Northern Lighthouse Board

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## Inspection Audit of Local Aids to Navigation, Offshore Structures & Aquaculture Sites

2020/21 Report

Ardrossan Lighthouse

**Inspection Audit of Local Aids to Navigation, Offshore Structures & Aquaculture Sites – 2020/21 REPORT**

This report is submitted to the Secretary of State pursuant to section 198(4) of the Merchant Shipping Act 1995, and to the Scottish Ministers in accordance with section 55 of the Scotland Act 2016.

This report covers the period April 2020 to March 2021 inclusive.

## 1. POLICY

1.1 Section 198(1) of the Merchant Shipping Act 1995 (the Act of 1995), empowers the General Lighthouse Authorities to inspect all lighthouses, buoys and beacons under Local Lighthouse Authority management. In addition, Section 195(1) of the Act vests in the General Lighthouse Authorities (GLA) the superintendence and management of all lighthouses, buoys and beacons within their areas.

1.2 Emphasis continues to be placed on a combination of inspecting local Aids to Navigation (AtoN) and/or auditing local AtoN Availability Statistics and Casualty Response targets against known requirements.

1.3 Under the UK Government's Port Marine Safety Code all Aids to Navigation (AtoN) maintained by Harbour Authorities and any other existing Local Lighthouse Authorities must be maintained in accordance with the availability criteria laid down by the General Lighthouse Authorities, and must be subject to periodic review. The characteristics of these aids to navigation must comply with the guidelines and recommendations as laid down by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). The General Lighthouse Authorities require Harbour Authorities and any other existing Local Lighthouse Authorities to be responsible for ensuring that any third party aids to navigation, within their areas of responsibility are also established and maintained to the same standards.

1.4 The General Lighthouse Authorities also require those responsible for Local Aids to Navigation, which lie outwith Statutory Harbour and Local Lighthouse Authorities' areas of jurisdiction, to establish and maintain their Aids to Navigation to the same standards.

1.5 The General Lighthouse Authorities require those responsible for Local Aids to Navigation to maintain appropriate records of AtoN Availability Statistics and AtoN casualty responses and to provide summaries of these records to the relevant GLA on an annual basis.

1.6 In addition, each Authority is required to establish procedures for responding to AtoN casualties within the timescales as laid down and applied by the General Lighthouse Authorities.

## 2. PURPOSE

2.1 Northern Lighthouse Board, as a General Lighthouse Authority, has a statutory duty of superintendence and management, to ensure that AtoN maintained by other authorities within the NLB area of responsibility meet the agreed international standards. The Northern Lighthouse Board discharges this duty by a combination of audit, inspection, review and consenting to changes requested by any appropriate authority via the Statutory Sanction process. NLB are also routinely consulted regarding marine developments by Marine Scotland, who are responsible for the issue of marine licences under the Marine (Scotland) Act 2010; by the Scottish Government, who are responsible for granting Harbour Empowerment and Harbour Revision Orders under the Harbours Act 1964; and by the Department for Business, Enterprise and Industrial Strategy, who are responsible for oil and gas licensing under the Energy Act 2008.

2.2 Site visits give Local Lighthouse Authorities the opportunity to discuss with the Inspecting Officer all matters relating to their AtoN provision – i.e. the level of provision, recommendation for changes and/or review of their existing maintenance procedures.

2.3 Many Local Lighthouse Authorities welcome this visit, as they consider the audit/inspection to form an important external audit element of their Quality and/or Safety Management Systems.

2.4 Whilst inspection provides a snapshot of the standard of AtoN provision on a particular day, the audit of Local Lighthouse Authority records allows a more detailed examination of their performance over a longer period of time.

2.5 Within the Northern Lighthouse Board, external LLA Audits under the Port Marine Safety Code are conducted by members of the Navigation Section. Inspections of AtoN are generally carried out by Ships' staff, with other inspections undertaken during site visits and/or scheduled audits or compliance visits.

2.6 The General Lighthouse Authorities have very limited powers to follow up on deficiencies in the provision of AtoN by LLAs or other bodies; it is intended to seek clarification of these powers in the programmed revision of the Merchant Shipping Act.

