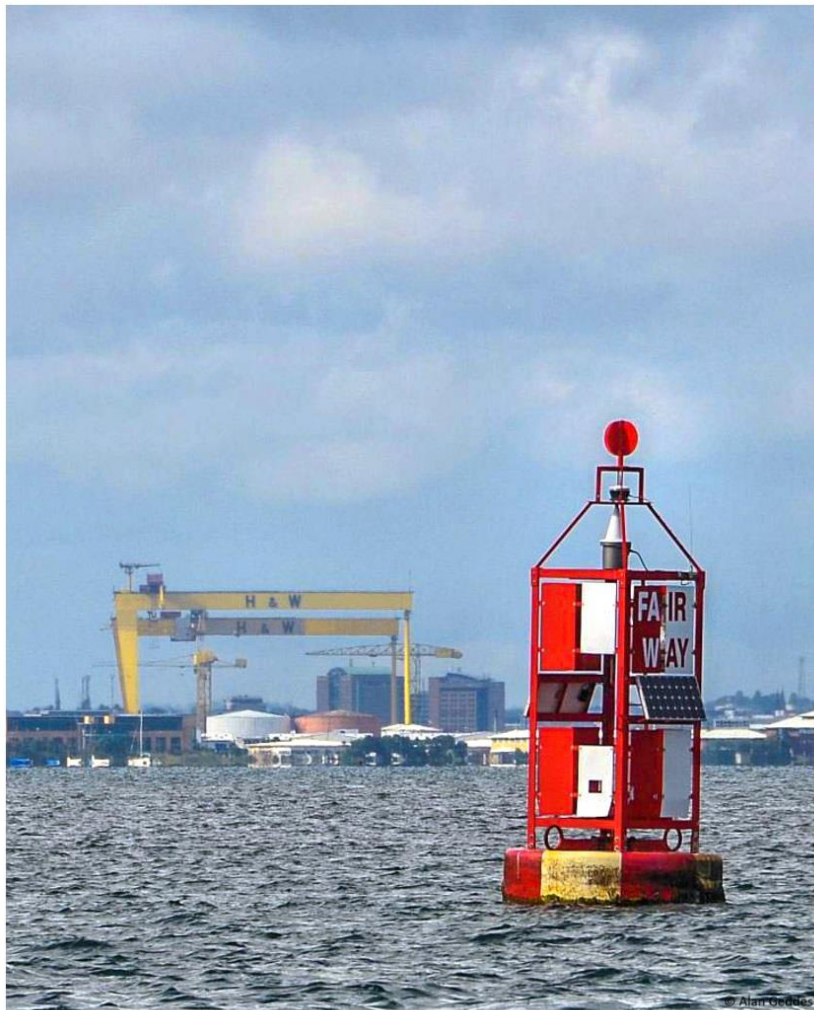


**2023/24**

**Irish Lights report on  
Quality Assurance  
of the  
Local Aids to Navigation service  
for Northern Ireland**



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*Ardglass inner pier lighthouse*

## **Acronyms**

AtoN	Aid to Navigation
AIS	Automatic Identification System
GLA	General Lighthouse Authority
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
LLA	Local Lighthouse Authority
NIFHA	Northern Ireland Fishery Harbour Authority
ORE	Offshore Renewable Energy



*Local AtoN Lough Foyle*

## **Executive Summary**

This report is submitted to the Secretary of State for Transport pursuant to section 198 (4)(b) of the Merchant Shipping Act 1995.

This report covers the period April 2023 to March 2024 inclusive.

Irish Lights as the General Lighthouse Authority for Northern Ireland fulfils the requirements of the International Convention for the Safety of Life at Sea (SOLAS), 1974, Chapter V, Regulation 13 to provide “such aids to navigation (AtoN) as the volume of traffic justifies and the degree of risk requires.”. In addition to the provision of landfall and other significant AtoN around the coast of Northern Ireland, Irish Lights also provides a superintendence and management service for Local Lighthouse Authorities (LLA) to ensure that International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) quality standards are adhered to.

