



Commissioners of
IRISH LIGHTS

Navigation
and Maritime
Services

2022/23

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



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Acronyms

AtoN	Aid to Navigation
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

Executive Summary – All island

Irish Lights is the General Lighthouse Authority for Ireland and Northern Ireland under legislation laid down in each jurisdiction. In addition to the provision of landfall and other significant general aids to navigation around the coast of Ireland and Northern Ireland to meet Ireland's and the UK's obligations under the Safety of Life at Sea (SOLAS) Convention, Irish Lights provides a superintendence and management service for Local Lighthouse Authorities (LLA) to provide an assurance that SOLAS requirements and IALA standards are adhered to. Under the Merchant Shipping Acts, Irish Lights is tasked with reporting annually to the respective Minister/Secretary of State on the performance of the Local Aids to Navigation service provided by these LLA. This report follows the Irish Lights fiscal year of 1st April 2022 to 31st March 2023.

Irish Lights has developed a quality management system for marine aids to navigation service delivery in line with SOLAS criteria of assessing the volume of traffic and the degree of risk. The methodology used is consistent with international best practice approved by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). Irish Lights continuously reviews its process in relation to ensuring the safety of marine aids to navigation, resulting in the introduction of an enhanced inspection and audit regime for the 2022/23 reporting period. This risk-based approach to inspections increased the number of local AtoN to be inspected from 1,618 in 2021/22 to 2,640 in 2022/23, an increase of 63% (1,022 inspections) on the previous year. Most of this increase was for inspections of local AtoN in Ireland. In practice Irish Lights attained 2,500 inspections (95% of target), of which all local AtoN deemed to be higher risk were inspected. (Table 1).

Due to this change in inspection regime, it is difficult to compare the results from the current year with previous years on a like-for-like basis, however a small improvement (7%) in the number of "As required" inspection results is evident compared to the previous year. Similarly, the 'Minor discrepancies' results have reduced by 4% and the 'major discrepancies' results have reduced by 3%.

(Financial Year)	2020/21	2021/22	2022/23
As Required	1,232 (76%)	995 (62%)	1,728 (69%)
Minor Discrepancy	166 (10%)	294 (18%)	341 (14%)
Major Discrepancy	220 (14%)	329 (20%)	431 (17%)
Total AtoN Inspected	1,618	1,618	2,500

Table 1 - Summary of Local AtoN Inspected on the Island of Ireland

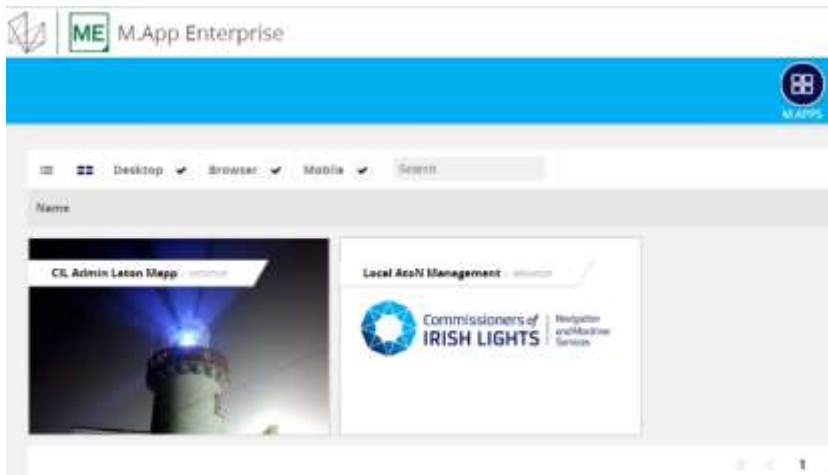
The Merchant Shipping Acts requires an LLA to seek a consent from Irish Lights, known as a Statutory Sanction, prior to deploying, changing, or removing any marine aid to navigation. This activity represents a major component of the workload of the Local Aton team within Irish Lights, when not engaged in physical inspections of local Aton and/or on-site auditing of LLA procedures and records. In the period 2022/23, Irish Lights processed applications for 148 new Aton, the disestablishment of 38 Aton, and the amendment of 49 existing Aton.