## 3. LOCAL ATON

### 3.1 Inspections

3.1.1 Inspections of Aids to Navigation can fall into one or more of the following categories:

- Seaward inspection undertaken by NLB vessels (day/night) from a seaward aspect, checking the bearing, range and sectors of directional, leading and sector lights. Other aids to navigation including lights, traffic signals, lit/unlit beacons and lit/unlit buoys are also checked for light characteristic, range, conspicuity of daymark and for floating aids to navigation (buoys), conspicuity of topmark and geographical position. Automatic identification systems (AIS) and radio beacons (RACONS) are checked for code/signal transmitted from the aid to navigation to that received on board the vessel, including nominal range. All data is cross referenced against current Admiralty charts, and published information within the Admiralty List of Lights and Fog Signals and the Admiralty List of Radio Signals.

- Shore based inspection (day) undertaken in response to a direct request, enquiry or in conjunction with other work in the surrounding area. The inspection includes a physical check of the structure, position, description, character, daymark, colour and general condition of the light. Additional information regarding ownership and maintenance responsibilities are also verified at this time.

- Shore based inspection (night), usually undertaken as part of a sample inspection required for the purposes of auditing a Port or Harbour Authority under the Port Marine Safety Code. Inspections are either carried out from shore or via local Pilot Boat with prior agreement from the relevant Port or Harbour Authority.

3.1.2 Inspection findings are input by the Inspecting Officer into the web-based Aids to Navigation and Reporting (*AtonRep*) software, jointly developed by Irish Lights and the Northern Lighthouse Board. Inspections submitted by NLB vessels are monitored by the Navigation section, with any reported defects registered on the *AtonRep* database and notification issued to the relevant owning authority for verification/rectification.

3.1.3 Thereafter, routine checks are made against the list of outstanding defects to ensure that these are successfully closed out within the required timescale. Statistics regarding the number of inspections and associated failures are provided to NLB's Director of Operations on a monthly basis. Monthly reports regarding outstanding/overdue inspections and those scheduled for inspection in the current year are also passed to the Marine Operations Manager, to inform vessel programming.

### 3.2 Results of 2020/21 Local Lighthouse Authority AtoN Inspections

3.2.1 There are currently 217 authorities registered in the *AtonRep* database with responsibility for marine Aid to Navigation within NLB's area of jurisdiction.

3.2.2 At 31 March 2021 there were 2252 active LLA Aids to Navigation registered on the *AtonRep* database. Consistent with previous Annual Inspection reports, these figures exclude aquaculture sites in Scottish waters.

3.2.3 1823 of the 2252 LLA AtoN (81.0%) were inspected in 2020/21. Of these, 134 were found to be defective representing a deficiency rate of 7.4%. This represents a recent increase in failure rates, but is consistent with historic levels.

**LLA Annual Inspection Failure Trend**

| **Inspection Year** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018 /19** | **2019 /20** | **2020 /21** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| **No. of AtoN** | 1939 | 1958 | 1963 | 2018 | 2034 | 2043 | 2074 | 2127 | 2238 | 2252 |
| **No. of Inspections** | 1191 | 1747 | 1350 | 1692 | 1443 | 1710 | 1614 | 1730 | 1867 | 1823 |
| **No. of Failures** | 61 | 110 | 108 | 83 | 64 | 88 | 71 | 114 | 107 | 134 |
| **Percentage Failure** | 5.2 | 6.3 | 8 | 4.9 | 4.4 | 5.1 | 4.4 | 6.6 | 5.7 | 7.4 |

