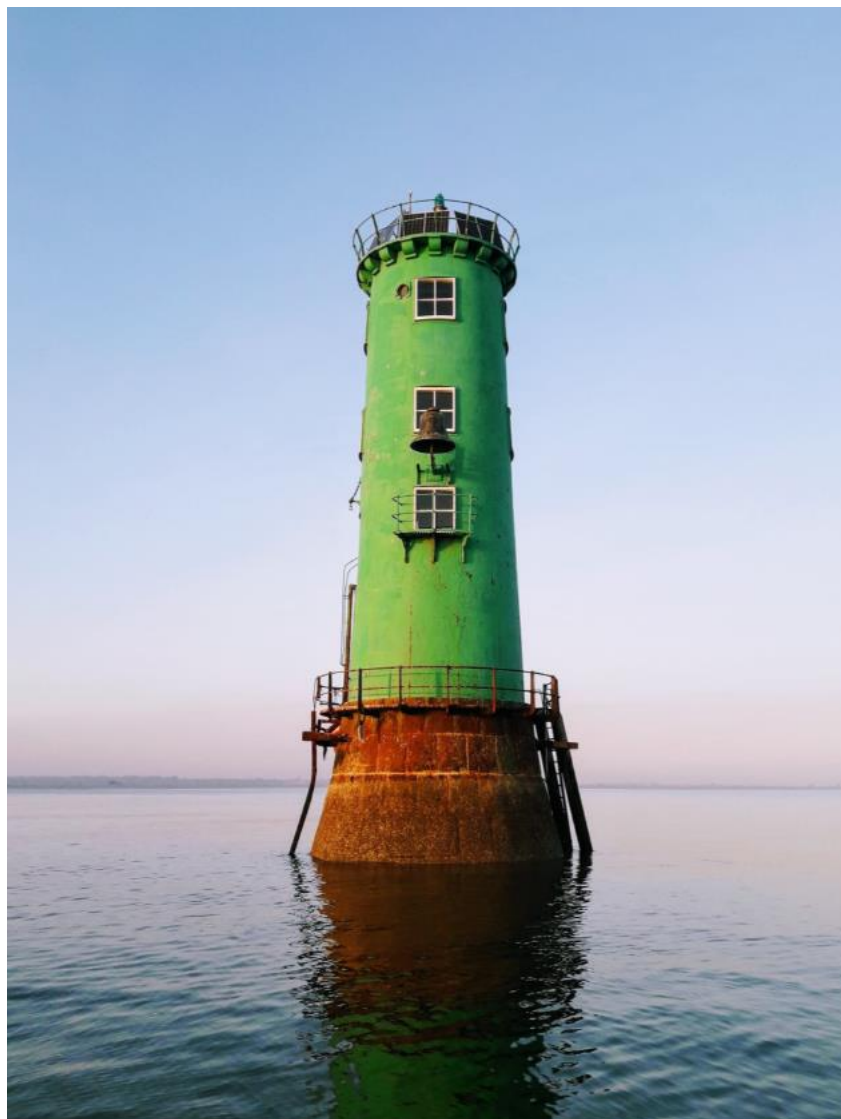




Commissioners of
IRISH LIGHTS | Navigation
and Maritime
Services

2023/24

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



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Entrance to Howth Fishery Harbour

Acronyms

AtoN	Aid to Navigation
AIS	Automatic Identification System
DAFM	Department of Agriculture, Food and the Marine
FHC	Fishery Harbour Centre
GLA	General Lighthouse Authority
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
LLA	Local Lighthouse Authority
ORE	Offshore Renewable Energy



Local AtoN, Port hand buoy, Dublin Port

Executive Summary

This report is submitted to the Minister of Transport pursuant to section 652(4) of the Merchant Shipping Act 1894.

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

Irish Lights as the General Lighthouse Authority for 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 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.