The Merchant Shipping Acts also require each LLA to provide access to records and information concerning the local lighthouses, buoys, and beacons under their management to Irish Lights. This takes the form of a standard audit conducted by Irish Lights on a bi-annual basis (50% of the LLA are audited each year). During this reporting period, Irish Lights achieved 100% of this target, completing 29 audits of LLAs (Local Lighthouse Authorities) across both Ireland (21) and Northern Ireland (8). Overall, the number of LLA achieving either “compliant” or a “compliant with advisory” result in this audit process increased slightly. The increase in the number of LLA achieving a ‘compliant with advisory’ result indicates an increased willingness on the part of the LLA cohort to improve their processes and procedures, but a lack of knowledge on how best to proceed. This lack of maritime specific knowledge concerning the provision of aids to navigation has been addressed by the planned introduction of a specific online LLA training course to assist LLA to meet their legal obligations in this regard.

New developments

In collaboration with Bord Iascaigh Mhara (BIM), who have kindly provided access to their existing Learning Management System, Irish Lights has developed an online training programme which is specifically aimed at educating LLA in IALA best practice for the provision, maintenance, and management of local Aids to Navigation. Additionally Irish Lights has developed a companion LLA guidance document which gives practical guidance on IALA recommendations, standards, and guidelines to assist the LLA with the management of Aids to Navigation in their area of responsibility.

During the period 2022/23 Irish Lights worked with the LLA stakeholders to develop a new Local Aton Management portal, based on a Geographical Information System (GIS) interface. Roll-out of this upgraded reporting and management tool commenced in 2022/23 and will be completed in the 2023/24 reporting period. This GIS functionality has been welcomed by the LLA as it allows them to more easily identify their Aton set against a nautical chart display. The new portal streamlines the process of applying for Statuary Sanction approval, allowing more visibility and transparency for the LLA on the status of their applications, in addition to allowing for quicker and easier reporting of Aton outages by the LLA.



Local AtoN Management Portal User Guide

Version 1.2



Portal home page and user guide

Legislative Background – Ireland

Section 652 (1) of the Merchant Shipping Act 1894¹, 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 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.

A Statutory Sanction can be granted for four classes of AtoN (*Table 2*).

AtoN Categorisation	
Permanent AtoN	AtoN established to mark a known navigational hazard. Example—Channel lateral marks.
Aquaculture AtoN	AtoN established to mark licenced aquaculture sites.
Temporary AtoN	AtoN temporarily established for a period not exceeding 12 months. Example—Turbidity buoy deployed for three months dredging campaign.
Seasonal AtoN	AtoN established for a given period each year. Example - Swim zone buoys deployed from May to September.

Table 2 - AtoN Categorisation

The levels of compliance for these AtoN categories are examined below by Local Lighthouse Authority.

¹ [Merchant Shipping Act, 1894, Section 652 \(irishstatutebook.ie\)](https://www.irishstatutebook.ie/1994/01/01/act_01/section_652.html)

Local Aids to Navigation Inspections - Ireland

For the reporting period 2022/23 there were 2,500 local AtoN inspected on the Island of Ireland, of which 2,089 (83%) were in Ireland and 411 (17%) were in Northern Ireland. Comparing the 2,089 AtoN inspections conducted in Ireland for the period 2022/23 with the 1,290 AtoN Inspections conducted for the same period in the previous year, this shows an increase in the quantity of inspections conducted in Ireland by 799 (62%).

There are three outcomes which result from an Irish Lights inspection of an AtoN.

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

Table 3—Categories of Inspection Outcomes

Summary of outcomes for AtoN inspected in Ireland.