The management of Local AtoN encompasses the requirement for a consent from Irish Lights to add, change or remove marine aids to navigation around the coast, plus a combination of inspecting local Aids to Navigation (AtoN) and auditing of Local Lighthouse Authorities (LLA) against international requirements and standards.

This reporting period 2023/24 saw a small increase in the number of discrepancies found on inspection, compared to previous years. However, as not all AtoN are inspected annually, a number of years are required to determine a trend. The slight increase in discrepancies in 2023/24 is consistent with the results from previous years and will be closely monitored by Irish Lights. Overall, there is general good engagement from the LLAs and a willingness to improve the AtoN service within resource constraints.

Audits conducted for the year 2023/24 highlighted two common issues with the LLA. Firstly, some LLA experienced high turnover of staff which has led to a lack of business continuity and secondly there is a lack of policy and documentation within some LLA to support the provision of AtoN to the required standard. To address the first issue, Irish Lights has developed an LLA Training Course in 2023 to upskill newly appointed staff and those without marine backgrounds. The LLA Training course is provided via an online Learning Management System and has been well received by LLA participants. The second point has been addressed through the introduction of an LLA Guidance document to assist LLA to develop the requisite policy and document framework in line with IALA best practice for marine aids to navigation.

In 2023 Irish Lights also released an updated online portal for the management of local AtoN by LLA. The updated portal provided LLA with a Geographical Information System (GIS) based view to manage the local AtoN under their authority. The introduction of automated email reminders through the new portal has significantly increased compliance with mandatory Quarterly Outage Reporting by LLA, which is

required to ensure the 99.8% uptime required for Category 1 AtoN. The online portal enables the LLA to see and manage AtoN under their authority more effectively.

All applications for statutory consent are now received solely via the online portal allowing for faster and more effective communications in the Statutory Consenting process. During this reporting year Irish Lights processed applications in Northern Ireland for the establishment of 1 new AtoN and approved the amendment of 4 existing AtoN through the Statutory Consenting process.