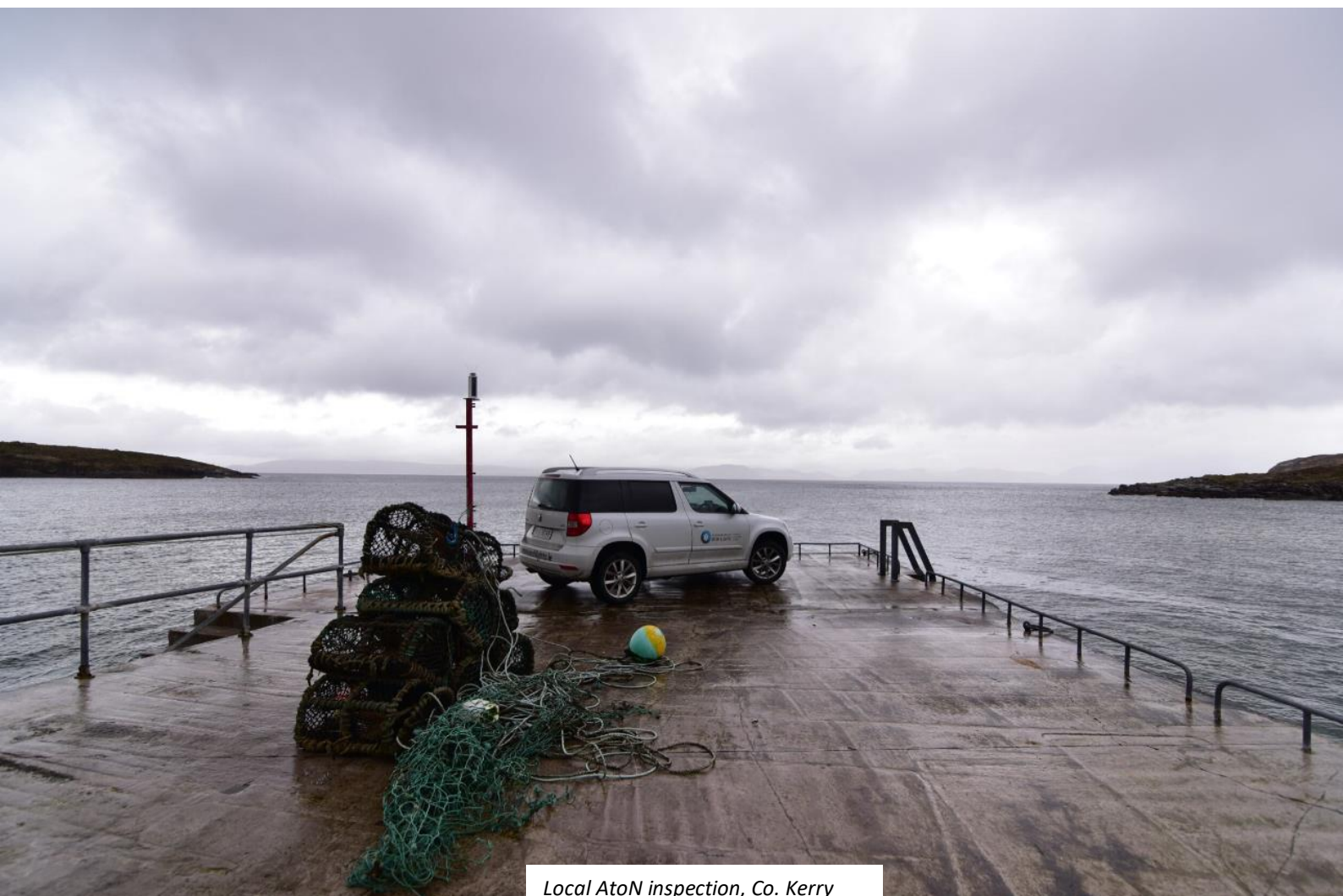
This reporting period 2023/24 saw a decrease in the number of discrepancies found on inspection, compared to previous years, after an increase in recent years. Previous delays in servicing of Local AtoN due to the COVID pandemic have alleviated. In addition, there is general good engagement from the 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 the online BIM 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 Ireland for the establishment of 37 new AtoN, the disestablishment of 16 existing AtoN, and approved the amendment of 11 existing AtoN through the Statutory Consenting process.



