

Note on the Report on Assessment of Exempted Usages under Section 114 of the MAP Act 2021.

Introduction

Section 114(1)(a) of the Maritime Area Planning Act 2021 (the MAPA) enables the Minister for Environment, Climate and Communications, by regulations, to provide for any class of Schedule 7 to be exempted from requiring a licence from MARA where he or she is of the opinion, inter alia, that –

- By reason of the size, nature or limited effect on the maritime area, of usage belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the Marine Spatial Planning Directive.

In order to inform the Minister's thinking in this regard, in June 2003, the Maritime Area Regulatory Authority (MARA) establishment unit of the Department of Housing, Local Government and Heritage engaged with the Marine Institute (MI) to commission reports on the topic of potential exempted usages under Section 114 (1)(a)(i) of the the MAPA. The MI were specifically asked to concentrate these studies on the following maritime usages in Schedule 7 to the MAPA –

- Marine environmental surveys for the purposes of scientific discovery or research and
- Marine environmental surveys for the purposes of site investigations or in support of an application under Part XX1 of the Planning and Development Act 2000.

Responsibility for the MAPA subsequently transferred to the Minister for Environment, Climate and Communications. Under the terms of the agreement between the MI and the Department, the Marine Institute tendered for suitably qualified consultants to carry out two studies. These were:

A study to:

- Identify and categorise the essential data requirements of the Offshore Renewable Energy (ORE) development sector in respect of ORE related development applications.
- Identify the gaps in this data required and the data publicly available (i.e. what are the drivers for Site Investigation applications).
- Categorise the techniques and technologies used in gathering the essential data having regard to scientific advancements and new/emerging technologies.
- Suggest activities or sub activities that may be suitable for exemption.

A further study to:

- To examine the approach adopted in other jurisdictions, in particular across Ireland's EU partners and the UK with similar obligations.

Following a tender process, the Marine Institute awarded contracts to Gavin and Doherty Geosolutions (GDG) Ltd and ABP Mer Ltd (UK) for these studies respectively. On receipt of the completed studies the Marine Institute prepared a summary document including recommendations on next steps.

The final completed report encompassing the reports prepared by GDG and ABPMer was provided to MARA (having been established in July 2023) in May 2024.

MARA Observations on the report.

MARA considers that the report produced by the Marine Institute, GDG and ABPMer provides a useful basis for consideration of the issues arising in relation to exemptions that may be provided in relation to certain Schedule 7 activities as currently set out in the MAPA. As noted above, such exemptions are subject to Regulations by the Minister and will be subject to the requirements as set out in Section 114 of the MAPA. In particular any such regulations will require screening for the purposes of the Habitats Directive and the Strategic Environmental Assessment Directive.

MARA further notes that Sections 114(2) and (3) indicate that any Schedule 7 activity shall not be exempt if an Appropriate Assessment or Environmental Impact Assessment is required, save where the exemption refers to another enactment which provides for such assessments. Consideration of this requirement will be a matter for the Minister if he considers it appropriate to make the relevant regulations.

MARA has provided the Department with a copy of the report to assist in advising the Minister in relation to possible Regulations. MARA will be further advising the Department in relation to the contents of same.

MARA notes the following specific matters:

- The report explicitly states (at page 25) that the issue of in-combination effects arising from activities proposed for exemption was not considered.
- Several activities proposed for exemption within or adjacent to Natura sites require potentially intrusive or destructive activities to take place in advance or as part of the survey activity, e.g. boreholes. It is not apparent to MARA how the survey work can be decoupled from the preparatory work in such instances.
- Several activities are proposed as suitable for exemption subject to compliance with specific conditions. Careful consideration is required as to whether such conditions represent mitigations for the purposes of the protection of a Natura site.
- A number of other jurisdictions considered in the report have provision for exemptions. MARA considers that careful consideration is required as to whether those exemption regimes adequately reflect current European environmental case law.

Assessment of Exempted Usages under Section 114 of the MAP Act (2021)

2024



Foras na Mara
Marine Institute

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‘to undertake, to coordinate, to promote and to assist in marine research and development and to provide services related to marine research and development, that in the opinion of the Marine Institute will promote economic development and create employment and protect the environment’

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Assessment of Exempted Usages under Section 114 of the MAP Act (2021)

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This report has been prepared by the Marine Institute for the Maritime And Regulatory Agency

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1. Legislative Background

The Maritime Area Planning Act 2021 (MAP Act) was enacted to regulate the maritime area through a commitment to coherent, inter-related planning covering forward planning, development management and enforcement. It established a new marine planning system and a new licensing and development management regime. The MAP Act replaced the existing foreshore, planning and environmental processes with a single streamlined consent process for activities in the maritime area, apart from fisheries and aquaculture.

Part 3 of the MAP Act established a new state agency, the Maritime Area Regulatory Authority (MARA), for regulating development and activity in Ireland's maritime area. MARA is responsible for:

- the granting of all Maritime Area Consents (MAC) for the maritime area
- marine licensing for specified activities
- compliance and enforcement of MACs, licences and offshore development consents
- administration of the Foreshore consent portfolio of the Minister for Housing, Local Government and Heritage

MARA's regulatory role encompasses granting licences for activities in the maritime area and ensuring robust compliance through enforcement measures. MARA's jurisdiction extends to the entire maritime area; from high water of ordinary tides to the outer limit of the continental shelf, encompassing the State's territorial seas and Exclusive Economic Zone. MARA operates under the aegis of the Department of Housing, Local Government and Heritage but is independent of the Department in the performance of its functions.

Part 5 of the MAP Act provides for the operation of the new maritime licensing regime with reference to Schedule 7 (*Maritime Usages which may be undertaken in the Maritime Area pursuant to a Licence*) and Schedule 8 (*Types of conditions that MARA may attached to Licence*).

The MAP Act provides an opportunity to implement the new licensing regime in a different way. Specifically, Section 114 provides that the Minister may by Regulation provide for any class of Schedule 7 usage to be an exempted usage. Two sub-sections set out the grounds, on either of which, the Minister may form an opinion that any class of Schedule 7 usage may be exempt:

- S.114 (1) (a) (i) *by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive, or*
- S.114 (1) (a) (ii) *usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation).*

Any Regulations made by the Minister in accordance with S.114 may be subject to conditions and be of general application, or apply to such part of the maritime area as may be specified in the regulations.

Any Regulations made by the Minister in accordance with S.114 shall be subject to screening for the purposes of the Habitats Directive¹ and the Strategic Environmental Assessment Directive².

No class of Schedule 7 usage may be an exempted usage if it requires an appropriate assessment or environmental impact assessment, unless the usage is authorised by another authority where that authorisation provides for appropriate assessment or environmental impact assessment.

¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

² Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment

2. Exempted Usages Project

With the significant body of work implementing the new maritime licencing regime across all the various strands of the MAP Act, in early 2023 the MARA Establishment Unit of the Department of Housing, Local Government and Heritage (DHLGH) requested the assistance of the Marine Institute to provide advice and expertise to lead a project to examine if any maritime usage activity or sub-activity may be suitable for exemption in accordance with S.114 (1) (a) (i):

- S.114 (1) (a) (i) *by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive*

Given the significant demands, focus and expectations in respect of offshore renewable energy (ORE) site investigation surveys, the scope of maritime usage activities to be examined and assessed was constrained to the following classes of Schedule 7 maritime usage only:

- Marine environmental surveys for the purposes of scientific discovery or research.
- Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000.

The project was subdivided into seven discrete tasks, upon which the report is structured:

1. Identify and categorise the essential data requirements of the ORE development sector in respect of ORE related development applications;
2. Identify the data publicly available and the gaps in this required data;
3. Categorise the techniques and technologies used to gather the essential data having regard to scientific advancements and new/emerging technologies;
4. Examine the approach adopted in other jurisdictions, in particular, across our EU partners and the UK with similar obligations;
5. Propose activities or sub activities that may be suitable for exemption;
6. Advise on next steps and make recommendations in respect of any of the above;
7. Advise in respect of a general approach to data collection, retention, commercial sensitive element, as part of licence conditions which MARA may attach to a licence;

To support the delivery of the above tasks, the Marine Institute published an open Invitation to Tender (ITT23-024) in two lots for the “*Provision of Consultancy Services to assess Exempted Usages under Section 114 of the MAP Act (2021)*” on the Government’s e-tender website on 30th June 2023. Gavin and Doherty Geosolutions Ltd., were awarded Lot 1 consisting of tasks 1, 2, 3 & 5. ABPmer were awarded Lot 2 consisting of task 4. Task 6 and 7 were undertaken by the Marine Institute. Summaries of the respective consultants’ reports form the basis of the respective sections in this report. The complete reports from the respective consultants are included in Appendix 1: GDG report and Appendix II: ABPmer report.

3. Identify and categorise the essential data requirements of the ORE development sector in respect of ORE related development applications

This section is a summary of Chapter 2 of the Gavin and Doherty Geosolutions Ltd report found in Appendix 1: GDG report on the data requirements essential to inform understanding of site constraints, site conditions, and project design at different stages of a project.

The data requirements can broadly be classified into the categories below:

- Geotechnical data
- Geophysical and Hydrographic data
- Wind Resource data
- Met-ocean data
- Ecological data
- Heritage Related data
- Oceanographic data

3.1 Geotechnical data

For each geotechnical unit or formation in the area of interest the following data are required:

- classification and description of the soils and rocks
- geotechnical parameters relevant for the type of analysis/foundation type planned.; eg. strength, stress history, cyclic and dynamic parameters

A typical geotechnical investigation will seek to identify geotechnical parameters for each geological province found during the interpretation of the data, including:

- stratigraphy
- nature and identification of soils
- basic geotechnical features; mechanical strength, deformability, stress history
- typical geotechnical profiles for each geological province
- assessment of the geotechnical properties of materials and their spatial variability

Additional key technical factors required for more detailed design and cabling considerations include seabed stability, seabed mobility, and scour potential. Generally geotechnical data is collected in two phases during project development: a preliminary investigation which allows for the specification of a final, detailed investigation. At geologically complex sites, further or targeted investigations may be required.

3.2 Geophysical and Hydrographic data

Geophysical surveys gather seabed and sub-seabed data using remote sensing techniques and are undertaken to:

- obtain information on the seabed surface (type, texture, variability, etc.) and to identify any seabed features that may be of interest to the overall project
- map seabed sediments and bed-forms and monitor bed mobility, scour and bed stability
- identify any shallow geo-hazards and man-made hazards (including but not limited to out-cropping, boulders, shallow gas, wrecks, debris, faults, peat, fluid migration etc.)

- determine the stratigraphy across a site and quantify the variability in the lateral and vertical extents to depths of interest
- identify the presence of bedrock should it exist within the depth of interest
- identify any magnetic anomalies and the nature and location of obstructions across an area
- assess seismic risk

Hydrographic datasets are required to:

- develop a detailed and comprehensive understanding of seabed conditions
- identify obstructions and hazards on the seabed
- obtain accurate water depths
- calculate seabed slope and map seabed morphology

3.3 Wind Resource data

The purpose of a wind resource survey campaigns is to accurately characterise the wind resource data at the project site that will be used to conduct energy yield assessments and feed into turbine selection, operational planning, and offshore sub-structure design. Wind resource data collection includes:

- long-term 10-minute average wind speed at hub height
- wind speed distribution
- wind speed vertical profile
- wind shear
- ambient turbulence intensity
- turbulence including wave effects from neighbouring turbines
- air density

3.4 Met-ocean data

Accurate atmospheric, wave, current and water levels data from the proposed site are used for offshore sub-structure design, estimating workability range at offshore sites, defining construction and O&M strategies, as well as providing insight on wave/tidal energy yields. Met-ocean data collected includes:

- pressure
- atmospheric humidity
- air and water temperature
- wave climate
- tidal regime
- advection, dispersion, and water currents

Generally, measurement campaigns seek to collect not less than 24 months of data to cover seasonal variability but this requirement often varies project to project.

3.5 Ecological data

Primarily, for ORE developments, ecological data are needed to inform the Environmental Impact Assessment Report (EIAR) which will be required as part of the project planning application.

Ecological data requirements for projects or ecological monitoring are very broad, but can be summarised below as follows:

- detailed habitat maps
- baseline characterisation of biological communities including fish and mollusc species
- benthic species abundance and distribution
- chemical characteristics of sediment and water
- demersal / pelagic species abundance and distribution
- marine mammal abundance and distribution
- bird / bat species abundance and distribution
- pollution data (samples) after event
- sediment profiles
- plankton species abundance and distribution

3.6 Heritage data

For the purposes of this work, heritage data relates to archaeological data, such as the location, nature, and extent of archaeological features and sites, both man-made and naturally occurring, including:

- shipwrecks
- coastal built heritages sites
- coastal UNESCO World Heritage Sites
- archaeological protected sites
- submerged landscapes
- other wrecks (aircraft, etc.)
- cultural heritage (harbours, tidal mills, etc.)

3.7 Oceanographic data

Oceanographic data is less relevant for project design, but is key to monitoring the health and status of Irish waters. For this work, oceanographic data relates to water characteristics such as:

- temperature
- salinity
- turbidity
- water chemistry
- nutrient concentrations
- dissolved oxygen
- fluorescence
- pH
- conductivity

4. Identify what data is publicly available and the gaps in the required data

This section is a summary of Chapter 3 of the Gavin and Doherty Geosolutions Ltd report found in Appendix 1: GDG report and on the widely available public datasets relevant to the Irish ORE sector, assessing how/where they can satisfy essential data requirements, the data provided from each, the data gaps, and the proposed solutions to fill these gaps.

There are a host of public data sources available across all categories of data requirements in the Irish maritime area. GDG reviewed 15 such datasets in their accompanying detailed report. These datasets are of huge value both as a public good and to inform early understanding of site conditions in a particular area – whether that be in relation to bathymetry, geology, sediment classification, seismic data, wind speeds, habitat types, protected sites, etc., etc. Their value should not be underestimated.

In almost all cases, regardless of the availability of public data, targeted, site-specific surveys will be required at some stage of project development to collect up-to-date data, in the specific area(s) of interest, at the required resolution/specifications, whether to inform project design or to satisfy consenting and permitting requirements.

This is particularly true for offshore wind projects where several phases of targeted site investigations will be required to bring a project from site identification through to detailed design and construction. Environmental baseline data, as well as ongoing environmental monitoring campaigns, will also be required.

The work is tabulated in spreadsheet “23190-TAB-002-00 Public Data Source Assessment.xlsx” included with the digital copy of this report.

4.1 Geotechnical data

The key data sources identified for geotechnical data are:

- Geological Survey Ireland
- EMODnet
- INFOMAR
- Marine Atlas

These data sources provide data on geology, sediment classification, seabed substrate, sedimentation rates, pre-quaternary and quaternary geomorphology, sediment sample locations etc.

While the general coverage of Irish waters is good, sampling points are much too dispersed to be considered accurate for specific projects. Seabed substrate sampling such as grab sampling is quite often used as a ground-truthing method as part of wider-ranging surveys. The data provided by the above sources would be used when considering early siting and technical options at a high-level planning stage for projects.

It is recommended that prior to the commencement of any conceptual design decisions, a targeted series of geotechnical surveys should be undertaken with sufficient density to minimise uncertainty in the site area's geological and soil properties and makeup.

4.2 Geophysical data

The key data sources identified for geophysical data are:

- Geological Survey Ireland

- EMODnet
- Marine Atlas
- INFOMAR

These data sources provide sub-bottom profile data, power cable locations, dumped munitions locations, seismic data etc.

Sub-bottom coverage is quite good for Irish waters, but may not provide adequate information on a site's stratigraphy and sub-bottom geology when planning for fixed foundations for example. Unexploded ordinance (UXO) data is also listed for general locations and although several show shipwreck locations, their location and burial/exposure will vary greatly with time. Cable and pipeline data are similar in that they show a level of accuracy suitable for high level investigations but unsuitable for detailed planning.

Sub-bottom profiles should be gathered across a site to provide a detailed view of the site's stratigraphy and geology. Shipwrecks, UXO, and other obstacles such as cables should be identified through dedicated survey methods such as a magnetometer survey, to ensure accurate locations are identified.

4.3 Hydrographic data

The key data sources identified for hydrographic data are:

- INFOMAR
- Marine Atlas
- Geological Survey Ireland
- EMODnet

These data sources provide backscatter, bathymetry, and seabed sediment classification. The data quality is generally of a very high standard when it comes to bathymetry due to the INFOMAR programme. When undertaking a project however, the seabed topography may have altered during the gap between the surveys and the current time.

Site-specific hydrographic and geophysical survey campaigns should be undertaken before installation of any infrastructure, or before any geotechnical investigation. For seabed installations, the seabed topography and character should be determined through a dedicated multi-beam echosounder and site clearance survey, including towed sidescan sonar and magnetometer data acquisition. Backscatter data should be acquired and analysed to inform ground-truthing throughout the site.

4.4 Wind Resource data

The key data sources identified for wind resource data are:

- Marine Atlas
- Global Wind Atlas
- SEAI
- EMODnet

These data sources provide data on historical wind speeds at different heights, wind power potential, mean wind speeds, fatigue loads etc.

While no specific data gaps exist for the sources mentioned, for projects involving wind power the modelled data and real-time data may not be sufficient for detailed energy yield assessments.

It is suggested for wind specific projects that in-situ measurements are taken over the course of at least one year for accurate and efficient placement of turbines and accurate energy assessments. This may also be useful when undertaking weather-downtime assessments.

4.5 Met-ocean data

The key data sources identified for met-ocean data are:

- Marine Atlas
- EMODnet
- eOceanic

The above data sources provide data on wave and tidal energy potential, data buoy locations, sea level monitoring, currents, tidal data for ports and harbours etc.

The coverage of data from the sources is quite good, however it is reasonably dispersed across Irish waters and may lack data when it comes to specific areas.

It is suggested to undertake a survey campaign focused on met-ocean data gathering to obtain sufficient data on specific areas. Data such as local tide regimes and currents could differ from the data sources mentioned and therefore have an effect on projected tidal energy yield, platform access etc. These surveys should be undertaken for a sufficient time so as to determine the mean baseline conditions.

4.6 Ecological data

The key data sources identified for ecological data are:

- Marine Atlas
- NPWS
- EPA
- EMODnet
- Marine Plan
- OREDP II SEA data sets
- IWDG
- CSO data
- JNCC

The above data sources provide data on a host of different areas such as marine mammal species distribution, fish species distribution, fishing activity, habitats and species datasets, protected sites, aquaculture sites, whale and dolphin abundance, protected species and habitats information etc.

The data sources contain a vast quantity of data for the various ecological factors. The data is quite adequate for high-level, early desktop studies. Certain factors, however, require more detailed, localised, and current data when moving forward in any project. For example, benthic species in the area may differ slightly from the large-scale studies used to derive the source datasets. Bird migration routes may deviate, and nesting grounds may also change, perhaps resulting in proximity to the project.

Full, targeted ecological survey campaigns are recommended to provide adequate level of detail for all factors. This should take place using best practice guidelines for duration and methods. All data gathered should be collated and used to inform latter-stage planning and design decisions, with a minimal gap between survey completions and any possible construction due to the variable nature of species and habitats.

4.7 Heritage Data

The key data sources identified for heritage data are:

- Marine Atlas
- INFOMAR
- GSI
- EMODnet
- Marine Plan
- OREDP II SEA data sets
- National Monuments Service Wreck Viewer

The above data sources provide data on shipwrecks, coastal built heritage sites, coastal UNESCO world heritage sites, submerged landscapes etc.

The data sources display a wide coverage for Irish waters in terms of heritage sites and objects. Their precise locations, however, may differ from those shown and there may remain seabed obstacles missed by previous campaigns. Shipwrecks are prime examples as a multi-beam echosounder (MBES) campaign may show those that are reasonably preserved and clear of sediment. Older wrecks and those that are partially or completely buried however, may not show during this campaign, especially where there is variable topography.

A localised and targeted survey campaign should be employed using a combination of methods such as single beam echosounder (SBES), MBES, and magnetometer to both confirm the locations of known heritage assets on the seabed and to scan for potentially hidden ones. This should be done prior to any possible construction work.

4.8 Oceanographic Data

The key data sources identified for oceanographic data are:

- Marine Atlas
- EPA
- EMODnet

These data sources provide data on water quality, dumping at sea sites, contaminants, bathing water quality, sea temperature, raw sewage discharge points etc.

The data are mostly generalised when it comes to areas around the Irish coast and in Irish waters. The essential data requirements will be suitable for a high-level desktop study, but are dispersed enough that details may be missed in specific areas if they are not within the immediate range of measurement devices.

Where more detailed data is required, a localised and targeted survey campaign using devices such as Conductivity, Temperature, Depth (CTD) Sensors should be undertaken to assess the water qualities and attributes in that specific area.

5. Categorise the techniques and technologies used to gather the required data, having regard to scientific advancements and new/emerging technologies.

This section is a summary of Chapter 4 of the Gavin and Doherty Geosolutions Ltd report found in Appendix 1: GDG report for all identified survey activities that could be undertaken in the Irish maritime area.

An initial list of 60 survey activities was prepared, categorised according to the data requirement types identified previously in Section 5, namely: geophysical, hydrographic, met-ocean, wind resource, ecological, heritage, and oceanographic. A category noted as 'other boat-based surveys' was included, which is not a traditional data category, but is used to categorise survey activities that do not exactly fit the aforementioned categories. The availability of public datasets was not seen as a reason to preclude any survey activities from consideration as it is inevitable that project specific targeted site investigation will be required.

Significant stakeholder engagement was undertaken to give relevant bodies and organisations an opportunity to review the list of 60 survey activities and input any activities they thought may be relevant to the work. In total, 30 stakeholder groups were contacted. Responses were received from 23 of these groups (sometimes multiple response per group), 5 groups acknowledged they were reviewing the material and would get back with their final response but did not provide this in time to be included in this work. No response was received from 2 of the stakeholder organisations contacted. Details of the stakeholders contacted, their respective response(s), and analysis of same is detailed in Chapter 4 of the Gavin and Doherty Geosolutions Ltd report in Appendix 1: GDG report.

Following stakeholder feedback, a final list of 83 different survey techniques and technologies were taken forward for examination and included in the spreadsheet "23190-TAB-001-03 Survey Activities List and Categories" included with the digital copy of this report.

As an overview, a breakdown of survey activities per category is shown below in Table 5-1. It should be noted that some survey activities could fall into multiple categories.

Table 5-1: Count of survey activities per category

Category	Count
Ecological	34
Geotechnical	20
Geophysical	11
Met-ocean Data	4
Oceanographic	4
Hydrographic	5
Other boat-based surveys	2
Heritage	1
Wind resource	1
Seabed-based survey platform	1
Grand Total	83

6. Examine the approach adopted in other jurisdictions, in particular, across our EU partners and the UK with similar obligations

This section is a summary of the ABPmer report found in Appendix 2: ABPmer report.

To ensure the inclusion of the most relevant information, a scoping exercise was undertaken to identify jurisdictions for detailed investigation. Focus was given to countries where ORE is of greater relevance, but not restricted to those, recognising that site investigation activities and marine scientific surveys undertaken for ORE are often used for other types of developments/sectors. Seventeen jurisdictions were identified for the scoping exercise. Of the seventeen jurisdictions investigated, the following nine were identified for detailed research and are the focus of this section of the report:

- | | | | | | |
|---|-------------|---|------------------|---|----------|
| o | Australia | o | England | o | Estonia |
| o | New Zealand | o | Northern Ireland | o | Scotland |
| o | Spain | o | Sweden | o | Wales |

A detailed desk-based study of licensing ORE site investigation and marine scientific survey activities in the above jurisdictions was undertaken and, where appropriate, the desk-based study was complemented by contacting officials in other jurisdictions to obtain further information or to seek clarity in the approach.

It was identified that there are parallels in the licensing processes between the UK jurisdictions. These have been grouped and presented together. The non-UK jurisdictions (Australia, Estonia, New Zealand, Spain and Sweden) are presented individually thereafter.

6.1 UK jurisdictions (England, Northern Ireland, Scotland, and Wales)

The Marine and Coastal Access Act 2009³ provides the regulatory process for activities in UK waters, including the requirement to obtain a marine licence for certain types of activity. A full list of marine licensable activities can be found in Part 4 (Marine Licensing) of the Act. The Act also defines several activities which are exempt from the requirements of a marine licence (Sections 75 to 77) and special provisions in certain cases (Sections 78 to 84).

Chapter 2 (Exemptions and Special Cases) of the Act allows by Order, for activities to not need a marine licence, or not to need a marine licence if conditions specified in the Order are satisfied. Each UK administration has legislative powers for the making of Orders for exempting marine licensable activities.

An analysis was undertaken of all exempted activities in the UK and these exemptions were categorised in the following way:

- Primary relevance: exemption is directly relevant to site investigation or marine scientific surveys
- Wider relevance: exemption is not directly relevant, but is of wider relevance (for example, it may help to facilitate site investigations or marine scientific surveys)

³ Marine and Coastal Access Act (2009) [online] Available at: <http://www.legislation.gov.uk/ukpga/2009/23/contents> (Accessed 27/11/2023).

A table showing all exemptions identified, the jurisdictions they are applicable to, and the assigned categories is shown below in Table 6-1. It should be noted that the exact wording of the exemption may vary between the UK jurisdictions. The specific wording of each exemption of primary relevance is provided in the appendices of the accompanying ABPmer report. The identified exemptions in the UK of primary relevance to this project included:

- Diver trails within restricted areas;
This exemption primarily relates to the deposit or removal activity carried out for placing, securing or removing signage (or other identifying markers) relating to a wreck within an area designated as a restricted area. There are no conditions placed upon this exemption and no notifications are required.
- Fishing operations;
This exemption covers the deposit or removal of fishing gear. There are no conditions placed upon the exemptions, but exclusions exist, such as the exemption does not apply to a deposit of fishing gear made for the purpose of disposal, for the purpose of creating, altering or maintaining an artificial reef, or if it is likely to cause obstruction or danger to navigation. No notifications are required for this exemption to be used.
- Launching of vessels;
This exemption covers deposits in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container. There are no conditions on this exemption, with the exception of deposits resulting from the cleaning of vessels. No notifications are required for this exemption to be used.
- Moorings and aids to navigation – deposits and construction;
This exemption covers deposits and removal activities for moorings and aids to navigation. Pontoons are explicitly excluded. The exemption only applies harbour authorities, lighthouse authorities, or any other person, where the activity is carried on in accordance with a consent granted by any aforementioned authority. Notice must be given to the licensing authority before the activity is carried on.
- Samples for testing or analysis;
This exemption applies to a removal activity carried on for the purpose of taking of a sample of any material for testing or analysis, or a removal activity which is carried for the purpose of sediment sampling. This exemption has a number of conditions placed on it including; the volume of material removed must not exceed 1 cubic metre; the removal activity must not be likely to cause obstruction or danger to navigation; it cannot be likely to have a significant effect on a protected area. Notice of the intention to carry on the removal activity must be given to the licensing authority/Minister before the removal activity is carried on.
- Scientific instruments;
This exemption covers the deposit and removal of any scientific equipment or associated equipment in connection with any scientific experiment or survey, and the deposit of any reagent or tracer. This exemption has a number of conditions placed on it including; any reagent or tracer must be approved by the licensing authority, the deposit cannot be made for the purpose of disposal, the deposit must not be likely to cause obstruction or danger to navigation, it cannot be likely to have a significant effect on a protected area.

Notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on

- Temporary markers.

This exemption enables the placing of a marker without the need for a marine licence if the marker will be removed within 24 hours. It enables the placing of a marker for more than 24 hours, but removed within 28 days, but the licensing authority must be informed of the intention to carry out the activity beforehand. This exemption has a number of conditions placed on it including; the marker must not be likely to cause obstruction or danger to navigation, and it cannot be likely to have a significant effect on a protected area.

Table 6-1: UK jurisdiction exemptions and their categorisation

Exemption	Category	England	Northern Ireland	Scotland	Wales
Diver trails within restricted areas	Primary	Y	Y	N	Y
Fishing operations	Primary	Y	Y	Y	Y
Launching of vessels	Primary	Y	Y	Y	Y
Moorings and aids to navigation	Primary	Y	Y	Y	Y
Samples for testing or analysis	Primary	Y	Y	Y	N
Scientific instruments	Primary	Y	Y	Y	Y
Temporary markers	Primary	Y	Y	N	N
Pontoons	Wider	Y	*	*	N
Rights of foreign vessels under international law	Wider	Y	Y	Y	Y
Accidental Deposits - Removal Activity	Wider	Y	Y	Y	N
Activities carried on outside the Scottish Area	Wider	N	N	Y	N
Cables and pipeline – authorised emergency inspection and repair	Wider	Y	Y	Y	Y
Deposit and use of flares etc. – safety purposes and training	Wider	Y	Y	Y	Y
Deposit of equipment to control, contain or recover oil etc.	Wider	Y	Y	Y	Y
Deposit of marine chemical and marine oil treatment substances, etc.	Wider	Y	Y	Y	Y
Deposits in the course of normal navigation or maintenance	Wider	Y	Y	Y	Y
Fire-fighting	Wider	Y	Y	Y	Y
Lay or maintain cables for the transfer of electricity or data	Wider	Y	N	N	N
Litter (Recovery of marine litter)	Wider	Y	N	N	N
Markers for European marine sites and marine conservation	Wider	Y	Y	N	Y
Removal of obstruction or danger to navigation	Wider	Y	Y	Y	Y
Salvage activities	Wider	Y	Y	Y	Y
Shellfish propagation and cultivation	Wider	Y	Y	Y	Y
Use of vehicles or vessels to remove marine litter and debris	Wider	Y	Y	N	Y
Use of vehicles to remove litter or seaweed or dead animal from beaches from the beaches and intertidal areas	Wider	Y	Y	Y	N

* Not as standalone

6.2 Australia

The Environment Minister can decide to exempt some actions from licencing requirements such as completing an environmental assessment or seeking approval for the activity however, the Minister can only make this decision if it's in the national interest. Therefore, the application of exemptions in Australia appears to be for exceptional circumstances, rather than low risk activities.

6.3 Estonia

There are no identifiable licencing exemptions in Estonia.

6.4 Spain

In Spain, under Article 7 of Royal Decree 79/2019 (as amended) some activities are considered to be low risk enough to only require that a '*responsible declaration*' be made. There are a number of criteria that the activity must meet to be suitable for a '*responsible declaration*'. Such low-risk activities would include; placing funerary urns or ashes at sea; installation of beacons for nautical or sports events and other events and activities lasting no more than one day; and installation of beacons for activities of general interest with tourism focus. For these activities, a completed and signed "*declaration of responsibility*", must be addressed to the relevant Harbour Master's Office, which informs the Provincial Coastal Service to verify compliance with the declaration.

6.5 Sweden

Although there are no exemptions in either the Swedish Exclusive Economic Zone or Territorial Waters, exemptions are available for marine research activities on the Swedish continental shelf. Under the Continental Shelf Ordinance (1966:315), no permit is required for harvesting living organisms, or for scientific investigation if conducted by a Swedish institution, but a number of conditions are applicable including; the undertaker, be it an institution, a natural person or a legal entity, must be Swedish; the activity cannot be to the detriment of other activities which have already received a permit; it cannot regard the exploration of salt, oil or gas, or involve drilling or blasting; nor may it may not give rise to significant interference with the natural environment.

6.6 New Zealand

In New Zealand, certain activities are pre-consented and do not require licencing but are heavily regulated through the imposition of comprehensive conditions. These activities are considered 'permitted' under the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013⁴ include, inter alia:

- Marine scientific research, prospecting, and exploration;

'Marine scientific research' is defined in the regulations as research (whether fundamental or applied) carried out for the purpose of increasing knowledge about the marine environment, marine resources, or living marine organisms; and includes any related scientific activity; but excludes any research carried out in relation to prospecting, exploration, mining or seismic surveying.

'Prospecting' is defined to mean any activity (including research) undertaken for the purpose of identifying seabed or subsoil likely to contain mineral deposits or occurrences;

⁴ Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 [online] Available at: <https://www.legislation.govt.nz/regulation/public/2013/0283/latest/whole.html#DLM5270632> (Accessed 27/11/2023)

and includes geological, geochemical, and geophysical surveying; taking samples by hand or handheld methods; and taking small samples offshore by low-impact mechanical methods; but excludes seismic surveying

Regulations set out a significant number of conditions for this 'permitted' activity, including; compliance with pre-activity requirements in Schedule 1 of the Regulations; provide the EPA with an initial environmental assessment and sensitive environments contingency plan for the area in compliance with Schedule 2 of the Regulations; notifies the EPA within 24 hours of the date which the activity commences, complies with logbook requirements in Schedule 3 of the Regulations; ensure all reasonable measures are taken to avoid, mitigate, or remedy adverse effects of the activity on any sensitive environment encountered; ensures that no more material is removed from the seabed or subsoil than is reasonably necessary to undertake the activity; notifies the EPA within 24 hours of the date on which the activity completed, and complies with the post-activity requirements in Schedule 4 of the Regulations.

- Seismic surveying;

The Regulations specify that seismic survey means a survey of the geology of the seabed, or the structures beneath the seabed, carried out by projecting pressure waves into the layers beneath the seabed and detecting and measuring the reflected signals. Seismic surveying is a permitted activity if the person undertaking the seismic survey complies with the Department of Conservation's 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Survey Operations."

The Code of Conduct categorises marine seismic survey operations in different intensity levels and provides mitigation measures to minimise acoustic disturbance to marine mammals during seismic surveys (Department of Conservation, 2013) including, inter alia; notification to the Director-General not less than 3 months before the survey commences; the preparation of a 'Marine Mammal Impact Assessment' (MMIA); training, experience and duty requirements of marine mammal observers; and recording and reporting requirements.

6.7 Summary

Although the individual wording of exemptions can vary, some emerging themes have arisen across the jurisdictions which are discussed below. Of particular note for exemptions identified relevant to site investigation activities or marine scientific surveys, was a lack of specificity regarding technology types. The exemptions are broad in their wording, and potential application (but with conditions or exceptions placed upon them). This brings the flexibility to adapt to emerging technologies, with clarity coming through guidance.

6.7.1 Environmental considerations in the application of exemptions

Exclusions, limits, or conditions are often applied to specific exemptions to minimise the risk of environmental impact, therefore making them appropriate for exemption. Consideration is given to 'site sensitivities'. This can include the presence of designated sites (such as MPAs or historic features), or the presence of protected habitats and species. Exemptions for marine scientific surveys are potentially quite broad in their application but have a number of 'safeguards' in place. New Zealand was notably comprehensive in its environmental considerations and reporting requirements in the application of exemptions for marine scientific research and seismic surveys.

It should also be noted that the application of an exemption for an activity does not remove the need to secure other types of relevant permits, such as a Natura permit in Sweden, or SSSI consent in England.

6.7.2 Exemption notifications

A common requirement of certain exempted activities is to provide notification to the relevant body (e.g., the licensing authority) prior to the activity commencing. In England, notification to carry out an exempted activity is given to the Marine Management Organisation via the Marine Casework Management System. New Zealand has in place a series of forms for the different notifications required which can be submitted by email or post to the EPA. Scotland has in place a form for the 'notice of intention' to carry out an exempted activity. This requires contact details of the individual, details of the location of the activity, a description of the activity, whether there are potential impacts on Priority Marine Features (PMFs), and whether the activity is in close proximity to an MPA.

6.7.3 Exemption conditions

Conditions that are placed on low risk or exempted activities can include:

- Limits on removals – for example, relating to boreholes or sample volumes taken;
- Location of activities:
 - This can affect the proximity of samples taken from one another, their size, or volume of material that can be removed (e.g., boreholes, trial pits, and grab samples);
 - This can also affect whether an activity can be undertaken (e.g., non-navigational clearance dredging self-service is only applicable within a heritage designation or a wreck site elsewhere in the sea;
- The need for approval/consent from a third party, such as Natural England, Historic England, or Local Harbour Authority (the need for this is triggered by 'site sensitivities', such as proximity to designations or location within an area under the jurisdiction of a harbour authority); and
- The need to work on behalf of another authority, for example a Local Harbour Authority for a moorings and aids to navigation exemption to apply.

6.7.4 Exclusions to exemptions

Whilst an exemption may not always have a condition placed upon it, the exemption can detail aspects that would then exclude the use of that exemption. Common exclusions that were identified across several exemptions include:

- Activities that cause, or are likely to cause, obstruction or danger to navigation; and
- Activities that are likely to have a significant effect on a protected site (the exact wording is dependent on the type of marine protected area and its underpinning legislation).

These exclusions were identified for the following types of exemptions:

- Propagation and cultivation of fish – deposits;
- Samples for testing and analysis;
- Scientific instruments; and
- Temporary markers.

7. Propose activities or sub activities that may be suitable for exemption

This section is a summary of Chapter 5 of the Gavin and Doherty Geosolutions Ltd report found in Appendix 1: GDG report, examining the activities or sub-activities and, in accordance with Section 114(1)(a)(i) of the MAP Act, identifying those activities or sub-activities that would be suitable for exemption.

Section 114(1)(a)(i) of the MAP Act provides that the Minister may by Regulation provide for any class of Schedule 7 usage to be an exempted usage where the Minister forms an opinion *“by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive”*

Additionally, GDG identified those activities or sub-activities that could be suitable for exemption *under certain circumstances*, and those that would *not be suitable for exemption*.

All 83 survey techniques and technologies identified in Section 5 were examined for suitability for exemption considering their effect on the receiving environment using the methodologies set out below. Full details are included in Chapter 5 of the accompanying GDG report in Appendix I.

7.1 Environmental Impact Assessment: Suitability for Exemption

The work undertaken by GDG considered whether each survey activity falls within a class listed under ‘Annex I’ or ‘Annex II’ of the EIA Directive.

Annex I projects are those that have significant effects on the environment and are subject to a systematic assessment (Article 4(1) of the EIA Directive). Annex II projects are those that do not reach the thresholds established in Annex I or are considered by regulators, due to their nature, of not having effects on their environment that would be subject to a mandatory EIA.

In Irish legislation, Annex I and Annex II are broadly transposed by way of the Planning and Development Regulations 2001, as amended, in Schedule 5 Parts 1 and 2, with national thresholds added to many of the Part 2 classes of development.

Identified survey activities that are not within Annex I or Annex II of the EIA Directive have been determined as ‘Not Listed’ and considered ‘Suitable for Exemption’. Where a survey activity is listed under Part 1 of Schedule 5, it is considered ‘Unsuitable for Exemption’. Where a survey activity is listed under Part 2 of Schedule 5, it is classified as ‘Unsuitable for Exemption’ or ‘Suitable for Exemption (conditionally)’.

None of the identified survey activities considered are listed under Part 1 or Part 2 of Schedule 5. Therefore, all 83 survey activities identified and examined can be considered suitable for exemption from an EIA requirements perspective.

7.2 Appropriate Assessment: Suitability for Exemption

As this exercise was not project specific it cannot constitute a formal Appropriate Assessment screening exercise; rather it followed the Appropriate Assessment process as closely as possible to assess each individually identified survey activity to inform judgement of whether each survey

activity would be ‘likely to have a significant effect’ on relevant ecological receptors (i.e., designated features of Natura 2000 sites (i.e. Qualifying Interests) and/or Habitats Directive listed habitats and species).

It was beyond the scope of this exercise to consider the scale and intensity of each of the survey activities, it was thus not possible to assess potential in-combination effects of an individual survey activity with other survey activities. Each survey activity was therefore considered individually.

As ‘likely to have a significant effect’ can only be assessed on a project-specific basis the exercise focused on determining whether the individual survey activities could exert a ‘pressure’ on a receptor that is relevant to that receptor. Both direct and indirect pressures were considered.

7.2.1 Identification of relevant Pressures

Pressures are the mechanism by which a human activity or natural event affects the ecosystem [18]. The identified pressures were based on pressure definitions developed by the OSPAR Intercessional Correspondence Group on Cumulative Effects (ICG-C) – Amended 25th March 2011 [19]. Full details of the pressures and their interpretation, as well their application to Marine Evidence-based Sensitivity Assessment (MarESA), are given in the MarESA guidance document [20].

Thirty-eight (38) MarESA pressures were considered in the exercise. As marine survey activities are predominantly conducted from vessels, a subset of those pressures, which relate to vessel activity alone, were also identified.

These pressures are relevant to the EU Marine Strategy Framework Directive (MSFD), which is the marine environmental legislation under which Ireland reports. The MSFD requires Member States to develop national marine strategies in order to achieve, or maintain where it exists, ‘good environmental status’ (GES). The marine strategies comprise regular assessments of the marine environment, setting objectives and targets, establishing monitoring programmes and putting in place measures to improve the state of marine waters.

7.2.2 Identification of Activities

The full list of 83 survey activities summarised in Section 7, and detailed in spreadsheet “23190-TAB-001-03 Survey Activities List and Categories” included with the digital copy of this report, were taken forward for examination.

7.2.3 Identification of Receptors

7.2.3.1 Species Receptors

All 61 species listed under Annex I, II and IV of the Habitats Directive which occur in Ireland were considered for their suitability as receptors for examination. Ten (10) species receptors (Table 7-1), which are marine and have a designation as a Qualifying Interest (QI) of SACs have been selected from the longlist of 61 species considered, as these species are considered to be broadly representative of marine species with respect to relevance of the pressures exerted by the survey activities being examined.

Habitats Directive Annex IV listed species which are not marine or not designated as Special Conservation Interests (SCIs) of SPAs or QIs of SACs have not been selected for examination, including cetaceans (other than bottlenose dolphin and harbour porpoise), bats and turtles.

Two groups of marine birds which are marine/estuarine and have a designation as Special Conservation Interests (SCIs) have been selected. Sea- and shorebirds were divided into two functional feeding groups as per their feeding mechanisms for the examination of potential impacts on relevant bird species in marine and estuarine environments from survey activities: 'diving birds' and 'non-diving birds'. Functional feeding groups are a classification approach that is based on the behavioral mechanisms of food acquisition as opposed to taxonomic groups. Applying this approach facilitates consideration of the primary pressures on these species (i.e. prey availability and prey acquisition) and, in turn, facilitates assessment of pressures on wintering and breeding birds.

Table 7-1: Species selected

Species: Flora and Fauna	Habitats Directive Designation (Annex I, II, III, IV or V)
Sea Lamprey [1095]	II
River Lamprey [1099]	II, V
Twaite Shad (<i>Alosa fallax fallax</i>) [1103]	II, V
Allis Shad [1102]	II, V
Atlantic Salmon [1106]	II, V
Eurasian Otter [1355]	II, IV
Grey Seal [1364]	II, V
Common Seal [1365]	II, V
Bottle-Nosed Dolphin [1349]	II, IV
Harbour Porpoise [1351]	II, IV
Seabirds (Diving and Non-Diving)	Special Conservation Interests of SPAs

All marine and coastal birds (i.e. waterbirds, seabirds and waders) that occur in Ireland, including migratory, all year-round residents, and breeding and non-breeding birds, and have been designated within SPAs have been selected as 'seabirds' for examination, with separate examinations undertaken for non-diving birds and diving birds as set out above.

7.2.3.2 Habitat Receptors

Within Ireland there are 59 Annex I Habitats, 16 of which are or can be priority habitats. Of these 59 habitats, 29 Annex I habitats occur within the marine, coastal and/or estuarine environment. These habitats have been considered for their suitability as receptors for examination.

Ten (10) habitat receptors, which are marine and have a designation as a QI of SACs, have been selected from the longlist of 29 marine, coastal and/or estuarine habitats considered, as a source pathway connection is only possible between those 10 habitats and the pressures exerted by marine survey activities (Table 7-2).

Table 7-2: Annex I habitats selected.

Annex I Habitat (Marine / Coastal / Estuarine)
Sandbanks [1110]
Estuaries [1130]
Tidal Mudflats [1140]
Lagoons [1150]

Large Shallow Inlets and Bays [1160]
Reefs [1170]
Drift Lines [1210]
Salicornia Mud [1310]
Atlantic Salt Meadows [1330]
Mediterranean Salt Meadows [1410]

The Annex I habitats examined include five biological ‘structurally dependent’ habitats (i.e. Reefs, *Salicornia* Mud, Drift Lines, and Atlantic and Mediterranean Salt Meadows) and five habitats that are not biological ‘structurally dependent’ (i.e. Lagoons, Tidal Mudflats, Estuaries, Sandbanks and Large Shallow Inlets & Bays).

Biogenic reefs (e.g. those made from reef structures made by the polychaete worm *Sabellaria alveolata* and those made by the horse mussel *Modiolus modiolus*) are more susceptible to physical pressures from survey activities as compared to non-biogenic reefs (e.g. geogenic reefs formed by bedrock, boulders and cobbles). Owing to this, and in keeping with the precautionary approach, potential pressures from survey activities within the examination for Reef habitats were assessed against biogenic reef habitat.

7.2.4 Examination Approach

The steps described within the Office of the Planning Regulator’s (OPR) Practice Note PN01 (2021) ‘Appropriate Assessment Screening for Development’ were applied to determine potentially relevant pressures. The examination was based on the Source-Pathway-Receptor (S-P-R) risk assessment principle. Pathways may include physical pathways such as water or air in the case of water-/airborne pollutants, and functional pathways, which may include foraging sites and important known migratory pathways for qualifying species of SACs and SPAs.

The footprint and duration of typical survey activities was considered however consideration of location was limited to whether the survey activity being examined was occurring ‘in’ or ‘outside’ a Natura 2000 site. ‘In’ is not restricted to a site boundary; it includes activities taking place close enough to a Natura 2000 to exert a pressure on that site.

- In the case where there is no ecological pathway or functional link between the proposed survey activity and the receptor, there is no potential for pressure and the survey activity was excluded from further examination for that receptor. These excluded activities were considered to be suitable for exemption.
- Where survey activities may be excluded from further examination in certain conditions, the survey activity was considered to be suitable for exemption under certain conditions.
- Where ecological pathways or functional links between the proposed survey activity and one or more receptors leading to pressure(s) being exerted on one or more receptors cannot be excluded, the survey activity was not considered suitable for exemption.

A series of detailed spreadsheets accompanying the GDG report were prepared to examine all 83 identified survey activity types and all selected 20 receptors against the list of 38 pressures to determine direct and indirect pressures that may occur as a result of each survey activity on each receptor within the marine environment.

- Spreadsheet ‘23190-TAB-003-01 Examination - Activities-Pressures’ identified which pressures were relevant for each survey activity.

- Spreadsheet '*23190-TAB-004-01 Examination - Receptor-Pressures*' identified which pressures were relevant for each habitat and species receptors.
- Spreadsheet '*23190-TAB-005-01 Examination – Habitats-Activities-Pressures*' identified which survey activities exert pressures that are relevant to habitat receptors to determine whether the activity would be 'suitable for exemption', 'suitable for exemption (conditional)' or 'unsuitable for exemption' for each habitat receptor and to provide a determination rationale for each activity and habitat receptor.
- Spreadsheet '*23190-TAB-006-02 Examination - Species-Activities-Pressures*' identified which survey activities exert pressures that are relevant to species receptors to determine whether the activity would be 'suitable for exemption', 'suitable for exemption (conditional)' or 'unsuitable for exemption' for each species receptor and to provide a determination rationale for each activity and species receptor.

Different approaches were used for species and for habitats to assess the pressures associated with multibeam (MBES) and single beam (SBES) echosounders, with the activities examined under these categories for habitats (i.e. MBES and SBES) and the activities further subcategorised to deep and shallow water MBES and SBES systems for species. MBES and SBES systems used in deeper waters (approximately >200 m and >100 m respectively) typically operate at lower frequencies than in shallower waters. The lower frequency outputs may be audible to marine species such as cetaceans, pinnipeds and other fish species. Higher frequency sounds produced from MBES and SBES equipment in shallow waters attenuates more swiftly therefore, separate examinations for both of these survey types operating at two different water depths was completed for all species receptors.

Seismic airgun survey activity has been considered as it may be employed for offshore wind site investigation, with the associated power and frequency ranges used in the examination of the activity.

Large scale seismic airgun array surveys which may be employed for oil and gas site investigation activities have not been considered in the examination as oil and gas exploration activities do not fall within the remit of the Map Act 2021.

For other survey equipment, the parameters considered for examination can be found in "*23190-TAB-001-04 Survey Activities List and Categories*" where relevant.

7.2.5 Examination Outcomes

The overall determinations from the examination considering pressures from the 83 identified survey activities on both species and habitats are detailed in "*23190-TAB-009-01 Examination Determination – Species and Habitats*" identifying those survey activities can be considered "Suitable for Exemption", "Suitable for Exemption (Conditional)" and "Unsuitable for Exemption".

7.2.5.1 Suitable for Exemption within/adjacent to Natura 2000 sites

The twenty-five (25) survey activities listed below in Table 7-3 were considered suitable for exemption within/adjacent to any Natura 2000 site when examined against all Habitat and Species Receptors.

**Table 7-3: Survey activities considered suitable for exemption
within/adjacent to Natura 2000 sites**

Survey Activity
High-Pressure Dilatometer (HPD) testing
Downhole Borehole Cone Penetration testing
Pore Pressure Dissipation testing
Borehole Geophysical Logging
Downhole sampling and coring
Magnetometer
Electro Magnetic Field (EMF)
Tide Gauge
Fixed LiDAR
Drop Camera Systems
Remote Operated Vehicles (ROV) (non-intrusive)
Dive surveys: Visual
Intertidal Bird Survey
Coastal Processes
Intertidal Benthic Survey - Phase 1
Boat-Based Survey Visual Survey
Zooplankton and Phytoplankton Remote Monitoring
Plankton Samplers
Towed hydrophones
Unmanned Marine Vehicles (UMVs) - Glider Surveys
In-situ environmental monitoring
Water sampling
Intertidal (Heritage) Walkover surveys
Autonomous Underwater Vehicles (AUV)
Autonomous Surface Vehicles (ASV) / Uncrewed Surface Vessels (USV)

7.2.5.2 Suitable for Exemption outside Natura 2000 sites

The same twenty-five (25) survey activities as presented above in Table 7-3 were considered suitable for exemption outside Natura 2000 sites when examined against all Habitat and Species Receptors.

7.2.5.3 Suitable for Exemption (Conditional) within/adjacent to Natura 2000 sites

The following twenty-one (21) survey activities listed below in Table 7-4 were considered to be suitable for exemption within/adjacent to any Natura 2000 site, subject to compliance with specific conditions.

**Table 7-4: Survey activities considered suitable for exemption (conditional)
within/adjacent to Natura 2000 sites**

Survey Activity
Downhole hammer sampling
Synthetic Aperture Sonar
Ocean Bottom Seismometers
Sub-bottom profiling (SBP) - Boomer
Sub-bottom profiling (SBP) - Sparker
Sub-bottom imaging (SBI)

Survey Activity
Acoustic Corer
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Drogue and Dye Surveys
Baited Remote Underwater Video (BRUV)
Pelagic Trawls
Longlines
Gill and Trammel Nets
Pots
Fish Trap Surveys
Settlement Plates
CPODS and FPODS
Sound Recorders
Acoustic Subsea Positioning System, USBL
Side Scan Sonar (SSS)

7.2.5.4 Suitable for Exemption (Conditional) outside Natura 2000 sites

The following fifty-three (53) survey activities listed below in Table 7-5 were considered to be suitable for exemption if undertaken outside any Natura 2000 site, subject to compliance with specific conditions.

**Table 7-5: Survey activities considered suitable for exemption (conditional)
outside Natura 2000 sites**

Survey Activity	
Boreholes	Towed Camera Systems
Seabed Cone Penetration Tests (CPT)	Baited Remote Underwater Video (BRUV)
Seismic CPT	Sediment Profile Imagery (SPI)
Gravity core	Standpipes
Piston Core	Dive Surveys: Intrusive
Vibrocore	Intertidal Oil Pollution Response Survey
Box Core	Intertidal Benthic Survey - Phase 2
Kasten Corer	Demersal Trawls: Otter trawl
Single VanVeen	Demersal Trawls: Beam trawl
Double Van Veen Grab	Demersal Trawls: Jackson trawl (Deepwater)
Mini and Standard Hamon Grab	Demersal Trawls: Seines
Day Grabs (Double and Single)	Dredges
Shore-based Intertidal Trial Pits	Pelagic Trawls
Vessel-based Intertidal Trial Pits	Longlines
Downhole hammer sampling	Gill and Trammel Nets
Synthetic Aperture Sonar (SAS)	Pots
Ocean Bottom Seismometers (OBS)	Fish Trap Surveys
Side Scan Sonar (SSS)	Dredge Samplers
Sub-bottom profiling (SBP) - Boomer	Benthic Sledges
Sub-bottom profiling (SBP) - Sparker	Settlement Plates
Sub-bottom Imager (SBI)	CPODS and FPODS
Acoustic Corer	Sound Recorders

Survey Activity	
Single Beam Echosounder (SBES) - Shallow waters of <100m depth	Remote Operated Vehicles (ROV) (intrusive activities)
Multibeam Echosounder (MBES) - Shallow waters of <200m depth	Jack Up Barge
Floating buoy	Acoustic Subsea Positioning System, USBL
Seabed Mounted Frame (incl. ADCP)	Vessel Launch and Grounding
Drogue and Dye Surveys	

7.2.5.5 Unsuitable for Exemption within/adjacent to Natura 2000 sites

The thirty-seven (37) survey activities listed below in Table 7-6 were considered unsuitable for exemption within/adjacent to any Natura 2000 site when examined against all Habitat and Species Receptors.

Table 7-6: Survey activities considered unsuitable for exemption within/adjacent to Natura 2000 sites

Survey Activity	
Boreholes	Seabed Mounted Frame (incl. ADCP)
Seabed Cone Penetration Tests (CPT)	Acoustic species survey
Seismic CPT	Towed Camera Systems
Gravity core	Sediment Profile Imagery (SPI)
Piston Core	Standpipes
Vibrocore	Dive Surveys: Intrusive
Box Core	Intertidal Oil Pollution Response Survey
Kasten Corer	Intertidal Benthic Survey - Phase 2
Single VanVeen	Demersal Trawls: Otter trawl
Double Van Veen Grab	Demersal Trawls: Beam trawl
Mini and Standard Hamon Grab	Demersal Trawls: Jackson trawl (Deepwater)
Day Grabs (Double and Single)	Demersal Trawls: Seines
Shore-based Intertidal Trial Pits	Dredges
Vessel-based Intertidal Trial Pits	Dredge Samplers
Jack Up Barge	Benthic Sledges
Single Beam Echosounder (SBES) - Deep waters of >100m depth	Remote Operated Vehicles (ROV) (intrusive activities)
Multibeam Echosounder (MBES) - Deep waters of >200m depth	Ultra-High Resolution Seismic (UHRS)
Floating buoy	Vessel Launch and Grounding
Seismic airguns	

7.2.5.6 Unsuitable for Exemption outside Natura 2000 sites

The five (5) survey activities listed below in Table 7-6 are considered unsuitable for exemption.

Table 7-7: Survey activities considered unsuitable for exemption outside Natura 2000 sites

Survey Activity
Sub-bottom Profiling (SBP) – Ultra High Resolution Seismic (UHRS)
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Acoustic species survey
Seismic airguns

8. Advise on next steps and make recommendations in respect of preceding tasks.

8.1 Exempted Usages

Twenty-five (25) discrete survey activities for the purposes of scientific discovery or research, or for the purposes of site investigation have been considered as suitable for exemption in all locations following examination of those activities against relevant marine habitat and species receptors in Annex I, II, and IV of the Habitats Directive.

The examination was based on the Source-Pathway-Receptor (S-P-R) risk assessment principle. Pathways include physical pathways such as water or air in the case of water-/airborne pollutants, and functional pathways, which may include foraging sites and important known migratory pathways for qualifying species of SACs and SPAs. The typical nature of each of the survey activities was considered, and included activities taking place close enough to a Natura 2000 to potentially exert a pressure on the site's receptors.

Where there was no ecological pathway or functional link between the proposed survey activity and the receptor there was no potential for pressure on the receptor and therefore those survey activities are considered to be suitable for exemption *“by reason of the size, nature or limited effect on the maritime area”* and that *“the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive”*

8.1.1 Recommendation

Drafting of Regulations to provide for those 25 classes of survey activity to be exempted usages for the purposes of Part 5 of the MAP Act.

The United Kingdom jurisdictions have very comparable (and, at times shared) legislative frameworks, with Orders evolving over time for exempt activities. The Marine Licensing (Exempted Activities) Order 2011⁵ and Marine Licensing (Exempted Activities) (Amendment) Order 2013⁶ could serve as reference sources for Irish Regulations.

Any Regulation(s) made under Section 114 of the MAP Act in providing for those 25 survey activities to be exempted usages are required to be screened for the purposes of the Habitats Directive and the Strategic Environmental Assessment Directive.

A common requirement of certain exempted activities in other jurisdictions is to provide notification to the relevant body (e.g., the licensing authority) prior to the activity commencing. In England, notification to carry out an exempted activity is given to the Marine Management Organisation via the Marine Casework Management System. New Zealand has in place a series of forms for the different notifications required which can be submitted by email or post to the EPA. Scotland has in place a form for the 'notice of intention' to carry out an exempted activity. Therefore, where exemptions are regulated for, a suitable notification procedure should be adopted by MARA to ensure it is aware of any exempted maritime usage activities which will be carried out in the maritime area.

⁵ <https://www.legislation.gov.uk/uksi/2011/409/contents>

⁶ <https://www.legislation.gov.uk/uksi/2013/526/contents/made>

Section 112 of the MAP Act stipulates that MARA shall be the competent authority for the purposes of Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) and Appropriate Assessments to which that Part applies.

8.2 Conditional Exempted Usages

Section 114(1)(b) of the MAP Act states that Regulations made under Section 114(1)(a) may be subject to conditions and be of general application or apply to such part of the maritime area as may be specified in the regulations.

8.2.1 Subject to conditions within Natura 2000 sites

Twenty-one (21) discrete survey activities for the purposes of scientific discovery or research, or for the purposes of site investigation have been considered as suitable for exemption if undertaken within any Natura 2000 site, subject to compliance with specific conditions, following examination of those activities against relevant marine habitat and species receptors in Annex I, II, and IV of the Habitats Directive.

8.2.2 Subject to conditions outside Natura 2000 sites

Fifty-three (53) discrete survey activities for the purposes of scientific discovery or research, or for the purposes of site investigation have been considered as suitable for exemption if undertaken outside any Natura 2000 site, subject to compliance with specific conditions.

8.2.3 Recommendation

For the above activities mentioned in Sections 10.2.1 and 10.2.2, if the scale and intensity of the activity (either within or without a Natura 2000 site) can be shown to be unlikely to cause a significant effect on given receptors (e.g. using agreed relevant thresholds or by another method), the activity may be suitable for exemption from licencing.

Consideration of the significance of pressures at different scales and intensities associated with each survey activity which may be conditionally suitable for exemption is required to inform whether thresholds can be used to allow these activities to be considered suitable for exemption in certain circumstances. This was outside of the scope of this project, but should be considered in a follow-up piece of work to inform potential thresholds for exemptions.

The examination tables produced to inform the findings of this project could be further developed into a tool to support the adoption of the Marine Evidence-based Sensitivity Assessment (MarESA) approach to help inform environmental screening of marine survey activities to be undertaken by MARA for licencing purposes.

The MarESA methodology was developed by the Marine Life Information Network (MarLIN) team at the Marine Biological Association of the UK and provides a systematic process to compile and assess the best available scientific evidence to determine sensitivity assessment. The evidence used is documented throughout the process to provide an audit trail to explain each sensitivity assessment. Unlike other expert-based approaches, this means that the MarESA assessments can be repeated and updated. The resultant 'evidence-base' is the ultimate source of information for the application of the sensitivity assessments to management and planning decisions. The MarESA dataset and MarLIN website represent the largest review of the potential effects of human activities and natural events on the marine and coastal habitats of the North East Atlantic yet undertaken.

8.3 Other Authorisations

Although outside the scope of this project, the Minister may by Regulations provide for any class of *Schedule 7* usage to be exempted usage for the purposes of Part 5 of the MAP Act where he or she is of the opinion that:

- (ii) usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation).

Other enactments that require granting a licence, consent, approval or other type of authorisation prior to undertaking a maritime usages include, but are not limited to, the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 (Part 5) relating to underwater archaeology, and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (Regulation 30) relating to activities requiring consent for derogation. Both pieces of legislation incorporate the requirement for Appropriate Assessment of the maritime usage prior to the granting of a licence, consent, or other type of authorisation.

8.3.1 Underwater Archaeology

Through the assessment and issuing of licences and consents under the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023, activities such as diving, archaeological monitoring and excavation, the searching for or collection of archaeological objects, the use of detection devices for the purpose of identifying, locating (including searching for), investigating, surveying or recording any archaeological object, are regulated.

The National Monuments Service, on behalf of the Minister for Housing, Local Government and Heritage, manages, protects and promotes Ireland's underwater archaeological heritage. The National Monuments Service also issues recommendations on development proposals to ensure underwater heritage is protected.

The Underwater Archaeology Unit (UAU) of the National Monuments Service (NMS), which oversees the preservation of wrecks and other underwater archaeological features within Ireland's inland waters (including coastal inlets and bays) and coastal waters (out to 24 nautical miles to the outer limit of what is known as the Contiguous Zone) requires that geophysical survey be undertaken prior to undertaking invasive geotechnical sampling or any interaction with the seabed, to ensure consideration of potential impacts to the underwater cultural heritage is appropriately informed.

8.3.2 Activities Requiring Consent

Activities requiring consent (ARCs) are specific activities which have the potential to damage a Natura 2000 site and are regulated through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The particular ARC or ARCs attached to a Natura 2000 site depends on the habitats and/or species for which the site is protected. A list of 38 ARCs has been established, incorporating maritime usage activities such as; i) ARC-03: blasting, drilling, dredging or otherwise removing or disturbing fossils, rock, minerals, mud, sand, gravel or other sediment, ii) ARC-08: undertaking scientific research involving the collection and removal of biological material, iii) ARC-35: undertaking active acoustic surveys in the marine environment, iv) ARC-36: harvesting marine invertebrate species in intertidal areas and v) ARC-37: driving mechanically propelled vehicles in intertidal areas, except over prescribed access routes.

ARCs are not prohibited activities but before being carried out, consent must be granted by the Minister for Housing, Local Government and Heritage ('the Minister') or by another relevant

public authority to which the consent function for that activity falls. This prior consent requirement ensures that the Minister (or the relevant competent authority) carries out the necessary environmental assessment to determine if the activity can take place and if any conditions should be attached to any consent given.

8.3.3 Recommendation

Though outside the scope of this project, activities which are authorised, or are required to be authorised, by or under any other enactment, should be assessed for their potential to be regulated as exempted usages in accordance with Section 114 (1)(a)(ii) of the Maritime Area Planning Act 2021.

8.4 Statutory monitoring

Schedule 7 of the MAP Act defines maritime usages which may be undertaken in the maritime area pursuant to a licence, and specifies “*marine environmental surveys for the purposes of scientific discovery or research*” as such a maritime usage.

However, it remains unclear if this provision relates to current and future statutory marine environmental **monitoring** surveys mandated by the Government, and undertaken by the public bodies of the State, to comply with various European Directives including, inter alia, the Water Framework Directive and the Marine Strategy Framework Directive as described below.

8.4.1 Water Framework Directive

Ireland’s National Water Quality Monitoring Programme (2022 – 2027)⁷ published by the Environmental Protection Agency in 2023 is designed to meet the specific monitoring requirements of the EU Water Framework Directive (WFD). The structure and content of the monitoring programme must be consistent with the requirements specified in Annex V of the WFD which sets out the type of monitoring to be undertaken, the elements to be monitored and the frequency of monitoring.

The specific details of the monitoring programme in terms of lists of water bodies to be monitored in each water category, the quality elements to be monitored and their frequency is provided on the WFD Application which is accessible to public bodies through the Environmental Data Exchange Network⁸ The location of national monitoring stations can be publicly viewed on the EPA Maps portal⁹

In total, the national WFD monitoring programme for the period 2022-2027 is comprised of 2,778 surface water bodies, including 80 transitional water bodies and 45 coastal water bodies that fall within the MAP Act definition of “maritime area”. The monitoring programme consists of sampling for the following elements.

- Biological quality elements (plants and animals living in and around water bodies)
- Physio-chemical quality elements (nutrients, dissolved oxygen, pH, etc.)
- Priority substances, priority hazardous substances and river basin specific pollutants (chemical substances such as pesticides and metals)
- Hydro-morphological quality elements (the physical condition of water bodies)

⁷https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_WFD_MonitoringProgramme_2022_2027.pdf
(Accessed 08/03/2024)

⁸ www.edenireland.ie

⁹ <https://gis.epa.ie/EPAMaps>

In addition to physical sampling, technological developments have led to the adoption of new methods to monitor the health of the aquatic environment including the use of underwater drones in transitional waters to measure the spatial extent of seagrass habitats and for the collection of water samples, and in-situ monitoring buoys in transitional and coastal waters for extended real-time monitoring of general physio-chemical parameters.

The WFD monitoring programme lists the specified authorities to implement the monitoring programme and there is a statutory obligation on the nominated authorities to undertake the monitoring assigned to them. For the biological, hydro-morphological and physio-chemical parameters, the assigned public authorities have been involved in the assessment of these parameters for several decades.

The public bodies involved in undertaking the national water quality monitoring programme in transitional and coastal water bodies include the Environmental Protection Agency, Marine Institute, and Inland Fisheries Ireland.

8.4.2 Marine Strategy Framework Directive

The Marine Strategy Framework Directive (MSFD, 2008/56/EC) was created as a holistic policy to ensure the seas around Europe are clean, healthy, biologically diverse and sustainably used. Through the MSFD, Member States are required to systematically assess the environmental status of their marine environment, develop monitoring programmes, and put in place programmes of measures.

The MSFD covers Ireland's maritime area including the Exclusive Economic Zone (EEZ), the territorial Sea and an area of continental shelf that extends beyond 200 nautical miles into a region abutting the Porcupine Abyssal Plain. Monitoring close to the coast, in transitional and coastal waters, is also undertaken in cases where it is ecologically appropriate to do so.

The MSFD Article 17 update to Ireland's Marine Strategy Part 2: Monitoring Programme (Article 11)¹⁰ was published in 2021 by the Department of Housing, Local Government and Heritage and includes 20 monitoring programmes and 36 surveys or campaigns.

The details of the monitoring programmes, surveys and campaigns are included in the Marine Strategy Framework Directive 2008/56/EC Draft Article 17 update to Ireland's Marine Strategy Part 2: Monitoring Programme (Article 11) Annex III¹¹ published in 2021 and included as Appendix III to this report.

Ireland's MSFD monitoring programmes are undertaken by a wide variety of organisations and contributors from Government Departments and their State Agencies, third level institutions, non-Governmental organisations (NGOs), to professional fishers, voluntary organisations and registered charities. The Department of Housing, Local Government and Heritage is the Irish competent authority for the implementation of the Directive.

¹⁰ <https://www.gov.ie/pdf/?file=https://assets.gov.ie/203341/f36b708f-6515-4515-995f-595b35ca58ef.pdf> (Accessed 08/03/2024)

¹¹ *ibid*

8.4.3 European Common Fisheries Policy Data Collection Framework Monitoring Programme

The MAP Act does not apply to any proposed maritime usage specified in Schedule 4 of the MAP Act including, inter alia, any maritime usage which is navigation or fishing, and any maritime usage falling within a function referred to in section 1B of the Foreshore Act of 1933 (as amended) including (i) an activity which is wholly or primarily for the use, development or support of aquaculture, or (ii) an activity which is wholly or primarily for the use, development or support of sea-fishing including the processing and sale of sea-fish and manufacture of products derived from sea-fish. The appropriate Minister responsible for those functions is the Minister for Agriculture, Fisheries and Food. Those functions include the monitoring of commercial fisheries and shellfish as part of the European Common Fisheries Policy (CFP) Data Collection Framework (DCF) Monitoring Programme

Ireland's monitoring of commercial and non-commercial fisheries, shellfish and cephalopod species is undertaken through the DCF monitoring programme, which supports the implementation of the European CFP. Robust data is required to evaluate the state of fish stocks, the profitability of the different segments of the sector and the effects of fisheries and aquaculture on the ecosystem. Vital data on non-commercial species may be gathered when they are captured incidentally as by-catch and/or discards in various offshore and coastal fisheries that take place in Irish waters. The same holds true for other non-target species that can be accidentally caught in a range of commercial gear types, such as marine bird and mammal species, for example. It is also used to evaluate EU policies, fisheries management measures, and structural financial measures in support of the fisheries and aquaculture dependent areas, and mitigation measures to reduce negative effects of fisheries on the ecosystem. Several types of data, including fishing activity (e.g. distribution and intensity of fishing effort), landings and discards of fish and shellfish, accidental bycatch of other species, and the spatial and temporal distribution of bottom contacting fishing gear within, where allowed, Natura 2000 sites, are used in assessments and provide the foundation for management advice.

