

Buoys, marks and beacons

February 2011

Purpose of marks

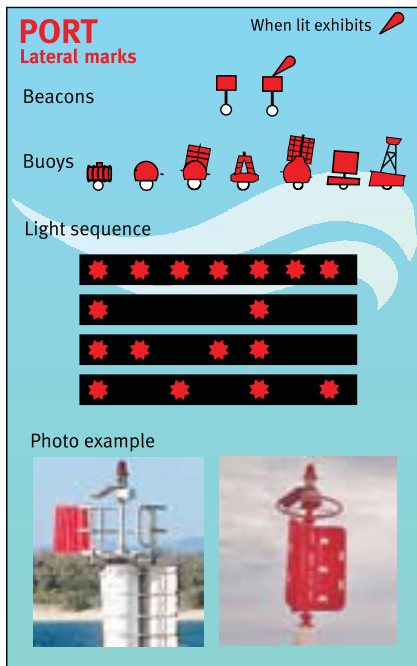
Traffic signs and lights guide drivers on the roads. Buoys and beacons do the same on the water, giving direction and alerting mariners of potential dangers. In Queensland, the system of buoys, marks and lights used is known as the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Buoyage System 'A'.

Each type of mark has a unique combination of colour, shape, top mark and light. To navigate safely mariners need to be familiar with each mark and its meaning.

Lateral marks

Port and starboard marks are referred to as lateral marks. They indicate the port and starboard hand sides of navigable waters (channels).

When a port and starboard mark are placed opposite each other, travel between them. Often lateral marks are not placed in pairs. In these instances, the safe side to pass is generally determined by the direction of travel to or from the sea.



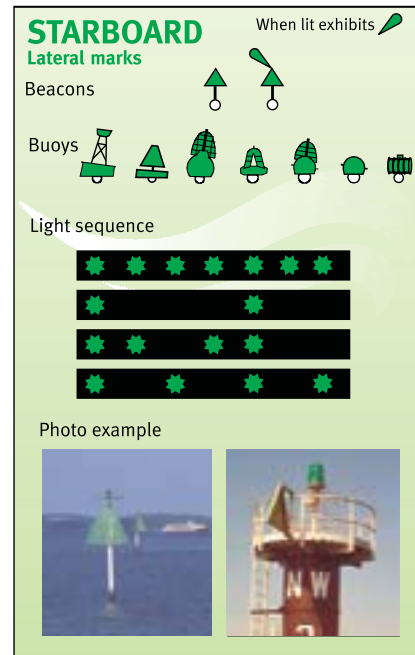
When going upstream (away from the sea):

- Keep red (port hand marks) on the left-hand side (to port).
- Keep green (starboard hand marks) on the right-hand side (to starboard).



When going downstream (towards the sea):

- Keep red (port hand marks) on the right-hand side (to starboard).
- Keep green (starboard hand marks) on the left-hand side (to port).



Where there is doubt, the direction of buoyage is indicated on charts by the symbol on the right.



Light sequence

By night a port buoy shows a red light and a starboard buoy shows a green light. Any rhythm may be used.

Cardinal marks

Cardinal marks, used with a compass, indicate where the safest water may be found. A cardinal mark may indicate the deepest water in the area, the safe side on which to pass a danger or may draw attention to a feature in a channel such as a bend, junction or an end of a shoal.

You should pass on the eastern side of an east cardinal mark, on the southern side of a south cardinal, on the western side of a west cardinal and on the northern side of a north cardinal.

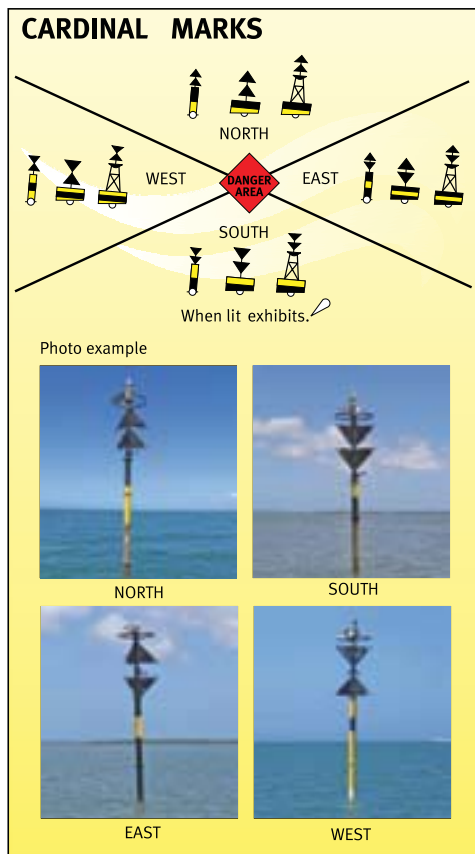
By day, cardinal marks are identified by a 'top mark' made up of two black triangles or cones.

North: The apex of the two triangles/cones point upwards.

South: The apex of the two triangles/cones point downwards.

East: The apex of the two triangles/cones point outwards (the shape of a diamond).

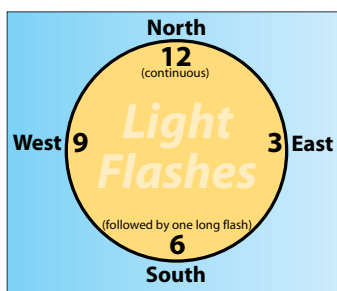
West: The apex of the two triangles/cones point inwards (the shape of a wineglass).