Local AtoN inspection, Co. Kerry

Results of Local Lighthouse Authority AtoN Inspections in Ireland

There are 2,832 Local AtoN under the authority of 32 LLA around the Irish coast (excluding Northern Ireland waters). Of these, 1,966 or 69% were designated for inspection in 2023/24, of which 1,759 inspections were achieved, which is 89.5% of total target. This target figure includes higher and lower risk AtoN as outlined below. 97.6% of higher risk AtoN were inspected in 2023/24. Of the higher risk AtoN, 29 were not inspected which were all located on offshore islands and these AtoN will be captured in 2024/25.

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.



Local AtoN inspection, entrance to Castletownhend, Co. Cork

Reviewing the 2023/24 inspection results and based on discussions with LLA, the previous increase in major discrepancies from 2020/21 to 2022/23 can be partially attributed to a lag in maintenance caused by the COVID pandemic, while the improvement in 2023/24 reflects a renewed emphasis on the importance of Local AtoN resulting from increased awareness of the risk. 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.

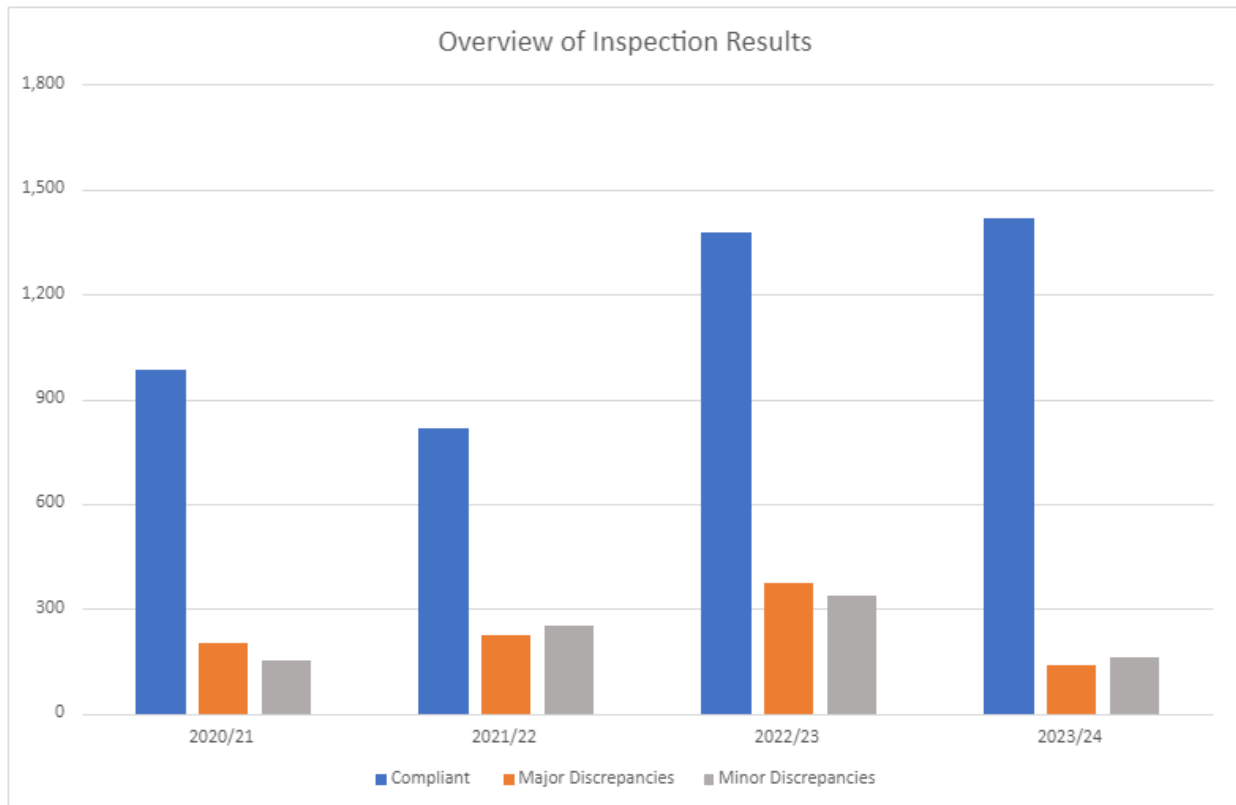


Figure 1 – Year on year inspection results for Ireland (# of inspection increased in 2022/23)