Listed below are Ireland's routine monitoring surveys, campaigns, and assessments that fulfil the monitoring goals of the DCF Monitoring Programme.

- Irish Groundfish Survey
- Irish Anglerfish and Megrim Survey
- Irish Blue Whiting Acoustic Survey
- Celtic Sea Herring Acoustic Survey
- Western European Shelf Pelagic Acoustic Survey
- International Mackerel and Horse Mackerel Egg Surveys
- Bivalve Surveys
- Nephrops Surveys
- At Sea Sampling Programme
- Fishing Activity Monitoring
- National Sentinel Vessel Programme
- Biodiversity Monitoring (D1): Birds, Fish, Marine Mammals & Cephalopods

The above fisheries and aquaculture monitoring surveys fall outside the remit of the MAP Act.

8.4.4 Recommendation

MARA to provide definitive advice if the provisions of Section 110 of the MAP Act relate to current and future statutory marine environmental monitoring surveys mandated by the Government, and undertaken by the public bodies of the State, to comply with various European Directives including, amongst others, the Water Framework Directive and the Marine Strategy Framework Directive.

If the provisions of the MAP Act do relate to statutory marine environmental monitoring surveys, then any historic screening for Appropriate Assessment undertaken for those surveys should be updated with a view to drafting Regulations to provide for those classes of survey activity to be exempted usages for the purposes of Part 5 of the MAP Act, noting that certain statutory monitoring surveys are “directly connected with, or necessary to, the management of the site as a European Site” and therefore not subject to screening for Appropriate Assessment.

9. Advise on general approach to data collection, retention, commercial sensitivities, as part of licence conditions.

The offshore renewables sector in the UK are global leaders in the sharing of survey data. In 2003, The Crown Estate pioneered the inclusion of a data clause in offshore wind agreements requiring offshore wind developers to deliver their survey data to The Crown Estate throughout the lifetime of the projects. The data clause has since been rolled out to all seabed leasing agreements (with the exception of oil and gas pipelines) making it a contractual requirement for developers to deliver their survey data to The Crown Estate through the Marine Data Exchange.

The Marine Data Exchange (MDE) is the system used to store, manage and disseminate offshore survey data provided to The Crown Estate. The MDE not only provides a portal for data submission and an audit of the data management process, it also provides a public platform from where data is made publicly and freely available. A set of consistent standards and requirements ensure that this system is maintained to a high level with enhanced discoverability of data.

This well-established model is documented below and would serve as an appropriate template to adopt for MARA's purposes.

The types of survey data collected throughout a project or development are multi-disciplinary, covering environmental, social and physical data or research campaigns. Relevant survey data can generally be defined by the following themes:

- Environmental and ecological
- Physical environment
- Human environment
- Engineering & technical

Although there are variances in the precise wording of the data clause between agreements, the standard clause requires the developer to provide The Crown Estate with *all* environmental data collected during the entire lifecycle of the development including feasibility, consenting, pre-, during and post-construction monitoring, and decommissioning phases, where applicable. The data clause also includes the right to make the data publically available, subject to commercial sensitivities.

Detailed requirements are included in "RN001: Requirements for providing survey data to The Crown Estate via the Marine Data Exchange"¹² and are reproduced below in summary form.

9.1 Data Collection

The scope of "RN001: Requirements for providing survey data to The Crown Estate via the Marine Data Exchange" document is to provide the requirements for delivery of survey data in accordance with leasing agreements, including defining the high level data structure and definitions, metadata requirements, minimum acceptable standards for survey data, and the process for providing survey data.

¹²<https://www.marinedataexchange.co.uk/static-documents/RN%20001%20Requirements%20for%20providing%20data%20to%20The%20Crown%20Estate%20v2.1.pdf> (Accessed 08/03/2024)

9.1.1 High level data structure

The Crown Estate provide example data structures for different survey themes. These suggested high level data structures are designed to cover everything that could be collected for each survey but are not mandatory. Example data structures are provided for archaeology, benthos, ornithology, coastal processes, engineering design, fish and epifauna, geophysical, geotechnical, intertidal, marine mammals, meteorology, met-ocean, noise, sedimentology, shipping and navigation survey data series. The example provided for the high level data structure for geotechnical surveys consists of:

- Final reports and Appendices
- Daily logs
- Vibrocore field logs
- Borehole data
 - Locations
 - Borehole records
 - Images
- GIS data
- CPT data
- CPT logs
- Lab analysis data and reports
- Ground model

The Crown Estate requires survey data to be structured into data “series” and data “packages”. Data series contains all datasets, reports and metadata related to a survey or data collection campaign for a common research question. The data series are required to be further split into individual data packages (folders) containing the respective components (operations report, logs, raw data, GIS files, etc.) that make up the series, with each individual package related to a single parameter, instrument or method.

9.1.2 Metadata requirements

The Crown Estate adopted the MEDIN (Marine Environmental Data and Information Network) discovery metadata standard¹³ to describe each individual survey data series supplied to standardise data management and quality. The MEDIN metadata standard complies with international metadata conventions such as INSPIRE and ISO19115.

9.1.3 Minimum acceptable standards for survey data

The Crown Estate use the MEDIN Data Guidelines¹⁴ for quality control of all survey data received. MEDIN has created a framework of consistent standards covering the major types of data collection undertaken in the marine environment around the UK. The standards set out the requirements for information that must be recorded when a certain types of data is collected to ensure that the data can be understood, interpreted and used with confidence. As this type of information is specific for different data types, guidelines are developed for each type. All standards can be accessed through the MEDIN website¹⁵. The principle benefits of the standards are:

- Allows contracting organisation to easily specify a format that data should be returned in that can be readily used and includes all relevant attributes

¹³ <https://medin.org.uk/data-standards/medin-discovery-metadata-standard> (Accessed 08/03/2024)

¹⁴ <https://medin.org.uk/data-standards/medin-data-guidelines> (Accessed 08/03/2024)

¹⁵ Ibid.

- Provides a consistent format for contractors to work to (rather than a different format for each contract)
- Data can be readily exported to Data Archiving Centres and other users
- Instils good practice amongst users

The standards aid organisations in specifying formats that data should be returned in and ensure that all relevant attributes are included to ensure that the data collected is of maximum value. For example, the standard for bathymetric data covers seabed depth data and seabed characterisation data (backscatter) acquired using swath bathymetry techniques such as multibeam echo sounder (MBES), singlebeam echo sounder (SBES) and airborne acquisition such as LiDAR. It is also relevant for bathymetry data processed from seismic CUBE derived from 3D and 4D seismic data acquisition. It covers raw data, methods used and derived processed data. The preferred format for MBES swath bathymetry data to be submitted is using CARIS HIPS or Fledermaus software or as ascii XYZ/XYA files. For SBES data the preferred format is as ascii XYZ/A files, CARIS HIPS or Generic Sensor Format (GSF). Required bathymetric data for delivery is processed full density, ungridded data and/or processed gridded/thinned data.

9.2 Data Retention

All survey data submitted by developers should be retained in perpetuity for a number of reasons, including:

- to safeguard the retention of data and information for industry and future research;
- to ensure that the best available evidence is available for sustainable decision making;
- to provide developers with access to data and information that enhances development opportunities;
- to work with developers to promote best practice data management;
- to provide information to aid the government, industry and public understanding of the marine estate;
- to facilitate collaboration and research for the benefit of the industries concerned;
- to provide support for development programmes in the event of future development opportunities.

9.3 Commercial Sensitivities

The Crown Estate's Marine Data Policy¹⁶ defines how all provided data is handled. The policy outlines the principles by which commercial sensitivity is accounted for and generally seek to make data available to the public. Extracts from the policy relating to commercial sensitivities are included below.

9.3.1 Managing Confidentiality

The Crown Estate is subject to both the Freedom of Information Act and the Environmental Information Regulations, and responds to requests for data in accordance with the provisions within these legislative instruments. The Crown Estate communicates with the owners of data when such requests are received to both make them aware of the request and the decision with regards to the release of data.

All data has a confidentiality shelf life and once it has served its original purpose there are many benefits that can be realised by making it publically available. The Marine Data Exchange has a

¹⁶ ibid

“confidentiality review” system built into it. Whenever data is uploaded to it, the user adding the data is required to set a reasonable date which will trigger a review of its confidentiality. Once that date comes around the confidentiality of the data will be assessed and discussed with the Agreement holder.

9.3.1.1 Environmental survey data

Despite the contractual position with regard to confidentiality, data relating to a particular project will not generally be released until consent is awarded and the period for judicial review has passed. Once a firm consent decision has been determined the data is effectively in the public domain, so generally will be released thereafter. However, discretion can be exercised and, if asked, an alternative time to release specific datasets would be considered in consultation with Agreement holders.

9.3.1.2 Physical survey data including geophysical and geotechnical data

Survey data relating to geophysical, geotechnical, met-ocean and meteorological data, is held confidentially until a Financial Investment Decision (FID), subject to a biannual review from the date of consent, where the time period between consent and FID is extended.

9.3.1.3 Resource data

Resource data can be commercially valuable and for this reason, the data clause explicitly references this type of data and it varies from sector to sector. For fixed offshore wind farm projects wind resource data is held confidentially until FID and thereafter for two years from the date of collection. For wave and tidal stream sites, current and wave data is held confidentially until FID and thereafter for three years from the date of collection. For floating offshore wind farm projects, wind resource and wave resource data is held confidentially until FID and thereafter for three years from the date of collection.

9.3.1.4 Proximity to other projects

Where there is another Agreement in close proximity which may be impacted by the publication of survey data nearby, the nearby Agreement holder is notified of the intention to publish data following conversations with the data provider whose data is to be made publically available and before any decision to publish is finalised.

10. Recommendations

Recommendation 1

Twenty-five (25) discrete survey activities for the purposes of scientific discovery or research, or for the purposes of site investigation have been considered as suitable for exemption in all locations following examination of those activities against relevant marine habitat and species receptors in Annex I, II, and IV of the Habitats Directive. Regulations to be drafted to provide for those identified 25 classes of survey activity to be exempted usages for the purposes of Part 5 of the MAP Act noting that any Regulation(s) made under Section 114 of the MAP Act in providing for those 25 survey activities to be exempted usages are required to be screened for the purposes of the Habitats Directive and the Strategic Environmental Assessment Directive.

Recommendation 2

Consideration of the significance of pressures at different scales and intensities associated with each survey activity which may be conditionally suitable for exemption is required to inform whether thresholds can be used to allow these activities to be considered suitable for exemption in certain circumstances. This was outside of the scope of this project, but should be considered in a follow-up piece of work to inform potential thresholds for exemptions.

Recommendation 3

Though outside the scope of this project, activities which are authorised, or are required to be authorised, by or under any other enactment, should be assessed for their potential to be regulated as exempted usages in accordance with Section 114 (1)(a)(ii) of the Maritime Area Planning Act 2021.

Recommendation 4

Provision of definitive advice if the provisions of Section 110 of the MAP Act relate to statutory marine environmental monitoring surveys mandated by the Government, and undertaken by the public bodies of the State, to comply with various European Directives including, amongst others, the Water Framework Directive and the Marine Strategy Framework Directive.

Recommendation 5

If the provisions of the MAP Act do relate to statutory marine environmental monitoring surveys, then any historic screening for Appropriate Assessment undertaken for those surveys should be updated with a view to drafting Regulations to provide for those classes of survey activity to be exempted usages for the purposes of Part 5 of the MAP Act, noting that certain statutory monitoring surveys are “directly connected with, or necessary to, the management of the site as a European Site” and therefore not subject to screening for Appropriate Assessment.

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Appendix 1: GDG report

Examination for Exempted Usages Under Section 114 of the MAP Act 2021



Project Title:	Consultancy Services to Examine Exempted Usages under Section 114 of the MAP Act 2021
Report Title:	Examination for Exempted Usages Under Section 114 of the MAP Act 2021
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EXECUTIVE SUMMARY

The enactment of the Maritime Area Planning Act 2021 in December 2021 was a major and much needed milestone in the creation of a new consenting regime for development and activity in the Irish maritime area. The Maritime Area Planning Act 2021 gave further effect to Ireland's marine planning system, established a new marine licencing and development regime, and also established a new State body, the Maritime Area Regulatory Authority (MARA), to administer it.

MARA has a wide remit in overseeing activities in Ireland's maritime area, but a high proportion of its work will focus on offshore wind, with ambitious targets set of 5GW offshore wind installed by 2030 (Phase 1 and Phase 2); 2GW offshore wind in development by 2030 for non-grid uses (Future Framework); 20GW offshore wind by 2040 and 37GW by 2050 (Future Framework).

Added to that, significant port development will be required to facilitate the development of offshore wind in Ireland, which will add to the demands placed on MARA in the coming years.

One key function of MARA is the processing of Maritime Usage Licence (MUL) applications to enable site investigations and surveys in the maritime area. Licences will generally be required by all bodies looking to undertake such activities in the maritime area.

Section 114 of the Maritime Area Planning Act 2021 provides that the Minister for Housing, Local Government and Heritage (the "Minister") may, by Regulations, provide for any class of Schedule 7 usage to be an 'exempted usage', meaning it can be carried out without the need for a MUL from MARA.

A usage class can be classed as an exempted usage where the Minister is of the opinion that:

- i. by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive, or
- ii. usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation)

The potential for classes of Schedule 7 usages to be classed as exempted usages where appropriate, and be undertaken without the need for a MUL, affords an excellent opportunity for the maritime area permitting system to be streamlined, while ensuring appropriate safeguards remain in place for the protection of our marine environment.

With this in mind, on behalf of the Marine Institute, GDG has completed an examination of Maritime Usages that would typically require a MUL, to identify specific marine scientific or site investigation surveys that could be classed as exempted usages and therefore be undertaken without the need for a MUL from MARA.

This study focused on those activities which fall under Section 2 and Section 3 of Schedule 7. As part of the study, GDG also undertook a review of what the essential data requirements are for offshore renewable energy (ORE) developments. These requirements were mapped against public data sets, to help define what the data requirements of the sector are, which of these can be satisfied by public datasets, and what the gaps in these public datasets are. This has helped to define what the key drivers are for survey activities in the maritime area.

GDG, through a comprehensive stakeholder engagement process (see Table 4-1 for a list of stakeholders engaged), identified a complete list of 83 survey activities which fall under Section 2 and Section 3 of Schedule 7.

These activities were examined for their potential for exemption from licensing using an Appropriate Assessment and Environmental Impact Assessment approach, to examine the potential for certain activities to be classified as exempted usages *by reason of the size, nature or limited effect on the maritime area*.

The key findings of the exercise undertaken to determine whether the survey activities identified are suitable for exemption are:

Within/adjacent to a Natura 2000 site:

- Twenty-five (25) survey activities are considered suitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site.
- Twenty-one (21) activities are considered conditionally suitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site.
- Thirty-seven (37) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site.

Outside a Natura 2000 site:

- Twenty-five (25) survey activities are considered suitable for exemption as examined against Habitat and Species Receptors if undertaken outside a Natura 2000 site.
- Fifty-three (53) survey activities are considered conditionally suitable for exemption as examined against Habitat and Species Receptors if undertaken outside a Natura 2000 site.
- Five (5) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors if undertaken outside a Natura 2000 site.

GDG advises the following recommendations are considered going forward:

- Activities which are considered suitable for exemption should be considered for exemption by MARA and the Minister, including activities which are considered unsuitable for exemption in SACs, but may be suitable for exemption outside SACs. In these cases, consultation with NPWS is advised.
- Where exemptions are regulated for, an appropriate notification procedure should be put in place by MARA to ensure it is aware of any exempted activities which will be carried out in the maritime area.
- Further consideration of significance of pressures at different scales and intensities associated with each survey activity which may be conditionally suitable for exemption is required to inform whether thresholds can be used to allow these activities to be considered suitable for exemption in certain circumstances. Note work under Lot 2 of this study may help inform this recommended work.
- Examination tables produced to inform the above findings could be further developed into a tool to support the adoption of the MarESA (Marine Evidence-based Sensitivity Assessment) approach to help inform environmental screening of marine survey activities undertaken by MARA for licencing purposes.
- It should be noted that some of the activities examined in this list for the potential for exemption from requiring a Maritime Usage Licence are subject to other licensing requirements. For example, any activity requiring the placement of a fixed or floating obstruction to surface navigation will require a separate consent from Irish Lights in the form of a statutory sanction under the Merchant Shipping Act. Geophysical or Dive Surveys may



require contents from the NMS. So called 'Activities Requiring Consent'¹ (ARCs) which have the potential to damage SAC or SPAs e.g. undertaking active acoustic surveys in the marine environment, may require consent from the Minister for Housing, Local Government and Heritage. Though outside the scope of this work, GDG recommends that the potential for activities which are authorised, or are required to be authorised, by or under any other enactment, are assessed for their potential to be regulated as exempted usages in accordance with part (ii) of Section 114 of the Maritime Area Planning Act 2021.

¹ <https://www.npws.ie/farmers-and-landowners/activities-requiring-consent>

Examination for Exempted Usages Under Section 114 of the MAP Act 2021

GDG | Consultancy Services to Examine Exempted Usages under Section 114 of the MAP Act 2021

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Table of Acronyms/Initialisms

Abbreviation	Explanation
AA	Appropriate Assessment
ADCP	Acoustic Doppler Current Profiler
AIS	Automatic Identification System
BIM	Bord Iascaigh Mhara
CIL	The Commissioner of Irish Lights
CORE	Centre for Ocean Research & Exploration
CSO	Central Statistics Office
CTD	Conductivity, Temperature, Depth
DAHG	Department of Arts, Heritage and the Gaeltacht
DECC	Department of the Environment, Climate and Communications
DMAP	Designate Maritime Area Plan
DTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media
ECV	Essential Climate Variables
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMODnet	European Marine Observation and Data Network
EPA	Environmental Protection Agency
FEAS	Fisheries Ecosystems Advisory Services
FEED	Front-End Engineering Design
FWCC	Freshwater White Clawed Crayfish
FWPM	Freshwater Pearl Mussels
GCOS	Global Climate Observing System
GSI	Geological Survey Ireland
iCRAG	Irish Research Centre in Applied Geosciences
ICFFS	Integrated Coastal Flood Forecast Service
IFI	Inland Fisheries Ireland
INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resource
INNS	Invasive non-native species
IWDG	The Irish Whale and Dolphin Group
JNCC	The Joint Nature Conservation Committee
MAC	Maritime Area Consent
MAPA	The Maritime Area Planning Act 2021
MARA	The Maritime Area Regulatory Authority
MaREI	Centre for Marine and Renewable Energy Ireland
MarESA	Marine Evidence based Sensitivity Assessment
MBES	Multibeam Echosounder
MPA	Marine Protected Area
MRIA	Marine Renewable Industry Association
MSFD	Marine Strategy Framework Directive
MSP	Marine Spatial Planning
MUL	Maritime Usage Licence
NMPF	The National Marine Planning Framework
NMS	The National Monuments Service
NPWS	The National Parks and Wildlife Service



Abbreviation	Explanation
O&M	Operations and Maintenance
OPR	The Office of the Planning Regulator
ORE	Offshore Renewable Energy
ORED II	The Second Offshore Renewable Energy Development Plan
QI	Qualifying Interest
SAC	Special Area of Conservation
SBES	Single Beam Echosounder
SCI	Special Conservation Interest
SEAI	The Sustainable Energy Authority of Ireland
SFPA	Sea-Fisheries Protection Authority
S-P-R	Source-Pathway-Receptor
SPA	Special Protection Area
UAIA	Underwater Archaeology Impact Assessment
UAU	Underwater Archaeology Unit
UAV	Unmanned Aerial Vehicle/Vessel
UNESCO	United Nations Educational, Scientific and Cultural Organization
USBL	Ultrashort Baseline
USV	Unmanned Surface Vehicle/Vessel
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System
WFD	Water Framework Directive
WMO	World Meteorological Organisation
WTG	Wind Turbine Generator
WWI/II	World War 1 / 2

1 INTRODUCTION

1.1 THE MARITIME AREA PLANNING ACT 2021 AND MARA ESTABLISHMENT

The enactment of the Maritime Area Planning Act 2021 (MAPA) [1] in December 2021 was a major and much needed milestone in the creation of a new consenting regime for development in the Irish maritime area.

The MAPA gave further effect to Ireland's new marine planning system, which is underpinned by a statutory Marine Planning Policy Statement [2], and guided by the National Marine Planning Framework (NMPF) [3].

As defined in the Act, the 'maritime area' to which the MAPA applies is that area of the State extending from the high water of ordinary or medium tides of the sea to the outer limit of the continental shelf (Figure 1-1), and includes:

- the sea and tidal areas of internal waters of the State as construed in accordance with the Maritime Jurisdiction Act 2021,
- the territorial seas of the State as construed in accordance with the Maritime Jurisdiction Act 2021,
- the exclusive economic zone as construed in accordance with the Maritime Jurisdiction Act 2021, and
- the continental shelf.

This is the jurisdiction that is considered relevant for this report.

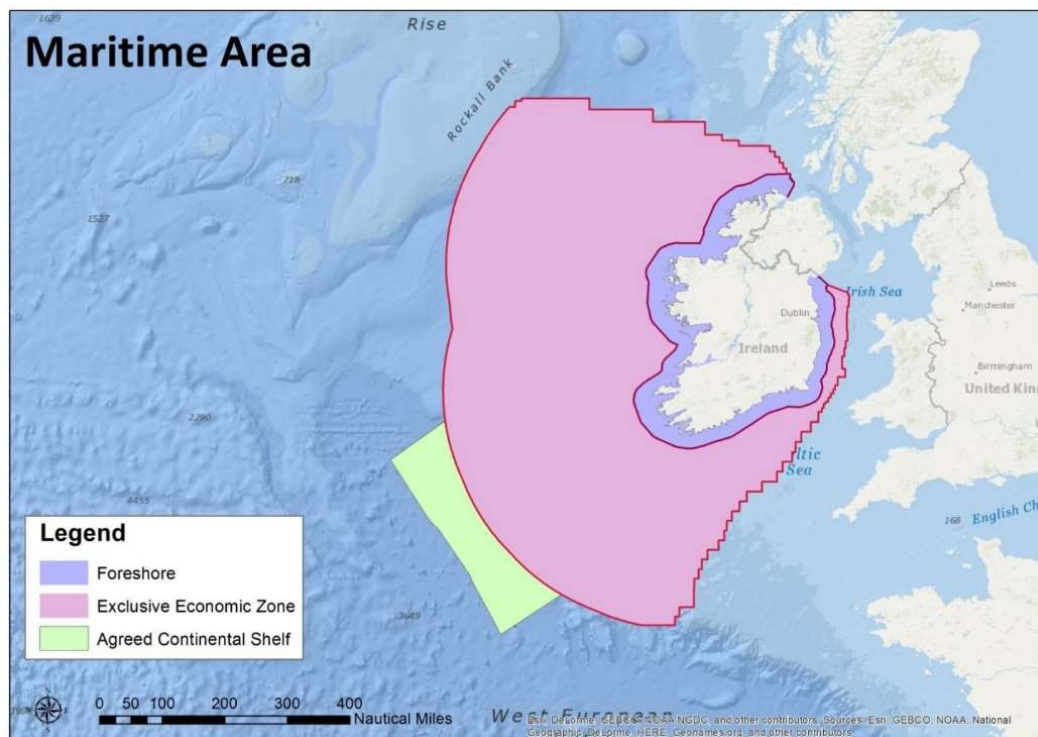


Figure 1-1: Ireland's Maritime Area



1.2 MARA AND ITS FUNCTIONS

The MAPA established a new marine licensing and development regime, and a new body, the Maritime Area Regulatory Authority (MARA), to administer it.

The establishment of MARA on 17 July 2023, was a key enabler in respect of Ireland's ambitions for the ORE sector, and for the oversight of other activities in Ireland's maritime area.

MARA's functions according to the MAP Act (set out in Part 3, Chapter 2) include, but are not limited to:

- Assessing Maritime Area Consent (MAC) applications for the maritime area, which are required by developers before development permission can be granted.
- Granting of MULs for specified activities.
- Compliance and enforcement of MACs, MULs and offshore development consents.
- Investigations and prosecutions.
- Administration of the existing Foreshore consent portfolio.
- Fostering and promoting co-operation between regulators of the maritime area.

A high proportion of MARA's work will focus on offshore wind, the development of which is a key Government objective. Ireland has set ambitious targets for offshore wind in the coming years and decades, including:

- 5GW offshore wind installed by 2030 (Phase 1 and Phase2).
- 2GW offshore wind in development by 2030 for non-grid uses (Future Framework).
- 20GW by 2040 and 37GW by 2050 (Future Framework, previously the Enduring Regime).

To help to meet these targets, the Department of the Environment, Climate and Communications (DECC) recently released an indicative plan for auctions for offshore wind out to 2030 [4], which would see 9 offshore wind auctions take place this decade (including ORESS1), for a capacity of 14.7GW in total (Table 1-1). All of the projects successful in these auctions will require MACs, MULs, and engagement with MARA.

Added to that, significant port development will be required to facilitate the development of offshore wind in Ireland, which will add to the demands placed on MARA. For example, in October this year it was noted that Greenore Port has applied for a MAC to create a state-of-the-art offshore wind operations and maintenance (O&M) facility [5]. Many other ports have indicated an interest in supporting the development and operations of offshore wind in Ireland, and more MAC applications for port development will be submitted to MARA in the coming years.

In September 2022, on behalf of Wind Energy Ireland and Green Tech Skillnet, GDG undertook an assessment of port infrastructure in Ireland to assess the port industry's capability to support the Irish offshore wind industry [6] including a summary of future upgrade plans.

Outside of ORE, MARA will need to carry out its functions in relation to all of the other ongoing activities taking place in the maritime area, such as normal port activities, site investigation work by statutory bodies etc.



Table 1-1: ORESS Future Auction Schedule as Published by DECC in November 2023

Auction	Indicative Date	Capacity for Award (GW)	Indicative Construction Schedule
ORESS 1	Q2 2023	3.1	2026 – 2031
ORESS 2.1	H1 2025	0.90	2028 – 2033
ORESS 2.2	H2 2025	1.2	2029 – 2033
Phase 3 – Non-Grid Tender 1	H2 2025	1.0	2030 – 2035
Phase 3 – Non-Grid Tender 2	H2 2025	1.0	2030 – 2035
ORESS FF1	H1 2026	1.5	2029 – 2035
ORESS FF2	H1 2027	2.0	2030 – 2035
ORESS FF3	H1 2028	2.0	2031 – 2036
ORESS FF4	H1 2029	2.0	2033 – 2038
		14.7	

1.2.1 MARA LICENSING REQUIREMENTS AND PROVISIONS FOR EXEMPTIONS

In relation to licensing, Maritime usages listed under Schedule 7 of the MAPA, which may be undertaken in the Maritime Area pursuant to a MUL from MARA, include, inter alia:

1. Dredging.
2. Marine environmental surveys for the purposes of scientific discovery or research, or in support of an application under Part XXI of the Planning and Development Act 2000.
3. The installation or placement of navigational markers or aids to navigation, or both, not undertaken or authorised by the Commissioners of Irish Lights.
4. The deposit of any substance or object, either in the sea or on or under the seabed.
5. The maintenance of any cable, pipeline, oil, gas or carbon storage facility structure that does not require an authorisation (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation) under any other enactment in order to be undertaken.
6. The harvesting, disturbance or removal of seaweed, whether growing or rooted on the seabed, or deposited in or washed up thereon by the action of the tides.
7. The laying or installation of telecommunications cables or ducting by or between coastal States where such cables or ducting pass through the exclusive economic zone (as construed in accordance with the Maritime Jurisdiction Act 2021) or the continental shelf but do not land in the State.

While the above activities are some of those listed in the MAPA as activities which require a licence, Section 114 of the MAPA provides that the Minister may, by Regulations, provide for any class of Schedule 7 usage to be an ‘exempted usage’, meaning it can be carried out without the need for a MUL from MARA.



A usage class can be classed as an exempted usage where the Minister is of the opinion that:

- i. by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive, or
- ii. usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation).

The potential for classes of Schedule 7 usages to be classed as exempted usages where appropriate, and be undertaken without the need for a MUL, affords an excellent opportunity for the maritime area permitting system to be streamlined, while ensuring appropriate safeguards remain in place for the protection of our marine environment. The successful use of exemptions from certain licensing requirements for certain site investigation / survey activities in the maritime area has been successfully implemented in other jurisdictions and continues to work well. Practices in other jurisdictions are being investigated in Lot 2 of this work and are outside of scope for this report.

This streamlining of the consenting process was one of the motivations for the enactment of the MAPA. Prior to the establishment of MARA and the MAPA, projects looking to undertake activities such as those listed above were required to be granted a Foreshore Licence from the Foreshore Unit, under the Foreshore Act, 1933 [7]. It was not uncommon for the securing of these licences to take over a year, sometimes longer. This led to the Foreshore licensing system being seen as a bottleneck in the licensing / consenting regime, particularly for proposed offshore wind developments looking to undertake site investigation works.

Those processing times were not proportionate to the scale of the activities being proposed to be undertaken under the licences, with many of these licence applications being related to site investigation works such as hydrographic, geophysical or geotechnical survey, the deployment of metocean equipment, scientific research activities etc. Timelines were also not in line with typical timelines in other international markets for an equivalent licence/authorisation. This led to the motivation for this scope of work.

1.3 SCOPE OF WORK

As MAPA has marked the beginning of a new maritime consenting regime in Ireland, it is important to ensure that this regime is as streamlined and as efficient as possible, while still fulfilling all of its statutory requirements noted above.

It is important to avoid any unnecessary MUL applications for activities that could be classed as exempted usages, as this would be an inefficient use of resources to both prepare the applications and to then have them processed. Maritime Usage Licences should only be required where appropriate and necessary.

With this in mind, on behalf of the Marine Institute, GDG has been tasked with completing an examination of Maritime Usages which will be undertaken in the Irish maritime area which would currently require a MUL, to identify specific marine scientific or site investigation surveys that may potentially be defined as exempted usages and therefore be undertaken without the need for a MUL from MARA.

This study focuses on those activities which fall under Section 2 and Section 3 of Schedule 7 of the MAPA, namely:

- Marine environmental surveys for the purposes of scientific discovery or research.



- Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Planning and Development Act 2000.

GDG identified those activities which may be suitable for exemption under part (i) of Section 114 of the MAPA which provides that the Minister may, by Regulations, provide for any class of Schedule 7 usage to be an exempted usage where the minister is of the opinion that *'by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive.'*

This work was carried out in four main steps, which are explained below and expanded on in this report.

Task 1: Identify and categorise the essential data requirements of the ORE development sector in respect of ORE related development applications.

Information on site conditions is key to site selection and development. It is essential that project developers can obtain fit for purpose data on wind resource, met-ocean conditions, seabed and bathymetry, environmental factors etc. to know if a site is viable, to inform design, and to satisfy consenting and permitting requirements.

Under this section of the scope of work, GDG have identified and categorised the key data requirements of the ORE sector to inform site selection and development.

This examination was informed by GDG's in-house knowledge from preparing Foreshore Licence Applications, EIA Reports, MUL Applications, Integrated Ground Models, foundation designs, metocean analyses etc., as well as by a targeted review.

Task 2: Identify what data is publicly available and the gaps in the required data.

Publicly available data sources can play a key role in early-stage site section and project design.

Indeed, having publicly available data sources of sufficient quality can potentially negate the need for some preliminary site surveys and investigations.

Perhaps the best example here is the Integrated Mapping for the Sustainable Development of Ireland's Marine Resource (INFOMAR) programme, funded by DECC, and delivered by joint management partners Geological Survey Ireland (GSI) and the Marine Institute. INFOMAR provides highly valuable, publicly available datasets relevant to some essential data requirements of the ORE sector, which can be used to inform knowledge and understanding of site conditions and inform future survey campaigns.

However, INFOMAR is by no means the only example relevant here. As part of this Task, GDG have identified a list of publicly available data sets which are relevant to this work. GDG reviewed the identified publicly available datasets and summarised the contents, the quality, and the limitations of each. These datasets have been mapped against the identified essential data requirements of the ORE development sector, to determine where these public datasets can help to satisfy these essential requirements, and where gaps exist that will generally need to be filled with site specific survey / site investigation.



Task 3: Categorise the techniques and technologies used to gather the required data, having regard to scientific advancements and new/emerging technologies.

Regardless of the quality of publicly available data sources available, there will always be limitations to these datasets, and gaps in coverage. Site specific surveys and site investigations will be required to fill these gaps, address limitations in available data, and provide the detail required to inform EIA, project design, planning applications, etc.

This task identified and categorised the survey and site investigation techniques and technologies used to gather the required data, having regard to any foreseen scientific advancements or emerging technologies. The result of this is a comprehensive list of survey or site investigation techniques which can be expected to be carried out in the Irish maritime area for the foreseeable future.

As mentioned previously, this work focused on those activities which fall under Section 2 and Section 3 of Schedule 7 of the MAPA, namely:

- Marine environmental surveys for the purposes of scientific discovery or research.
- Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Planning and Development Act 2000.

Significant stakeholder engagement was undertaken as part of this task, with key stakeholders identified by GDG, MARA and the Marine Institute given the opportunity to provide input and feedback on the list of activities, to ensure a comprehensive and robust list of survey activities was identified.

The primary focus of this work is on those activities related to ORE development, and offshore wind in particular, given its relevance to Ireland and the current government targets in place. However, as explained above, MARA will also have responsibility for other activities in the maritime area which are not related to ORE development such as normal port activities, site investigation work by statutory bodies etc. Therefore, survey activities related to other sectors, which fall under Section 2 and Section 3 of Schedule 7 of the MAPA, were considered also where relevant.

Task 4: Examine those activities or sub-activities and, in accordance with Section 114, identify those activities or sub-activities that i) would definitively be suitable for exemption, ii) could be suitable for exemption under certain circumstances, and iii) would definitively not be suitable for exemption.

Using the comprehensive list of activities which fall under Section 2 and Section 3 of Schedule 7 of the MAPA identified, GDG have further identified those activities which could be regulated by the Minister as an 'exempted usage'. Again, a usage class can be classed as an exempted usage where the Minister is of the opinion that:

- by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive, or
- usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation).

The focus of this work was on Part i, i.e. identifying those usage classes which may be exempted by reason of their size, nature or limited effect on the maritime area. To do this, all identified survey types were examined for suitability for exemption in line with the Appropriate Assessment (AA) and EIA processes. The examination process is discussed in further detail in Section 5.

Where relevant, commentary was also given on Part ii above.



This work was concentrated primarily on identifying those activities which would definitively be suitable for exemption, and those which would definitively not be suitable for exemption. Those activities which could be suitable for exemption under certain conditions were identified, but further research will be needed to identify in detail the specific conditions or thresholds where the activities could/should be exempted.

This report should be read in conjunction with *23190-TAB-001-04 Survey Activities List and Categories*, *23190-TAB-002-00 Public Data Source Assessment*, and the relevant Examination Tables (See Section 5) provided with this report.



2 TASK 1: IDENTIFY AND CATEGORISE THE ESSENTIAL DATA REQUIREMENTS OF THE ORE DEVELOPMENT SECTOR IN RESPECT OF ORE RELATED DEVELOPMENT APPLICATIONS

This section discusses essential data requirements of the ORE sector. These are also outlined in 23190-TAB-002-00 Public Data Source Assessment. The focus is mainly on data requirements as they relate to offshore wind farms, but other uses for these data are mentioned where relevant.

To develop an offshore wind project, or any ORE development, there are data requirements that can be seen as essential to informing understanding of site constraints and conditions, and project design, at different stages of a project.

These data requirements can broadly be classified into the categories below (with a few exceptions falling outside of these categories and a few spanning multiple categories).

- Geophysical and Hydrographic Data
- Geotechnical Data
- Wind Resource Data
- Metocean Data
- Ecological Data
- Heritage Related Data
- Oceanographic Data

For the purposes of this work, GDG has also included a category noted as ‘other boat-based surveys’ which is not a traditional data category but is used to categorise surveys that do not exactly fit into the categories above, namely Acoustic Subsea Positioning System; Ultrashort Baseline (USBL), and vessel launch activities.

2.1 GEOPHYSICAL AND HYDROGRAPHIC DATA

Geophysical and hydrographic data are key to the understanding of the site conditions within proposed project areas.

Geophysical studies and surveys centre around gathering seabed and sub-seabed data using remote sensing techniques.

Geophysical surveys are undertaken to:

- Obtain information on the seabed surface (type, texture, variability, etc.) and in particular, to identify any seabed features that may be of interest to the overall project.
- Map seabed sediments and bedforms and in the monitoring of bed mobility, scour and bed stability.
- Identify any shallow geohazards and man-made hazards (including but not limited to outcropping, boulders, shallow gas, wrecks, debris, faults, peat, fluid migration etc.).



- Determine the stratigraphy across the site and quantify the variability in the lateral and vertical extents to depths of interest (typically anywhere up to approximately 70 m below seabed).
- Identify the presence of bedrock should it exist within the depth of interest.
- Identify any magnetic anomalies and the nature and location of obstructions across an area.
- Assess Seismic risk.

Hydrographic datasets are required to:

- Develop a detailed and comprehensive understanding of seabed conditions.
- Obtain accurate water depths.
- Calculate seabed slope and to map the morphology of the seabed.
- Identify obstructions and hazards on the seabed, such as boulders, pockmarks, mounds, debris, unexploded ordnance (UXO) and infrastructure.

The collected data are used to better understand the relief structure of the seabed and the subsurface structure, in particular the sub-surface stratigraphy, determining sediment strata and the elevation of bedrock.

Geophysical and hydrographic surveys are required prior to the undertaking of geotechnical survey/intrusive works, to inform locations to be targeted. The Underwater Archaeology Unit (UAU) of the National Monuments Service (NMS), which oversees the preservation of wrecks and other underwater archaeological features within Ireland's inland waters (including coastal inlets and bays) and coastal waters (out to 24 nautical miles to the outer limit of what is known as the Contiguous Zone) also generally requires that geophysical survey be undertaken prior to undertaking invasive geotechnical sampling or any interaction with the seabed, to ensure consideration of potential impacts to the underwater cultural heritage is appropriately informed.

2.2 GEOTECHNICAL DATA

Geotechnical surveys provide the following data:

- Classification and description of the soils and rocks.
- Geotechnical parameters, for example, strength, stress history, and cyclic and dynamic parameters, relevant for the type of analysis/foundation type planned.

A typical geotechnical investigation will look to identify geotechnical parameters for each geological province highlighted during the interpretation of geophysical data, including:

- Stratigraphy.
- Nature of soils and identification.
- Basic geotechnical features: mechanical strength, deformability, stress history.
- Typical geotechnical profiles for each geological province.
- Assessment of the geotechnical properties of materials and their spatial variability.

Additional key technical factors required for more detailed design and cabling considerations include seabed stability, seabed mobility, and scour potential.



The interpretation of the geotechnical parameters provided allows for detailed and complete design of the project foundations.

Generally geotechnical data is collected in two phases during project development: a preliminary investigation which allows for the specification of a final, detailed investigation. At geologically complex sites, further or targeted investigations may be required.

Given the current stage of development of the Irish offshore wind market, the primary foundation types currently being considered for projects in development are fixed foundation types. These include monopiles (driven, drilled and grouted, drive-drill-drive), jackets (driven, drilled and grouted, suction caisson), and gravity-based systems. Different foundation types are more suitable for different water depths and seabed and met ocean conditions. All projects developed in Ireland as part of Phase 1 and Phase 2 will use some type of fixed foundation type, with these technologies proven at scale internationally.

Longer term, floating foundations will be required for projects in deeper waters. The viable depth for fixed bottom foundations is increasing as the technology and supply chain develops, and the transition zone between fixed and floating projects will need to be viewed on a case-by-case basis, but it is anticipated this transition zone will be somewhere in the 60-80m depth range. The maximum depth for floating foundation types is not known. Depths of up to 1000m are mooted but can be viewed as an extreme. Ireland's draft Offshore Renewable Energy Future Framework Policy Statement assessed Ireland's potential for floating wind out to 1000m, which is seen as the theoretical maximum limit at which floating offshore wind turbine(s) can operate [8].

Earlier floating projects will be in shallower waters (relative to the theoretical maximum). For example, Hywind Tampen, the world's largest floating wind project built to date at 88MW, which was commissioned in 2023, is in depths of 260 – 300 m [9], but projects in deeper waters can be expected in future.

Floating projects are anticipated mainly off the south and west coasts of Ireland. There are currently four main types of floating wind platform defined:

- Barge: A relatively flat platform floating at approximately sea surface.
- Semi-submersible: A relatively short, wide structure that extends from above the sea surface to below it; typically in the region of half to a third above.
- Spar: A long thin structure that extends significantly below the sea surface as a column.
- Tension Leg: A structure that is similar to the top bay of a jacket with tensioned lines anchoring it to the seabed (instead of the main lattice).

Rather than the foundations themselves being installed in the seabed, floating foundations are moored to the seabed using a system of moorings and anchors. Mooring systems used include spread mooring systems with catenary or taut lines, tension leg systems, and single point moorings. Mooring lines are then anchored to the seabed, using different anchor types such as drag embedment anchors, vertically loaded anchors, gravity-installed anchors, driven piles, or suction piles.

The chosen foundation type and seabed conditions for the project will impact the depth of interest for geotechnical data, and the number of sampling locations required, but the general requirements are similar.

There are already several early stage floating wind projects under development in Ireland. Floating projects are anticipated to contribute to the Government target of 2GW of offshore wind in development by 2030 for non-grid uses (Future Framework), and longer term the potential for floating wind here is significant.



Broadly speaking, there are four phases of pre-construction foundation development for an offshore wind farm site:

1. Initial site selection/site viability.
2. Foundation optioneering/conceptual foundation design.
3. Front-End Engineering Design (FEED): determination of development resource requirements via selection of most cost-effective solutions for turbine technology, foundations, grid connection points, and layout optimisation.
4. Detailed foundation design.

Initial site viability can usually be completed based on open data and desk studies. Site-specific reconnaissance geophysical and geotechnical data are often required for foundation optioneering studies which assess the site requirements for different foundation types against the specific site characteristics (bedrock depth, hazards, overburden strength), based on anticipated Wind Turbine Generator (WTG) sizes. A foundation optioneering report will identify one or more types of foundation suited for a site, WTG size, and rank them by suitability. Targeted, site-specific data will be required for FEED and detailed design.

For cabling design (inter-array and export cables), data requirements are similar, and include geology (seabed substrates, geological units), geotechnical and engineering properties (strength, thermal conductivity, corrosion potential, etc.), sub-bed hazards (shallow gas, peat, coarse sediments, etc.), seabed stability (mass movement potential, seabed deflation, lowest stable elevation).

Once collected, geophysical data and geotechnical data discussed will generally be used in the preparation of a ground model. The Society for Underwater Technology defines a ground model as ‘a database of information that includes the structural geology, geomorphology, sedimentology, stratigraphy, geohazards, and geotechnical properties of a site’, and describes it as ‘a key input to geotechnical design parameters for a site and to an understanding of how these may vary across a site’.

A broader definition of a ground model could include survey reports and information on other physical constraints, such as archaeological, benthic, and met-ocean data. These data requirements will be expanded on below.

An example of how this ground model is iteratively updated as more site data becomes available is shown in Figure 2-1. This illustrates how a conceptual ground model can be prepared based on desktop studies, and this can then be updated based on preliminary and detailed survey campaigns.

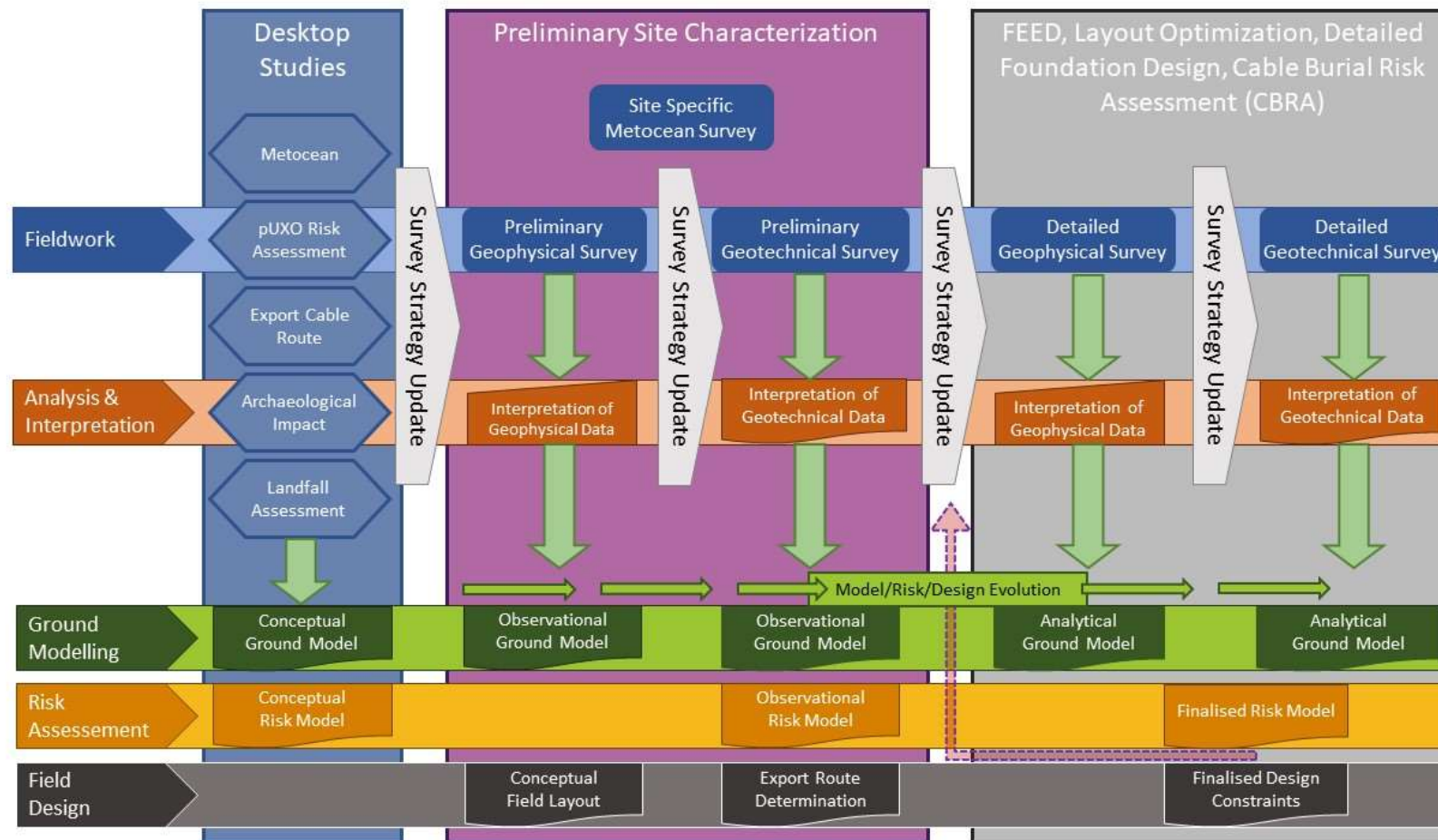


Figure 2-1: Illustration of Survey, Site Investigation, and initial design stage ground model update map (GDG)

2.3 MET-OCEAN DATA

The main purposes of the collection of met-ocean data are to collect accurate atmospheric, wave, current and water levels data from the project site that will be used to feed into offshore sub-structure design, and estimate the workability range at offshore sites, for defining the construction and O&M strategies, as well as provide insight on wave/tidal energy yields.

Met-ocean data collected includes:

- Pressure
- Atmospheric Humidity
- Temperature for the Air and Water
- Wave Height and Period
- Tidal Regime
- Advection, dispersion, and currents of marine environments

Generally, measurement campaigns look to collect between 12 and 24 months of data (depending on data type) to cover seasonal variability, but this requirement will vary from project to project.

As the World Meteorological Organisation (WMO) representative in Ireland, Met Éireann reports on the measuring and monitoring of Global Climate Observing System (GCOS) Essential Climate Variables (ECV). The fifty-four ECVs recommended by the GCOS are needed to monitor climate change in the ocean, atmosphere and land. 19 of the fifty-four ECVs relate to the ocean (see below [10]).

Survey work in Irish Waters is essential to collect data on these nineteen ECVs and thus support Ireland's obligations in GCOS, and more generally, monitoring climate change in Irish Waters. Met Éireann, along with the Office of Public Works, the Marine Institute, the Commissioner of Irish Lights (CIL), Geological Survey of Ireland (GSI), the Environmental Protection Agency (EPA), and Uisce Éireann / Irish Water, are involved in survey work to measure ECVs in the oceans around Ireland.

The 19 ocean related ECVs are listed in Table 2-1 below.

Table 2-1: Ocean ECVs

Category	Ocean ECV
Physical	Ocean Surface Heat Flux
	Sea Ice
	Sea Level
	Sea State
	Sea Surface Currents
	Sea Surface Salinity
	Sea Surface Stress
	Sea Surface Temperature
	Subsurface Currents
	Subsurface Salinity
	Subsurface Temperature
	Inorganic Carbon
	Nitrous Oxide
Biogeochemical	Nutrients
	Ocean Colour



Category	Ocean ECV
Biological/Ecosystems	Oxygen
	Transient Tracers
	Marine Habitats
	Plankton

An example of the minimum contents of a report for a met-ocean study involving collection of met-ocean data through in-situ measurements (in addition to any data result reported) is below:

- Specification of the requirements set out at the beginning of the met-ocean campaign.
- Choice of instrument selection to fulfil the requirements, including explanation of the choice and comparison with other options available.
- Details of the instrumentation, including as a minimum the provider, key data facts of each instrument, calibration, expected performance.
- Instrumentation deployment report, including details and photos of the vessel and operation.
- Maintenance record of the instrumentation as appropriate.
- Instrumentation recovery report, including details and photos of the vessel and operation and any observed failures or damage to the instrument.
- Measured dataset details, including data return achieved and overall success of data collection campaign.
- Any post-processing or quality control procedures undertaken after data collection.
- Any other information not mentioned above relevant to the end-user of the datasets.
- Report detailing survey results at all locations:
 - Significant wave heights, maximum wave heights and crests, wave periods and directions for normal and extreme conditions including joint probability of various wave conditions;
 - Joint probability distribution of various wind and wave conditions;
 - Current speeds and directions for normal and extreme conditions. Specifically, various components of the sea current velocity should be broken down into sub-surface currents, wind-generated currents, near shore currents and total current velocity;
 - Water levels including tides, extreme water levels, and sea level change;
 - Water density, water salinity and water temperatures.



2.4 WIND RESOURCE DATA

The purpose of the wind resource survey campaign is to accurately characterise the wind resource data at the project site that will be used to:

1. Conduct energy yield assessments, and
2. Feed into turbine selection, operational planning, and offshore sub-structure design.

Wind resource data is required to quantify wind power at certain heights. Calculations can then be carried out using:

- Mean wind speed in m/s
- Wind direction in degrees/compass points
- Mean wind power density in W/m^2
- Derived weather downtime estimates
- Energy yield assessments

An example of what the report for a wind resource study involving collection of wind resource data through in-situ measurements should include is below:

- Specification of the requirements set out at the beginning of the measurement campaign.
- Choice of instrument selection to fulfil the requirements, including explanation of the choice and comparison with other options available.
- Details of the instrumentation, including as a minimum the provider, key data facts of each instrument, calibration, expected performance.
- Instrumentation deployment report, including details and photos of the vessel and operation.
- Maintenance record of the instrumentation as appropriate.
- Instrumentation recovery report, including details and photos of the vessel and operation and any observed failures or damage to the instrument.
- Measured dataset details, including data return achieved and overall success of data collection campaign.
- Any post-processing or quality control procedures undertaken after data collection.
- Report containing the accuracy, sensitivity and uncertainty of wind speed, wind direction and wind shear exponent.
- Report/data package characterising normal wind conditions at each location:
 - The long-term 10-minute average wind speed at hub height; monthly, all-year and omni-directional
 - Wind speed distribution; omni-directional and directional
 - Wind speed vertical profile
 - Wind shear
 - Ambient turbulence intensity and standard deviation as a function of average wind speed



- Turbulence including wave effects from neighbouring turbines; the wave effects can only be estimated when the type of turbine has been decided in the design process
 - Air density
 - An appropriate interval of wind speed bin and wind direction sectors used in the above should be chosen. As an example, 2 m/s or less for wind speed bins and 30° or less for wind direction sectors is consistent with DNVGL-ST-0437 and IEC 61400-3
- Report/data package characterising extreme wind conditions at each location:
 - Extreme 10-minute average wind speed at hub height with specified recurrence periods
 - Extreme 3-second average wind speed (gust) at hub height with specified recurrence periods
 - Extreme wind shear
 - Extreme turbulence intensity
 - Air density
 - Extreme deterministic wind events such as extreme gust events and extreme direction change events
- Any other information not mentioned above relevant to the end-user of the datasets.

2.5 ECOLOGICAL DATA

Ecological data requirements for projects or ecological monitoring are very broad. These are summarised below.

- Detailed habitat maps
- Baseline characterisation of biological communities present in area, including fish and mollusc species.
- Benthic species abundance and distribution.
- Chemical characteristics of sediment and water
- Demersal / Pelagic species abundance and distribution
- Marine mammal abundance and distribution
- Bird / bat species abundance and distribution
- Pollution data (samples) after event
- Sediment profiles
- Plankton species abundance and distribution

Primarily, for offshore wind farms, and indeed any large offshore structures, these data are needed to inform the Environmental Impact Assessment Report (EIAR) which will be required as part of the project planning application.

The EIA Directive [11](DIRECTIVE 2011/92/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 December 2011 on the assessment of the effects of certain public and private projects on the



environment) aims to ensure a high level of environmental protection and that environmental considerations are integrated into the preparation and authorisation of projects.

This objective is achieved by ensuring that environmental assessment of certain public and private projects listed in Annex I and II to the Directive is carried out prior to their authorisation. Annex II includes aquaculture projects, hydroelectric projects, wind farms, oil and gas pipelines, and many others.

Data on the ecological status of the project site can also be required for other permits and consents. For example a Dumping at Sea Permit from the Environmental Protection Agency (EPA) requires detail on the benthic communities in the site area, as well as the chemical characteristics of the sediments present.

Fisheries research is also an important activity in Ireland's maritime area. The Marine Institute's Fisheries Ecosystems Advisory Services (FEAS) team [12] assesses many of the key commercial fish and shellfish stocks around Ireland. The overall aim of fisheries science is to provide information to managers on the state and life history of the stocks. The Marine Institute collects data on Marine Mammal Species Distribution, Fish Species Distribution, Fishing Activity, Environmental Monitoring, Designated Sites, Biodiversity, Marine Habitats, Coastal Habitats, and Aquaculture Sites. Other bodies such as Bord Iascaigh Mhara and the Sea Fisheries Protection Agency also collect important fisheries related data.

2.6 HERITAGE DATA

For the purposes of this work, heritage related data relates to archaeological data, such as the location, nature, and extent of archaeological features and sites, both man-made and naturally occurring.

This includes:

- Shipwrecks
- Coastal Built Heritage Sites
- Coastal United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites
- Archaeological Protected Sites
- Submerged Landscapes
- Other Wrecks (aircraft, etc)
- Cultural Heritage (Harbours, Tidal Mills, etc)

The UAU of the NMS [13] is the key body with regards to the oversight of archaeological heritage in the Irish Maritime Area. The NMS is tasked with addressing the protection and preservation of our underwater cultural heritage and in this regard the UAU has a wide remit, including quantification of the record, research, underwater survey, excavation and regulation.

The UAU has created an archive of over 18,000 wrecking events (Figure 2-2) but estimates that the true figure could be as high as 30,000 wrecks. These losses off the Irish coast represent a wide variety of vessel types including logboats, currachs, medieval ships of all classes, fishing and trading vessels, steamships, submarines, warships, ocean-going liners and approximately 1,800 wrecks relating to WWI and WWII.

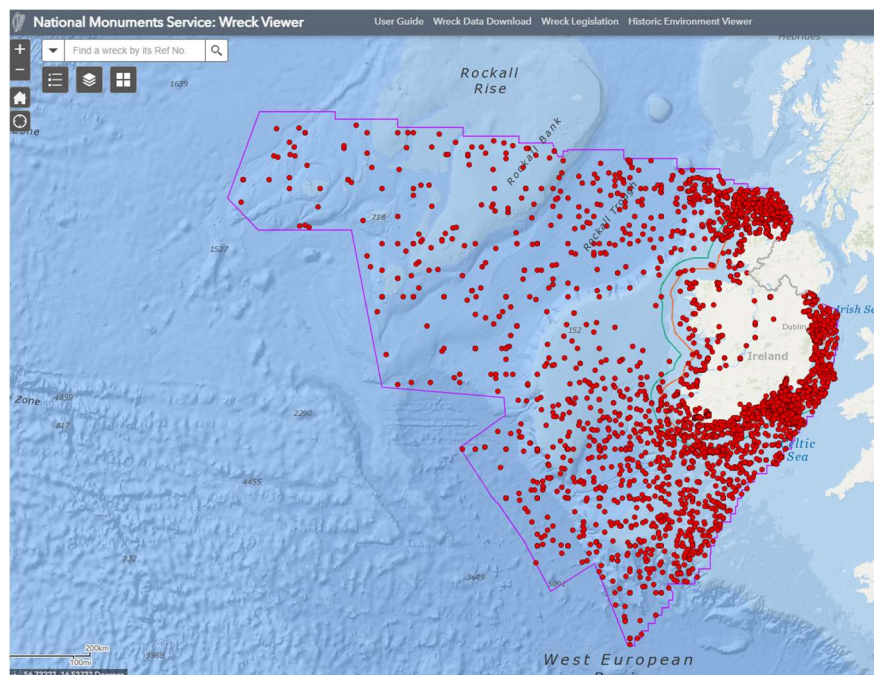


Figure 2-2: NMS Wreck Viewer Screenshot

Other cultural remains include submerged landscapes, harbours, jetties, landing places, fish traps, kelp grids, bridge sites and crannogs.

Archaeological features are protected under Section 3 of the National Monuments (Amendment) Act 1987 [14]. This includes wrecks over 100 years old and archaeological objects underwater, irrespective of their age or location. Wrecks less than 100 years old and potential wrecks or archaeological features may also be protected under the Act.

The Historic and Archaeological Heritage and Miscellaneous Provisions Bill 2023 was signed into law by the President on 13 October 2023 and will repeal existing legislation relating to Ireland's archaeological and related heritage. It will institute new provisions to cater for the protection of historic heritage and replace the existing National Monuments Act 1930 to 2014, and other related legislation [15].

As mentioned previously, the UAU generally requires that geophysical survey be undertaken prior to the undertaking of invasive geotechnical sampling or any interaction with the seabed, to ensure all potential impacts to the underwater cultural heritage are avoided. It is often a condition of site investigation licences that this be undertaken as well as engagement with the NMS, and the preparation of an Underwater Archaeology Impact Assessment (UAIA) which is updated as more project data becomes available.



2.7 OCEANOGRAPHIC DATA

Oceanographic data for the purposes of this work relates to water characteristics such as:

- Temperature
- Salinity
- Turbidity
- Chemistry
- Nutrient concentrations
- Dissolved oxygen
- Fluorescence
- pH
- Conductivity

This data is less relevant for project design but is key to monitoring the health and status of Irish waters.

A key body with regards to this data is the EPA, which undertakes a full assessment of the overall quality and ecological status of Ireland's waters every three years and reports on the indicators of water quality in the intervening years to provide an update on trends in the biological quality and nutrient levels of our waterbodies. This includes an assessment of the health of Ireland's rivers, lakes, canals, groundwaters, transitional waters (estuaries) and coastal waters.

The EPA uses this data to provide a national picture of the current ecological health of Ireland's surface waters and the chemical and quantitative status of its groundwater resource. It monitors trends in water quality and identifies the main problems causing water quality issues, as well as setting out the actions that are needed to protect and improve water quality.

A monitoring programme to provide an overview of ecological health in transitional and coastal waters is undertaken by:

- EPA
- Marine Institute
- Inland Fisheries Ireland
- National Parks and Wildlife Service (NPWS)

The National Marine Monitoring Programme is coordinated by the EPA.

Information on survey methods and the monitoring programme is shown in [16]. This document presents Ireland's national Water Framework Directive (WFD) monitoring programme for the period 2019-2021. The main purpose of the programme is to provide a coherent and comprehensive national overview of the ecological and chemical status of surface waters (rivers, lakes, transitional and coastal waters) and the quantitative and chemical status of groundwaters.

Figure 2-3 from the EPA shows the ecological status of transitional and coastal waterbodies 2016-2021. Water bodies are classified into one of five WFD classes, which are high, good, moderate, poor and bad.

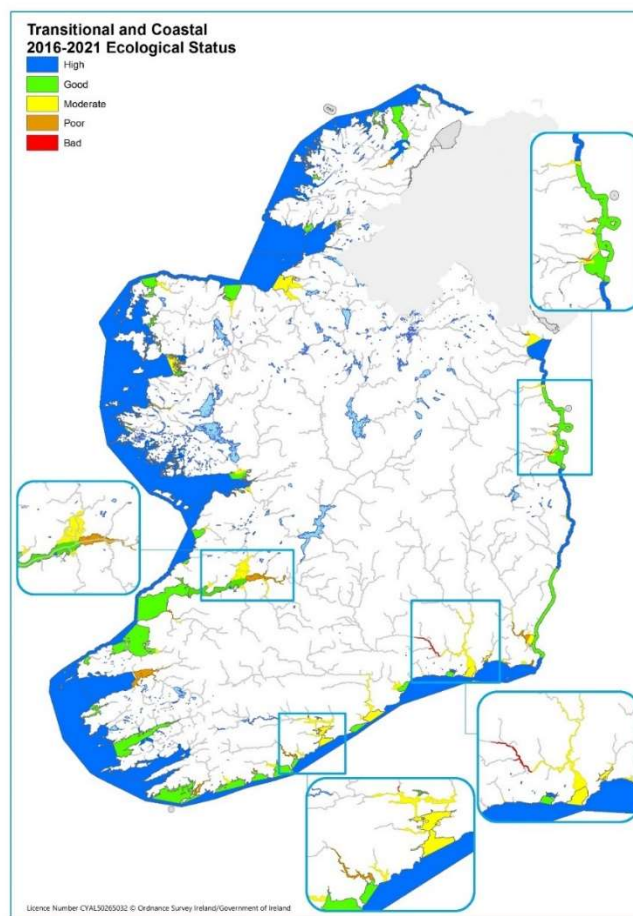


Figure 2-3: Ecological status of transitional and coastal waterbodies 2016-2021 [17]



3 TASK 2: IDENTIFY WHAT DATA IS PUBLICLY AVAILABLE AND THE GAPS IN THE REQUIRED DATA.

To address some of the data requirements discussed above, public data sources can be an invaluable resource. This is particularly true at the early stages of project development, where less detailed data can still be very informative. Having access to reliable public data sets can also negate the need for some site surveys at an early stage, though targeted site investigation and site-specific data will invariably be required at later stages.

This section discusses some widely used public datasets relevant to the Irish ORE sector to assess how/where they can satisfy essential data requirements, the data provided from each, the data gaps, and the proposed solutions to fill these gaps.

This work is summarised in 23190-TAB-002-00 *Public Data Source Assessment*, with some commentary given here on the table.

3.1 DATASETS REVIEWED

The datasets reviewed for this work are shown below in Table 3-1 below. This is by no means an exhaustive list of datasets that can be used to inform understanding of site conditions in the Irish maritime area, but the list does include some of the primary datasets used, such as INFOMAR and GSI data, the Marine Institute's Marine Atlas, European Marine Observation and Data Network (EMODnet), Global Wind Atlas etc.

Discussion on the review conducted of these datasets is given below.

Note, in 2021 in 'A review of the Irish Offshore Renewable Energy (ORE) Sector's data and information requirements in the context of the INFOMAR Seabed Mapping Programme' [18], GDG conducted an in-depth review and gap analysis of the INFOMAR programme. This work goes into more detail than is required for this work and should be reviewed if more information on the INFOMAR programme is required.

Table 3-1: Public Datasets Reviewed

Dataset / Source	Description	Link
INFOMAR	Available data include bathymetry, backscatter, sub bottom, gravity, magnetics and LiDAR in a variety of formats including Raster, Vector, SEGY, Google KMZ files and Fledermaus Scenes. Survey metadata, reports and charts are also available.	https://www.infomar.ie/
Ireland's Marine Atlas	The atlas provides marine environmental data relevant to reporting under Ireland's Marine Strategy Framework Directive (MSFD). This includes sourced data from the CSO, the Commissioner of Irish Lights, the GSI (Geological Survey Ireland) etc.	http://atlas.marine.ie/
NPWS Data	Available data includes habitat and species datasets, protected sites dates, and other environmental and ecological data.	https://www.npws.ie/maps-and-data
EPA Geoportal	Contains data on Environment & Wellbeing Appropriate Assessment, Sewage Treatment, Water, Pollutant Release & Transfer Register, Strategic Environmental Assessment	https://gis.epa.ie/EPAMaps/
GSI Datasets	Geological Survey Ireland produces a wide range of datasets from bedrock, quaternary, groundwater, marine, geological heritage, to geotechnical, minerals, geophysics, geochemistry and geohazards.	https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx
Global Wind Atlas	The Global Wind Atlas is a free, web-based application developed to help policymakers, planners, and investors identify high-wind areas for wind power generation virtually anywhere in the world	https://globalwindatlas.info/en/
EMODnet	Includes data on bathymetry, biology, chemistry, geology, human activities, seabed habitats etc.	https://emodnet.ec.europa.eu/en/emodnet-web-service-documentation
Marine Plan	Includes information on marine activities including aquaculture, biodiversity, ORE, fisheries, shipping etc.	https://www.marineplan.ie/?page=Activities-Map-%28BETA%29
OREDP II Data Sets	Contains a host of datasets related to biodiversity, seascape, cultural heritage, material assets, water, etc.	https://www.gov.ie/en/publication/71e36-

Dataset / Source	Description	Link
		offshore-renewable-energy-development-plan-ii-oredp-ii/
Irish Whale and Dolphin Group (IWDG) Species Data	Contains information on cetaceans in Irish waters.	https://iwdg.ie/species/
Central Statistics Office (CSO) Data	Variety of datasets e.g. port traffic, fishing etc.	https://data.cso.ie/
Department of Arts, Heritage and the Gaeltacht (DAHG) Wreck Viewer	Displays data regarding the known wreck locations contained within the Wreck Inventory of Ireland Database.	http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640
eOceanic	Information on Irish ports and harbours.	https://eoceanic.com/
The Joint Nature Conservation Committee (JNCC)	The classification lists all seafloor habitats currently known to occur in UK and Irish waters. These habitats are organised in a hierarchy whereby each level introduces more detail.	https://mhc.jncc.gov.uk/
The Sustainable Energy Authority of Ireland (SEAI)	Various Irish datasets e.g. wind speeds, seascape effect, energy etc.	https://data.gov.ie/organization/sustainable-energy-authority-of-ireland



3.1.1 GEOTECHNICAL DATA

The key data sources identified for geotechnical data are set out below:

- Geological Survey Ireland
- EMODnet
- INFOMAR
- Marine Atlas

These data sources provide data on geology, sediment classification, seabed substrate, sedimentation rates, pre-quaternary and quaternary geomorphology, sediment sample locations etc.

