MERC Consultants
environmental and conservation services

Supporting Information for Screening for Appropriate Assessment Report (SISAA)

Survey and salvage work on RMS Laconia

Document control			
Document reference: SISAA_ RMS LACONIA			
Version	**Date**	**Prepared by**	**Approved by**
0.2	1/9/2026	Nick Pfeiffer Dr.Ronan Browne	Dr. Louise Scally

List of Tables

List of Figures

1. Introduction

Salvocean proposes to undertake a subsea survey and controlled salvage operation at the wreck of Royal Mail Ship (RMS) *Laconia*, hereafter referred to as the "proposed project". The RMS *Laconia* wreck is located within Ireland's Exclusive Economic Zone (EEZ) and over the State's continental shelf area known as the Porcupine Bank, approximately 150 miles (242 km) from the nearest point of land (Figure 1). Average water depths in the area are approximately 370–375m.

Salvocean Ltd is a limited liability company established in the United Kingdom, with a subsidiary in the United States, specialising in marine survey and salvage operations, recovery from shipwrecks, the handling and disposal of submerged ordnance, environmental impact surveys, and marine operations supporting the oil and gas and renewable energy sectors. Salvocean also works in collaboration with academic and research institutions, providing vessel-based facilities and operational support for scientific investigations into marine biology, ocean health, and the environmental risks associated with potentially polluting shipwrecks.

RMS *Laconia* was lost during the First World War (WWI), following an attack by a submarine. The vessel, originally designated SS *Laconia*, was a steel ocean liner operated by the Cunard Steamship Co. Ltd. It was built and launched by Swan, Hunter & Wigham Richardson Ltd. at Wallsend in January 1912. The vessel was constructed as Yard No. 877 and was assigned Official/IMO No. 131412.

Under Article 6(3) of the EU Habitats Directive, an Appropriate Assessment must be undertaken for any plan or programme that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. Article 6(4) of the Habitats Directive sets out the decision-making test which must be applied to plans or projects that may impact on a Natura 2000 site.

This document constitutes Supporting Information for Screening for Appropriate Assessment (SISAA) and has been prepared to assist the Competent Authority in undertaking Screening for Appropriate Assessment (AA). The screening will assess, in view of the best scientific knowledge, if the proposed project, individually or in combination with other plans or projects, is likely to significantly affect any European site/s, considering their conservation objectives. Where likely significant effects cannot be excluded on the basis of objective information, the relevant European site/s are screened in for Appropriate Assessment.

Appropriate Assessment is a four-stage process as detailed below:

Stage One: Screening — the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
Stage Two: Appropriate Assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
Stage Three: Assessment of alternative solutions — the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;
Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