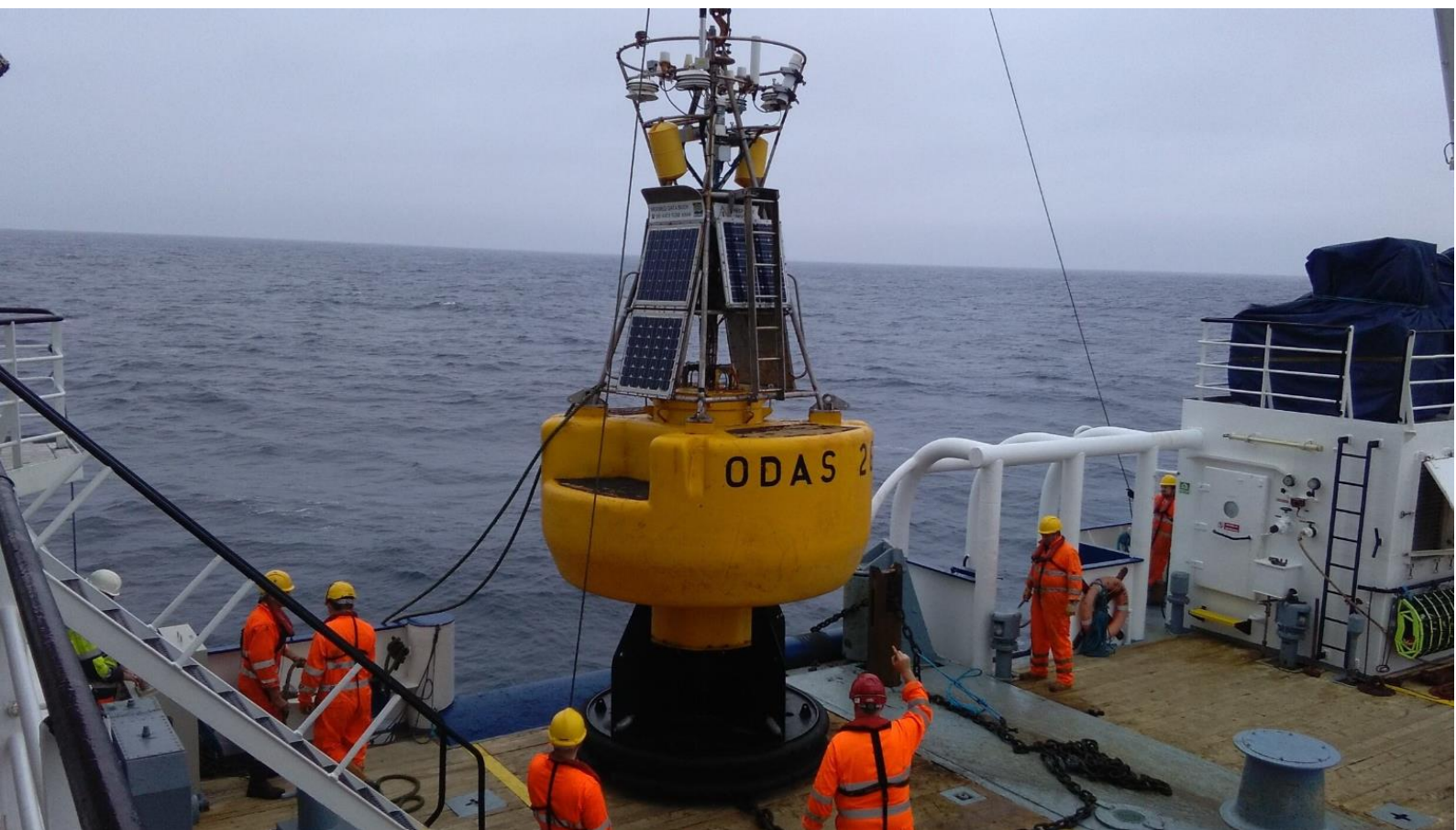


## **Results of Local Lighthouse Authority AtoN Inspections in Northern Ireland**

There are 641 Local AtoN under the authority of 20 LLA around the coast of Northern Ireland. Of these, 449 or 70% were designated for inspection in 2023/24, of which 393 inspections were achieved, which is 87.5% of total target. This target figure includes higher and lower risk AtoN as outlined below. 100% of higher risk AtoN were inspected in 2023/24.

Irish Lights assigns Local AtoN as higher or lower risk based on criteria including the volume of traffic in the area, the IALA category and criticality of the AtoN, importance of the AtoN to major shipping routes and whether the AtoN is located within an environmentally sensitive area. Higher risk local AtoN are inspected annually while lower risk local AtoN (typically aquaculture and lower traffic areas) are inspected every second year.