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. Within 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 are located in shallow water, and deliberately placed outside of navigable channels due to the licencing regime, therefore the volume of traffic and the degree of risk is generally lower than permanent or seasonal AtoN.

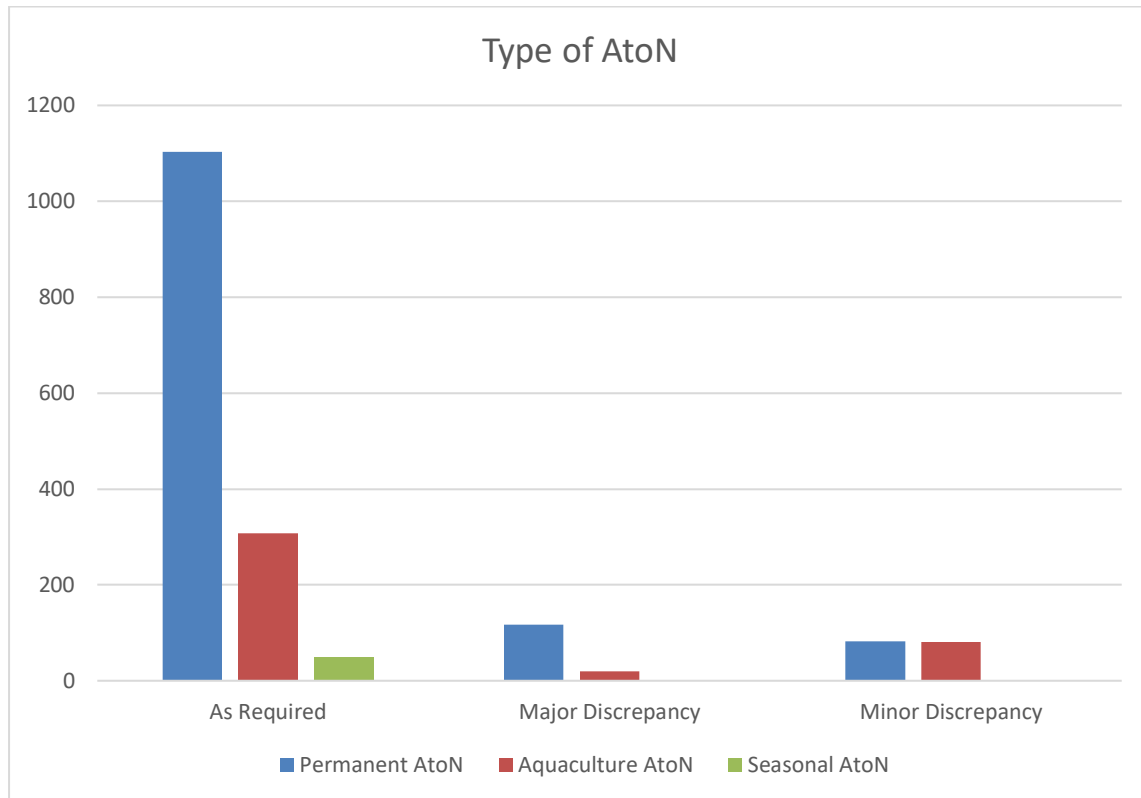


Figure 2 – Relative compliance for different AtoN types

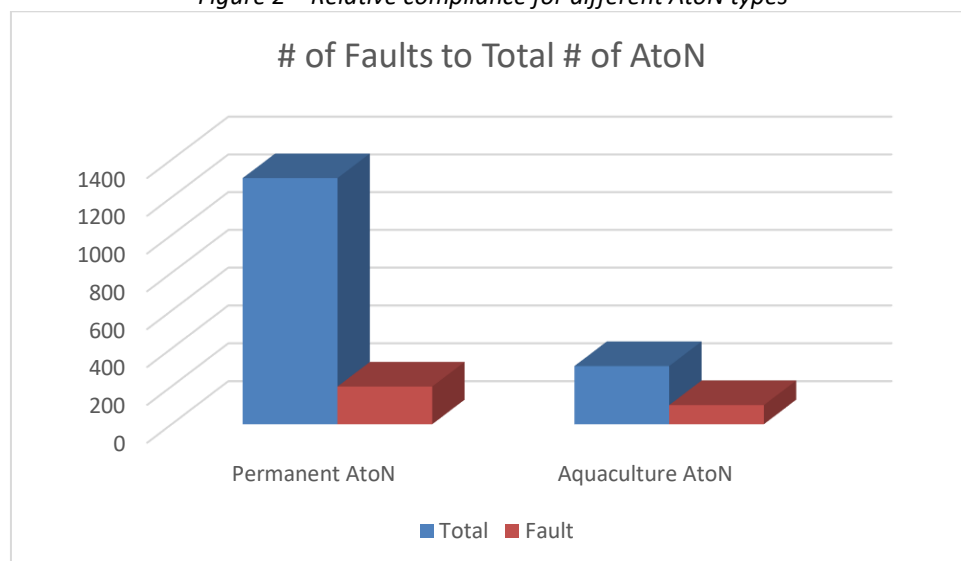


Figure 3 – Higher pro rata number of faults overall in Aquaculture sector

Aquaculture AtoN Inspections

Aquaculture Licensing in Ireland is legislated under the Fisheries (Amendment) Act, 1997 as amended and the Foreshore Act, 1933 as amended. Irish Lights is a statutory consultee for Foreshore licensing of aquaculture sites in Ireland, ensuring 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 SOLAS and international IALA standards.

Extensive aquaculture involves aquatic organisms farmed in enclosed structures placed within natural habitats (such as along the coastline, rivers, and wetlands), with minimal human input and relying more on the surrounding environment. These include Mussel Trestles and Oyster beds located in intertidal areas. These are in shallow water but may include steel trestles or underwater obstacles with the ability to damage vessels or foul anchors at high tide.

Intensive aquaculture refers to aquacultural methods of raising aquatic species in tanks separated from their natural ecosystems. This includes fish farms comprised of ring cages, which present a collision hazard and are often accompanied by sizeable steel or concrete feed barges. Conspicuous AtoN marking of these sites is key to ensuring safety of navigation.

The 2023 An Bord Iascaigh Mhara (BIM) report “The-Business-of-Seafood”¹ notes the introduction of seaweed farming in Ireland for the first time. Both seaweed and line grown rope mussel sites are typically located in sheltered bays in deeper water. These sites have the potential to encroach on charted anchorage areas as well as areas frequented by smaller fishing vessels and leisure craft. These lines-based aquaculture sites are typically less conspicuous and therefore require careful AtoN marking including buoyage.

Irish Government investment in the sector increased by 22% in 2023 (BIM, 2023), even as private investment saw a modest decline of 4%. This is reflected in the Local AtoN inspection results, where sites in receipt of funding and managed by BIM as the LLA demonstrate significantly lower levels of AtoN faults. In contrast, sites which are not directly supported by BIM for the provision of AtoN and which fall under the Local Authority as an LLA typically have higher levels of AtoN defects and consequently higher navigational risk.