Year 2022/23	AtoN Inspected	As Required	Minor Discrepancy	Major Discrepancy
Permanent AtoN	1,564	1,219 (78%)	123 (8%)	222 (14%)
Aquaculture AtoN	486	128 (26%)	210 (43%)	148 (31%)
Temporary AtoN	11	8 (73%)	1 (9%)	2 (18%)
Seasonal AtoN	28	23 (82%)	3 (11%)	2 (7%)
Total	2,089	1,378	317	394

Table 4—Result of inspections in Ireland

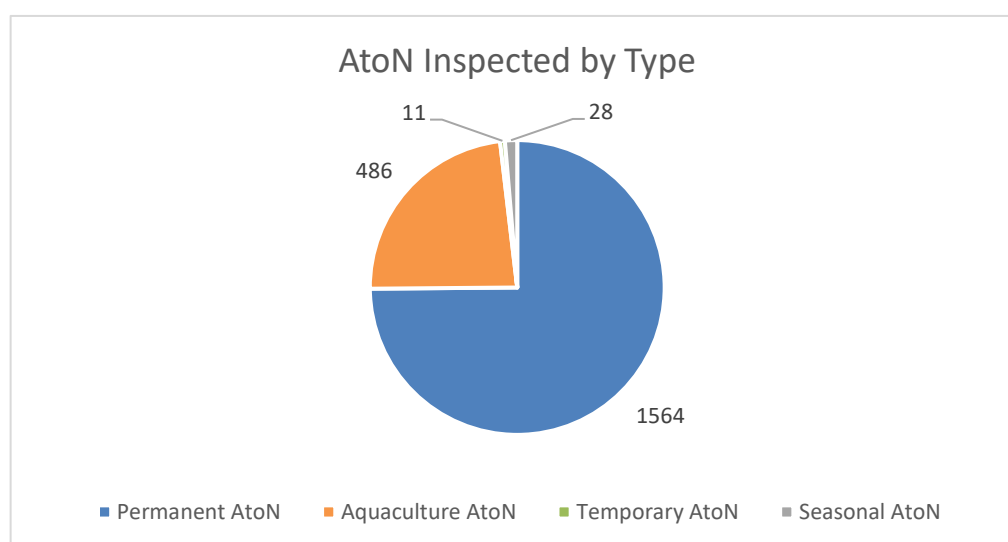


Figure 1 – Aton inspected by type

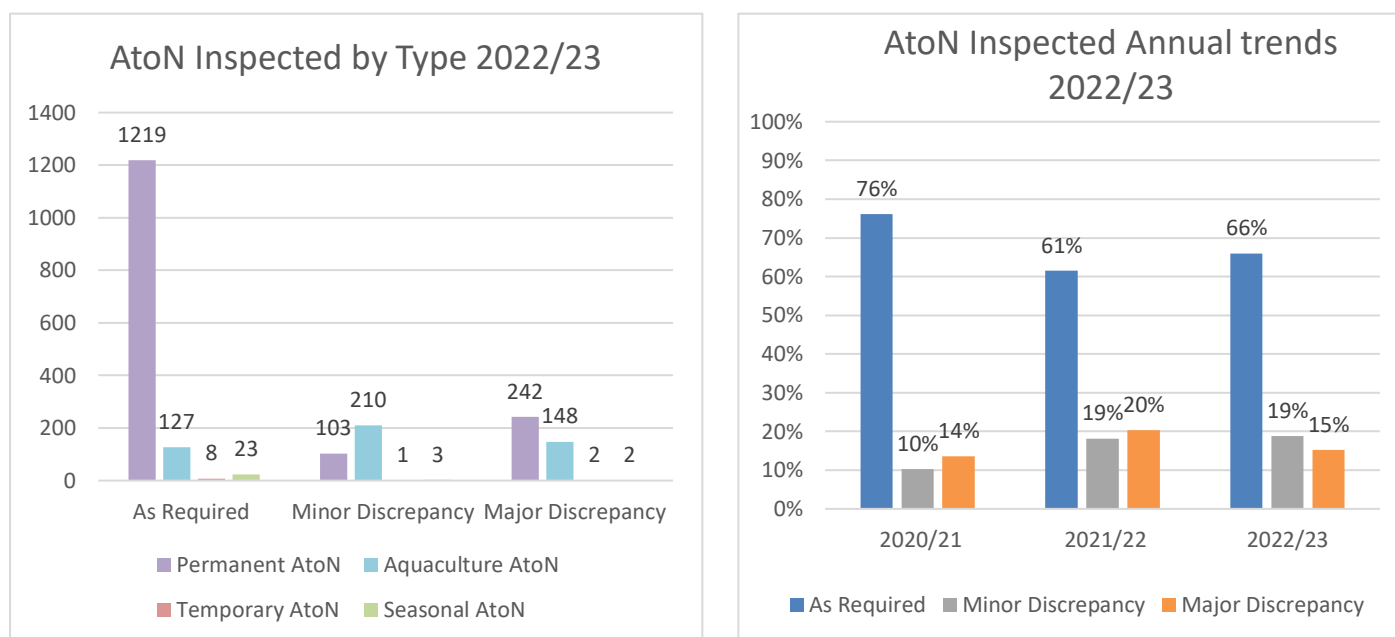


Figure 2 – Outcome of AtoN inspection by type (left) - Comparison of year-on-year inspections all types (right)

In Ireland, the ‘major discrepancies’ have reduced by 5% compared to the previous year, with the ‘as required’ result increasing by 5% and the ‘minor discrepancies’ result remaining the same. These figures would indicate a small improvement in the general condition of Local AtoN in Ireland for the year 2022/23, allowing for some variance due to the change in the inspection regime. As in previous years, the inspection results for Aquaculture local AtoNs show a disproportionately higher number of major and minor discrepancies compared to other AtoN types. These data are presented in more detail below.

The inspection outcome for an AtoN can have several descriptions recorded against it. Taken together these allow the Irish Lights team to form a judgement of whether an Aton is “as required” or has a minor or major discrepancy. Several simultaneous minor discrepancies can result in the