**Fig. 1 - LLA Annual Inspection Results**

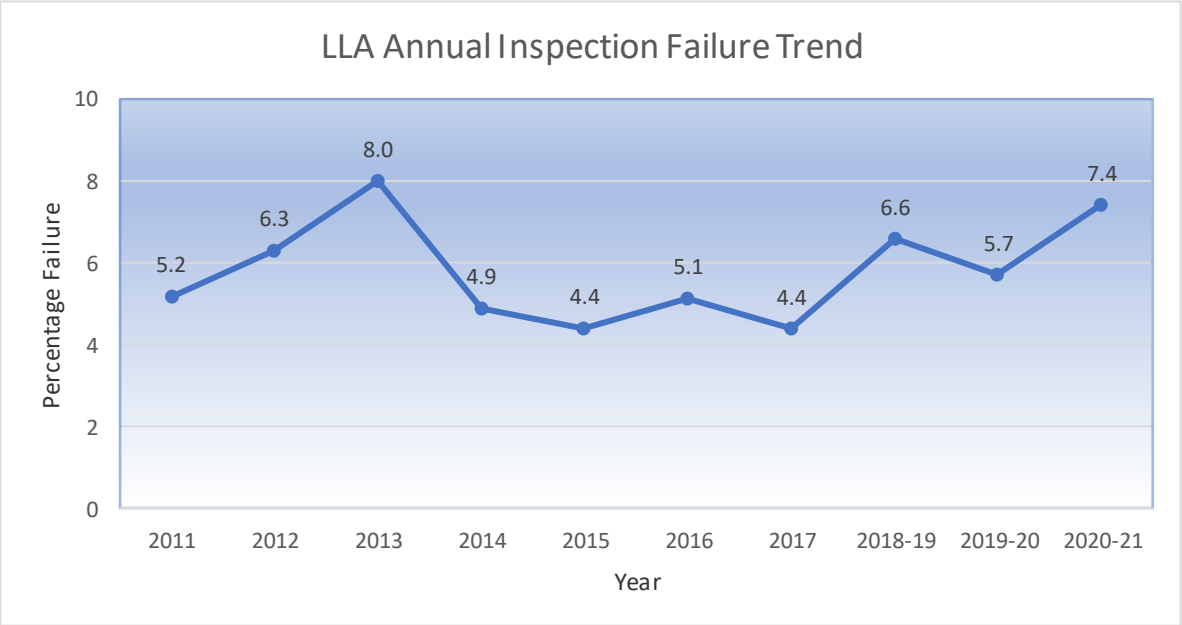


**Fig. 2 - LLA Annual Inspection Failure Trend**

### 3.3 Local AtoN Audits

3.3.1 The Department for Transport UK Ports database shows a total of 688 ports in Scottish waters, however many of these are extremely limited in size and scope of operations. 251 of these are Statutory Harbour Authorities, with their own governing legislation, but again many are limited in size and most are operated by Local Authorities. 25 are classed as Competent Harbour Authorities, with additional statutory powers relating to pilotage; in general these are the most active ports in terms of commercial activity. NLB undertakes an audit cycle under the Port Marine Safety Code for all Competent and major Statutory Harbour Authorities within our area of jurisdiction.

3.3.2 For all other authorities with responsibility for Marine Aids to Navigation, not deemed to be either a Competent or major Statutory Harbour Authority, a formal audit is not undertaken, however the more significant of these are subject to a compliance visit.

3.3.3 Compliance with the Port Marine Safety Code for these authorities is voluntary, although some sections are based on statute. Therefore emphasis is placed on encouraging the authority to follow best practice, with a view to increasing the authorities' awareness of their responsibilities with regard to the provision and maintenance of their AtoN. The authorities are also encouraged to participate in a data verification exercise to ensure that their aids to navigation are registered with the Northern Lighthouse Board, and that these are also charted and published by the UK Hydrographic Office.

3.3.4 Five harbour authorities were re-audited in 2020/21, with all five found to be fully compliant (with respect to provision and maintenance of marine aids to navigation) with the Port Marine Safety Code. Due to the current operating conditions, all audits were completed by virtual methods, a return to face-to-face audits will commence when permitted.

### 3.4 Local AtoN Availability

3.4.1 Local AtoN maintained by LLA and other providers are required to be maintained in accordance with the availability criteria laid down by the General Lighthouse Authorities, which are based on IALA guidelines.

3.4.2 Availability is calculated based on a three year rolling average, with the minimum/target availability for each AtoN Category as shown below:

Category 1 (99.8% Availability)
Category 2 (99.0% Availability)
Category 3 (97.0% Availability)

3.4.3 When an AtoN is reported defective, it is regarded as a casualty when the AtoN component falls below the advertised characteristics for the station and the details are then included in the calculation for availability.

3.4.4 Northern Lighthouse Board requires all Competent and major Statutory Harbour Authorities to submit an annual return to demonstrate their performance against the required standards.

3.4.5 Utility companies and other authorities with responsibility for a large number of marine AtoN are also encouraged to maintain casualty records, either via the submission of a pre-formatted Excel spreadsheet provided by Northern Lighthouse Board, or via access to the *Aton Reporting Online* web based database. Either method provides an accurate record of their Aton defects and enables an electronically generated return of their achieved availability statistics to be submitted to the Northern Lighthouse Board for review.

### 3.5 Results of the 2020/21 Local AtoN Availability Returns

3.5.1 Of the 35 Local Lighthouse Authorities from whom Annual Returns were requested, 35 complied within the required timescale.

3.5.2 For the three year rolling period ending 31 March 2021, three of these authorities failed to meet the IALA standard for Category 1 AtoN; nine failed to meet the IALA standard for Category 2 AtoN and two failed to meet the IALA standard for Category 3 AtoN. In summary, twelve authorities have failed to meet the required standard of availability for a particular category of AtoN.

