

DGPS

NLB recognises that most classes of vessel today navigate using significant input from Global Navigation Satellite Systems (GNSS), particularly GPS, but notes that such systems are vulnerable to errors, loss of reception and interference.

NLB monitors the performance of GPS at four sites, and transmits a differential correction signal to improve the integrity and the accuracy of GPS. In order to utilise this information, users require a DGPS beacon receiver.

eLORAN

The General Lighthouse Authorities of the UK and Ireland consider that the risk of interference or signal outage to GNSS merits the transmission of a terrestrial navigation signal, to facilitate the electronic navigation of vessels if GNSS is not available. This is done in conjunction with our European partners by the transmission of an enhanced Loran (eLORAN) signal, from a site at Anthorn, Cumbria.

eLORAN is dissimilar to GNSS as it is a high power, low frequency signal and is therefore very robust. It is capable of providing position accuracies similar to basic GNSS.

The Automatic Identification System (AIS)

AIS is fitted on board all larger vessels to allow for identification of the vessel and reduce the risk of collision. NLB uses AIS to monitor vessel traffic patterns around the Scottish Coast, and thus improve the provision of all Aids to Navigation. NLB is running a programme to fit AIS units to selected buoys, to indicate their current position to the mariner, and to transmit additional meteorological and hydrological data. In the future it will also be feasible to transmit virtual aids to navigation for the immediate marking of new dangers such as wrecks.

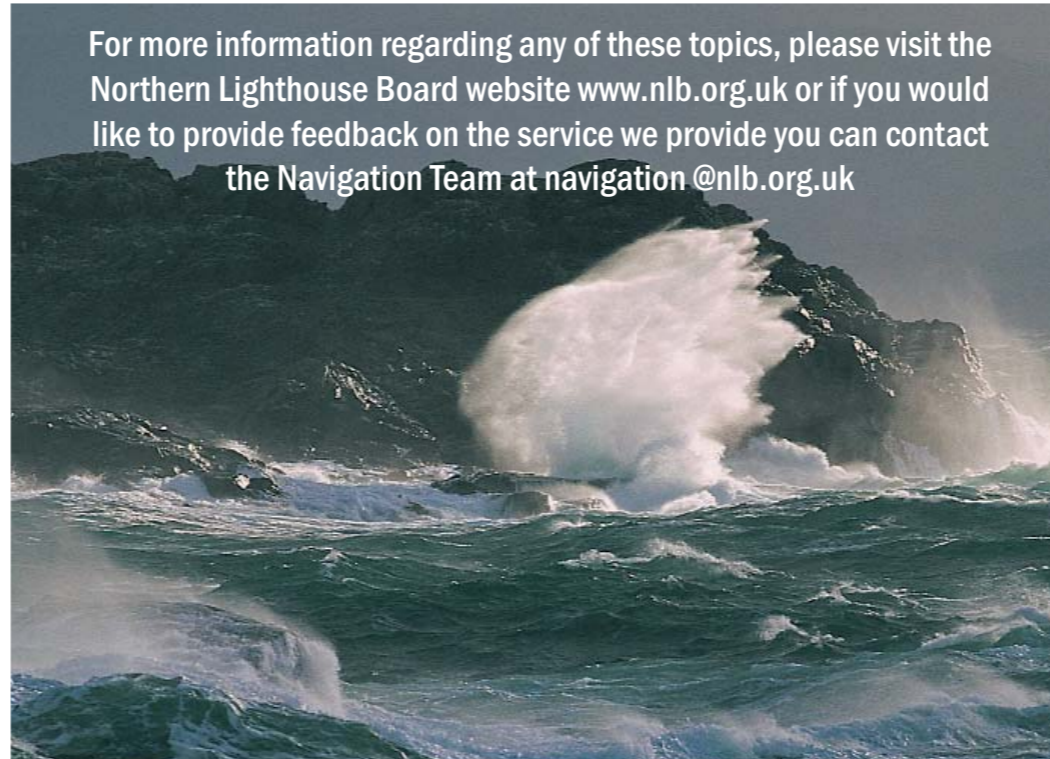
Consultation

NLB attaches great importance to consulting with our user groups and other stakeholders in the formulation of policy, to ensure that Aids to Navigation in our waters meet the requirements of the present and changing needs of all mariners, and that we comply with internationally accepted standards. NLB undertakes a review of its Aid to Navigation provision on a regular basis, and consults widely with users during this review process.