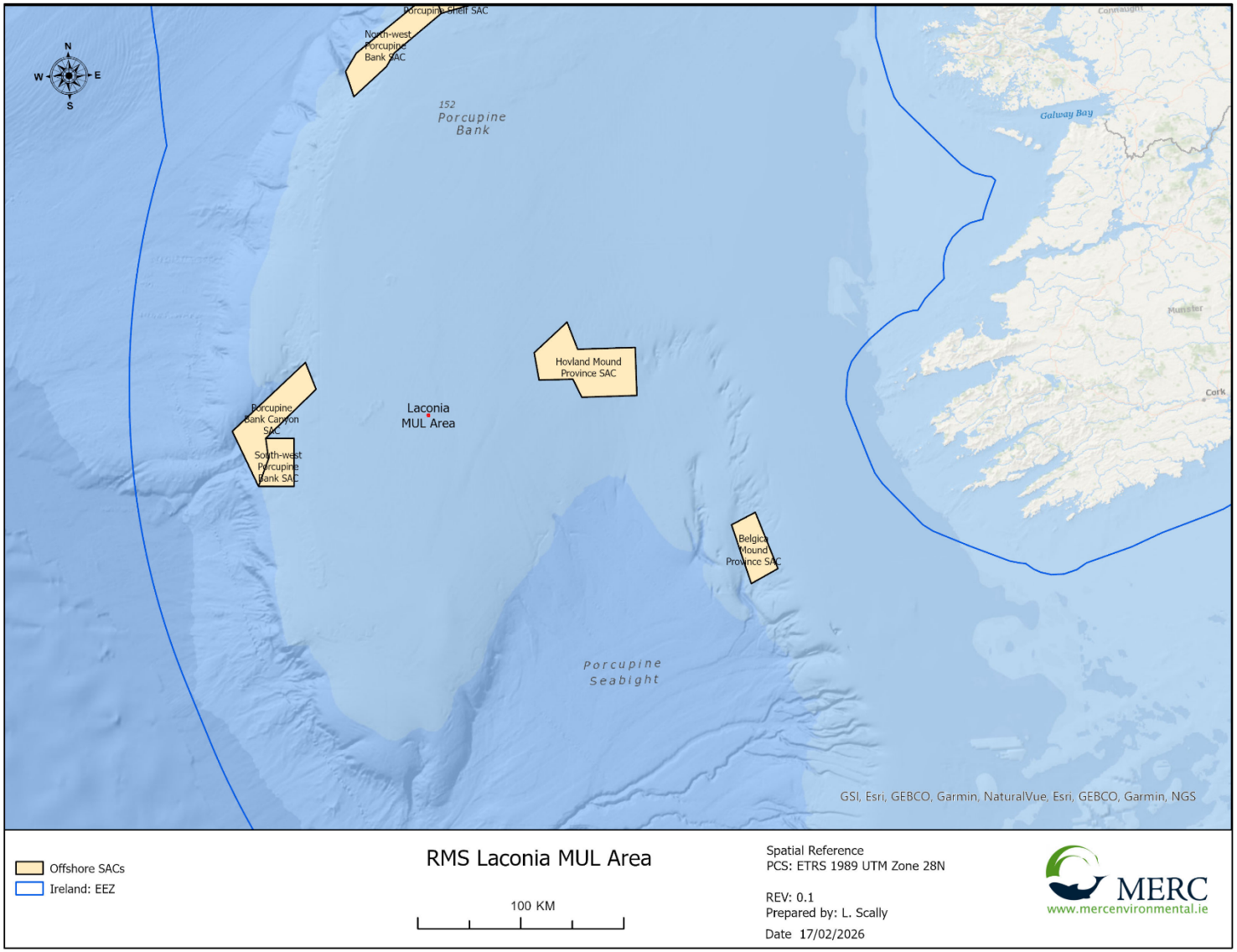

Figure 1. Proposed project site and some offshore SACs.

2. Statement of professional authority

This report was prepared by Nick Pfeiffer and Ronan Browne of MERC Consultants. MERC is a specialist marine ecological consultancy with extensive expertise in marine environmental assessment, ecological fieldwork and the management and conservation of marine ecosystems. MERC's team of professional ecologists have a combined practical experience spanning more than 60 years undertaking complex aquatic surveys and providing independent scientific advice in support of Marine Protected Areas, designated conservation sites and sustainable marine development.

MERC's senior ecologists are members of the Chartered Institute of Ecologists and Environmental Managers (CIEEM).

MERC also is also active in supporting public authorities, developers and marine operators throughout various consenting and regulatory processes, including for projects involving aquaculture, marine seabed surveys, shipwreck recovery and removal, port infrastructure and offshore renewable energy. Our work combines robust scientific methodology, extensive field experience and a detailed understanding of current national and EU environmental law and relevant marine regulatory requirements.

Through our broad technical expertise and proven knowledge and experience in challenging marine survey and rapidly changing regulatory environments, MERC provides credible, evidence-based ecological advice to inform sound environmental decision-making and support sustainable management of marine resources.

3. Methods

3.1. Guidelines and legislation

This report has been prepared with reference to the following European Directives, national legislation and guidance on the appropriate assessment of projects and plans with regard to the implementation of the provisions of Article 6(3) and (4) of the EU Habitats Directive 92/43/EEC.