This is split per data source in *the 23190-TAB-002-00 Public Data Source Assessment*.

While the general coverage of Irish waters is good for geotechnical investigations, sampling points are much too dispersed to be considered accurate for specific projects. Seabed substrate sampling such as grab sampling is quite often used as a ground-truthing method as part of wide-ranging surveys. The data provided by the sources mentioned could be used at a high-level planning stage for projects, when considering early siting and technical options.

It is recommended that prior to the commencement of any conceptual design decisions, a targeted series of geotechnical surveys should be undertaken with sufficient density as to minimise uncertainty in the site's geological and soil properties and makeup.

3.1.2 GEOPHYSICAL DATA

The key data sources identified for geophysical data are:

- Geological Survey Ireland
- EMODnet
- Marine Atlas
- INFOMAR

These data sources provide sub-bottom profile data, power cable locations, dumped munitions locations, seismic data etc. This is considered per data source in the 23190-TAB-002-00 Public Data Source Assessment.

Sub-bottom coverage is good for Irish waters but may not provide adequate information on a site's stratigraphy and sub-bottom geology when planning for fixed foundations for example. UXO data is also listed for general locations, and although several show shipwreck locations their location and burial/exposure will vary greatly with time. Cable and pipeline data are similar; they show a level of accuracy suitable for high level investigations but unsuitable for detailed planning.

Sub-bottom profiles should be gathered across the site to provide a detailed view of the site's stratigraphy and geology. Shipwrecks, UXO, and other obstacles such as cables should be identified through dedicated survey methods such as a magnetometer survey, to ensure accurate locations are identified.



3.1.3 HYDROGRAPHIC DATA

The key data sources identified for hydrographic data are:

- INFOMAR
- Marine Atlas
- Geological Survey Ireland
- EMODnet

These data sources provide backscatter, bathymetry, and seabed sediment classification. This is split per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

The data quality is generally of a very high standard when it comes to bathymetry due to the INFOMAR programme. When undertaking a project however, the seabed topography may have altered during the gap between the surveys and the current time.

Site-specific surveys campaigns should be undertaken before installation of any infrastructure, or before any geotechnical investigation. For seabed installations, the seabed topography should be determined through a dedicated multibeam echosounder (MBES) campaign alongside any other suitable methods. Backscatter data should be gathered to determine sediment makeup across the site along with ground-truthing methods.

3.1.4 WIND RESOURCE DATA

The key data sources identified for wind resource data are:

- Marine Atlas
- Global Wind Atlas
- SEAI
- EMODnet

These data sources provide data on historical wind speeds for different heights, wind power potential, mean wind speeds, fatigue loads etc. This is split per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

While no specific data gaps exist for the sources mentioned, for projects involving wind power the modelled data and real-time data may not be sufficient for detailed energy yield assessments.

It is suggested for wind specific projects that in-situ measurements are taken over the course of at least one year for accurate and efficient placement of turbines and accurate energy assessments. This may also be useful when undertaking weather-downtime assessments.



3.1.5 MET-OCEAN DATA

The key data sources identified for met-ocean data are:

- Marine Atlas
- EMODnet
- eOceanic

These data sources provide data on wave and tidal energy potential, data buoy locations, sea level monitoring, currents, tidal data for ports and harbours etc. This is split per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

The coverage of data from the sources mentioned is quite good, however it is reasonably dispersed across Irish waters and may lack data when it comes to specific areas.

It is suggested to undertake a survey campaign focused on met-ocean data gathering to gather sufficient data on specific areas. Data such as local tide regimes and currents could differ from the data sources mentioned and therefore affect projected tidal energy yield, platform access etc. These surveys should be undertaken for a sufficient time to determine the mean baseline conditions.

3.1.6 ECOLOGICAL DATA

The key data sources identified for ecological data are:

- Marine Atlas
- NPWS
- EPA
- EMODnet
- Marine Plan
- OREDP II SEA Data sets
- IWDG
- CSO Data
- JNCC

These data sources provide data on a host of different areas such as marine mammal species distribution, fish species distribution, fishing activity, habitats and species datasets, protected sites, aquaculture sites, whale and dolphin abundance, protected species and habitats information etc. This is split per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

The data sources shown contain a vast quantity of data for the various ecological factors. This data is quite adequate for high-level, early desktop studies. Certain factors, however, require more detailed, localized and current data when moving forward in any project. For example, benthic species in the area may differ slightly from the large-scale studies used to derive the source datasets. Bird migration routes may deviate, and nesting grounds may also change.

A full, targeted ecological survey campaign is recommended to provide an adequate level of detail for all factors. This should take place using best practice guidelines for duration and methods. All data gathered should be collated and used to inform late-stage planning and design decisions, with a minimal gap between survey completions and any possible construction due to the variable nature of species and habitats.



3.1.7 HERITAGE DATA

The key data sources identified for heritage data are:

- Marine Atlas
- INFOMAR
- GSI
- EMODnet
- Marine Plan
- OREDP II SEA Data sets
- DAHG Wreck Viewer

These data sources provide data on shipwrecks, coastal built heritage sites, coastal UNESCO world heritage sites, submerged landscapes etc. This is split per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

The data sources shown display excellent data with a wide coverage for Irish waters in terms of heritage sites and objects. Their precise locations, however, may differ from those shown and there may remain seabed obstacles missed by previous campaigns. Shipwrecks are prime examples as an MBES campaign may show those that are reasonably preserved and clear of sediment. Older wrecks and those that are partially or completely buried, however, may not be shown during this campaign, especially where there is variable topography.

A localized and targeted survey campaign should be employed using a combination of methods such as side scan sonar (SSS) single beam echosounder (SBES), MBES, and magnetometer to both confirm the locations of known heritage assets on the seabed and to scan for potentially hidden ones. This should be done prior to any intrusive work.

3.1.8 OCEANOGRAPHIC DATA

The key data sources identified for oceanographic data are:

- Marine Atlas
- EPA
- EMODnet
- Marine Plan

These data sources provide data on water quality, dumping at sea sites, contaminants, bathing water quality, sea temperature, raw sewage discharge points etc. This is considered per data source in the *23190-TAB-002-00 Public Data Source Assessment*.

The data from the sources shown are mostly generalised when it comes to areas around the Irish coast and in Irish waters. The essential data requirements will be suitable for a high-level desktop study, however details may be missed in specific areas if they are not within the immediate range of measurement devices.

Where more detailed data is required, a localised and targeted survey campaign should be undertaken to assess the water qualities and attributes in that specific area.



3.1.9 OTHER BOAT-BASED SURVEYS

Noted data sets in relation to this category are:

- Marine Atlas
- EMODnet
- Marine Plan
- OREDP II SEA Data Sets

These data sets provide data such as marine traffic density, fishing gear locations and fisheries effort, and screening for birds during AA and SEA.

The data sources lack the data accuracy required for area-specific projects, and it is suggested that boat-based surveys take place to supplement AIS (Automatic Identification System) and Vessel monitoring system (VMS) data when determining marine traffic and fishing effort. The locations of static fishing gear should be determined using appropriate methods prior to any survey work taking place.

3.2 SUMMARY

There are a host of public data sources available across all categories of data requirements in the Irish maritime area. In this overview, GDG has reviewed 15 such datasets, but others are available that can also be of use.

These datasets are of huge value as a public good, for forward planning of areas such as Designated Maritime Area Plans (DMAPs) and Marine Protected Areas (MPAs), and to inform early understanding of site conditions in a particular area – whether that be in relation to bathymetry, geology, sediment classification, seismic data, wind speeds, habitat types, protected sites etc. Their value should not be underestimated.

However, in almost all cases, regardless of the availability of public data, targeted, site-specific surveys will be required at some stage of project development to collect up to date data, in the area of interest to the required resolution/specifications, whether this is to inform project design or to satisfy consenting and permitting requirements.

This is particularly true for offshore wind projects where several phases of targeted site investigation will be required to bring a project from site identification through to detailed design and construction. Environmental baseline data, as well as monitoring campaigns, will also be required.

So, while public datasets have been and will continue to be of use to the industry, they will not negate the need for site specific investigation. This further underlines the need to ensure surveys can be undertaken in a timely manner, without disproportionately complex licensing procedures, and the value that can be gained from exempting certain maritime usages from requiring a MUL, where appropriate.



4 TASK 3: CATEGORISE THE TECHNIQUES AND TECHNOLOGIES USED TO GATHER THE REQUIRED DATA, HAVING REGARD TO SCIENTIFIC ADVANCEMENTS AND NEW/EMERGING TECHNOLOGIES.

A key part of this work was identifying and categorising a comprehensive list of survey activities used in the maritime area to gather and collect the project data requirements outlined in Section 2, as well as any other survey techniques identified which may be seen as relevant. These activities are then taken forward to the examination determination discussed in Section 5.

While the public datasets discussed in Section 3 can be very informative and useful at early stage project design or for regional level data assessments, when developing a project or looking for more site specific data, it is inevitable that targeted site investigation will be required. Therefore, all survey activities identified that may be undertaken in the Irish maritime area were considered for the purposes of this work. The availability of useful public datasets was not seen as a reason to remove any survey activities from consideration.

This section discusses the process used by GDG to establish a final list of survey activities which was then used for examination as set out in Section 5.

4.1 INITIAL SURVEY AND SITE INVESTIGATION LIST

As a starting point for this work, GDG used its in-house Marine Advisory Services and Survey Management teams to prepare an initial list of surveys and site investigation activities to be considered.

Our Marine Advisory Services team works regularly with projects engaging in survey activities to secure the relevant permits and is particularly experienced with the preparation of applications for Foreshore Licences, primarily for offshore wind projects, but also for ports and harbours. More recently, the team has led the preparation of MUL applications for submission to MARA. As discussed, a MUL is the new licence required by projects looking to undertake surveys in the maritime area that are subject to a licence, replacing the old Foreshore Licence.

Similarly, GDG's Survey Management team works on a regular basis with projects undertaking survey activities in the maritime area. This includes leading on the scoping and specification of surveys, engaging with survey contractors, assisting procurement and tendering processes, managing active survey campaigns, providing client representatives on board survey vessels, and quality checking survey deliverables from contractors. Our team has worked across a range of Irish projects, as well as projects in the UK and further afield.

This experience means GDG is intimately familiar with the survey activities that are required by projects in support of project design and consenting, as well as emerging techniques that projects are considering implementing in future campaigns.

GDG used this experience to prepare an initial list of survey activities seen to be relevant for this work. Surveys were categorised using the categories identified in Section 2, namely: geophysical, hydrographic, met-ocean, wind resource, ecological, heritage, oceanographic, and other boat-based surveys.



This initial list contained 60 survey activities, and was shared with the Marine Institute and MARA as a draft survey list (see *23190-TAB-00 Survey Activities List and Categories*), primarily to ensure agreement on the approach to categorisation, and the description of survey activities, data requirements etc.

Significant stakeholder engagement was then undertaken to give relevant bodies and organisations an opportunity to review the list and input any activities they thought may be relevant to the work.

This exercise is described in the next section.

4.2 STAKEHOLDER ENGAGEMENT

As discussed, while GDG used its knowledge of the industry and relevant activities to prepare an initial list of surveys to be considered for this work, it was decided that stakeholder engagement should be undertaken at this stage to ensure a comprehensive list of survey activities could be identified.

This was undertaken to maximise the value of the work and ensure any and all surveys that could be identified at this stage were identified. However, given the range of survey activities that take place in the maritime area, and the different combinations of same or slight variations in technique, this list cannot be seen as a list of ALL survey activities that will take place in the maritime area. Future iterations of this work may be needed to assess other activities identified. Nonetheless, this can be seen as a comprehensive list of survey activities, covering the main requirements of key stakeholders.

4.2.1 STAKEHOLDER ENGAGEMENT LIST

At the outset of this exercise, GDG prepared a stakeholder engagement list, outlining the key organisations and contacts that we wished to engage with as part of this work. This list was shared with the Marine Institute and MARA for input (see *23190-TN-001-00 Interim Technical Note 1*), before engagement was undertaken.

The final list of stakeholders engaged, as well as a summary of response status, is shown below (Table 4-1 and Figure 4-1).

In total, 30 stakeholders were contacted. Responses were received from 25 of these (in some cases multiple responses were received per stakeholder), 3 stakeholders acknowledged they were reviewing the material and would get back with their final response but did not provide this in time to be included in this work. GDG did not receive any response from 2 of the stakeholder organisations contacted.

Overall, this is a strong response rate, indicating the value placed on this work by the stakeholders contacted. This engagement was of significant value to the project. While final responses were not received from 5 stakeholders in total, GDG is confident their primary requirements have been addressed.

Any future responses can be included in future iterations of this work if required by the Marine Institute or MARA.

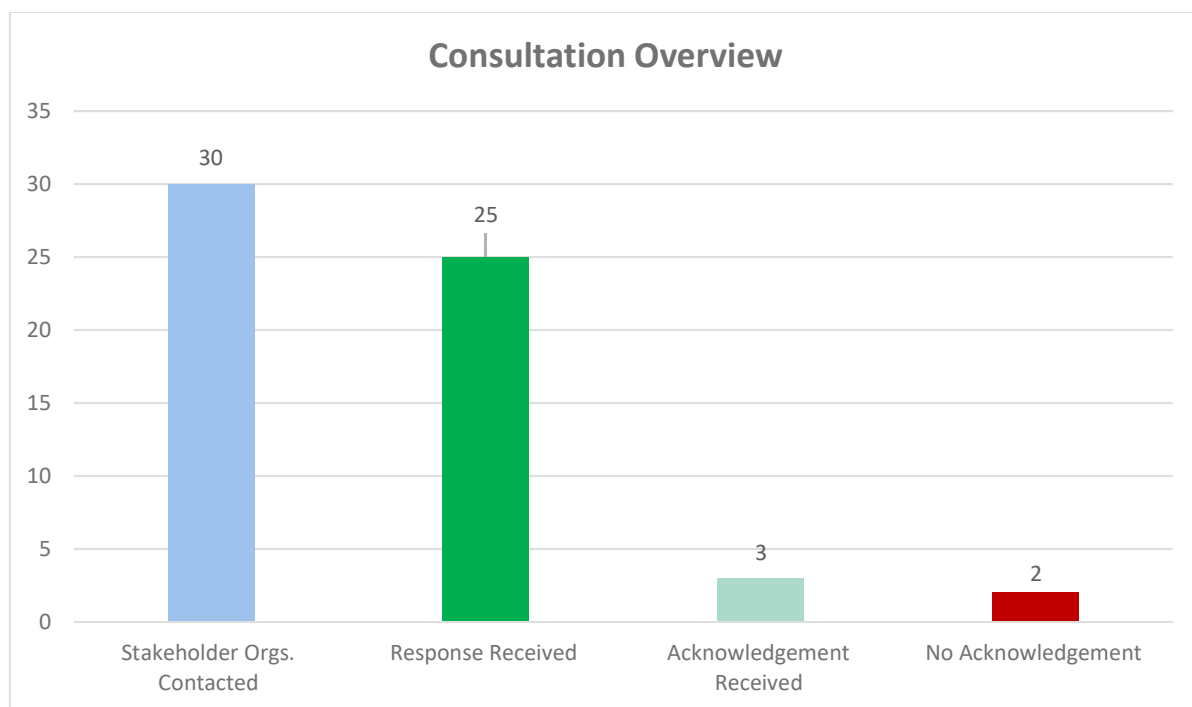


Figure 4-1: Overview of stakeholder engagement responses

Table 4-1: List of stakeholder groups and key contacts consulted as part of this work, along with a summary of response status.

Stakeholder / Organisation	Contact	Response?*
Ocean Research Group	-	Y
UCC Marine Geosciences Research Group	Andrew Wheeler	Y
IWDG	Dr Simon Berrow	Y
NMS	Karl Brady	Y
GSI	Eoin MacCraith	Y
MERC	Louise Scally	Y
Offshore Wind Developers – Through Wind Energy Ireland	Caoimhe McCarthy (for WEI) Patricia Comiskey (ESB, formerly of Simply Blue Group at time of response) Caroline Roche (Energia Renewables) Tina Raleigh (Statkraft)	Y
Renewables Group	NA	N
Green Rebel	Eoin Cotter	Y
Alpha Marine	Tim Greenwood	Y
X-Ocean	Andrea Phillips	Y
CoCo Agency	NA	A
Wexford CoCo	Capt Phil Murphy	Y
Uisce Éireann / Irish Water	Matthew Collins	Y
Port Company	NA	N
Cork Dockyard	Pat Brennan	Y
Port of Galway	Brian Sheridan	Y
Harbour Master	NA	A
Shannon Foynes Port Company (SFPC)	John Carlton	Y
Centre for Marine and Renewable Energy Ireland (MaREI)	Fiona Devoy McAuliffe	Y
Irish Research Centre in Applied Geosciences (iCRAG)	Mark Coughlan	Y
EPA	Jim Moriarty	Y
Inland Fisheries Ireland (IFI)	Jane Gilleran and James Barry	Y
Bord Iscaigh Mhara (BIM)	Joanne Gaffney	Y
The Marine Institute	Alan Berry	Y
Fisheries Organisation	NA	A
NPWS	David Lyons	Y
CIL	Ronan Boyle	Y
Met Eireann	Rosemarie Lawlor	Y
EirGrid	NA	Y

* Note that Y = Yes, a response was received from the stakeholder, N = No response was received from the stakeholder, A = Acknowledgement received, where the stakeholder spoke or engaged with GDG, but did not provide a final response at the time of writing.



4.2.2 STAKEHOLDER ENGAGEMENT PROCESS

As agreed in 23190-TN-001-00 Interim Technical Note 1, stakeholders were contacted by email. Phone calls were also held with many consultees to explain the process and requirements in more detail.

To make the stakeholder engagement process as efficient as possible and easy for respondents, GDG consulted with key stakeholders by way of a survey-type approach. This consisted of a spreadsheet issued to each of the stakeholders noted above, along with an email explaining the process being undertaken.

To maximise the possibility of responses, GDG provided consultees with a completed spreadsheet including the survey activities that we anticipated they use on a regular basis/expect to use in future. Consultees were asked to review and update this spreadsheet as required.

The text of this email is set out below, although minor edits were made for different emails to different consultees:

Dear Consultee,

On behalf of the Marine Institute and the Maritime Area Regulatory Authority (MARA), GDG is completing an assessment of Maritime Usages which fall under Schedule 7 Section 2 or Section 3 of the Maritime Planning Act 2021 to identify specific marine scientific or site investigation surveys that may potentially be regulated as exempted usages, and therefore be undertaken without the need for a Maritime Usage Licence from MARA.

Section 2 and Section 3 of Schedule 7 refer to:

- Marine environmental surveys for the purposes of scientific discovery or research; and*
- Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000.*

Section 114 of the Maritime Area Planning Act 2021 provides that the Minister may, by Regulations, provide for any class of Schedule 7 usage to be an exempted usage where the minister is of the opinion that:

- 1. by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive.*

A key part of this work is identifying a comprehensive list of survey activities (under Schedule 7 Section 2 or Section 3 of the Maritime Planning Act 2021) which will be undertaken in the maritime area, having regard to scientific advancements and new/emerging technologies.

In this regard, GDG is engaging with relevant stakeholders to identify any and all surveys that they undertake or plan to undertake in the maritime area, and we are seeking your input.

To make this process easier, we have provided a spreadsheet attached containing our thoughts on the relevant survey activities that [insert name of Body] will be undertaking. We would appreciate if you could review and update this spreadsheet where required.

If you have any queries, please do not hesitate to get in touch.

Given the required timelines for this scope of work, we would appreciate if you could return your updated spreadsheet by [Insert Date].

Regards,

GDG.



4.2.3 STAKEHOLDER ENGAGEMENT RESPONSE OVERVIEW

GDG received a very positive response to the described work from most stakeholders, with many noting its importance, and being more than happy to participate in the consultation process or provide further input if needed in future.

Some examples of interesting feedback received from consultees is shown below:

- *I think ALL scientific, non-commercial, research should be exempt as in the public interest’ – UCC Marine Geosciences Group*
- *‘May be worth considering ... aerial based surveys for birds and marine megafauna. The reason I think it may need to be considered is because the Maritime Jurisdiction Act 2021 includes the ‘airspace’ above the territorial sea... However, would caveat this suggestion with the strong proposal to screen it out! – Developer, for Wind Energy Ireland*
- *‘I think its sensible that the noted activities are not within the regulatory framework for MARA It is hard to conceive at the scale these types of surveys usually occur that they would have a significant environmental impact... Some of the surveys noted in the excel sheet (definitely not all) could trigger Activity Requiring Consent under European Communities (Birds and Natural Habitats) Regulations (SI 477 of 2011). It should be noted in particular Reg 28 and 29... We tend to consider the application of these consent processes is confined to the SAC/SPA but it may have an impact adjacently depending on the nature of the activity... In addition to that there may be a requirement for consent for Archaeological Surveys.’ NPWS*
- *‘Met Éireann ... are tasked with Helping Irish society to be ready for and responsive to weather and climate risks. Key to this is providing meteorological and other environmental data to help protect life and property, support economic and environmental resilience and promote wider societal wellbeing. To achieve this, Met Éireann collect environmental data, including oceanographic data, and conduct research into our atmospheres and oceans. This document aims to justify the exemption of Met Éireann commissioned surveys of the oceans for the propose of scientific discovery and research, from the Maritime Usage Licence from MARA.’ Met Éireann*
- *‘Uisce Éireann believe that the listed NIMS (non-invasive marine survey) activities in Table 1 should be exempted activities given their minimal impact and transient nature. This approach would be consistent with UK practices, where certain marine surveys are exempt from requiring a foreshore licence’ Uisce Éireann*
- *‘Any exemptions for non-intrusive survey works would be a huge win for the industry and would really help remove the barriers currently in place that impede site characterisation.’ Green Rebel*
- *‘My main point is in relation to the provision of detailed methodologies for each activity. My concern is that these may provide the basis for new standards or guidance which is above what is required now... Would simpler descriptions of the activity be sufficient to determine if it warrants exemption or not?’ Developer, for Wind Energy Ireland*
- *‘My main thought is that the methodologies are too specific, there are variations of all methods depending on circumstances and purpose of the survey.’ MERC Consultants*



- *'We've gotten some legal advice on the wording of the MAP Act and as a result Irish Lights is satisfied that we will not be engaging in any of the survey activities described in Schedule 7, Section 2 or 3. Where our vessel is used commercially for this type of survey, Irish Lights will not be the licence applicant to MARA. Our statutory activities are exempted by Section 4 of Schedule 7. Where we make the reserve capacity of our vessel available for commercial hire, these types of survey activities may be undertaken by the commercial client but any licencing requirements from MARA would then fall to that organisation or company... In addition to the licencing requirements from MARA, any activity requiring the placement of a fixed or floating obstruction to surface navigation will require a separate consent from Irish Lights in the form of a statutory sanction under the Merchant Shipping Act.'* **Commissioner of Irish Lights**
- *Noted the legislative requirement for a MUL to remove any substance or object from the seabed as impractical in some cases and something that should be addressed by MARA and gave the example of a deck collapse where objects could fall into the water which should be removed as soon as possible, but to remove the objects may technically then require a MUL to do so.* **Port of Galway**
- *'We propose some minor adjustments to some of the category titles to clearly indicate that certain categories can cover several activities, including archaeology. For example, diving can be carried out for both ecological and archaeological purposes... many of these activities can serve multiple purposes, so it is essential to make that distinction. This will hopefully ensure that there is no room for confusion that certain archaeological activities are regulated and permitted without the requirement of a Maritime Usage Licence from MARA, as allowed by the relevant sections of the MAP Act. Consequently, we have recommended labelling a few category titles as Ecological/Archaeological. Including these activities will assist the National Monuments Service in fulfilling its statutory duties under the National Monument Acts 1930-2014, which will, in turn, contribute to the effective protection of our archaeological heritage. Furthermore, this should help facilitate the smooth implementation and operation of the MAP Act with regard to marine developments that may have associated or necessary archaeological activities involved.'* **NMS**

In addition to feedback via email and updates to survey lists, GDG also received submissions from Uisce Éireann and Met Éireann which were reviewed as part of this work. These are included as an appendix to this report (1.1.1.1(a)Appendix A) and are summarised below.

Uisce Éireann:

Via the Marine Institute, GDG was provided with a memo submission which Uisce Éireann provided to MARA dated 06/09/2023, in relation to 'Information on Uisce Éireann Non-Invasive Marine Survey Activities'.

This memo was prepared to provide MARA with detail on the extent and scale of the NIMS activities which it undertakes in order to carry out the environmental assessments required to secure planning and licensing consents. Uisce Éireann views these activities as essential to its statutory duties to deliver and operate essential wastewater infrastructure as set out under the various Water Services Acts and to ensure compliance with the European Union (Waste Water Discharge) Regulations 2007 – 2020, and believes the activities should be considered for exemption via legislation under the new Maritime Area Planning Act, 2021 (as amended) *'in line with the transient, trivial and small scale, non-invasive nature of these activities.'*



Uisce Éireann noted in its submission that given the recent legislative changes to the definition of the foreshore and the new definition of the maritime area under MAP, it was not clear to them at the time of writing what marine survey activities could now require a licence.

Uisce Éireann believe that the listed activities they provided should be exempted activities given their minimal impact and transient nature. They noted this approach would be consistent with UK practices, where certain marine surveys are exempt from requiring a foreshore licence.²

Survey types provided by Uisce Éireann which they believed should be listed as exempted usages included:

- Bathymetric Surveys
- CTD (Conductivity Temperature Depth) Measurement
- Current profiling
- Water Level/Tidal monitoring
- Water Quality Monitoring
- Drogue and Dye Surveys
- Marine benthos and Sediments
- Plankton survey
- Drop-down video and detailed photography
- Marine mammal surveys
- Underwater Noise monitoring
- Marine Ornithology
- Fish Surveys
- Scientific Dive Surveys

Uisce Éireann also provided further invasive and non-invasive survey types to be considered for exemption in a follow-on submission to GDG, which were considered for inclusion in the final list.

Met Éireann:

Met Éireann also provided a submission directly to GDG as part of this work. This submission did not propose to include any additional survey types in the final survey list but aimed to *'justify the exemption of Met Éireann commissioned surveys of the oceans for the propose of scientific discovery and research, from the Maritime Usage Licence from MARA'*.

This document can be viewed in 1.1.1.1(a)Appendix A, and explains that Met Éireann is the National Meteorological Service for Ireland, which is tasked with helping Irish society to be ready for and responsive to weather and climate risks. Key to this is providing meteorological and other environmental data to help protect life and property, support economic and environmental resilience and promote wider societal wellbeing. To achieve this, Met Éireann collect environmental data,

² Note that practices in other jurisdictions are considered under Lot 2 of this work, and are not considered by GDG at this stage



including oceanographic data, through in-site measurements, and conducts research into our atmospheres and oceans.

The submission also notes that as the WMO representative in Ireland, Met Éireann reports on the measuring and monitoring of GCOS ECVs. The fifty-four ECVs recommended by the GCOS are needed to monitor climate change in the Ocean, Atmosphere and Land. 19 of the fifty-four ECVs relate to the ocean. Survey work in Irish Waters is essential to collect data on these nineteen ECVs and thus support Ireland's obligations in GCOS, and more generally, monitoring climate change in Irish Waters.

Met Éireann is also developing an Integrated Coastal Flood Forecast Service (ICFFS). The purpose of the ICFFS is to develop national infrastructure to underpin coastal flood forecast production. This will facilitate the work of flood and general forecasters, coastal authorities, academics, government, emergency responders, commercial interests, and the public. The observations components of ICFFS include: a network of tide and wave gauges, additional coastal wave buoys, and an array of coastal High-Frequency Radar systems.

Other surveys which Met Éireann noted it undertakes include: sonar surveys, bathymetry surveys, seabed imagery surveys, Unmanned marine vehicles surveys, and intertidal surveys.

While the importance of this work by Met Éireann and Uisce Éireann is in no doubt, the purpose of the activity does not affect the environmental impact of the work *per se* (although research surveys may be lesser in scale and extent in some cases). Survey purpose has therefore not been considered in the examination process undertaken by GDG.

The Marine Institute and MARA may wish to engage further with Uisce Éireann, Met Éireann, and other stakeholders contacted throughout this work to further understand the need for these survey activities to be undertaken regularly and in a timely manner, as this may influence their final decision on activities to be considered for exemption by regulation.

As well as interesting feedback received, a large number of additional surveys were recommended for consideration for inclusion in the final survey list by GDG as part of this work. Some of the suggested additions are noted below (Table 4-2), before the final list is explained.

It should be noted that some of the additional surveys recommended for inclusion were already included by GDG in our Master list but were either not shared in the survey with the particular respondent as they were not viewed as relevant to them, or they were not seen by the respondent when reviewing the list.

Table 4-2: Overview of survey additions recommended

Respondent	Additional survey / comments
IWDG	<ul style="list-style-type: none"> FPODs Marine Mammal Acoustic Monitoring Using Continuous Detectors
NMS	<ul style="list-style-type: none"> Noted that certain categories can cover several activities, including archaeology. For example, diving can be carried out for both ecological and archaeological purposes, and that it may be important to make this distinction with regards to exemptions Recommended labelling a few category titles as Ecological/Archaeological
GSI	<ul style="list-style-type: none"> Noted instruments covered well and there was little to add
MERC Consultants	<ul style="list-style-type: none"> Aquatic Habitat Echosounder Noted that methodologies should be less specific
Wind Energy Ireland	<ul style="list-style-type: none"> Plankton samplers synthetic aperture sonar aerial based surveys for birds and marine megafauna eDNA sampling Offshore Bat Surveys Airguns Sediment Profile Imagery Dredge samplers Additional UXO surveys e.g. ROV-based gradiometer AUV survey techniques
Green Rebel	<ul style="list-style-type: none"> UHRS (2D (single or multichannel) or 3D) Floating LiDAR ADCP
Alpha Marine	<ul style="list-style-type: none"> Grab Samplers Fixed LiDAR Cable or Pipeline Surveys for tracking or depth of burial Marine Mammal Surveys and Bird and Seasonal Nesting Surveys
X-Ocean	<ul style="list-style-type: none"> Details on equipment specification and frequencies provided.

Respondent	Additional survey / comments
Wexford CoCo	<ul style="list-style-type: none"> • Dive Surveys – ecological • Diver surveys – investigation of underwater debris or obstructions • Oil pollution response survey • Underwater drone footage • Tidal Surveys
Uisce Éireann / Irish Water	<ul style="list-style-type: none"> • SBES • MBES • CTD • Current Profiling • Water level/tidal monitoring • Water Quality Monitoring • Drogue and Dye surveys • Marine Benthos and Sediments • Plankton surveys • Drop down video and detailed photography • Marine Mammal surveys • Underwater noise monitoring • Marine Ornithology • Fish Surveys • Scientific Dive surveys • Ground Investigations (Vibrocore, Cable Percussive Boreholes, Rotary Cored Boreholes, Standard Penetration Testing) • Bathymetry Survey • Underwater Noise and Vibration Survey • Rockabill to Dalkey Island SAC Reef Habitat Survey • Surface Sediment Survey • Archaeological Dive Survey, and • Ornithology (Overwintering Bird) Survey • Marine Mammal Survey

Respondent	Additional survey / comments
	<ul style="list-style-type: none"> • Tide and Current Survey • Deployment of numerous (5+) ADCP (Acoustic Doppler Current Profiler) trawl resistant seabed frames • Benthic Sample Surveys • Habitat/ Reef Assessment Dive Surveys • Habitat/ Reef Assessment Camera Surveys • Intertidal/ Estuarine Walkover Surveys • Estuarine/ Coastal Ornithological Surveys • Boat Based Ornithological Surveys • Underwater Noise Surveys (Noise monitoring Stations) • Marine Site Investigation (Boreholes and Vibrocores) • Marine Geophysical Surveys • Bathymetric Boat Based Mapping Survey • Marine Mammal Land and Sea Based Surveys (Acoustic Monitoring) • Marine Water Quality Surveys (Sampling Stations) • Fish and Shellfish Beam Trawl Survey
Cork Dockyard	<ul style="list-style-type: none"> • No additions suggested – noted the list covered all surveys that they may require into the future
Port of Galway (response provided by MKO on behalf of Port of Galway, in MKO's capacity providing planning and environmental services to Galway Harbour Company)	<ul style="list-style-type: none"> • Noted the impracticality in some cases of needing a MUL for the removal of any substance or object from the seabed. • Remote (broadcasting live data) monitoring of water quality using sondes at fixed locations. • Remote monitoring using microscopic camera systems (AI) for counting and identification of zooplankton and phytoplankton. • Monitoring using genetic techniques (EDNA). • Bacterial monitoring. • Deployment of drogues/ drifters with telemetry (GPS enabled) and thermistors for monitoring water currents, temperature and conductivity, and dye studies + fluorometers.

Respondent	Additional survey / comments
iCRAG	<ul style="list-style-type: none"> • Settlement plates/ studies for organisms likely to attach to exposed substrates. • Zooplankton and phytoplankton surveys using pumps or light as an attractor. • Sediment Profile Imagery (SPI) both remote and by SCUBA. • SCUBA-based surveys. • All intertidal surveys • Installation of tide gauges • flow meters (flood prediction & hydro energy surveys) and turbidity meters • Ocean Bottom Seismometers (OBS) for measuring seismicity and subsurface imaging. • Passive Acoustic Monitors (PAM), like the RS-ORCA, for measuring marine noise and acoustics. • other lander systems that measure things like sedimentation rates & environmental conditions (like the UCC-based Little MonSta) as well as benthic community respiration & geochemistry flux (e.g. Unisense MiniChamber Lander System).
EPA	<ul style="list-style-type: none"> • Water Quality Monitoring • Bathymetric surveys • fish trawl surveys • benthic surveys • sediment sampling • underwater archaeology surveys
IFI* (Please note IFI's submission was received after the survey activities list was finalised. Most of IFI's suggested surveys were already included, but all have been shown in the table for informational purposes)	<ul style="list-style-type: none"> • IFI has to sample using a diverse range of methods, in transitional and or coastal waters. Activity levels will undoubtedly increase with the impending activity around ORE2, MPAs and the MSFD etc. This is in addition to IFI's long standing research and monitoring programmes on bass, elasmobranchs, WFD (transitional waters), Bluefin tuna etc and essentially any species encountered by anglers. • Seine netting • Beam trawling • Fyke netting • Drift netting • Draft netting

Respondent	Additional survey / comments
	<ul style="list-style-type: none"> • Demersal trawling • Angling sampling • Bongo netting • eDNA • Sediment sampling • Water sampling • Temporary equipment deployment (acoustic telemetry arrays, environmental monitoring (data buoys, data loggers, ROV, water quality meters), hydroacoustic equipment, PIT antenna arrays) • Trapping • Fish egg sampling • Invasive species sampling & removal • Redd counting (Lamprey spp.) • Sentinel cages
BIM	<ul style="list-style-type: none"> • fishing gear trials to reduce unwanted catches • assessing survival of unwanted catches • trials to improve energy efficiency • seed mussel surveys • Plankton monitoring • Larvae tracking • Environmental monitoring • Hydrodynamic surveys • Seabed sampling • Bathymetry surveys • Archaeological surveys • Invasive Alien Species Surveys • new technologies
The Marine Institute	<ul style="list-style-type: none"> • metocean data buoys • PAM

Respondent	Additional survey / comments
	<ul style="list-style-type: none"> • BRUVs • ASVs • Grab samples and Drop & towed Camera Systems are also used in ecological & fisheries monitoring. • acoustic arrays for telemetry • Input on fisheries surveys
NPWS	<ul style="list-style-type: none"> • No additional surveys requested, but commentary provided as noted above.
CIL	<ul style="list-style-type: none"> • No additional surveys requested, but commentary provided as noted above.
Met Éireann	<ul style="list-style-type: none"> • No additional surveys requested, but submission provided as noted above.
EirGrid	<ul style="list-style-type: none"> • vantage point ornithological surveys • airborne noise surveys • ecological walkover surveys, including but not limited to habitat and botanical and intertidal and invasive species and IVC (Irish Vegetation Classification) surveys • archaeological intertidal surveys (including walkover and metal-detection surveys at Low Water Spring tides) • archaeological dive / wade surveys • topographical surveys on land • camera trap surveys • mammal surveys (including but not limited to badger and bat and otter surveys) • underground utility surveys • visual impact and landscape/ seascape character assessment surveys • traffic and transport surveys • Aquatic / riparian/ fisheries surveys (including electrofishing) • Boat based marine mammal observations • Boat based ornithological surveys • Underwater video surveys • Non-intrusive aerial surveys (including but not limited to LiDAR surveys, aerial habitat surveys and aerial digital surveys) • Multi-Beam Echo Sounder (MBES) nearshore bathymetric survey

Respondent	Additional survey / comments
	<ul style="list-style-type: none"> • Surface water; sediment and water quality sampling • UXO surveys • Unmanned aerial vehicle/vessel (UAV) Surveys • USV (Unmanned surface vehicle/vessel) Surveys • Landfall probing • Magnetometer Surveys • Topographical Surveys • Walkover Surveys



GDG is very appreciative and would like to express thanks to all consultees for their time in engaging with this process, as this input has been extremely valuable to the project. As can be seen from the list of suggestions above, there is significant interest from stakeholders in seeing activities considered for exemption. GDG has endeavoured to include all surveys from the list above in our final survey list, where relevant and suitable. Some activities may not be noted by the same name as suggested above or may be included under a broader category.

4.3 FINAL SURVEY LIST

The above list was reviewed and considered in the preparation of a final survey list to be taken to examination stage by GDG.

This list was provided to the Marine Institute and MARA in *23190-TAB-01 Survey Activities List and Categories*. Only minor updates to the list have been made since, and the final version is shared with this report *23190-TAB-001-04 Survey Activities List and Categories*.

It should be noted that while every survey activity mentioned in the consultation process is not explicitly listed as a relevant survey in the list, this is generally because the methodology is covered under a broader category or methodology. Therefore, the survey is still examined as part of this work.

For example, eDNA sampling was mentioned by multiple consultees, but it is GDG's view that this activity is covered under water sampling. Similarly, others noted that grab samplers are used for ecological and geotechnical purposes, but the end use of this data is not the important aspect when considering its impacts, so grab samplers are categorised as a geotechnical survey, with reference made in the spreadsheet that samples may be taken for geotechnical or ecological purposes.

Multiple surveys can also be undertaken for ecological or archaeological purposes, e.g. dive surveys, drop down camera surveys, intertidal walkover surveys etc. Many of these activities could be categorised as Ecological/Archaeological surveys, as requested by the NMS. While this suggested change in categorisation was not made to the final survey list, and the majority of these activities are categorised as Ecological surveys, the multiple purposes for undertaking certain survey activities should be considered by the Marine Institute and MARA, should it be expected to have any impact on whether or not activities can be exempted, or how this exemption should be regulated for.

Acoustic Doppler Current Profiler (ADCPs) were previously initially listed as their own activity in the initial survey list, but the revised list includes 'floating buoys' and 'seabed mounted frames' as activities and includes for the deployment of ADCPs in each of these categories, either as downward looking moored floating buoys, or upward looking seabed mounted frames.

Other surveys suggested were viewed as not relevant (e.g., aerial bird and marine mammal surveys are not included as the airspace above the sea is not under the jurisdiction of the MAP Act) or could not be assessed due to a lack of survey specific information for examination, e.g. new technology trials.

The spreadsheet lists overarching survey categories that are broken into subcategories in blue. By clicking on the '+' symbol to the left of the row below that survey type, the list can be expanded to show the different subcategories.

The table also includes a column to indicate whether an activity makes direct contact with the seabed or not. This column can be 'Y' or 'N' for yes or no, or 'B' for both when a survey either has multiple deployment methods or is an overarching survey type with subcategories, some of which interact with the seabed, some of which don't.

The final list contains 83 different activities which are taken forward for examination.



23190-TAB-001-04 *Survey Activities List and Categories* shows all of these activities, categorised, as well as giving an overview of each, a standard methodology, and a source. Full information from this table is not repeated here, and the table should be referenced for further detail on this.

As an overview, a breakdown of survey activities per category is shown below in Table 4-3.

It should be noted however that some activities could fall into multiple categories e.g. grab samplers have been classed as a geotechnical activity in our spreadsheet and below, but could also be classed as an ecological activity, magnetometer survey in some instances could be classed as an archaeological/heritage survey, but has been categorised as geophysical, floating buoys could be used to collect wind data, but are classed as a met-ocean activity etc.

Table 4-3: Count of survey activities per category

Category	Count of Category
Ecological	34
Geophysical	11
Geotechnical	20
Heritage	1
Hydrographic	5
MetOcean Data	4
Oceanographic	4
Other Boat-Based Surveys	2
Seabed-based Survey Platform	1
Wind Resource Data	1
Grand Total	83



5 TASK 4: EXAMINE THOSE ACTIVITIES OR SUB-ACTIVITIES AND, IN ACCORDANCE WITH SECTION 114, IDENTIFY THOSE ACTIVITIES OR SUB-ACTIVITIES THAT I) WOULD DEFINITELY BE SUITABLE FOR EXEMPTION, II) COULD BE SUITABLE FOR EXEMPTION UNDER CERTAIN CIRCUMSTANCES, AND III) WOULD DEFINITELY NOT BE SUITABLE FOR EXEMPTION.

All identified survey types have been examined for suitability for exemption considering their impact on the receiving environment using Environmental Impact Assessment and Appropriate Assessment processes as set out below.

5.1 ENVIRONMENTAL IMPACT ASSESSMENT EXEMPTION SUITABILITY

Each survey activity identified has been examined for EIA exemption suitability.

Annex I projects are those that have significant effects on the environment and are subject to a systematic assessment (Article 4(1) of the EIA Directive). Annex II projects are those that do not reach the thresholds established in Annex I or are considered by regulators, due to their nature, of not having effects on their environment that would be subject to a mandatory EIA.

This exercise has considered whether the survey activity falls within a class listed under 'Annex I' or 'Annex II' of the Directive. Survey activities that are not within Annex I and Annex II under the Directive have been determined as 'Not Listed'. It should be noted, in Irish legislation, Annexes I and II are broadly transposed by way of the Planning and Development Regulations 2001, as amended, in Schedule 5 Parts 1 and 2, with national thresholds added to many of the Part 2 classes of development.

- **Part 1 of Schedule 5 (Annex I projects);** survey activities require mandatory environmental clearance (**EIA required**)
- **Part 2 of Schedule 5 (Annex II projects);** survey activities undergo the process of an EIA Screening and are further classified into **Mandatorily requiring EIA** or **Not requiring EIA**.

In the case where the survey activity is 'Not Listed', it is considered 'Suitable for Exemption'.

Where a survey activity is listed under Part 2 of Schedule 5, it is classified as 'Unsuitable for Exemption' or 'Suitable for Exemption (conditionally)'.

Where a survey activity is listed under Part 1 of Schedule 5, it is considered 'Unsuitable for Exemption'.



5.1.1 ENVIRONMENTAL IMPACT ASSESSMENT EXEMPTION SUITABILITY OUTCOME

The following class listed in Part 2 of Schedule 5 is the only class that is considered to be relevant to the proposed surveys:

“Class 2 Extractive Industry

2 (e) With the exception of drilling for investigating the stability of the soil, deep drilling, consisting of—

(iv) any other deep drilling, except where, in considering whether or not an environmental impact assessment will be carried out.”

Boreholes are undertaken to investigate the composition of the soil to establish the stability of the soil and are therefore excluded from Class 2(e). Boreholes are not of a class listed in Part 2 of Schedule 5 of the Regulations and, therefore, are exempt as per the EIA Directive.

None of the other survey activities considered are listed in Part 1 or Part 2 of Schedule 5.

All survey activities examined can be considered suitable for exemption from an EIA requirements perspective.

5.2 APPROPRIATE ASSESSMENT EXEMPTION SUITABILITY

The purpose of the AA exemption suitability exercise is to consider the Appropriate Assessment process as required under the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora). The Habitats Directive forms the basis for the designation of Special Areas of Conservation (SAC) and similarly the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds) forms the basis for the designation of Special Protection Areas (SPA). Within the EU, there is a requirement for every project (which can include survey activities) to undergo assessment of its implications for any Natura 2000 site before consent is given for the project. Consent will be given only after determining that the project will either have no potential for significant effects on (Stage 1), or not adversely affect the integrity of (Stage 2), the Natura 2000 site(s) concerned in view of the conservation objectives of that site/survey area.

Note as this exercise is not project-specific it does not constitute Appropriate Assessment screening; rather it follows the Appropriate Assessment process as closely as possible to assess each individual survey activity identified to inform judgement of whether each activity could cause significant effects to relevant ecological receptors (i.e., designated features of Natura 2000 sites (i.e. Qualifying Interests) and/or Habitats Directive listed habitats and species).

As it is beyond the scope of this exercise to consider the scale and intensity of each of the survey activities, it has not been possible to assess potential in-combination effects of each survey activity with other survey activities. Activities have therefore been considered individually.

As ‘likely significant effects’ can only be assessed on a project-specific basis the exercise focuses on determining whether the individual activities could exert a ‘pressure’ on a receptor that is relevant to that receptor. Both direct and indirect pressures have been considered.



5.2.1 IDENTIFYING RELEVANT PRESSURES

Pressures are the mechanism by which a human activity or natural event affects the ecosystem [19].

Thirty-eight (38) Marine Evidence based Sensitivity Assessment (MarESA) pressures (Table 5-1) are considered in this assessment. The pressures are based on the pressure definitions developed by the OSPAR Intercessional Correspondence Group on Cumulative Effects (ICG-C) – Amended 25th March 2011 [20]. Full details of the pressures and their interpretation, as well their application to MarESA sensitivity assessments, are given in the MarESA guidance document [21].

Table 5-1: Pressures used in examination (Tyler-Walters et al., 2023)

Pressure Category	Pressure
Hydrological Pressures	Temperature increase (local)
	Temperature decrease (local)
	Salinity decrease (local)
	Salinity increase (local)
	Water flow (tidal current) changes - local
	Emergence regime changes - local
	Wave exposure changes - local
Biological Pressures	Introduction of microbial pathogens
	Introduction or spread of non-indigenous species
	Removal of non-target species
	Removal of target species
	Genetic modification and translocation of indigenous species
Physical Pressures	Abrasion / disturbance of the substratum on the surface of the seabed
	Barrier to species movement
	Physical change (to another seabed type)
	Physical change (to another sediment type)
	Death or injury by collision - Collision above and below water with static or moving objects not naturally found in the marine environment
	Electromagnetic changes
	Habitat structure changes - removal of substratum (extraction)
	Introduction of light or shading
	Physical loss (to land or freshwater habitat)
	Above water noise changes

Pressure Category	Pressure
Chemical Pressures	Underwater noise changes
	Vibration
	Penetration and / or disturbance of the substratum below the surface
	Smothering and siltation rate changes (heavy)
	Smothering and siltation rate changes (light)
	Changes in suspended solids (water clarity)
	Visual disturbance
	Litter
	De-oxygenation
	Hydrocarbon & PAH Contamination
	Transition elements & organo-metals
	Nutrient enrichment
	Organic enrichment
	Introduction of other substances (solid, liquid or gas)
	Radionuclide contamination
	Synthetic compound contamination

As marine survey activities are predominantly conducted from vessels, a subset of these pressures, which relate to vessel activity alone, have also been identified (Table 5-2).

Table 5-2: Pressures which relate to vessel activity alone used in examination

Pressure
Barrier to species movement
Introduction of light or shading
Death or injury by collision - Collision above and below water with static or moving objects not naturally found in the marine environment
Above water noise changes
Underwater noise changes
Visual disturbance
Litter
Hydrocarbon & PAH Contamination
Transition elements & organo-metals
Synthetic compound contamination

These pressures are relevant to the EU Marine Strategy Framework Directive (MSFD) [22], which is the marine environmental legislation which Ireland reports under. In 2008, the EU adopted the MSFD to maintain healthy, productive and resilient marine ecosystems while securing a more sustainable use of marine resources. The MSFD requires Member States, including Ireland, to develop national marine strategies in order to achieve, or maintain where it exists, 'good environmental status' (GES). Such status should have been achieved by 2020. The marine strategies comprise regular assessments of the marine environment, setting objectives and targets, establishing monitoring programmes and putting in place measures to improve the state of marine waters. All these actions must be done in close coordination with neighbouring countries at regional sea level.

The GES descriptors, as described in the MSFD (Annex I), have been rationalized against the MarESA Pressures used for this work in Table 5-3 below.

Table 5-3: MSFD GES Descriptors and relevant MarESA Pressures

	GES Descriptors	Details	Relevant MarESA Pressures
1	Biodiversity	The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.	Considered under all Pressures
2	Non-indigenous species	Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.	Considered under Biological Pressures [Introduction or spread of non-indigenous species]
3	Populations of commercial species	Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.	Considered under Biological Pressures [Removal of target and non-target species]
4	Food web structure	All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity, and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.	Considered under all Pressures
5	Eutrophication	Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters	Considered under Chemical Pressures [Nutrient enrichment, organic enrichment and de-oxygenation]
6	Sea floor integrity	Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.	Considered under Physical Pressures
7	Alterations to hydrography	Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems	Considered under Hydrological Pressures
8	Contaminants	Contaminants are at a level not giving rise to pollution effects.	Considered under Physical Pressures [Penetration and / or disturbance of the substratum below the surface] and Chemical Pressures [Hydrocarbon & PAH contamination, transition elements & organo-metals, introduction of other substances (solid, liquid or gas),

	GES Descriptors	Details	Relevant MarESA Pressures
			radionuclide contamination and synthetic compound contamination]
9	Sea-food contaminants	Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.	Considered under Chemical Pressures [Hydrocarbon & PAH contamination, transition elements & organo-metals, introduction of other substances (solid, liquid or gas), radionuclide contamination and synthetic compound contamination]
10	Marine litter	Properties and quantities of marine litter do not cause harm to the coastal and marine environment.	Considered under Physical Pressures [Litter]
11	Energy and noise	Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.	Considered under Physical Pressures [Above water noise changes, underwater noise changes and vibration]



5.2.2 ACTIVITIES

Please see Section 4.3 and ‘23190-TAB-001-04 Survey Activities List and Categories’ for the full list of survey activities considered in this AA exemption suitability examination exercise.

5.2.3 CHOOSING THE RECEPTORS

5.2.3.1 SPECIES RECEPTORS

All species listed under Annex I, II and IV of the Habitats Directive which occur in Ireland have been considered for their suitability as receptors for examination (Table 5-4).

Table 5-4 Species considered for examination.

Species Flora and Fauna	Designation (Annex I, II, III, IV or V)
Killarney Fern [1421]	II, IV
Marsh Saxifrage [1528]	II, IV
Petalwort [1395]	II
Maërl (<i>Lithothamnion corralloides</i>)	V
Maërl (<i>Phymatolithon calcareum</i>)	V
Cladonia subgenus Cladina [1378]	V
Geyer’s Whorl Snail [1013]	II
Narrow-Mouthed Whorl Snail [1014]	II
Desmoulin’s Whorl Snail [1016]	II
Kerry Slug [1024]	II, IV
Freshwater pearl mussel [1029]	II, IV
Irish Freshwater (Nore) Pearl Mussel [1990]	II, IV
White Clawed Crayfish [1092]	II, V
Marsh Fritillary [1065]	II
Sea Lamprey [1095]	II
Brook Lamprey [1096]	II
River Lamprey [1099]	II, V
Twaite Shad (<i>Alosa fallax fallax</i>) [1103]	II, V
Allis Shad [1102]	II, V
Atlantic Salmon [1106]	II, V
NatterjackToad [1202]	IV
Leatherback Turtle [1223]	IV
Lesser Horseshoe Bat [1303]	II, IV
Common Pipistrelle [1309]	IV
Soprano Pipistrelle [5009]	IV
Nathusius’ Pipistrelle [1317]	IV
Natterer’s Bat [1322]	IV
Daubenton’s Bat [1314]	IV
Whiskered Bat [1330]	IV
Brown Long-Eared Bat [1326]	IV
Leisler’s Bat [1331]	IV
Brandt’s bat [1320]	IV
Mountain Hare [1334]	V
Eurasian Otter [1355]	II, IV



Pine Marten [1357]	V
Grey Seal [1364]	II, V
Common Seal [1365]	II, V
Humpback Whale [1345]	IV
Bottle-Nosed Dolphin [1349]	II, IV
Common Dolphin [1350]	IV
Harbour Porpoise [1351]	II, IV
Killer Whale [2027]	IV
Long-Finned Pilot Whale [2029]	IV
Risso's Dolphin [2030]	IV
Atlantic White-sided Dolphin [2031]	IV
White-Beaked Dolphin [2032]	IV
Striped Dolphin [2034]	IV
Cuvier's Beaked Whale [2035]	IV
Sowerby's Beaked Whale [2038]	IV
Minke Whale [2618]	IV
Fin Whale [2621]	IV
Blue Whale [5020]	IV
Sperm Whale [5031]	IV
Northern Bottlenose Whale [5033]	IV
Sei Whale [2619]	IV
Northern Right Whale [1348]	IV
False Killer Whale [2028]	IV
True's Beaked Whale [2037]	IV
Pygmy Sperm Whale [2622]	IV
Beluga/White Whale [5029]	IV
Gervais' Beaked Whale [5034]	IV

Ten (10) species receptors which are marine and have a designation as a Qualifying Interest (QI) of SACs have been selected from the longlist of 61 species considered (Table 5-5), as these species are considered to be broadly representative of marine species with respect to relevance of the pressures exerted by the activities being examined.

Two (2) groups of marine birds which are marine/estuarine and have a designation as Special Conservation Interests (SCIs) have been selected.

Sea- and shorebirds were divided into two functional feeding groups as per their feeding mechanisms for the examination of potential impacts on relevant bird species in marine and estuarine environments from survey activities: 'diving birds' and 'non-diving birds'.

Functional feeding groups are a classification approach that is based on the behavioral mechanisms of food acquisition as opposed to taxonomic groups. Applying this approach facilitates consideration of the primary pressures on these species (i.e. prey availability and prey acquisition) and, in turn, facilitates assessment of pressures on wintering and breeding birds.

The availability and distribution of fish and other marine organisms are key factors in seabird distribution and abundance, with wild bird survival, breeding success and chick growth all linked to food availability [23]; [24]. Research has demonstrated a 'carry over' effect of winter feeding and breeding performance (i.e. phenotypic flexibility such as producing larger clutches and number of clutches, advanced laying dates, which, together with increased resources, allows further breeding



attempts, and an increase in fledging success) in the spring of wild birds [25] and references therein; [26]; [23] and [27]. The 'carry-over' effect is where processes during one season influence the success of a species in the following season. Birds assess factors such as food availability (during winter feeding before spring and at the start of the breeding season) and their own condition to alter accordingly their investment in breeding attempts. At the beginning of reproduction (Spring), winter survival and the individual condition of the bird directly correlates with the ability to obtain the necessary resources to cover this increased energetic challenge [28]; [25]; [29]; [30]; [31]; and [32].

Diving birds include seabirds that exhibit surface feeding (i.e. feeding on the ocean's surface and/or within reach of a dipped head or feet), and seabirds that plunge from mid-air diving underwater (surface/shallow plunging) or chase their prey completely immersed underwater, i.e. deep plunging, pursuit plunging, pursuit diving, underwater plunging. Surface feeding seabirds that exhibit surface scavenging include *Laridae* sp., Northern Gannet *Morus bassanus* and Northern Fulmars *Fulmarus glacialis*. Shallow plunging species include Black-legged Kittiwakes *Rissa tridactyla*, gull species, terns and the European and Leach's storm petrel, whereas dip-feeding can be seen by the Great Skua *Stercorarius skua*. The Northern Gannet *Morus bassanus* also exhibits deep plunging, auk species exhibit underwater pursuit diving and so do Manx Shearwaters *Puffinus puffinus*. Other diving species that are typically found nearshore in Ireland include cormorants *Phalacrocorax* spp., loons *Gavia* spp., grebes *Podicipedidae* spp., and mergansers *Mergus* spp.

Non-diving birds include waders and dabbling birds that are typically found within the nearshore and intertidally. Dabbling birds feed predominantly on aquatic vegetation and small invertebrates on or near the surface and graze on land. Dabblers may occasionally dive to feed or to escape predators, however, rarely do so. Likewise, divers might dabble near shore. Dabbling ducks are often seen upending, by tipping forward with their heads and necks submerged underwater and their rear end in the air. Dabbling birds include the group *Anatinae*, a subgroup of the family *Anatidae* (swans, geese and ducks). Examples of dabbling birds found within Ireland are mallard *Anas platyrhynchos*, mandarin duck *Aix galericulata*, teal *Anas crecca*, wigeon *Mareca penelope*, northern pintail *Anas acuta*, common scoter *Melanitta nigra*, common goldeneye *Bucephala clangula*, and swan species such as the mute swan *Cygnus olor* and Bewick's swan *Cygnus columbianus*. Wader species include birds that wade through mud-/sandflats and shallow water, following the ebb tide as it retreats. Waders include plovers *Charadriinae* spp., godwits *Limosa* spp., sanderling *Calidris alba*, sandpipers *Tringa ochropus* and *Actitis hypoleucos*, curlew *Numenius arquata*, gulls *Laridae* spp., stints *Calidris minuta*, and the common redshank *Tringa totanus* and greenshank *Tringa nebularia*.

Habitats Directive Annex IV listed species which are not marine or not designated as SCIs of SPAs or QIs of SACs have not been selected for examination, including cetaceans (other than bottlenose dolphin and harbour porpoise), bats and turtles. The Annex II and IV lesser horseshoe bat (*Rhinolophus hipposideros*) was excluded from this exercise as these species are not known to migrate. Although this species does not have a specialized diet, the lesser horseshoe bat favours woodland edges, especially broadleaf woodland, to feed in western Ireland and are not known to use the marine environment.



Freshwater Pearl Mussel (*Margaritifera margaritifera*) (FWPM) and Freshwater White-Clawed Crayfish (*Austropotamobius pallipes*), both listed Annex II and V species, have also been excluded from this exercise. Freshwater White Clawed Crayfish (FWCC) are a non-marine invertebrate, occurring in small-medium sized lakes, rivers and streams in Ireland particularly in those with a calcareous influence (limestone districts). As FWCC do not occur within the marine environment, including brackish habitats from estuarine influence, pressures associated with the marine/estuarine survey activities are not likely to cause an effect on FWCC. Although a favoured food of the otter, FWCC are not known to be immediately connected with another species such as a symbiotic relationship where co-dependency is vital for the species fitness and subsequent survival.

FWPM are a large, long-lived bivalve mollusc found in clean fast-flowing rivers, occurring in more than 160 rivers and associated lakes in Ireland. This species requires very clean and well oxygenated freshwater and their offspring requiring river gravel to burrow into to prevent being washed to sea. Pressures affecting the survival of this species includes severe pollution causing adult mussels to die (e.g., from farming, forestry development activities and urban wastewater), undesirable burrowing habitats due to riverbeds that have become clogged with rooted plants, silt and algae leading to loss of their young, and direct impacts such as in-stream works such as channelisation and recreational fishery structures.

Although FWPM are a non-migratory freshwater invertebrate that remain in freshwater habitats for their entire life cycle, pressures occurring in the marine environment affecting the anadromous salmonid species, Atlantic Salmon (*Salmo salar*), can potentially cause an indirect, yet impactful, effect to the survival of FWPM. Atlantic salmon play a critical part of their life cycle, forming a symbiotic relationship whereby the salmon provide the essential step during the obligate host-dependent phase of the mussels' life cycle, and mussels improve the water quality by filtering water. The FWPM larvae, known as glochidia, is released to the river and inhaled by passing salmonid fish such as salmon (and trout, *Salmo trutta*) and live on the gills for 9-11 months, eventually dropping to the river bottom as tiny mussels when salmon return to the freshwater habitat to spawn. If the glochidia are unsuccessful in attaching to their host within 24 hours, the larvae will die. Therefore, direct and indirect effects of salmonid fish such as the Atlantic Salmon will have detrimental effects on FWPM populations. The survey activities listed in this exercise are examined within the marine/estuarine environment only. Atlantic salmon are only offered protection under Annex II of the EU Habitats directive in freshwater. However, pressures from the survey activities linked to Atlantic salmon are examined. It is considered therefore that any impact from the survey activities that affects Atlantic Salmon, may also affect FWPM. For this reason, FWPM has not been separately examined as their examination is contained within that of the Atlantic salmon.

As freshwater brook lamprey (*Lampetra planeri*) lives exclusively in freshwater, remaining in both large and small river channels (typically in smaller rivers), this species, unlike the other lamprey species, is not an anadromous fish and do not reside in brackish waters found within estuaries. Therefore, significant effects on brook lamprey as a result of the survey activities within the marine/coastal/estuarine environment listed within this exercise are considered highly unlikely as no pathway has been identified. As adults, metamorphosed Sea and River Lamprey are parasitic, hematophagous (external) feeders that can parasitize upon an extensively broad range of fish which means their distribution is largely dictated by their host. Parasitic Lamprey do not display homing behaviour, relying on their host to return to a freshwater course to spawn. Sea and River Lamprey are parasitic to fish such as trout, elasmobranchs (skates and sharks), cephalopod species, and have been reported to occasionally occur as parasites on marine mammals, however, in particular, Atlantic salmon and adult shad are their preferred hosts. Therefore, it is considered that any impact from the survey activities that affects their hosts, Atlantic Salmon and adult shad species (twait and allis), may



also have significant effects on Sea and River Lamprey by reducing the host availability to complete their life cycle. The examination of Sea and River Lamprey includes examination of impacts to their annexed hosts.

The final list of species selected for examination is shown in Table 5-5.

Table 5-5 Species selected for examination

Species Flora and Fauna	Designation (Annex I, II, III, IV or V)
Sea Lamprey [1095]	II
River Lamprey [1099]	II, V
Twaite Shad (<i>Alosa fallax fallax</i>) [1103]	II, V
Allis Shad [1102]	II, V
Atlantic Salmon [1106]	II, V
Eurasian Otter [1355]	II, IV
Grey Seal [1364]	II, V
Common Seal [1365]	II, V
Bottle-Nosed Dolphin [1349]	II, IV
Harbour Porpoise [1351]	II, IV
Seabirds (Diving and Non-Diving)	Special Conservation Interests of SPAs

Please note all marine and coastal birds (i.e. waterbirds, seabirds and waders) that occur in Ireland, including migratory, all year-round residents, and breeding and non-breeding birds, and have been designated within SPAs have been selected as 'seabirds' for examination, with separate examinations undertaken for non-diving birds and diving birds as set out above.

5.2.3.2 HABITAT RECEPTORS

Within Ireland there are 59 Annex I Habitats, 16 of which are considered priority habitats. Of these 59 habitats, 29 Annex I habitats occur within the marine, coastal and/or estuarine environment (Table 5-6). These habitats have been considered for their suitability as receptors for examination.

Table 5-6 Annex I habitats occurring in marine, coastal and estuarine environments considered.

Annex I Habitat (Marine / Coastal / Estuarine)
Sandbanks [1110]
Estuaries [1130]
Tidal Mudflats [1140]
Lagoons* [1150]
Large Shallow Inlets and Bays [1160]
Reefs [1170]
Drift Lines [1210]
Perennial Vegetation of Stony Banks [1220]
Sea Cliffs [1230]
Salicornia Mud [1310]
Atlantic Salt Meadows [1330]
Mediterranean Salt Meadows [1410]
Halophilous Scrub [1420]
Embryonic Shifting Dunes [2110]
Marram Dunes (White Dunes) [2120]
Fixed Dunes (Grey Dunes) [2130]
Decalcified Empetrum Dunes* [2140]
Decalcified Dune Heath* [2150]
Dunes with Creeping Willow [2170]
Dune Slack [2190]
Machair* [21AO]
Turloughs* [3180]
Floating River Vegetation [3260]
Hydrophilous Tall Herb [6430]
Cladium Fen* [7210]
Limestone Pavement* [8240]
Caves [8310]
Sea Caves [8330]
Residual Alluvial Forests* [91EO]

Ten (10) habitat receptors, which are marine and have a designation as a QI of SACs, have been selected from the longlist of 29 habitats considered, as a source pathway connection is possible between these habitats and the pressures exerted by marine survey activities (Table 5-7).

Table 5-7 Annex I habitats selected.

Annex I Habitat (Marine / Coastal / Estuarine)
Sandbanks [1110]
Estuaries [1130]
Tidal Mudflats [1140]
Lagoons* [1150]
Large Shallow Inlets and Bays [1160]
Reefs [1170]
Drift Lines [1210]
Salicornia Mud [1310]
Atlantic Salt Meadows [1330]
Mediterranean Salt Meadows [1410]

‘*’ marks the Priority Habitat, Lagoon, i.e. habitats which are considered to be in danger of disappearing within the EU territory.

5.2.4 EXAMINATION APPROACH

The steps described within the Office of the Planning Regulator’s (OPR) Practice Note PN01 (2021) ‘*Appropriate Assessment Screening for Development*’ [33] were applied to determine potentially relevant pressures. The examination was based on the Source-Pathway-Receptor (S-P-R) risk assessment principle. Pathways may include physical pathways such as water or air in the case of water-/airborne pollutants, and functional pathways, which may include foraging sites and important known migratory pathways for qualifying species of SACs and SPAs.

Note footprint and duration of a typical deployment of the equipment associated with the survey activities has been considered however consideration of location has been limited to whether the activity being examined is occurring ‘in’ or ‘outside’ a Natura 2000 site. ‘In’ is not restricted to a site boundary; it includes activities taking place close enough to a Natura 2000 to exert a pressure on that site.

- In the case where there is no ecological pathway or functional link between the proposed survey activity and the receptor, there is no potential for pressure and the survey activity was excluded from further examination for that receptor. These excluded activities were considered to be **suitable for exemption**.
- Where survey activities may be excluded from further examination in certain conditions, the survey activity was considered to be **suitable for exemption under certain conditions**.
- Where ecological pathways or functional links between the proposed survey activity and one or more receptors leading to pressure(s) being exerted on one or more receptors cannot be excluded, the survey activity was considered **not suitable for exemption**.

A series of detailed spreadsheet tables have been prepared to examine all identified survey activity types and all selected receptors against the list of pressures and to determine direct and indirect



pressures that may occur as a result of each survey activity on each receptor within the marine environment. These tables are summarised in Sections 5.2.4.1 to 5.2.4.5 below.

5.2.4.1 TABLE 03: ACTIVITIES PRESSURES

The table titled '23190-TAB-003-01 Examination - Activities-Pressures' has been used to identify which pressures are relevant for each survey activity.

Please note vessel pressures associated with the survey activities were examined as well as direct pressures from the survey activity.

Please note the pressure 'Introduction or spread of non-indigenous species' has been identified for all intertidal surveys conducted on foot, as unintentional seed introduction mediated by surveyors' clothing and footwear is a source of biological invasion to the environment.

5.2.4.2 TABLE 04: RECEPTORS PRESSURES

The table titled '23190-TAB-004-01 Examination - Receptor-Pressures' has been used to identify which pressures are relevant for each habitat and species receptors.

5.2.4.3 TABLE 05: ACTIVITIES RECEPTORS PRESSURES (HABITATS)

The table '23190-TAB-005-01 Examination – Habitats-Activities-Pressures' has been used to identify which survey activities exert pressures that are relevant to habitat receptors, to determine whether the activity would be 'suitable for exemption', 'suitable for exemption (conditional)', or 'unsuitable for exemption' for each habitat receptor and to provide a determination rationale for each activity and habitat receptor. This is done for each activity both within/adjacent to a Natura 2000 site, and outside of a Natura 2000 site.

Please note the Annex I habitats examined include five biological 'structurally dependent' habitats (i.e. Reefs, *Salicornia* Mud, Drift Lines, and Atlantic and Mediterranean Salt Meadows) and five habitats that are not biological 'structurally dependent' (i.e. Lagoons, Tidal Mudflats & Sandflats, Estuaries, Sandbanks and Large Shallow Inlets & Bays).