categorisation of a major discrepancy if the Aton is judged to be below IALA requirements overall. Table 5 below details some of the main descriptions which were recorded against AtoN during an inspection. These are shaded grey for typical minor discrepancies and amber for typical major discrepancies. The red/green arrow to the right of the number shows an increase or decrease on the results from the previous year.

Outcome detailed descriptions	2022/23 Discrepancies	2021/22 Discrepancies
Requires Cleaning	19 ↑	11
Requires Painting	84 ↑	21
Name Board Missing	13 ↑	10
Leaning / Not Upright	26 ↑	9
Top Mark Missing	1 ↓	4

Renewal Required (condition deteriorating)	38 ↑	26
Light Character Incorrect	23 ↓	30
Out of Position	49 ↑	38
Sector lead check fail	3 ↓	6
Light Not Seen	3 ↑	1
Light Extinguished (Unlit)	1 ↓	38
Not Seen (Not Found / Not Located)	238 ↓ (132 Aquaculture AtoN) ↓	301 (231 Aquaculture AtoN)

Table 5 - Number and type of discrepancies–Ireland

The inspection results show a marked difference between aquaculture sites coming under the remit of Bord Iascaigh Mhara (BIM) as the Local Lighthouse Authority compared to those managed by other LLA such as Local Authorities (city and/or county councils). This is indicative of the additional support and advice offered by BIM to site operators using the Special Unified Marking Schemes (SUMS). It is evident that retaining and expanding this scheme would result in an improved maritime safety outcome.