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna. Official Journal of the European Communities.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).
- European Communities (Birds and Natural Habitats) Regulations 2011. SI No. 477 of 2011.
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission 2018. 7621 final. Office for Official Publications of the European Communities, Luxembourg.
- Assessment of plans and projects in relation to Natura 2000 sites-Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC 2021/C 437/01-Publication office of the EU (europa.eu).
- Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. Office of the Planning Regulator. March 2021.
- Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Department of Arts, Heritage and the Gaeltacht, 2014.
- Relevant case law.

- Maritime Area Regulatory Authority (2024) Guidance for Consent Holders on the identification of Unexploded Ordnance (UXO) in the Maritime Area. Wexford: Maritime Area Regulatory Authority. (Accessed: 10 February 2026).
- MARA (2025). Guidance for Applicants: Marine Usage Licence (MUL) Applications. Version 7 updated.
- MARA (n.d.). Marine Usage Licence (MUL) – Application Form.
- MARA (n.d.). Technical Mapping Guidance Notes for MAC/MUL Applications under the Marine Area Planning Act 2021 (MAPA).
- United Nations Educational, Scientific and Cultural Organisation (UNESCO) General Conference (2001). *Records of the General Conference, 31st session, Paris, 15 October to 3 November 2001. Volume 1: Resolutions* (31 C/Resolutions).

3.2. Description of the SISAA preparation

The description details the work completed in preparing the SISAA document. A detailed description of the proposed project is set out in section 4.

To fully understand the receiving environment with respect to project-related effects, the literature consulted included the available National Parks and Wildlife Service (NPWS) data sources for all European sites within the Zone of Influence (ZoI) of the proposed project (see section 3.3 for methods used to determine the ZoI). This included the conservation objectives and GIS layers (habitats and species) for the relevant European sites. Further data was obtained from the following sources (non-exhaustive):

- Sensitive Ecosystem Assessment and ROV Exploration of Reef (SeaRover)
- INFOMAR Seabed and sediment data.
- Irish Whale and Dolphin Group live sightings.
- ObSERVE Aerial Surveys
- EMODnet: EUSeaMap
- Biodiversity Data Centre species maps.
- Tailte Éireann: High Water Mark and Low Water Mark.

3.3. Impact Assessment approach

The zone of influence (ZoI) of a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. In the context of Appropriate Assessment Screening, the ZoI is the area over which a plan or project could affect the receiving environment, such that it could potentially have significant effects on the conservation status of European Sites. Within the ZoI those receptors that are sensitive to change must be identified and considered. The Zones of Influence adopted in the assessment reports are precautionary screening distances.
Accordingly, the ZoI distances applied (3 km marine mammals; 14 km fish) are conservatively derived from worst-case acoustic propagation modelling for DP thrusters and continuous sonar sources in deep offshore Atlantic conditions. These values represent precautionary bounding distances rather than areas within which project related impacts are predicted to arise.

To define the ZoI of a project, the potential for project related effects on sensitive receptors must first be established. For this purpose, a **Source-Path-Receptor (SPR)** model was applied. The SPR model is a well-

established model frequently applied to the analysis of project related impacts on ecosystems and is the one which has been applied to the assessment of the proposed project.

Source - The origin of a hazard, e.g. underwater noise from survey equipment.

Pathway - The route by which a hazard can reach a receptor (e.g. through water or seabed), noting that a pathway must exist for an effect to occur.

Receptor - The ecological feature that may be affected (e.g. Annex I habitat, marine mammal, fish, bird).

Consequence - The resulting effect (e.g. temporary disturbance/displacement, injury risk, habitat disturbance, or change in supporting processes).

Using this approach all elements of the proposed project were reviewed to assess potential pathways and receptors which might be affected so that a ZoI could be established. This process involved the following steps:

- The identification of sources of potential impacts and their pathways from the proposed project site to European Sites.
- Consideration of sensitive receptors and their dependent ecosystems within the aforementioned European sites.
- Identifying and characterising project related impacts and their likely effects, direct, indirect and cumulative on the identified sensitive receptors.