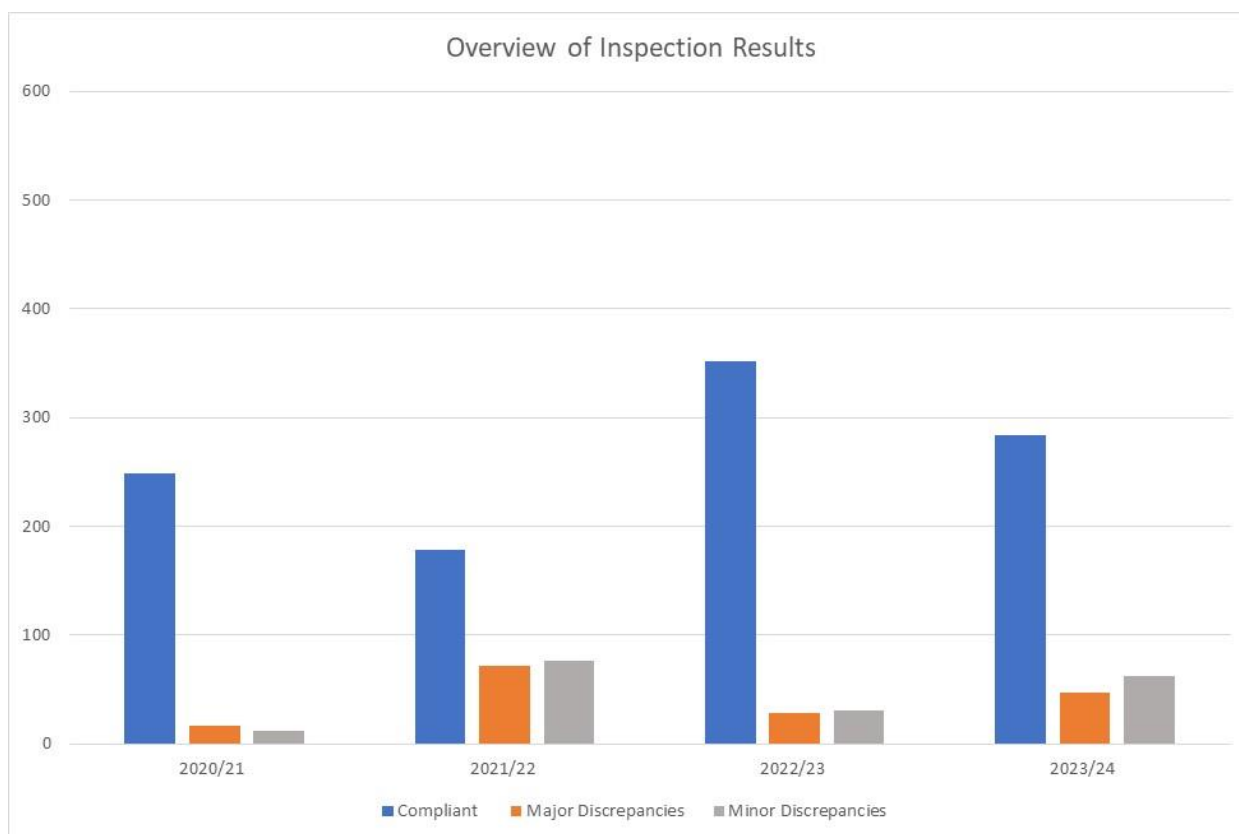
In order to improve the quality of local AtoN in line with SOLAS requirements, Irish Lights introduced a risk-based approach to inspections of local AtoN in 2022. This change has increased the overall number of Local AtoN to be inspected annually by 52%, from 1,618 in 2021/22 to 2,640 in 2023/24.



*ILV Granuaile deploying a local AtoN for the UK Met Office*

Reviewing the 2023/24 inspection results and based on discussions with LLA, the figures show a slight increase in both major and minor discrepancies in 2023/24, although not all AtoN are inspected annually and results can therefore be impacted if, for example, larger numbers of lower risk AtoN are inspected in a specific year. Results can also be impacted if local AtoN from Strangford Lough are included in a particular reporting period, as the condition of these AtoN outside of the main arterial routes in the lough, has been problematic for many years. Irish Lights is working with both LLAs with responsibility for the lough to improve the standard of these local AtoN. A comprehensive report has been produced outlining options for this significant work within Strangford Lough.

Irish Lights has supported the LLA in building this awareness of risk through the LLA Training Course, plus improved reminders via the Local AtoN Management Portal to action reported faults.



*Figure 1 – Year on year inspection results for Northern Ireland (# of inspection increased in 2022/23)*

Inspection Outcomes	Explanation of Outcomes
Compliant	Where the AtoN is as described in the Statutory Consent
Major Discrepancy	Where the AtoN is not compliant and is considered a risk to navigation
Minor Discrepancy	Where the AtoN is not fully compliant but is not a risk to navigation

Local AtoN are further broken down by type, including Permanent, Seasonal (only deployed during the summer months) and Aquaculture. On these types, Aquaculture has been found to have a higher percentage of major and minor discrepancies, relative to the total number of AtoN. However, most aquaculture sites in Northern Ireland are located in shallow water, and deliberately placed outside of navigable channels due to the DAERA licencing regime, therefore the volume of traffic and the degree of risk is generally lower than permanent or seasonal AtoN.