Your Views Count

Feedback from users is essential if we are to continue to provide this vital service. Every year we host a Scottish Users Consultative Group meeting to discuss navigational issues around Scotland. Feedback from these meetings is available on our website at www.nlb.org.uk. Please report any defects or damage to any of our aids to navigation to 08000 32 66 55.

For more information regarding any of these topics, please visit the Northern Lighthouse Board website www.nlb.org.uk or if you would like to provide feedback on the service we provide you can contact the Navigation Team at navigation@nlb.org.uk



Northern Lighthouse Board®

Serving the Mariner...

"To deliver a reliable, efficient and cost-effective Aids to Navigation service for the benefit and safety of all Mariners"



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More than Lighthouses

www.nlb.org.uk

General Lighthouse Authority

The Northern Lighthouse Board (NLB) is the General Lighthouse Authority for the waters surrounding Scotland and the Isle of Man, responsible for the superintendence and management of all lights, buoys and beacons within this area.

The majority of these aids to navigation are provided by harbour authorities and other local bodies, under the supervision of NLB, however most of the significant lighthouses and other aids to navigation outside harbour limits are provided directly by the Northern Lighthouse Board.

The Northern Lighthouse Board is a member of the International Association of Aids to Navigation and Lighthouse Authorities (IALA) and follows best international practice in the provision of efficient and effective aids to navigation.

Lighthouses

The Northern Lighthouse Board provides over 200 navigation lights, ranging from substantial Stevenson designed structures containing lights of over 20 miles nominal range, to lit perches marking ferry routes.

The lights are distinguished by their colour and character, which may be:-

Fixed (continuous) e.g. F.G (fixed green)
Flashing (on for less time than off) e.g. Fl 5s (flashing one (white) light every 5 seconds)
Quick flashing (flashing at a rate of 50-60 times per minute) e.g. Q.R (quick red)
Group flashing (more than one flash) e.g. Fl(3) R 10s (three red flashes every 10 seconds)
Isophase (on and off for equal periods), e.g. Iso 8s (on for 4 seconds and off for 4 seconds)
Occulting (on for more time than off) e.g. Oc 8s (on for 6 seconds, off for 2 seconds)