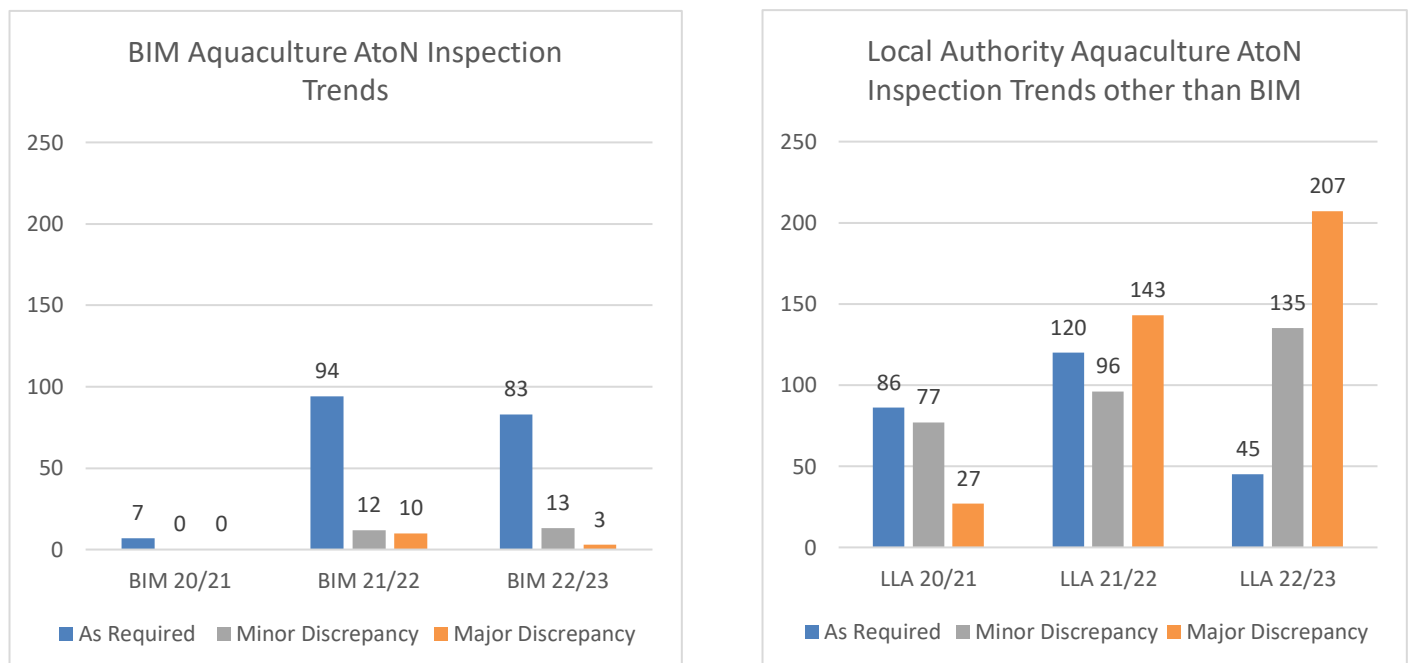


Figure 3 – results of Aquaculture inspections – BIM vs Other LLA

The improvements planned by Bord Iascaigh Mhara (BIM) for the aquaculture sector through the deployment of Special Unified Marking Schemes (SUMS) which were delayed due to the COVID pandemic have now been actioned during this reporting period. SUMS has resulted in a 57% reduction in the number of Aquaculture AtoN being recorded in 2022/23 as “Not Seen (Not Found/Not Located)”. As a result of SUMS, the number of major and minor discrepancies for aquaculture recorded against BIM as an LLA have trended downwards. However, the major and minor discrepancies for aquaculture for LLA other than BIM have increased significantly. In the reporting year 2022/23 the number of AtoN recorded as being “as required” for LLA other than BIM fell by 63%. These figures demonstrate the advantage of having a dedicated LLA (Bord Iascaigh Mhara) with comprehensive expertise in aquaculture plus the knowledge, resolve and local contacts to maintain these AtoN to internationally recognised maritime safety standards.

