Points up</td>
<td>Black band above yellow band;</td>
<td>Black band below yellow band;</td>
<td>Black band with yellow bands above and below;</td>
</tr>
<tr>
<td>South</td>
<td>Points down</td>
<td>Black band above yellow band;</td>
<td>Black band below yellow band;</td>
<td>Black bands above and below;</td>
</tr>
<tr>
<td>West</td>
<td>Points inward</td>
<td>Black band with yellow bands above and below;</td>
<td>Black bands above and below;</td>
<td>Black bands above and below yellow band.</td>
</tr>
</tbody>
</table>

Shape
3.5
The shape of Cardinal marks is not significant, but, in the case of a buoy it is a pillar or spar.

Lights
3.6
White lights are exhibited from Cardinal marks which are lighted. Their characteristics are based on a group of quick or very quick flashes which distinguish them as Cardinal marks and indicate their quadrant.

The distinguishing quick or very quick rhythms are:

<table>
<thead>
<tr>
<th>Direction</th>
<th>Flash Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Uninterrupted;</td>
</tr>
<tr>
<td>East</td>
<td>3 flashes in a group;</td>
</tr>
<tr>
<td>South</td>
<td>6 flashes in a group followed by a long flash;</td>
</tr>
<tr>
<td>West</td>
<td>9 flashes in a group.</td>
</tr>
</tbody>
</table>

To aid the memory, the number of flashes in each group can be associated with a clock face, thus:

3 o’clock East;
6 o’clock South;
9 o’clock West.

The long flash (of not less than 2 seconds duration) immediately following the group of flashes of a South Cardinal mark, is to ensure that its 6 flashes cannot be mistaken for 3 or 9.

The periods of the East, South and West lights are, respectively, 10, 15, and 15 seconds if a quick light, and 5, 10, and 10 seconds if a very quick light.

Quick lights flash at a rate between 50 and 79 flashes per minute, usually either 50 or 60. Very quick lights flash at a rate between 80 and 159 flashes per minute, usually either 100 or 120.

Retroreflectors
3.7
One or more white bands, letters, numerals or symbols of retroreflective material are used in the Standard Code to distinguish unlighted Cardinal marks.

Blue and yellow bands on the black and yellow parts of the mark are used in the Comprehensive Code, thus:

<table>
<thead>
<tr>
<th>Direction</th>
<th>Colour Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Blue on the black part and yellow on the yellow part;</td>
</tr>
<tr>
<td>East</td>
<td>2 blue on the upper black part;</td>
</tr>
<tr>
<td>South</td>
<td>Yellow on the yellow part and blue on the black part;</td>
</tr>
<tr>
<td>West</td>
<td>2 yellow on the upper yellow part.</td>
</tr>
</tbody>
</table>
CARDINAL MARKS

Colour: Black and Yellow
Shape: Pillar or Spar (if a buoy)
Topmark: Two black cones
Retroreflector: Blue and/or Yellow

NOTES

†Retroreflectors illustrated are those of the Comprehensive Code. In the Standard Code these marks are distinguished by one or more white bands, letters, numerals or symbols.

This diagram is schematic and in the case of pillar buoys in particular, their features will vary with the individual design of the buoys in use.

LIGHTS, when fitted, are white Very Quick Lights or Quick Lights; a South mark also has a Long Flash immediately following the quick flashes.
ISOLATED DANGER MARKS

<table>
<thead>
<tr>
<th>Colour</th>
<th>Black and Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape</td>
<td>Pillar or Spar (if a buoy)</td>
</tr>
<tr>
<td>Topmark</td>
<td>Two black spheres</td>
</tr>
<tr>
<td>Retroreflector</td>
<td>Blue and Red</td>
</tr>
</tbody>
</table>

Light (when fitted): White, Group-flashing (2).

Diagram 6

NOTES

*Retroreflectors illustrated are those of the Comprehensive Code. In the Standard Code these marks are distinguished by one or more white bands, letters, numerals or symbols.

This diagram is schematic and in the case of pillar buoys in particular, their features will vary with the individual design of the buoys in use.

Use

4.1

Isolated Danger marks are erected on, or moored on or above, isolated dangers of limited extent which have navigable water all around them. The extent of the surrounding navigable water is immaterial: such a mark can, for example, indicate either a shoal which is well offshore, or an islet separated from the coast by a narrow channel.

4.2

On Admiralty charts the position of a danger is the centre of the symbol or sounding indicating the danger. The symbol indicating the Isolated Danger buoy will inevitably be slightly displaced.

Topmark

4.3

Black double-sphere topmarks, disposed vertically, are a very important feature of Isolated Danger marks and are carried whenever practicable.

Colours

4.4

Black with one or more red bands are the colours used for Isolated Danger marks.

Shape

4.5

No significance is attached to the shape of an Isolated Danger mark but, in the case of a buoy, either a pillar or spar buoy is used.

Light

4.6

A white flashing light showing a group of two flashes is used to denote an Isolated Danger mark. The association of two flashes and the two spheres in the topmark may help in remembering these characteristics.

Retroreflectors

4.7

One or more white bands, letters, numerals or symbols of retroreflective material are used in the Standard Code to distinguish unlighted Isolated Danger marks.