Annex I habitats including Reefs, *Salicornia* Mud, Atlantic Salt Meadows, Mediterranean Salt Meadows and Drift Lines can depend on living organisms for their structure and function. These 'ecosystem engineers' are species that create, destroy, maintain and modify habitats in significant ways by changing the physical (affecting local hydrodynamics and providing shelter by their epibenthic structures) and chemical (through bioturbation and bioirrigation, for example) properties of substrates [34]; [35]; and, [36]. Conditions are created by these species for other species to benefit from, such as food resources and shelter.

Owing to this, and in keeping with the precautionary approach, potential pressures from survey activities within the examination for Reef habitats were assessed against biogenic reef habitat. Biogenic reefs e.g. those made from reef structures made by the polychaete worm *Sabellaria alveolata* and those made by the horse mussel *Modiolus modiolus* are more susceptible to physical pressures from survey activities as compared to non-biogenic reefs (e.g. geogenic reefs formed by bedrock, boulders and cobbles).

Atlantic and Mediterranean Salt Meadows, *Salicornia* Mud and Drift Lines heavily depend on the epifloral species that typically occur in these habitats for their continuation in harsh coastal ecosystems as these flora species help stabilize sediment and prevent erosion.

Coastal marshes such as Atlantic and Mediterranean Salt Meadows are intertidal wetlands, highly diverse in species and habitats [37]. Saltmarshes reduce wave heights and the rates of lateral erosion,



thus supporting shoreline protection and stabilization [38]; [39]). They are generally dominated by common saltmarsh-grass *Puccinellia maritima* with other important species such as glassworts *Salicornia* spp., annual seablite *Suaeda maritima* and lax-flowered sea-lavender *Limonium humile* [40]. These halophytic colonizers contribute to vertical accretion of coastal salt marshes and enhance the processes that ensure their functionality and lastingness/longevity [41]).

Drift Lines occur on sandy or shingle substrate at the upper part of the strand at or above mean high-water spring tides. This habitat forms from decaying detritus in the tidal litter that releases nutrients into a nutrient-poor environment [42]. This habitat is represented as patchy, fragmented stands of vegetation in a narrow, linear nature and exists in a state of instability. Drift line annual vegetation, both annuals and perennials, accumulate drift material and gravel rich in nitrogenous organic matter [43]. The distinctive vegetation is ephemeral and composed of annual or short-lived perennial species, and as such is highly variable between sites and from one year to the next. The annual highly specialised species include *Atriplex* species, *Cakile maritima* and *Salsola kali*, that can survive harsh conditions of high salinity, drought and wind exposure [42].

If survey activities were to remove the ecosystem engineer species from these habitats, the biologically dependent habitats these species form would also be removed. Pressures including *Introduction of non-indigenous species*, *Habitat Structure Changes – removal of substratum*, *Smothering and siltation rate changes (light)*, *Smothering and siltation rate changes (heavy)*, *Changes in suspended solids (water clarity)*, and *Physical change to another seabed or sediment type*, were therefore assessed as potentially having a direct impact on the receptor biologically structurally dependent habitat and having indirect impacts on benthic species, including epifauna, infauna and flora, typically found in and on the habitat.

For non-biologically dependent habitats typically consisting of homogeneous soft sediments which are not biologically structurally dependent, the abovementioned survey activity pressures were considered as exerting indirect impacts on benthic species including epifauna, infauna and flora which are typically found in and on the habitat, as the continuation and functionality of these habitats overall would not be as affected by the removal of these species.

5.2.4.4 TABLE 06: ACTIVITIES RECEPTORS PRESSURES (SPECIES)

The table 23190-TAB-006-02 *Examination – Species-Activities-Pressure* has been used to identify which survey activities exert pressures that are relevant to species receptors, to determine whether the activity should be ‘suitable for exemption’, ‘suitable for exemption (conditional)’, or ‘unsuitable for exemption’ for each species receptor and to provide a determination rationale for each activity and species receptor.

Please note, different approaches were used for species and for habitats to assess the pressures associated with multibeam (MBES) and single beam (SBES) echosounders, with the activities examined under these categories for habitats (i.e. MBES and SBES) and the activities further subcategorised to deep and shallow water MBES and SBES systems for species.

MBES and SBES systems used in deeper waters (approximately >200 m and >100 m respectively) typically operate at lower frequencies than in shallower waters. Compared to lower frequencies, higher frequency sounds produced from MBES and SBES equipment attenuates more swiftly in water. The lower frequency outputs may be audible to marine species such as cetaceans, pinnipeds and other fish species. Therefore, separate examinations for both of these survey types operating at two different water depths was completed for all species receptors. This difference in frequency output is not considered relevant for habitat receptors. Information on the frequencies considered relevant for



the examination of SBES and MBES in shallow and deeper waters can be found in 23190-TAB-001-04 *Survey Activities List and Categories* for the SBES and MBES survey activities (rows 47-52).

For the examination of seismic airguns, this activity has been considered as it may be employed for offshore wind site investigation, with the associated power and frequency ranges used for examination of the activity. This information is shown in 23190-TAB-001-04 *Survey Activities List and Categories* for the Seismic Airgun activity (row 40). For the avoidance of doubt, larger scale seismic airgun array surveys which may be employed for oil and gas site investigation activities have not been considered in the examination as they are not seen as relevant to the Map Act 2021. This examination has found a small overlap between the hearing range of pinnipeds and the output frequency of seismic airguns considered for this examination, and on that basis, seismic airguns have been deemed unsuitable for exemption from licensing under the MAP Act 2021. For other survey equipment, the parameters considered for examination can be found in 23190-TAB-001-04 *Survey Activities List and Categories* where relevant.

Different approaches were also used for species and for habitats to examine the pressures associated with the pressure 'Death or injury by collision', with this pressure examined above and below water for species to account for pressure on bird receptors (e.g. for birds that may be migrating or simply foraging especially during breeding season). Death or injury by collision above water is not considered relevant for habitat receptors.

5.2.4.5 TABLE 07, 08 AND 09: DETERMINATION TABLES

23190-TAB-007-01 *Examination Determination – Species*, 23190-TAB-008-00 *Examination Determination – Habitats*, and 23190-TAB-009-01 *Examination Determination – Species and Habitats* have been prepared to display the determinations from this work, i.e. what survey activities can be considered Suitable for Exemption, Suitable for Exemption (Conditional) and Unsuitable for Exemption considering potential pressures exerted on species receptors, habitat receptors, and both species and habits receptors.

Determinations from 23190-TAB-005-01 *Examination – Habitats-Activities-Pressures* are displayed in 23190-TAB-008-00 *Examination Determination – Habitats*.

Determinations from 23190-TAB-006-02 *Examination – Species-Activities-Pressure* are displayed in 23190-TAB-007-01 *Examination Determination – Species*.

Overall determinations from the examination considering pressures on both species and habitats are displayed in 23190-TAB-009-01 *Examination Determination – Species and Habitats*.

Results are discussed below.

5.2.5 EXEMPTION SUITABILITY RESULTS

5.2.5.1 ACTIVITIES & PRESSURES

The results of the examination of activities and pressures ('23190-TAB-003-01 *Examination - Activities-Pressures*') are summarised in Table 5-8.

Table 5-8: Summary of Activities & Pressures.

Activity Category	Hydrological Pressures	Biological Pressures	Physical Pressures	Chemical Pressures	Vessel Pressures
Geotechnical	None identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Geophysical	None identified	None identified	Pressures identified	None identified	Pressures identified
Hydrographic	None identified	None identified	Pressures identified	None identified	Pressures identified
Metoccean	None identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified

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Activity Category	Hydrological Pressures	Biological Pressures	Physical Pressures	Chemical Pressures	Vessel Pressures
Wind Resource	None identified	None identified	Pressures identified	None identified	Pressures identified
Ecological	None identified	Pressures identified	Pressures identified	None identified	Pressures identified
Oceanographic	None identified	Pressures identified	Pressures identified	None identified	Pressures identified
Heritage	None identified	Pressures identified	Pressures identified	None identified	None identified
UMV	None identified	None identified	None identified	None identified	Pressures identified
Seabed-based platform	None identified	Pressures identified	Pressures identified	None identified	Pressures identified
Other Boat-based	None identified	None identified	Pressures identified	None identified	Pressures identified

All activity categories were found to exert pressures. No survey activity categories were found to exert hydrological pressures. The UMV category was only found to exert vessel pressures.

5.2.5.2 RECEPTORS & PRESSURES

The results of the examination of receptors and pressures ('23190-TAB-004-01 Examination – Receptor-Pressures') are summarised in Table 5-9 and

Table 5-10 Table 5-10 respectively.

Table 5-9: Summary of Species Receptors & Pressures

Receptor	Hydrological Pressures	Biological Pressures	Physical Pressures	Chemical Pressures	Vessel Pressures
Sea Lamprey	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
River Lamprey	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Twaite Shad	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Allis Shad	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Atlantic Salmon	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Eurasian Otter	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Grey Seal	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Common Seal	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Bottlenose Dolphin	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Harbour Porpoise	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Diving Seabirds	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Non-Diving Seabirds	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified

Table 5-10: Summary of Habitat Receptors & Pressures

Receptor	Hydrological Pressures	Biological Pressures	Physical Pressures	Chemical Pressures	Vessel Pressures
Sandbanks	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Estuaries	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Tidal Mudflats	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Lagoons	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Large Shallow Inlets and Bays	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Reefs	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Mediterranean Salt Meadows	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Atlantic Salt Meadows	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified

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Receptor	Hydrological Pressures	Biological Pressures	Physical Pressures	Chemical Pressures	Vessel Pressures
Salicornia mud	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Drift Lines	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified

All pressure categories were found to be relevant to all species and habitats considered. Please note not all pressures within each category were identified as relevant to all species and habitats and for many species the relevant pressures were indirect pressures (e.g. pressure on prey species of selected species).

Please note that while the geographic range of Shad species (both Twaite and Allis) is typically limited to shallow coastal waters and estuaries and as such they are unlikely to be impacted by sound from deep water hydrographic equipment, as a precautionary measure both Shad species have been examined as 'Suitable for Exemption (Conditional)' for SBES and MBES survey activities with shallow and deeper water systems. As Sea and River Lamprey are parasitic, hematophagous (external) feeders that parasitize upon shad species, their distribution is largely dictated by their host, Twaite and Allis Shad. The pressures associated with shad species are therefore indirectly applicable to Sea and River Lamprey, upon which their determinations were examined.

5.2.5.3 ACTIVITIES, RECEPTORS & PRESSURES

A summary of where pressures were identified from each survey activity category for (a) Species and (b) Habitats is given below, in [Table 5-11](#) and Table 5-12, respectively.

(a) SPECIES

The results of the examination of Activities, Species Receptors and Pressures 23190-TAB-006-02 – *Species-Activities-Pressures* are summarised in [Table 5-11](#).

Table 5-11: Activities, Species Receptors & Pressures Examination Matrix

Activity	Sea Lamprey	River Lamprey	Twaite Shad	Allis Shad	Atlantic Salmon	Eurasian Otter	Grey Seal	Common Seal	Bottlenose Dolphin	Harbour Porpoise	Diving Seabirds	Non- Diving Seabirds
Geotechnical	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Geophysical	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Hydrographic	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	No pressures Identified
Metocean	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Wind Resource	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	No Pressures Identified	Pressures Identified (Vessel only)	Pressures Identified (Vessel Only)
Ecological	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Oceanographic	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Heritage	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
UMV	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)	Pressures Identified (Vessel Only)
Seabed-based platform	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified
Other Boat-based	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified	Pressures Identified

(b) HABITATS

The results of the examination of Activities, Habitat Receptors and Pressures 23190-TAB-005-01 – *Habitats-Activities-Pressures* are summarised in Table 5-12.

Table 5-12: Activities, Habitat Receptors & Pressures Examination Matrix

Activity	Sandbanks	Estuaries	Tidal Mudflats	Lagoons	Large Shallow Inlets and Bays	Reefs	Mediterranean Salt Meadows	Atlantic Salt Meadows	Salicornia mud	Drift Lines
Geotechnical	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Geophysical	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	No pressures identified	No pressures identified	No pressures identified	No pressures identified
Hydrographic	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	No pressures identified	No pressures identified	No pressures identified	No pressures identified
Metocean	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	No pressures identified
Wind Resource	No Pressures identified	No Pressures identified	No Pressures identified	No Pressures identified	No Pressures identified	No Pressures identified	No Pressures identified	No pressures identified	No pressures identified	No pressures identified
Ecological	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Oceanographic	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	No Pressures identified
Heritage	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	No pressures identified	No pressures identified
UMV	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	Pressures identified (Vessel Only)	No Pressures identified	No pressures identified	No pressures identified	No pressures identified
Seabed-based platform	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified
Other Boat-based	Pressures identified (Vessel Only)	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified	Pressures identified

5.2.6 EXAMINATION DETERMINATION OUTCOME BY ACTIVITY AS EXAMINED AGAINST SPECIES RECEPTORS

The following section outlines the survey activities that have been determined as Suitable for Exemption (Table 5-13), Suitable for Exemption (Conditional) (Table 5-14), Unsuitable for Exemption (Table 5-15) as examined against Species Receptors (23190-TAB-007-01 *Examination Determination - Species*).

5.2.6.1 SUITABLE FOR EXEMPTION AS EXAMINED AGAINST SPECIES RECEPTORS

The following forty-one (41) survey activities are considered suitable for exemption as examined against Species Receptors due to the lack of significant exertion of pressures on species receptors (Table 5-13):

Table 5-13 Activities against Species Receptors considered as Suitable for Exemption.

Survey Activity
HPD testing
Downhole-Borehole CPT
Pore pressure dissipation tests
Borehole Geophysical Logging
Downhole coring and sampling
Ocean Bottom Seismometers (OBS)
Magnetometer (Mag)
Electro Magnetic Field (EMF)
Floating buoy
Seabed mounted frame
Tide Gauge
Fixed LiDAR
Drop Camera Systems
Towed Camera Systems
Baited Remote Underwater Video (BRUV)
Sediment Profile Imagery (SPI)
Remote Operated Vehicles (ROV) (Intrusive Activities)
Remote Operated Vehicles (ROV) (Non-intrusive Activities)
Dive surveys: Visual
Dive Surveys: Intrusive
Intertidal Bird Survey
Coastal Processes Survey
Intertidal Benthic Survey - Phase 1
Pots
Dredge Samplers
Benthic Sledges
Boat-Based Survey Visual Survey
Settlement Plates
Zooplankton and Phytoplankton Remote Monitoring
Plankton Samplers
CPODS and FPODS

Survey Activity
Hydrophones
Sound Recorders
Unmanned Marine Vehicles (UMVs) - Glider Surveys
Standpipes
In-situ environmental monitoring
Water Sampling
Intertidal (Heritage) Walkover Surveys
Autonomous Underwater Vehicles (AUV)
Autonomous Surface Vehicles (ASV) / Uncrewed Surface Vessels (USV)
Vessel Launch and Grounding



5.2.6.2 SUITABLE FOR EXEMPTION (CONDITIONAL) AS EXAMINED AGAINST SPECIES RECEPTORS

The following thirty-seven (37) survey activities are considered conditionally suitable for exemption as examined against Species Receptors due to the limited pressures exerted on the species receptors (Table 5-14):

Table 5-14 Activities against Species Receptors considered as Suitable for Exemption (Conditional).

Survey Activity
Boreholes
Seabed Cone Penetration Tests (CPT)
Seismic CPT
Gravity Corer
Piston Corer
Vibrocorer
Box Corer
Kasten Corer
Single Van Veen Grab
Double Van Veen Grab
Mini and Standard Hamon Grab
Day Grabs (Double and Single)
Shore-based Intertidal Trial Pits
Vessel-based Intertidal Trial Pits
Downhole Hammer Sampling
Synthetic Aperture Sonar (SAS)
Sub-bottom Profiling (SBP) – Boomer
Sub-bottom Profiling (SBP) – Sparker
Sub-bottom Imager
Acoustic Corer
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Drogue and Dye Surveys
Oil Pollution Response Survey
Intertidal Benthic Survey - Phase 2
Demersal Trawls: Otter trawl
Demersal Trawls: Beam trawl
Demersal Trawls: Jackson trawl (Deepwater)
Demersal Trawls: Seines
Dredges
Pelagic Trawls
Longlines
Gill and Trammel Nets
Fish Trap Surveys
Jack up Barge



Survey Activity
Acoustic Subsea Positioning System; Ultrashort Baseline (USBL) Side Scan Sonar (SSS)

5.2.6.3 UNSUITABLE FOR EXEMPTION AS EXAMINED AGAINST SPECIES RECEPTORS

The following five (5) survey activities are considered unsuitable for exemption as examined against Species Receptors due to the pressures exerted on species receptors (Table 5-15).

Table 5-15 Activities against Species Receptors considered as Unsuitable for Exemption.

Survey Activity
Sub-bottom Profiling (SBP) - Ultra High Resolution Seismic (UHRS)
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Acoustic species survey Seismic Airguns

5.2.7 EXAMINATION OUTCOME BY ACTIVITY AS EXAMINED AGAINST HABITAT RECEPTORS WITHIN/ADJACENT TO A NATURA 2000 SITE.

The following section outlines the survey activities that have been determined as Suitable for Exemption, Suitable for Exemption (Conditional), and Unsuitable for Exemption, as examined against Habitat Receptors within/adjacent to a Natura 2000 site ('23190-TAB-008-00 Examination Determination - Habitats').



5.2.7.1 SUITABLE FOR EXEMPTION AS EXAMINED AGAINST HABITAT RECEPTORS WITHIN/ADJACENT TO A NATURA 2000 SITE ('IN' NATURA 2000 SITE)

The following forty (40) survey activities are considered suitable for exemption as examined against Habitat Receptors within/adjacent to a Natura 2000 site due to the lack of significant exertion of pressures on habitats (Table 5-16):

Table 5-16 Activities against Habitat Receptors considered as Suitable for Exemption ('In' Natura 2000 Site).

Survey Activity
HPD testing
Downhole Borehole CPT
Pore Pressure Dissipation Tests
Borehole Geophysical Logging
Downhole sampling and coring
Downhole hammer sampling
Side Scan Sonar (SSS)
Synthetic Aperture Sonar (SAS)
Magnetometer (Mag)
Electro Magnetic Field (EMF)
Seismic Airguns
Sub-bottom profiling (SBP) - Boomer
Sub-bottom profiling (SBP) - Sparker
Sub-bottom Imagery (SBI)
Ultra-High Resolution Seismic (UHRS)
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Tide Gauge
Fixed LiDAR
Unmanned Marine Vehicles (UMVs) - Glider
In-situ environmental monitoring
Water sampling
Acoustic Subsea Positioning System, USBL
Autonomous Underwater Vehicles (AUV)
Autonomous Surface Vehicles (ASV) / Uncrewed Surface Vessels (USV)
Acoustic species survey
Drop Camera Systems
Remote Operated Vehicles (ROV) NON - INTRUSIVE
Dive surveys: Visual
Intertidal Bird Survey

Survey Activity
Coastal Processes
Intertidal Benthic Survey - Phase 1
Pelagic Trawls
Boat-Based Survey Visual Survey
Zooplankton and Phytoplankton Remote Monitoring
Plankton Samplers
Hydrophones
Intertidal (Heritage) Walkover Survey

5.2.7.2 SUITABLE FOR EXEMPTION (CONDITIONAL) AS EXAMINED AGAINST HABITAT RECEPTORS WITHIN/ADJACENT TO A NATURA 2000 SITE ('IN' NATURA 2000)

The following eleven (11) survey activities are considered conditionally suitable for exemption as examined against Habitat Receptors if undertaken within or close enough to a Natura 2000 site to exert a pressure on the designated habitat features of that site (Table 5-17).

Table 5-17 Activities against Habitat Receptors considered as Suitable for Exemption (Conditional) ('In' Natura 2000 Site)

Survey Activity
Ocean Bottom Seismometers (OBS)
Acoustic Corer
Drogue and Dye Surveys
Baited Remote Underwater Video (BRUV)
Longlines
Gill and Trammel Nets
Pots
Fish Trap Surveys
Settlement Plates
CPODS and FPODS
Sound Recorders

5.2.7.3 UNSUITABLE FOR EXEMPTION AS EXAMINED AGAINST HABITAT RECEPTORS WITHIN/ADJACENT TO A NATURA 2000 SITE ('IN' NATURA 2000 SITE)

The following thirty-two (32) survey activities are considered unsuitable for exemption as examined against Habitat Receptors if undertaken within/adjacent to Natura 2000 Site (Table 5-18).

Table 5-18 Activities against Habitat Receptors considered as Unsuitable for Exemption ('In' Natura 2000 Site)

Survey Activity
Boreholes
Cone Penetration Tests (CPT)
Seismic CPT
Single VanVeen
Double Van Veen Grab
Mini and Standard Hamon Grab
Day Grabs (Double and Single)
Gravity core
Piston Core
Vibrocore
Box Core
Kasten Corer
Shore-based Intertidal Trial Pits
Vessel-based Intertidal Trial Pits
Floating buoy
Seabed Mounted Frame
Standpipes
Vessel Launch and Grounding
Towed Camera Systems
Sediment Profile Imagery (SPI)
Remote Operated Vehicles (ROV)
INTRUSIVE ACTIVITIES
Dive Surveys: Intrusive
Intertidal Oil Pollution Response Survey
Intertidal Benthic Survey - Phase 2
Demersal Trawls: Otter trawl
Demersal Trawls: Beam trawl
Demersal Trawls: Jackson trawl (Deepwater)
Demersal Trawls: Seines
Dredges
Dredge Samplers
Benthic Sledges
Jack Up Barge



5.2.8 EXAMINATION OUTCOME BY ACTIVITY AS EXAMINED AGAINST HABITAT RECEPTORS NOT WITHIN/ADJACENT TO A NATURA 2000 SITE.

The following section outlines the survey activities that have been determined as Suitable for Exemption, Suitable for Exemption (Conditional), and Unsuitable for Exemption, as examined against Habitat Receptors not within/adjacent to a Natura 2000 site ('23190-TAB-008-00 Examination Determination - Habitats').

5.2.8.1 SUITABLE FOR EXEMPTION AS EXAMINED AGAINST HABITAT RECEPTORS NOT WITHIN/ADJACENT TO AN SAC ('OUTSIDE' SAC)

The following forty (40) survey activities are considered suitable for exemption as examined against Habitat Receptors if the proposed activity is to take place on an Annex I habitat outside a Natura 2000 site due to the lack of significant exertion of pressures on habitat receptors (Table 5-19):

Table 5-19 Activities against Habitat Receptors outside a Natura 2000 Site considered as Suitable for Exemption

Survey Activity
HPD testing
Downhole Borehole CPT
Pore Pressure Dissipation Tests
Borehole Geophysical Logging
Downhole sampling and coring
Downhole hammer sampling
Side Scan Sonar (SSS)
Synthetic Aperture Sonar (SAS)
Magnetometer (Mag)
Electro Magnetic Field (EMF)
Seismic Airguns
Sub-bottom profiling (SBP) - Boomer
Sub-bottom profiling (SBP) - Sparker
Sub-bottom Imager (SBI)
Ultra-High Resolution Seismic (UHRS)
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Tide Gauge
Fixed LiDAR
Unmanned Marine Vehicles (UMVs) - Glider Surveys
In-situ environmental monitoring
Water sampling
Acoustic Subsea Positioning System, USBL



Autonomous Underwater Vehicles (AUV)

Autonomous Surface Vehicles (ASV) /

Uncrewed Surface Vessels (USV)

Acoustic species survey

Drop Camera Systems

Remote Operated Vehicles (ROV) NON -

INTRUSIVE

Dive surveys: Visual

Intertidal Bird Survey

Coastal Processes

Intertidal Benthic Survey - Phase 1

Pelagic Trawls

Boat-Based Survey Visual Survey

Zooplankton and Phytoplankton Remote

Monitoring

Plankton Samplers

Hydrophones

Intertidal (Heritage) walkover surveys

5.2.8.2 SUITABLE FOR EXEMPTION (CONDITIONAL) AS EXAMINED AGAINST HABITAT RECEPTORS NOT WITHIN/ADJACENT TO AN SAC ('OUTSIDE' SAC)

The following forty-three (43) survey activities are considered conditionally suitable for exemption as examined against Habitat Receptors if undertaken on an Annex I habitat outside a Natura 2000 site (Table 5-20).

Table 5-20 Activities against Habitat Receptors considered as Suitable for Exemption (Conditional) ('Outside' Natura 2000 Site)

Survey Activity
Boreholes
Cone Penetration Tests (CPT)
Seismic CPT
Single VanVeen
Double Van Veen Grab
Mini and Standard Hamon Grab
Day Grabs (Double and Single)
Gravity core
Piston Core
Vibrocore
Box Core
Kasten Corer
Shore-based Intertidal Trial Pits
Vessel-based Intertidal Trial Pits
Ocean Bottom Seismometers (OBS)
Acoustic Corer
Floating buoy
Seabed Mounted Frame (incl. ADCP)
Drogue and Dye Surveys
Standpipes
Vessel Launch and Grounding
Towed Camera Systems
Baited Remote Underwater Video (BRUV) _
Sediment Profile Imagery (SPI)
Remote Operated Vehicles (ROV)
<i>INTRUSIVE ACTIVITIES</i>
Dive Surveys: Intrusive
Intertidal Oil Pollution Response Survey
Intertidal Benthic Survey - Phase 2
Demersal Trawls: Otter trawl
Demersal Trawls: Beam trawl
Demersal Trawls: Jackson trawl (Deepwater)
Demersal Trawls: Seines
Dredges
Longlines
Gill and Trammel Nets
Pots
Fish Trap Surveys
Dredge Samplers



Survey Activity
Benthic Sledges
Settlement Plates
CPODS and FPODS
Sound Recorders
Jack Up Barge

5.2.8.3 UNSUITABLE FOR EXEMPTION AS EXAMINED AGAINST HABITAT RECEPTORS NOT WITHIN/ADJACENT TO AN SAC ('OUTSIDE' SAC)

No survey activities have been found to be unsuitable for exemption as examined against Habitat Receptors if undertaken outside a Natura 2000 site.

5.2.9 EXAMINATION OUTCOME BY ACTIVITY AS EXAMINED AGAINST ALL RECEPTORS WITHIN/ADJACENT TO A NATURA 2000 SITE

The following section outlines the survey activities that are determined as Suitable for Exemption, Suitable for Exemption (Conditional), and Unsuitable for Exemption, as examined against Habitat and Species Receptors within/adjacent to a Natura 2000 site (23190-TAB-009-01 *Examination Determination – Species and Habitats*).



5.2.9.1 SUITABLE FOR EXEMPTION WITHIN/ADJACENT TO A NATURA 2000 SITE (ALL RECEPTORS)

The following twenty-five (25) survey activities are considered suitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site (Table 5-21):

Table 5-21 Activities against All Receptors considered as Suitable for Exemption within/adjacent to a Natura 2000 site.

Survey Activity
HPD testing
Downhole Borehole CPT
Pore Pressure Dissipation Tests
Borehole Geophysical Logging
Downhole sampling and coring
Magnetometer (Mag)
Electro Magnetic Field (EMF)
Tide Gauge
Fixed LiDAR
Drop Camera Systems
Remote Operated Vehicles (ROV) NON - INTRUSIVE
Dive surveys: Visual
Intertidal Bird Survey
Coastal Processes
Intertidal Benthic Survey - Phase 1
Boat-Based Survey Visual Survey
Zooplankton and Phytoplankton
Remote Monitoring
Plankton Samplers
Hydrophones
Unmanned Marine Vehicles (UMVs) - Glider Surveys
In-situ environmental monitoring
Water sampling
Intertidal (Heritage) Walkover surveys
Autonomous Underwater Vehicles (AUV)
Autonomous Surface Vehicles (ASV) / Uncrewed Surface Vessels (USV)

5.2.9.2 SUITABLE FOR EXEMPTION (CONDITIONAL) WITHIN/ADJACENT TO A NATURA 2000 SITE (ALL RECEPTORS)

The following twenty-one (21) activities are considered conditionally suitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site (Table 5-22).

Table 5-22 Activities against All Receptors considered as Suitable for Exemption (Conditional) within or adjacent to a Natura 2000 site.

Survey Activity
Downhole hammer sampling
Synthetic Aperture Sonar (SAS)
Ocean Bottom Seismometers (OBS)
Sub-bottom profiling (SBP) - Boomer
Sub-bottom profiling (SBP) - Sparker
Sub-bottom Imager (SBI)
Acoustic Corer
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Drogue and Dye Surveys
Baited Remote Underwater Video (BRUV)
Pelagic Trawls
Longlines
Gill and Trammel Nets
Pots
Fish Trap Surveys
Settlement Plates
CPODS and FPODS
Sound Recorders
Acoustic Subsea Positioning System, USBL
Side Scan Sonar (SSS)

5.2.9.3 UNSUITABLE FOR EXEMPTION ('IN' NATURA 2000) (ALL RECEPTORS)

The following thirty-seven (37) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors within/adjacent to Natura 2000 site (Table 5-23).



Table 5-23 Activities against All Receptors considered as Unsuitable for Exemption ('In' Natura 2000)

Survey Activity
Boreholes
Cone Penetration Tests (CPT)
Seismic CPT
Gravity core
Piston Core
Vibrocore
Box Core
Kasten Corer
Single VanVeen
Double Van Veen Grab
Mini and Standard Hamon Grab
Day Grabs (Double and Single)
Shore-based Intertidal Trial Pits
Vessel-based Intertidal Trial Pits
Ultra-High Resolution Seismic (UHR)
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Floating buoy
Seabed Mounted Frame (incl. ADCP)
Acoustic species survey
Towed Camera Systems
Sediment Profile Imagery (SPI)
Remote Operated Vehicles (ROV)
INTRUSIVE ACTIVITIES
Dive Surveys: Intrusive
Intertidal Oil Pollution Response Survey
Intertidal Benthic Survey - Phase 2
Demersal Trawls: Otter trawl
Demersal Trawls: Beam trawl
Demersal Trawls: Jackson trawl (Deepwater)
Demersal Trawls: Seines
Dredges
Dredge Samplers
Benthic Sledges
Standpipes
Jack Up Barge
Vessel Launch and Grounding
Seismic Airguns

5.2.10 EXAMINATION OUTCOME BY ACTIVITY AS EXAMINED AGAINST ALL RECEPTORS NOT WITHIN/ADJACENT TO A NATURA 2000 SITE

The following section outlines the survey activities that are determined as Suitable for Exemption, Suitable for Exemption (Conditional), and Unsuitable for Exemption, as examined against Habitat and Species Receptors if undertaken on an Annex I habitat outside a Natura 2000 site (23190-TAB-009-01 Examination Determination – Species and Habitats).

5.2.10.1 SUITABLE FOR EXEMPTION ('OUTSIDE' A NATURA 2000 SITE) (ALL RECEPTORS)

The following twenty-five (25) survey activities have been considered suitable for exemption as examined against Habitat and Species Receptors if undertaken outside a Natura 2000 site (Table 5-24):

Table 5-24 Activities against All Receptors considered as suitable for Exemption outside of Natura 2000 sites

Survey Activity
HPD testing
Downhole Borehole CPT
Pore Pressure Dissipation Tests
Borehole Geophysical Logging
Downhole sampling and coring
Magnetometer (Mag)
Electro Magnetic Field (EMF)
Tide Gauge
Fixed LiDAR
Drop Camera Systems
Remote Operated Vehicles (ROV) NON – INTRUSIVE
Dive surveys: Visual
Intertidal Bird Survey
Coastal Processes Survey
Intertidal Benthic Survey - Phase 1
Boat-Based Survey Visual Survey
Zooplankton and Phytoplankton
Remote Monitoring
Plankton Samplers
Hydrophones
Unmanned Marine Vehicles (UMVs) - Glider Surveys
In-situ environmental monitoring
Water sampling
Intertidal (Heritage) Walkover surveys
Autonomous Underwater Vehicles (AUV)
Autonomous Surface Vehicles (ASV) / Uncrewed Surface Vessels (USV)

5.2.10.2 SUITABLE FOR EXEMPTION (CONDITIONAL) ('OUTSIDE' AN SAC)

The following fifty-three (53) survey activities have been considered conditionally suitable for exemption as examined against Habitat and Species Receptors if undertaken outside a Natura 2000 site (Table 5-25):

Table 5-25 Activities against All Receptors considered as suitable for Exemption (Conditional) outside of Natura 2000 sites

Survey Activity
Boreholes
Seabed Cone Penetration Tests (CPT)
Seismic CPT
Gravity core
Piston Core
Vibrocore
Box Core
Kasten Corer
Single VanVeen
Double Van Veen Grab
Mini and Standard Hamon Grab
Day Grabs (Double and Single)
Shore-based Intertidal Trial Pits
Vessel-based Intertidal Trial Pits
Downhole hammer sampling
Synthetic Aperture Sonar (SAS)
Ocean Bottom Seismometers (OBS)
Sub-bottom profiling (SBP) - Boomer
Sub-bottom profiling (SBP) - Sparker
Sub-bottom Imager (SBI)
Acoustic Corer
Single Beam Echosounder (SBES) - Shallow waters of <100m depth
Multibeam Echosounder (MBES) - Shallow waters of <200m depth
Floating buoy
Seabed Mounted Frame (incl. ADCP)
Drogue and Dye Surveys
Towed Camera Systems
Baited Remote Underwater Video (BRUV) _
Sediment Profile Imagery (SPI)
Remote Operated Vehicles (ROV)
INTRUSIVE ACTIVITIES
Dive Surveys: Intrusive
Intertidal Oil Pollution Response Survey
Intertidal Benthic Survey - Phase 2
Demersal Trawls: Otter trawl



Survey Activity
Demersal Trawls: Beam trawl
Demersal Trawls: Jackson trawl (Deepwater)
Demersal Trawls: Seines
Dredges
Pelagic Trawls
Longlines
Gill and Trammel Nets
Pots
Fish Trap Surveys
Dredge Samplers
Benthic Sledges
Settlement Plates
CPODS and FPODS
Sound Recorders
Standpipes
Jack Up Barge
Acoustic Subsea Positioning System, USBL
Vessel Launch and Grounding
Side Scan Sonar (SSS)

5.2.10.3 UNSUITABLE FOR EXEMPTION ('OUTSIDE' A NATURA 2000 SITE)

The following five (5) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors (Table 5-26):

Table 5-26 Activities against All Receptors considered as unsuitable for Exemption

Survey Activity
Sub-bottom Profiling (SBP) – Ultra High Resolution Seismic (UHRS)
Single Beam Echosounder (SBES) - Deeper waters of >100m depth
Multibeam Echosounder (MBES) - Deeper waters of >200m depth
Acoustic species survey
Seismic Airguns

6 CONCLUSION & RECOMMENDATIONS

The key findings of the exercise undertaken to determine the suitability for exemption from licencing under the Map Act 2021 of the survey activities identified in Section 4.3 are:



Within/adjacent to a Natura 2000 site:

- Twenty-five (25) survey activities are considered suitable for exemption as examined against Habitat and Species Receptors
- Twenty-one (21) activities are considered conditionally suitable for exemption as examined against Habitat and Species Receptors
- Thirty-seven (37) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors

Outside a Natura 2000 site:

- Twenty-five (25) survey activities are considered suitable for exemption as examined against Habitat and Species Receptors
- Fifty-three (53) survey activities are considered conditionally suitable for exemption as examined against Habitat and Species Receptors
- Five (5) survey activities are considered unsuitable for exemption as examined against Habitat and Species Receptors

For survey activities which are considered conditionally suitable for exemption, the overall effect of the pressures associated with these activities on environmental receptors (e.g. habitats and species) is dependent on the spatial and temporal scale and intensity of the activities. The proximity to the receptor and whether the activity is within or adjacent to a Natura 2000 site is also a factor. For these conditionally suitable activities, if the scale and intensity of the activity can be shown to be unlikely to cause a significant effect on given receptors (e.g. using agreed relevant thresholds or by another method), the activity may be suitable for exemption from licencing under certain conditions. Consideration of appropriate scale and/or intensity of activity, or of associated thresholds, is outside of the scope of this study, but should be considered in a follow-up piece of work to inform potential thresholds for exemptions.

GDG advise the following recommendations are considered going forward:

- Activities which are considered suitable for exemption should be considered for exemption by MARA and the Minister, including activities which are considered unsuitable for exemption in Natura 2000 site, but may be suitable for exemption outside Natura 2000 site. In these cases, consultation with NPWS is advised.
- Where exemptions are regulated for, an appropriate notification procedure should be put in place by MARA to ensure it is aware of any exempted activities which will be carried out in the maritime area.
- Further consideration of significance of pressures at different scales and intensities associated with each survey activity which may be suitable for exemption is required to inform whether thresholds can be used to allow these activities to be considered suitable for exemption in certain circumstances. Note work under Lot 2 of this study may help inform this recommended work.
- Examination tables produced to inform the above findings could be further developed into a tool to support the adoption of the MarESA (Marine Evidence-based Sensitivity Assessment) approach to help inform environmental screening of marine survey activities undertaken by MARA for licencing purposes.



- It should be noted that some of the activities examined in this list for the potential for exemption from requiring a Maritime Usage Licence are subject to other licensing requirements. For example, any activity requiring the placement of a fixed or floating obstruction to surface navigation will require a separate consent from Irish Lights in the form of a statutory sanction under the Merchant Shipping Act. Geophysical or Dive Surveys may require consents from the NMS. So called 'Activities Requiring Consent'³ (ARCs) which have the potential to damage SAC or SPAs e.g. undertaking active acoustic surveys in the marine environment, may require consent from the Minister for Housing, Local Government and Heritage.

Though outside the scope of this work, Section 114 of the MAP Act 2021 states that the Minister may by regulations provide for any class of Schedule 7 usage to be exempted usage for the purposes of this Part where he or she is of the opinion that—

- (i) by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive, or
- **(ii) usages belonging to that class are authorised, or are required to be authorised, by or under any other enactment (whether the authorisation takes the form of the grant of a licence, consent, approval or any other type of authorisation).** [emphasis added]

While this scope of work has focused on Part (i) above, GDG believes that the potential for activities to be regulated as exempted usages in accordance with part (ii) above should also be investigated by the Marine Institute and MARA.

³<https://www.npws.ie/farmers-and-landowners/activities-requiring-consent>

Examination for Exempted Usages Under Section 114 of the MAP Act 2021

GDG | Consultancy Services to Examine Exempted Usages under Section 114 of the MAP Act 2021

| 23190-REP-001-02



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Appendix A – UISCE ÉIREANN AND MET ÉIREANN SUBMISSIONS

A.1 UISCE ÉIREANN SUBMISSION ON NIMS ACTIVITIES

















A.2 231128 MET ÉIREANN MARA CONSULTATION SUBMISSION TO GDG









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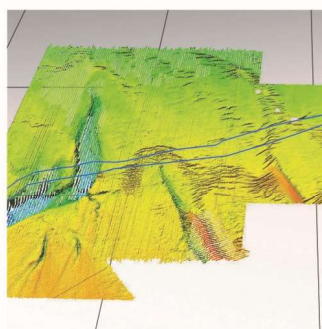
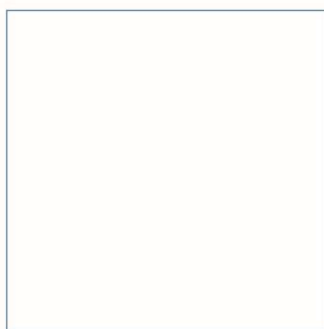
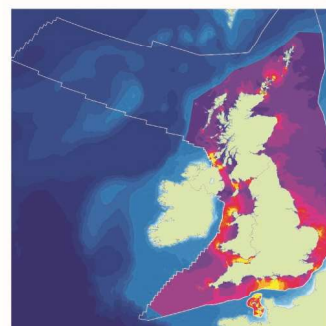
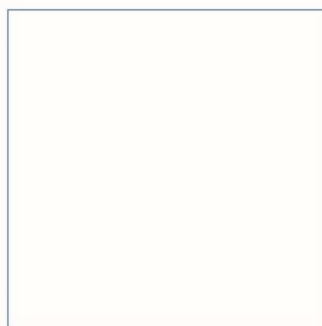
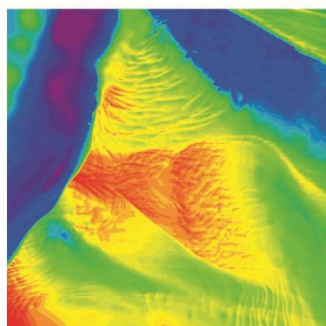
Appendix 2: ABPmer report

Marine Institute

Assessment of Exempted Usages under Section 114 of the MAP Act (2021)

Lot 2 - Examination of Approaches in Other Jurisdictions

January 2024



Innovative Thinking - Sustainable Solutions

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Assessment of Exempted Usages under Section 114 of the MAP Act (2021)

Lot 2 - Examination of Approaches in Other Jurisdictions

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Executive Summary

The Maritime Area Regulatory Authority (MARA) is seeking to support the achievement of the targets set for Offshore Renewable Energy (ORE) in a sustainable, cost efficient and plan-led manner, and especially an acceleration of the planning and consenting process. Given the significant demands, focus and expectations in respect of site investigation activity and marine scientific surveys in support of priority ORE development in Ireland, the Marine Institute has let two Lots to assess those maritime usage activities that may be suitable for exemption from marine licensing requirements. Lot 1 focused on assessing drivers for ORE site investigations, categorising the techniques and technologies, and screening them for suitability for exemption. Lot 2 (the focus of this report) examined the approach adopted in other jurisdictions regarding exempted usage of activities in respect of ORE site investigation activity and marine scientific surveys. The outputs from these two Lots will be used to inform the new marine licensing regime, to be delivered by the new state agency, MARA, which is responsible for assessing applications for consents in the maritime area.

To ensure the inclusion of the most relevant information, a scoping exercise was undertaken to identify jurisdictions to be taken forward for detailed investigation. Seventeen jurisdictions were identified and agreed with the Marine Institute and MARA for the scoping exercise. Out of the seventeen jurisdictions investigated through the scoping exercise, nine were identified for further research and are the focus of this report. Those jurisdictions are:

- Australia
- England
- Estonia
- New Zealand
- Northern Ireland
- Scotland
- Spain
- Sweden
- Wales

UK jurisdictions have very comparable (and, at times shared) legislative frameworks, with Orders evolving over time for exempting activities. A general trend has been observed of an increase in activities becoming exempted, but with 'safeguards' often applied, whether it be through the application of conditions or exceptions. Exemptions were identified of 'primary relevance' to site investigation activities or marine scientific surveys including (amongst others) the use of scientific equipment and the taking of samples for testing and analysis. Of particular note for exemptions relevant to site investigation activities or marine scientific surveys, was a lack of specificity regarding technology types. The exemptions are broad in their wording and potential application (but with conditions or exceptions placed upon them).

Through the Marine Management Organisation (MMO) 'self-service' marine licensing process in England, other low risk activities were also identified which had a streamlined consenting process. These include the placing of navigational markers, taking of boreholes, the excavation and reinstatement of trial pits, and the taking of grab samples. A suite of broader exemptions of wider relevance to site investigation activities or marine scientific surveys were also identified. These include aspects such as the ability to remove accidental deposits, use of flares, and fire-fighting.

In New Zealand, exemptions (termed 'permitted activities') were also identified for 'marine scientific research, prospecting, and exploration' and for seismic surveys. New Zealand is comprehensive in its environmental considerations and reporting requirements for the application of exemptions for marine scientific research and seismic surveys.

In Sweden, no permit is required for harvesting living organisms, or for scientific investigation conducted by a Swedish institution. Conditions are placed upon this, such as it may not give rise to significant interference with the natural environment, the undertaker must be Swedish, and the activity cannot be to the detriment of other activities which have already received a permit.

Spain, similar to the UK jurisdictions, has evolved its licensing process with amendments made in 2022 by Royal Decree 2022/2926 setting out some activities considered to be low risk enough to not require a 'compatibility report' and instead a 'responsible declaration' is made. Site investigation activities and marine scientific surveys are not captured in these, but the installation of beacons is included.

In Australia, Ministers can exempt some actions from assessment or seeking approval, but it must be in the national interest (e.g., defence purposes). However, the processes allow for two other routes of proceeding without approval. Firstly, 'self-assessment' can be used to determine whether a referral must be made to a Minister for an approval decision. In this way, actions can proceed without approval, but the onus is on the project proponent to ensure they are compliant with the law. Secondly, if a proponent in their referral to the Minister sets out measures to avoid significant impacts, the Minister may decide an action can proceed without approval if it is undertaken in the manner set out. Activities in Marine Parks (including research and monitoring) have another approvals process and are managed through permits and licences. These are only authorised if considered acceptable against decision making criteria in the relevant management plan. Multibeam sonar acquisition is generally not restricted or subject to permit requirements in State and Territory waters outside of Marine Protected Areas (MPAs).

No information on exemptions in Estonia could be sourced within the time scales of this study.

Environmental considerations and impacts on other sea users resulted in exclusions or conditions often being in place on exemptions in all of the UK jurisdictions. For example, activities are excluded if they are likely to cause obstruction or danger to navigation, or if they are likely to have a significant effect on a protected site (such as an MPA). 'Site sensitivities' could also trigger consultation with third parties (such as nature conservation bodies or navigation authorities). Environmental effects were considered in consenting processes in all the jurisdictions examined.

As well as a marine licence, other licences or permits are often required in jurisdictions to undertake an activity in the marine space, even if exempt from marine licence requirements. For example, a seabed survey licence or coastal survey licence will be required from The Crown Estate or Crown Estate Scotland in Scottish waters for survey activities that physically interact with the foreshore (including estuarine) or seabed under ownership of The Crown Estate (MMO, 2023). In the Irish context, authorisations such as from the National Parks and Wildlife Service (NPWS) or a licence from the Underwater Archaeology Unit (UAU) may also be required.

In terms of processes for developing exemptions, these were more readily identifiable for the UK jurisdictions. Equality impact, regulatory impact, and financial implications were considered in the making of the regulations. The Explanatory Notes to the UK Orders do not indicate that a Strategic Environmental Assessment (SEA) or Habitats Regulations Appraisal (HRA) were undertaken.

It is expected that policy will continue to evolve across the jurisdictions researched. There is a consistent picture of a desire to streamline consenting (whilst enabling environmental safeguards) and greater deployment of ORE to occur.

In summary, key messages from this study are:

Exemptions are available for some site investigation activities and marine scientific surveys (e.g., use of scientific equipment and the taking of samples for testing and analysis).

Exemptions often have a lack of specificity regarding technology types. They are broad in their wording, and potential application (but with conditions or exceptions placed upon them).

Complimentary consenting processes are sometimes in place to streamline processes, such as MMO 'self-service' and Australia's 'self-assessment'.

Environmental considerations and impacts on other sea users resulted in exclusions or conditions often being in place on exemptions.

Environmental effects were considered in consenting processes in all the jurisdictions examined.

Other licences or permits are often required in jurisdictions to undertake an activity in the marine space, even if exempt from marine licence requirements.

The Explanatory Notes to the UK Orders do not indicate that an SEA or HRA were undertaken when making the exemptions regulations.

It is expected that policy will evolve across the jurisdictions researched. There is a consistent picture of a desire to streamline consenting (whilst enabling environmental safeguards) and greater deployment of ORE to occur.

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1 Introduction

The Maritime Area Regulatory Authority (MARA) is seeking to support the achievement of the targets set for Offshore Renewable Energy (ORE) in a sustainable, cost efficient and plan-led manner, and especially an acceleration of the planning and consenting process. The Maritime Area Planning Act 2021 (MAP Act) was enacted to regulate the maritime area through a commitment to coherent, inter-related planning covering forward planning, development management and enforcement. It established a new marine planning system and a new licensing and development management regime. Section 114 of the MAP Act¹ provides that the Minister may, by Regulations, provide for any class of usage to be exempted usage. The MAP Act provides a useful opportunity to introduce a proportionate regime for defining exempted maritime usages in circumstances where those activities will have no significant environmental impact².

Maritime Usages requiring a licence are specified in Schedule 7³ of the MAP Act 2021. The usages subject to licence are listed as broad 'classes' of usage, including inter-alia:

- Marine environmental surveys for the purposes of scientific discovery or research (item 2 in Schedule 7)
- Marine environmental surveys for the purpose of site investigation or in support of an application under Part XXI of the Planning and Development Act 2000, as amended (item 3 in Schedule 7).

A wide range of site investigations can be required for ORE development which may be captured by these broad classes.

Given the significant demands, focus and expectations in respect of site investigation activity and marine scientific surveys in support of priority ORE development in Ireland, the Marine Institute has let two Lots to assess those maritime usage activities that may be suitable for exemption from marine licensing requirements. Lot 1 focused on assessing drivers for ORE site investigations, categorising the techniques and technologies, and screening them for suitability for exemption. Lot 2 (the focus of this report) examined the approach adopted in other jurisdictions regarding exempted usage of activities in respect of ORE site investigation activity and marine scientific surveys. The outputs from these two Lots will be used to inform the new marine licensing regime, to be delivered by the new state agency, MARA, which is responsible for assessing applications for consents in the maritime area.

2 Methodology

2.1 Scoping exercise

To ensure the inclusion of the most relevant information, a scoping exercise was undertaken to identify jurisdictions to be taken forward for detailed investigation. A focus was given to countries in which ORE is of greater relevance, but not restricted to these, recognising that the site investigation activities and marine scientific surveys undertaken for ORE are often used for other types of developments/sectors.

¹ [Maritime Area Planning Act 2021, Section 114 \(irishstatutebook.ie\)](https://www.irishstatutebook.ie/eli/2021/act/1/section/114/enacted/ti/html)

² The MAP Act considers environmental impact 'by reason of the size, nature or limited effect on the maritime area, of usages belonging to that class, the undertaking of such usages without a licence would not offend against the objectives listed in Article 5 of the MSP Directive'

³ [Maritime Area Planning Act 2021, Schedule 7 \(irishstatutebook.ie\)](https://www.irishstatutebook.ie/eli/2021/act/1/schedule/7/enacted/ti/html)

Fifteen jurisdictions were identified and agreed with the Marine Institute and MARA for the scoping exercise. Whilst undertaking the scoping exercise, information potentially of relevance for the project was also identified for Australia and New Zealand. These additional jurisdictions were also brought into the exercise, bringing a total of seventeen jurisdictions for initial review. These included:

<ul style="list-style-type: none"> ▪ Australia ▪ Belgium ▪ Canada ▪ Denmark ▪ England ▪ Estonia 	<ul style="list-style-type: none"> ▪ Finland ▪ France ▪ Germany ▪ Netherlands ▪ New Zealand ▪ Northern Ireland 	<ul style="list-style-type: none"> ▪ Portugal ▪ Scotland ▪ Spain ▪ Sweden ▪ Wales
---	--	--

In order to objectively identify the most appropriate jurisdictions to be taken forward for more detailed research and final reporting, the scoping exercise captured the following information for each jurisdiction:

- An overview of the marine licensing system;
- Whether an exemptions process exists;
- A summary of the exemptions process (if applicable);
- Key Legislation (including links where possible);
- An assessment of the availability of information (Likert scale: 1 - 5; 1 = information minimal or not accessible, 5 = Lots of information and readily accessed);
- The responsible regulator/Government department;
- Whether policies are in development for licensing Offshore Renewable Energy (ORE) activities or exempting activities;
- Summary of policy development (if applicable);
- Whether there are different approaches to exempting activities regionally and nationally for the jurisdiction;
- Summary of regional/national differences (if applicable);
- Whether the Habitats Directive applies to the jurisdiction;
- Whether the EIA Directive applies to the jurisdiction;
- Key External Links for further information; and
- A recommendation whether that jurisdiction be taken forward to more detailed research and final reporting.

Of the seventeen jurisdictions investigated through the scoping exercise, the nine most relevant were identified for further research and are the focus of this report. These jurisdictions are:

- Australia
- England
- Estonia
- New Zealand
- Northern Ireland
- Scotland
- Spain
- Sweden
- Wales

A summary of the scoping results is shown in Appendix A.

2.2 Detailed research

A detailed desk-based study of the approach taken to licensing ORE site investigation and marine scientific survey activities in the selected jurisdictions was undertaken. Where appropriate, desk-based study was complemented by contacting officials in other jurisdictions to obtain further information or to seek clarity in the approach.

A wide range of site investigations and marine scientific surveys can be required for ORE development which may be captured by the broad classes of Maritime Usages requiring a licence without an exemption in place. The leads for Lot 1 comprehensively categorised different site investigation techniques and marine scientific surveys. Categories included:

- Geotechnical (e.g., boreholes);
- Seabed based survey platform (e.g., jack up barge);
- Geophysical (e.g., sonar and grab samples – to note, grab samples are also relevant to the ecological category);
- Other boat based surveys (e.g., Acoustic Subsea Positioning System);
- Hydrographic (e.g. multibeam echo-sounder);
- Ecological (e.g., seabed imagery and dive surveys);
- Oceanographic (Unmanned marine vehicles, such as gliders);
- Met Ocean Data (e.g., floating buoy);
- Wind Resource Data (e.g. fixed LiDAR); and
- Heritage (e.g., intertidal walk over survey).

This report sought to identify to which of the above categorisations, any exempted activities identified in other jurisdictions investigated, would relate.

The detailed research captured in this report built upon the findings of the scoping exercise and also explored:

- The process for developing exemptions (e.g., environmental assessment requirements, such as those for Marine Protected Areas (MPAs)).
- If the SEA Directive and Habitats Directive applied to the exemptions;
- Detailed wording of the exemptions identified;
- Assignment of a survey category where possible for any identified exemptions;
- The practical process in applying the exemption, such as requirements to notify the regulator or other sea users; and

3 Overview of Marine Licensing Processes in the Jurisdictions

It was identified that there are parallels in the licensing processes between the UK jurisdictions. These have been grouped and presented together under section 3.1. The non-UK jurisdictions (Australia, Estonia, New Zealand, Spain and Sweden) are presented individually in sections 3.2 to 3.6.

3.1 UK jurisdictions (England, Northern Ireland, Scotland, and Wales)

3.1.1 UK marine licensing legislation

The Marine and Coastal Access Act 2009⁴ provides the regulatory process which controls a range of activities in the marine environment in UK waters, including the requirement to obtain a marine licence for certain types of activity. The marine licensing process supports the sustainable use of the marine environment, ensuring activities which require a licence do not harm the environment, impact on human health or interfere with other legitimate uses of the seas.

A full list of marine licensable activities can be found in Part 4 (Marine Licensing) of the Marine and Coastal Access Act 2009. In summary, a marine licence is required for the following types of activities:

- Any form of dredging (e.g., capital, maintenance and aggregate), whether or not involving the removal of any material from the sea or seabed;
- Construction, alteration or improvement works in/over the sea, or on/under the seabed;
- Deposits of substances or objects in the sea, or on/under the seabed, using a vehicle, vessel, aircraft, marine structure or floating container;
- Removals of any substance or object from the seabed using a vehicle, vessel, aircraft, marine structure or floating container;
- Incineration of any substances or objects;
- Scuttling vessels or floating containers; and
- Deposit or use of explosive substances or articles in the sea or on/under the seabed.

The Marine and Coastal Access Act 2009 also defines several activities which are exempt from the requirements of a marine licence (Sections 75 to 77) and special provisions in certain cases (Sections 78 to 84). For example, this includes certain dredging activities (Section 75) for which a marine licence is not needed if specified conditions are met.

The provision of these specific exemptions under the Marine and Coastal Access Act 2009 apply to all UK administrations, albeit some have more relevant spatial implications compared to others (e.g., Section 76 – Dredging in the Scottish Zone).

Chapter 2 of the Marine and Coastal Access Act 2009 (Exemptions and Special Cases) allows by Order, for activities to not need a marine licence, or to not need a marine licence if conditions specified in the Order are satisfied. Each UK administration has legislative powers for the making of Orders for exempting marine licensable activities. Relevant Orders that have been made include:

- England:
 - The Marine Licensing (Exempted Activities) Order 2011⁵;
 - The Marine Licensing (Exempted Activities) (Amendment) Order 2013⁶; and

⁴ Marine and Coastal Access Act (2009) [online] Available at: <http://www.legislation.gov.uk/ukpga/2009/23/contents> (Accessed 27/11/2023).

⁵ The Marine Licensing (Exempted Activities) Order 2011 [online] Available at: <http://www.legislation.gov.uk/uksi/2011/409/contents/made> (Accessed 27/11/2023)

⁶ The Marine Licensing (Exempted Activities) (Amendment) Order 2013 [online] Available at: <http://www.legislation.gov.uk/uksi/2013/526/contents/made> (Accessed 27/11/2023)

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- The Marine Licensing (Exempted Activities) (Amendment) Order 2019⁷.
 - Northern Ireland:
 - The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011⁸.
 - The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022⁹
 - Scotland:
 - The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011¹⁰;
 - The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011¹¹; and
 - The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012¹².
 - Wales:
 - The Marine Licensing (Exempted Activities) (Wales) Order 2011¹³
 - The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018¹⁴

See Figure 1 for a flow chart illustrating the legislative basis for the provision of Marine Licensing (Exempted Activities) Orders in the respective UK administrations.

⁷ The Marine Licensing (Exempted Activities) (Amendment) Order 2019 [online] Available at:

<http://www.legislation.gov.uk/uksi/2019/893/contents/made> (Accessed 27/11/2023)

⁸ The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011 [online] Available at:

<http://www.legislation.gov.uk/nisr/2011/78/made> (Accessed 27/11/2023)

⁹ The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022 [online] Available at:

<https://www.legislation.gov.uk/nisr/2022/68/made> (Accessed 27/11/2023)

¹⁰ The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011 [online] Available at:

<https://www.legislation.gov.uk/sdsi/2011/9780111012284/contents> (Accessed 27/11/2023)

¹¹ The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011 [online] Available at:

<http://www.legislation.gov.uk/ssi/2011/57/contents/made> (Accessed 27/11/2023)

¹² The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012 [online] Available at: <http://www.legislation.gov.uk/ssi/2012/25/contents/made> (Accessed 27/11/2023).

¹³ The Marine Licensing (Exempted Activities) (Wales) Order 2011 [online] Available at:

<https://www.legislation.gov.uk/wsi/2011/559/contents/made> (Accessed 27/11/2023)

¹⁴ The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018 [online] Available at:

<https://www.legislation.gov.uk/wsi/2018/724/contents/made> (Accessed 27/11/2023) – The purpose of this Order is primarily to address changes to the 'Waste Framework Directive' and does not make substantive changes to exempted activities.

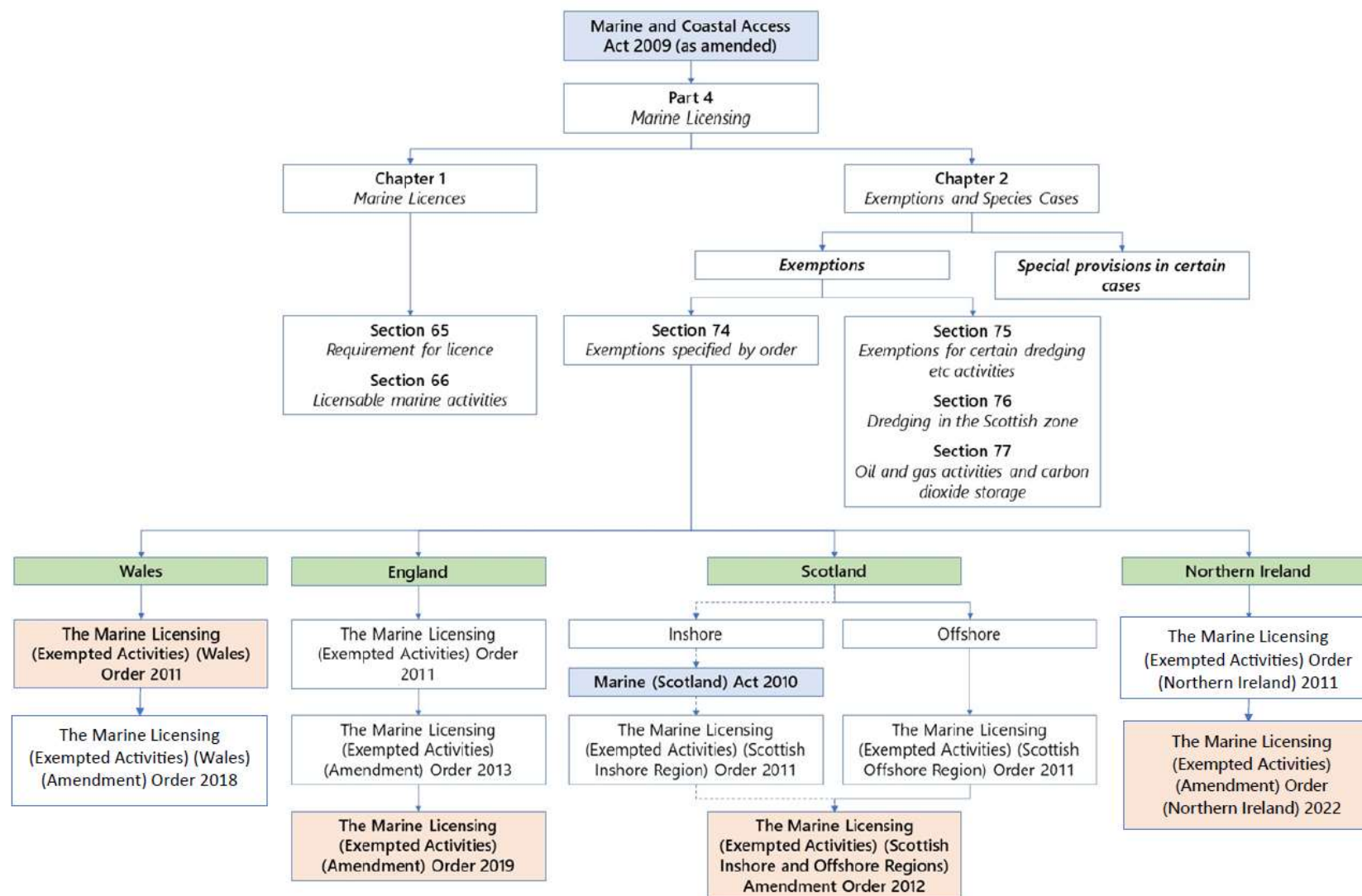


Figure 1 Marine Licensing (Exempted Activities) Orders in the UK

3.1.2 UK marine licensing authorities

Ministers maintain some powers with regards to marine licensing in the UK, but the main authorities responsible for licensing in the UK administrations are:

- The Marine Management Organisation (MMO), who is responsible for marine licensing in English inshore waters (between 0 and 12 nautical miles (NM)) and offshore waters (between 12 and 200 NM), and for Northern Ireland offshore waters (MMO, 2023).
- The Marine and Fisheries Division of the Department of Agriculture, Environment and Rural Affairs (DAERA) carry out licensing functions in Northern Ireland inshore waters (DAERA, 2023).
- Marine Directorate – Licensing Operations Team (MD-LOT) is the regulator responsible for determining marine licence applications on behalf of the Scottish Ministers in the Scottish inshore region under the Marine (Scotland) Act 2010, and in the Scottish offshore region under the Marine and Coastal Access Act 2009 (Scottish Government, 2023).
- Natural Resources Wales (NRW) cover Welsh inshore and offshore waters. The Marine Licensing Team determines marine licence applications acting on behalf of the Welsh Ministers, with technical advisors providing advice to the Marine Licensing Team in their capacity as the Statutory Nature Conservation Body (SNCB) for Welsh inshore waters (Welsh Government, 2023).

3.1.3 UK marine licensing approach and 'self-service' marine licences

Each UK administration categorises activities according to 'bands'. These 'bands' and their associated fees are set out by each administration in regulations. The fees and the number of bands vary between administrations. In England, the MMO classes a number of activities as low risk because they are sufficiently consistent in nature and extent. In specific circumstances these activities are not subject to the standard marine licensing process (MMO, 2018a). Instead, they might qualify for a self-service marine licence, which is a 'band 1' licence. These cost £50 and are instantly issued on payment.

Basic criteria are considered to inform whether self-service marine licensing is appropriate. These include:

- Duration of works – only activities which can be completed in the 12-month period following the issuing of the licence are suitable;
- Size of projects – self-service is intended for small scale low risk activities. Activities forming part of larger projects which require Environmental Impact Assessment (EIA) are not suitable; and
- Location - Activity locations should not exceed an area covering 10 square miles. If activities are proposed to be carried out at multiple locations, the area of each location combined must not be greater than 10 square miles and each location must be not more than 10 miles from the other (MMO, 2018a).

Examples of 'self-service' activities include deposits, such as burial at sea; minor removals, such as boreholes; construction activities, such as scaffolding; and non-navigational dredging, such as within a heritage designation or a wreck site (MMO, 2018b).

Self-service licences can have conditions specified within them and could therefore be considered similar to the application of exemptions. However, they offer greater flexibility to the licensing authority when compared to exemptions, as the details of each activity are not required to be set out in regulations (as is the case for exemptions). Given the focus of 'self-service' marine licences towards

low-risk activities, those identified of relevance to ORE site investigations or marine scientific surveys, have been considered further in section 4.3.

As well as a marine licence, other licences or permits may also be required to undertake an activity in the marine space, even if exempt from marine licence requirements. For example, a seabed survey licence or coastal survey licence will be required from The Crown Estate or Crown Estate Scotland in Scottish waters for survey activities that physically interact with the foreshore (including estuarine) or seabed under ownership of The Crown Estate (MMO, 2023). For some permits, such as Site of Special Scientific Interest (SSSI) consent from Natural England, these can be included in the marine licence issued, if Natural England are consulted on the application and do not object. In the Irish context, authorisations such as from the National Parks and Wildlife Service (NPWS) or a licence from the Underwater Archaeology Unit (UAU) may also be required.

3.1.4 Summary of key research points for the UK

A summary of key research points for the UK is shown in Figure 2

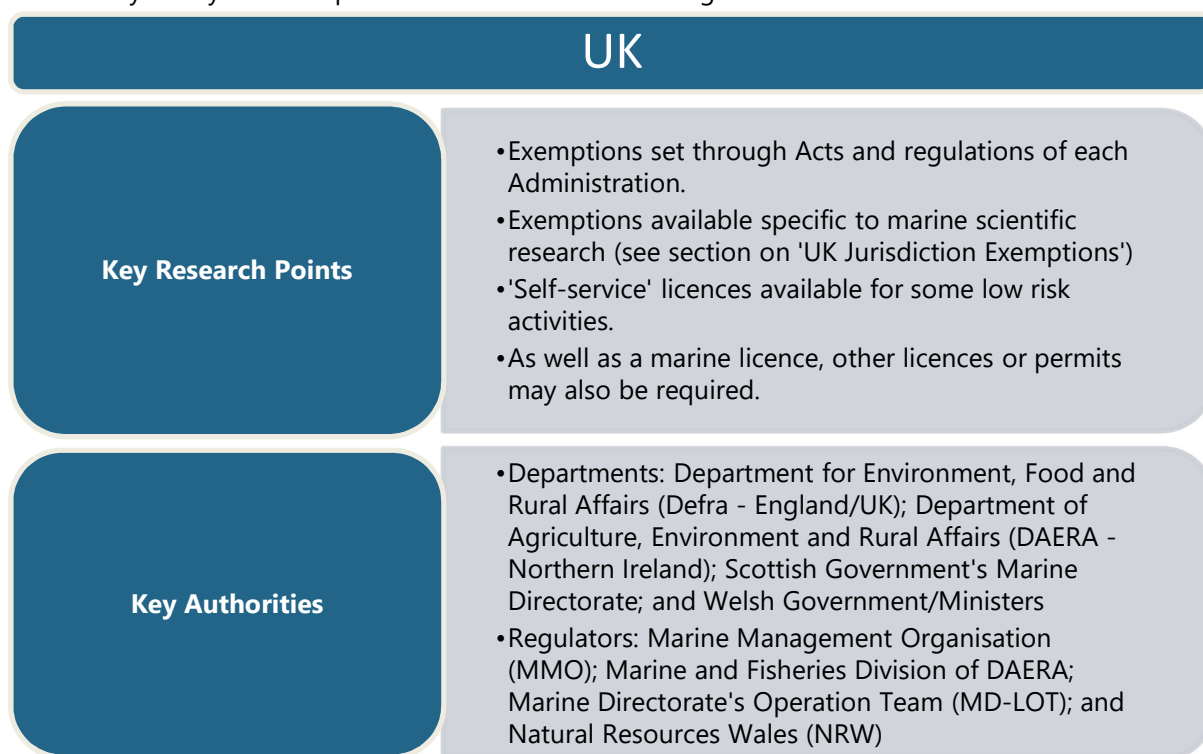


Figure 2 Summary of key research points for the UK

3.2 Australia

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)¹⁵ and its regulations¹⁶ are Australia's main national environmental legislation. The EPBC Act protects certain nationally significant (protected) animals, plants, habitats, or places (Australian Government, 2023a), also known as 'Matters of National Environmental Significance' (MNES). The EPBC covers nine protected matters, including 'Commonwealth marine areas'¹⁷ and the Great Barrier Reef Marine Park.