Unsanctioned Aids to Navigation – Ireland

During local Aid to Navigation (AtoN) inspections in Ireland for the year 2022/23, Irish Lights identified 64 unsanctioned AtoN, which were not granted corresponding Statutory Sanction permission for their establishment by Irish Lights (Annex C, figure 5). Although these unsanctioned AtoN were installed with good intent to increase navigation safety, Irish Lights reported them to the relevant Local Lighthouse Authorities (LLA) to ensure proper awareness of the AtoN within the LLA areas, and so that the AtoN can be correctly marked on the appropriate charts and nautical publications published by the UK Hydrographic Office. The detection of these unsanctioned AtoN during physical inspections is viewed positively as an indication of the effectiveness of the inspection process. However, it highlights a need for wider stakeholder engagement and education, both among LLA stakeholders and the public, on the legal requirements related to aids to navigation. Most of these 64 unsanctioned AtoN were related to aquaculture or local user organisations that installed them without the knowledge or consent of the LLA. Irish Lights has since engaged with the relevant LLA and requested the removal of the unsanctioned AtoN or the commencement of the Statutory Sanction process. Adherence to the statutory sanction process and oversight of the placement of AtoN by Irish Lights ensures Ireland continues to meet its SOLAS obligations to the internationally recognised standards set down by IALA.

Risk based Inspections.

During the 2022/23 reporting period, Irish Lights implemented a policy for local Aid to Navigation (AtoN) inspections and Local Lighthouse Authority (LLA) audits. This policy adopted a risk-based approach, in compliance with the Safety of Life at Sea (SOLAS) Convention Chapter V, Regulation 13, which requires aids to navigation to be provided based on the volume of traffic and degree of risk. The implementation of the new policy resulted in an increase of the number of inspections from 1,618 per annum to 2,640 (an increase of 1,022 or 63%). These inspections are conducted by a small team of two people operating individually and dividing the coast East/West. Irish Lights successfully inspected 2,500 (95%) of the local AtoN target during the 2022/23 reporting period. The implementation of the risk-based policy will be reviewed and refined going forward to account for changes in localised traffic volumes and other factors affecting the safety of navigation ensuring the effective planning of inspections.

Local Lighthouse Authority Audits - Ireland

In line with the provisions contained in the Merchant Shipping Acts, audits of LLA policies and procedures regarding the provision, management, and maintenance of their local AtoN were conducted with 21 of the 38 LLA in Ireland during the reporting period (detailed in Table 6). These audits are generally welcomed by the LLAs as they assist them in understanding their responsibility for AtoN provision and management. Audits are conducted on a rolling two-year interval.

Local Lighthouse Authorities audited in 2022/23
Cork County Council
DAFM Castletownbere FHC
DAFM Dingle FHC
DAFM Dunmore East FHC
DAFM Howth FHC
DAFM Rossaveel FHC
Donegal County Council
Dublin City Council
Fingal County Council
Galway County Council
Kerry County Council
Marine Institute
Mayo County Council
Port of Cork Company & Bantry Bay Port Company
Port of Galway
RWE Renewables Ireland Limited
Shannon Foynes Port Company
Sligo County Council
Uisce Éireann
Wexford County Council
Wicklow County Council

Table 6 - LLA audited in Ireland

The key areas covered by each audit include:

<u>Policy & Procedures such as:</u> <ul style="list-style-type: none"> • Safety Management System • Business Continuity Plan • Management of third party AtoN • Statutory Sanction application 	<u>Records of:</u> <ul style="list-style-type: none"> • AtoN failures (outages) • RNW (Radio Navigation Warning) broadcast • IALA availability statistics (quarterly reports) • AtoN inspections • AtoN planned maintenance
<u>Familiarity with the:</u> <ul style="list-style-type: none"> • Role of Irish Lights • Role of IALA • Role of LLA (own responsibilities) • Merchant Shipping Act 1894 	

Table 7 – Areas covered by audit of the LLA

Following an audit, a detailed report (example in figure 4) is provided to the LLA to assist with maintaining or improving compliance. An outcome will be derived from the audit.

Figure 4– Sample audit report provided to the LLA on completion

There are three outcomes which result from an audit is detailed in Annex D, *Table 12*.

- **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 - Ireland

In addition to the inspection and audit process, plus the consenting process for local AtoN, Irish Lights provides advice and guidance to LLA on safety of navigation matters connected with their activities. For example, during the reporting period, Irish Lights engaged with **Waterford City & County Council** to discuss plans for the ‘Sustainable Transport Bridge’ over the river Suir, during the construction phase of the project. This advice resulted in the submission of several Statutory Sanction applications to ensure that safety of navigation would be correctly managed during the construction phase.