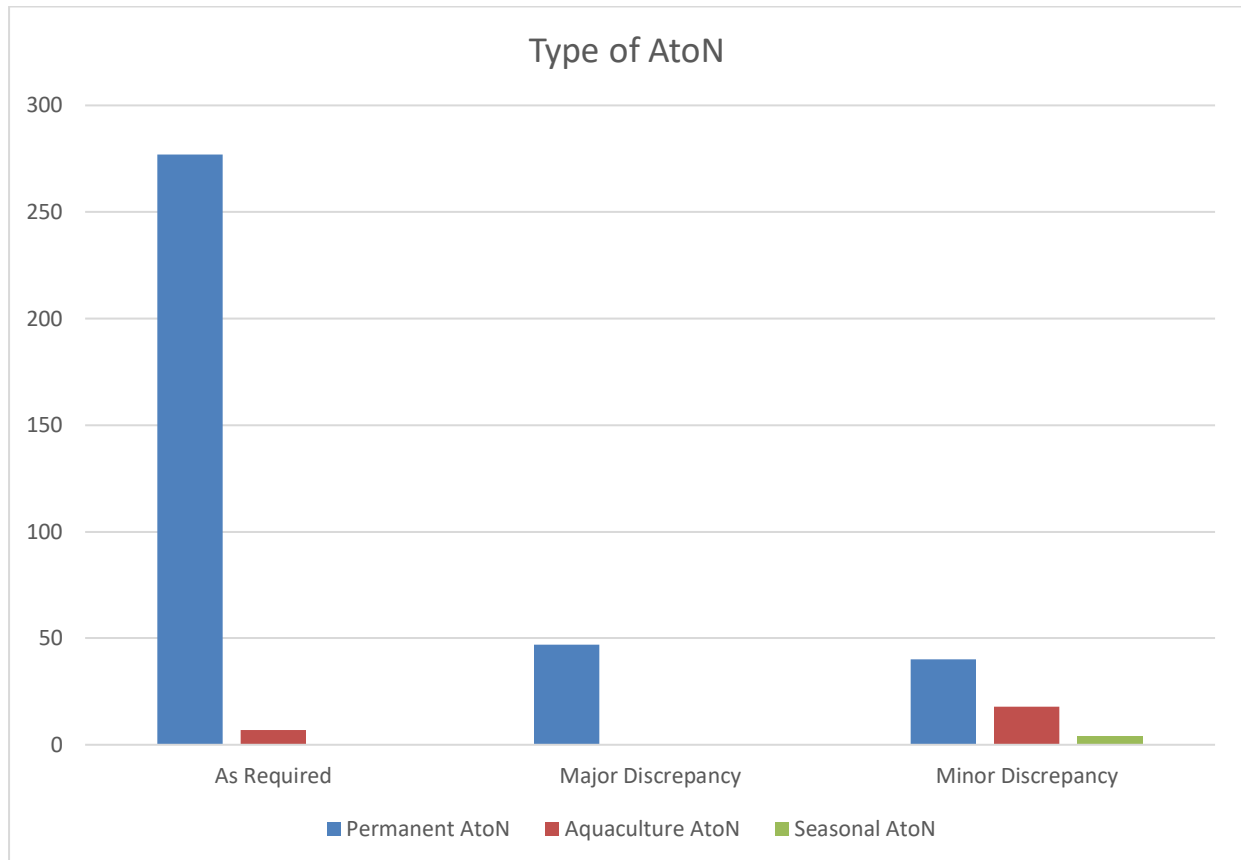


Figure 2 – Relative compliance for different AtoN types

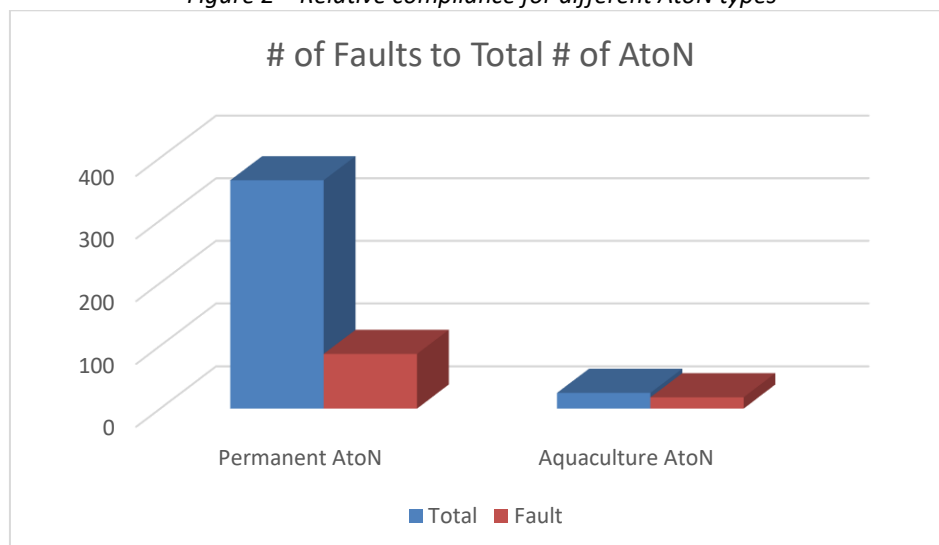


Figure 3 – Higher pro rata number of faults overall in Aquaculture sector

## **Aquaculture AtoN Inspections**

The NI Department of Agriculture, Environment and Rural Affairs (DAERA), Marine and Fisheries Division is responsible for the licensing of fish farms and shellfish farms, under the Fisheries Act (Northern Ireland) 1966, as amended. Bottom culture of blue mussels is carried out in Lough Foyle, Carlingford Lough and Belfast Lough (21 sites), with 2 rope suspended mussel culture sites in Strangford Lough. There is 1 bottom culture mussel site in Larne Lough. In addition, Trestle culture of Pacific oysters is widespread in Carlingford and Strangford Loughs and to a lesser extent in Lough Foyle and Larne Lough.

Irish Lights is consulted and makes submissions on the licensing of any new aquaculture sites and the renewal of existing licences, to ensure that the licence conditions include a requirement to mark the site with marine aids to navigation as appropriate to the volume of traffic and the degree of risk, in accordance with international IALA standards.

## **Local Lighthouse Authority Audits**

There are 20 Local Lighthouse Authorities (LLA) in Northern Ireland and Irish Lights audits each on a rolling two-year basis unless additional auditing is required based on risk evaluation.

Thirteen (13) LLA were audited in 2023/24, which reflects a 50% all-island target. The other 7 Northern Ireland LLAs are due an audit in 2024/25. The results of all AtoN inspections and audits are combined annually to assess the risk to the Local AtoN service based on how the service is delivered by different LLA. Currently, there is one (1) Northern Ireland LLA in receipt of a Corrective Action Request from Irish Lights, requiring an improvement in compliance.