Once the ZoI was established, the following steps were taken to assess the potential for likely significant effects on sensitive receptors:

1. The scale and scope of the project was examined.
2. A desk review of the available literature describing the habitats and species known to occur at the project sites and surrounding area was undertaken.
3. Project related activities likely to affect migratory or highly mobile species was considered.
4. Use of the project sites by mobile species that make regular movements to, from, or across the site was assessed.
5. An assessment was carried out of the key ecological processes and species activity periods including seasonal variations in distribution, abundance and activity.

3.4. Review of European sites

Once the ZoI of the proposed project was determined, European sites within the ZoI were identified and documented. Thereafter an analysis of the sensitivity of ecological receptors therein was completed. In determining the sensitivity of ecological receptors to project related impacts, due consideration was given to the scale, scope and location of the proposed project and the phases of proposed works.

4. Proposed survey and salvage work

4.1. Overview

The proposed project consists of survey and salvage works at the RMS Laconia wreck site; the survey elements are listed in Table 1 and the salvage components are provided in Table 2. The wreck site lies offshore on the Porcupine Bank, approximately 150 miles (~242 km) NW by W of Fastnet, within Ireland's Exclusive Economic Zone (EEZ) and on the continental shelf (Figure 1).

The proposed works comprise a re-investigation survey of the wreck, followed by controlled salvage and recovery of materials from the seabed/wreck.

Ideally, the survey/salvage at the wreck site will be conducted between March and November, when the surface meteorological and oceanographic conditions are likely to be most suitable. Survey and salvage operations will be conducted concurrently rather than sequentially and are expected to operate 24 hours a day, subject to daily weather and operational constraints.

As an integral part of its project design and delivery, Salvocean implements established procedures for the monitoring and management of hydrocarbons and hazardous or noxious substances, integrates these measures with appropriate oil-spill response procedures, and establishes specific protocols for the safe handling, containment and disposal of waste and contaminated materials arising from recovered or disturbed cargo.

There will be a project-specific HIRA undertaken prior to mobilisation, supported by Permit-to-Work procedures, Job Safety Analyses, lift plans and documented toolbox talks. Operations will be supported by twice-daily (12-hour) weather forecasts, with activities suspended where forecast conditions exceed defined operating limits. Spill response kits will be strategically located, and synthetic biodegradable hydraulic oils will be used where oil-powered subsea tooling is required. Used spill-response materials will be segregated and disposed of in accordance with applicable requirements, while all non-incinerable waste will be returned to port for compliant disposal. Clear notification, escalation and response procedures will be established for any environmental incident.

In order to manage risks associated with any remaining unexploded ordnance, Salvocean will follow the relevant guidance issued by MARA (Guidance for Consent Holders on the identification of Unexploded Ordnance (UXO) in the maritime area). In addition, before salvage operations begin, the following risk management steps will be implemented:

- appointment of a specialist underwater UXO consultant;
- preparation of a UXO risk assessment and method statement;
- implementation of a UXO stop-work protocol.

Prior to commencement of works, **60 minutes of pre-start Marine Mammal Observer (MMO) monitoring** will be undertaken before any sound-producing activities commence. A monitored zone extending approximately **500 m from the sound source** will be maintained, with **soft-start/ramp-up procedures implemented where applicable**. Where sound-producing activities are interrupted for more than 30 minutes, pre-start monitoring will be repeated before operations resume. All monitoring and mitigation measures will be fully documented and reported to the Regulatory Authority.

Where safe and practicable, the procedures also provide for a **precautionary pause or standby** if a marine mammal or turtle is observed in the vicinity of high-noise activities. Clear communication and coordination will be maintained between the MMO, Marine Archaeologist and Salvage Master to ensure that appropriate mitigation measures are implemented promptly.

The salvage vessel will hold station using dynamic positioning (DP2). ROV and camera systems will be deployed to confirm wreck condition, identify hazards/avoidance areas, and select recovery points. A USBL positioning system will be used to mark key points on the wreck to support the accurate placement of subsea tools and to enable repeatable “as-found / as-left” recording.