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3.5.3 In general, when LLAs fail to meet the target availability, this is a result of difficulties in accessing more remote aids to navigation, and this is sometimes compounded by limited resources. This year has been challenging as many LLAs have had difficulty in sourcing contractors to undertake AtoN maintenance/ fault repair due to staff on furlough or working from home along with difficulties accessing remote locations and/or communities and the risk that poses.

### 3.6 Overview of Local Aids to Navigation

3.6.1 2020/21 has seen a steady flow of Statutory *Sa*nction Applications from port and harbour authorities, utility companies, private industry, renewable energy and aquaculture operators to alter, discontinue or exhibit marine aids to navigation.

33 applications to establish new aids to navigation were received for the deployment of 25 lit buoys (including nine lateral buoys); the establishment of 23 lights (including four sector lights); two floating wind turbines (which include the use of multiple lights, AIS AtoN devices and fog signals). These were primarily to improve the marking of navigable channels, hazards on approach to harbours, offshore decommissioning, harbour/ marina infrastructure and renewable energy developments.

Thirteen applications to alter existing aids to navigation were received for six lights (mostly due to harbour improvements)), six lit buoys (mostly involved in environmental monitoring) and three unlit beacons.

Fifteen applications to discontinue existing aids to navigation were received and approved for eight lights, 16 lit buoys, one floating wind turbine (including multiple lights, AIS AtoN and fog signal), and one siren, which were mainly associated with wind farm construction/data gathering buoyage, completion of a major bridge construction and ongoing reviews of aids to navigation.

3.6.2 NLB is a statutory consultee for all Marine Licence applications under The Marine Licensing (Consultees) (Scotland) Order 2011. For the 12 month period April 2020 to March 2021, Northern Lighthouse Board responded to some 119 applications and 14 Pre-Application Consultations (excluding Aquaculture, Offshore Oil and Offshore Renewables).

3.6.3 NLB has also provided comment to Scottish Ministers on a number of Harbour Designation, Enforcement and Revision Orders under the Harbours Act 1964, covering powers of harbour direction, pilotage direction, revised harbour limits and marine construction to develop existing harbours in support of offshore renewables, along with port and harbour infrastructure upgrades.

NLB have given marking and lighting advice regarding several proposed harbour developments, including the development of Stranraer Marina, the pier redevelopment at Arnish Deep Water Port in Stornoway; development of ferry slipway protection at Iona and Fionnaphort, Mull; and ongoing major ferry terminal projects (including the redevelopment of the ‘Skye Triangle’ ferry terminals Tarbert, Uig and Lochmaddy).

Other notable projects have been commented on by NLB including a new opening bridge over the River Clyde between Govan and Partick; over-water zip wire installation, power and communications infrastructure cable replacement programs; confined sea loch channel marking for large vessels; drone use in the marine environment; and developments with Rocket launch sites in Shetland, Caithness and the Outer Hebrides.

## 4. OFFSHORE RENEWABLE ENERGY DEVELOPMENTS

### 4.1 Licensing

The development of Offshore Renewable Energy installations (OREI) is the largest growth area affecting the marine environment. Developers are required to seek a number of consents; with regard to Navigational Safety this is specifically the Marine Licence administered by Marine Scotland.

NLB have been involved with all developments in Scottish waters, both prior to and during the Marine Licensing process, providing guidance on what developments are acceptable and how to mitigate the risk of collision and allision with OREI. The process now includes developers being required to develop a 'Marking and Lighting Plan' covering all stages of construction and operation of an OREI site.

### 4.2 Offshore Wind

There has been considerable growth in offshore wind energy in Scottish waters over recent years, adding to the established wind farms at Robin Rigg in the Solway Firth (174 MW), Beatrice in the Moray Firth (588 MW) and off Aberdeen (93.2 MW).

The Hywind floating wind farm, a world first, consisting of five 6MW turbines some 15 miles East of Peterhead, was commissioned in October 2017. The Kincardine floating wind farm, East of Stonehaven, established a single 2 MW turbine in October 2018; this has now been withdrawn, but a further five 9.5 MW devices are being installed during the summer of 2021.

Construction of the (Round 3) Moray East (950 MW) site has commenced, with a further site in this area, Moray West, also planned to take up the remaining licensed capacity.

The Outer Firth of Forth/Tay region is also the focus of considerable development for offshore wind. The Neart na Gaoithe wind farm commenced both onshore and offshore construction in early 2020, and the Seagreen Round 3 project have also commenced construction works.