There are three outcomes from an audit.

- **Compliant** - Appropriate standards observed in respect of records of inspections and maintenance as evidenced during the audit. The LLA has in place comprehensive policies and procedures for the management of AtoN.
- **Compliant with Advisory** – The LLA partially meets the required standards. Partial records of inspections and maintenance were evidenced during the audit. The audit report will contain advice and guidance on how to improve processes and develop policies to form a more robust management system for AtoN within the LLA area.
- **Corrective Action Request** – The LLA does not meet its obligations in respect of the required standards and urgent action is required on the part of the LLA. Irish Lights provide guidance and assistance on the appropriate improvement measures and required timelines.

## **Assistance Provided to Local Lighthouse Authorities**

Irish Lights participated in the Strangford Lough Marine Protected Area steering group and the Research & Development subgroup, with a focus on aids to navigation within the lough. With support from Irish Lights, and in pursuance of their duties as Local Lighthouse Authorities, Ards and North Down Borough Council (ANDBC) and Newry Mourne and Down District Council (NMDDC) have undertaken a review of the existing AtoN in Strangford Lough during 2023. This review, delivered by consultancy firm AECOM on behalf of ANDBC and NMDDC, utilised IALA Guideline G1138 – *The use of the Simplified IALA Risk Assessment Method* (SIRA) methodology and consulted with key stakeholders in the assessment of the AtoN in Strangford Lough with the aim of reviewing, and where appropriate, rationalising the provision and management of the infrastructure.