On arrival on site, the vessel will set up DP and complete survey calibrations, then complete a baseline survey across the wreck and surrounding seabed (GVI, hydrocarbon leak detection, and MBES). ROVs will inspect compartments, after which controlled works will begin. Cargoes and artefacts will be recovered using dedicated secure baskets. Recovery baskets and subsea containers will be used for approved non-UXO cargoes and artefacts. Salvage efforts will concentrate on the bow and forward holds; an identified shell-cargo stack at the stern is more than 85 m from the intended work area and will not be disturbed. Recovery of all salvage will follow a similar approach, with containers deployed on the seabed and the grab/ROVs transferring salvage into them. Containers will be brought to the surface and redeployed until all salvage is recovered. The works will finish with “as left” surveys (MBES, video, and hydrocarbon leak detection), after which the vessel will depart the site.

Phase I - as-found survey, hydrocarbon leak detection, MBES and detailed bow/holds 1-3 inspection; **Phase II** - survey point-fixing and installation of frond matting over the exposed UXO/lard area; **Phase III** - controlled bow access, systematic deck/overburden removal and recovery of selected cargoes/artefacts; and **Phase IV** - as-left video, MBES and hydrocarbon leak detection followed by recovery of seabed equipment.

Frond mats as a mitigation measure will be deployed individually by vessel crane using a purpose-built lifting frame and positioned by the WROV. The installation area and the centre of each mat will be survey point-fixed, and a mat-position overlay/as-built record will be produced. The mats will be preservation measures intended to reduce scour and promote sediment accumulation.

Recovery will be undertaken using the vessel crane, mechanical grabs and ROVs, with camera and USBL transponder support to position the grab accurately and minimise disturbance. Salvage will be conducted in a controlled sequence across the wreck structure/holds, with periodic ROV rechecks to assess any changes in wreck condition. Operations will be within defined safe operating limits (including sea state/wind thresholds) to reduce the risk of dropped loads, uncontrolled swing, and loss of station.

Hydrocarbon monitoring will be undertaken throughout the works. If significant hydrocarbon leakage, sheen formation, or evidence of release from mineral oil containers or associated sediments is identified, work will be paused where necessary to allow assessment and implementation of appropriate containment, recovery, or mitigation measures in accordance with pollution response procedures and the Shipboard Oil Pollution Emergency Plan (SOPEP).

Recovered materials will be managed with segregation, containment, and lawful disposal on return to port. The project will operate in accordance with the vessel’s safety and pollution prevention procedures, including spill response, waste management, navigation watchkeeping, and incident reporting.

If potentially live or unstable ordnance is encountered during the proposed works, operations will cease pending specialist assessment by a suitably qualified UXO consultant and consultation with the relevant authorities. Depending on the nature of an identified hazard, additional environmental mitigation and monitoring measures may be implemented. Salvocean understands that the condition and stability of ordnance may vary considerably depending on corrosion state, historic disturbance, sediment coverage, and the possible presence or absence of fuses, detonators, or propellant materials. Accordingly, all suspect ordnance items will be treated on a precautionary basis unless confirmed otherwise by a suitably qualified specialist consultant.

Table 1. Proposed survey elements

Survey type
Multibeam echosounder (MBES) survey (wreck site and surrounding seabed)
Photogrammetry survey
Environmental survey
Hydrocarbon leak detection survey
Cultural heritage assessment survey
As Found/As Left survey reporting (incl. MBES, video/GVI, leak detection outputs as applicable)

The following salvage operations will be undertaken at the site using dynamic positioning.

Table 2. Proposed salvage elements

Salvage Operations
DP-capable salvage vessel (DP set-up and station keeping)
WROV / work-class ROV operations (GVI support, tooling, handling, dredge support)
Vector fly-out ROV (Snaeco, France) for internal bow-compartment inspection
HiPAP/USBL positioning and seabed reference beacon(s) (deployment and recovery)
SVP (sound velocity profiling)
Heavy-lift crane (200 t SWL)
Secondary/auxiliary crane (deck handling/support)
Crane-deployed cutting/removal tooling: Hydraulic Shears (Tiny) and Deck Removal Tool (Deep Tek)
Sediment removal: ROV-mounted Excav8 Subsea 6" Dredge Pump and/or vessel-crane-deployed Controlled Flow Excavator, as required
Recovery baskets (secure baskets for cargoes/artefacts)
Open-top half-height recovery baskets/containers positioned adjacent to the worksite
Subsea grab operations for approved non-UXO cargo and artefact recovery; the identified ordnance/munition stack will not be disturbed.
Subsea grab/WROV recovery of silver, mail/parcel-post cargoes and other approved non-UXO materials into half-height recovery baskets/containers
Container cycling workflow (cycle to surface, empty using deck crane, redeploy)
Deck handling to recover seabed equipment and reference beacons