3.2.1 Assessment and approval of actions under the EPBC

If an action¹⁸ may have a significant impact on a MNES, it must be referred to the Minister, who will decide whether to approve it. In 2022-2023 there were 214 referral decisions made, of which 2 were categorised as 'science and research' and 56 were categorised as 'energy generation and supply (renewable)' (Australian Government, 2023g). Once a referral is made, the Minister for the Environment will then decide on whether or not the action is a 'controlled action'¹⁹. Any action that is decided to be a controlled action will then require further assessment and approval before it may proceed. In some cases, approval may not be required because a proponent will put in place measures to avoid impacts on a matter protected by the EPBC Act. For example, committing to carrying out the construction activities at a time that will avoid the breeding season of migratory birds, thereby avoiding significant disturbances to a protected species (Australian Government, 2010).

The EPBC allows for 'self-assessment' to determine whether a referral must be made to the Minister for a decision (Australian Government, 2023b). Once the self-assessment is completed, a copy must be kept showing why it was thought a referral was or wasn't needed. In this way the EPBC allows for actions to proceed without approval, but the onus is on the project proponent to ensure they are compliant with the law. Australian Government guidance for 'Offshore renewables environmental approvals' outlines that proponents should consider proposed activities in all phases of the project including site selection (e.g., geophysical and geotechnical surveys), feasibility, construction, operation and decommissioning of their proposed commercial project (Australian Government, 2022).

The Minister can exempt some actions from requirements such as:

- completing an environmental assessment
- seeking approval for that action.

The Minister can only make this decision if it's in the national interest. They might consider reasons such as defence, security, or an emergency declaration (Australian Government, 2023c).

Recognising the dual role of Ministers and States in some consenting, the EPBC allows Ministers to make 'declarations' in writing that actions in a specified class of actions do not require assessment or approval under the EPBC (Chapter 3 of EPBC Act). These bilateral agreements allow states and territories to assess and approve some projects (Australian Government, 2023d). Declarations can be made, for example, with states and territories to remove duplication of environmental assessment and consenting

¹⁵ Environment Protection and Biodiversity Conservation Act 1999 ('EPBC Act') [online] Available at: <https://www.legislation.gov.au/Details/C2014C00506> (Accessed 27/11/2023)

¹⁶ Environment Protection and Biodiversity Conservation Regulations 2000 [online] Available at: <https://www.legislation.gov.au/F2000B00190/latest/versions> (Accessed 10/01/2024)

¹⁷ The Commonwealth marine area covers any waters of the sea inside the seaward boundaries of the exclusive economic zone of Australia. Some exceptions apply, and the full definition can be found in Subdivision F, section 24 of the EPBC Act.

¹⁸ an 'action' includes; a project, development, undertaking, activity or series of activities, or an alternative to any of these things.

¹⁹ A 'controlled action' is an action that would be prohibited without approval. A full definition can be found in section 67 of the EPBC Act.

processes, when a suitable assessment has been undertaken for another purpose, therefore helping the creation of a 'one stop shop' policy for single approval processes. The Australian Government has assessment bilateral agreements with all states and territories (Australian Government, 2023e).

3.2.2 Marine Park authorisations

The Australian Government are responsible for managing activities in Marine Parks through the use of both permits and licences.

Permits

Certain activities undertaken in the Marine Parks need to be authorised by the Director of National Parks in the form of a permit (Australian Government, 2023f). Permits are only authorised if the activities are assessed and considered as acceptable against the decision making criteria in the management plans (part 4) by the Director of National Parks. These activities include:

- Research and monitoring (non-commercial);
- Installation of Fish Aggregating Devices (FADs);
- Camping (islands and cays);
- Recreational drone use; and
- Recreational fishing (Recreational Use Zone of Lord Howe Marine Park only (Elizabeth Reef)).

Without a permit, research cannot be undertaken in Commonwealth Marine Protected Area.

Licences

A licence is a negotiated document between the Director of National Parks and an applicant, authorising the use of a marine park for a specific purpose. Licences are required for all commercial activities in Australian Marine Parks, are transferable and may be granted for longer terms than permits. The following commercial activities require an authorisation in the form of a licence:

- Commercial tourism;
- Commercial media;
- Commercial research and monitoring;
- Structures and works; and
- Aquaculture/pearling.

3.2.3 Marine seismic surveys

Marine seismic surveys are managed by The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)²⁰. Laws and regulations regarding multibeam sonar acquisition in State and Territory waters vary slightly across jurisdictions. Multibeam sonar acquisition is generally not restricted or subject to permit requirements in State and Territory waters, however, permits are required for any survey work that is planned to be undertaken in Marine Protected Areas (Aus Seabed, 2023) (see 'Permits' above).

3.2.4 Summary of key research points for Australia

A summary of key research points for Australia is shown in Figure 3

²⁰ Australia's offshore energy regulator (NOPSEMA): <https://www.nopsema.gov.au/offshore-industry/environmental-management/marine-seismic-surveys>

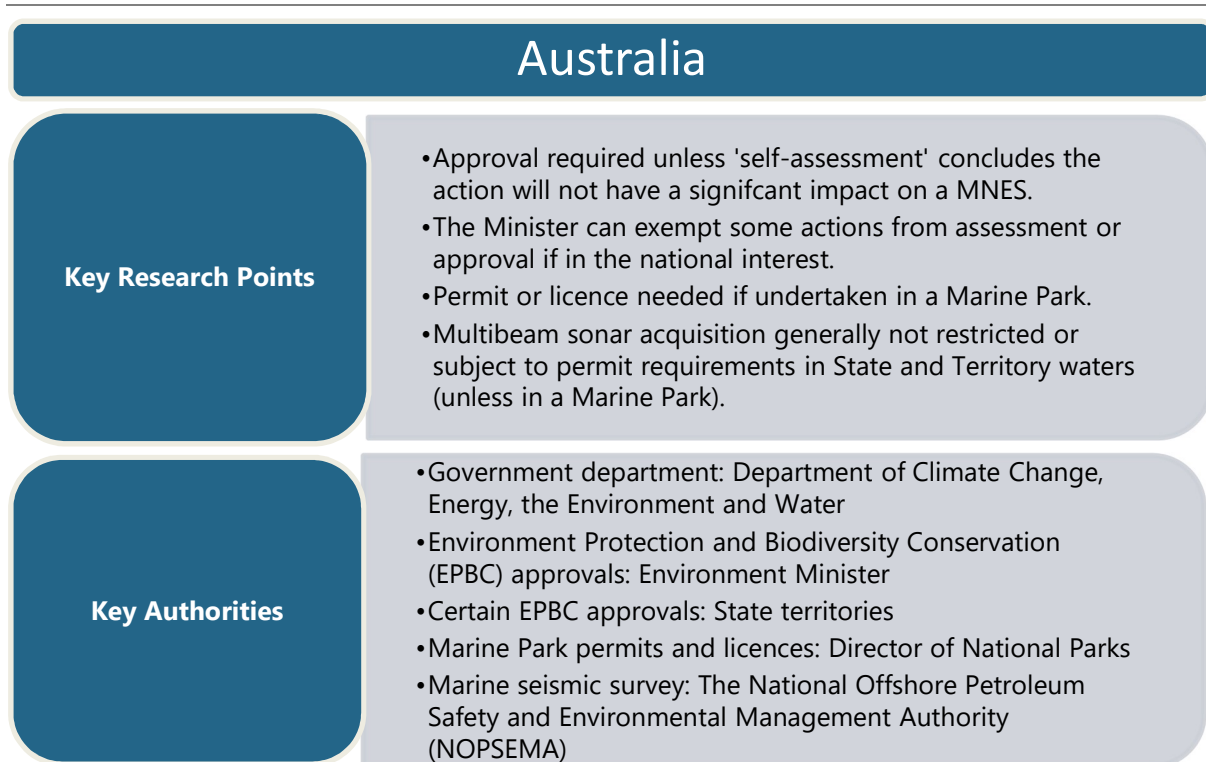


Figure 3 Summary of key research points for Australia

3.3 Estonia

The Ministry of Finance, Department of Spatial Planning is the Marine Spatial Planning (MSP) authority. It is in charge of the preparation and implementation of the national Marine Spatial Plan which was adopted in 2022. The plan is a comprehensive plan which also includes measures relating to the development of Offshore Wind Energy (OWE). The strategy/plan is subject to SEA.

In Estonia, EIA is the principal tool used as part of the consenting process. To proceed with development, a developer must obtain a 'superficies licence' which is delivered by the Consumer Protection and Technical Supervision Agency. The Building Code regulates the superficies licences, specifically sub chapter 3.

Once the decision to initiate the EIA has been taken, the lead expert or an expert group under supervision of the leading expert, will jointly with the developer prepare an environmental impact assessment programme which sets out... '6) a description of the methods of assessment used upon environmental assessment, including information on surveys required for environmental impact assessment.' (para 113 of the Building Code).

This has been interpreted to mean that the scope and type of site investigation and/or marine scientific surveys required is agreed as part of the EIA between the lead expert and the developer. Estonia announced its intention to simplify permitting for renewable energy projects. To date, no further details were made available.

A summary of key research points for Estonia is shown in Figure 4.

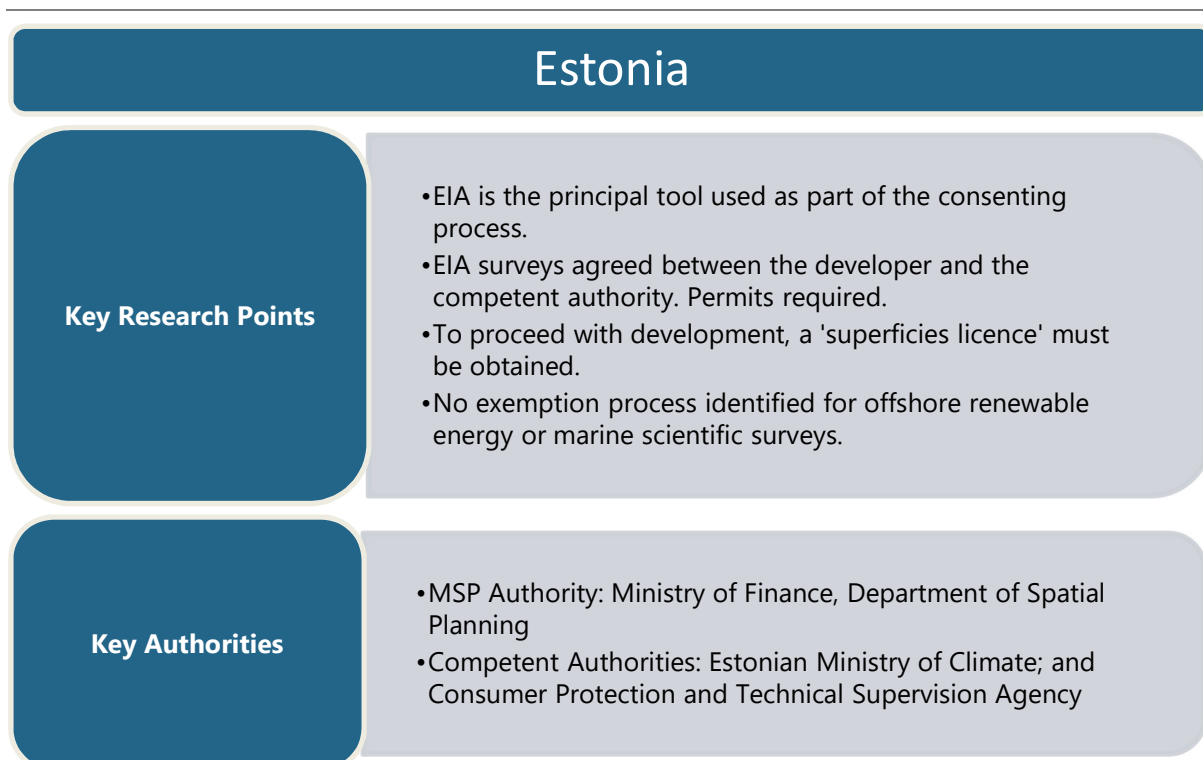


Figure 4 Summary of key research points for Estonia

3.4 New Zealand

New Zealand has a fairly comparable marine licensing system to the UK jurisdictions. The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012²¹ establishes a system for marine consents and the ability for certain activities and consents to become 'permitted activities' through the setting of regulations. Certain conditions can also be set in the regulations. The Act allows the Minister for the Environment to classify activities as:

- Permitted: The activity can be undertaken provided the operator meets conditions specified in regulations;
- Non-notified discretionary: Activities can be undertaken if applicants obtain a marine consent from the Environmental Protection Authority (EPA). The EPA may grant or decline consent and place conditions on the consent. The consent application will not be publicly notified;
- Discretionary: Activities can be undertaken if applicants obtain a marine consent from the relevant marine consent authority (EPA, or Board of Inquiry from 1 June 2017). The marine consent authority may decline or grant a consent and place conditions on the consent. The consent application will be publicly notified, submissions will be invited, and hearings will be held if requested by any party including submitters; or
- Prohibited: The activity may not be undertaken (Ministry for the Environment, 2021).

The classification chosen depends on a number of considerations outlined in section 33 of the Act, including the environmental effects of the activity, the importance of protecting rare and vulnerable ecosystems, and the economic benefit to New Zealand of an activity.

²¹ The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 [online] Available at: <https://www.legislation.govt.nz/act/public/2012/0072/latest/DLM3955428.html> (Accessed 27/11/2023)

Key legislation setting out 'permitted activities' includes:

- Part 3A of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012²²; and
- Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013²³

The licensing authority in New Zealand is the Environment Protection Authority (EPA). Similar to the UK jurisdictions, the setting of fees and charges for the EPA is also specified in regulations²⁴.

A summary of key research points for New Zealand is shown in Figure 5.

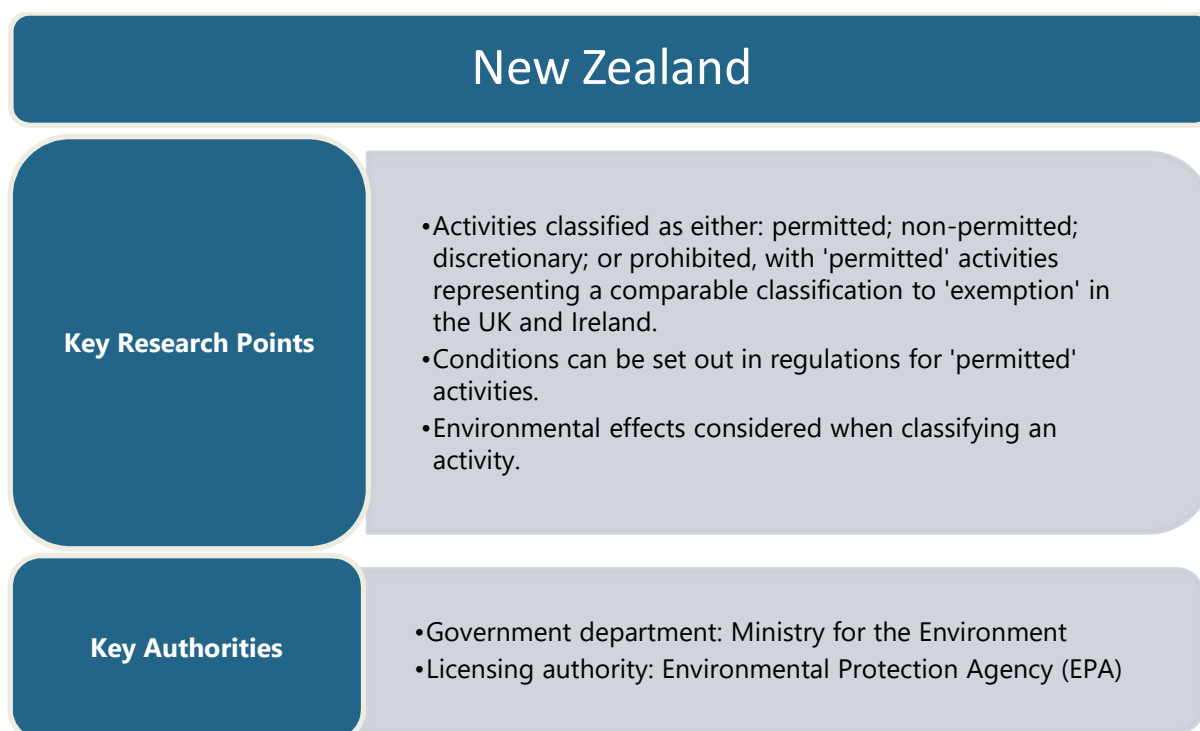


Figure 5 Summary of key research points for New Zealand

3.5 Spain

Spain is divided into five marine subdivisions: North Atlantic, South Atlantic, Strait and Alboran, Levantine-Balearic, and Canary Islands. Royal Decree 363/2017, of 8 April²⁵, establishes that five Maritime Spatial Plans (PSOEMs) must be drawn up, one for each of these marine subdivisions. Among other activities, the PSOEMs consider the development of renewable marine energies. The activities related to experimentation of infrastructure or pre-commercial projects for wind and other marine energy (specific types of marine energy are not specified) have been preferably identified in the high

²² Part 3A of The Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 [online] Available at: <https://www.legislation.govt.nz/act/public/2012/0072/latest/DLM3956184.html> (Accessed 27/11/2023)

²³ Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 [online] Available at: <https://www.legislation.govt.nz/regulation/public/2013/0283/latest/DLM5270601.html> (Accessed 27/11/2023)

²⁴ Exclusive Economic Zone and Continental Shelf (Fees and Charges) Regulations 2013 [online] Available at: <https://www.legislation.govt.nz/regulation/public/2013/0284/latest/whole.html> (Accessed 27/11/2023)

²⁵ Royal Decree 363/2017, of April 8, establishing a framework for maritime spatial planning [online] Available at: <https://www.boe.es/buscar/doc.php?id=BOE-A-2017-3950> (Accessed 27/11/2023)

potential use areas of the PSOEMs for research, development, and innovation, with no specific polygons identified in the PSOEMs for marine energy projects (Tethys, 2022).

Regulatory responsibility for marine renewable energy projects falls to National agencies:

- Licensing power generation activity: General State Administration and Directorate General for Energy Policy and Mines of the current Ministry for the Ecological Transition and Demographic Challenge (MITERD);
- Licensing for private occupation of marine space: MITERD, through the Directorate General for Sustainability of the Coast and the Sea. In the case of occupation of the public port domain, the competent Port Authority. Coastal Demarcation Departments are representatives in each coastal province and Autonomous Community;
- Environmental Impact Assessment: MITERD, through the Directorate General for Environmental Quality and Assessment; and
- Compatibility with the strategies for marine environment protection: MITERD (Tethys, 2022).

Royal Decree 79/2019²⁶, develops the procedure for processing 'compatibility reports' with the Marine Strategies, to be issued by MITERD. The compatibility report will analyse and rule on the possible effects of the action on the environmental objectives of the corresponding marine strategy. Given that the authorisation or approval of the actions included in the scope of application of this royal decree must have a favourable report from MITERD, the compatibility report is mandatory and binding (Miteco, 2023). MITERD may rule the action is:

- Favourable, if the implementation of the action is compatible with the marine strategy; or
- Unfavourable, if the cases provided for in Annex III²⁷ do not apply or if the actions to be carried out violate the environmental objectives of the relevant marine strategy set out in Annex II²⁷, so that the implementation of the action is not compatible with the marine strategy; or
- Favourable with conditions, if the execution of the action is compatible with the corresponding marine strategy but must be carried out in compliance with certain conditions in the execution of the same. In such a case, the report shall lay down the conditions necessary for the action to be fully compatible with the content of the strategy.

Annex I of Royal Decree 79/2019 sets out the actions that require either the execution of works or installations in marine waters, their bed or subsoil, or the placement or deposit of materials on the seabed, will require a compatibility report with marine strategies. These actions are wide ranging and include (amongst others): exploratory drilling and exploitation, marine port infrastructures, dredging and dumping of dredged material into the sea, renewable energies at sea, economic activity of placing funerary urns at sea, and beacons to indicate ecotourism areas (Miteco, 2023).

Royal Decree 79/2019 was amended by Royal Decree 2022/29²⁸ to adapt the compatibility reports to the environmental objectives of the second cycle of marine strategies. The royal decrees set out the environmental objectives (subject to periodic review) and how activities may relate to these in the form of a matrix. Some activities are considered to be low risk enough to not require a compatibility report' and instead a 'responsible declaration' is made.

A summary of key research points for Spain is shown in Figure 6.

²⁶ Royal Decree 79/2019, of February 22, which regulates the compatibility report and establishes the compatibility criteria with marine strategies [online] Available at: https://www.boe.es/diario_boe/txt.php?id=BOE-A-2019-2557 (Accessed 27/11/2023)

²⁷ of Royal Decree 79/2019, of February 22

²⁸ Royal Decree 218/2022, of March 29, 79, amending Royal Decree 2019/22, of February, regulating the compatibility report and establishing the compatibility criteria with marine strategies. [online] Available at: <https://www.boe.es/eli/es/rd/2022/03/29/218> (Accessed 27/11/2023)

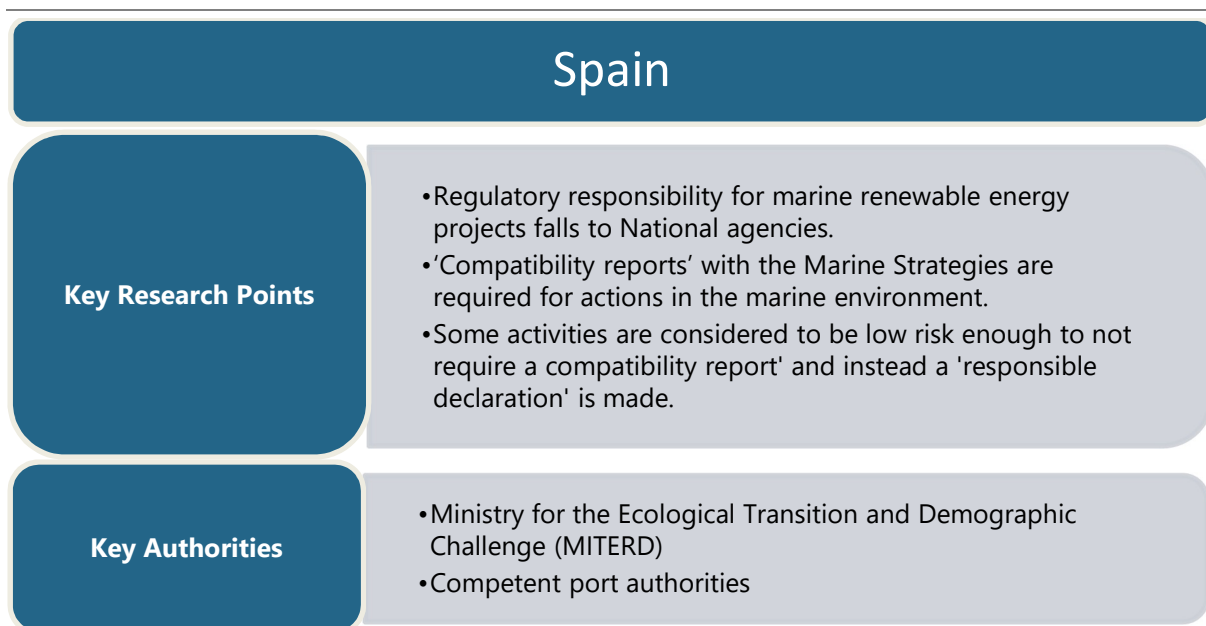


Figure 6 Summary of key research points for Spain

3.6 Sweden

There are several MSP authorities in Sweden. Swedish territorial waters are split into two zones: public waters which fall under the remit of the Legal, Financial and Administrative Service Agency; and private waters are governed by the Real Property Formation Act. Municipalities undertake spatial planning for the territorial sea. The Swedish Government rules over the EEZ. There is overlap between the national plan and the local plans in most of the territorial sea.

In terms of legislation, there is a number of relevant acts which are of relevance:

- the Swedish Environmental Code 1998, which regulates cross cutting environmental issues;
- the National Maritime Policy Bill;
- the Planning and Building Act;
- the Swedish Economic Zone Act 1992; and
- the Fishery Act 1982.

Similar to Phase 1 projects in Ireland, Sweden currently operates a market-based system for offshore renewable energy, meaning developers select their own sites and then apply for consent to the Government. In relation to offshore renewable energy, there are no exemptions available for undertaking pre-planning surveys such as geotechnical surveys as the rights are exclusively vested into the Swedish State. For offshore renewable energy development, a developer must obtain an environmental permit in accordance with Chapter 9 of the Environmental Code and a permit for water activities under Chapter 11. As two permits are required, the competent authority is the Land and Environmental Court. These permits are subject to the procedure of environmental impact assessment (EIA). Unless the prospective developer owns the marine zone where he/she intends to build, then a third consent is required, this time focused on property interest. If the development is to be located in private waters, then approval must be obtained through agreement with the owner(s). If located in public waters, then approval must be obtained from the Legal, Financial and Administrative Services Agency (Sw. Kammarkollegiet).

As the Swedish marine territory is regulated by two Acts, depending on the location, either the Continental Shelf Ordinance (1966:315) or the Act on the Swedish Economic Zone, promulgated on 3 December 1993, will apply. It appears there is a limited number of exemptions and legislation is clear that, when the end purpose is to use resources, then no exemption would apply. However, notably, exemptions apply in relation to marine scientific research, which may or may not require a notification or a licence depending on the location and who undertakes it.

A summary of key research points for Sweden is shown in Figure 7.

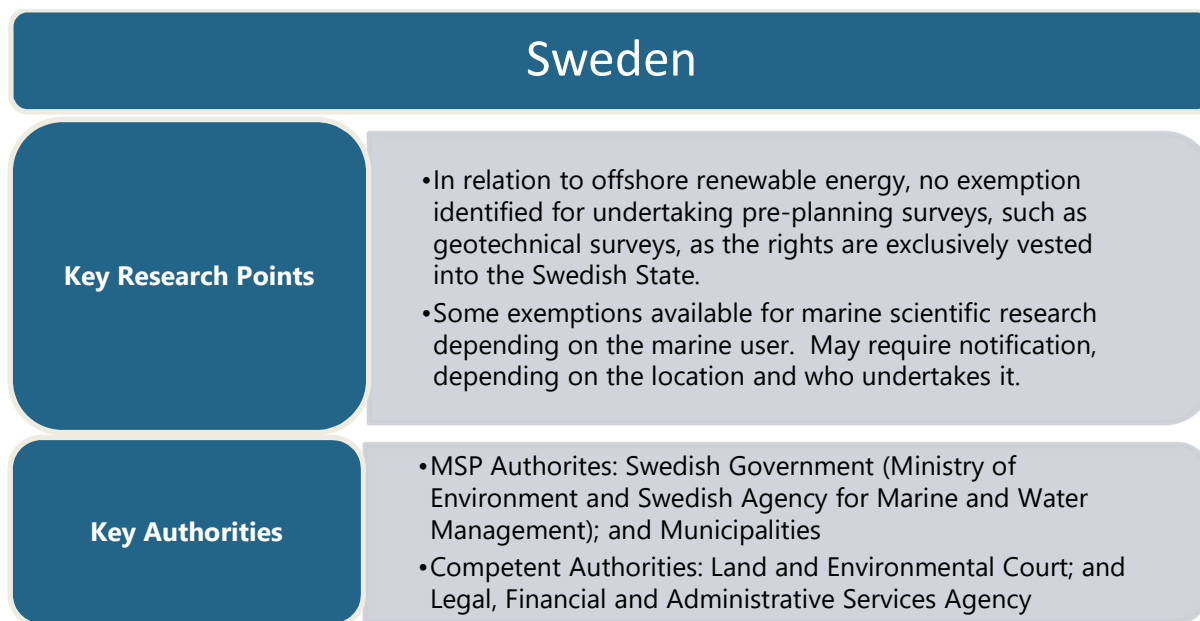


Figure 7 Summary of key research points for Sweden

4 UK Jurisdiction Exemptions

An analysis was undertaken of all exemptions in place in the UK, as outlined in the legislation identified in section 3.1.1. These exemptions were then categorised in the following way:

- Primary relevance: exemption is directly relevant to site investigation or marine scientific surveys;
- Wider relevance: exemption is not directly relevant, but is of wider relevance (for example, it may help to facilitate site investigations or marine scientific surveys); or
- Not applicable: exemption is not of relevance to site investigations or marine scientific surveys.

A table showing all exemptions identified, the jurisdictions they are applicable to, and the assigned categories is shown in Table 1. It should be noted that the exact wording of the exemption may vary between the UK jurisdictions. The specific wording of each exemption of primary relevance is provided in Appendix B.

Table 1 UK jurisdiction exemptions and their categorisation with regards to relevant to site investigations and marine scientific surveys

Exemption	Categorisation	England	Northern Ireland	Scotland	Wales
Diver trails within restricted areas	Primary	Y	Y	N	Y
Fishing operations	Primary	Y	Y	Y	Y
Launching of vessels	Primary	Y	Y	Y	Y
Moorings and aids to navigation – deposits and construction	Primary	Y	Y	Y	Y
Samples for testing or analysis	Primary	Y	Y	Y	N
Scientific instruments	Primary	Y	Y	Y	Y
Temporary markers	Primary	Y	Y	N	N
Pontoons	Wider	Y	Not as standalone	Not as standalone	N
Rights of foreign vessels etc under international law.	Wider	Y	Y	Y	Y
Accidental Deposits - Removal Activity	Wider	Y	Y	Y	N
Activities carried on outside the Scottish Marine Area	Wider	N	N	Y	N
Cables and pipeline – authorised emergency inspection and repair	Wider	Y	Y	Y	Y
Deposit and use of flares etc. – safety purposes and training	Wider	Y	Y	Y	Y
Deposit of equipment to control, contain or recover oil etc.	Wider	Y	Y	Y	Y
Deposit of marine chemical and marine oil treatment substances, etc.	Wider	Y	Y	Y	Y
Deposits in the course of normal navigation or maintenance	Wider	Y	Y	Y	Y
Fire-fighting	Wider	Y	Y	Y	Y
Lay or maintain cables for the transfer of electricity or data	Wider	Y	N	N	N
Litter (Recovery of marine litter)	Wider	Y	N	N	N
Markers for European marine sites and marine conservation	Wider	Y	Y	N	Y
Removal of obstruction or danger to navigation	Wider	Y	Y	Y	Y
Salvage activities	Wider	Y	Y	Y	Y
Shellfish propagation and cultivation	Wider	Y	Y	Y	Y
Use of vehicles or vessels to remove marine litter and debris	Wider	Y	Y	N	Y
Use of vehicles to remove litter or seaweed or dead animal from beaches from the beaches and intertidal areas	Wider	Y	Y	Y	N

Exemption	Categorisation	England	Northern Ireland	Scotland	Wales
Activities carried on in the Scottish inshore region	Not applicable	Y	N	Y	N
Activities falling within Part 6 of the Merchant Shipping Act 1995	Not applicable	Y	Y	Y	Y
Activities relating to disposal or recovery of waste	Not applicable	Y	Y	Y	Y
Air accident investigation	Not applicable	Y	Y	Y	Y
Bored tunnels	Not applicable	Y	Y	Y	Y
Coastguard activities	Not applicable	Y	Y	N	Y
Defence activities	Not applicable	Y	N	N	N
Deposit of a substance arising from the cleaning of vessels	Not applicable	Y	Y	N	N
Deposits in the course of aggregate or mineral dredging	Not applicable	Y	Y	Y	Y
Discharge etc of offshore chemicals and oil	Not applicable	N	Y	N	N
Dismantling of ships	Not applicable	Y	Y	Y	Y
Dry dock (both deposit and removal)	Not applicable	N	Y	N	N
Emergency works in response to flood or flood risk	Not applicable	Y	Y	Y	Y
Harbour dredging	Not applicable	Y	N	Y	Y
Licensed deep sea mining	Not applicable	Y	N	N	N
Loading of a vehicle or vessel etc for incineration outside inshore areas	Not applicable	N	N	Covered under activities outside the Scottish marine area	Y
Maintenance of coast protection, drainage and flood defence works	Not applicable	Y	Y	Y	Y
Maintenance of harbour works	Not applicable	Y	Y	Y	Y
Navigational dredging	Not applicable	Y	N	N	N
Oil and gas activities and carbon dioxide storage	Not applicable	Y	N	Y	N
Safety directions under the Merchant Shipping Act 1995	Not applicable	Y	Y	Y	Y
Schedules works under the Crossrail Act 2008	Not applicable	Y	N	N	N

4.1 Exemptions of primary relevance

Exemptions identified of primary relevance in the UK included:

- Diver trails within restricted areas;
- Fishing operations;
- Launching of vessels;
- Moorings and aids to navigation – deposits and construction;
- Samples for testing or analysis;
- Scientific instruments; and
- Temporary markers.

The comparability of the wording of each of the above exemptions across the UK jurisdictions was analysed. Analysis was undertaken against The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022²⁹, as this represented the latest legislation for exempted activities in the UK. Definitions used to compare The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022 against the respective Orders used in other UK jurisdictions is provided in Table 2. Full wording of exemptions is provided in Appendix B.

It is strongly recommended that the relevant Orders are also examined, to fully understand the cross-references in the legislation and therefore an exemption's specific meaning.

Table 2 Definitions used in comparative analysis of exempted activities in Northern Ireland and other UK jurisdictions

Comparative Analysis	Definition
Verbatim	The marine licence exemption in the Order is worded identically to The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022, or there are very minor changes in wording or punctuation, with no material difference in meaning/interpretation.
No material difference	There are differences in wording or structure of the marine licence exemption in the Order compared with The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022, but there is no material difference in meaning/interpretation.
Material difference	There are differences in the wording or structure of the marine licence exemption compared with The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022 and there is a material difference in meaning/ interpretation.
No equivalent	There is no equivalent marine licence exemption included in the Order compared with The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022.

²⁹ The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022 [online] Available at: <https://www.legislation.gov.uk/nisr/2022/68/made> (Accessed 27/11/2023)

The results of this comparative analysis are shown in Table 3. This shows that for a large number of the exemptions there is a material difference in their wording. These are analysed further in sections 4.1.1 to 4.1.7. Generally, a greater proportion of correlation was observed between those jurisdictions with more recent amendments, i.e., Northern Ireland (2022 latest amendment) and England (2019 latest amendment). The most recent amendments for Scotland and Wales were in 2012 and 2018 respectively. However, the 2018 Welsh Order did not make substantive changes to the original 2011 Order. There has therefore been greater divergence between the Scotland and Wales exemptions legislation, compared to England and Northern Ireland exemptions legislation.

Table 3 Comparison of marine licence exempted activities in Northern Ireland against England, Scotland, and Wales

Northern Ireland Exemption	England	Scotland	Wales
Diver trails within restricted areas	No material difference	No equivalent	Material difference
Fishing operations	Material difference	Material difference	Material difference
Launching of vessels etc	Material difference	Material difference	Material difference
Moorings and aids to navigation	Material difference	Material difference	Material difference
Samples for testing or analysis	Verbatim	Material difference	No equivalent
Scientific instruments etc	No material difference	Material difference	Material difference
Temporary markers	No material difference	No equivalent	No equivalent
Key	No equivalent		
	Verbatim		
	No material difference		
	Material difference		

4.1.1 Diver trails within restricted areas

This exemption primarily relates to the deposit or removal activity carried out for placing, securing or removing signage (or other identifying markers) relating to a wreck within an area designated as a restricted area. This may be relevant to site investigations or marine scientific surveys that are archaeological in nature.

This exemption was in place across three of the UK jurisdictions (England, Northern Ireland, and Wales). The primary difference in the exemption between the jurisdictions is a lack of reference in the Welsh Orders to an area designated as either:

- a monument designated as a scheduled monument under Article 3 of the Historic Monuments and Archaeological Objects (Northern Ireland) 1995;
- an area designated as a controlled site under section 1(2)(b) of the Protection of Military Remains Act 1986; or
- a monument designated as a scheduled monument under section 1 of the Ancient Monuments and Archaeological Areas Act 1979(10).

The inclusion of these designations came in through the more recent England and Northern Ireland amendment orders. There are no conditions placed upon this exemption. No notifications are required for this exemption to be used.



Figure 8 Overview of the exemption - Diver Trails within Restricted Areas

4.1.2 Fishing operations

This exemption is in place across all the four UK jurisdictions and covers the deposit or removal of fishing gear. This may be relevant to site investigations or marine scientific surveys to understand fish populations in an area, such as through the use of trawls, gill and trammel nets, pots, fish trap surveys, dredge samplers, and benthic sledges.

Differences in the exemption between the jurisdictions relates to:

- Inclusion in the 2022 Northern Ireland Order to make clear that the exemption only applies provided that the fish or other object has not been landed before being returned to the sea.
- The inclusion of 'propagation and cultivation of fish (deposits, removal activity and dredging activity)' within the 2011 Scotland Order.

There are no conditions placed upon the exemptions, but exclusions exist, such as the exemption does not apply to a deposit of fishing gear made for the purpose of disposal, for the purpose of creating, altering or maintaining an artificial reef, or if it is likely to cause obstruction or danger to navigation. No notifications are required for this exemption to be used.

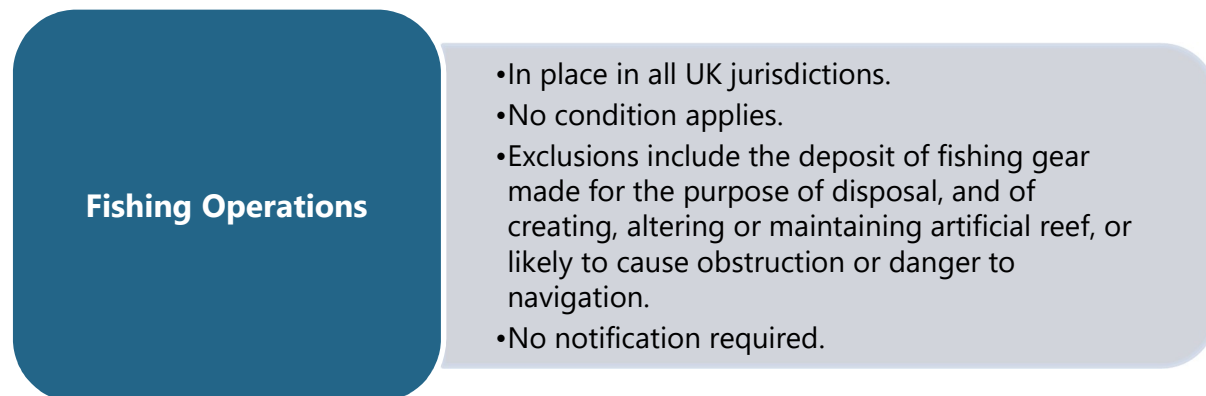


Figure 9 Overview of the exemption – Fishing Operations

4.1.3 Launching of vessels etc

This exemption is in place across all the four UK jurisdictions and covers deposits in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container. Whilst this exemption has a very broad application, it will be relevant to any site investigation or marine scientific survey that requires the use of a vehicle being launched.

The wording of the exemption is verbatim between England, Scotland, and Wales. The material difference in wording with Northern Ireland is due to inclusion of wording in the Northern Ireland 2022 Order to also capture deposits of substances as a result of cleaning vessels.

There are no conditions on this exemption, with the exception of deposits resulting from the cleaning of vessels. This part of the exemption in the Northern Ireland 2022 Order requires the activity is undertaken by hand using specific materials, such as a soft cloth. No notifications are required for this exemption to be used.



Figure 10 Overview of the exemption – Launching of Vessels

4.1.4 Moorings and aids to navigation

This exemption is in place across all the four UK jurisdictions and covers deposits and removal activities for moorings and aids to navigation, namely: a pile mooring, swinging mooring, trot mooring or aid to navigation. Pontoons are explicitly excluded. The exemption also only applies to bodies such as:

- a harbour authority;
- a lighthouse authority;
- any other person, where the activity is carried on in accordance with a consent required from, and granted by, any such authority (NB: exact wording can differ between the Orders).

Key differences between the UK jurisdictions relates to:

- Inclusion in the 2022 Northern Ireland Order of markers for European marine sites and marine conservation zones. These are included in other jurisdictions (e.g., England), but as a separately listed activity.
- Inclusion in the 2013 England Order of the condition that “... *notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on.*”

Whilst not directly relevant to a specific site investigation technique or marine scientific survey, this exemption may be of relevance where there is a need to mark an area for navigational purposes whilst a site investigation or marine survey is underway, or if a mooring is required to be put in place for monitoring equipment.



Figure 11 Overview of the exemption – Moorings and Aids to Navigation

4.1.5 Samples for testing or analysis

The exemption is in place across three of the UK jurisdictions (England, Northern Ireland, and Scotland). This exemption applies to a removal activity carried on for the purpose of taking of a sample of any material for testing or analysis, or a removal activity which is carried for the purpose of sediment sampling. The exemption is restricted to sediment sampling in Scotland, but for England and Northern Ireland it relates to ‘any material’. This is the material difference between the exemptions. The exemption first came into effect in Scotland through the 2012 Orders, followed by England in 2013, and Northern Ireland in 2022. The reference to ‘any material’ therefore represents the latest wording across the UK jurisdictions.

All three jurisdictions have in place a condition that notice of the intention to carry on the removal activity must be given to the licensing authority/Minister before the removal activity is carried on (the specific body to notify varies between jurisdictions).

This exemption also has a number of ‘safeguards’ in place on it. These include (amongst others) the activity not being exempt if:

- The volume of material removed exceeds 1 cubic metre;
- The removal activity causes, or is likely to cause, obstruction or danger to navigation; or
- If it is likely to have a significant effect on a protected area, such as a Marine Protected Area (MPA), Marine Conservation Zone (MCZ), European site, or Ramsar site (NB: the exact wording varies for each designation depending on its underpinning legislation – the wording in Appendix B should therefore also be viewed for details).

This exemption can have potentially quite broad application and may be relevant to site investigations or marine scientific surveys such as boreholes, coring, grab samplers, downhole hammer sampling, dive surveys (where a sample is taken), intertidal surveys, and water sampling.

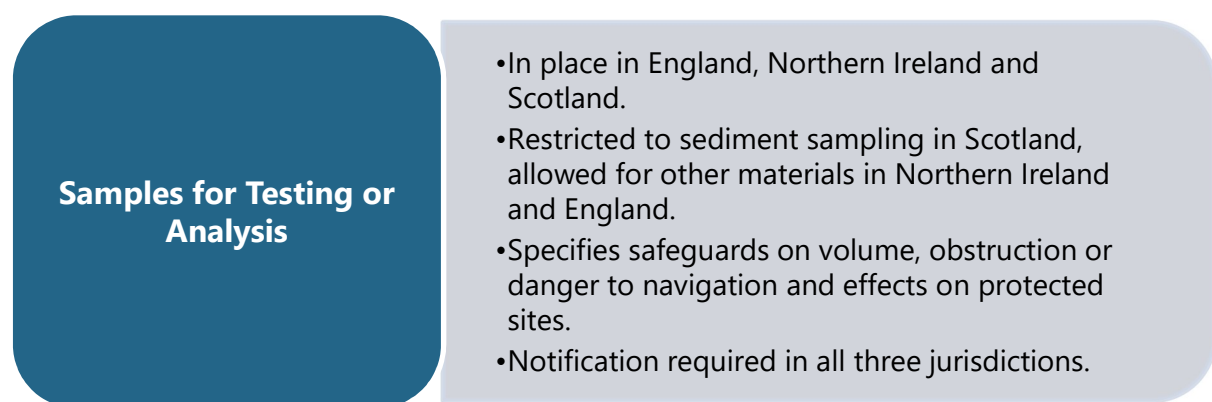


Figure 12 Overview of the exemption – Samples for Testing or Analysis

4.1.6 Scientific instruments

This exemption is in place across all four UK jurisdictions, with no material difference between the wording for Orders in England and Northern Ireland. The exemption covers the deposit (and removal) of any scientific equipment or associated equipment in connection with any scientific experiment or survey, and the deposit of any reagent or tracer. It therefore has potentially a very broad application across site investigation techniques and marine scientific surveys.

This exemption has a number of ‘safeguards’ in place on it. These include:

- Any reagent or tracer must be approved by the licensing authority;
- The licensing authority may place conditions on the approval;
- Notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on;
- The deposit cannot be made for the purpose of disposal;
- It cannot apply if the deposit causes or is likely to cause obstruction or danger to navigation;
- It cannot apply if it is likely to have a significant effect on a protected area, such as a Marine Protected Area (MPA), Marine Conservation Zone (MCZ), European site, or Ramsar site (NB: the exact wording varies for each designation depending on its underpinning legislation – the wording in Appendix B should therefore also be viewed for details).

Material differences between the Orders include:

- Both Northern Ireland and England have in place greater detail regarding obstruction or danger to navigation stating that *“where any such deposit is tethered to the seabed or reduces navigational clearance by more than 5% by reference to Chart Datum”*. This addition was made in the Northern Ireland 2022 Order and the England 2019 Order, and therefore represents the latest wording across the UK jurisdictions.
- The Scotland 2012 Order has in place reference to *“Accidental deposits – removal activity”* which extends the exemption to the removal activity carried on for the purpose of removing any object from the seabed which has been accidentally deposited there. The Northern Ireland 2022 Order has a similar exemption, but this is captured separately from ‘scientific instruments’.



Figure 13 Overview of the exemption – Scientific Instruments

4.1.7 Temporary markers

This exemption enables the placing of a marker without the need for a marine licence if the marker will be removed within 24 hours. It also enables the placing of a marker for more than 24 hours, but removed within 28 days, but the licensing authority must be informed of the intention to carry out the activity beforehand.

This exemption is in place for two of the four UK jurisdictions (England and Northern Ireland). There is no equivalent exemption for Scotland or Wales. The exemption came into effect through the 2013 and 2019 England Orders and the 2022 Northern Ireland Order, and therefore represents the latest wording across the UK jurisdictions.

As well as the requirement for notification to the licensing authority (when a marker will be in place for greater than 24 hours), this exemption has other ‘safeguards’ in place on it. These include:

- It cannot apply if the deposit causes or is likely to cause obstruction or danger to navigation;
- It cannot apply if it is likely to have a significant effect on a protected area, such as a Marine Conservation Zone (MCZ), European site, or Ramsar site (NB: the exact wording varies for each designation depending on its underpinning legislation – the wording in Appendix B should therefore also be viewed for details).

This exemption in particular will be relevant to dive surveys, for example through the placing of a shot line.

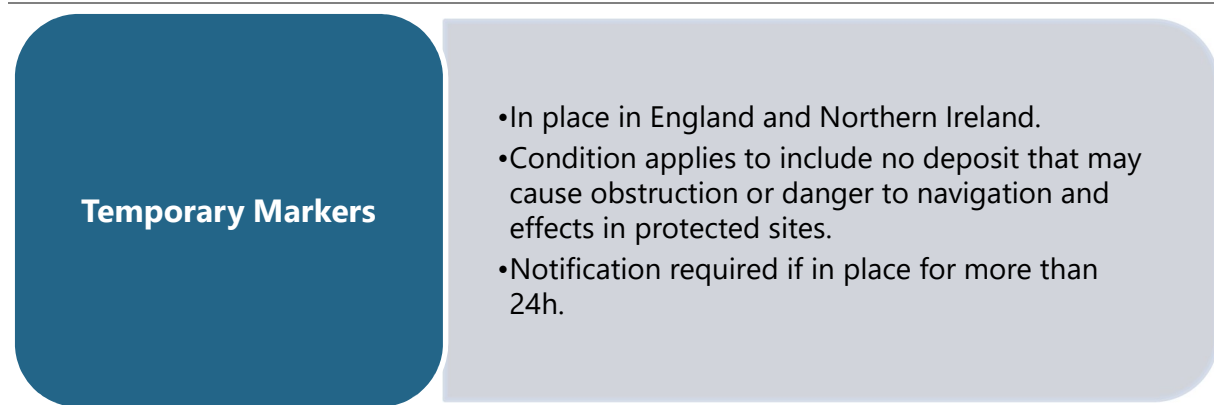


Figure 14 Overview of the exemption – Temporary Markers

4.2 Exemptions of wider relevance

Eighteen exemptions have been identified which are of wider relevance to site investigation activities or marine scientific surveys. The purpose of the exemptions and their potential relevance is captured in Table 4. The exact wording for the exemptions can be found in the relevant Orders outlined in section 3.1.1.

Table 4 UK exemptions of wider relevance and their potential application to site investigation activities or marine scientific surveys

Exemption	Potential relevance to site investigation activities or marine scientific surveys
Pontoons	This exemption enables harbour authorities to not require a marine licence to construct, deposit or remove a pontoon with a deck size of 30 square metres or less. This may be of relevance should the use of a pontoon be required for site investigation activities or marine scientific surveys.
Rights of foreign vessels etc. under international law.	This exemption means that foreign vessels do not require a marine licence in exercise of a right under rules of international law. They would still be required to abide by national marine licensing laws. The exemption may be of relevance to help facilitate the use of foreign vessels for site investigation activities or marine scientific surveys.
Accidental Deposits - Removal Activity	This exemption is intended to allow the removal of objects including but not limited to, lost anchors, rock and equipment. Through the undertaking of site investigation activities or marine scientific surveys, materials may be accidentally deposited which require removal.
Activities carried on outside the Scottish Marine Area	<p>Certain activities can take place outside the Scottish Marine Area, so long that they do not include a deposit activity of substance on or under the seabed from the British vessel or aircraft or marine structure or a container floating in the sea, if the deposit is controlled from a British vessel, aircraft or marine structure. The activity also cannot regard the scuttling if a vessel or container controlled from a British vessel, aircraft or marine structure. It does allow for the loading of vessels, vehicles, marine structures or floating container with any substance/object for incineration. Incineration cannot take place outside the UK marine waters.</p> <p>While the exact scope of activities which may be undertaken within the scope of this exemption is somewhat unclear, it shows that there may be consideration for the spatial location of certain activities (inside the EEZ or outside in the Continental Shelf) and by whom.</p>
Cables and pipeline – authorised emergency inspection and repair	A marine licence may not be required to carry out an emergency inspection or repair work to any cable. This exemption may be of relevance to post-construction activities for ORE.

Exemption	Potential relevance to site investigation activities or marine scientific surveys
Deposit and use of flares etc. – safety purposes and training	A marine licence may not be required for the deposit and use of smoke floats, distress flares or similar pyrotechnic substance or object for the purpose of securing the safety of a vessel, aircraft or marine structure, saving life or to train for such situations. This exemption would help to facilitate the safe operation of site investigation activities or marine scientific surveys.
Deposit of equipment to control, contain or recover oil etc.	This exemption would facilitate the control, containment or recovery of oil (and other named materials in the Orders), should it be required during site investigation activities or marine scientific surveys.
Deposit of marine chemical and marine oil treatment substances, etc.	By use of approved products, this exemption would facilitate: the dispersing or treating oil spills, treating chemical pollution, and tackling fouling of the sea or seabed, should it be required during site investigation activities or marine scientific surveys.
Deposits in the course of normal navigation or maintenance	Given the use of vehicles, vessels, aircrafts or marine structures in site investigation activities or marine scientific surveys, this exemption would facilitate their delivery.
Fire-fighting	This exemption applies to an activity carried on for the purpose of fighting, or preventing the spread of, any fire. This exemption would help to facilitate the safe operation of site investigation activities or marine scientific surveys.
Lay or maintain cables for the transfer of electricity or data	The laying and maintaining of certain cables (e.g., those for or the transfer of electricity or data) may be exempt from a marine licence in certain areas (e.g., offshore waters).
Litter (Recovery of marine litter)	The removal of marine litter, including abandoned and discarded fishing gear during the course of a diving activity may not require a licence. This exemption may be relevant to dive surveys, where marine litter may be encountered.
Markers for European marine sites and marine conservation	Whilst not directly relevant to site investigation activities or marine scientific surveys, the exemption provides a useful indication of the low risk assessment of the placing of markers (under specific circumstances).
Removal of obstruction or danger to navigation	Named authorities (e.g., a harbour authority or lighthouse authority) do not need a licence to remove anything causing or likely to cause an obstruction or danger to navigation. This exemption would help to facilitate the safe operation of site investigation activities or marine scientific surveys.

Exemption	Potential relevance to site investigation activities or marine scientific surveys
Salvage activities	Activities carried out during an official salvage operation to ensure the safety of a ship or prevent pollution do not need a licence. This exemption would help to facilitate the safe operation of site investigation activities or marine scientific surveys.
Shellfish propagation and cultivation	A marine licence is not required for the deposit or removal of any shellfish, trestle, cage, pole, rope, marker or line in the course of propagation and cultivation of shellfish. Whilst not directly applicable, this exemption may be relevant to site investigation activities or marine scientific surveys that require similar deposits to the seabed (e.g., seabed mounted frames).
Use of vehicles or vessels to remove marine litter and debris	Harbour Authorities do not need a marine licence to remove litter and or debris from their jurisdiction. Whilst not directly applicable, this exemption may be relevant to site investigation activities that require the use of vessels.
Use of vehicles to remove litter or seaweed or dead animal from beaches from the beaches and intertidal areas	The removal of litter, seaweed or dead animals from a beach or intertidal area using a vehicle may not require a licence provided the activity is carried out by or on behalf of a local authority. Whilst not directly applicable, this exemption may be relevant to site investigation activities that require the use of vehicles or the removal of seaweed (e.g., intertidal surveys).

4.3 'Self-service' licences of relevance

As set out in section 3.1.3, self-service licences focus on low risk activities and can have conditions specified within them. They can be similar to the application of exemptions and therefore those identified as relevant to ORE site investigations or marine scientific surveys have been considered further in Table 5.

Table 5 MMO Self-service activities of relevance to ORE site investigations or marine scientific surveys (information reproduced from MMO, 2018b)

Category	Sub-category	Description and outlined conditions
Markers	Marker posts	The deposit of marker posts for the purpose of marking channels, shallow water areas, points of interest, the end of outfalls, groynes and similar, described in the associated application, subject to the criteria and conditions contained in the licence document
Markers	Marker buoys	The deposit and subsequent removal of marker buoys for the purpose of marking channels, shallow water areas, points of interest, the end of outfalls, groynes and similar, including racing markers, described in the associated application, subject to the criteria and conditions contained in the licence document.
Minor removals	Boreholes	<p>The taking of boreholes up to 4 cubic metres in volume described in the associated application, subject to the criteria and conditions contained in the licence document.</p> <p>Within 1 NM of the shore: each borehole must be located at least 25 metres from any other borehole included in the same application.</p> <p>The maximum number of boreholes must not exceed 5 including any under other licences which form as part of the project as a whole.</p> <p>Beyond 1 NM of the shore: each borehole must be located at least 500 metres from any other borehole included in the same application</p> <p>The maximum number of boreholes must not exceed 20 including any under other licences which form as part of the project as a whole.</p>
Minor removals	Trial pits	The excavation and reinstatement of trial pits described in the associated application, subject to the criteria and conditions contained in the licence document.

Category	Sub-category	Description and outlined conditions
		<p>Within 1 NM of the shore:</p> <p>The pit is no larger than 1 metre x 4 metres in plan area and 2 metres depth</p> <p>The pit is at least 25 metres from any other trial pit included in the same application</p> <p>The total number of trial pits does not exceed 5 including any under other licences which form as part of the project as a whole</p> <p>Beyond 1 NM of the shore:</p> <p>The pit is no larger than 2 metres x 4 metres in plan area and up to 2 metres depth</p> <p>Each trial pit must be located at least 100 metres from any other trial pit included in the same application</p> <p>The total number of trial pits does not exceed 20 including any under other licences which form as part of the project as a whole</p>
Minor removals	Grab samples	<p>The taking of grab samples (sediment samples) up to 4 cubic metres in volume, described in the associated application, subject to the criteria and conditions contained in the licence document.</p> <p>Within 1 NM of the shore:</p> <p>Each grab must be located at least 25 metres from any other grab included in the same application</p> <p>The maximum number of grabs must not exceed 5 including any under other licences which form as part of the project as a whole</p> <p>Beyond 1 NM of the shore:</p> <p>Each grab is located at least 500 metres from any other grabs including those in the same application</p> <p>The maximum number of grabs does not exceed 20 including any under other licences which form as part of the project as a whole</p>
Clearance dredging	Non-navigational clearance dredging (within a heritage designation or a wreck site elsewhere in the sea)	Non-navigational clearance dredging (within a heritage designation or a wreck site elsewhere in the sea). The removal of material within a heritage designation or a wreck site elsewhere in the sea, described in the associated application, subject to the criteria and conditions contained in the licence document.

Category	Sub-category	Description and outlined conditions
		<p>The activity must be for the purpose of preserving a historic asset or exposing such an asset for the same purpose, or for the purpose of archaeological survey or investigation. The activity must be carried on in accordance with a valid consent or agreed method statement from Historic England.</p> <p>The maximum amount of material removed cannot exceed 500 cubic metres in a single dredge campaign and cannot exceed 1500 cubic metres in any 12 month period. The maximum footprint of material to be removed cannot exceed 350 square metres in a single dredge campaign.</p> <p>Heritage designation" is defined as: Protected wrecks designated under the Protection of Wrecks Act 1973 Scheduled monuments designated under the Ancient Monuments and Archaeological Areas Act 1979 Listed buildings designated under The Planning (Listed Buildings and Conservation Area) Act 1990</p> <p>'Wreck site' means the location of any aircraft or vessel lying wrecked on or in the seabed or of any objects contained or formerly contained in it lying on or in the seabed near the wreck.</p>

The MMO is required to maintain a public register of activities and self-service applications and supporting information are also published on this register (MMO, 2018a). As well as the 'basic criteria' set out in section 3.1.3, 'site sensitive factors' will also be considered in determining if the activity is suitable for self-service or if any further steps are required. These can include, amongst others:

- An agreed method with Natural England if the activity will take place in or within 200m of a Marine Protected Area (MPA);
- An agreed method statement with Historic England if the activity will take place in a heritage designation (such as protected wrecks);
- Permission from the Ministry of Defence (MoD) if the activity will take place within a military or defence area; and
- Agreed methods with the Local Harbour Authority, Trinity House, and/or the Maritime and Coastguard Agency if the activity may impede normal safe navigation (MMO, 2018c).

5 Non-UK Jurisdiction Exemptions

5.1 Australia

As outlined in section 3.2.1, the Minister can exempt some actions from requirements such as completing an environmental assessment or seeking approval for that action. The Minister can only make this decision if it's in the national interest. They might consider reasons such as defence, security, or an emergency declaration (Australian Government, 2023c).

A person may apply in writing to the Minister for an exemption relating to a specified provision of Part 3 of the EPBC Act and the Minister must decide within 20 business days of receiving the application whether to grant the exemption or not. The Minister for the Environment may also include conditions of approval which could include restrictions on the scope of the project or management measures to avoid or mitigate potential impacts. Details are included in clause 158 of the EPBC Act.

The application of exemptions appears to be for exceptional circumstances, rather than low risk activities. The Australian Government maintains a register of exemptions, and this indicates their use for activities such as bushfires and the deployment of fishing gear to catch a shark posing an imminent threat to public safety (Australian Government, 2023b).

As discussed in 3.2.1, through 'self-assessment', the EPBC does allow for actions to proceed without approval, but the onus is on the project proponent to ensure they are compliant with the law. In some cases, approval may also not be required because a proponent will put in place measures to avoid impacts on a matter protected by the EPBC Act (Australian Government, 2010). These are referred to as 'not controlled action (particular manner)'.

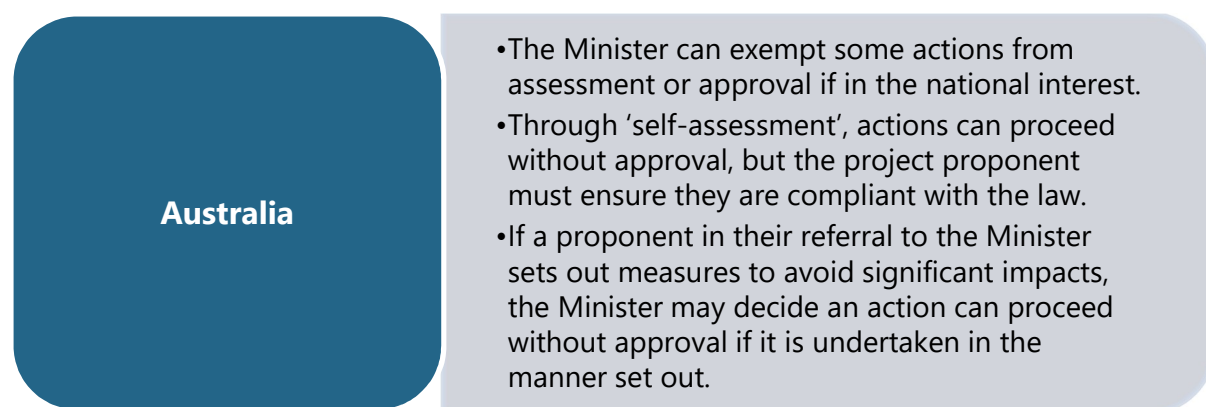


Figure 15 Summary of Australia exemption processes

5.2 Estonia

Estonia operates a system of tenders for offshore wind development. Once a developer is successful and receives the permission to proceed with the procedure to obtain a 'superficies licence', he/she enters discussions with the Consumer Protection and Technical Regulation Authority (CPTRA) to establish a programme for the Environmental Impact Assessment (EIA). This programme will detail all the surveys required to complete the full assessment. It is then necessary for the developer to obtain the marine permits to undertake the suite of surveys which have been agreed so that they can proceed with preparing the Environmental Impact Assessment Report (EIAR). There are no exemptions available, even if the suite of surveys is agreed in advance.

The procedure to obtain a superficies licence is set out under paragraph 113 of the Building Code.

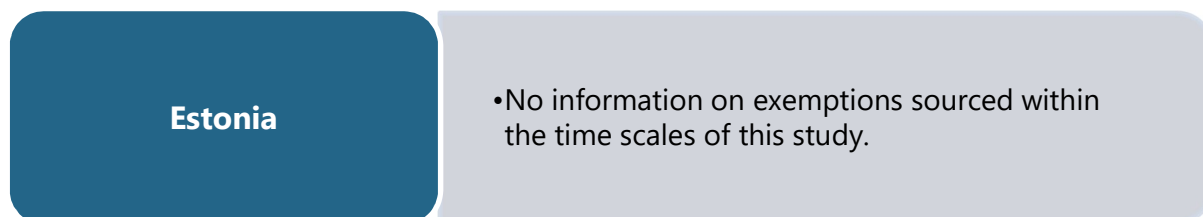


Figure 16 Summary of Estonia exemption processes

5.3 Spain

Article 7 of Royal Decree 79/2019 was amended by Royal Decree 2022/29³⁰ and set out that some activities are considered to be low risk enough to not require a 'compatibility report' and instead a 'responsible declaration' is made. These activities include:

- Economic activity of placing funerary urns or funeral ashes at sea;
- Installation of beacons for nautical or sports events and other events and activities lasting no more than one day; and
- Installation of beacons for activities of general interest with tourist repercussions (seasonal services).

For these activities, the completed and signed declaration of responsibility, must be addressed to the relevant Harbour Master's Office, which shall inform the Provincial Coastal Service in its capacity to verify compliance with the declaration.

The placing of funerary urns is not relevant to site investigation activities or marine scientific surveys. The installation of beacons for the reasons set out above is also not directly relevant. However, the details of the responsible declaration have been investigated further given the relevance of the use of beacons/markers generally to site investigations and marine scientific surveys.

The minimum content of the 'responsible declaration' is set out in Annex IV of Royal Decree 2022/29. This includes (amongst other details):

- Details of the 'applicant' and their legal representative;
- Details of the type of event;
- Date/time of the activity;
- The marine demarcation;
- The municipality;
- The arrangement of the beacon (e.g., line parallel to the coast);
- Description of the anchoring system;
- Geographical boundaries; and
- A sketch or map showing the elements to be installed.

³⁰ Royal Decree 218/2022, of March 29, 79, amending Royal Decree 2019/22, of February, regulating the compatibility report and establishing the compatibility criteria with marine strategies. [online] Available at: <https://www.boe.es/eli/es/rd/2022/03/29/218> (Accessed 27/11/2023)

Annex IV also sets out criteria that the activity must meet to be suitable for a 'responsible declaration'. This includes aspects such as:

- That the action is compatible with the general and specific environmental objectives of the Marine Strategy of the Marine Demarcation;
- That the applicant is aware of the natural values of the area in which the activity is to be carried out;
- That the anchoring points of the buoys shall be located in areas where there is no presence of protected habitats or species;
- That if the only possibility of placing the anchorages is on sensitive bottoms, the anchoring systems that will be placed will be low-impact or ecological systems (criteria are set out in the Annex);
- That the placement and removal of the buoys elements will be carried out vertically along the water column, avoiding dragging any element along the seabed;
- That the participants in the event and the team of the organization will be informed of the precautions to be taken into account in their behaviours to avoid unwanted impacts on the marine environment;
- That the elements to be installed will be subject to adequate maintenance and surveillance;
- That once the season/authorisation period is over, the elements will be removed from the seabed;
- That, where appropriate, any data or information required by the competent body is provided in order to verify compliance with the declaration of responsibility; and
- That all applicable environmental regulations will be complied with.

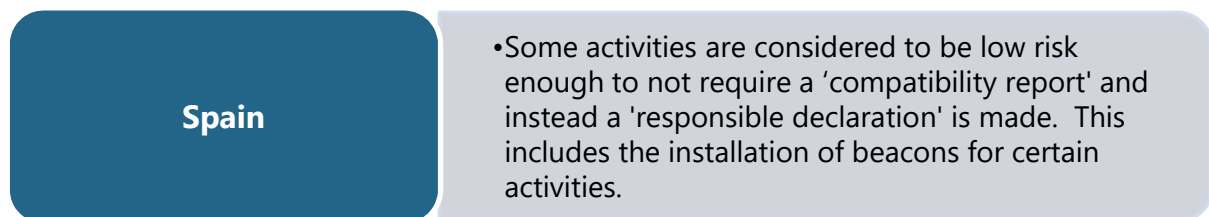


Figure 17 Summary of Spain exemption processes

5.4 Sweden

As stated previously, different laws apply to the different parts of the marine territory. Generally, three sets of rules apply: those that apply to the territorial sea, those that apply to the area beyond, i.e., the EEZ, and those that apply to the Continental Shelf. In the EEZ and Continental Shelf zones, the Swedish State has the exclusive right to explore and use marine resources including wind and water and any non-living resources. This right is enshrined in Continental Shelf Ordinance 1966 and the Act on Sweden's Economic Zone 1992 (specifically article 5).

Exemptions are available for marine research activities in the Continental Shelf. Under the Continental Shelf Ordinance (1966:315), no permit is required for harvesting living organisms, or for scientific investigation conducted by a Swedish institution. A number of conditions would apply:

- The undertaker, be it an institution, a natural person or a legal entity, must be Swedish.
- The activity cannot be to the detriment of other activities which have already received a permit.
- It cannot regard the exploration of salt, oil or gas;
- or involve drilling or blasting.
- It may not give rise to significant interference with the natural environment.