Offshore Renewable Energy Sector (Phase One projects)

Irish Lights is committed to supporting the Irish Government target of delivering 5GW of offshore wind by 2030, plus a further 2GW of green hydrogen production. This rollout of ORE infrastructure in the waters around Ireland will require ongoing engagement between all stakeholders, during the consenting and planning stage, but also and crucially, on an ongoing basis for the operational life of the development. These ORE sites will require local AtoN and a designated organisation to undertake the duties and responsibilities equivalent to a Local Lighthouse Authority. Over the reporting period, Irish Lights has provided extensive safety of navigation advice to all of the Phase 1 projects and many of those planning ahead for Phase 2. The scope of Phase 1 activity has been clarified by the outcome of the Offshore Renewable Electricity Support Scheme (ORESS 1) auction, which has now completed for the Phase 1 projects. Four projects were successful and will now proceed to Development Consent, including input from Irish Lights in accordance with the National Marine Planning Framework. These are the Dublin Array, Sceirde Rocks, North Irish Sea Array and Codling Wind Park. All other projects will be determined as part of a planned structure, underpinned by Designated Maritime Area Plans. Irish Lights will continue to support as projects progress through their commissioning and operational stages, via the Statutory Sanction process for lighting and marking of offshore infrastructure.

Project	Location	Capacity (Estimated)
Sceirde Rocks Windfarm	West Coast	450MW
North Irish Sea Array (NISA)	East Coast	500MW
RWE Dublin Array (Kish & Bray Banks)	East Coast	900MW
Codling Park I and II	East Coast	1500MW

Table 8 – Successful projects at ORESS 1

Irish Lights also ensures safety of navigation through its involvement in various stakeholder fora. Since July 2022 Irish Lights has attended the monthly meetings of the Seafood-Offshore Renewable Energy Working Group (Seafood-ORE WG), set up by the Minister of Housing, Local Government and Heritage. The purpose of the working group, within the context of the National Marine Planning Framework, facilitates discussion on matters arising from the interaction of the seafood and offshore renewable energy industries.

Conclusion

This annual report provides a high-level summary of performance of local AtoN within Ireland, under Irish Lights' statutory responsibilities for the superintendence and management of all lighthouses, buoys and beacons managed by Local Lighthouse Authorities (LLA). These responsibilities are the cornerstones of Irish Lights' role in ensuring that mariners using the waters around the island of Ireland can do so safely.

Summary of AtoN Inspected in Ireland				
Year	Total AtoN Inspected	As Required	Major Discrepancy	Minor Discrepancy
2022/23	2,089	1,378 (66%)	394 (19%)	317 (15%)
2021/22	1,290	816 (63%)	222 (17%)	252 (20%)

Table 9 - Summary of AtoN Inspected in Ireland

Irish Lights is engaged in continual improvement of our quality assurance service for local AtoN. Various improvements have been actioned during the reporting period including a risk-based approach to local AtoN inspections, improved management tools for use by the LLAs including a GIS interface, development of an online training tool for LLA to increase compliance with IALA best practice. Irish Lights remains committed to ensuring that Ireland meets its obligations under the SOLAS Convention.



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Annexes

Annex A – Extract from IMO SOLAS

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

* Refer to the recommendations and guidelines of IALA and SN/Circ.107–Maritime Buoyage System.

Annex B – IALA Categorisation and Availability Objectives for Short Range Aids to Navigation

Available at:

[R0130 Categorisation and Availability Objectives for Short Range Aids to Navigation \(O-130\) - IALA AISM \(iala-aism.org\)](https://www.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	99.8%	Availability Objectives are calculated over a continuous three-year period, unless otherwise specified.
2	99.0%	
3	97.0%	

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 95.0%.

Where the availability of an individual AtoN consistently falls below 95.0%, 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 1–52.59 hours over three years

Category 2–10.95 days over three years

Category 3–32.88 days over three years