Table 3. RMS Laconia: known details

Date of loss	25 February 1917
National Monuments Service: Wreck Viewer I.D.	W05759
Position (GPS/PA)	5203711N 1331179W 52° 00.3079'N. 013° 58.2161'W
Water depth	~375 meters

Wreck footprint (approximate)	There have been a number of previous salvage attempts on the wreck, which have greatly reduced the wreck structure to approximately 155m x 25m (the wreck is in three sections)
Project description	The location of the wreck has been known since early salvage attempts (over four salvage efforts) in the mid to late 20th century. The wreck's 1st- and 2nd-class accommodation levels have been removed, down to the 3rd-class accommodation level. The contents of the grab tools have been dumped from the port and starboard sides of the wreck, while significant areas of the stern and aft have been excavated by a mass flow excavator to a depth of a few meters. The wreck comprises three sections: Forward section (bow to forward funnel hatch): decks have collapsed, and both port and starboard hull plates are separating. Midship section (forward funnel hatch to aft end of engine room hatch): the central hull remains intact and upright on the seabed; the aft section continues at an angle of ~10–20° towards the stern. Stern section (aft end of engine room hatch to stern): largely indistinguishable, heavily damaged by two torpedo strikes and subsequent salvage attempts (including grabs, explosives, mass-flow excavator, and other tools).
SS Laconia particulars at the time of build in 1912	Tonnage of 18,099 grt, her dimensions were: 183.3m x 22.5m x 12.4m. Fitted with 2 x quadruple expansion engines, 6 boilers fuelled by coal, dual shaft, and 2 screws.
Cargo	Cargo included silver (bars/coins), mail and substantial shell and munitions cargo, alongside other bulk goods (Chronicle 2017). Salvocean's August 2026 UXO review records 11,628 cases of rifles and large-calibre shells with a gross weight of 4,831,028 lb; apart from identified proof-shell consignments, the shipping declaration does not establish whether the shells were primed or awaiting filling. 368 tons of lard – (140 tons of lard in crates, and 128 tons of lard in tierces (barrels or casks), 100 tons of block lard in crates). 1,201 barrels of mineral lubricating oil, 161 tons. 2,024.5 tons of brass shells (made up of 6-, 8-, 9.2- and 12-inch shells). Fuses, explosives, propellants and small arms ammunition. The munitions shipped on the *Laconia*, consisted of: • Guns: $5,200,000 • Rifles: $3,000,000 • Shells 6” and over: $71,000,000 • Shells under 6”: $47,000,000 • Fuses: $12,500,000 • Forgings: $25,000,000 • Explosives and Propellants: $27,500,000 • Small Arms and Ammunition: $14,800,000

Estimated time for the proposed survey and salvage works	Salvocean estimates an overall campaign duration of 1,258 hours (53 days), including mobilisation, transit, demobilisation, a mid-project crew change and 20% weather downtime. The four offshore operational phases at the wreck site total approximately 32 days (Phase I 1 day; Phase II 1 day; Phase III 30 days; Phase IV 0.4 day). A two-year MUL is being applied for in order to provide for weather, vessel availability, seasonality and operational contingencies.

Figure 2 shows a Multibeam Echo Sounder map of the wreck and the surrounding debris field.