¹ <https://bim.ie/wp-content/uploads/2024/09/BIM-The-Business-of-Seafood-2023-WEB.pdf>

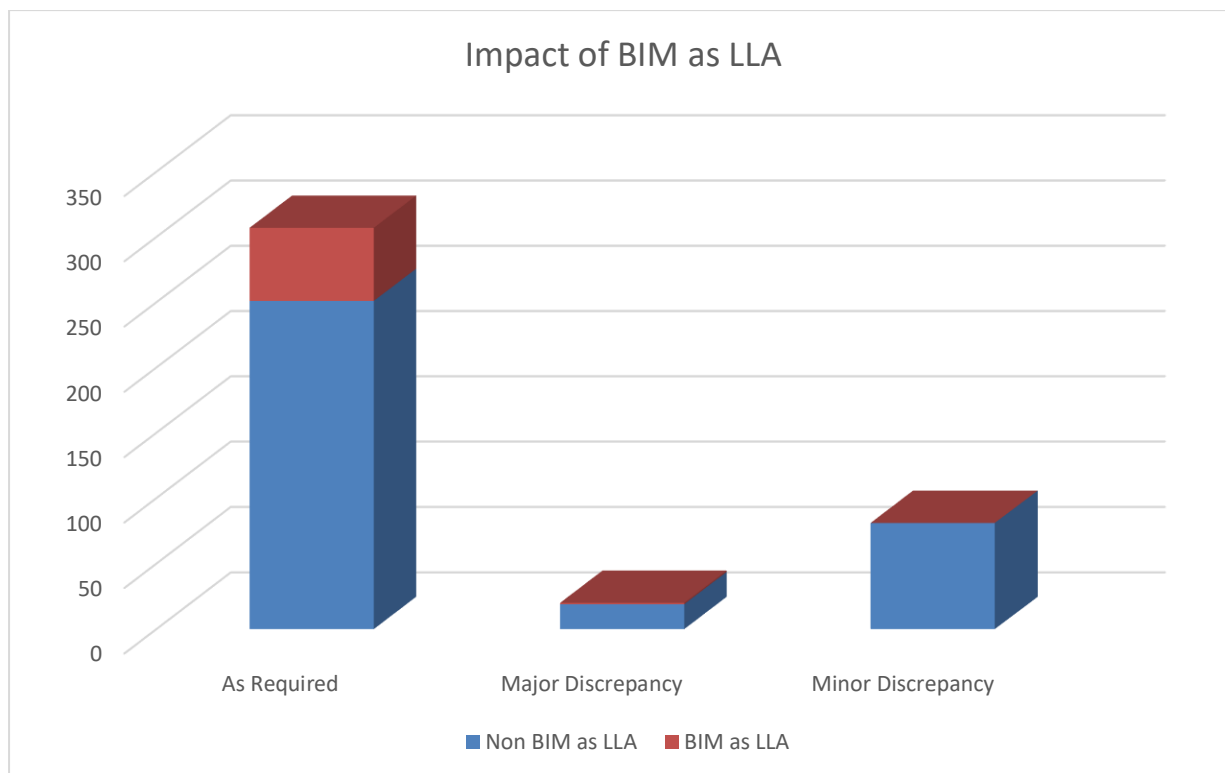


Figure 4 – Comparison of defect rates for BIM vs. Other LLA

Local Lighthouse Authority Audits

In the year 2023/24 there were 32 Local Lighthouse Authorities (LLA) in Ireland. Irish Lights audits each LLA on a rolling two-year basis unless additional auditing is required based on risk categorisation.

Eleven (11) LLA were audited in 2023/24, which reflects a 50% all-island target. The other 21 Irish 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 are seven (7) Irish 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

In addition to quality assurance through the inspection and audit service, Irish Lights provides expert navigation advice and assistance to all LLA. During 2023/24 this advice included engagement with Waterford City & County Council prior to the commencement of construction of the €207 million Sustainable Transport Bridge public infrastructure project. This complex project required the placement of temporary AtoN prior to and during construction, as well an evaluation and establishment of permanent AtoN once the Bridge has been completed.

Irish Lights has engaged with Louth County Council prior to construction of the €102 million Narrow Waters Bridge project. The Bridge project spans an area encompassing with several LLA and AtoN on both sides of the border, including Newry, Mourne and Down District Council and Warrenpoint Harbour Authority. Louth County Council is the authority responsible for construction of the bridge and are also the LLA 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 navigational approaches to the area will be correctly deployed, maintained and managed in the long term.