However, such exemptions do not apply in the Economic Zone as stated under article 9 of the Act on Sweden's Economic Zone, promulgated on 3 December 1992. In this case, permission must be obtained from the Swedish Coast Guard. If located in the Swedish Territorial Waters or where ports visits will be needed, then permission shall also be sought from the Swedish Armed Forces.

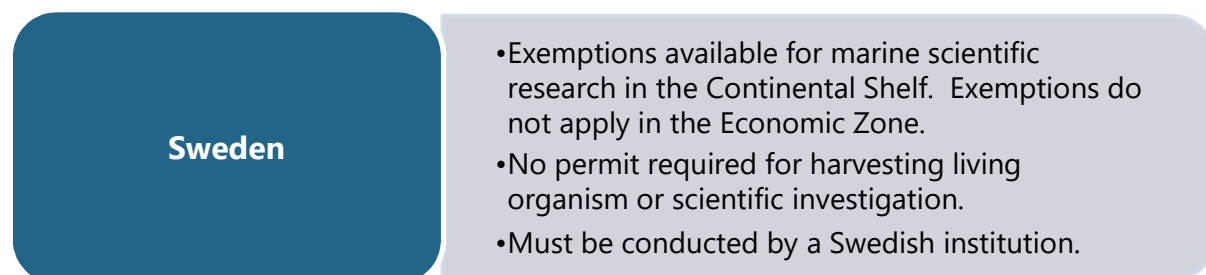


Figure 18 Summary of Sweden exemption processes

5.5 New Zealand

Activities that are considered 'permitted' under the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013³¹ include:

- Marine scientific research, prospecting, and exploration;
- Permitted marine structures;
- Seismic surveys;
- Submarine cables; and
- Deposit of material on the seabed from the launch of a space vehicle.

Of these exemptions, 'marine scientific research, prospecting, and exploration' and 'seismic surveys' are of key relevance to this study and are analysed in further detail below.

5.5.1 Marine scientific research

'Marine scientific research' is defined in the regulations as:

marine scientific research—

- (a) *means research (whether fundamental or applied) carried out for the purpose of increasing knowledge about the marine environment, marine resources, or living marine organisms; and*
- (b) *includes any related scientific activity; but*
- (c) *excludes—*
 - (i) *any research carried out in relation to prospecting, exploration, or mining; and*
 - (ii) *seismic surveying*

Other definitions of relevance include:

prospecting—

- (a) *means any activity (including research) undertaken for the purpose of identifying seabed or subsoil likely to contain mineral deposits or occurrences; and*
- (b) *includes the following activities:*
 - (i) *geological, geochemical, and geophysical surveying; and*

³¹ Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 [online] Available at: <https://www.legislation.govt.nz/regulation/public/2013/0283/latest/whole.html#DLM5270632> (Accessed 27/11/2023)

-
- (ii) taking samples by hand or handheld methods; and*
 - (iii) taking small samples offshore by low-impact mechanical methods; but*
 - (c) excludes seismic surveying*

The regulations set out a number of conditions for this 'permitted activity'. These are:

The conditions are that the person—

- (a) complies with the pre-activity requirements in Schedule 1; and*
- (b) at least 5 working days before commencing the activity,—*
 - (i) carries out an initial environmental assessment; and*
 - (ii) provides the EPA with an initial environmental assessment and sensitive environments contingency plan for the area that complies with the requirements in Schedule 2; and*
- (c) notifies the EPA, within 24 hours, of the date on which the person commences the marine scientific research, prospecting, or exploration (as the case may be); and*
- (d) complies with the logbook requirements in Schedule 3; and*
- (e) ensures that all reasonable measures are taken to avoid, mitigate, or remedy adverse effects of the activity on any sensitive environment encountered; and*
- (f) ensures that no more material is removed from the seabed or subsoil than is reasonably necessary to undertake the activity; and*
- (g) ensures that no person sells any non-living natural material that was removed from the seabed or subsoil during, or for the purpose of, undertaking the activity; and*
- (h) notifies the EPA, within 24 hours, of the date on which the person completes the marine scientific research, prospecting, or exploration (as the case may be); and*
- (i) complies with the post-activity requirements in Schedule 4.*

The requirements set out in the schedules are quite comprehensive and include providing details of the activity and its expected duration, no less than 40 days before the activity commences. Forms are provided in Schedule 5 of the regulations, and copies included in Appendix C of this report (the pre-activity notification form is provided in C.1 and the 'initial environmental assessment and sensitive environments contingency plan' form in C.3).

The EPA may also provide the person who intends to undertake the permitted activity with a list of groups that the EPA considers may be affected by the activity. It is then the responsibility of the person who wishes to undertake the activity to engage with the identified groups and provide the EPA with a report (a form is provided in C.2).

Logbook requirements include the need to keep a permitted logbook in an electronic form approved by the EPA, and that the information must be provided to the EPA every week for the duration of the activity. Entries to the logbook include:

- details of the person undertaking the permitted activity;
- detailed description of the permitted activity;
- Location of the permitted activity;
- Details of every sensitive environment encountered; and
- Statement that no sensitive environment encountered.

Post-activity requirements include a requirement within 60 days of completing the activity to provide the EPA with a report. The contents of this report includes (amongst others): a description of the activity, dates of the activity, co-ordinates, estimates of environmental footprint, a description of sensitive environments encountered, and details of actions taken to void, mitigate, or remedy adverse effects of the activity. A 'post-activity report' form is provided in C.4.

This exemption is potentially quite broad in its application and therefore relevant to a wide range of the site investigation techniques and marine scientific surveys outlined in section 2.2 and Table 1 (with the exception of those that are seismic in nature).

5.5.2 Seismic surveys

The regulations specify that:

"seismic survey means a survey of the geology of the seabed, or the structures beneath the seabed, carried out by projecting pressure waves into the layers beneath the seabed and detecting and measuring the reflected signals; and seismic surveying has a corresponding meaning." and that "Seismic surveying is a permitted activity if the person undertaking the seismic survey complies with the Department of Conservation's 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Survey Operations."

The aim of the code of conduct is to provide effective, practical mitigation measures for minimising acoustic disturbance of marine mammals during seismic surveys (Department of Conservation, 2013). The code of conduct includes (amongst others) aspects such as:

- Categorisation of marine seismic survey operations from Level 1 surveys (>427 cubic inches – primarily large scale geophysical investigations) through to Level 3 (<150 cubic inches – small scale seismic technologies with nominal noise levels lower than commercial shipping, and not subject to the provisions of the code of conduct). Boreholes are recognised to fall within any of these categories depending on the acoustic source power employed;
- Notification to the Director-General not less than 3 months before the survey commences;
- The preparation of a 'Marine Mammal Impact Assessment' (MMIA);
- Training, experience and duty requirements of marine mammal observers; and
- Recording and reporting requirements – a written trip report must be submitted to the Director-General no longer than 60 days after completion of the survey.

This 'permitted activity' is relevant to the site investigation techniques and marine scientific surveys outlined in section 2.2 and Table 1 that are seismic in nature.

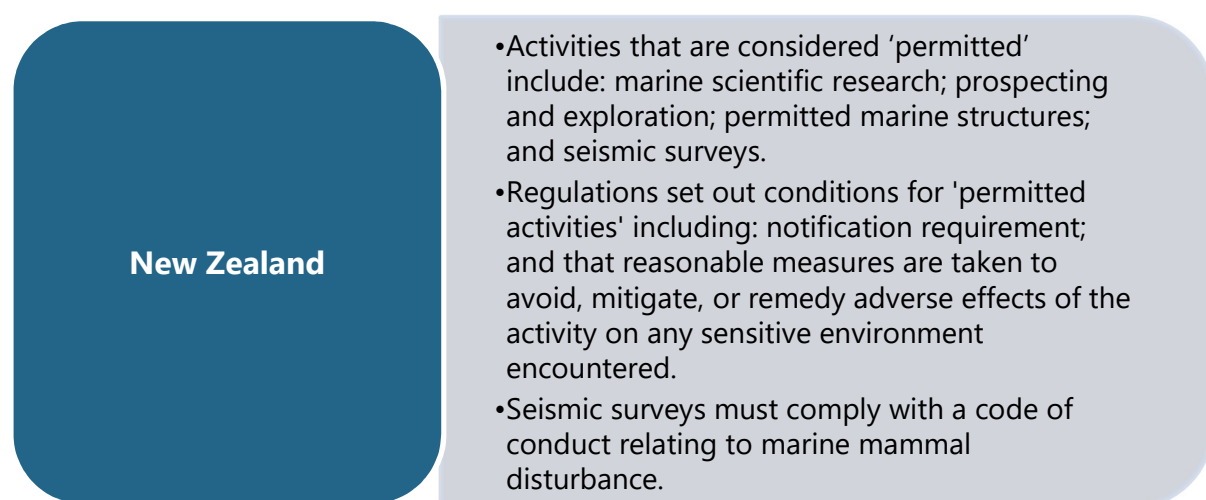


Figure 19 Summary of New Zealand exemption processes

6 Discussion

As detailed in sections 4 and 5, the individual wording of exemptions can vary, but across the jurisdictions some emerging themes have arisen which are discussed below. Of particular note for exemptions identified relevant to site investigation activities or marine scientific surveys, was a lack of specificity regarding technology types. The exemptions are broad in their wording, and potential application (but with conditions or exceptions placed upon them). This brings the flexibility to adapt to emerging technologies, with clarity coming through guidance. Marine scientific research is internationally regulated by the 1982 United Nations Convention on the Law of the Sea (UNCLOS). However, UNCLOS does not define 'marine scientific research' and it is generic in its scope (Yu, 2020). Therefore, similar to exemptions regulations, there is a lack of specificity of technology types.

6.1 Regulatory processes identified for developing exemptions

Information was more readily available for the UK jurisdictions for the regulatory processes followed for developing exemptions, with details occasionally contained within the 'Explanatory Notes' of the relevant legislation. These indicate that in making the regulations consideration is given to:

- Equality impact;
- Regulatory impact; and
- Financial implications.

An example 'Explanatory Note' can be found for the Northern Ireland 2022 Order³². This and other accompanying Explanatory Notes to the UK Orders do not indicate that a Strategic Environmental Assessment (SEA) or Habitats Regulations Appraisal (HRA) were undertaken.

An Impact Assessment has sometimes been undertaken to inform decisions of whether to bring in the proposed regulations (i.e., exemption Orders). For example, the 2011 England Order summarised why the intervention was required, the options under consideration, and the potential economic cost (Defra, 2011).

As noted in section 6.2.1, New Zealand undertook an 'Expert Risk Assessment of Activities' to inform decisions about which activities were appropriate to become 'permitted activities'.

6.2 Environmental considerations

A common theme emerging through the research is the consideration of environmental impacts, both when determining which activities may be appropriate for exemption, and their individual application.

6.2.1 Environmental considerations in the development of exemptions

A likely significant effect (or similar appropriate wording for the relevant legislation) on a protected site can often require further assessment, such as through a Habitats Regulations Assessment (HRA) for European marine sites (such as Special Areas of Conservation or Special Protection Areas), or a Marine

³² Explanatory Memorandum to The Marine Licensing (Exempted Activities) (Amendment) Order Northern Ireland 2022, 2022 No. 68 [online] Available at: https://www.legislation.gov.uk/nisr/2022/68/pdfs/nisrem_20220068_en.pdf (Accessed 27/11/2023)

Conservation Zone (MCZ) assessment. This can therefore result in the inclusion of exceptions to conditions which limit the ability for the exemptions to apply in areas with designated sites.

In New Zealand, to help inform decisions about the categorisation of activities, the National Institute of Water and Atmospheric Research Ltd. (NIWA) undertook an 'Expert Risk Assessment of Activities in the New Zealand Exclusive Economic Zone and Extended Continental Shelf' for the Ministry for the Environment (NIWA, 2012). This report has sections specifically focussing on 'Offshore renewable marine energy extraction; and 'Scientific Exploration and Sampling'.

6.2.2 Environmental considerations in the application of exemptions

As outlined in sections 6.5 and 6.6, exclusions, limits, or conditions are often applied to specific exemptions to minimise the risk of environmental impact, therefore making them appropriate for exemption. Consideration is given to 'site sensitivities'. This can include the presence of designated sites (such as MPAs or historic features), or the presence of protected habitats and species. For example, in Spain, the 'responsible declaration' for buoys requires the anchoring points to be located in an area where there is no presence of protected habitats or species). In other jurisdictions, the presence of sensitive features can trigger consultation with a third party (such as Natural England for MPAs in England) to agree a method statement for the activity.

Exemptions for marine scientific surveys are potentially quite broad in their application but have a number of 'safeguards' in place. New Zealand was notably comprehensive in its environmental considerations and reporting requirements in the application of exemptions for marine scientific research and seismic surveys. Interestingly for seismic surveys, the primary condition is adherence to a code of conduct for marine mammals, which then details more specific requirements. The code of conduct was developed with stakeholders. In Sweden, exemptions for marine research activities require the activity to not give rise to significant interference with the natural environment. The use of drilling or blasting is also excluded from exemption.

It should also be noted that the application of an exemption for an activity does not remove the need to secure other types of relevant permits, such as a Natura permit in Sweden, or SSSI consent in England.

6.3 Unconditional exemptions

It has been identified that some exemptions of relevance are considered low risk and do not have conditions placed upon them. These include:

- Diver trails within restricted areas;
- Fishing operations (to note, exclusions are specified in the exemptions);
- Launching of vessels (not including deposits from the cleaning of vessels, which do have conditions placed upon them); and
- Moorings and aids to navigation (in most instances this exemption had no conditions or notifications required for its use, but it could only be undertaken by named persons).

6.4 Exemption notifications

A common requirement of certain exempted activities is to provide notification to the relevant body (e.g., the licensing authority) prior to the activity commencing. Examples of these activities relevant to site investigations or marine scientific surveys include:

- Moorings and aids to navigation (in most instances, no notification was required, but the England 2013 Order requires notification to the licensing authority before the activity is undertaken);
- Samples for testing and analysis (notification is required to the licensing authority/Minister before a sample is taken);
- Scientific instruments (notice of intention to deposit a reagent or tracer must be given to the licensing authority before the activity is undertaken);
- Accidental deposits (notice of the activity must be given to Scottish Ministers no later than 3 months from the date of commencement of the removal activity);
- Temporary markers (notification must be given to the licensing authority before the activity is carried out, unless the marker is to be in place for less than 24 hours); and
- Marine scientific research, prospecting, and exploration (in New Zealand at least 5 working days before commencing the activity an initial environmental assessment must be provided to the EPA, and the EPA must be notified within 24 hours of the activity commencing and completing).

In England, notification to carry out an exempted activity is given to the MMO via the Marine Casework Management System³³.

New Zealand has in place a series of forms for the different notifications required. These are shown in Appendix C and can also be found on the Environmental Protection Authority (EPA) website (EPA, 2023). These can be submitted by email or via post to the EPA.

Scotland has in place a form for the 'notice of intention' to carry out an exempted activity³⁴. This requires contact details of the individual, details of the location of the activity, a description of the activity, whether there are potential impacts on Priority Marine Features (PMFs), and whether the activity is in close proximity to an MPA.

6.5 Exemption conditions

In this section, MMO self-service activities outlined in section 4.3 are considered as well as exempted activities. Other limits that are placed on these low risk activities can relate to:

- Limits on removals – for example, relating to boreholes or sample volumes taken;
- Location of activities:
 - This can affect the proximity of samples taken from one another, their size, or volume of material that can be removed (e.g., boreholes, trial pits, and grab samples);
 - This can also affect whether an activity can be undertaken (e.g., non-navigational clearance dredging self-service is only applicable within a heritage designation or a wreck site elsewhere in the sea;
- The need for approval/consent from a third party, such as Natural England, Historic England, or Local Harbour Authority (the need for this is triggered by 'site sensitivities', such as proximity to designations or location within an area under the jurisdiction of a harbour authority); and
- The need to work on behalf of another authority, for example a Local Harbour Authority for a moorings and aids to navigation exemption to apply.

³³ MMO Marine Casework Management System (MCMS) [online] Available at: https://marinelicensing.marine-management.org.uk/mmofox5/fox/live/MMO_LOGIN/login (Accessed 27/11/2023)

³⁴ Marine Scotland 'notice of intention to carry out an exempted activity' [online] Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2020/02/marine-licensing-applications-and-guidance/documents/applications/notice-of-exempted-activity/notice-of-exempted-activity/govscot%3Adocument/Notice%2Bof%2Bexempted%2Bactivity.pdf> (Accessed 27/11/2023)

6.6 Exclusions to exemptions

Whilst an exemption may not always have a condition placed upon it, the exemption can detail aspects that would then exclude the use of that exemption. Common exclusions that were identified across several exemptions include:

- Activities that cause, or are likely to cause, obstruction or danger to navigation; and
- Activities that are likely to have a significant effect on a protected site (the exact wording is dependent on the type of marine protected area and its underpinning legislation).

These exclusions were identified for the following types of exemptions:

- Propagation and cultivation of fish – deposits;
- Samples for testing and analysis;
- Scientific instruments; and
- Temporary markers.

7 Relevant Policy Developments

7.1 EU Level

In May 2022, the European Commission published the REPowerEU Plan which looks at reducing dependence on Russian fossil fuels. To achieve this, the EU intends to fast forward the green transition with a view to achieve a more resilient energy system across the Union. This plan is articulated under four broad headings: save energy, diversify supplies, quickly substitute fossil fuels by accelerating the clean energy transition and smartly combine investments and reforms.

The plan resulted in the increase in the target set out under the Renewable Energy Directive to 45% by 2030, up from 40%. It recognises the significant role to be played by offshore renewable energy as part of the energy mix.

REPowerEU has identified '*slow and complex permitting processes*' as a key obstacle to the deployment of renewable energy and particularly noted the length (nine years) for wind projects. It makes other recommendations such as streamlining at national level, the designation of 'go-to' areas and the creation of regulatory sandboxes to foster innovation. Last, but not least, it operationalises the principle of renewable energy as an overriding public interest, which may, in some cases, have implications for projects assessed under the Habitats Directive.

The provisions of REPowerEU have been translated into the Renewable Energy Directive ⁱⁱⁱ³⁵ which promoted streamlined consenting procedures for renewable energy projects, including offshore renewable energy.

³⁵ Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105>

7.2 Australia

Australia's national regulatory framework for offshore energy came into effect in June 2022. While the Offshore Electricity Infrastructure (OEI) Act establishes the framework for offshore energy, the mechanics of the OEI Framework and licensing regime (including fees and the form of licence applications) will be contained in the regulations. These were enacted in 2022 through the Offshore Electricity Infrastructure Regulations 2022³⁶. The Minister first declared an area suitable for offshore renewable energy in December 2022, in the Bass Strait of Gippsland, Victoria and another five priority areas have also been identified for assessment for area declaration (WAFIC, 2023).

7.3 England

As committed to in the Explanatory Notes of the Marine Licensing (Exempted Activities) Order 2019, Defra have been undertaking a review of marine licensing exemptions broadly over the last couple of years, informally engaging with some stakeholders. This complements wider policy development relating to offshore wind consenting and targets, such as those under the British Energy Security Strategy (Department for Energy Security and Net Zero, 2022). Outputs of this exemptions review are awaited.

7.4 Estonia

Since the publication of REPowerEU, Estonia made announcements following the European aims and goals noted above. The country's main objectives are to reduce its greenhouse gas emissions by 80% by 2050 (including 70% by 2030) and ensuring that renewable energy accounts for at least 42% of the total energy consumption by 2030, Estonia has publicly announced that it intends to streamline consenting to accelerate the delivery of renewable energy. However, the Estonian Government does not expect that it will have offshore wind generation deployed by 2030. Currently, the country uses an open-door policy (i.e., developer-led). Given the national intent to streamline consent, it can be expected that this may include offshore renewable energy development.

7.5 New Zealand

The New Zealand Government is developing a regulatory framework to enable investment in offshore renewable energy, with legislation expected to be in place by July 2024. The Government has committed to developing an offshore renewable energy framework (including offshore wind farms) by 2024 (Lexology, 2023). The New Zealand Government launched a consultation in late 2023, including on regulations to enable offshore renewable energy development (The Ministry of Business, Innovation and Employment, 2023a). The Government has taken in principle decisions on the creation of an offshore renewable energy feasibility permitting scheme. Consideration is being given to how this will work with current consenting requirements (The Ministry of Business, Innovation and Employment, 2023b).

7.6 Northern Ireland

In 2022, the Northern Irish Department for the Economy began the preparation of the Offshore Renewable Energy Action Plan (OREAP). The plan is being prepared following the launch in 2021 of the Energy Strategy for Northern Ireland which established a renewable electricity consumption target of

³⁶ Offshore Electricity Infrastructure Regulations 2022 [online] Available at: <https://www.legislation.gov.au/Details/F2022L01422/Explanatory%20Statement/Text> (Accessed 27/11/2023)

70% by 2030. The target was since raised to 80% by 2030 by the Climate Change (Northern Ireland) Act 2022. The strategy identified the potential to deliver 1 GW of offshore wind. The draft OREAP considers three principles:

- Sustainable development in the marine environment;
- Adaptive approach;
- Collaboration and partnership.

Under the adaptive approach, the draft action plan considers that the final plan will seek to 'improve understanding of the processes of developing offshore wind in NI.

The draft plan also proposes a number of themes, key objectives and actions to include a theme focussed on the theme Enabling Frameworks, which aims to establish a *'coherent and coordinated process for offshore wind developers to establish an offshore wind farm in Northern Ireland... This process will involve a combination of marine licensing, development consent, planning permission, and generation and transmission licences. Government departments, regulators and relevant bodies will work in a coordinated and aligned way to deliver this.'*

This is articulated under three key objectives and five actions. One objective and two actions are particularly relevant:

- *'Prioritise and streamline the process for licensing and consenting.*
 - *Establish a Memorandum of Understanding between DfI/DAERA/ DfE to ensure that offshore renewable energy projects are prioritised and where possible, departments coordinate and communicate to progress applications expeditiously.*
 - *Publish guidance on consenting regimes and marine boundaries for offshore wind projects in NI.'*

This draft underwent public consultation in 2023. No further iteration has been published to date.

7.7 Scotland

Scotland has a well-developed offshore wind industry with a number of offshore wind farms already in operation. The Scottish Offshore Wind Policy Statement considers that up to 11 GW of offshore wind energy could be harnessed in Scottish waters by 2030.

Scottish Government's Marine Directorate and the Crown Estate Scotland are currently involved in the preparation of the Innovation and Target Oil and Gas (INTOG) decarbonisation seabed leasing round. 13 projects were successful in obtaining rights from the Crown Estate Scotland. INTOG leasing complements 20 projects leased under ScotWind, which together could enable 30 GW of offshore wind energy. Sectoral Marine Plans are being developed for INTOG and ScotWind. Currently the SEA, HRA, and socio-economic impact assessment (SEIA) is ongoing to support the planning process, with the public consultation phase to follow. It is expected that the INTOG projects which are in the final adopted plan will be offered full option agreements by Crown Estate Scotland before planning permission can be sought.

7.8 Spain

The consenting procedure of the Royal Decree 1028/2007 has been identified as a bottleneck and is under review (Tethys, 2022). Royal decree 218/2022, of 29 March²⁸, has implemented a simplified approvals procedure for renewable energy projects where handling and decision processes for prior

and construction approvals are carried out jointly. It also enables regulatory testing sandboxes to be created to carry out testing involving pilot projects aimed at advancing research and innovation in the electricity industry (Garrigues, 2022).

7.9 Sweden

The Swedish Government has set out ambitious targets for electricity production. It seeks to be 100% fossil fuel free by 2040. Evidence found online suggests that the Swedish Government is also considering how offshore wind permitting could be streamlined. The Government appointed an inquiry known as 'Structured Assessment of Offshore Wind Energy Project' which terms of reference include inter alia analysing the regulatory framework as it relates particularly to the EEZ. Other issues to be considered include the assignment of exclusive rights and rules for determining priority when several parties apply for the same site.

7.10 Wales

Welsh Government has been exploring the potential of offshore wind in Wales, with a report published in 2018 (Carbon Trust, 2018). The UK Government has set a target to develop 5 GW of floating offshore wind generation by 2030 as part of the British Energy Security Strategy, and the Celtic Sea is seen as a major development opportunity (Department for Energy Security and Net Zero, 2022). In September 2023, The Crown Estate outlined three Project Development Areas (PDAs), with an overall capacity of up to 4.5GW in the Celtic Sea (The Crown Estate, 2023).

Welsh Government has been investigating how marine licensing processes can be improved. In 2022 an 'end to end review' was undertaken (ICF and HMC, 2022). However, the terms of reference explicitly excluded marine licence exemptions from the study.

8 Conclusions

The UK jurisdictions have very comparable (and, at times shared) legislative frameworks, with Orders evolving over time for exempt activities. A general trend has been observed of an increase in activities becoming exempted, but 'safeguards', whether it be through the application of conditions or exceptions have often also been applied. Exemptions were identified of 'primary relevance' to site investigation activities or marine scientific surveys, including (amongst others) the use of scientific equipment, and the taking of samples for testing and analysis. Of particular note for exemptions identified relevant to site investigation activities or marine scientific surveys, was a lack of specificity regarding technology types. The exemptions are broad in their wording, and potential application (but with conditions or exceptions placed upon them).

Through the MMO 'self-service' marine licences, other low risk activities were also identified which had a streamlined consenting process. These included the placing of markers, taking of boreholes, the excavation and reinstatement of trial pits, and the taking of grab samples. A suite of broader exemptions of wider relevance to site investigation activities or marine scientific surveys were also identified. These included aspects such as the ability to remove accidental deposits, use of flares, and fire-fighting. Whilst not of direct relevance, consideration should also be given to the implementation of wider exemptions to facilitate site investigations and surveys and their safe operation.

Exemptions (termed 'permitted activities') were also identified in New Zealand for 'marine scientific research, prospecting, and exploration' and for seismic surveys. New Zealand was notably

comprehensive in its environmental considerations and reporting requirements in the application of exemptions for marine scientific research and seismic surveys.

In Sweden, no permit is required for harvesting living organisms, or for scientific investigation conducted by a Swedish institution. Conditions are placed upon this, such as it may not give rise to significant interference with the natural environment, the undertaker must be Swedish, and the activity cannot be to the detriment of other activities which have already received a permit.

Similar to the UK jurisdictions, Spain has evolved its licensing process, with amendments made in 2022 by Royal Decree 2022/2926 which sets out that some activities are considered to be low risk enough to not require a 'compatibility report' and instead a 'responsible declaration' is made. Site investigation activities and marine scientific surveys are not captured in these, but the installation of beacons is included.

In Australia, the Minister can exempt some actions from assessment or seeking approval, but it must be in the national interest (e.g., defence purposes). However, the processes allow for two other routes of proceeding without approval. Firstly, 'self-assessment' can be used to determine whether a referral must be made to the Minister for an approval decision. In this way, actions can proceed without approval, but the onus is on the project proponent to ensure they are compliant with the law. Secondly, if a proponent in their referral to the Minister sets out measures to avoid significant impacts, the Minister may decide an action can proceed without approval if it is undertaken in the manner set out. Activities in Marine Parks (including research and monitoring) have another approvals process and are managed through permits and licences. These are only authorised if considered acceptable against decision making criteria in the relevant management plan. Multibeam sonar acquisition is generally not restricted or subject to permit requirements in State and Territory waters outside of Marine Protected Areas (MPAs).

No information on exemptions in Estonia could be sourced within the time scales of this study.

Environmental considerations and impacts on other sea users resulted in exclusions or conditions often being in place on exemptions in all of the UK jurisdictions. For example, activities are excluded if they are likely to cause, obstruction or danger to navigation, or if they are likely to have a significant effect on a protected site (such as an MPA). 'Site sensitivities' could also trigger consultation with third parties (such as nature conservation bodies or navigation authorities). Environmental effects were considered in consenting processes in all the jurisdictions examined.

As well as a marine licence, other licences or permits are often required in jurisdictions to undertake an activity in the marine space, even if exempt from marine licensing requirements. For example, a seabed survey licence or coastal survey licence will be required from The Crown Estate or Crown Estate Scotland in Scottish waters for survey activities that physically interact with the foreshore (including estuarine) or seabed under ownership of The Crown Estate (MMO, 2023). In the Irish context, authorisations such as from the National Parks and Wildlife Service (NPWS) or a licence from the Underwater Archaeology Unit (UAU) may also be required.

In terms of processes for developing exemptions, these were more readily identifiable for the UK jurisdictions. Equality impact, regulatory impact, and financial implications were considered in the making of the regulations. The Explanatory Notes to the UK Orders do not indicate that an SEA or HRA were undertaken.

It is expected that policy will evolve across the jurisdictions researched. There is a consistent picture of a desire to streamline consenting (whilst enabling environmental safeguards) and greater deployment of ORE to occur.

In summary, key messages from this study are:

Exemptions are available for some site investigation activities and marine scientific surveys (e.g., use of scientific equipment and the taking of samples for testing and analysis).

Exemptions often have a lack of specificity regarding technology types. They are broad in their wording, and potential application (but with conditions or exceptions placed upon them).

Complimentary consenting processes are sometimes in place to streamline processes, such as MMO 'self-service' and Australia's 'self-assessment'.

Environmental considerations and impacts on other sea users resulted in exclusions or conditions often being in place on exemptions.

Environmental effects were considered in consenting processes in all the jurisdictions examined.

Other licences or permits are often required in jurisdictions to undertake an activity in the marine space, even if exempt from marine licence requirements.

The Explanatory Notes to the UK Orders do not indicate that an SEA or HRA were undertaken when making the exemptions regulations.

It is expected that policy will evolve across the jurisdictions researched. There is a consistent picture of a desire to streamline consenting (whilst enabling environmental safeguards) and greater deployment of ORE to occur.

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10 Abbreviations/Acronyms

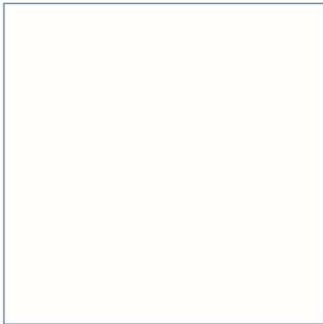
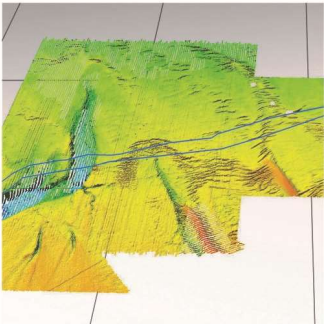
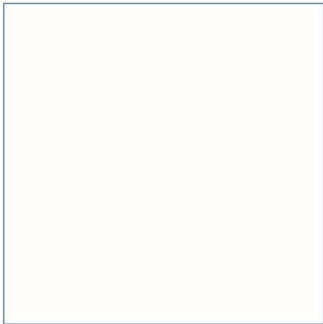
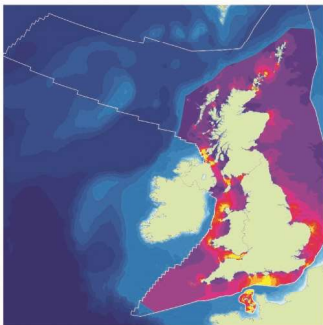
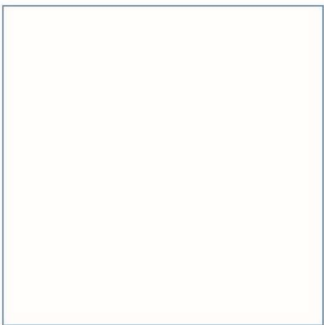
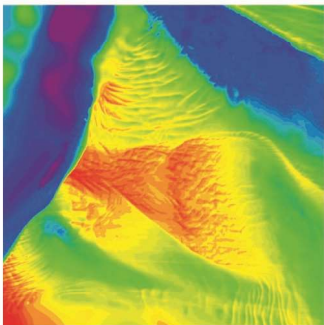
ABPmer	Associated British Ports Marine Environmental Research
CPTRA	Consumer Protection and Technical Regulation Authority
DAERA	Department of Agriculture, Environment and Rural Affairs
DfE	Department for the Economy
DfI	Department for Infrastructure
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Authority
EPBC	Environment Protection and Biodiversity Conservation Act
EU	European Union
FAD	Fish Aggregating Devices
GB	Great Britain
GW	Gigawatt
HRA	Habitats Regulations Appraisal/Assessment
INTOG	Innovation and Targeted Oil and Gas
LiDAR	Light Detection and Ranging
MAP Act	Maritime Area Planning Act
MARA	Maritime Area Regulatory Authority
MCZ	Marine Conservation Zone
MD-LOT	Marine Directorate – Licensing Operations Team
MITERD	Ministry for the Ecological Transition and Demographic Challenge
MMIA	Marine Mammal Impact Assessment
MMO	Marine Management Organisation
MNES	Matter of National Environmental Significance
MoD	Ministry of Defence
MPA	Marine Protected Area
MSP	Marine Spatial Planning
NI	Northern Ireland
NIWA	National Institute of Water and Atmospheric Research Ltd.
NM	Nautical Mile
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NPWS	National Parks and Wildlife Service
NRW	Natural Resources Wales
OEI	Offshore Electricity Infrastructure
ORE	Offshore Renewable Energy
OREAP	Offshore Renewable Energy Action Plan
OWE	Offshore Wind Energy
PDA	Project Development Areas
PMF	Priority Marine Feature
PSOEM	Maritime Spatial Plans (in Spain)

SEA	Strategic Environmental Assessment
SEIA	Socio-Economic Impact Assessment
SNCB	Statutory Nature Conservation Body
SSSI	Site of Special Scientific Interest
UAU	Underwater Archaeology Unit
UK	United Kingdom
UNCLOS	United Nations Convention on the Law of the Sea

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

Appendices



Innovative Thinking - Sustainable Solutions

A Summary of Scoping Results

Jurisdiction	Recommended that Jurisdiction be Taken Forward to Task 3? (Yes, No, Maybe)	Explanation
Australia	Yes	Australia is currently implementing the Offshore Energy Infrastructure (OEI) Framework. Alongside this the Environment Protection and Biodiversity Conservation Act 1999 has undergone recent detailed reviews. An exemptions mechanism has been identified for some types of activities (although unclear at this stage if they are survey related). An inquiry has also recently occurred for seismic surveys which may provide useful information regarding risk levels of the activity. Information is accessible.
Belgium	No	State-led system with limited amount of private surveys.
Canada	No	A variety of information is available and accessible, although not as clear as the regulations in England, Scotland, Wales and Northern Ireland. It is not clear whether certain activities are exempt and it appears that there is no legislation solely for renewable energy or survey activity offshore, but spatial planning seems to take place only in the province of Nova Scotia where the Department of Energy is responsible for managing the consenting process through a "one window committee" process.
Denmark	No	Whilst information is more easily identified and a licensing system is in place, no exemption process has been identified.
England	Yes	A large amount of information is available and easily accessible. The marine licensing system in England has been established since 2009 and has therefore had the opportunity to evolve and produce lessons learnt. Exemptions processes are in place, as well as 'intermediate approaches', through 'self-service' licences. Further exemptions policy development is also occurring, but the outputs of this are awaited.
Estonia	Yes	It is not clear whether certain activities are exempted or not, as these are 'agreed' as part of the EIA programme. In summary, on review, it would appear that the decision to carry out EIA acts as an umbrella decision. Furthermore, the Estonian government is eager to streamline ORE consenting procedures due to highly ambitious targets.

Jurisdiction	Recommended that Jurisdiction be Taken Forward to Task 3? (Yes, No, Maybe)	Explanation
Finland	No	The Finnish system appears very convoluted with a multitude of permits/consents/ authorisations required from a range of bodies. This is notwithstanding the fact that early surveys are carried by Metsähallitus with a view to identify zones for development to put forward to auction. Given the importance of defence forces at sea, these have a significant impact on the overall decision making process and appear to limit possible exemptions.
France	No	No exemption available, France applies a very regulated system of permits and authorisations for the full lifecycle of projects.
Germany	Maybe	Although there does not appear to be an exemptions process, it is recommended that technical guidance on surveys be reviewed by interested parties as it provides a lot of details of relevance to both applicants and competent authorities.
Netherlands	No	The central government's North Sea policy provides a general framework for the spatial co-ordination of users and the use of space in relation to the marine ecosystem. Specifically related to the Netherlands, there is limited information on the exemptions process. The North Sea appears complex with a multitude of authorities and legislations and users of the North Sea. If taken forward to full research, a greater proportion of effort is expected to be required to identify processes compared to other jurisdictions.
New Zealand	Yes	The licensing system appears comparable to that established under the MAP Act. An exemptions process has been identified where through regulations certain activities are 'permitted'. Information is readily accessible and offshore renewable energy policies are in development.
Northern Ireland	Yes	Information is available and easily accessible. The marine licensing system in Northern Ireland has been established since 2009 where the inshore and offshore regions are treated under separate authorities. The marine licensing system has had the opportunity to evolve and produce lessons learnt, although policies have not been reflected/reviewed as much as England, Wales etc. Exemptions processes are in place and further exemptions policy development is also occurring, but the outputs of this are awaited.

Jurisdiction	Recommended that Jurisdiction be Taken Forward to Task 3? (Yes, No, Maybe)	Explanation
Portugal	Maybe	Information on the licensing system and process is generally challenging to identify. The focus is heavily placed on wave energy projects and if taken forward to full research, a greater proportion of effort is expected to be required to identify processes compared to other jurisdictions. There are processes comparable to exemption processes, but not specific to marine licensing.
Scotland	Yes	A large amount of information is available and easily accessible. The marine licensing system in Scotland has been established since 2009, where exemptions processes are in place, corresponding to whether the activities are taking place offshore or inshore. However, no approval or notification is required to contact Marine Directorate – Licensing Operations Team (MD-LOT) if undertaking an exempted activity (however this is dependent on the activity). Further exemptions are currently being proposed through a new marine licensing system via secondary legislation or through existing provisions.
Spain	Maybe	Information on the licensing system and process is generally challenging to identify. There does appear to be some sort of exemptions process for 'compatibility reports', but these are not related to surveys. If taken forward to full research, a greater proportion of effort is expected to be required to identify processes compared to other jurisdictions.
Sweden	Yes	Information is slightly challenging to obtain, but an exemptions process has been identified. It is unclear the extent of exemptions allowed under the Continental Shelf Ordinance.
Wales	Yes	A large amount of information is available and easily accessible. The marine licensing system in Wales has been established since 2009 where marine licensed activities are categorised into three separate bands dependent on the scope of the activity. Exemptions processes are in place via three different processes (1) exemptions for which no notification is required, (2) exemption which require notification to be given to Natural Resources Wales and (3) exemptions which require approval from Natural Resources Wales. Further exemption policies and licences are being reviewed.

B Specific Wording of Exemptions of Primary Relevance in UK Jurisdictions

This appendix provides the direct wording from the relevant legislation for exemptions identified of primary relevance to site investigations or marine scientific surveys. The exemptions are:

- Diver trails;
- Fishing operations;
- Launching of vessels;
- Moorings and aids to navigation – deposits and construction;
- Samples for testing or analysis;
- Scientific instruments; and
- Temporary markers

It is strongly recommended that the relevant Orders are also examined, to fully understand the cross-references in the legislation and therefore an exemptions specific meaning.

B.1 Diver trails

B.1.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Diver trails within restricted areas

29.— (1) Article 4 applies to a deposit or removal activity carried on for the purpose of placing, securing or removing signage or other identifying markers relating to a wreck within an area designated as a restricted area within the meaning of section 1 of the Protection of Wrecks Act 1973(19).

(2) But Article 4 does not apply to a deposit to the extent that it falls within item 10.

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Amendment of Article 29

16. In Article 29 (diver trails within restricted areas)–

(a) the words from “a wreck within an area designated as a restricted area” to the end become sub-paragraph (a);

(b) at the end of sub-paragraph (a) insert “;”;

(c) after of sub-paragraph (a) insert–

“(b) a monument designated as a scheduled monument under Article 3 of the Historic Monuments and Archaeological Objects (Northern Ireland) 1995;

(c) an area designated as a controlled site under section 1(2)(b) of the Protection of Military Remains Act 1986.”(8).

B.1.2 England

The Marine Licensing (Exempted Activities) Order 2011

Diver trails within restricted areas

31. Article 4 applies to a deposit or removal activity carried on for the purpose of placing, securing or removing signage or other identifying markers relating to a wreck within an area designated as a restricted area within the meaning of section 1 of the Protection of Wrecks Act 1973(1).

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

No change.

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

Amendment of article 31

13. *In article 31 (diver trails within restricted areas)—*

(a) the words from “a wreck within an area designated as a restricted area” to the end become paragraph (a);

(b) after paragraph (a) insert—

“(b) a monument designated as a scheduled monument under section 1 of the Ancient Monuments and Archaeological Areas Act 1979(10); or

(c) an area designated as a controlled site under section 1(2)(b) of the Protection of Military Remains Act 1986(11)”.

B.1.3 Scotland

This exemption is not included in the Orders.

B.1.4 Wales

The Marine Licensing (Exempted Activities) (Wales) Order 2011

Diver trails within restricted areas

28. *Article 4 applies to a deposit or removal activity carried on for the purpose of placing, securing or removing signage or other identifying markers relating to a wreck within an area designated as a restricted area within the meaning of section 1 of the Protection of Wrecks Act 1973(21).*

The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018

No change.

B.2 Fishing operations

B.2.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Fishing operations

12.—(1) *Article 4 applies to any of the following activities if carried on in the course of a fishing operation—*

(a) the deposit of fishing gear, other than a deposit made for the purpose of disposal;

(b) a removal activity or dredging activity carried on for the purpose of—

(i) fishing for or taking fish; or

(ii) removing fishing gear; or

(c) the deposit by way of return to the sea of any fish or other object.

(2) Article 4 also applies to the deposit by way of return to the sea of any fish during the course of fish processing at sea.

(3) *In this Article—*

- (a) *"fish" includes shellfish and any part of a fish; and*
- (b) *"fishing gear" includes gear used to fish for or take shellfish, but does not otherwise include anything used in connection with the propagation or cultivation of shellfish.*

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Amendment of Article 12

4. *In Article 12 (fishing operations), paragraph (1)(c) insert at the end ", provided that the fish or other object has not been landed before being so returned".*

B.2.2 England

The Marine Licensing (Exempted Activities) Order 2011

Fishing operations

12.—(1) *Article 4 applies to any of the following activities if carried on in the course of a fishing operation—*

- (a) *the deposit of fishing gear, other than a deposit made for the purpose of disposal;*
- (b) *a removal activity or dredging activity carried on for the purpose of—*
 - (i) *fishing for or taking fish; or*
 - (ii) *removing fishing gear;*
- (c) *the deposit by way of return to the sea of any fish or other object.*

(2) *Article 4 also applies to the deposit by way of return to the sea of any fish during the course of fish processing at sea.*

(3) *In this article—*

- (a) *"fish" includes shellfish and any part of a fish;*
- (b) *"fishing gear" includes gear used to fish for or take shellfish, but does not otherwise include anything used in connection with the propagation or cultivation of shellfish.*

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

No change.

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

No change.

B.2.3 Scotland

The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011

Fishing – deposits

10.—(1) *This article applies—*

- (a) *to the deposit by way of return to the sea—*
 - (i) *of any fish during the course of a fishing operation; or*
 - (ii) *of any other object during the course of a fishing operation, provided that the fish or other object has not been landed before being so returned;*
- (b) *to the deposit by way of return to the sea of any fish during the course of fish processing at sea.*

(2) This article does not apply—

- (a) to a deposit of fishing gear made for the purpose of disposal;*
- (b) except in the case of a deposit falling within paragraph (1)(a)(ii), to a deposit to the extent that it falls within item 8.*

Fishing – removal activity and dredging activity

11. This article applies—

- (a) to a removal activity carried on for the purpose of removing fishing gear in the course of a fishing operation;*
- (b) to a dredging activity carried on in the course of any fishing operation.*

Propagation and cultivation of fish – deposits

12.—(1) This article applies to the deposit of any trestle, raft, cage, pole, rope or line in the course of the propagation or cultivation of fish.

(2) This article does not apply to a deposit—

- (a) made for the purpose of disposal;*
- (b) made for the purpose of creating, altering or maintaining an artificial reef; or*
- (c) that causes or is likely to cause obstruction or danger to navigation.*

Propagation and cultivation of fish – removal activity and dredging activity

13. This article applies to—

- (a) a removal activity carried on in the course of the propagation or cultivation of fish;*
- (b) a dredging activity carried on in the course of the propagation or cultivation of shellfish.*

The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011

Fishing – deposits

11.—(1) This article applies—

- (a) to the deposit of fishing gear during the course of a fishing operation;*
- (b) to the deposit by way of return to the sea—*
 - (i) of any fish during the course of a fishing operation; or*
 - (ii) of any other object during the course of a fishing operation, provided that the fish or other object has not been landed before being so returned;*
- (c) to the deposit by way of return to the sea of any fish during the course of fish processing at sea.*

(2) This article does not apply—

- (a) to a deposit of fishing gear made for the purpose of disposal;*
- (b) except in the case of a deposit falling within paragraph (1)(b)(ii), to a deposit to the extent that it falls within item 10.*

Fishing – removal activity and dredging activity

12. This article applies—

- (a) to a removal activity carried on for the purpose of removing fishing gear in the course of a fishing operation;
- (b) to a dredging activity carried on in the course of any fishing operation.

The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012

No change.

B.2.4 Wales

The Marine Licensing (Exempted Activities) (Wales) Order 2011

Fishing operations

12.—(1) *Article 4 applies to any of the following activities if carried on in the course of a fishing operation—*

- (a) *the deposit of fishing gear, other than a deposit made for the purpose of disposal;*
- (b) *a removal activity or dredging activity carried on for the purpose of—*
 - (i) *fishing for or taking fish, or*
 - (ii) *removing fishing gear;*
- (c) *the deposit by way of return to the sea of any fish or other object.*

(2) *Article 4 also applies to the deposit by way of return to the sea of any fish during the course of fish processing at sea.*

(3) *In this article—*

- (a) *“fish” includes shellfish and any part of a fish;*
- (b) *“fishing gear” includes gear used to fish for or take shellfish, but does not otherwise include anything used in connection with the propagation or cultivation of shellfish.*

The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018

No change.

B.3 Launching of vessels

B.3.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Launching of vessels etc

27. *Article 4 applies to a deposit in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container.*

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Insertion of Article 27A

15. *After Article 27 (launching of vessels etc) insert—*

“Deposit of a substance arising from the cleaning of vessels

27A.—(1) *Article 4 applies to the deposit of a substance removed from that part of the hull of a vessel which is normally submerged.*

(2) *Paragraph (1) is subject to the condition that the removal of the substance is undertaken by hand, using only—*

(a) a soft cloth;

(b) a sponge;

(c) the bristles of a soft brush;

(d) sandpaper, the grit size of which is at least P20002.”(7).

B.3.2 England

The Marine Licensing (Exempted Activities) Order 2011

Launching of vessels etc

27. *Article 4 applies to a deposit in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container.*

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

No change.

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

No change.

B.3.3 Scotland

The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011

Launching of vessels etc.

29. *This article applies to a deposit in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container.*

The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011

Not included.

The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012

No change.

B.3.4 Wales

The Marine Licensing (Exempted Activities) (Wales) Order 2011

Launching of vessels etc

26. *Article 4 applies to a deposit in connection with the launching of any vehicle, vessel, aircraft, marine structure or floating container.*

The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018

No change.

B.4 Moorings and aids to navigation – deposits and construction

B.4.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Moorings and aids to navigation – deposits and construction

25.—(1) Article 4 applies—

- (a) to a deposit or works activity carried on by a person referred to in paragraph (2) for the purpose of providing a pile mooring, swinging mooring, trot mooring or aid to navigation; or
- (b) to a removal activity carried on by any such person for the purpose of removing any such mooring or aid to navigation.

(2) The persons are—

- (a) a harbour authority;
- (b) a lighthouse authority; or
- (c) any other person in accordance with a consent required from, and granted by, any such authority,

(3) But Article 4 does not apply to any such activity which consists of the deposit or construction of a pontoon.

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Insertion of Articles 25A and 25B

14. After Article 25 (moorings and aids to navigation – deposits and construction) insert—

“Markers for European marine sites and marine conservation zones

25A. Article 4 applies—

- (a) to a deposit made by the Secretary of State for the purpose of installing a marker for the purpose of regulation 28(1) of the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (marking of site and advice by the Secretary of State);⁽⁶⁾
- (b) to a removal activity carried on by the Secretary of State for the purpose of removing a marker referred to in sub-paragraph (a);
- (c) to a deposit made by a public authority for the purpose of installing a marker indicating the existence and extent of an MCZ;
- (d) to a removal activity carried on by a public authority for the purpose of removing a marker referred to in sub-paragraph (c).

B.4.2 England

The Marine Licensing (Exempted Activities) Order 2011

Moorings and aids to navigation

25.—(1) Article 4 applies—

- (a) to a deposit or works activity carried on by a person referred to in paragraph (2) for the purpose of providing a pile mooring, swinging mooring, trot mooring or aid to navigation;

(b) to a removal activity carried on by any such person for the purpose of removing any such mooring or aid to navigation.

(2) The persons are—

- (a) a harbour authority;*
- (b) a lighthouse authority;*
- (c) any other person, where the activity is carried on in accordance with a consent required from, and granted by, any such authority.*

(3) But article 4 does not apply to any such activity which consists of the deposit or the construction of a pontoon.

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

Amendment of article 25

11. In article 25 (moorings and aids to navigation)—

- (a) after paragraph (2) insert—*
“(2A) Paragraph (1) is subject to the condition that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on.”;
- (b) in paragraph (3), for “But article 4 does not apply to” substitute “In paragraph (1)(a), “deposit or works activity” does not include”.*

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

Amendment of article 25

10. In article 25 (moorings and aids to navigation), in paragraph (2A), for “Paragraph” substitute “In the case of a person referred to in paragraph (2)(c), paragraph”.

B.4.3 Scotland

The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011

Moorings and aids to navigation – deposits and works activity

27.—(1) This article applies to a deposit or works activity carried on by—

- (a) a harbour authority;*
- (b) a lighthouse authority; or*
- (c) any other person in accordance with the approval or consent of any such authority, for the purpose of providing a pile mooring, swinging mooring or aid to navigation.*

(2) This article does not apply—

- (a) to the deposit of a pontoon;*
- (b) to the construction of a pontoon.*

Moorings and aids to navigation – removal activity

28. This article applies to a removal activity carried on for the purpose of removing a mooring or aid to navigation referred to in article 27(1).

The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011

Moorings and aids to navigation – deposits and works activity

20.—(1) *This article applies to a deposit or works activity carried on by—*

- (a) a lighthouse authority; or*
- (b) any other person in accordance with the approval or consent of any such authority, for the purpose of providing a pile mooring, swinging mooring or aid to navigation.*

(2) This article does not apply—

- (a) to the deposit of a pontoon;*
- (b) to the construction of a pontoon.*

Mooring and aids to navigation – removal activity

21. *This article applies to a removal activity carried on for the purpose of removing a mooring or aid to navigation referred to in article 20(1).*

The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012

Not included.

B.4.4 Wales

The Marine Licensing (Exempted Activities) (Wales) Order 2011

Moorings and aids to navigation

24.—(1) *Article 4 applies—*

- (a) to a deposit or works activity carried on by a person referred to in paragraph (2) for the purpose of providing a pile mooring, swinging mooring, trot mooring or aid to navigation;*
- (b) to a removal activity carried on by any such person for the purpose of removing any such mooring or aid to navigation.*

(2) The persons are—

- (a) a harbour authority;*
- (b) a lighthouse authority;*
- (c) any other person, where the activity is carried on in accordance with a consent required from, and granted by, any such authority.*

(3) But article 4 does not apply to any such activity which consists of the deposit or the construction of a pontoon.

The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018

No change.

B.5 Samples for testing or analysis

B.5.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Not included.

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022*Insertion of Articles 17A and 17B**8. After Article 17 (scientific instruments etc) insert—**“Samples for testing or analysis*

17A.—(1) Article 4 applies to a removal activity carried on for the purpose of taking a sample of any material for testing or analysis.

(2) Paragraph (1) is subject to the condition that notice of the intention to carry on the removal activity must be given to the licensing authority before the removal activity is carried on.

(3) But Article 4 does not apply—

(a) to any such removal activity where the volume of material removed exceeds 1 cubic metre;

(b) to any such removal activity that causes, or is likely to cause, obstruction or danger to navigation; or

(c) to any such removal activity—

(i) that falls within sub-paragraph (a), (b) or (c) of paragraph (4); and

(ii) that is not directly connected with or necessary to the management of the site or zone (as the case may be) referred to in that sub-paragraph.

(4) A removal activity falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;

(b) it is likely to have significant effect on a Ramsar site; or

(c) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MCZ; or

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

B.5.2 England

The Marine Licensing (Exempted Activities) Order 2011

Not included.

The Marine Licensing (Exempted Activities) (Amendment) Order 2013*Insertion of articles 17A and 17B**7. After article 17 (scientific instruments etc) insert—**“Samples for testing or analysis*

17A.—(1) Article 4 applies to a removal activity carried on for the purpose of taking a sample of any material for testing or analysis.

(2) Paragraph (1) is subject to the condition that notice of the intention to carry on the removal activity must be given to the licensing authority before the removal activity is carried on.

(3) But article 4 does not apply—

(a) to any such removal activity where the volume of material removed exceeds 1 cubic metre;

(b) to any such removal activity that causes, or is likely to cause, obstruction or danger to navigation; or

(c) to any such removal activity—

- (i) that falls within sub-paragraph (a), (b) or (c) of paragraph (4); and
- (ii) that is not directly connected with or necessary to the management of the site or zone (as the case may be) referred to in that sub-paragraph.

(4) A removal activity falls within this paragraph if—

- (a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;
- (b) it is likely to have a significant effect on a Ramsar site; or
- (c) it is capable of affecting (other than insignificantly)—
 - (i) the protected features of an MCZ; or
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

(5) In paragraph (4)(a) and (b), “likely” has the same meaning as in the Habitats Directive.

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

No change.

B.5.3 Scotland

The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011

Not included.

The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011

Not included.

The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012

Sediment sampling

18B.—(1) This article applies to a removal activity which is carried on for the purpose of sediment sampling.

(2) This article is subject to the condition that notice of the intention to carry on the activity must be given, in writing, to the Scottish Ministers before the activity is commenced.

(3) The condition in paragraph (2) is deemed to be satisfied where the removal activity is carried on as a condition of an authorisation of a controlled activity granted by the Scottish Environment Protection Agency under Part II of the Water Environment (Controlled Activities) (Scotland) Regulations 2011(7).

(4) This article does not apply to an activity where—

- (a) the volume of sediment removed is more than 1 cubic metre;
- (b) it causes, or is likely to cause, obstruction or danger to navigation;
- (c) it is a plan or a project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;
- (d) it is likely to have a significant effect on a Ramsar site; or
- (e) it is capable of affecting (other than insignificantly)—
 - (i) the protected features of an MPA; or
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

(5) “Controlled activity” in this article has the meaning given to it in regulation 2(1) of the Water Environment (Controlled Activities) (Scotland) Regulations 2011.”.

16B.—(1) This article applies to a removal activity carried on for the purpose of sediment sampling.

(2) This article is subject to the condition that notice of the intention to carry on the activity must be given, in writing, to the Scottish Ministers before the activity is commenced.

(3) This article does not apply to an activity where—

- (a) the volume of sediment removed is more than 1 cubic metre;
- (b) it causes, or is likely to cause, obstruction or danger to navigation;
- (c) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; or
- (d) it is capable of affecting (other than insignificantly)—
 - (i) the protected features of an MPA; or
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

(4) In paragraph (3)(c), “likely” has the same meaning as in Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.”.

B.5.4 Wales

This exemption is not included in the Orders.

B.6 Scientific instruments

B.6.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Scientific instruments etc

17.—(1) Article 4 applies—

- (a) to the deposit of any scientific instrument or associated equipment in connection with any scientific experiment or survey;
- (b) to the deposit of any reagent;
- (c) to the deposit of any tracer; or
- (d) to a removal activity carried on for the purpose of removing any scientific instrument or associated equipment referred to in sub-paragraph (a).

(2) Sub-paragraphs (b) and (c) of paragraph (1) are subject to conditions 1 and 2.

(3) Condition 1 is that the reagent or tracer must be one the use of which is for the time being approved for the purposes of this Order by the licensing authority.

(4) Condition 2 is that the reagent or tracer must be used in accordance with any conditions to which the approval is subject.

(5) But Article 4 does not apply—

- (a) to any such deposit made for the purpose of disposal;*
- (b) to any such deposit that causes or is likely to cause obstruction or danger to navigation; or*
- (c) to any such deposit or removal activity—*
 - (i) that falls within sub-paragraph (a) or (b) of paragraph (6); and*
 - (ii) that is not directly connected with or necessary to the management of the site referred to in that sub-paragraph.*

(6) A deposit or removal activity falls within this paragraph if—

- (a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; or*
- (b) it is likely to have a significant effect on a Ramsar site.*

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Amendment of Article 17

7. In Article 17 (scientific instruments etc)–

- (a) for paragraph (2) substitute–*
 - “(2) Paragraph (1) is subject to condition 1, and (as that paragraph relates to the deposit of a reagent or tracer) conditions 2 and 3.*
 - (2A) Condition 1 is that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on.”;*
- (b) in paragraph (3), for “1” substitute “2”;*
- (c) in paragraph (4), for “2” substitute “3”;*
- (d) in paragraph (5)–*
 - (i) in sub-paragraph (b) after “navigation” insert “, in particular where any such deposit is tethered to the seabed or reduces navigational clearance by more than 5% by reference to Chart Datum”;*(4)
 - (ii) in sub-paragraph (c)(i), for “(a) or (b)” substitute “(a), (b) or (c)”;*
- (e) in paragraph (6)–*
 - (i) in sub-paragraph (a) at the end, omit “or”;*
 - (ii) in sub-paragraph (b) at the end, insert–“; or*
 - (c) it is capable of affecting (other than insignificantly)–*
 - (i) the protected features of an MCZ;*
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent”.*

B.6.2 England

The Marine Licensing (Exempted Activities) Order 2011

Scientific instruments etc

17.—(1) Article 4 applies—

- (a) to the deposit of any scientific instrument or associated equipment in connection with any scientific experiment or survey;*
- (b) to the deposit of any reagent;*
- (c) to the deposit of any tracer;*
- (d) to a removal activity carried on for the purpose of removing any scientific instrument or associated equipment referred to in sub-paragraph (a).*

(2) Sub-paragraphs (b) and (c) of paragraph (1) are subject to conditions 1 and 2.

(3) Condition 1 is that the reagent or tracer must be one the use of which is for the time being approved for the purposes of this Order by the licensing authority.

(4) Condition 2 is that the reagent or tracer must be used in accordance with any conditions to which the approval is subject.

(5) But article 4 does not apply—

(a) to any such deposit made for the purpose of disposal;

(b) to any such deposit that causes or is likely to cause obstruction or danger to navigation;

(c) to any such deposit or removal activity—

(i) that falls within sub-paragraph (a), (b) or (c) of paragraph (6); and

(ii) that is not directly connected with or necessary to the management of the site or zone (as the case may be) referred to in that sub-paragraph.

(6) A deposit or removal activity falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;

(b) it is likely to have a significant effect on a Ramsar site; or

(c) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MCZ;

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

(7) In paragraph (6)(a) and (b), "likely" has the same meaning as in Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora(17).

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

Amendment of article 17

6. In article 17 (scientific instruments etc)—

(a) for paragraph (2) substitute—

"(2) Paragraph (1) is subject to condition 1, and (as that paragraph relates to the deposit of a reagent or tracer) conditions 2 and 3.

(2A) Condition 1 is that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on."

(b) in paragraph (3), for "1" substitute "2";

(c) in paragraph (4), for "2" substitute "3";

(d) in paragraph (5)(b), after "navigation;" insert "or";

(e) in paragraph (7), for "Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora" substitute "the Habitats Directive".

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

Amendment of article 17

4. In article 17 (scientific instruments etc), in paragraph (5)(b) after "navigation" insert ", in particular where any such deposit is tethered to the seabed or reduces navigational clearance by more than 5% by reference to Chart Datum(5)".

B.6.3 Scotland

The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011

Scientific instruments etc. – deposits

17.—(1) *This article applies—*

(a) to the deposit of any scientific instrument or associated equipment in connection with any scientific experiment or survey;

(b) to the deposit of any reagent or any chemical or particle tracer.

(2) In the case of the deposit of any reagent or chemical or particle tracer, this article is subject to the condition that the use of the reagent or the chemical or particle tracer must be for the time being approved for the purposes of this Order by the Scottish Ministers.

(3) This article does not apply to—

(a) a deposit made for the purpose of disposal;

(b) a deposit that causes or is likely to cause obstruction or danger to navigation;

(c) a deposit—

(i) that falls within sub-paragraph (a), (b) or (c) of paragraph (4); and

(ii) that is not directly connected with or necessary to the management of the site or area referred to in that sub-paragraph.

(4) A deposit falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;

(b) it is likely to have a significant effect on a Ramsar site; or

(c) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MPA;

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

Scientific instruments etc. – removal activity

18.—(1) *This article applies to a removal activity carried on for the purpose of removing any scientific instrument or associated equipment referred to in article 17(1)(a).*

(2) This article does not apply to such an activity—

(a) that falls within sub-paragraph (a), (b) or (c) of paragraph (3); and

(b) that is not directly connected with or necessary to the management of the site or area referred to in that sub-paragraph.

(3) Such an activity falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;

(b) it is likely to have a significant effect on a Ramsar site; or

(c) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MPA;

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011*Scientific instruments etc. – deposits**15.—(1) This article applies—*

(a) to the deposit of any scientific instrument or associated equipment in connection with any scientific experiment or survey;

(b) to the deposit of any reagent or any chemical or particle tracer.

(2) In the case of the deposit of any reagent or chemical or particle tracer, this article is subject to the condition that the use of the reagent or the chemical or particle tracer must be for the time being approved for the purposes of this Order by the Scottish Ministers.

(3) This article does not apply to—

(a) a deposit made for the purpose of disposal;

(b) a deposit that causes or is likely to cause obstruction or danger to navigation;

(c) a deposit—

(i) that falls within sub-paragraph (a) or (b) of paragraph (4); and

(ii) that is not directly connected with or necessary to the management of the site or area referred to in that sub-paragraph.

(4) A deposit falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; or

(b) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MPA;

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

(5) In paragraph (4)(a), “likely” has the same meaning as in Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

Scientific instruments etc. – removal activity

16.—(1) This article applies to a removal activity carried on for the purpose of removing any scientific instrument or associated equipment referred to in article 15(1)(a).

(2) This article does not apply to such an activity—

(a) that falls within sub-paragraph (a), (b) or (c) of paragraph (3); and

(b) that is not directly connected with or necessary to the management of the site or area referred to in that sub-paragraph.

(3) Such an activity falls within this paragraph if—

(a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; or

(b) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MPA;

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

(4) In paragraph (4)(a), “likely” has the same meaning as in Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012

6. After article 18 (scientific instruments etc. – removal activity), insert—

“Accidental deposits – removal activity

18A.—(1) This article applies to a removal activity carried on for the purpose of removing any object from the seabed which has been accidentally deposited there.

(2) This article is subject to conditions 1 and 2.

(3) Condition 1 is that notice of the activity must be given, in writing, to the Scottish Ministers no later than 3 months from the date of commencement of the removal activity.

(4) Condition 2 is that the object to be removed from the seabed has been deposited there for less than one year before the removal activity is commenced.

(5) This article does not apply to an activity where—

(a) it causes, or is likely to cause, obstruction or danger to navigation;

(b) it is a plan or a project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;

(c) it is likely to have a significant effect on a Ramsar site; or

(d) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MPA; or

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MPA is (wholly or in part) dependent.

(6) A reference to a “removal activity” in this article does not include the use of an aircraft, marine structure or floating container to remove the object from the seabed.

B.6.4 Wales

The Marine Licensing (Exempted Activities) (Wales) Order 2011

Scientific instruments etc

16.—(1) Article 4 applies—

(a) to the deposit of any scientific instrument or associated equipment in connection with any scientific experiment or survey;

(b) to the deposit of any reagent;

(c) to the deposit of any tracer;

(d) to a removal activity carried on for the purpose of removing any scientific instrument or associated equipment referred to in sub-paragraph (a).

(2) Sub-paragraphs (b) and (c) of paragraph (1) are subject to conditions 1 and 2.

(3) Condition 1 is that the reagent or tracer must be one the use of which is for the time being approved for the purposes of this Order by the licensing authority.

(4) Condition 2 is that the reagent or tracer must be used in accordance with any conditions to which the approval is subject.

(5) But article 4 does not apply to —

- (a) any such deposit made for the purpose of disposal;*
- (b) any such deposit that causes or is likely to cause obstruction or danger to navigation;*
- (c) any such deposit or removal activity—*
 - (i) that falls within sub-paragraph (a) or (b) of paragraph 6; and*
 - (ii) that is not directly connected with or necessary to the management of the site referred to in that sub-paragraph.*

(6) A deposit or removal activity falls within this paragraph if—

- (a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; or*
- (b) it is likely to have an effect on a Ramsar site.*

(7) In sub-paragraphs (a) and (b) of paragraph (6), “likely” has the same meaning as in Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora(16).

The Marine Licensing (Exempted Activities) (Wales) (Amendment) Order 2018

No change.

B.7 Temporary markers

B.7.1 Northern Ireland

The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011

Not included.

The Marine Licensing (Exempted Activities) (Amendment) Order (Northern Ireland) 2022

Temporary markers

25B.—(1) Article 4 applies—

- (a) to a deposit made for the purpose of placing a marker;*
- (b) to a removal activity carried on for the purpose of meeting the condition in paragraph (3).*

(2) Paragraph (1) is subject to the condition that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on, except where the activity consists of a deposit made for the purpose of placing a marker and the subsequent removal of that marker will take place within 24 hours of the deposit.

(3) Sub-paragraph (a) of paragraph (1) is subject to the condition that the marker and its appurtenances must be removed from the sea and, where applicable, the seabed within the period of 28 days beginning with the day on which the deposit is made.

(4) But Article 4 does not apply—

- (a) to any such activity that causes, or is likely to cause, obstruction or danger to navigation; or*

- (b) to any such activity—*
 - (i) that falls within sub-paragraph (a), (b) or (c) of paragraph (5); and*
 - (ii) that is not directly connected with or necessary to the management of the site or zone (as the case may be) referred to in that sub-paragraph.*

(5) An activity falls within this paragraph if—

- (a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;*
- (b) it is likely to have a significant effect on a Ramsar site; or*
- (c) it is capable of affecting (other than insignificantly)—*
 - (i) the protected features of an MCZ; or*
 - (ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.”.*

B.7.2 England

The Marine Licensing (Exempted Activities) Order 2011

Not included.

The Marine Licensing (Exempted Activities) (Amendment) Order 2013

Insertion of article 26A

13. After article 26 (markers for European marine sites and marine conservation zones) insert—

“Temporary markers

26A.—(1) Article 4 applies—

- (a) to a deposit made for the purpose of placing a marker;*
- (b) to a removal activity carried on for the purpose of meeting the condition in paragraph (3).*

(2) Paragraph (1) is subject to the condition that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on.

(3) Sub-paragraph (a) of paragraph (1) is subject to the condition that the marker and its appurtenances must be removed from the sea and, where applicable, the seabed within the period of 28 days beginning with the day on which the deposit is made.

(4) But article 4 does not apply—

- (a) to any such activity that causes, or is likely to cause, obstruction or danger to navigation; or*
- (b) to any such activity—*
 - (i) that falls within sub-paragraph (a), (b) or (c) of paragraph (5); and*
 - (ii) that is not directly connected with or necessary to the management of the site or zone (as the case may be) referred to in that sub-paragraph.*

(5) An activity falls within this paragraph if—

- (a) it is a plan or project likely (either alone or in combination with other plans or projects) to have a significant effect on a European site;*
- (b) it is likely to have a significant effect on a Ramsar site; or*

(c) it is capable of affecting (other than insignificantly)—

(i) the protected features of an MCZ; or

(ii) any ecological or geomorphological process on which the conservation of any protected feature of an MCZ is (wholly or in part) dependent.