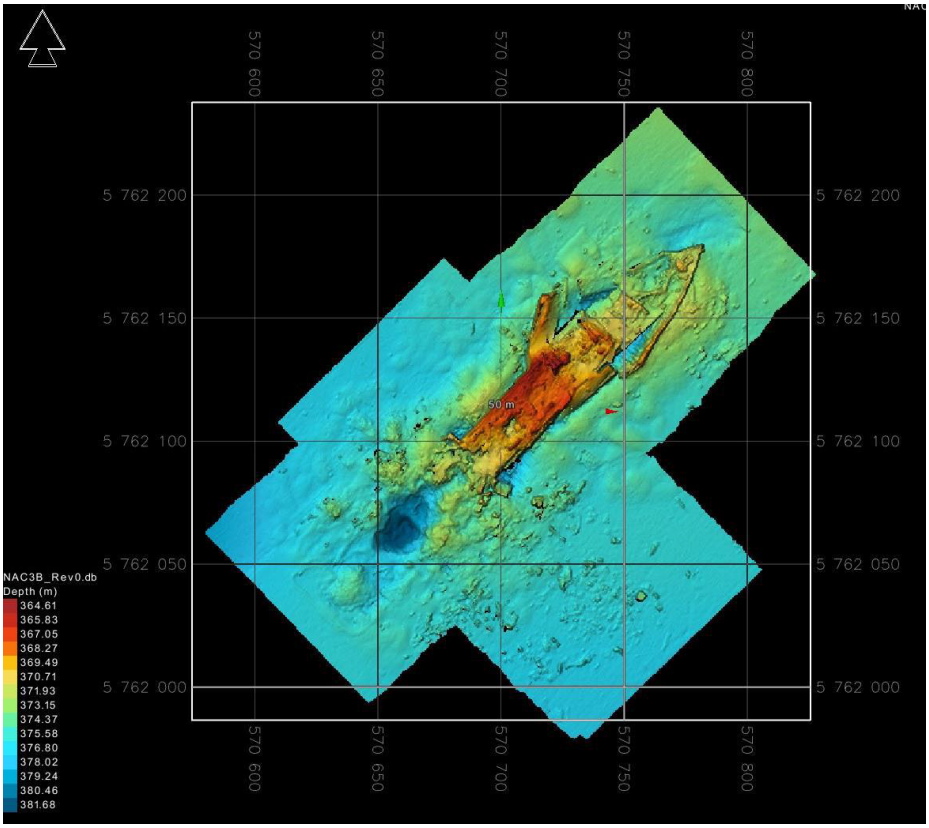

Figure 2: Multibeam Echo Sounder map of wreck and debris field

The Laconia has been heavily disturbed by its sinking (torpedo strikes) and previous salvage (including the use of explosives). Salvocean proposes that no explosive clearance or ordnance recovery or disposal activities as part of the proposed project. Salvocean also proposes the placing of frond matting over the exposed UXO/lard-crate area to secure it, reduce further scour/exposure, and promote in-situ preservation through sediment accumulation.

4.2. Survey and Salvage equipment

A variety of equipment will be used for the survey and salvage, and these are detailed in Table 1, Table 2 and Table 4. Information about the survey/ salvage vessel is shown in Table 6 and the equipment to be used is listed in Table 4.

A suite of survey technologies will be used to characterise the wreck site and support salvage operations, including ROV-mounted MBES, ROV-based digital imagery/video, hydrocarbon leak detection, and USBL/HiPAP positioning with seabed reference beacon(s), supported by SVP. Historic SBP data is part of the existing wreck survey record. Salvage works will use work-class ROVs and the Vector fly-out ROV, a 200 t SWL crane with secondary crane support, the specified cutting/removal tooling, and localised sediment removal with the Excav8 Subsea 6" Dredge Pump and/or Controlled Flow Excavator. Approved non-UXO cargoes/artefacts will be recovered using grabs and open-top half-height recovery baskets/containers.

See Table 4 and Table 5 for the proposed survey/ salvage equipment and sound levels.