One or more pairs of blue above red bands are used in the Comprehensive Code.
SAFE WATER MARKS

<table>
<thead>
<tr>
<th>Colour</th>
<th>Red and White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape</td>
<td>Spherical, Pillar or Spar</td>
</tr>
<tr>
<td>Topmark</td>
<td>Red sphere</td>
</tr>
<tr>
<td>Retroreflector</td>
<td>Red and White</td>
</tr>
</tbody>
</table>

Light (when fitted): White, Isophase, or Occulting, or Long-Flashing every 10 seconds, or Morse Code (A).

ISO

Oc

LFI, 10s

Mo(A)

†Retroreflectors illustrated are those of the Comprehensive Code. In the Standard Code these marks are distinguished by one or more white bands, letters, numerals or symbols.

NOTES

This diagram is schematic and in the case of pillar buoys in particular, their features will vary with the individual design of the buoys in use.

Diagram 7

Use
5.1
Safe Water marks are used to indicate that there is navigable water all round a mark. Such a mark may be used as a centreline, mid-channel or landfall buoy, or to indicate the best point of passage under a fixed bridge.

Topmark
5.2
A red spherical topmark is a very important feature if the buoy is not spherical, and is fitted whenever practicable.

Colours
5.3
Red and white stripes are used for Safe Water marks, and distinguish them from the black–banded danger marks.

Shape
5.4
Spherical, pillar or spar buoys are used as Safe Water marks.

Light
5.5
A white light, occulting, or isophase, or showing a single long flash or Morse Code A is used for Safe Water marks, when lighted.
If a long flash (ie a flash of not less than 2 seconds) is used, the period of the light is 10 seconds.

Retroreflectors
5.6
One or more white bands, letters, numerals or symbols of retroreflective material are used in the Standard Code to distinguish unlighted Safe Water marks.
Red and white stripes or bands are used in the Comprehensive Code.
SPECIAL MARKS

Diagram 8

Use
6.1 Special marks may be used to indicate to the Mariner a special area or feature, the nature of which is apparent from reference to a chart, Sailing Directions or Notices to Mariners. Special marks may be lettered to indicate their purpose.

Uses include the marking of:
- Ocean Data Acquisition System (ODAS) buoys;
- Traffic Separation Schemes where use of the conventional channel marking might cause confusion, though many schemes are marked by Lateral and Safe Water marks;
- Spoil grounds;
- Military exercise zones;
- Cables or pipelines, including outfall pipes;
- Recreation zones.

Another function of Special marks is to define a channel within a channel. For example a channel for deep-draught vessels in a wide estuary, where the limits of the channel for normal navigation are marked by red and green Lateral buoys, may have the boundaries of the deep channel indicated by yellow buoys of the appropriate Lateral shapes, or its centreline marked by yellow spherical buoys.

Topmark
6.2 A single yellow X is the form of topmark used for a Special mark, when one is carried.

Colour
Yellow is the colour used for Special marks.

Shape
6.4 The shape of Special buoys is optional but they must not conflict with those used for a Lateral or Safe Water mark. For example, an outfall buoy on the port hand side of a channel could be can-shaped but not conical.

Lights
6.5 A yellow light is used, when one is exhibited. The rhythm may be any, other than those used for Cardinal, Isolated Danger and Safe Water marks. The following are permitted examples:
- Group occulting;
- Flashing;
- Group flashing with a group of 4, 5 or (exceptionally) 6 flashes;
- Composite group flashing;
- Morse Code letters, other than Morse Code A, D or U.

In the case of ODAS buoys, the rhythm is group flashing with a group of 5 flashes every 20 seconds.

Retroreflectors
6.6 One yellow band, an X, or a symbol are used as retroreflectors to distinguish unlighted Special marks.
CHART SYMBOLS AND ABBREVIATIONS

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 LANEYS.

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.

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

Port-hand marks are red with cylindrical topmarks (if any). Lights are red and have any rhythm except Fl(2+1)/R.

Port-hand marks are green with conical topmarks (if any). Lights are green and have any rhythm except Fl(2+1)/G.

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

Cardinal Marks indicating navigable water to the named side of the marks. Cardinal marks have the same meaning in Regions A and B.

**UNLIT MARKS**

- **NW**
  - Topmark: 2 black cones
  - North Mark: Black above yellow
- **West Mark**
  - Yellow with black band
- **South Mark**
  - Yellow above black
- **SE**
  - Topmark: 2 black spheres

**LIGHTED MARKS**

- **North Mark**
  - VQ or G
- **East Mark**
  - VQ(3)/10s or Q(3)/10s
- **South Mark**
  - VQ(3)+L(12)/10s or Q(3)+L(12)/10s
- **West Mark**
  - VQ(3)/10s or Q(3)/15s

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

**Isolated Danger Marks**, stationed over dangers with navigable water around them.

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

**Safe Water Marks**, such as mid-channel and landfall marks.

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

**Special Marks**, not primarily to assist navigation but to indicate special features.

- **Body**: (shape optional) yellow
- **Topmark (if any)**: yellow X

† Indicates that this representation is obsolete.

Diagram 9
REGION A

Example of Buoyage

NOTE
For symbols and abbreviations, see Chart 5011.

REGION A
Representation on charts

Diagram 10
The Lateral Buoyage marking the channels is Green to Port, related to the Conventional Direction of Buoyage. Off the coast, the direction of buoyage in this area is from east to west, within the estuary, it is the direction taken by the mariner when approaching from seaward.

NOTE
The wreck is a New Dargan, too recent to have been charted. See 1.17.