The Inch Cape Offshore Wind Farm project, also located within the Outer Firth of Forth, was not successful in the most recent Contract for Difference auctions, but planning for the project continues to progress.

The two 5 MW wind turbine demonstrators adjacent to the Beatrice Oil Field in the Moray Firth are now non-operational, and the operators are examining decommissioning options.

The next leasing auction round, known as Scotwind, has been delayed with submissions now due in July 2021. NLB have held early discussions with a number of interested developers.

### 4.3 Wave & Tidal

There is also significant interest in the deployment of wave & tidal renewable energy devices around the coast of Scotland, however this has yet to result in significant development.

The Meygen tidal energy site, south of Stroma, started generating power to grid in December 2016, with four 1.5 MW turbines installed by February 2017. A further two turbines are planned in the short term, and a further 49 turbines (73.5 MW) have been licensed.

Six smaller turbines, total output 600 kW, have also been installed by Nova Innovation in Bluemull Sound, Shetland.

### 4.4 Test & Development

Scottish waters continue to attract renewable energy developers to the wave and tidal energy test sites operated by the European Marine Energy Centre (EMEC) in Orkney. A number of wave energy devices have been trialled at the Billia Croo (Hoy Mouth) site over several years, and several tidal turbines and associated infrastructure developments continue to be tested at the Falls of Warness site near Eday. Additional nursery or secondary test sites have also been developed in Orkney at St Margaret's Hope, Scapa Flow and off Westray, for wave and tidal devices respectively.

A number of projects are scheduled to be installed in summer 2021, including Mocean's Blue X prototype at Billia Croo; the reinstallation of Magellanes' ATIR device at Falls of Warness; and the third generation Orbital (formerly Scotrenewables) O2 device, also at Falls of Warness.

## 5. 2020 SEAWARD INSPECTION OF OFFSHORE STRUCTURES

### 5.1 Inspection Procedure

5.1.1 In order to discharge its statutory duty as a General Lighthouse Authority in respect of offshore AtoN, NLB undertakes an annual inspection voyage to ensure that Offshore Oil & Gas operators are maintaining the AtoN for which they are responsible, to meet the agreed international standards, specifically the Standard Marking Schedule for Offshore Installations.

5.1.2 While the inspection provides a snapshot of the standard of provision on a particular day, the combination of historical inspection records and additional reports from any operator, owner or standby/rescue vessel (ERRV) on any outage, defect or omission, gives a condition trend reflecting the response to the annual inspection and report.

5.1.3 Prior to the annual inspection, the operating companies are contacted and requested to supply information on all offshore units owned or on contract to them, they are likewise given prior warning of the inspection and a copy of the inspection details request is forwarded to them.

5.1.4 The Inspection of each Offshore Oil Installation follows the procedure below:

(a) Physical Inspection.
This inspection is carried out from on board the 'NLV Pharos'. The inspection is carried out during the hours of darkness, initially with regard to the conspicuity of the Main White morse 'Uniform' lights, with the number, range of observation and effectiveness of synchronisation being recorded. A similar inspection is made of the Subsidiary Red morse 'Uniform' lights, the installation sound signal and the number and clarity of the platform Name Boards or Identification Panels. Any navigation, weather data or mooring buoys deployed in the proximity of the field will also be inspected,

(b) Inspection Records
The results of each inspection are recorded on a report sheet containing the latest details specific to each platform, MODU or FPSO/FSU at the time of inspection; these results are then compiled to produce a summary report.

(c) Defects or Faults
Any fault or defect found during the inspection will be reported directly to the Radio/Control room operator prior to the 'NLV Pharos' leaving the location. For un-manned installations, the results are passed to Standby or ERRV vessels with a request to confirm the repair and report the correct operation to NLB. Since 2013 OPRED have required the owners/operators of Offshore Installations to record any defect of Aids to Navigation via a PON-10 notification.

(d) Corrections and Additions
During the course of the inspection any changes to the information held on record with respect to the owners/operators of the installation or their contact details will be discussed when in radio contact with the personnel on board. Similarly, any additions, removal or repositioning changes to the number and/or type of AtoN used to identify and safely mark the installation will be noted at the time of inspection and transferred to the NLB's AtonRep data system.

## 5.2 Results of the 2020 Inspection Voyage

5.2.1 The 2020 Annual Seaward Inspection of Offshore Installations was conducted by the NLV Pharos, and was overseen by Coastal Inspector Adam Lewis. The inspection is carried out to ensure that all installations continue to meet the requirements for Navigational Marking as per the 'Standard Marking Schedule for Offshore Structures', and encompasses lighting, fog signals, identification panels and electronic aids to navigation such as RACONs and AIS where fitted.