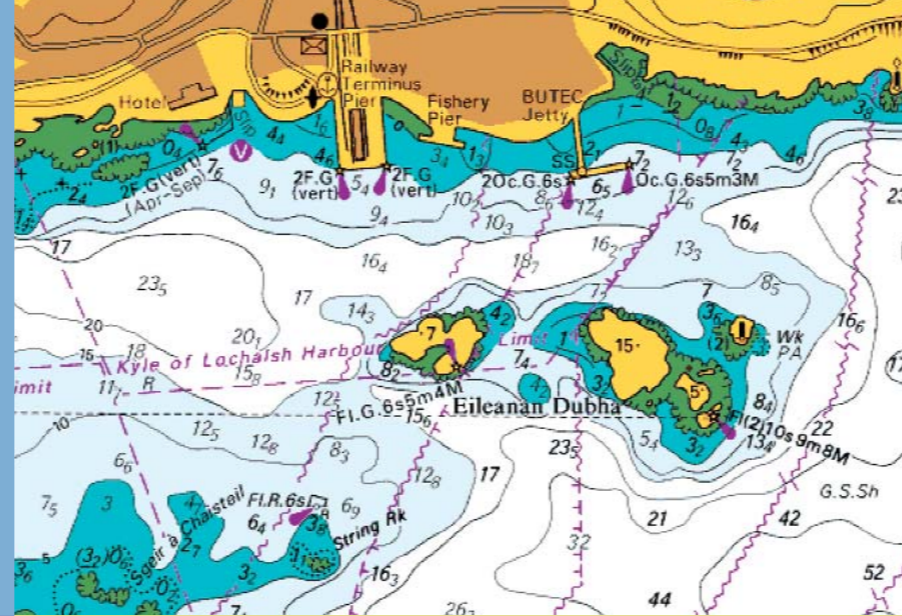
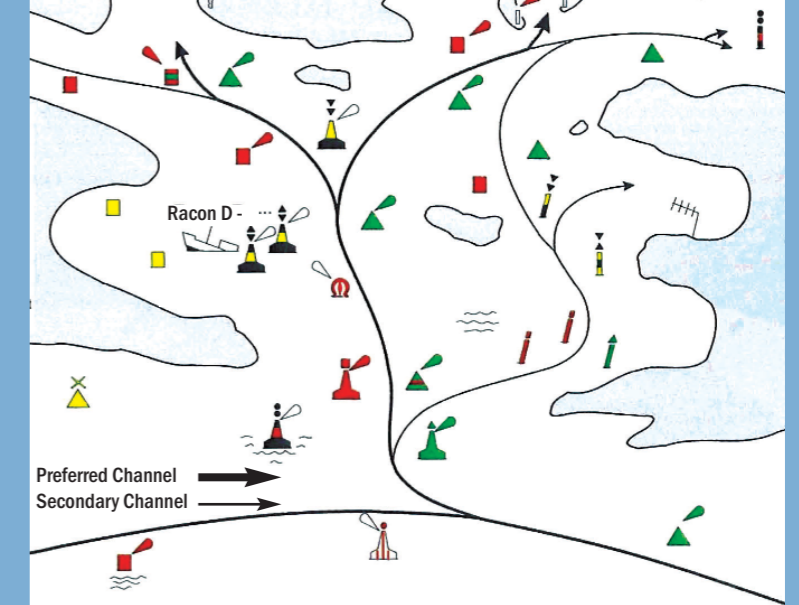
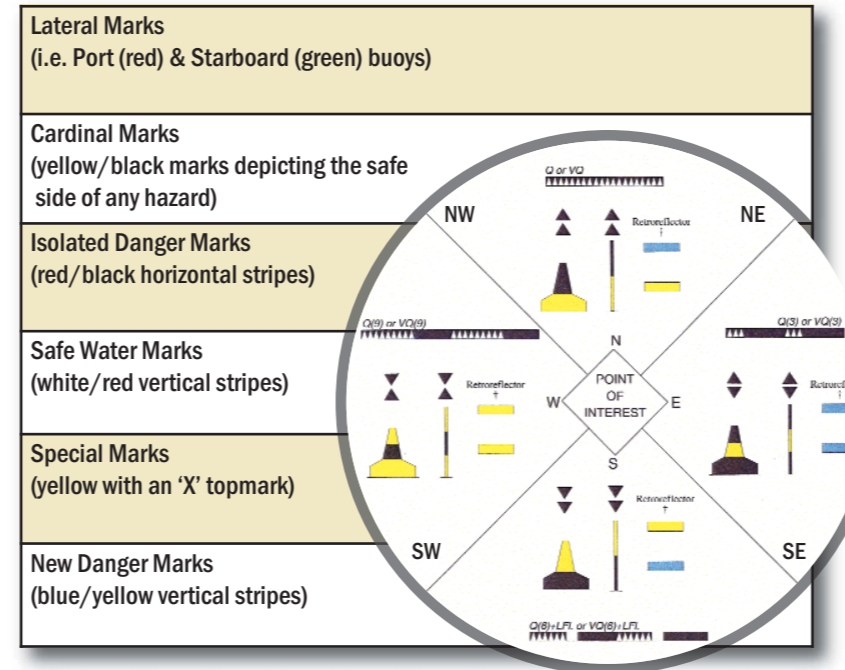


Chart showing lights and buoy characters

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Navigation Buoys

NLB currently provides over 150 lit buoys which conform to the IALA Region A model and comprises 6 principal buoy types:



IALA Buoyage System- Region A model

As a general rule, reliance cannot be placed on floating aids always maintaining their exact positions. Buoys should therefore be regarded with caution and not as infallible navigation marks, especially when in exposed positions; and a ship should always, where possible, be navigated by bearings of fixed objects or angles between them, and not by buoys. The majority of NLB buoys display their name and the NLB website address.

Radar beacons

Both lighthouses and buoys are sometimes fitted with radar beacons (racons) which respond to radar transmissions by transmitting a signal which shows as a morse code symbol on the user's radar screen, with its start point at the station.

Racons are principally used to mark isolated or significant hazards, or for landfall identification on coastlines with limited radar features, such as the East Coast of Scotland.