Irish Lights has also engaged with Newry, Mourne and Down District Council and Warrenpoint Harbour Authority prior to construction of the GBP£85 million Narrow Waters Bridge project. The bridge project involves several LLA having AtoN on both sides of the border. Louth County Council will be the authority responsible for construction of the bridge and are also the LLA in Ireland with responsibility on the Louth banks of the Newry River. As Irish Lights already works with all LLA in Ireland and Northern Ireland, it was well placed to assist the project team to ensure the AtoN for the bridge and the approaches to the area will be correctly deployed, maintained and managed in the long term.

## **Offshore Renewable Energy Sector**

Irish Light participated in Offshore Renewable Energy Forum (OREF) chaired by the Department for the Economy (DfE). The OREF includes representatives from coastal communities, the fishing industry, local government, maritime safety including HMCG and Irish Lights, environmental protection, maritime and marine economic development, ports and harbours, and marine heritage. The forum provides a mechanism for feedback on the draft Offshore Renewable Energy Action Plan (OREAP), which aims to deliver 1 GW of offshore wind capacity by 2030 for Northern Ireland.

## **Conclusion**

The International Convention for the Safety of Life at Sea 1974 (SOLAS Convention) is an international convention of the International Maritime Organization (IMO) relating to the safety of ships (both passenger ships and cargo ships of >500 gross tonnes) that are engaged on international voyages. The Convention entered into force in 1980, following UK ratification in 1979. As a party to the Convention, and in its role as a Coastal State, the UK including Northern Ireland is responsible for ensuring marine aids to navigation are provided as the volume of traffic justifies and the degree of risk requires. Under the UK Merchant Shipping Act 1995, Irish Lights is charged with the superintendence and management of all

marine aids to navigation in the Northern Ireland maritime area. This report provides a quality assurance mechanism to ensure that the aids to navigation provided by Local Lighthouse Authorities meet international IALA best practice. The report is submitted annually pursuant to section 198 (4)(b) of the Merchant Shipping Act 1995.

Despite advances in satellite navigation technologies, physical marine aids to navigation remain a key component to ensure safe navigation at sea. In the UK, the vulnerability of satellite delivered Position, Navigation & Timing services has been recognised through the establishment in 2023 of a National PNT Office, with a remit to improve resilience and drive growth with responsibility for PNT policy, coordination, and delivery. This reflects a growing international recognition that an increased cyber risk exists of outages in satellite position fixing and/or the Automatic Identification System (AIS, which depends on satellite timing signals to operate). In such circumstances, physical aids to navigation provide a key mitigation against this cyber threat and must be correctly maintained to prevent loss of life, property or environmental damage due to collisions or grounding of vessels.

Inspections and audits of Local Lighthouse Authorities conducted by Irish Lights indicate a good level of compliance with standards, although some LLA continue to struggle due to staff turnover or funding constraints. Overall, the level of discrepancies found in 2023/24 was consistent with previous years and reflected the areas under inspection, but analysis of further years will be required before a definite trend can be identified.

In addition to inspections and audits, Irish Lights works with all sectors to provide advice on safe lighting and marking of objects placed in the maritime domain, as well as providing a statutory consent process to ensure that nautical charts are correctly updated via the United Kingdom Hydrographic Office.



**Ronan Boyle**

**Director of Navigation, Maritime & Consenting**

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*IALA standard Special Mark beacons*

## **Annexes**

### **Annex A – Legislative Background**

Section 198 (1) of the UK Merchant Shipping Act 1995 empowers Irish Lights as the General Lighthouse Authority (GLA) for Northern Ireland to inspect all lighthouses, buoys, and beacons in Local Lighthouse Authority management. In accordance with Section 198 (4) (a) of the UK Merchant Shipping Act 1995, the GLA shall make a general report of the results of the inspections of the local lighthouses, buoys, and beacons to the Secretary of State for Transport.