(6) In paragraph (5)(a) and (b), “likely” has the same meaning as in the Habitats Directive.”

The Marine Licensing (Exempted Activities) (Amendment) Order 2019

Amendment of article 26A

11. *In article 26A (temporary markers), in paragraph (2), at the end insert “except where the activity consists of a deposit made for the purpose of placing a marker and the subsequent removal of that marker will take place within 24 hours of the deposit”.*

B.7.3 Scotland

This exemption is not included in the Orders.

B.7.4 Wales

This exemption is not included in the Orders.

C New Zealand Pre-activity Notice Forms

The below are extracts of Schedule 5 of the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013³⁷ for New Zealand, which provides forms relevant to the application of the permitted activities contained in the regulations.

C.1 Form 1 – Pre-activity notice

Form 1
Pre-activity notice

Regulation 11(a), Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013

To the Environmental Protection Authority, Private Bag 63002, Wellington 6140

Details of person undertaking permitted activity

Name:

Address:

Telephone number:

Email address:

Fax number:

Contact person:

General description of permitted activity

Type of activity:

Description of methods to be used to undertake the activity:

Timing of permitted activity

Proposed commencement date:

Approximate duration of activity (in days):

Timetable:

Location of permitted activity

Co-ordinates of area where activity will be undertaken:

Description of the current state of the area and the surrounding environment, including any known sensitive environments:

Description of the likely effects of the activity on the environment:

Other information

Name of ship or ships involved in activity:

International call sign or vessel number of the ship or ships involved:

Associated licence number (under the [Continental Shelf Act 1964](#)):

Associated permit number (under the [Crown Minerals Act 1991](#)):

Date:

Signature of authorised contact person:

Name:

Title:

³⁷ Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 [online] Available at: <https://www.legislation.govt.nz/regulation/public/2013/0283/latest/whole.html#DLM5270632> (Accessed 27/11/2023)

C.2 Form 2 – Report of pre-activity notification of relevant iwi

<p style="text-align: center;">Form 2</p> <p style="text-align: center;">Report of pre-activity notification of relevant iwi</p> <p style="text-align: center;"><i>Regulation 11(b), Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013</i></p> <p>To the Environmental Protection Authority, Private Bag 63002, Wellington 6140</p> <p>Details of person undertaking permitted activity</p> <p>Name:</p> <p>Address:</p> <p>Telephone number:</p> <p>Email address:</p> <p>Fax number:</p> <p>Contact person:</p> <p>General description of permitted activity</p> <p>Type of activity:</p> <p>Commencement date (proposed in the pre-activity notice):</p> <p>Co-ordinates of area of the permitted activity (proposed in the pre-activity notice):</p> <p>Other information</p> <p>Persons notified:</p> <p>How and when persons were notified:</p> <p>Information provided:</p> <p>Responses received:</p> <p><i>[Attach copies, or accurate summaries, of submissions, including name and contact details of the respondents.]</i></p> <p>Summary of dialogue with every iwi, hapū, customary marine title group, and protected customary rights group identified by the EPA:</p> <p><i>[Attach copies, or accurate summaries, of the following information (if provided): the respondent's environmental policies or environmental strategy plans, culturally sensitive areas or waahi tapu identified by the respondent, likely impacts identified by the respondent, and the respondent's concerns about the permitted activity.]</i></p> <p>Changes to pre-activity notice (if applicable)</p> <p>Revised commencement date:</p> <p>Revised duration of activity (in days):</p> <p>Revised timetable:</p> <p>Revised co-ordinates of the area where the activity will be undertaken:</p> <p>Revised description of the current state of the area and the surrounding environment, including any known sensitive environments:</p> <p>Revised description of the likely effects of the activity on the environment:</p> <p>Revised description of methods to be used to undertake activity:</p> <p>Other revised information:</p> <p>Date:</p> <p>Signature of authorised contact person:</p> <p>Name:</p> <p>Title:</p>
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C.3 Form 3 – Initial environmental assessment and sensitive environments contingency plan

Form 3

Initial environmental assessment and sensitive environments contingency plan

Regulation 11(c), Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013

To the Environmental Protection Authority, Private Bag 63002, Wellington 6140

Details of person undertaking permitted activity

Name:

Address:

Telephone number:

Email address:

Fax number:

Contact person:

General description of permitted activity

Type of activity:

Description of methods to be used to undertake the activity:

Location of permitted activity

Co-ordinates of area where activity will be undertaken:

Description of current state of the area and the surrounding environment, including any sensitive environments:

Description of likely effects of the activity on the environment:

Identification of sensitive environments

Description of any sensitive environments likely to exist in the area where the activity will be undertaken:

Contingency plan

Specify measures that could be taken to avoid, remedy, or mitigate the adverse effects of the activity on sensitive environments:

- 1 Can the activity be undertaken in another place? Yes/No*
Explain:
- 2 Can the activity be undertaken in a way that reduces the amount of contact with the seabed? Yes/No*
Explain:
- 3 Can different methods be used in undertaking the activity to lessen its effects on the sensitive environment? Yes/No*
Explain:
- 4 Can the activity be undertaken in a way that lessens its effects on the sensitive environment? Yes/No*
Explain:

*Select one.

Date:

Signature of authorised contact person:

Name:

Title:

C.4 Form 4 – Post-activity report

<p style="text-align: center;">Form 4</p> <p style="text-align: center;">Post-activity report</p> <p style="text-align: center;"><i>Regulation 11(d), Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013</i></p> <p>To the Environmental Protection Authority, Private Bag 63002, Wellington 6140</p> <p>Details of person undertaking permitted activity</p> <p>Name:</p> <p>Address:</p> <p>Telephone number:</p> <p>Email address:</p> <p>Fax number:</p> <p>Contact person:</p> <p>Description of permitted activity</p> <p>Type of activity:</p> <p>Period during which activity was undertaken:</p> <p>Location of permitted activity</p> <p>Co-ordinates of area where activity was undertaken:</p> <p>Details of environment of area where activity undertaken</p> <p>General description of the environment:</p> <p>Description of any sensitive environment that was encountered in the area where the activity was undertaken:</p> <p>Environmental footprint of activity</p> <p>Estimation of the volume of material removed:</p> <p>Estimation of the areas of seabed affected by each component of, or sample taken as part of, the activity (m²):</p> <p>Details of measures taken to avoid, mitigate, or remedy adverse effects on the sensitive environment</p> <p>Did you implement the contingency plan submitted to the EPA? Yes/No*</p> <p>Explain:</p> <p>*Select one.</p> <p>Provide details of, and the reasons for, the measures taken to avoid, mitigate, or remedy the effects of the activity:</p> <p>Date:</p> <p>Signature of authorised contact person:</p> <p>Name:</p> <p>Title:</p>
--

Contact Us

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**Appendix 3: Marine Strategy Framework Directive 2008/56/EC Draft
Article 17 update to Ireland's Marine Strategy Part 2:
Monitoring Programme (Article 11) Annex III**



Rialtas na hÉireann
Government of Ireland

Marine Strategy Framework Directive 2008/56/EC

Draft Article 17 update to Ireland's Marine
Strategy Part 2: Monitoring Programme
(Article 11) – Annex III

October 2021

Prepared by the Department of Housing, Local Government and Heritage

housing.gov.ie



Annex III. Detailed Monitoring Programmes for Ireland's Marine Strategy Part 2: Monitoring Programme (Article 11)

This document is an Annex to a draft update to Part 2 of Ireland's Marine Strategy: Monitoring Programme (Article 11), under the Marine Strategy Framework Directive (MSFD). This document includes data gathered on the draft monitoring programmes for each Descriptor of the MSFD, such as the practicalities of monitoring, different monitoring types, methodologies, spatial and temporal scope, indicators, data management and quality control.

The draft Annex III has been compiled in consideration of the guidance prepared by the European Commission ([EC, 2020](https://ec.europa.eu/eionet/)). The information in this Annex will inform Ireland's MSFD e-reporting hosted on the EIONET¹ platform, after feedback received from the public consultation held from October 2021 - December 2021.

¹ <https://www.eionet.europa.eu/>



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Descriptor 1 Biodiversity

Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

Table 1.1 Primary Criteria, Indicators, Environmental Targets and related monitoring programmes for D1 Biological diversity.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D1C1: The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured.	Indicator: ACS-IE-MortalityRateIncidentalBycatch2021 Environmental Target D1T1: The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured.	ACS-IE-Do1-01 Monitoring Programme for the Habitats Directive and Birds Directive Species ACS-IE-Do1-02 Inland Fisheries Ireland Monitoring Programme ACS-IE-Do3-01 DCF Fisheries Monitoring Programme
Criterion D1C2: The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured.	Indicator: ACS-IE-PopulationAbundance2021 Environmental Target D1T2: The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured.	
Criterion D1C3: The population demographic characteristics of the species (e.g. body size or age class structure, sex ratio, fecundity, and survival rates) are indicative of a healthy population which is not adversely affected due to anthropogenic pressures.	Indicator: ACS-IE-PopulationDemographicCharacteristics2021 Environmental Target At present, there are no targets set for D1C3. (Primary criterion applicable to non-commercial fish and cephalopods only)	
Criterion D1C4: The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions.	Indicator: ACS-IE-SpeciesDistributionalRangeExtent2021 Environmental Target D1T4: The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions.	
Criterion D1C5: The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.	Indicator: ACS-IE-SpeciesHabitatExtent2021 Environmental Target D1T5: The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.	
Criterion D1C6: The condition of the habitat type, including its biotic and abiotic structure and its functions, is not adversely affected due to anthropogenic pressures.	Indicator: ACS-IE-PelagicHabitatCondition2021 Environmental Target At present, there are no targets set for D1C6.	



Monitoring Programme for Habitats Directive & Birds Directive Species

Table 1.2 Details of Monitoring Programme for Habitats Directive & Birds Directive Species.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do3-01
Programme Name	Monitoring Programme for Habitats Directive & Birds Directive Species
Update Type	Modified from 2014
Other Policies or Conventions	<ul style="list-style-type: none"> • EU-BD Birds Directive • EU-HD Habitats Directive • EU-CFP-DCF Data Collection Framework Multi-Annual Plan (Common Fisheries Policy) • National Monitoring programme targeting at national legislation • Oslo-Paris Convention (OSPAR)
Regional Cooperation	OSPAR
Regional Cooperation Countries	N/A
Temporal Scope	1980-ongoing
Regional Cooperation Implementation	<ul style="list-style-type: none"> • Common monitoring strategy (spatial and temporal design of programme) • Joint data collection
Spatial Scope	<ul style="list-style-type: none"> • Terrestrial part of MS • EEZ (or similar) • Continental shelf (beyond EEZ) • Coastal waters (WFD) • Transitional waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	<ul style="list-style-type: none"> • Environmental State and impacts • Effectiveness of Measures • Pressures in the marine environment
Monitoring Type	<ul style="list-style-type: none"> • Administrative data collection • In-situ sampling offshore • In-situ sampling coastal • Ecological modelling
Monitoring Method	<ul style="list-style-type: none"> • OSPAR CEMP Guideline: Common Indicator - Marine Bird Abundance (B1) (Agreement 2016-09) • OSPAR CEMP Guideline: Common Indicator - Marine Bird Breeding Success/Failure (B3) (Agreement 2016-09) • OSPAR CEMP Guideline: Common Indicator - Seal Abundance and Distribution (M3) (Agreement 2016-11) • OSPAR CEMP Guideline: Common indicator: Abundance at the relevant temporal scale of cetacean species regularly present (M4) – Interim version (Agreement 2018-09) • OSPAR CEMP Guideline: Common Indicator - Grey Seal Pup Production (M5) (Agreement 2016-12) • OSPAR CEMP Guideline: Combined guideline for the common indicators FC1, FC2, FC3 and FW3 for fish and food webs (Agreement 2018-05) • Other monitoring method
Monitoring Method Other	Use of opportunistic public sighting and stranding records for marine reptiles and mammals



Quality Control	Monitoring data is quality controlled by experts in the statutory nature conservation authority (National Parks and Wildlife Service [NPWS], Department of Housing, Local Government and Heritage) and partner agencies (e.g. Inland Fisheries Ireland, Marine Institute), by their external contractor organisations as commissioned, and by regional reporting domains (e.g. OSPAR).
Monitoring Frequency	Continually 6-yearly 3-yearly As needed
Data Management	<p>The NPWS and Inland Fisheries Ireland actively conduct, and also commission, the majority of data acquisition under the Habitats Directive & Birds Directive Monitoring Programme. External contractor organisations play an important role in data collection and data management, including the quality control and quality assurance processes associated with such data. The NPWS and Department of Housing, Local Government and Heritage encourage the free dissemination of biodiversity data and aim to publish their data holdings into the future, where possible, as Open Data licensed under Creative Commons Attribution 4.0 International Licence. Publicly available datasets are available via the NPWS website (see below). Summary discovery metadata for Government data-related projects are also published and updated at the following public sector online data catalogues:</p> <ul style="list-style-type: none"> • Irish Spatial Data Exchange • Irish Government Open Data Portal
Data Access	<ul style="list-style-type: none"> • https://www.npws.ie/maps-and-data • gov.ie - ObSERVE Programme (www.gov.ie) • https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf • http://www.strandings.com/Graphics%20active/2020%20Turtle%20Annual%20Strandings%20Report.pdf • https://iwdg.ie/about-us/ • https://www.npws.ie/marine/marine-reports • https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/ • https://www.npws.ie/sites/default/files/publications/pdf/IWM114.pdf • http://www.ices.dk/data/Pages/default.aspx • https://bycatch.ices.dk/
Related Indicator	<ul style="list-style-type: none"> • ACS-IE-MortalityRateIncidentalBycatch2021 • ACS-IE-PopulationAbundance2021 • ACS-IE-SpeciesDistributionalRangeExtent2021 • ACS-IE-SpeciesHabitatExtent2021
Related Indicator Name	<ul style="list-style-type: none"> • Mortality rate from incidental by-catch • Population abundance • Species distributional range and pattern • Habitat for the species
Contact Name	Oliver Ó Cadhla
Email	Oliver.OCadhla@housing.gov.ie
References	Cosgrove, R., Cronin, M., Reid, D., Gosch, M., Sheridan, M., Chopin, N. & Jessopp, M. (2013) Seal depredation and bycatch in set net fisheries in Irish waters. BIM Fisheries Resource Series, Vol. 10.



	<p>Cosgrove, R., Cronin, M., Reid, D., Gosch, M., Sheridan, M., Chopin, N. & Jessopp, M. (2016) Seal bycatch in gillnet and entangling net fisheries in Irish waters. <i>Fisheries Research</i> 183: 192-199.</p> <p>Cummins, S., Lauder, C., Lauder, A. & Tierney, T. D. (2019) The Status of Ireland's Breeding Seabirds: Birds Directive Article 12 Reporting 2013 – 2018. <i>Irish Wildlife Manuals</i>, No. 114. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland. 89pp.</p> <p>Doyle, T. K. (2007) Leatherback Sea Turtles (<i>Dermochelys coriacea</i>) in Irish waters. <i>Irish Wildlife Manuals</i> No. 32. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.</p> <p>ICES. (2018) Report from the Working Group on Bycatch of Protected Species (WGBYC), 1–4 May 2018, Reykjavik, Iceland. ICES CM 2018/ACOM:25. 128 pp.</p> <p>ICES. (2019) Working Group on Bycatch of Protected Species (WGBYC). <i>ICES Scientific Reports</i>. 1:51. 163 pp. http://doi.org/10.17895/ices.pub.5563</p> <p>NPWS. (2019a) The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill. 99pp.</p> <p>NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.</p>
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Feature	Element	Parameter
Species affected by incidental by-catch	Not Applicable	Mortality (weight/volume; number of individuals)
Baleen whales	Balaenoptera acutorostrata Balaenoptera borealis Balaenoptera musculus Balaenoptera physalus Megaptera novaeangliae Eubalaena glacialis	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Deep-diving toothed cetaceans	Globicephala melas Grampus griseus Hyperoodon ampullatus Kogia breviceps Mesoplodon europaeus Mesoplodon mirus Physeter macrocephalus Ziphius cavirostris	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Seals	Halichoerus grypus Phoca vitulina	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Small toothed cetaceans	Delphinus delphis Lagenorhynchus acutus Lagenorhynchus albirostris Orcinus orca Phocoena phocoena Pseudorca crassidens Stenella coeruleoalba Tursiops truncatus Delphinapterus leucas	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Turtles	Dermochelys coriacea	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Coastal fish	Cetorhinus maximus Petromyzon marinus Lampetra fluviatilis Salmo trutta	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Benthic-feeding birds	Aythya ferina Aythya fuligula Aythya marila Bucephala clangula Clangula hyemalis Melanitta fusca Melanitta nigra Somateria mollissima Gavia stellata Gavia arctica Podiceps nigricollis	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Grazing birds	Anas acuta Anas crecca Anas platyrhynchos Anser albifrons Anser anser Anser erythropus	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent



	<i>Branta bernicla</i> <i>Branta canadensis</i> <i>Branta leucopsis</i> <i>Branta ruficollis</i> <i>Cygnus columbianus</i> <i>Cygnus cygnus</i> <i>Cygnus olor</i> <i>Fulica atra</i> <i>Anser fabalis</i> <i>Anser brachyrhynchus</i> <i>Spatula querquedula</i> <i>Spatula clypeata</i> <i>Anas strepera</i> <i>Mareca penelope</i> <i>Rallus aquaticus</i> <i>Gallinula chloropus</i>	
Pelagic-feeding birds	<i>Alca torda</i> <i>Cepphus grylle</i> <i>Fratercula arctica</i> <i>Mergellus albellus</i> <i>Mergus merganser</i> <i>Mergus serrator</i> <i>Morus bassanus</i> <i>Phalacrocorax aristotelis</i> <i>Phalacrocorax carbo</i> <i>Podiceps auritus</i> <i>Podiceps cristatus</i> <i>Podiceps grisegena</i> <i>Puffinus baroli</i> <i>Tachybaptus ruficollis</i> <i>Uria aalge</i> <i>Calonectris diomedea borealis</i> <i>Bulweria bulwerii</i> <i>Phalaropus fulicarius</i> <i>Morus bassanus</i> <i>Gavia immer</i> <i>Puffinus gravis</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Surface-feeding birds	<i>Chlidonias niger</i> <i>Fulmarus glacialis</i> <i>Gelochelidon nilotica</i> <i>Haliaeetus albicilla</i> <i>Hydrobates pelagicus</i> <i>Hydrocoloeus minutus</i> <i>Hydroprogne caspia</i> <i>Larus argentatus</i> <i>Larus canus</i> <i>Larus marinus</i> <i>Larus melanocephalus</i> <i>Larus ridibundus</i> <i>Oceanodroma castro</i> <i>Puffinus mauretanicus</i> <i>Puffinus puffinus</i> <i>Rissa tridactyla</i> <i>Stercorarius parasiticus</i> <i>Stercorarius pomarinus</i> <i>Sterna dougallii</i> <i>Sterna hirundo</i> <i>Sterna paradisaea</i> <i>Sternula albifrons</i> <i>Pandion haliaetus</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent



	<i>Stercorarius longicaudus</i> <i>Xema sabini</i> <i>Larus fuscus graellsii</i> <i>Stercorarius skua</i> <i>Oceanodroma leucorhoa</i> <i>Oceanites oceanicus</i> <i>Puffinus griseus</i> <i>Alle alle</i> <i>Uria lomvia</i>	
Wading birds	<i>Tringa glareola</i> <i>Actitis hypoleucos</i> <i>Anthus petrosus</i> <i>Arenaria interpres</i> <i>Calidris alba</i> <i>Calidris alpina</i> <i>Calidris canutus</i> <i>Calidris ferruginea</i> <i>Calidris maritima</i> <i>Calidris minuta</i> <i>Charadrius alexandrinus</i> <i>Charadrius hiaticula</i> <i>Egretta garzetta</i> <i>Haematopus ostralegus</i> <i>Larus michahellis</i> <i>Limosa lapponica</i> <i>Limosa limosa</i> <i>Numenius arquata</i> <i>Numenius phaeopus</i> <i>Platalea leucorodia</i> <i>Pluvialis apricaria</i> <i>Pluvialis squatarola</i> <i>Recurvirostra avosetta</i> <i>Tadorna tadorna</i> <i>Tringa erythropus</i> <i>Tringa nebularia</i> <i>Vanellus vanellus</i> <i>Ardea alba</i> <i>Ardea cinerea</i> <i>Philomachus pugnax</i> <i>Gallinago gallinago</i> <i>Phalaropus lobatus</i> <i>Tringa totanus</i> <i>Larus hyperboreus</i> <i>Larus glaucoides</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Pelagic shelf fish	<i>Salmo salar</i> <i>Alosa fallax</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent



Inland Fisheries Ireland Sampling Programme

Table 1.4 Details of Inland Fisheries Ireland Sampling Programme.

EIONET Reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO1-02
Programme Name	Inland Fisheries Ireland Monitoring Programme
Update Type	New programme
Other Policies or Conventions	<ul style="list-style-type: none"> • EU-HD Habitats Directive • ICCAT International Commission for the Conservation of Atlantic Tunas • EU-CFP-DCF Data Collection Framework Multi-Annual Plan (Common Fisheries Policy) • National Monitoring programme targeting at national legislation • Oslo-Paris Convention (OSPAR)
Regional Cooperation	OSPAR
Regional Cooperation Countries	N/A
Temporal Scope	2009-ongoing
Regional Cooperation Implementation	N/A
Spatial Scope	<ul style="list-style-type: none"> • Terrestrial part of MS • EEZ (or similar) • Coastal waters (WFD) • Transitional waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	<ul style="list-style-type: none"> • Environmental State and impacts • Effectiveness of Measures • Pressures in the marine environment
Monitoring Type	<ul style="list-style-type: none"> • In-situ sampling offshore • In-situ sampling coastal • Other
Monitoring Method	<ul style="list-style-type: none"> • ICCAT Manual: Data for Assessment and Research • Monitoring Method Other
Monitoring Method Other	Details specific to IFI monitoring programmes, with reference to: CEN (2003) Water Quality - Sampling of Fish with Electricity; CEN EN 14011:2000; CEN (2015) Water quality - Sampling of fish with multi-mesh gillnets. CEN EN 14757:2015; CEN (2005a) Water Quality - Guidance on the Scope and Selection of Fish Sampling Methods. CEN EN 14962.
Quality Control	Samplers follow validated methods and Standard Operating Procedures (SOPs).
Monitoring Frequency	Yearly
Data Management	Data are held nationally in Inland Fisheries Ireland databases. Data are provided to ICES, NPWS (National Parks & Wildlife Service), ICCAT and the Marine Institute for example.
Data Access	<ul style="list-style-type: none"> • https://www.ices.dk/community/groups/Pages/WGEE_L.aspx • https://www.iccat.int/GBYP/en/overview.asp • Search Inland Fisheries Ireland
Related Indicator	<ul style="list-style-type: none"> • ACS-IE-MortalityRateIncidentalBycatch2021 • ACS-IE-PopulationAbundance2021 • ACS-IE-SpeciesDistributionalRangeExtent2021 • ACS-IE-SpeciesHabitatExtent2021



Related Indicator Name	<ul style="list-style-type: none"> • Mortality rate from incidental by-catch • Population abundance • Species distributional range and pattern • Habitat for the species
Contact Name	Diarmuid Ryan
Email	Diarmuid.Ryan@fisheriesireland.ie
References	https://www.iccat.int/GBYP/en/overview.asp https://www.ices.dk/community/groups/Pages/WGEEL.aspx https://www.fisheriesireland.ie/what-we-do/research/tuna-chart European eel (<i>Anguilla anguilla</i>) Inland Fisheries Ireland https://www.fisheriesireland.ie/what-we-do/research/eel-monitoring-programme-emp https://www.fisheriesireland.ie/what-we-do/publications Inland Fisheries Ireland

Table 1.5 Features, Elements and Parameters recorded for the Inland Fisheries Ireland Sampling Programme.

Feature	Elements	Parameter
Coastal fish	<i>Anguilla anguilla</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Pelagic shelf fish	<i>Thunnus thynnus</i>	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent

DCF Fisheries Monitoring Programme

Details on this programme can be found under Descriptor 3 Commercially Exploited Fish and Shellfish.



Descriptor 2 Non-Indigenous Species (NIS)

Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.

Table 2.1 Primary Criteria, Indicators, Environmental Targets and related monitoring programmes for NIS.

Criteria	Indicators and Environmental Targets	Monitoring Programme
<p>Criterion D2C1:</p> <p>The number of non-indigenous species which are newly introduced via human activity into the wild, per assessment period (6 years), measured from the reference year as reported for the initial assessment under Article 8(1) of Directive 2008/56/EC, is minimised and where possible reduced to zero.</p> <p>Member States shall establish the threshold value for the number of new introductions of non-indigenous species, through regional or subregional co-operation.</p>	<p>Indicator: ACS-IE-NewlyIntroducedNIS2021</p> <p>Environmental Target: The number of non-indigenous species which are newly introduced via human activity into the wild, per assessment period is minimised and where possible reduced to zero.</p>	<p>ACS-IE-D2-02</p> <p>Shellfish Associated Species Inventory Ireland</p>



Shellfish Associated Species Inventory Ireland (BIM)

The purpose of this monitoring programme is to assess and better understand the linkages between aquaculture activities and NIS, both nationally and internationally.

This programme has developed following the use of the Dutch Shellfish Associated Species Inventory at Irish aquaculture sites. In order to gain a better understanding of the status of NIS associated with Irish Aquaculture, Bord Iascaigh Mhara (BIM) have now established a memorandum of understanding with the Dutch operators and enhanced the coverage of the programme in Ireland.

Table 2.2 Monitoring Programme Details for the Shellfish Associated Species Inventory Ireland.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-D2-02
Programme Name	Shellfish Associated Species Inventory Ireland
Update Type	New Programme
Other Policies or Conventions	Habitats Directive (92/43/EEC) Marine Spatial Planning Directive (2014/89/EC) Water Framework Directive (2000/60/EC)
Regional Cooperation	
Regional Cooperation Countries	
Temporal Scope	2018-9999
Regional Cooperation Implementation	
Spatial Scope	EEZ
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Pressure in the Marine Environment Human activities causing the pressures
Monitoring Type	In-situ sampling coastal
Monitoring Method	During a Shellfish Associated Species Inventory (SASI), multiple samples are taken, spread throughout the production area. In each sample of approximately 5 kg shellfish, all animal and algal species that live between the sampled shellfish are scored. For each species found during the surveys, it is determined if the species is a nuisance species. This method of sampling is suitable for macroflora and macrofauna > 1 mm. This method is used to capture the total diversity of species in the field.
Monitoring Method Other	GiMaRIS established methodology



Quality Control	The quality management system of GiMaRIS is NEN-EN-ISO 9001:2015 certified by NCK for conducting national and international, applied and fundamental research, consultancy and policy making for both the private sector and (semi-)government agencies (EA code 35) (certificate no: NCK.2015.364.ISO9001) https://www.gimaris.com/en-us/About-us/Quality-assurance-and-certification
Monitoring Frequency	Yearly
Data Management	Data held by BIM and GiMaRIS
Data Access	https://www.gimaris.com/Projects/SASI
Related Indicator	ACS-IE-NewlyIntroducedNIS2021
Related Indicator Name	Newly Introduced NIS
Contact Name	Grainne Devine
Email	grainne.devine@bim.ie
References	<p>Gittenberger, A. 2020. <i>Crepidula fornicata</i>, Island of Ireland Species Risk Analysis. Commissioned by Bord Iascaigh Mhara. RA_GiMaRIS_202001: 4 pp.</p> <p>Gittenberger, A. 2020. <i>Eriocheir sinensis</i>, Island of Ireland Species Risk Analysis. Commissioned by Bord Iascaigh Mhara. RA_GiMaRIS_202002: 5 pp.</p> <p>Gittenberger, A. 2020. <i>Mulinia lateralis</i>, Island of Ireland Species Risk Analysis. Commissioned by Bord Iascaigh Mhara. RA_GiMaRIS_202003: 5 pp.</p> <p>Gittenberger, A. 2020. <i>Undaria pinnatifida</i>, Island of Ireland Species Risk Analysis. Commissioned by Bord Iascaigh Mhara. RA_GiMaRIS_202004: 4 pp.</p> <p>https://www.gimaris.com/Publications:</p> <p>Gittenberger, A. & M. Rensing, 2020. Shellfish Dependent Species Inventory: SASI of the shellfish at Irish sites.</p>

Table 2.3 Features, Elements and Parameters recorded for the Shellfish Associated Species Inventory Ireland.

Feature	Elements	Parameter
Newly introduced non-indigenous-species	Not Applicable	Presence



Descriptor 3 Commercially Exploited Fish and Shellfish

Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.

Table 3.1 Criteria, Indicators, Environmental Targets and related monitoring programmes for Commercially Exploited Fish and Shellfish.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D3C1: The Fishing mortality rate of populations of commercially exploited species is at or below levels, which can produce the maximum sustainable yield (MSY).	<p>Indicator: ACS-IE-MaximumSustainableYield2021</p> <p>Environmental Target D3T1: The Fishing mortality rate of populations of commercially exploited species is at or below levels which can produce the maximum sustainable yield (MSY).</p>	ACS-IE-Do3-01 DCF Fisheries Monitoring Programme
Criterion D3C2. The Spawning Stock Biomass of populations of commercially exploited species are above biomass levels capable of producing maximum sustainable yield.	<p>Indicator: ACS-IE-SpawingStockBiomass2021</p> <p>Environmental Target D3T2: The Spawning Stock Biomass of populations of commercially exploited species are above biomass levels capable of producing maximum sustainable yield.</p>	



DCF Fisheries Monitoring Programme

Table 3.2 Criteria, Indicators, Environmental Targets and related monitoring programmes for Commercially Exploited Fish.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO3-01
Programme Name	Data Collection Framework (DCF) Monitoring Programme
Update Type	Modified from 2014
Other Policies or Conventions	EU-CFP
Regional Cooperation	OSPAR
Regional Cooperation Countries	N/A
Temporal Scope	1989-ongoing
Regional Cooperation Implementation	Common monitoring strategy (spatial and temporal design of programme)
Spatial Scope	EEZ (or similar) Continental shelf (beyond EEZ) Coastal waters (WFD) Transitional waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental State and impacts Effectiveness of Measures Pressures in the Marine Environment
Monitoring Type	Administrative data collection In-situ sampling offshore In-situ sampling coastal Ecological modelling
Monitoring Method	<ul style="list-style-type: none"> SISP 9 Manual for International Pelagic Surveys (IPS) Version 1.00 SISP 10 - Manual for the International Bottom Trawl Surveys, Revision IX SISP 15 - Manual of the IBTS North Eastern Atlantic Surveys Manual for the Offshore Beam Trawl Surveys (WGBEAM) SISP 6 - Manual for mackerel and horse mackerel egg surveys, sampling at sea NEAFC: Recording of Catch and Fishing Effort NEAFC: Vessel Monitoring System OSPAR CEMP Guideline: Combined guideline for the common indicators FC1, FC2, FC3 and FW3 for fish and food webs (Agreement 2018-05) Monitoring Method Other



Monitoring Method Other	ICES Manual for Nephrops Underwater TV Surveys, coordinated under ICES Working Group on Nephrops Surveys (WGNEPS)
Quality Control	Monitoring data is quality controlled through species-specific working groups, scientific experts, and reporting domains (e.g. ICES).
Monitoring Frequency	Continually Yearly As needed
Data Management	<p>The Marine Institute collects the majority of the data within the DCF Monitoring Programme. Data Management in the Marine Institute is focussed on: people (ensuring the roles for Data Management across the Institute are assigned appropriately and adequately resourced); processes (including ensuring a framework for reproducible high quality data processes are in place across the Institute) and technology (with an operational stream based around the Microsoft SQL Server and Esri ArcGIS product families and a research and development stream). Much of this activity is takes place under the Marine Institute's Data Management Quality Management Framework, which is aligned with ISO9001:2015 and has been accredited by the International Data and Information Exchange of UNESCO's Intergovernmental Oceanographic Commission. This framework covers end-user requirements; data management planning; documenting data processes and procedures; cataloguing datasets; and reviewing and evaluating the operation of data processes. The Marine Institute publishes many of its datasets openly online in line with national Open Data Strategy and the upcoming requirements of the Public Sector Information Directive, either via a data broker software server (in particular the Erddap tool created by the US National Oceanographic and Atmospheric Administration and available at http://erddap.marine.ie) or through web mapping services.</p> <p>Many of these datasets are visualised either through Ireland's Marine Atlas (http://atlas.marine.ie). These sites provide a demonstration of the Marine Institute's data holdings and data capabilities. A full inventory of publicly available datasets from the Marine Institute can be found at http://data.marine.ie, and any data which are not available through online services can be requested via email to datarequests@marine.ie.</p> <p>Data from the National Sentinel Vessel Programme can be accessed through BIM.</p>
Data Access	https://atlas.marine.ie/#?c=53.9000:-15.9000:6 datarequests@marine.ie https://shiny.marine.ie/stockbook/
Related Indicator	ACS-IE-MaximumSustainableYield2021 ACS-IE-SpawingStockBiomass2021



Related Indicator Name	Maximum Sustainable Yield Spawning Stock Biomass
Contact Name	Maurice Clarke
Email	Maurice.Clarke@marine.ie
References	https://oar.marine.ie/handle/10793/1660

Table 3.3 Features, Elements and Parameters recorded for Ireland's DCF Monitoring Programme.

Feature	Elements	Parameter
Commercially Exploited Fish and Shell Fish	Melanogrammus aeglefinus Merluccius merluccius Micromesistius poutassou Pleuronectes platessa Pollachius pollachius Pollachius virens Clupea harengus Scomber scombrus Solea solea Gadus morhua Sprattus sprattus Squalus acanthias Leucoraja circularis Leucoraja fullonica Leucoraja naevus Capros aper Zeus faber Conger conger Helicolenus dactylopterus Molva molva Pagellus bogaraveo Phycis blennoides Platichthys flesus Lophius budegassa Lophius piscatorius Raja montagui Raja undulata Scyliorhinus canicula Eutrigla gurnardus Glyptocephalus cynoglossus Trisopterus luscus Dasyatis pastinaca Raja brachyura Lepidorhombus whiffiagonis Trachurus trachurus Dicentrarchus labrax Homarus gammarus Maja squinado Nephrops norvegicus Palinurus elephas Raja clavata Necora puber Ostrea edulis Palaemon Serratus	Mortality (weight/volume; number of individuals) Mortality rate Abundance (number of individuals) Biomass of Spawning Stock (SSB)



	Ensis Magnus Ensis Siliqua Aequipecten opercularis Centrolabrus exoletus Spisula solida Thunnus alalunga Illex coindetii Mytilus edulis Prionace glauca Thunnus thynnus Cancer pagurus Limanda limanda Chelidonichthys cuculus Scophthalmus rhombus Cerastoderma edule Mora moro Pecten maximus Dipturus oxyrinchus Raja microocellata Sardina pilchardus Carcinus maenas Mustelus asterias Galeorhinus galeus Chelidonichthys lucerna Scophthalmus maximus	
Extraction of, or mortality/injury to, wild species (by commercial and recreational fishing and other activities)	Not Applicable	Abundance (number of individuals) Biomass of Spawning Stock (SSB) Distribution (range) Distribution (spatial) Habitat Extent Extent- Disturbance to the seabed
Species affected by incidental by-catch	Not Applicable	Mortality (weight/volume; number of individuals) Mortality rate
Demersal shelf fish	Squalus acanthias	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent
Deep-sea fish	Helicolenus dactylopterus Phycis blennoides Etmopterus spinax Galeus melastomus Deania calcea Etmopterus princeps Etmopterus pusillus	Abundance (number of individuals) Distribution (range) Distribution (spatial) Habitat Extent



Descriptor 4 Food Webs

All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.

Table 4.1 Criteria, Indicators, Environmental Targets and related monitoring programmes for D4 Food Webs

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D4C1. The diversity (species composition and their relative abundance) of the trophic guild is not adversely affected due to anthropogenic pressures. [Note: This was assessed for fish species]	Indicator: ACS-IE-Fish2021 D4T1: The diversity (species composition and their relative abundance) of the trophic guild is not adversely affected due to anthropogenic pressures.	ACS-IE-Do3-01 DCF Fisheries Monitoring Programme
Criterion D4C2. The balance of total abundance between the trophic guilds is not adversely affected due to anthropogenic pressures. [Note: This was assessed for phyto-plankton and zoo-plankton]	Indicator: ACS-IE-Plankton2021 D4T2: The balance of total abundance between the trophic guilds is not adversely affected due to anthropogenic pressures.	ACS-IE-Do4-01 Continuous Plankton Recorder (CPR) Survey

DCF Fisheries Monitoring Programme

Details on this programme can be found under Descriptor 3 Commercially Exploited Fish and Shellfish.



Continuous Plankton Recorder Survey

Table 4.2 - Monitoring Programme Details for the Continuous Plankton Recorder Survey

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do4-01
Programme Name	Continuous Plankton Recorder Survey
Update Type	New Programme
Other Policies or Conventions	National Monitoring programme targeting at national legislation
Regional Cooperation	Other
Regional Cooperation Countries	United Kingdom
Temporal Scope	1958 - Ongoing
Regional Cooperation Implementation	Common monitoring strategy
Spatial Scope	<ul style="list-style-type: none"> • EEZ (or similar) • Coastal waters (WFD) • Transitional waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental State and impacts
Monitoring Type	Administrative data collection
Monitoring Method	Other
Monitoring Method Other	Please see the CPR Survey Annual Reports (https://www.cprsurvey.org/publications/annual-reports/), produced by the Sir Alister Hardy Foundation of Ocean Science, about the work of The CPR Survey, and are available to download in PDF format.
Quality Control	<p>The CPR Survey manage, process, and ensure quality control on their data using standards set out since the survey began.</p> <p>As a large-scale global survey, it provides the scientific and policy communities with a basin-wide and long-term measure of the ecological health of marine plankton. Established in 1931, the CPR Survey is the longest running, most geographically extensive marine ecological survey in the world. Home to a considerable database of marine plankton and associated metadata that is used by researchers and policy makers to examine strategically important science pillars such as climate change, human health, fisheries, biodiversity, pathogens, invasive species, ocean acidification and natural capital.</p>
Monitoring Frequency	Continually
Data Management	<p>The CPR Survey data have an extensive open data policy.</p> <p>For more information please see: https://www.cprsurvey.org/data/data-policy/</p>



Data Access	<ul style="list-style-type: none"> • https://www.cprsurvey.org/data/our-data/ • https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/pelagic-habitats/plankton-communities/ • https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/fish/size-composition/ • https://www.ospar.org/documents?v=38999
Related Indicator	ACS-IE-Plankton2021
Related Indicator Name	Plankton
Contact Name	Maurice Clarke
Email	Maurice.Clarke@marine.ie
References	TBC

Table 4.3 Features, Elements and Parameters recorded for the Continuous Plankton Recorder Survey

Feature	Elements	Parameter
Other Pelagic Habitats	Phytoplankton communities	Primary production
Other Pelagic Habitats	Zooplankton communities	Primary production



Descriptor 5 Eutrophication

Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.

Table 5.1 Criteria, Indicators, Environmental Targets and related monitoring programmes for Eutrophication.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D5C1: Nutrient concentrations are not at levels that indicate adverse eutrophication effects.	Indicators: ACS-IE-NutrientsNitrogen2021 ACS-IE-NutrientsPhosphorous2021 Environmental Target D5T1: Nutrient concentrations are not at levels that indicate adverse eutrophication effects.	ACS-IE-D05-01 Water Framework Directive Monitoring Programme
Criterion D5C2: Chlorophyll a concentrations are not at levels that indicate adverse effects of nutrient enrichment.	Indicator: ACS-IE-Chlorophylla2021 Environmental Target D5T2: Chlorophyll a concentrations are not at levels that indicate adverse effects of nutrient enrichment.	ACS-IE-D05-08 OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID
Criterion D5C5: The concentration of dissolved oxygen is not reduced, due to nutrient enrichment, to levels that indicate adverse effects on benthic habitats (including on associated biota and mobile species) or other eutrophication effects.	Indicator: ACS-IE-DissolvedOxygen2021 Environmental Target D5T3: The concentration of dissolved oxygen is not reduced, due to nutrient enrichment.	
Criterion D5C6: (Secondary) The abundance of opportunistic macroalgae is not at levels that indicate adverse effects of nutrient enrichment.	No environmental target set	ACS-IE-D05-01 Water Framework Directive Monitoring Programme
Criterion D5C7: (Secondary) The species composition and relative abundance or depth distribution of macrophyte communities achieve values that indicate there is no adverse effect due to nutrient	No environmental target set	ACS-IE-D05-01 Water Framework Directive Monitoring Programme



enrichment including via a decrease in water transparency		
Criterion D5C8: (Secondary) The species composition and relative abundance of macrofaunal communities, achieve values that indicate that there is no adverse effect due to nutrient and organic enrichment.	No environmental target set	ACS-IE-D05-01 Water Framework Directive Monitoring Programme



Water Framework Directive Monitoring Programme

Physico-chemical, chlorophyll and phytoplankton monitoring of Irish estuaries is undertaken once during winter and 3 times during the productive period between May and September. Samples for the analysis of chlorophyll and nutrients are collected using a 2-litre Hydrobios Ruttner bottle at the surface and 0.5 m above the bottom. Dissolved Oxygen saturation together with temperature, salinity and depth are recorded using a Hydrolab datasonde CTD. Where possible stations are monitored twice during the day, to capture tidal variation. Samples for the measurement of chlorophyll, are filtered using Whatman GF/C glassfibre filters and stored overnight in the dark to prevent photo-degradation. Pigments are measured using fluorometry. The frequency, composition and intensity of phytoplankton blooms are also monitored. Ammonia, total oxidized nitrogen and molybdate reactive phosphorus, are measured according to Standard Methods for the Examination of Water and Wastewater (2005).

In specific water bodies where **opportunistic green macroalgae** occur, these are also monitored. This is undertaken using a protocol developed to comply with the Water Framework Directive requirements for monitoring and assessing elevated growths of macroalgae in estuarine and coastal waters (Scanlan et al. 2007). *In situ* surveys of opportunistic macroalgal blooms in each water body are undertaken once annually, during the period of peak growth (June–September).

In specific areas, the monitoring of **macroalgae** takes place and consists of two elements, a quantitative assessment of rocky shore seaweed communities using a reduced species list and an evaluation of the extent and abundance of attached opportunistic algal blooms.

Seagrass communities are known to respond to environmental pressures such as increased nutrient loading and physical disturbance. An Ecological Quality Ratio (EQR) based on the taxonomic composition, spatial extent and bed density has been developed for WFD assessment. This is applied only in areas where seagrass beds are found and are thought to respond to nutrient pressures (Wilkes et al., 2017).

Composition and abundance of **benthic invertebrates** is assessed using the Infaunal Quality Index (IQI). This multi-metric index was developed by the UK-Ireland Benthic Invertebrate subgroup of the UK-Ireland Marine Task Team. The IQI describes ecological status based on the composition and abundance of soft sediment infaunal communities. The assessment describes the response of the biological communities to organic enrichment and elevated nutrient concentrations.



This monitoring programme also provides data for the assessment of D7-Hydrographical conditions; the Hydromorphological Quality Index (HQI) for coastal and transitional waterbodies.

Table 5.2 Monitoring Programme Details for the Water Framework Directive (WFD) Monitoring Programme.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO5-01
Programme Name	Water Framework Directive Monitoring Programme
Update Type	Modified from 2014
Other Policies or Conventions	EU-WFD
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	2006-ongoing
Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	Transitional waters (WFD) Coastal waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts Pressures in the Marine Environment
Monitoring Type	In-situ Sampling Coastal
Monitoring Method	WFD-007 WFD Guidance document n.º 7 - Monitoring under the Water Framework Directive (monitoring framework)
Monitoring Method Other	Ireland recently reviewed its monitoring programme. https://www.epa.ie/pubs/reports/water/waterqua/wfdnationalmonitoringprogramme2019-2021.html
Quality Control	ISO 17025 for analytical methods Methods and results have been inter-calibrated under the WFD National SOPs for in situ sampling methodology
Monitoring Frequency	Other- Monitoring for physico-chemical elements and chlorophyll is undertaken 4 times yearly (once in winter and 3 times in summer).



	Monitoring of Benthic Habitats (opportunistic macroalgae, macrophytes and microbenthic communities) is undertaken annually.
Data Management	Data held nationally in EPA database and also in ICES
Data Access	https://gis.epa.ie/EPAMaps/ https://www.ices.dk/data/Pages/default.aspx
Related Indicator	ACS-IE-NutrientsNitrogen2021 ACS-IE-NutrientsPhosphorous2021 ACS-IE-Chlorophylla2021 ACS-IE-DissolvedOxygen2021 ACS-IE-HQI2021
Related Indicator Name	Nutrients Nitrogen Nutrients Phosphorous Chlorophyll a Dissolved Oxygen Hydromorphological Quality Index
Contact Name	Robert Wilkes
Email	r.wilkes@epa.ie
References	<p>Keogh, J., Wilkes, R., & O'Boyle, S. 2020. A new index for the assessment of hydromorphology in transitional and coastal waters around Ireland. Marine Pollution Bulletin, Volume 151 https://doi.org/10.1016/j.marpolbul.2019.110802</p> <p>Phillips, G. R., Miles, A. C., Prior, A., Martina, L. J., Brooks, L., & Anwar, A. (2014). Infaunal Quality Index: WFD classification scheme for marine benthic invertebrates. R&D Technical Report. Bristol: Environment Agency https://www.gov.uk/government/publications/water-framework-directive-wfd-classification-scheme-for-marine-benthic-invertebrates-infaunal-quality-index</p> <p>Practitioners guide to the Infaunal Quality Index. Water framework Directive: Transitional and Coastal Waters. (2012) https://www.wfduk.org/sites/default/files/Media/Environmental%20standards/Annex%2018%20Transitional%20and%20coastal%20waters%20Invertebrates%20IQI.pdf</p> <p>Scanlan C.M., J. Foden, E. Wells, and M.A. Best. 2007. The monitoring of opportunistic macroalgal blooms for the water framework directive. Marine Pollution Bulletin55: 162–17 https://doi.org/10.1016/j.marpolbul.2006.09.017</p>



	<p>Toner, P., Bowman, J., Clabby, K., Lucey, J., McGarrigle, M., Concannon, C., Clenaghan, C., Cunningham, P., Delaney, J., O'Boyle, S., MacCárthaigh, M., Craig, M. and Quinn, R. (2005). Water Quality in Ireland 2001-2003. Water Quality in Ireland. Wexford, Environmental Protection Agency. https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_water_indicators_2005.pdf</p> <p>Wan, A. H. L., Wilkes, R. J., Heesch, S., Bermejo, R., Johnson, M. P. and Morrison, L. (2017). Assessment and Characterisation of Ireland's Green Tides (Ulva Species). <i>PLoS ONE</i> 12(1): e0169049. https://doi.org/10.1371/journal.pone.0169049</p> <p>Wells, E., Wilkinson, M., Wood, P. and Scanlan, C., 2007. The use of macroalgae species richness and composition on intertidal rocky seashores in the assessment of ecological quality under the European Water Framework Directive. <i>Marine Pollution Bulletin</i>. 55, 151 – 161. https://www.sciencedirect.com/science/article/abs/pii/S0025326X06003201?via%3Dihub</p> <p>Wilkes, R., Bennion, M., McQuaid, N., Beer, C., McCullough-Annett, G., Colhoun, K., Inger, R. and Morrison, L. (2017). Intertidal seagrass in Ireland: Pressures, WFD status and an assessment of trace element contamination in intertidal habitats using <i>Zostera noltei</i>. <i>Ecological Indicators</i> 82: 117-130. 10.1016/j.ecolind.2017.06.036</p>
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Table 5.3 Features, Elements and Parameters recorded for Ireland's WFD Monitoring Programme.

Feature	Elements	Parameter
Eutrophication	DIN DIP	Amount in water column
Code: PresEnvEutrophi	Dissolved oxygen (O ₂) Chlorophyll-a	Code: CONC-W
HabBenBHT- benthic broad habitats Eutrophication	Benthic habitats - opportunistic macroalgae Benthic habitats - macrophyte communities Benthic habitats - macrobenthic communities	INDEX- Index value (parameters calculated as complex indices) COV - coverage (e.g. coverage of a species within a habitat or area)
Code: PresEnvEutrophi		



Eutrophication Code: PresEnvEutrophi	Phytoplankton communities	Species Composition
Hydrographical Changes Code: PresEnvHydroChanges	Salinity	SAL – Salinity
	Temperature	TEM – Temperature
	Turbidity (silt/sediment loads)	Turb - Transparency / turbidity of water column
	Residence time	HYRO - Hydrological conditions of habitat
	Seabed substrate and morphology	CharaPhyHydro- Physical and Hydrological characteristics



OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID

Marine Institute – sampling and analytical methods

Annual winter nutrient sampling is carried out in January/February on board the *RV Celtic Voyager* for coastal surveys and on the *RV Celtic Explorer* for surveys across the shelf and the Rockall Trough. Over the last two decades, the sampling programme has evolved with coverage initially focusing on the Western Irish Sea but subsequently extending into the Celtic Sea. The current winter environmental programme on board the *RV Celtic Voyager* includes sampling for dissolved inorganic nutrients around the entire Irish coast (coastal water focus) biennially, along with a number of offshore transects completed. Nutrients samples are also collected during *RV Celtic Voyager* hydrographic surveys along 53 Degrees N (shelf) and across the Rockall Trough.

Actual winter sampling is highly weather dependent. Given the weather dependence and evolution of sampling approaches, caution must be exercised in comparing summary results from year to year for given areas.

The assessment includes surface waters only, collected from each station at a depth of 2 to 3 metres using either the on-board peristaltic pumping system or using Niskin bottles on the conductivity, temperature and depth (CTD) rosette. All seawater samples for nutrient analysis are filtered using acid-cleaned polycarbonate filters and preserved by freezing. A sub-sample was collected for each sample for accurate salinity analysis.

Total oxidized nitrogen (TOxN), ortho-phosphate (ortho-P), nitrite and silicate are analysed using segmented flow analysers. Discrete salinity samples were analysed using Guildline benchtop salinometers. Vertical profiles of conductivity and temperature are recorded using a Seabird SBE - 911 CTD system. A rigorous quality assurance scheme underpins analysis, including accreditation to ISO 17025 for both nutrient and salinity analysis and participation in QUASIMEME proficiency testing exercises. A detailed description of sample collection, analysis and quality control is outlined in McGrath et al. (2013).

Comprehensive Atmospheric Monitoring Programme (CAMP)

The OSPAR Comprehensive Atmospheric Monitoring Programme (CAMP) consists of coastal atmospheric monitoring stations where monitoring data are estimated to represent marine atmospheric deposition conditions. Ireland has one atmospheric monitoring station reporting data under the OSPAR CAMP, situated in Valentia (51°56' N 10°15' W).

The monitoring protocol followed is in line with OSPAR CAMP principles. These data contribute to regional and subregional assessments as carried out via OSPAR. The data



complement additional modelling-based estimates to give depositions for the North East Atlantic area². Emission sources to the atmosphere are also determined. The information on the methods for calculation of long-term averaged concentrations for the assessments of atmospheric inputs can be found on both websites of EMEP at the Meteorological Synthesising Centre–West (MSC-W) for the nutrients and the Meteorological Synthesising Centre–East for the metals and Persistent organic pollutants (POPs). The information for the methods for assessment of atmospheric inputs of nutrients can be found on the website of the EMEP/MSC-W model³. The information on the methods for assessment of atmospheric inputs of metals and POPs can be found on the website EMEP/MSC-E model for the metals⁴.

Riverine Inputs and Direct Discharges (RID)

Riverine samples for physico-chemical parameters are taken monthly to align with the national Water Framework Directive monitoring programme. Samples are returned directly to the laboratory on the day of sampling or the following morning by courier and analysed within 24 hours of collection. Samples are analysed for nutrient concentrations (Nitrogen and Phosphorus) and metals (Cadmium, Mercury, Lead, Copper, Zinc) and Polycyclic aromatic hydrocarbon (PAH) which are reported under Descriptor 8 (Contaminants). Continuous monitoring data from hydrometric stations enables the determination of discharge flows from 19 of the largest Irish catchments. The loads of the different substances are calculated as the product of the flow-weighted annual mean concentration and the annual flow, in accordance with the RID principles (OSPAR 1998). In the case where a substance is recorded below the limit of detection (LoD), the RID principles indicate that two load estimates should be given in such cases, one based on assuming a zero concentration (lower estimate) for the samples in question and the other using the detection limit as the appropriate concentration (upper estimate).

² Guidance for the Comprehensive Atmospheric Monitoring Programme (CAMP) (Agreement [2015-04](#)) https://mcc.jrc.ec.europa.eu/documents/OSPAR/Guidance_fortheComprehensiveAtmosphericMonitoringProgramme_CAMP%20.pdf.

³ https://wiki.met.no/emep/page1/emepmscw_opensource

⁴ <http://www.msceast.org/index.php/msce-hm>



Table 5.4 Monitoring Programme Details for OSPAR CEMP for Eutrophication, CAMP and RID.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO5-08
Programme Name	OSPAR CEMP for Eutrophication, CAMP and RID
Update Type	Modified from 2014
Other Policies or Conventions	OSPAR Coordinated Environmental Monitoring Programme OSP - CEMP
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	2006-ongoing
Regional Cooperation Implementation	Data on marine parameters, loads and atmospheric data is collected individually by contracting parties and reported to OSPAR. Satellite chlorophyll data and modelled atmospheric deposition are commissioned at an OPSAR level.
Spatial Scope	EEZ or similar
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts Pressures in the marine environment Pressures at source (land based, riverine, sea-based and atmospheric sources) Human Activities causing the pressures
Monitoring Type	In-situ Sampling offshore Administrative data collection Remote Satellite Imagery (satellite observations) Numerical modelling
Monitoring Method	OSP-029 OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID OSPAR CEMP guidelines for coordinated monitoring for eutrophication, CAMP and RID
Monitoring Method Other	McGovern et al., 2002: "Winter Nutrient Monitoring of the Western Irish Sea – 1990 to 2000", Marine Environment and Health Series No. 4, Marine Institute https://oar.marine.ie/handle/10793/222 Marine Institute, 2016. Environmental survey of coastal and shelf waters Dublin - Galway: Winter nutrients, benthos and



	<p>contaminants monitoring. Marine Institute, Galway, Ireland. https://oar.marine.ie/handle/10793/1154</p> <p>EPA Status of Ireland's Climate, 2012 Report: https://www.epa.ie/publications/research/climate-change/ccrp-report-26.php</p> <p>OSPAR 2015 Guidance for the Comprehensive Atmospheric Monitoring Programme (CAMP) (Agreement 2015-04). https://www.ospar.org/work-areas/hasec/hazardous-substances/camp</p> <p>JAMP Guideline on methods and criteria for harmonised sampling and analysis of PAHs in air and precipitation</p> <p>JAMP Guidelines for the sampling and analysis of mercury in air and precipitation</p>
Quality Control	<p>ISO 17025, Quasimeme PT scheme, validated methods, SOPs, analytical quality control samples, e.g. CRMs</p> <p>For the CAMP quality assurance, the recommendation is to refer to the procedures within the QA/QC programme of EMEP. Information regarding the procedures for quality assurance of EMEP for precipitation, for air and for aerosol can be found at http://www.nilu.no/projects/ccc/qa/index.htm</p>
Monitoring Frequency	Yearly
Data Management	<p>ICES database</p> <p>OSPAR Database</p> <p>EBAS Database</p> <p>Data also held nationally in the Marine Institute Database</p>
Data Access	<p>https://www.ices.dk/data/Pages/default.aspx</p> <p>https://odims.ospar.org/-RIDdata</p> <p>https://www.marine.ie/Home/site-area/data-services/marine-data-centre</p> <p>http://ebas.nilu.no/-CAMPData</p>
Related Indicator	<p>ACS-IE-NutrientsNitrogen2021</p> <p>ACS-IE-NutrientsPhosphorous2021</p> <p>ACS-IE-Chlorophylla2021</p> <p>ACS-IE-DissolvedOxygen2021</p> <p>ACS-IE-ContaminantsNonUPBTSubstances2021</p> <p>ACS-IE-ContaminantsUPBTSubstances2021</p> <p>ACS-IE-HQI2021</p>



Related Indicator Name	<p>Nutrients Nitrogen</p> <p>Nutrients Phosphorous</p> <p>Chlorophyll a</p> <p>Dissolved Oxygen</p> <p>Contaminants Non UPBT Substance</p> <p>Contaminants UPBT Substance</p> <p>Hydromorphological Quality Index</p>
Contact Name	Garvan O'Donnell
Email	garvan.odonnell@marine.ie
References	<p>Marine Institute winter sampling:</p> <p>McGrath, T., Kivimäe, C., McGovern, E., Cave, R. R. and Joyce, E. (2013). Winter measurements of oceanic biogeochemical parameters in the Rockall Trough (2009–2012). <i>Earth Syst. Sci. Data</i> 5(2): 375–383. https://doi.org/10.5194/essd-5-375-2013</p> <p>McGovern, E., Monaghan, E., Bloxham, M., Rowe, A., Duffy, C., Quinn, Á., McHugh, B., McMahon, T., Smyth, M., Naughton, M., McManus, M. and Nixon, E. (2002) Winter nutrient monitoring of the western Irish Sea – 1990–2000, Marine Environment and Health Series No. 4, 2002, Marine Institute: Dublin. https://oar.marine.ie/handle/10793/222</p> <p>RID:</p> <p>O'Boyle et al., 2016 What have we learned from over two decades of monitoring riverine nutrient inputs to Ireland's marine environment. <i>Biology and Environment</i>, 116B (3): 313–327 https://researchrepository.ucd.ie/handle/10197/8551</p> <p>OSPAR, 1998 Principles of the Comprehensive Study on Riverine Inputs and Direct Discharges (RID). 1998, OSPAR Commission, London. 18 pp https://www.ospar.org/work-areas/hasec/hazardous-substances/rid</p> <p>OSPAR Comprehensive Atmospheric Monitoring Programme (CAMP): https://www.ospar.org/work-areas/hasec/hazardous-substances/camp</p>



	OSPAR Common procedure for the assessment of Eutrophication : https://www.ospar.org/work-areas/hasec/eutrophication/common-procedure
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Table 5.5 Features, Elements and Parameters recorded for Ireland's OSPAR CEMP Programme.

Feature	Elements	Parameter
Eutrophication Code: PresEnvEutrophi	DIN DIP Remote sensing (chlorophyll a) Chlorophyll a Dissolved Oxygen TN TP	Amount in water column Code: CONC-W
Input of nutrients – diffuse sources, point sources, atmospheric deposition Code: PresInputNut	TN TP	Deposition Code: DEP Freshwater input rates from rivers Code: FRESH
Input of other substances (e.g. synthetic substances, non-synthetic substances, radionuclides) – diffuse sources, point sources, atmospheric deposition, acute events Code : PresInputCont	Cadmium and its compounds Mercury and its compounds Lead and its compounds Copper and its compounds Zinc and its compounds	Deposition Code: DEP Freshwater input rates from rivers Code: FRESH
Hydrographical Changes Code: PresEnvHydroChanges	Temperature Salinity pCO ₂	SAL – Salinity TEM – Temperature TBC



Descriptor 6 Sea Floor Integrity

Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

Table 6.1 Criteria, Indicators, Environmental Targets and related monitoring programmes for Seafloor Integrity.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D6C1: Spatial extent and distribution of physical loss (permanent change) of the natural seabed.	Indicator: ASC-IE-BenthHabPhysLoss2021 Environmental Target 1: The spatial extent and distribution of physical loss (permanent change) of the natural seabed is at a level that ensures that the structure and functions of the ecosystems are safeguarded and that benthic ecosystems, in particular, are not adversely affected	ACS-IE-Do6-01 INFOMAR ACS-IE-Do6-02 Monitoring and Assessments of Sea Floor Integrity
Criterion D6C2: Spatial extent and distribution of physical disturbance pressures on the seabed.	Indicator: ASC-IE-BenthHabDisturb2021 Environmental Target 2: The spatial extent and distribution of physical disturbance pressures on the seabed is at a level that ensures that the structure and functions of the ecosystems are safeguarded and that benthic ecosystems, in particular, are not adversely affected.	
Criterion D6C4: The extent of loss of the habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.	Indicator: ASC-IE-BenthHabPhysLoss2021 Environmental Target 4: D6T4: The extent of loss of the habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.	



<p>Criterion D6C5: The extent of adverse effects from anthropogenic pressures on the condition of the habitat type, including alteration to its biotic and abiotic structure and its functions (e.g. its typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p>	<p>Indicator: ASC-IE-BenthHabExtent2021</p> <p>Environmental Target 5: The extent of adverse effects from anthropogenic pressures on the condition of the habitat type, including alteration to its biotic and abiotic structure and its functions, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p>	
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INFOMAR

INFOMAR (Integrated Mapping For the Sustainable Development of Ireland's Marine Resource) is the national seabed mapping programme (2006-2026 inclusive), which aims to map the physical, chemical and biological features of Ireland's seabed. The project is funded by the Department of the Environment, Climate and Communications and jointly managed by Geological Survey Ireland and the Marine Institute, and is a successor to the Irish National Seabed Survey (INSS) programme.

The objective of this mapping programme is the creation of open source integrated map and data products relating to the physico-chemical and biological features of the seabed in Irish waters. These data products are integral components supporting assessment of the status and sensitivity of seabed habitats with respect to existing and potential future impacts and pressures.

The programme partners collaborate on major international ecosystem assessment and seabed mapping related projects including Mission Atlantic (H2020) and CHERISH (Ireland-Wales 2014-2020 Programme). For the last ten years, INFOMAR has contributed seabed characterisation data to the EMODnet Geology, Habitats and Bathymetry projects initiated by the European Commission, in response to the EU's Green Paper on Future Maritime Policy.

Table 6.2 Monitoring Programme Details for INFOMAR

EIONET Reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO6-01
Programme Name	INFOMAR
Update Type	Modified from 2014
Other Policies or Conventions	National Monitoring programme targeting at national legislation
Regional Cooperation	Other
Regional Cooperation Countries	N/A
Temporal Scope	2006-9999
Regional Cooperation Implementation	Agreed data collection methods
Spatial Scope	Transitional waters (WFD) Coastal waters (WFD) Territorial waters EEZ (or similar) Continental shelf (beyond EEZ)
Marine Reporting Unit	ACS-IE-AA-001



Monitoring Purpose	Environmental state and impacts
Monitoring Type	Administrative data collection
Monitoring Method	Other monitoring method
Monitoring Method Other	International Hydrographic Organization Standards for Hydrographic Surveys
Quality Control	Data are acquired in accordance with International Hydrographic Office Standards, and in compliance with Marine Institute Data Quality Management Framework.
Monitoring Frequency	Continually
Data Management	<p>The Marine Institute collects the majority of the data within the DCF Monitoring Programme. Data Management in the Marine Institute is focussed on: people (ensuring the roles for Data Management across the Institute are assigned appropriately and adequately resourced); processes (including ensuring a framework for reproducible high quality data processes are in place across the Institute) and technology (with an operational stream based around the Microsoft SQL Server and Esri ArcGIS product families and a research and development stream).</p> <p>Much of this activity is takes place under the Marine Institute's Data Management Quality Management Framework, which is aligned with ISO9001:2015 and has been accredited by the International Data and Information Exchange of UNESCO's Intergovernmental Oceanographic Commission. This framework covers end-user requirements; data management planning; documenting data processes and procedures; cataloguing datasets; and reviewing and evaluating the operation of data processes.</p> <p>The Marine Institute publishes many of its datasets openly online in line with national Open Data Strategy and the upcoming requirements of the Public Sector Information Directive, either via a data broker software server (in particular the Erddap tool created by the US National Oceanographic and Atmospheric Administration and available at http://erddap.marine.ie) or through web mapping services. Many of these datasets are visualised either through Ireland's Marine Atlas (http://atlas.marine.ie). These sites provide a demonstration of the Marine Institute's data holdings and data capabilities. A full inventory of publicly available datasets from the Marine Institute can be found at http://data.marine.ie, and any data which are not available through online services can be requested via email to datarequests@marine.ie.</p>
Data Access	https://atlas.marine.ie/#?c=52.4920;-9.9866;9 https://www.infomar.ie/
Related Indicator	Not Applicable
Related Indicator Name	Not Applicable



Contact Name	Tommy Furey
Email	thomas.furey@marine.ie
References	http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/e06b50ea-4ced-451b-8ca3-cc5c68800236 http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.860 http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/f2607bfe-00d5-4b59-bdd0-920c09608900 http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/313b9252-e572-496a-b9d6-e8c9eb39a516 http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/9db6ac27-7ce6-45d0-bb30-6211941cb56f http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4005 http://www.isde.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.901 https://www.emodnet-seabedhabitats.eu/news/map-of-msfd-benthic-broad-habitat-types/

Table 6.3 Features, Elements and Parameters recorded for INFOMAR

Feature	Elements	Parameter
Physical and hydrological characteristics	Bathymetry	Bathymetric depth Physical structure of habitat (e.g. sediment characteristics, topographic structure)



Benthic broad habitats	<ul style="list-style-type: none"> Abyssal Circalittoral coarse sediment Circalittoral mixed sediment Circalittoral mud Circalittoral rock and biogenic reef Circalittoral sand Infralittoral coarse sediment Infralittoral mixed sediment Infralittoral mud Infralittoral rock and biogenic reef Infralittoral sand Littoral rock and biogenic reef Littoral sediment Lower bathyal rock and biogenic reef Lower bathyal sediment Offshore circalittoral coarse sediment Offshore circalittoral mixed sediment Offshore circalittoral mud Offshore circalittoral rock and biogenic Offshore circalittoral sand Upper bathyal rock and biogenic reef Upper bathyal sediment Benthic habitats 	Extent
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Monitoring and Assessments of Sea Floor Integrity

The assessment of extent of physical damage to predominant and special habitats relies on two types underlying information,

- (i) the distribution and sensitivity of habitats (resilience and resistance), and
- (ii) the distribution and intensity of human activities and pressures that cause physical damage, such as mobile bottom gear fisheries, sediment extraction and offshore constructions.

These two sources of information (pressure and sensitivity) are combined to calculate the potential damage to a given seafloor habitat, and the trends across the six-year period. Several programmes provide data that is collated to determine sea floor sensitivity and pressure, which enable the assessment of Ireland's sea floor integrity.