Light sequence

Cardinal marks, when lighted, all display a quick flashing, white light. To aid memory, associate the number of flashes with a clock face: three flashes indicate east, six flashes followed by a long flash indicate south, nine flashes indicate west, and 12 flashes indicate north. North flashes continually.

To ensure that no confusion occurs between east, south and west cardinal marks, a long flash immediately follows the six flashes of the south mark.



Special marks

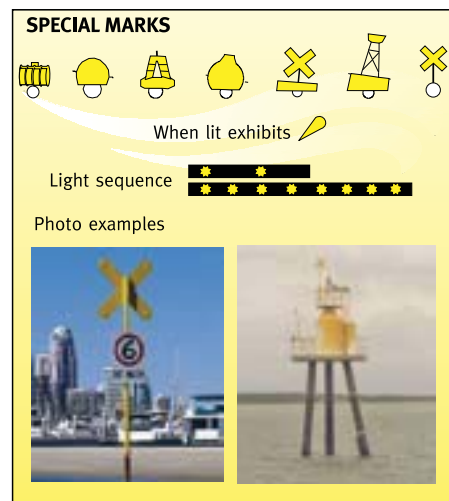
This indicates a special area or feature such as traffic separation, spoil ground, cable or pipelines including outfall pipes and groynes. They can also define a channel within a channel, for example, a channel for deep draught boats in a wide estuary where the limits of the channel for normal navigation are marked by red and green lateral marks.

They will also be found at the intersection of two channels where the use of a lateral or cardinal mark may not be appropriate.

As a general rule, consult a chart to see which side to pass.

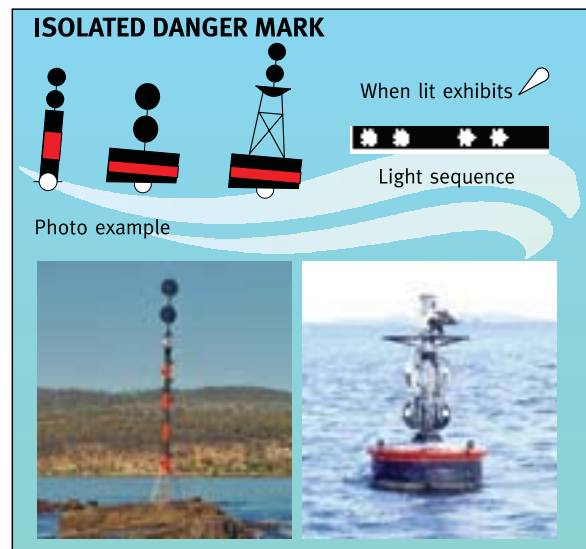
Light sequence

At night the light is yellow and the rhythm may be any other than those used for the white light of a cardinal, isolated danger and safe water marks.



Isolated danger marks

These marks indicate an isolated danger (for example rocks, reef, shoal or wreck) with navigable water all around it – but don't pass too close. The chart should be consulted to determine the extent of the danger.



Light sequence

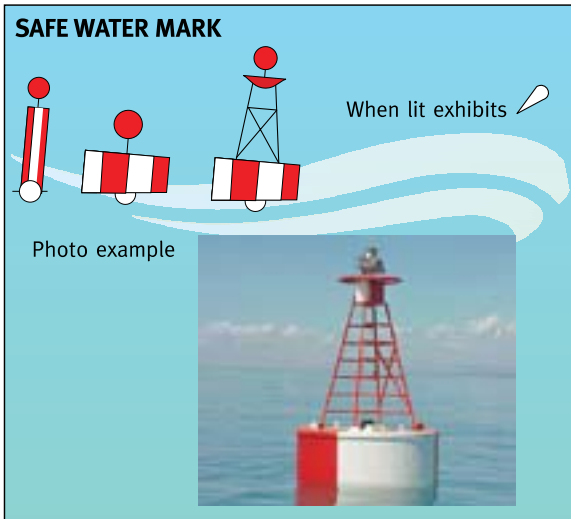
At night a white flashing light shows groups of two flashes. The best way to remember this is to associate two flashes with two spheres as the top marks.

Safe water marks

These marks indicate there is navigable water all around the mark, for example, mid channel. In Queensland they are used to mark the seaward beginning of fairways entering major ports.

Light sequence

At night a white light shows a single long flash every 10 seconds. To remember this, associate a single sphere with a single flash.



Emergency wreck-marking buoy

The emergency wreck-marking buoy is designed to provide high visual and radio aid to navigation recognition. They are placed as close to the wreck as possible, or in a pattern around the wreck, and within any other marks that may be subsequently deployed.



Other navigational aids

There are a number of other aids to navigation that all boat operators should be aware of that do not form part of the IALA system.

Leads

Leading beacons/lights are commonly in the shape of a triangle. The front beacon has its apex upwards and the rear beacon is inverted. When the leads are in line, it indicates you are travelling in the centre of the channel.

Given leads are usually in larger channels, open them up a little to starboard to keep to the side of the channel. Leads show the centre of the channel which is not consistent with the rule advising boats to travel as far to the starboard side of a channel as is safe and practicable. This is especially important at night.

Lighting

Leads are usually distinguished by fixed white day lights. At night, major leads are lit. Increasingly, blue is a favoured light colour for leads where there is a great deal of background lighting.



Blue middle channel mark (bridge lights)

These lights indicate the centre of the channel passing under the bridge. On a chart, bridge lights are normally shown as a star with a flash symbol (the actual blue light is fixed). The navigable channel under the light may not always be in the centre of the bridge.



Directional and sector lights

Directional and sector lights are installed to assist navigation in inshore waters. A directional light may show only through a very small arc (less than 60°) and serves a similar purpose to leading lights.