Offshore Renewable Energy Sector

During 2023/24 Irish Lights provided safety of navigation advice to each of the Phase 1 Offshore Renewable Energy (ORE) projects and to other potential ORE developers. In advance of planning applications going to An Bord Pleanála, Irish Lights remains available to meet with industry who are considering a project as part of the plan led approach, underpinned by Designated Maritime Area Plans.

During 2023/24 the data gathering phase of many ORE sites reached their conclusion and as a result 15 AtoN comprising IALA special marks fitted with data acquisition equipment, were disestablished during the reporting period. Five AtoN remained established managed by three ORE developers. As part of its remit under the Merchant Shipping Acts and the National Marine Planning Framework, Irish Lights is committed to continuing to support ORE projects via clear expert advice as required, and an efficient consenting process to consider and mitigate any risk posed by the deployment, amendment or removal of marine AtoN.

2023 also saw the establishment of the Maritime Area Regulatory Authority (MARA), as the State agency tasked with the oversight and regulation of activities within Ireland's maritime area, which includes the territorial sea (12nm, Foreshore), the Exclusive Economic Zone EEZ (200nm) and the agreed continental

shelf. This sea area covers 220 million acres (approx. 880,000km²) and is more than 10 times the land mass of Ireland.

Irish Lights liaises closely with MARA to provide expert navigation safety advice as required, in support of Ireland's broader strategy to harness its maritime resources for sustainable development and energy security.

Since 2022, Irish Lights continues to be an active member of the Seafood/Offshore Renewable Energy Working Group which facilitates discussion on matters arising from the interaction of the seafood and offshore renewable energy industries and promotes and shares best practice as well as encouraging liaison with other sectors in the marine environment.

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, and Ireland is a party to it since 1983. As a party to the Convention, and in its role as a Coastal State, 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 Merchant Shipping Act and the National Marine Planning Framework, Irish Lights is charged by Government with the superintendence and management of all marine aids to navigation in the Irish 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 652(4) of the Merchant Shipping Act 1894.

Despite advances in satellite navigation technologies, physical marine aids to navigation remain a key component to ensure safe navigation at sea. Indeed, recent geopolitical events have demonstrated an increasing cyber threat to Position, Navigation & Timing services delivered via satellite. Consequently, there is a growing international recognition that an increased 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, major discrepancies were found to be reducing in 2023/24, but analysis of further years will be required before a definite downward 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 recognised hydrographic organisation for Ireland.



Ronan Boyle

Director of Navigation, Maritime & Consenting

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ILV Granuaile deploying AMETS A local AtoN for Marine Institute, Co. Mayo

Annexes

Annex A – Legislative Background

Section 652 (1) of the Merchant Shipping Act 1894², empowers the General Lighthouse Authority (GLA) to inspect all lighthouses, buoys, and beacons in Local Lighthouse Authority management. In accordance with the Merchant Shipping Act the GLA shall make a general report of the results of the inspections of the local lighthouses, buoys, and beacons to the relevant Minister.

In addition, Section 652 (1) of the 1894 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). 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.

The National Marine Planning Framework Section 18 – Ports, Harbours, and Shipping – Policy 4, details that any proposals within ports limits, beside or in the vicinity of ports, and/or that impact upon the main routes of significance to a port, must demonstrate within applications that they have consulted the Commissioners of Irish Lights. Applicants must continue to engage parties identified in pre-application processes as appropriate during the decision-making process. Additionally, Section 19 – Safety at Sea – Policy 4 notes that establishing, changing, or disestablishing Aids to Navigation (AtoN) must be sanctioned, in advance of works, by the Commissioners of Irish Lights.

Consequently, before any aid to navigation can be established, altered, or disestablished consent in the form of a Statutory Consent 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.

² [Merchant Shipping Act, 1894, Section 652 \(irishstatutebook.ie\)](https://www.irishstatutebook.ie/1894/act-11/section-652.html)

Annex B – Extract from IMO SOLAS

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

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 guidelines³ 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.

³ 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