5.2.2 NLV Pharos departed Oban on 29 November 2020. Between 30 November 2020 and 3 December 2020, inspections were carried out on 60 installations consisting of 53 fixed or floating platforms and 7 Mobile Offshore Drilling Units (MODU).

5.2.3 Weather delays and operational requirements then enforced a short break on the inspection process. A second round of inspections was then undertaken on 15 and 16 December 2020. An additional 23 platforms (21 fixed, 2 MODU) were inspected on this second voyage.

5.2.4 At the time of the inspection, Northern Lighthouse Board's area of jurisdiction within the UK sector consisted of 99 fixed or floating platforms. In total, the 2020 campaign inspected 74 fixed or floating installations and 9 MODU. It should be noted that the total number of installations will fluctuate depending upon ongoing commissioning/decommissioning projects, and also the location of the Mobile Offshore Units.

5.2.5 Due to weather and operational restrictions, installations to the north of 60°N and the West of Shetland region were not inspected. These remaining inspections were then rescheduled to be carried out by the NLV Pharos between 27 February and 3 March 2021. However, due to operational demands of the vessel, these inspections were not undertaken. The 2021/22 inspection voyage will prioritise the regions that were not completed.

5.2.6 Of the 83 installations inspected, 16 failures were noted (19%); none of these failures consisted of an unlit rig. 6 failures were considered 'high priority', all of which were inadequate light ranges for the Primary white lights. The remaining 10 'low priority' failures were composed of inadequate fog signal ranges or lack of synchronisation across lighting systems.

## 6. THE AQUACULTURE INSPECTION PROCESS

### 6.1 Introduction

6.1.1 From small beginnings in the 1960s, marine fish and shellfish farming, mainly for salmon and mussels, has grown into a significant Scottish industry helping to underpin sustainable economic growth in Scotland's rural and coastal communities.

6.1.2 The industry is mainly based on the Scottish Islands (Western Isles, Orkney and Shetland) and the West coast of the mainland where it employs around 2,500 people (full-time equivalent) in rural communities. The industry as a whole employs roughly up to 12,000 people either directly or in support services. There is no aquaculture in the Isle of Man.

6.1.3 The industry is heavily regulated and, under the Marine (Scotland) Act 2010 Part 4, the Scottish Government is responsible for licensing activities carried out in the Scottish inshore region. Through the process of marine licensing, and the conditions placed on licences, economically and socially beneficial activities are promoted while minimising adverse effects on the environment, human health and users of the sea. Where obstruction or danger to navigation is caused or is likely to result from the development of aquaculture farms, a Marine Licence is required and, through statutory consultation with NLB and the Maritime and Coastguard Agency, safety of navigation issues are taken into account. Crown Estate Scotland also has a role as a pro-active landlord and Local Authorities are responsible for granting the necessary planning permissions.

### 6.2 Hazards to Navigation

6.2.1 Fish farms often encroach on charted anchorage areas and areas frequented by smaller fishing vessels and leisure craft, as well as lying adjacent to larger vessel routes. Growth of the industry has also resulted in live fish carriers and other vessels navigating much closer inshore than large vessels would traditionally venture.

6.2.2 Finfish plastic ring cages present a collision hazard and are often accompanied by sizeable steel or concrete feed barges. Mussel lines are perceived to offer a particular hazard, due to their low visual conspicuity and potential to foul propellers. Oyster beds are sited in shallow water but may project steelwork constructions with the ability to damage vessels or foul anchors. Most sites have significant mooring arrangements, often with outlying buoys and trailing lines, with the capacity to foul propellers or anchors. This practice is strongly discouraged by NLB in responses to licence applications and during site inspections.

6.2.3 There are specific hazards when sites are left fallow, with the AtoN removed but with remaining surface or sub-surface obstructions; or with the abandonment of (usually mussel) sites. The latter often require protracted multi-agency efforts to rectify.

### 6.3 Hazard Mitigation

6.3.1 Hazard mitigation is provided by ensuring that aquaculture sites are marked as accurately as possible on charts and by requiring the site operator to provide aids to navigation. These are usually in the form of yellow Special Mark poles or buoys, with or without short range navigation lights. These are generally sited on the seaward side of the farm, or to mark the navigable route through a channel.

### 6.4 The Aquaculture Inspection Process

6.4.1 The initial stage of a site inspection involves an examination of the site's Marine Licence, to establish that the NLB's marking and lighting recommendations are present and correctly correspond to NLB records. The site manager is requested to produce any further documentation appertaining to all on site AtoN inspection and maintenance activities.