In addition, Section 195 (1) of the 1995 Act vests in the GLA the superintendence and management of all lighthouses, buoys, and beacons within their areas. The characteristics of these AtoN must comply with guidelines and recommendations as laid down by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

Under the UK government's Port Marine Safety Code (revised 2016) all Local Aids to Navigation maintained by Harbour Authorities and any other existing Local Lighthouse Authorities must be maintained under the availability criteria laid down by the General Lighthouse Authorities and must be subject to periodic review. The characteristics of these AtoN must comply with Guidelines and Recommendations as laid down by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). The GLA requires Local Lighthouse Authorities to ensure that any third party AtoN, within their area of responsibility, are also established and maintained to the same standards.

Consequently, before any aid to navigation can be established, altered, or disestablished consent in the form of a Statutory Sanction under the Merchant Shipping Act must be obtained from the Commissioners of Irish Lights. The applicant must submit this application through a Local Lighthouse Authority.

## **Annex B – Extract from IMO SOLAS**

Available at: [Regulation 13 - Establishment and operation of aids to navigation \(imorules.com\)](https://www.imorules.com/Regulation%2013%20-%20Establishment%20and%20operation%20of%20aids%20to%20navigation)

### REGULATION 13 - Establishment and operation of aids to navigation

1. Each Contracting Government undertakes to provide, as it deems practical and necessary either individually or in co-operation with other Contracting Governments, such aids to navigation as the volume of traffic justifies and the degree of risk requires.
2. In order to maintain the greatest possible uniformity in aids to navigation, Contracting Governments undertake to consider the international recommendations and guidelines<sup>1</sup> when establishing such aids.
3. Contracting Governments undertake to arrange for information relating to aids to navigation to be made available to all concerned. Changes in the transmissions of position-fixing systems which could adversely affect the performance of receivers fitted in ships shall be avoided as far as possible and only be affected after timely and adequate notice has been promulgated.

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<sup>1</sup> Refer to the recommendations and guidelines of IALA and SN/Circ.107–Maritime Buoyage System

## **Annex C – IALA Categorisation and Availability Objectives for Short Range AtoN**

Available at:

[R0130 Categorisation and Availability Objectives for Short Range Aids to Navigation \(O-130\) - IALA AISM \(iala-aism.org\)](#)

Within these IALA guidelines, Aids to Navigation are categorised into three types - Cat 1, Cat 2, Cat 3:

- CATEGORY 1 - An AtoN or system of AtoN that is considered by the Competent Authority to be of vital navigational significance. For example, lighted AtoN, AIS AtoN and racons that are essential for marking landfalls, primary routes, channels, waterways, dangers or protecting the marine environment.
- CATEGORY 2 - An AtoN or system of AtoN that is considered by the Competent Authority to be of important navigational significance. For example, it may include any lighted AtoN, AIS AtoN and racons that mark secondary routes and those used to supplement the marking of primary routes.
- CATEGORY 3 - An AtoN or system of AtoN that is considered by the Competent Authority to be of necessary navigational significance.

Categories of percentage availability

Category	AVAILABILITY OBJECTIVE	CALCULATION PERIOD
1	99.80%	Availability Objectives are calculated over a continuous three-year period, unless otherwise specified.
2	99.00%	
3	97.00%	

Table 10

Calculations principles according to IALA Guideline on Availability and Reliability of Aids to Navigation. The minimum availability of any individual AtoN should be 95.00%. Where the availability of an individual AtoN consistently falls below 95.00%, consideration should be given to the discontinuance or replacement/ modification of that AtoN.

### **Maximum permissible downtime per AtoN by category to remain IALA compliant:**

Category 1 – 17.5 hours per annum

Category 2 – 3.6 days per annum

Category 3 – 10.9 days per annum