Table 6.4 Monitoring Programme Details for the Monitoring and Assessments of Sea Floor Integrity programme

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do6-02
Programme Name	Monitoring and Assessments of Sea Floor Integrity
Update Type	New Programme
Other Policies or Conventions	OSP-CEMP OSPAR Coordinated Environmental Monitoring Programme
Regional Cooperation	OSPAR
Regional Cooperation Countries	Not Applicable
Temporal Scope	2020-9999
Regional Cooperation Implementation	Common monitoring strategy
Spatial Scope	EEZ (or similar)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental state and impacts Human activities causing the pressures Pressures in the marine environment
Monitoring Type	Numerical modelling
Monitoring Method	OSPAR CEMP Guidelines Common Indicator: BH3 Extent of Physical damage to predominant and special habitats (Agreement 2017-09)
Monitoring Method Other	Not Applicable



Quality Control	Quality control is managed through OSPAR and also through assessment-specific working groups.
Monitoring Frequency	6-yearly
Data Management	<p>The Marine Institute collects the majority of the data within the DCF Monitoring Programme. Data Management in the Marine Institute is focussed on: people (ensuring the roles for Data Management across the Institute are assigned appropriately and adequately resourced); processes (including ensuring a framework for reproducible high quality data processes are in place across the Institute) and technology (with an operational stream based around the Microsoft SQL Server and Esri ArcGIS product families and a research and development stream).</p> <p>Much of this activity is takes place under the Marine Institute's Data Management Quality Management Framework, which is aligned with ISO9001:2015 and has been accredited by the International Data and Information Exchange of UNESCO's Intergovernmental Oceanographic Commission. This framework covers end-user requirements; data management planning; documenting data processes and procedures; cataloguing datasets; and reviewing and evaluating the operation of data processes.</p> <p>The Marine Institute publishes many of its datasets openly online in line with national Open Data Strategy and the upcoming requirements of the Public Sector Information Directive, either via a data broker software server (in particular the Erddap tool created by the US National Oceanographic and Atmospheric Administration and available at http://erddap.marine.ie) or through web mapping services. Many of these datasets are visualised either through Ireland's Marine Atlas (http://atlas.marine.ie). These sites provide a demonstration of the Marine Institute's data holdings and data capabilities. A full inventory of publicly available datasets from the Marine Institute can be found at http://data.marine.ie, and any data which are not available through online services can be requested via email to datarequests@marine.ie.</p>
Data Access	<p>http://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4835</p> <p>http://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4834</p> <p>http://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4836</p> <p>https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019</p>
Related Indicator	<p>ASC-IE-BenthHabPhysLoss2021</p> <p>ASC-IE-BenthHabDisturb2021</p>



Related Indicator Name	Benthic Habitat Physical Loss Benthic Habitat Disturbance
Contact Name	Paul Coleman
Email	Paul.Coleman@Marine.ie
References	https://www.ospar.org/documents?v=37641

Table 6.5 Features, Elements and Parameters recorded for the OSPAR Common Indicator BH3 Assessment

Feature	Elements	Parameter
Physical loss of the seabed	Not Applicable	Extent
Restructuring of Seabed Morphology	Not Applicable	Extent
Extraction of minerals: Rock, Metal ores, Gravel, Sand, Shell	Not Applicable	Extent
Renewable energy generation, including infrastructure	Not Applicable	Extent
Land claim	Not Applicable	Extent
Non-renewable offshore structures	Not Applicable	Extent
Transmission of electricity and communications	Not Applicable	Extent
Aquaculture marine, including infrastructure	Not Applicable	Extent
Coastal defence and flood protection	Not Applicable	Extent
Canalisation and other watercourse modifications	Not Applicable	Extent
Transport infrastructure	Not Applicable	Extent
Physical disturbance to seabed	Not Applicable	Extent
Benthic broad habitats	Not Applicable	Extent
Benthic broad habitats	Abyssal Circalittoral coarse sediment Circalittoral mixed sediment Circalittoral mud Circalittoral rock and biogenic reef Circalittoral sand Infralittoral coarse sediment Infralittoral mixed sediment Infralittoral mud Infralittoral rock and biogenic reef Infralittoral sand Littoral rock and biogenic reef Littoral sediment	Extent



	Lower bathyal rock and biogenic reef Lower bathyal sediment Offshore circalittoral coarse sediment Offshore circalittoral mixed sediment Offshore circalittoral mud Offshore circalittoral rock and biogenic Offshore circalittoral sand Upper bathyal rock and biogenic reef Upper bathyal sediment Benthic habitats	
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Descriptor 7 Alteration of Hydrographical Conditions

Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.

Table 7.1 Criteria, Environmental Targets and related monitoring programmes for alternation of Hydrographical conditions.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D7C1: Spatial extent and distribution of permanent alteration of hydrographical conditions (e.g. changes in wave action, currents, salinity, temperature) to the seabed and water column, associated in particular with physical loss of the natural seabed.	Indicators ACS-IE-HQI2021 ACS-IE-Dredging2021 ASC-IE-BenthHabPhysLoss2021 ASC-IE-BenthHabDisturb2021 Environmental Target D7T1: The spatial extent and distribution of permanent alteration of hydrographical conditions to the seabed and water column, is at a level that ensures that the structure and functions of the ecosystems are safeguarded and that benthic ecosystems, in particular, are not adversely affected.	ASC-IE-Do5-01 Water Framework Directive Monitoring Programme ASC-IE-Do5-08 OSPAR CEMP for Eutrophication, CAMP and RID ACS-IE-Do7-02 Data Acquisition for coastal hydrographical conditions ACS-IE-Do7-01 – Existing Regulatory Regime for Marine Activities
Criterion D7C2 (Benthic broad habitats types or other habitat types, as used for Descriptors 1 and 6): Spatial extent of each benthic habitat type adversely affected (physical and hydrographical characteristics and associated biological communities) due to permanent alteration of hydrographical conditions.		ACS-IE-Do6-01 INFOMAR



Hydromorphological Quality Index (HQI)

The HQI collates data on 13 metrics to determine the magnitude to alteration to a coastal or transitional waterbody due to a human pressure. The assessment includes data for 13 metrics which are provided by 3 monitoring programmes. The source of data for the 13 metrics are provided in the table below:

Table 7.2 – Hydromorphological Quality Index metrics

Metric	Monitoring Programme Code	Monitoring Type	Data Source
1. Shoreline alteration	ACS-IE-D07-02	Administrative data collection	EPA, OPW
2. Presence or absence of barriers	ACS-IE-D07-02	Administrative data collection	EPA
3. Bed disturbance	ACS-IE-D07-02	Administrative data collection	EPA, OPW, MI (Marine Atlas and Irish Spatial Data Exchange) INFOMAR, DAFM (Aquaculture licence database)
4. Change in habitat	ACS-IE-D07-02	Administrative data collection	EPA, OPW (land claims)
5. Change in spatial extent of saltmarsh and seagrass beds	ACS-IE-D05-01	In-situ sampling coastal	EPA-WFD monitoring programme
6. Change in tidal regime	ACS-IE-D07-02	Administrative data collection	Admiralty
7. Change in wave regime	ACS-IE-D07-02	Administrative data collection	EPA
8. Change in river flow	ACS-IE-D07-02 and ACS-IE-D05-08	In-situ sampling coastal and administrative data collection	EPA, OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID
9. Change in residence time	ACS-IE-D05-01 and ACS-IE-D05-08	In-situ sampling coastal, administrative data collection and numerical modelling	EPA, OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID



10. Change in dominant fraction particle size	ACS-IE-Do5-01	In-situ sampling coastal	MI-WFD monitoring programme
11. Change in turbidity (Secchi depth)	ACS-IE-Do5-01	In-situ sampling coastal	EPA-WFD monitoring programme
12. Change in stratification (temperature and salinity)	ACS-IE-Do5-01	In-situ sampling coastal	EPA-WFD monitoring programme
13. Change in salinity	ACS-IE-Do5-01	In-situ sampling coastal	EPA-WFD monitoring programme

An administrative data collection programme (ASC-IE-Do7-02) was used to collate data for metric 1-4, 6, 7 and parts of 8. Additional data was collated from the WFD monitoring programmes (5, 8, 10, 11, 12 & 13) and the OSPAR CEMP Eutrophication, CAMP, and RID programme (8 & 9).

Details for the WFD monitoring programme and OSPAR CEMP Eutrophication, CAMP, and RID programme can be found under D5 (ASC-IE-Do5-01 and ASC-IE-Do5-08).

Data Acquisition for coastal hydrographical conditions

Table 7.3 Data Acquisition for coastal hydrographical conditions

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do7-02
Programme Name	Data Acquisition for coastal hydrographical conditions
Update Type	New Programme
Other Policies or Conventions	Water Framework Directive (2000/60/EC)
Regional Cooperation	
Regional Cooperation Countries	
Temporal Scope	2019-9999
Regional Cooperation Implementation	
Spatial Scope	Transitional Waters Coastal Waters
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental State and Impacts



	Human Activities Causing the Pressure
Monitoring Type	Administrative data collation
Monitoring Method	The ACS-IE-DO7-02 monitoring programme collates data on 6 of HQI metrics and part of a 7th HQI metric, from information gathered from GIS layers and other sources. This includes the following HQI metrics; shoreline alternation, presence or absence of barriers, bed disturbance, change in habitat, change in tidal regime, change in wave regime, changes in river flow.
Monitoring Method Other	
Quality Control	Data is quality controlled in the EPA GIS database.
Monitoring Frequency	6- yearly
Data Management	Data held nationally in EPA as GIS layers
Data Access	www.epa.ie
Related Indicator	ACS-IE-HQI2021
Related Indicator Name	Hydromorphological Quality Index
Contact Name	John Keogh
Email	j.keogh@epa.ie
References	John Keogh, Robert Wilkes, Shane O'Boyle. 2020. A new index for the assessment of hydromorphology in transitional and coastal waters around Ireland. Marine Pollution Bulletin, Volume 151. https://doi.org/10.1016/j.marpolbul.2019.110802

Table 7.4 Features, Elements and Parameters recorded for Data Acquisition for coastal hydrographical conditions

Feature	Elements	Parameter
Hydrographical Changes Code: PresEnvHydroChanges	Seabed Substrate and Morphology Current regime Wave regime Residence time <i>(name in HQI- change in tidal regime, changes in river flow)</i>	Extent
Restructuring of seabed morphology, including dredging and depositing of materials. <i>(name in HQI- bed disturbance, change in habitat)</i>	NA	Extent



Canalisation and other watercourse modifications <i>(name in HQI - shoreline alternation, presence or absence of barriers)</i>	NA	Extent
Coastal defence and flood protection <i>(name in HQI - shoreline alternation, presence or absence of barriers, change in habitat)</i>	NA	Extent
Loss of, or change to, natural biological communities due to cultivation of animal or plant species <i>(name in HQI - bed disturbance, change in habitat)</i>	NA	Extent
Land Claim <i>(name in HQI - change in habitat)</i>	NA	Extent
Extraction of oil and gas, including infrastructure <i>(name in HQI - change in habitat)</i>	NA	Extent
Renewable energy generation (wind, wave, and tidal power) <i>(name in HQI - change in habitat)</i>	NA	Extent



Existing Regulatory Regime for Marine Activities

Plans or projects large enough to have the potential to alter hydrographical conditions, either at a broad scale or by acting cumulatively with other existing or proposed developments, will be assessed through the collation of data for Environmental Impact Assessments (EIA), Strategic Environmental Assessments (SEA), the Water Framework Directive (WFD) and the Habitats Directive (HD) processes, as part of the existing impact assessment required under regulations in place in Ireland. Any additional physical monitoring is likely to be specific to a proposed development project or activity. At present, data is collated through a number of consent authorities.

Table 7.5 Monitoring Programme Details for the Existing Regulatory Regime for Marine Activities.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-D07-01
Programme Name	Existing Regulatory Regime for Marine Activities
Update Type	Same Programme as in 2014
Other Policies or Conventions	Environmental Impact Assessment Directive (2011/92/EU) Strategic Environmental Assessments (2001/42/EC) Water Framework Directive (2000/60/EC) Maritime Spatial Planning Directive (2014/89/EU) Habitats Directive (92/43/EEC)
Regional Cooperation	
Regional Cooperation Countries	
Temporal Scope	1989-9999 ⁵
Regional Cooperation Implementation	
Spatial Scope	EEZ or similar
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Human activities causing the pressures Pressures in the marine environment
Monitoring Type	Administrative data collation
Monitoring Method	OTHER
Monitoring Method Other	Searches are carried out on the Irish foreshore license database, for consents permitting activities that could

⁵ The year the EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Development) Act, 1963 (and other legislation) to provide for environmental impact assessment.



	potentially lead to changes in hydrographical changes. Information on Dredging and Dumping at Sea, beyond coastal waters is also collated.
Quality Control	
Monitoring Frequency	As required with requests for permits and licences
Data Management	Data held nationally in EPA and government databases OSPAR Reports Dredged Material https://atlas.marine.ie/
Data Access	https://atlas.marine.ie/
Related Indicator	ACS-IE-Dredging2021 ASC-IE-BenthHabPhysLoss2021 ASC-IE-BenthHabDisturb2021
Related Indicator Name	Dredging Benthic Habitat Physical Loss Benthic Habitat Disturbance
Contact Name	Sorcha Ní Longphuirt
Email	Sorcha.nilongphuirt@housing.gov.ie
References	EPA (2012) Dumping at Sea - Dumping Site Selection Guidance Note. A Small Scale Study for the Environmental Protection Agency (Ireland) under the Science, Technology, Research & Innovation for the Environment (STRIVE) Programme 2007 – 2013 Produced by AQUAFACT International Services Ltd. https://www.epa.ie/publications/research/small-scale-studies/Dumping-at-Sea-Site-Selection-Guidance-Note.pdf

Table 7.6 Features, Elements and Parameters recorded for Ireland's Existing Regulatory Regime for Marine Activities.

Feature	Elements	Parameter
Alternation to Hydrographical conditions Code: PresEnvHydroChanges	Turbidity (silt/sediment loads) Seabed substrate and morphology	Extent
Renewable energy generation (wind, wave and tidal) including infrastructure	NA	Extent



Restructuring of seabed morphology, including dredging and deposition of materials	NA	Extent
Extraction of oil and gas, including infrastructure	NA	Extent
Transmission of electricity and communications (cables)	NA	Extent

Integrated Mapping For the Sustainable Development of Ireland's Marine Resource (INFOMAR)

Details on this programme (ASC-IE-DO6-01) can be found under Descriptor 6 Benthic Habitats.



Descriptor 8 Contaminants

Concentrations of contaminants are at levels not giving rise to pollution effects.

Table 8.1 Criteria, Environmental Targets and related monitoring programmes for Contaminants.

Criteria	Indicators and Environmental Targets	Monitoring Programme
<p>Criterion D8C1: Within coastal and territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <p>(a) for contaminants set out under point 1(a) of criteria elements, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) when contaminants under point (a) are measured in a matrix for which no value is set under Directive 2000/60/EC, the concentration of those contaminants in that matrix established by Member States through regional or subregional cooperation;</p> <p>(c) for additional contaminants selected under point 1(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation, considering their application within</p>	<p>Indicators</p> <p>ACS-IE-ContaminantsNonUPBTSubstances2021, ACS-IE-ContaminantsUPBTSubstances2021</p> <p>Environmental Targets</p> <p>D8T1a: Within coastal and territorial waters, the concentrations of contaminants do not exceed the threshold values set in accordance with Directive 2000/60/EC.</p>	<p>ACS-IE-Do8-01</p> <p>Water Framework Directive Priority substances and other relevant pollutants in transitional and coastal waters</p>
	<p>Environmental Target</p> <p>D8T1b: Concentration of contaminants in marine matrices are assessed in accordance with OSPAR Coordinated Environmental Monitoring Programme (CEMP) do not exceed OSPAR Environmental Assessment Criteria (EAC) and concentrations are not increasing.</p>	<p>ACS-IE-Do8-02</p> <p>OSPAR CEMP (Coordinated Environmental Monitoring Programme) for coordinated monitoring for hazardous substances (Agreement 2016-04)</p>
		<p>ACS-IE-Do5-08</p>



<p>and beyond coastal and territorial waters.</p> <p>Beyond territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <p>(a) for contaminants selected under point 2(a) of criteria elements, the values as applicable within coastal and territorial waters;</p> <p>(b) for contaminants selected under point 2(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation.</p>		<p>OSPAR CEMP for Eutrophication, CAMP and RID</p>
<p>Criterion D8C2: The health of species and the condition of habitats (such as their species composition and relative abundance at locations of chronic pollution) are not adversely affected due to contaminants including cumulative and synergetic effects.</p> <p>Member States shall establish those adverse effects and their threshold values through regional or subregional cooperation.</p>	<p>Indicator</p> <p>ACS-IE-BiologicalEffects2021</p> <p>Environmental Target</p> <p>T8C2: The health of species and the condition of habitats (such as their species composition and relative abundance at locations of chronic pollution) are not adversely affected due to contaminants including cumulative and synergistic effects.</p>	<p>ACS-IE-Do8-03</p> <p>OSPAR CEMP - Biological effects of Organotins</p>
<p>Criterion D8C3: The spatial extent and duration of significant acute pollution events are minimised.</p>	<p>Indicator</p> <p>ACS-IE-SignificantAcutePoll2021</p> <p>Environmental Target</p> <p>T8C3: The spatial extent and duration of significant acute pollution events are minimised.</p>	<p>ACS-IE-Do8-04</p> <p>Acute Pollution Events</p>



Water Framework Directive Priority Substances and other relevant pollutants in transitional and coastal waters

Concentrations of Priority Substance and other relevant pollutants are sampled and analysed by the Marine Institute. Sampling is undertaken in transitional and coastal water including protected shellfish waters in line with a risk based approach. Assessments are undertaken over a six year period.

Table 8.2 Monitoring Programme Details for the WFD Priority Substances and other relevant pollutants in transitional and coastal waters.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do8-01
Programme Name	Water Framework Directive Priority Substances and other relevant pollutants in transitional and coastal waters
Update Type	Modified from 2014
Other Policies or Conventions	EU-WFD
Regional Cooperation	
Regional Cooperation Countries	
Temporal Scope	2012-ongoing
Regional Cooperation Implementation	Common monitoring strategy (spatial and temporal design of programme)
Spatial Scope	Territorial waters Transitional waters (WFD) Coastal waters (WFD)
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental State and impacts Effectiveness of Measures Pressures in the Marine Environment
Monitoring Type	In-situ Sampling Coastal Other: In-situ sampling Transitional
Monitoring Method	WFD-019 WFD Guidance document no. 19 – Guidance on surface water chemical monitoring under the Water Framework Directive WFD-032 WFD Guidance document no. 32 – on biota monitoring (the implementation of EQS_{BIOTA}) under the Water Framework Directive.
Monitoring Method Other	Commission Directive 2009/90/EC



Quality Control	ISO 17025 Accreditation for laboratory testing for all laboratories used Certified Reference Materials (CRMs), and Proficiency testing (including QUASIMEME- Quality Assurance of Information for Marine Environmental Monitoring in Europe for metals in seawater)
Monitoring Frequency	Other- Surveillance is on a 6-Year cycle (monitoring is undertaken monthly in monitoring year) Shellfish waters are monitored 4 times per year, 1 to 3 year cycle)
Data Management	marine.ie SQL database - contaminants in water;
Data Access	Marine Institute: https://www.marine.ie/Home/site-area/data-services/search-marine-data/access-data
Related Indicator	ACS-IE-ContaminantsNonUPBTSubstances2021 ACS-IE-ContaminantsUPBTSubstances2021
Related Indicator Name	Contaminants Non UPBT Substance Contaminants UPBT Substance
Contact Name	Brendan McHugh
Email	brendan.mchugh@marine.ie
References	N/A

Table 8.3 Features, Elements and Parameters recorded for Ireland's WFD Monitoring Programme.

Feature	Elements	Parameter
Contaminants- non ubiquitous persistent, bio-accumulative and toxic (nonUPBT) substances Code: PresEnvContNonUPBTs	Anthracene Benz(a)anthracene Dibenzo(a,h)anthracene Fluoranthene Naphthalene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(g,h,i)perylene Indeno(1,2,3,-cd)pyrene Cadmium and its compounds Chromium and its compounds Lead and its compounds Zinc and its compounds	Amount in water column Code: CONC-W



	MCPA Cypermethrin MCPA 2,4-dichlorophenoxyacetic acid, 2-4 D Mecoprop PFOA	
Contaminants- ubiquitous persistent, bio-accumulative and toxic (UPBT) substances Code: PresEnvContUPBTs	Perfluorooctane sulfonic acid (PFOS) and its derivatives Tributyltin compounds 1,2,5,6,9,10- Hexabromocyclododecane Mercury and its compounds	Amount in water column Code: CONC-W



OSPAR CEMP (Coordinated Environmental Monitoring Programme) Concentrations of hazardous substances in biota, sediment and water.

Hazardous substance concentrations monitoring is carried out within OSPAR's Coordinated Environmental Monitoring Programme (CEMP) (Agreement 2016-01). CEMP monitoring work on hazardous substances comprises monitoring and assessment of the sources and pathways of contaminants and their concentrations and effects in the marine environment.

Through the OSPAR programme, the trends and status of contaminants at monitoring stations around Ireland are assessed.

OSPAR CEMP assesses trends and status of concentrations of hazardous substances and their effects. Two types of assessment criteria are used in OSPAR CEMP assessments of hazardous substances as part of a "Traffic Light" assessment approach to assigning status. Background Assessment Concentrations (BAC) are used to determine whether concentrations of substances are near background (naturally occurring substances) or close to zero for synthetic substances. Environmental Assessment Criteria (EACs) represent the contaminant concentration/or effect level in the environment below which no chronic effects are expected to occur in marine species. Where EACs are not available, other thresholds have been utilised in OSPAR assessments e.g. US Effects Range-Low (ER-L) values for PAH in sediments.

Table 8.4 Monitoring Programme Details for OSPAR CEMP for Concentrations of hazardous substances in biota, sediment and water.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do8-02
Programme Name	OSPAR CEMP for Concentrations of hazardous substances in biota, sediment and water.
Update Type	Modified from 2014
Other Policies or Conventions	OSPAR Coordinated Environmental Monitoring Programme OSP - CEMP
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	1997-ongoing
Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	EEZ or similar
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts



	Pressures in the marine environment
Monitoring Type	In-situ Sampling coastal
Monitoring Method	<p>OSP-018</p> <p>OSPAC CEMP (Coordinated Environmental Monitoring Programme) for monitoring contaminants in sediments (2002-16). Revised 2018</p> <p>OSP-028</p> <p>OSPAC CEMP guidelines for Monitoring Contaminants in Biota. (Agreement 1999-02) 2018</p> <p>OSP-001</p> <p>OSPAC Guidelines on Quality Assurance for Biological Monitoring in the OSPAC Area (Agreement 2002-15)</p>
Monitoring Method Other	CEMP guidelines for coordinated monitoring for hazardous substances (Agreement 2016-04). Revised in 2020
Quality Control	<p>ISO 17025 Accreditation for laboratory testing for all laboratories used</p> <p>Certified Reference Materials (CRMs), and Proficiency testing (including QUASIMEME- Quality Assurance of Information for Marine Environmental Monitoring in Europe)</p>
Monitoring Frequency	Yearly
Data Management	Marine Institute SQL databases, Data reported to ICES DOME database
Data Access	<p>Marine Institute : https://www.marine.ie/Home/site-area/data-services/search-marine-data/access-data</p> <p>OSPAC CEMP Assessments: https://ocean.ices.dk/OHAT/</p> <p>ICES DOME: https://www.ices.dk/data/data-portals/Pages/DOME.aspx</p>
Related Indicator	<p>ACS-IE-ContaminantsNonUPBTSubstances2021</p> <p>ACS-IE-ContaminantsUPBTSubstances2021</p>
Related Indicator Name	<p>Contaminants Non UPBT Substance</p> <p>Contaminants UPBT Substance</p>
Contact Name	Brendan McHugh
Email	brendan.mchugh@marine.ie
References	<p>OSPAC CEMP Appendices Hazardous Substances H1 H2 H3 H4 H5 H6 H8 H9</p> <p>OSPAC annual CEMP assessments</p>



Table 8.5 Features, Elements and Parameters recorded for Ireland's OSPAR CEMP Programme.

Feature	Elements	Parameter
Contaminants- non ubiquitous persistent, bio-accumulative and toxic (UPBT) substances Code: PresEnvContNonUPBTs	<ul style="list-style-type: none"> • Cadmium and its compounds • Lead and its compounds • Copper and its compounds • Zinc and its compounds • ΣPAH9: anthracene; benzo[a]anthracene; benzo[ghi]perylene; benzo[a]pyrene; chrysene; fluoranthene; indeno[1,2,3-cd]pyrene; pyrene; phenanthrene • ΣPAH9: anthracene; benzo[a]anthracene; benzo[ghi]perylene; benzo[a]pyrene; chrysene; fluoranthene; indeno[1,2,3-cd]pyrene; pyrene; phenanthrene 	Amount in biota Code: CONC-B
	<ul style="list-style-type: none"> • Cadmium and its compounds • Lead and its compounds • Copper and its compounds • Zinc and its compounds 	Concentration in sediment (fraction below 63 µm) Code: CONC-S-63
Contaminants- ubiquitous persistent, bio-accumulative and toxic (UPBT) substances Code: PresEnvContUPBTs	<ul style="list-style-type: none"> • Mercury and its compounds • Polychlorinated biphenyls (7 PCB: 28,52,101,118,138,153,180) • Brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154) • Perfluorooctane sulfonic acid (PFOS) and its derivatives • Dioxin-like polychlorinated biphenyls (12 PCB-DLs: 77,81,105,114,118,123,126,156,157,167,169,189) • Polychlorinated dibenzodioxins (PCDD) • Polychlorinated dibenzofurans (10 PCDFs) 	Amount in biota Code: CONC-B
	<ul style="list-style-type: none"> • Polychlorinated biphenyls (7 PCB: 28,52,101,118,138,153,180) 	Concentration in biota – fat Code: CONC-B-FA
	<ul style="list-style-type: none"> • Mercury and its compounds • Polychlorinated biphenyls (7 PCB: 28,52,101,118,138,153,180) • Brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154) • Hexabromocyclododecanes (HBCDD) 	Concentration in sediment (fraction below 63 µm) Code: CONC-S-63



	<ul style="list-style-type: none">• Total PAHs (Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene, Indeno(1,2,3-cd)pyrene• Perfluorooctane sulfonic acid (PFOS) and its derivatives• Tributyltin compounds	
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OSPAR CEMP Biological effects of Organotins

The organotin concentrations and biological effects monitoring is carried out within OSPAR's Coordinated Environmental Monitoring Programme (CEMP) (Agreement 2016-01). CEMP monitoring work on hazardous substances comprises monitoring and assessment of the sources and pathways of contaminants and their concentrations and effects in the marine environment. CEMP component H-4 sets out monitoring of tributyl tin (TBT)-specific biological effects and TBT in sediment or biota (Appendix H4).

Table 8.6 Monitoring Programme Details for OSPAR CEMP for Biological effects of organotins.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do8-03
Programme Name	OSPAR CEMP - Biological effects of organotins
Update Type	Modified from 2014
Other Policies or Conventions	OSPAR Coordinated Environmental Monitoring Programme OSP - CEMP
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	1987-ongoing
Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	EEZ or similar
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Environmental State and Impacts
Monitoring Type	In-situ Sampling coastal
Monitoring Method	<p>OSP-001 OSPAR Guidelines on Quality Assurance for Biological Monitoring in the OSPAR Area (Agreement 2002-15)</p> <p>OSP-018 OSPAR CEMP (Coordinated Environmental Monitoring Programme) for monitoring contaminants in sediments (2002-16). Revised 2018</p> <p>OSP-025 OSPAR JAMP Guidelines for general biological effects monitoring. Revised Technical Annexes 2007.</p>



	<p>OSP-026</p> <p>OSPAR JAMP Guidelines for contaminant-specific Biological Effects (Replaces Agreement 2003-10) 2008.</p> <p>OSP-028</p> <p>OSPAR CEMP guidelines for Monitoring Contaminants in Biota. (Agreement 1999-02) 2018</p>
Monitoring Method Other	
Quality Control	QUASIMEME - Quality Assurance of Information for Marine Environmental Monitoring in Europe
Monitoring Frequency	6-Yearly
Data Management	Marine Institute SQL databases, Data reported to ICES DOME database
Data Access	<p>Marine Institute : https://www.marine.ie/Home/site-area/data-services/search-marine-data/access-data</p> <p>ICES DOME: https://www.ices.dk/data/data-portals/Pages/DOME.aspx (ERF 3.2)</p>
Related Indicator	ACS-IE-BiologicalEffects2021
Related Indicator Name	Biological Effects
Contact Name	Brendan McHugh
Email	brendan.mchugh@marine.ie
References	<p>OSPAR CEMP Appendices Hazardous Substances H4</p> <p>OSPAR annual CEMP assessments</p>

Table 8.7 Features, Elements and Parameters recorded for Ireland's OSPAR CEMP Programme.

Feature	Elements	Parameter
Adverse effects on species or habitats Code: PrevEnvAdvEffectsSppHab	Nucella lapillus	Amount in biota Code: CONC-B



OSPAR CEMP (Coordinated Environmental Monitoring Programme) for Eutrophication, CAMP and RID

Inputs of contaminants into the marine area are determined through the OSPAR Riverine Inputs and Direct Discharges monitoring programme (RID) and the OSPAR Comprehensive Atmospheric Monitoring Programme (CAMP), which are part of OSPAR CEMP's monitoring programme for Eutrophication, CAMP and RID (ACS-IE-Do5-o8). Details of these monitoring programmes can be found in the Annex for Descriptor 5.



Acute Pollution Events

Acute pollution events are monitored by the Irish Coast Guard (IRCG). The IRCG are also responsible for the counter pollution activities at sea arising from spillages or loss of oil and Hazardous Noxious Substances (HNS) which endanger the marine environment. A National Maritime Oil and HNS Spill Contingency Plan (NMOSCP) was recently developed to coordinate marine pollution preparedness and response. This includes a Standard Operating Procedure for the Assessment and notification of a pollution incident and details the procedure for recording marine pollution events.

The Coast Guard Service undertakes an extensive aerial surveillance over Ireland's Exclusive Economic Zone (EEZ). This survey data is reported to the Bonn Agreement. The Bonn Agreement is the mechanism by which nine Governments of the Greater North Sea and its wider approaches, together with the European Union, cooperate in dealing with pollution by oil and other harmful substances.

Table 8.8 Monitoring Programme for Acute Pollution Events

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do8-04
Programme Name	Acute Pollution Events
Update Type	Modified from 2014
Other Policies or Conventions	BONN
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	2006-ongoing
Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	EEZ or similar
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Pressures in the marine environment
Monitoring Type	Visual Observations
Monitoring Method	Bonn Agreement Aerial Operations Handbook BON-002
Monitoring Method Other	National Maritime Oil/HNS Spill Contingency Plan (NMOSCP)
Quality Control	NA
Monitoring Frequency	Incident Dependent
Data Management	Held in the Department of Transport Database



Data Access	
Related Indicator	ACS-IE-SignificantAcutePoll2021
Related Indicator Name	Significant Acute Pollution Events
Contact Name	Sorcha Ni Longphuirt
Email	Sorcha.nilongphuirt@housing.gov.ie
References	Bonn Agreement Aerial Surveillance Reports

No specific elements are required for this criteria.



Descriptor 9 Contaminants in Fish and other Seafood

Contaminants in fish and other seafood for human consumption do not exceed levels established by Union legislation or other relevant standards.

Table 9.1 Criteria, Indicators, Environmental Targets and related monitoring programmes for Contaminants in Fish and other Seafood.

Criteria	Indicators and Environmental Targets	Monitoring Programme
<p>Criterion D9C1:</p> <p>The level of contaminants in edible tissues (muscle, liver, roe, flesh or other soft parts, as appropriate) of seafood (including fish, crustaceans, molluscs, echinoderms, seaweed and other marine plants) caught or harvested in the wild (excluding fin-fish from mariculture) does not exceed:</p> <p>(a) for contaminants listed in Regulation (EC) No 1881/2006, the maximum levels laid down in that Regulation, which are the threshold values for the purposes of this Decision;</p> <p>(b) for additional contaminants, not listed in Regulation (EC) No 1881/2006, threshold values, which Member States shall establish through regional or subregional cooperation.</p>	<p>Indicators:</p> <p>ACS-IE-ContaminantsNonUPBTSubstances2021, ACS-IE-ContaminantsUPBTSubstances2021, ACS-IE-BiologicalEffects2021, ACS-IE-SignificantAcutePoll2021, ACS-IE-leadinFishandSeafood2021, ACS-IE-CadmiuminFishandSeafood2021, ACS-IE-MercuryinFishandSeafood2021, ACS-IE-Benzo(a)pyreinFishandSeafood2021, ACS-IE-SumoffourPAHsinFishandSeafood2021, ACS-IE-SumofICES6PCBsinFishandSeafood2026, ACS-IE-PCDD/FsinFishandSeafood2027, ACS-IE-PCDD/Fs+DL-PCBsinFishandSeafood2028</p> <p>Environmental Target 1:</p> <p>Levels of contaminants in fish* and shellfish caught or harvested in Irish seas for human consumption complies with maximum limits listed in EU Regulation 1881/2006 (as amended).</p> <p>*excludes finfish aquaculture</p>	<p>ACS-IE-D09-01</p> <p>Contaminants in Seafood</p>



Contaminants in Seafood Monitoring Programme

Bivalve molluscs

Bivalve mollusc sampling is undertaken in transitional and coastal waters in designated shellfish growing waters annually. Ireland currently has 64 designated shellfish growing waters. Field sampling is carried out by the Sea Fisheries Protection Authority and the Marine Institute. Concentrations of certain substances are measured in bivalve molluscs as an indicator of water quality and for the purpose of human health assessments. The data collected are used to assess compliance with human health maximum limits as established in Commission Regulation (EC) No 1881/2006/(EC) as amended, and in accordance with EU food law (Regulation (EU) 2017/625). These limits are set in accordance with Regulations 854/2004/ (EC).

Wild fish and crustaceans

This surveillance monitoring programme aims to check compliance of landed wild fish and other seafood with food safety limits and to compile a database of contaminant levels in edible seafood. Contaminant levels in relevant tissues are checked to determine if they are in compliance with regulation 1881/2006/(EC) as amended, and general European food law (Regulation (EU) 2017/625). Fishing ports around the Irish coast are visited to provide a geographical spread of fishing areas and a selection of species landed at these ports is collected. Fishing areas are recorded where available.

In total approximately 30-40 fish samples (a sample is usually a pool of 10 individuals) representing the main species landed (usually depends on availability on day of landings) are collected for analysis. Occasionally, additional samples are acquired for example on Marine Institute's groundfish surveys e.g. for crustaceans, other fish species to supplement fish collected at ports. New EC regulations on monitoring contaminants in food are anticipated.

Table 9.2 Monitoring Programme Details for the Contaminants in Seafood Monitoring Programme.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-Do9-01
Programme Name	Contaminants in Seafood
Update Type	Modified from 2014
Other Policies or Conventions	EU Food Regulations, EU WFD Shellfish waters
Regional Cooperation	
Regional Cooperation Countries	
Temporal Scope	1993-ongoing



Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	Coastal waters (WFD)- shellfish EEZ (or similar) (e.g. Contiguous Zone, Fishing Zone, Ecological Protection Zone)-wild fish, crustacean and cephalopods
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts
Monitoring Type	In-situ Sampling Coastal In-situ sampling land/beach In-situ sampling offshore
Monitoring Method	OTH
Monitoring Method Other	Sampling in ports and on fisheries survey for fish, crustaceans etc. Laboratory analysis in accordance with EC food legislation (EC Directive 333/2007) Sampling from designated shellfish growing waters.
Quality Control	Laboratory Analysis ISO17025 - official lab (NRL metals in fish); LPTs: QUASIMEME contaminants in Biota; FAPAS
Monitoring Frequency	Yearly
Data Management	MI SQL database Contaminants in Biota Also reported to ICES database
Data Access	https://www.marine.ie/Home/site-area/data-services/search-marine-data/access-data (http://www.ices.dk/marine-data/data-portals/Pages/DOME.aspx).
Related Indicator	ACS-IE-leadinFishandSeafood2021 ACS-IE-CadmiuminFishandSeafood2021 ACS-IE-MercuryinFishandSeafood2021 ACS-IE-Benzo(a)pyreinFishandSeafood2021 ACS-IE-SumoffourPAHsinFishandSeafood2021 ACS-IE-SumofICES6PCBsinFishandSeafood2026 ACS-IE-PCDD/FsinFishandSeafood2027 ACS-IE-PCDD/Fs+DL-PCBsinFishandSeafood2028
Related Indicator Name	Lead in Fish & Other Seafood Cadmium in Fish & Other Seafood Mercury in Fish & Other Seafood



	Benzo(a)pyrene in Bivalves & Crustaceans Sum of 4 PAH's in Bivalves & Crustaceans Sum of ICES 6 PCB's in Fish & Other Seafood PCDD/F's in Fish & Other Seafood PCDD/F's + DL
Contact Name	Evin McGovern
Email	Evin.mcgovern@marine.ie
References	McGovern, E., McHugh, B., O'Hea, L., Joyce, E., Tlustos, C. & Glynn, D., 2011 "Assuring Seafood Safety: Contaminants and Residues in Irish Seafood 2004-2008", Marine Institute (Chapter 2) (http://oar.marine.ie/handle/10793/706).

Table 9.3 Features, Elements and Parameters recorded for Ireland's WFD Monitoring Programme.

Feature	Elements	Parameter
Contaminants - in seafood	Non-dioxin like PCB (sum of 6 PCB: 28, 52, 101, 138, 153 and 180) Sum of dioxins (WHO-PCDD/F-TEQ) Benzo(a)pyrene Cadmium and its compounds Dioxins and dioxin-like compounds (7 PCDDs + 10 PCDFs + 12 PCB-DLs) Lead and its compounds Mercury and its compounds Sum of PAHs (Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene)	Concentration in biota – other Code: CONC-B-OT
The contaminants below are monitored but no maximum limits have been set currently		
Contaminants - in seafood	Additional trace metals, including inorganic arsenic Dioxin-like polychlorinated biphenyls (12 PCB-DLs: 77,81,105,114,118,123,126,156,157,167,169,189) Brominated diphenylethers (congener numbers 28, 47, 99, 100, 153 and 154) Hexabromocyclododecanes (HBCDD) Perfluorooctane sulfonic acid (PFOS) and its derivatives	Concentration in biota – other Code: CONC-B-OT



Descriptor 10 Marine Litter

Properties and quantities of marine litter do not cause harm to the coastal and marine environment.

Table 10.1 Criteria, Environmental Targets and related monitoring programmes for Marine Litter.

Criteria	Indicators and Environmental Targets	Monitoring Programme
Criterion D10C1. The composition, amount and spatial distribution of litter on the coastline, in the surface layer of the water column, and on the seabed, are at levels that do not cause harm to the coastal and marine environment.	Indicators ACS-IE-BeachLitter2021, ACS-IE-SeabedLitter2021 Environmental Targets D10T1a: The composition, amount and spatial distribution of litter in the coastline, and on the seabed, are at levels that do not cause harm to the coastal or marine environment.	ACS-IE-D10-01 OSPAR Beach Litter Monitoring Programme
	D10T1b: In accordance with the provisions of Article 5 of Directive (EU) 2019/904 by year-end 2023 eliminate beach litter caused by the items prohibited from the market under that Directive. These items are; plastic cotton bud sticks, disposable plastic cutlery and plates, plastic straws, plastic beverage stirrers, plastic balloon sticks, expandable polystyrene fast food containers and expandable polystyrene beverage containers and cups.	ACS-IE-D03-01 Irish Groundfish Survey – Seabed Litter



OSPAR Beach Litter Monitoring Programme

Beach litter monitoring is undertaken 4 times annually, once per quarter, at four beaches around Ireland. The surveys are undertaken at Long Strand Beach, Co. Cork (51°33'8.253"N), Silver Strand Beach, Co. Mayo (53°38'45.073"N), Carnsore, Co. Wexford (52°11'31.932"N) and Clougherhead-South, Co. Louth (53°47'19.494"N). The surveys are undertaken using the standardized methodology created by OSPAR. This allows for regional interpretation of the results and comparisons between different geographical regions in Europe. The same 100m stretch of beach is monitored during every survey. The litter collected is catalogued according to regionally agreed lists (Table 10.3). Following quality controls, data is held in a national database and uploaded to the OSPAR Beach litter database.

Table 10.2 Monitoring Programme Details for Beach Litter Monitoring.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-D10-01
Programme Name	OSPAR Beach Litter Monitoring Programme
Update Type	Same Programme as in 2014
Other Policies or Conventions	OSPAR Coordinated Environmental Monitoring Programme OSPAR- CEMP
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	2008-ongoing
Regional Cooperation Implementation	Agreed Data Collection Methods
Spatial Scope	Terrestrial Part of Member State
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts
Monitoring Type	In-situ Sampling Land Beach
Monitoring Method	OSP-014 CEMP Guidelines for marine monitoring and assessment of beach litter https://www.ospar.org/documents?v=44122
Monitoring Method Other	MSFD GES Technical Subgroup on Marine Litter (TSG-ML).Monitoring Guidance for Marine Litter in European Seas. DRAFT REPORT, July 2013. https://circabc.europa.eu/sd/a/ace0bf3c-9044-48b7-bd95-210abe8fab32/CHAPTER%203-



	%20DRAFT%20MSFD%20Monitoring%20Guidance%20TSG-ML%2011072013.pdf
Quality Control	CEMP Guidelines for marine monitoring and assessment of beach litter
Monitoring Frequency	3-monthly
Data Management	ACCESS Database Nationally and OSPAR Beach Litter Monitoring Database
Data Access	https://beachlitter.ospar.org/
Related Indicator	ACS-IE-BeachLitter2021
Related Indicator Name	Beach Litter
Contact Name	Sorcha Ní Longphuirt
Email	Sorcha.nilongphuirt@housing.gov.ie
References	http://www.housing.old.gov.ie/sites/default/files/publications/files/2020_june_article_17_update_to_irelands_marine_strategy_part_1_articles_8_9_10_final.pdf

Table 10.3 Features, Elements and Parameters recorded for Ireland's Beach Litter Monitoring Programme.

Feature	Elements	Parameter
Litter in the Environment Code: PresEnvLitter	Artificial polymer materials Ceramics/pottery Chemicals Cloth/textile Food waste Glass/ceramics Medical waste Metal Other materials Paper/cardboard Processed/worked wood Rubber Sanitary waste Undefined Litter in the environment Macrolitter (all)	Amount on Coastline Code: AMO-C



Irish Groundfish Survey- Seabed Litter

Seabed litter monitoring is undertaken by the Marine Institute in Ireland. The Irish Groundfish Survey (IGFS) is carried out over 42 days in the autumn/winter annually on board the *R.V. Celtic Explorer* (65 m vessel). Each year, 170 stations are randomly selected to be surveyed. A high headline Overture Vertical (GOV) trawl with a 20 mm coded liner, is used to survey the stations over 30 minutes at 4 knots. Sampling is stratified into 17 strata by depth and ICES sub-region. The net area sampled at each station is estimated from the width of the net by the distance trawled. The seabed litter collected is sorted, counted and the data normalised to km². The IGFS collects data from four ICES Subregions – 27.6a, 27.7b, 27.7j and 27.7g. Following quality control, data is uploaded to the ICES DATRAS database.

Table 10.4 Monitoring Programme Details for Seabed Litter Monitoring.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-DO3-01
Programme Name	Irish Groundfish Survey – Seabed Litter
Update Type	Same Programme as in 2014
Other Policies or Conventions	OSPAR Coordinated Environmental Monitoring Programme OSPAR- CEMP
Regional Cooperation	Other
Regional Cooperation Countries	ICES IBTS
Temporal Scope	2010-ongoing
Regional Cooperation Implementation	Agreed Data Collection Methods
Spatial Scope	Territorial Waters
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Effectiveness of Measures Environmental State and Impacts
Monitoring Type	In-situ Sampling offshore
Monitoring Method	OSP-015 CEMP Guidelines for Litter on the Seafloor https://www.ospar.org/documents?v=44122
Monitoring Method Other	MSFD GES Technical Subgroup on Marine Litter (TSG-ML). Monitoring Guidance for Marine Litter in European Seas. DRAFT REPORT, July 2013. https://circabc.europa.eu/sd/a/ace0bf3c-9044-48b7-bd95-210abe8fab32/CHAPTER%203-%20DRAFT%20MSFD%20Monitoring%20Guidance%20TSG-ML%2011072013.pdf



	International Council for the Exploration of the Sea (ICES) 2020. Manual for the North Sea International Bottom Trawl Surveys. Series of ICES Survey Protocols SISP 10-IBTS 10, Revision 11. 102 pp. http://doi.org/10.17895/ices.pub.7562
Quality Control	ICES2020. Manual for the North Sea International Bottom Trawl Surveys. Series of ICES Survey Protocols SISP 10-IBTS 10, Revision 11. 102 pp. http://doi.org/10.17895/ices.pub.7562
Monitoring Frequency	Yearly
Data Management	Marine Institute Database Nationally and ICES DATRAS database
Data Access	https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx
Related Indicator	ACS-IE-SeabedLitter2021
Related Indicator Name	Seabed Litter
Contact Name	Sorcha Ní Longphuirt / David Stokes
Email	Sorcha.nilongphuirt@housing.gov.ie / David.stokes@marine.ie
References	http://www.housing.old.gov.ie/sites/default/files/publications/files/2020_june_article_17_update_to_irelands_marine_strategy_part_1_articles_8_9_10_final.pdf Moriarty, M., Pedreschi, D., Stokes, D., Dransfeld, L. and Reid, D. G., (2016) Spatial and Temporal Analysis of Litter in the Celtic Sea from Groundfish Survey Data: Lessons for Monitoring . Marine Pollution Bulletin , 103(1-2), pp.195–205. https://www.sciencedirect.com/science/article/abs/pii/S0025326X15302241?via%3Dihub

Table 10.5 Features, Elements and Parameters recorded for Ireland's Seabed Litter Monitoring Programme.

Feature	Elements	Parameter
Litter in the Environment Code: PresEnvLitter	Artificial polymer materials (plastic) Metal Rubber Glass/ceramics Other materials Cloth/textile Paper/cardboard Processed/worked wood Litter in the environment Macrolitter (all)	Amount on Seabed Code: AMO-SB



Descriptor 11 Energy including Underwater Noise

Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

Table 11.1 Criteria, Environmental Targets and related monitoring programmes for Underwater Noise.

Criteria	Indicators and Environmental Targets	Monitoring Programme
<p>Criterion D11C1:</p> <p>The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals.</p> <p>Criterion D11C2:</p> <p>The spatial distribution, temporal extent and levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals.</p>	<p>Indicator: ACS-IE-ImpulsiveNoise2021</p> <p>No established Targets</p> <p>No established Targets</p>	<p>ACS-IE-D11-01</p> <p>Impulsive Noise Registry</p>



OSPAR Impulsive Noise Registry

The ICES hosted Impulsive noise events registry has been established to support OSPAR contracting parties; the portal assembles data collated nationally from registers of licenced events such as airgun arrays, pile driving, controlled explosions from naval operations and other activities that release energy.

This registry is specifically purposed with supporting OSPAR (and HELCOM) in providing information that will feed regional assessments, and in reporting by its contracting parties to MSFD descriptor 11 (low and mid frequency impulsive noise).

Ireland has submitted data from licenced seismic surveys (using airgun arrays), carried out during the years 2016 through to 2019.

Table 11.2 Monitoring Programme Details for the OSPAR Impulsive Noise Registry.

EIONET reporting Requirements	Monitoring Programme Details
Programme Code	ACS-IE-D11-01
Programme Name	Impulsive Noise Registry
Update Type	Modified from 2014
Other Policies or Conventions	Environmental Impact Assessment Directive (2011/92/EU) Strategic Environmental Assessments (2001/42/EC); Habitats Directive (92/43/EEC) Birds Directive (2009/147/EC) Marine Spatial Planning Directive (2014/89/EC)
Regional Cooperation	OSPAR
Regional Cooperation Countries	
Temporal Scope	2016-9999
Regional Cooperation Implementation	Coordinated data collection (delivered separately by each country)
Spatial Scope	EEZ
Marine Reporting Unit	ACS-IE-AA-001
Monitoring Purpose	Pressure in the Marine Environment Human activities causing the pressures
Monitoring Type	Administrative data collection
Monitoring Method	Monitoring Guidance for Underwater Noise in European Seas
Monitoring Method Other	
Quality Control	ICES provides a Web Service Description Language (WSDL) document that fully describes the ICES Data Portal Web Service including Quality Control



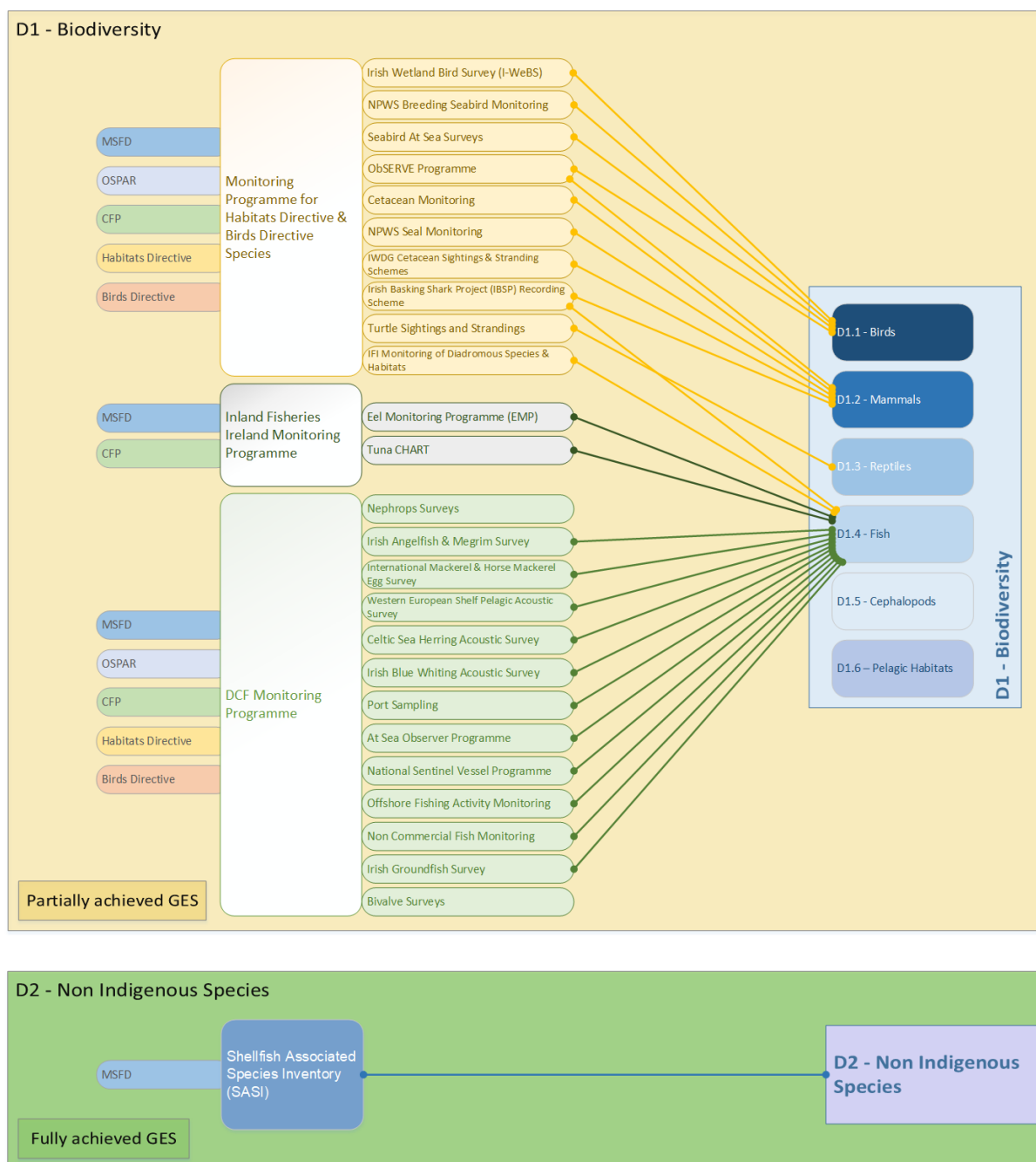
	https://www.ices.dk/data/data-portals/Pages/impulsive-noise.aspx
Monitoring Frequency	Yearly
Data Management	Data held nationally in Department of Housing, Local Government and Heritage and in the ICES database.
Data Access	https://www.ices.dk/data/data-portals/Pages/impulsive-noise.aspx
Related Indicator	ACS-IE-ImpulsiveNoise2021
Related Indicator Name	Impulsive Noise
Contact Name	Mary Hegarty
Email	Mary.hegarty@housing.gov.ie
References	Nathan D. Merchant, Mathias H. Andersson, Tetrienne Box, Florent Le Courtois, Dónal Cronin, Neil Holdsworth, Niels Kinneging, Sónia Mendes, Thomas Merck, John Mouat, Alain M.J. Norro, Benjamin Ollivier, Carlos Pinto, Philip Stamp, Jakob Tougaard. (2017) Impulsive noise pollution in the Northeast Atlantic: Reported activity during 2015–2017, Marine Pollution Bulletin, Volume 152, 2020

Table 11.3 Features, Elements and Parameters recorded for the OSPAR Impulsive Noise Registry.

Feature	Elements	Parameter
Impulsive sound in water	Not Applicable	Other



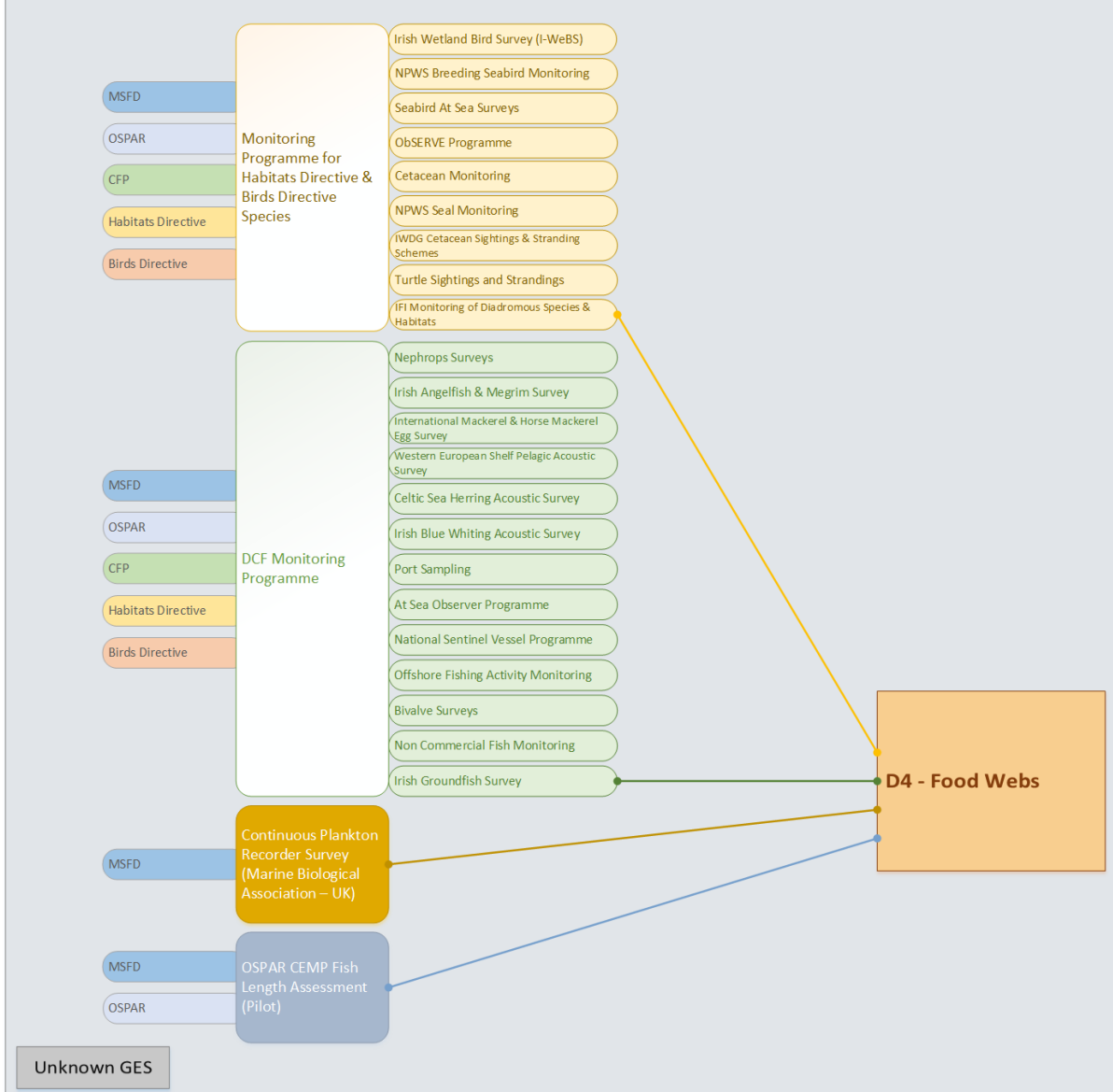
Panel Diagrams of Monitoring Programmes & Descriptors

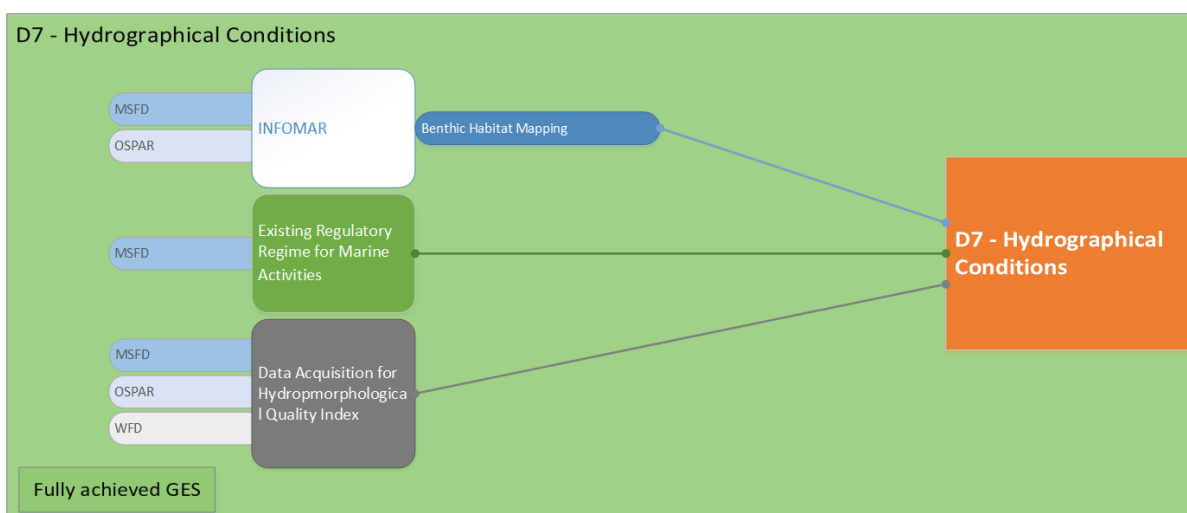
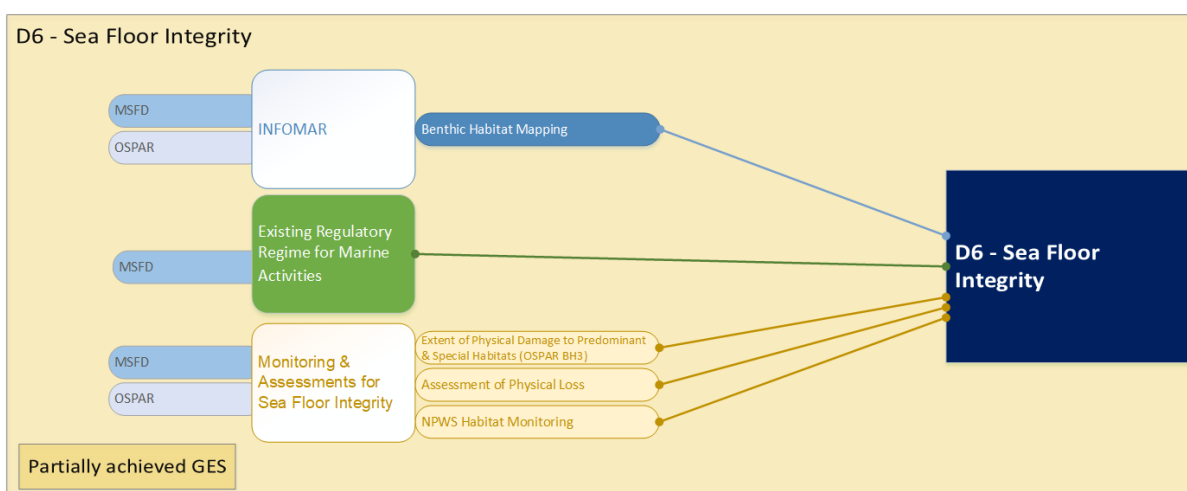
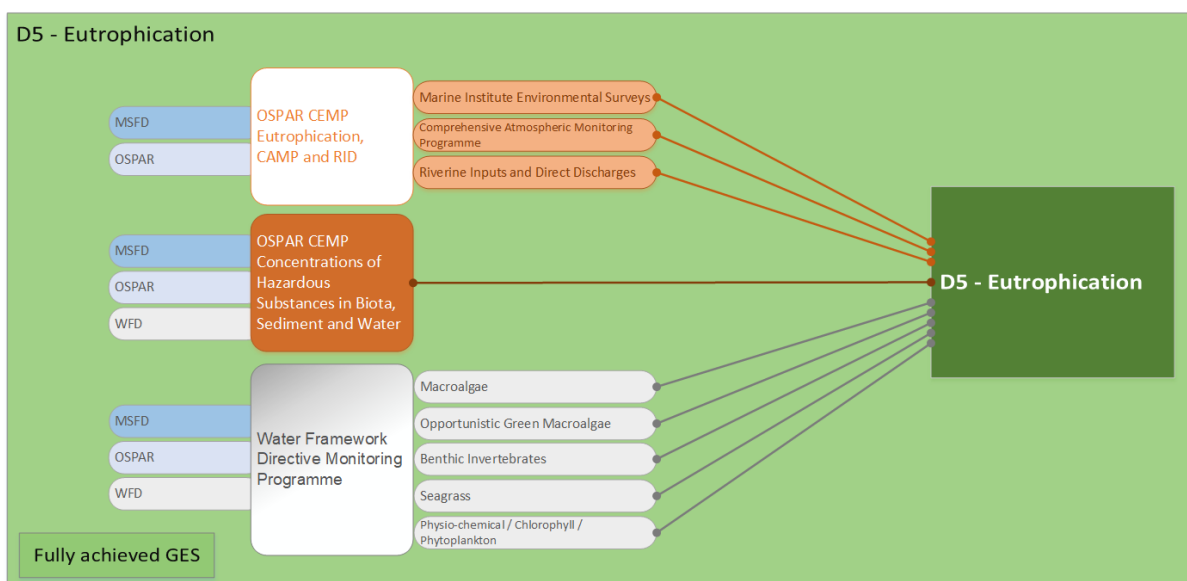


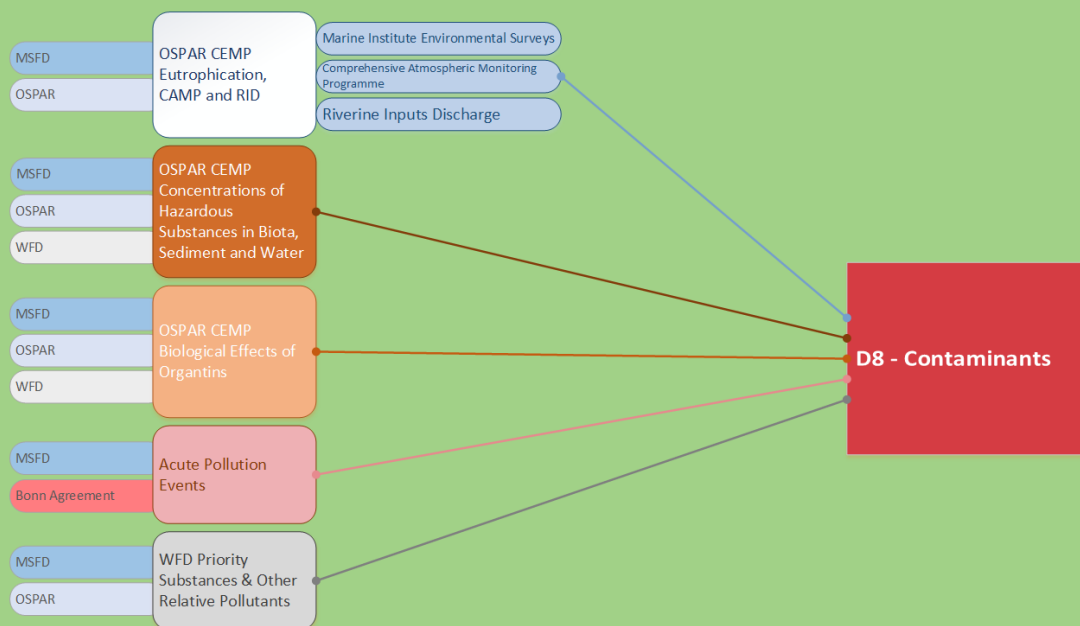
D3 – Commercial Fisheries and Shellfish



D4 - Food Webs



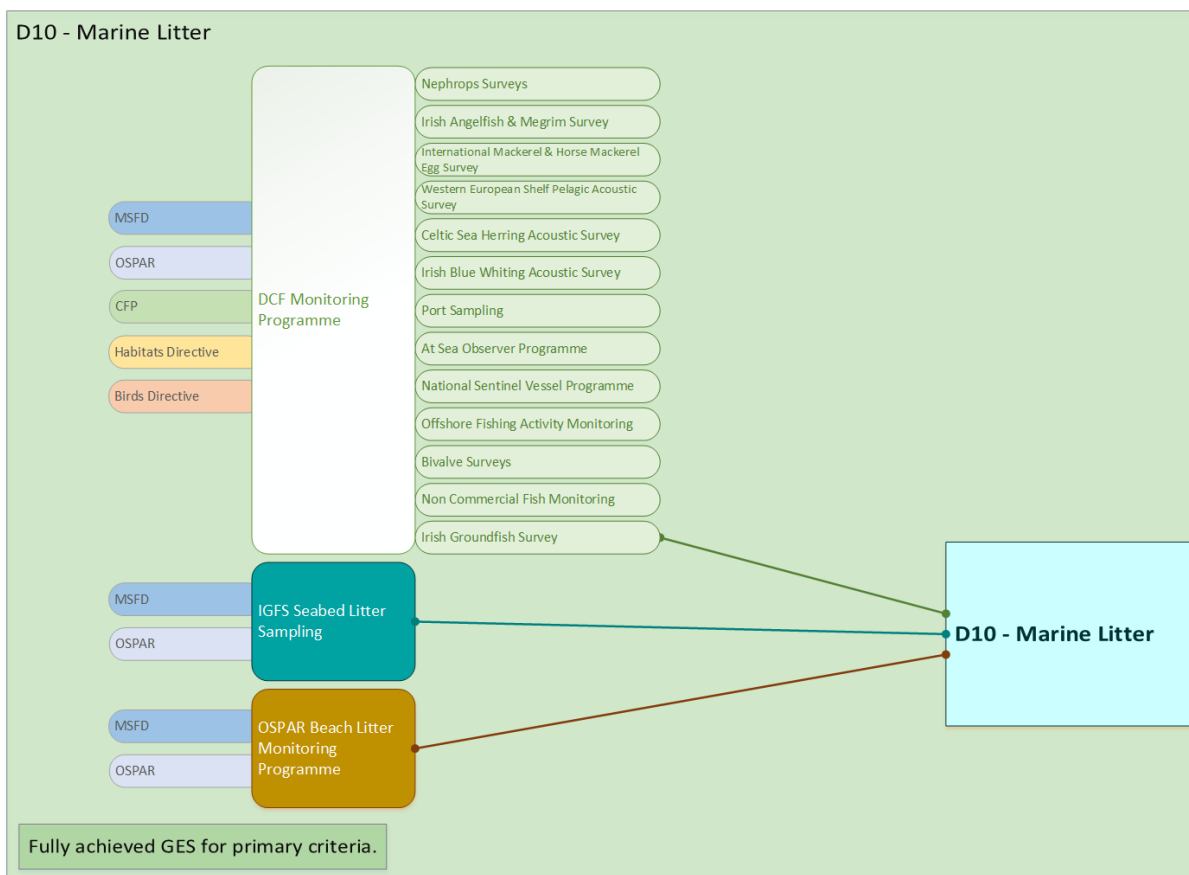


**D8 - Contaminants**

Fully achieved GES

D9 - Contaminants in Seafood

Fully achieved GES



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