6.4.2 A boat visit to the site (s) is requested, and the following procedures carried out:

- GPS co-ordinates (WGS 84 datum) of the site extremities and navigational markers are recorded.
- Any navigational lights are tested to check they are operating properly and display the correct lighting characteristic.
- All navigational marks are inspected to ensure they are in a suitable condition.

6.4.3 The inspection concludes with a discussion with the site manager. The Coastal Inspector provides a brief summary of their findings and what actions the stakeholder is required to take. Where necessary, the Coastal Inspector will also highlight the importance of ensuring sites are correctly marked for the safety of the mariner, and that correct navigational marking is part of the organisations lease agreement, Planning Permission and Marine Licence and that repeated failures may result in revocation of any of these.

6.4.4 Subsequent to the inspection, a detailed written report is forwarded to the site operator.

### 6.5 2020/21 Inspections

6.5.1 Due to the COVID-19 pandemic, NLB were unable to carry out a physical site inspection programme in 2020/21. To ensure business operations were maintained and to mitigate against COVID-19 resulting in drops in compliance, the NLB utilised its vessel, NLV POLE STAR, in a trial inspection process. The trial also assessed the feasibility of using NLB vessels to support the Coastal Inspector in the aquaculture inspection process on a more permanent basis.

6.5.2 The Coastal Inspector joined the vessel on a four-day transit from Montrose to Oban, aiming to inspect aquaculture sites in remote areas which are challenging to access, and thus include, in the normal land-based inspection programme e.g., Loch Eriboll in Northern Sutherland, the Isle of Muck and the Isle of Rum.

6.5.3 Thirteen aquaculture site inspections were undertaken, with the following results observed:

| Site Type | Number Inspected | Correctly Marked as per Marine Licence | Partially Marked | Percentage Marked Correctly |
|---|---|---|---|---|
| Shellfish | 0 | - | - | - |
| Finfish | 13 | 7 | 2 | 53.8% |
| | | | | |
| Combined | 13 | 7 | 2 | **53.8%** |

6.5.4 The trial added value to the aquaculture inspection process as a whole. The ship's crew developed a thorough understanding of the requirements of the inspection process. The use of the ship also had the added benefit of being able to view finfish farms from the perspective of the mariner, allowing for a more pertinent assessment to be made on the suitability of the marking requirements NLB issues.

6.5.5 Following the voyage the Coastal Inspector produced a report, with contributions from NLB mariners, detailing a series of key observations and suggested measures for improving the effectiveness and efficiency of NLB aquaculture marking requirements. These suggested changes to finfish marking conditions will be discussed with the industry and Marine Scotland and are listed below:

- Current NLB recommendations generally stipulate the use of Lit Special Mark Poles (LSMP) fitted with an 'X' topmark (daymark). The use of daymarks on poles presents a challenge; the weight of the daymark often results in the bending of the pole and light, rendering them ineffective. Positioning daymarks on poles limits the size of the mark and they become counter-intuitive; the fish farm can be seen long before the daymark. It is therefore recommended that in future an alternative method is utilised, with daymarks which are much larger in size and attached at a lower level between site equipment handrails.

- Although rare, there are occasions when NLB has not issued special mark lighting conditions for finfish sites (due to their vicinity to shore and location e.g., at the head of a remote loch). In future, to ensure consistency with IALA Guideline R0139 – The Marking of Man-made Offshore Structures, all finfish sites should be marked with at least one special mark light.

- Current NLB policy stipulates that feed barges are marked with an All-Round Fixed White Light (ARFWL) due to their similarity to a vessel at anchor. ARFWLs are challenging to inspect due to the array of other feed barge infrastructure (masts, antennas, flood lights) obscuring the light, moonshine and sunlight reflection can create glare which can be deceptive, and a non-functional light may be mis-interpretated as being functional. Thus, the NLB is investigating the use of a flashing white light to mark the structure as opposed to an ARFWL. Initial recommendations are to investigate the use of a character flash of Morse 'U' as is used on fixed offshore installations.

### 6.6 Finfish Compliance Follow-up

6.6.1 The Scottish Salmon Producers Organisation (SSPO) is the representative trade body for Scotland's salmon producers. Following the 2019/2020 annual report the NLB identified a key initiative to improve compliance rate across the finfish sector in the form of direct engagement and collaboration with the SSPO. In Q1 of 2021 the aquaculture Coastal Inspector met with directors from the SSPO. The aim of the meeting was to highlight the less than acceptable compliance levels across the sector, and to communicate the necessity for SSPO members to fully comply with navigational marking conditions. The SSPO shared NLB's concerns with regards to compliance and were surprised that this issue was not being fully addressed by the industry. The SSPO's response was swift – notifying the Managing Directors of the major finish producers and urging them to take immediate action. Following this, the Coastal Inspector was contacted by three finfish operators within hours of the initial meeting, with requests for full datasets of all known navigational faults, accompanied by an assurance of immediate rectification. Following the success of the meeting, the NLB intends to maintain open links with the SSPO in all aquaculture operations going forward.

6.6.2 Following three separate NLB inspections over 2019 and 2020, of three sites, operated by the same producer, in which the Coastal Inspector identified the same marking faults, the Coastal Inspector held a meeting with the operator's senior stakeholders. The aim of the meeting was to highlight the unacceptable levels of on-going compliance failures, the risks associated with this, and raise the possibility of potential sanctions against the organisation. The meeting triggered an unprecedented response. Following inspection data supplied by the Coastal Inspector, the operator's Director of Farming actioned an immediate internal audit of navigational marking equipment for every site owned by the producer throughout Scotland. The Coastal Inspector received confirmation within two weeks that all remedial faults had now been rectified.

### 6.7 Collaboration with Other Agencies

6.7.1 Following an incident involving an inshore commercial fishing vessel and a finfish farming site in Orkney, the NLB facilitated several meetings with the MCA's Technical Services Navigation Department and Marine Scotland Licencing Operations Team to discuss how the agencies could collaboratively work together to improve safety related issues around fish farming sites.

6.7.2 Safety requirements for aquaculture sites depend heavily on the recommendations and advisories the NLB and MCA submit through the Marine Licencing process. Included in these conditions are stipulations that operators must submit details and co-ordinates of completed developments to the UKHO in order that appropriate charts can be updated. Having identified discrepancies between how aquaculture sites are depicted on Admiralty Charts, and the infrastructure actually in place, the NLB raised concerns that this process was not being adhered too. In Q1 of 2021, the NLB and MCA held meetings with the UKHO to discuss the charting of aquaculture sites and what improvements could be made. The meeting outlined that the UKHO were indeed not being supplied with co-ordinates following a successful marine licence application. Discussions also attained towards which of the three types of co-ordinates (mooring grid, surface grid, lease area) the UHKO should use to chart aquaculture sites. Recommendations from the meeting were that;

- The UKHO will use the co-ordinates supplied in the Marine License to chart an aquaculture sites mooring grid.

- The NLB and MCA will improve the wording of the conditions issued in response to a Marine Licence pertaining to applicants submitting final development co-ordinates to the UKHO. NLB and MCA are in discussion with MS-LOT to ensure that the statements become a condition of consent.

- NLB and MCA are working with MS-LOT to investigate the feasibility of MS-LOT submitting completed application co-ordinates directly to the UKHO, as a means of streamlining the process under one organisation.

6.7.3 The NLB, MCA, and MS-LOT continue to work collaboratively to address issues and seek improvements to the Scottish aquaculture regulatory regime, to ensure the industry operates under best practice for the safety of both itself and that of other marine users.

## 6.8 Promotion of safe working practices

6.8.1 In keeping with NLB's motto of 'For the Safety of All', an NLB Coastal Inspector oarticipates in a working group of the Aquaculture Safety Group (ASG), which is responsible for planning, organising and running an annual Safety and Health Awareness Day (AquaSHAD) for the aquaculture industry. The event is designed to bring delegates from all sectors of the aquaculture industry together and provide them with up to date knowledge to reduce risk and improve their safety at work. Additionally the day serves as a means of promoting intercompany and inter-sector communication, aiming to forge stronger relationships between the industry and regulators.

Pyrotechnic demonstration at Scalloway

6.8.2 The 2019 event, held at the North Atlantic Fisheries College in Scalloway, Shetland, was very successful, generating significant interest and support from across the industry and beyond. Encouraged to build on the momentum the event has generated, the ASG secured the Scottish Association for Marine Science (SAMS) facility near Oban for the 2020 event. The event attracted interest from various new parties who wish to be involved, including SeaFish. The NLB also held positive conversations with the office of the Scottish Cabinet Secretary for Rural Economy and Tourism, regarding his potential involvement.

6.8.3 Regrettably, due to the COVID-19 pandemic the 2020 and 2021 events had to be cancelled.