Table 4. Equipment specification and sound pressure levels*

Equipment	Model	Deployment	Company	Sound Pressure Level / Source Level (dB re 1 µPa)
Survey/salvage vessel	Olympic Challenger or similar	Ocean surface	Aker Yards, Norway	165–175
Vessel DP	DP2 Kongsberg K-Pos 21	Hull mounted	Kongsberg	178
Acoustic transponders	EdgeTech CAT Coastal Acoustic Transponder	Equipment mounted	EdgeTech	192
Obstacle avoidance sonars	Teledyne (model TBC)	Equipment mounted	Teledyne	160–180
Underwater navigational signals (USBL)	Sonardyne Compatt 6 8300-3111	Equipment mounted	Sonardyne	187–196
Work class ROV (WROV)	Millennium® Plus Work Class ROV	Launched from vessel	Oceaneering	130–160
Work class ROV (WROV)	Schilling Robotics HD Work Class ROV	Launched from vessel	Schilling	130–160
Ultra-high resolution MBES	Teledyne RESON SeaBat® 7125	ROV mounted	Teledyne	196–224

* While Salvocean cannot categorically state it will be the exact models as listed, should an alternative to any of the above proposed equipment inventory be utilised, substitute equipment sound pressure levels will fall within the parameters detailed in this table.

Table 5. Grouped mechanical-noise assessment for Salvage equipment.

Group	Items included	Mechanical sound type	Typical duration/duty cycle
ROV manipulators	T4 + Atlas manipulators; Flange Splitter; PHINS; DVL	Mostly low-level hydraulic/electric actuation, short “servo” sounds; minor structure-borne vibration	Intermittent
Cutting/grinding / sawing tools	Grinders/chop saw; Track saw (Aleron); Diamond wire cutter (MMDWS); Hydraulic Shears (Tiny); Deck Removal Tool (Deep Tek)	Intermittent high-frequency tonal/rasping cutting noise; vibration transferred into the wreck structure; occasional impact sounds	Short bursts
Line cutters & small cutters	Soft line cutter; Hard line cutter	Very brief mechanical snap/cut, possibly a short motor whine; minimal energy	Infrequent
Pump / jet / hydraulic flow tools	Dynajet pump; HP water jet; Excav8 Subsea 6" Dredge Pump; Controlled Flow Excavator	Broadband “hiss/jet” with pump whine; some low-frequency components; largely confined to a few metres	Intermittent
Grabs and baskets: contact/impact handling	Large tine grab; Small tine grab; (MEGA CLAW 3); Clam Shell Grab (DWT BAG10 Grab); Half Height Baskets	Intermittent low-frequency clunks/impacts, scraping/dragging depending on substrate	Intermittent

4.2.1. Survey/ salvage vessel

As a survey/salvage vessel will be chartered, the specific vessel cannot be confirmed at this stage, for example, a Type 639 Multipurpose Offshore Vessel or similar. MV Ocean Challenger from Aker Yards, Norway, is an indicative vessel with sound pressure levels of 165-175 dB re 1 µPa at 1 m, and a DP2 Kongsberg Kpos 21 system at the ship's hull with an indicative level of 178 dB re 1 µPa at 1 m. The Olympic Challenger shown below can also be used as an 'example' vessel for the survey/salvage operation (Table 6).

Table 6. An example of survey/ salvage vessel

Olympic Challenger **Type: Multipurpose Offshore Vessel** **MMSI: 257089810** **Call sign: LAZQ7** **IMO Number: 9398292** **Flag: Norway**	
Length OA	105.9m
Beam	21.0m
Draft Max (Loaded)	5.7m
Classification (RINA)	*DNV, 1A1 ICE-C SF COMF-V(3), HELD K(E) DYMPOS AUTR, CLEAN DESIGN DK (+)*
DP Type	DP2 – Kongsberg Kpos 2

4.2.2. Multibeam echosounder

Teledyne RESON SeaBat 7125 ultra-high-resolution MBES, ROV-mounted, with an indicative sound pressure level of 196-224 dB re 1 µPa at 1 m. The MBES is used for the as-found and as-left surveys of the wreck and surrounding seabed

4.2.3. Additional acoustic transponders

A number of additional transponders, as given in Table 4 will be required to aid in the positioning of the deployed equipment. All transponders operate by emitting and receiving acoustic signals and measuring time to calculate distance and direction by analysing the returning signal.

4.2.4. General visual inspection of the wreck

A video survey will be conducted at the shipwreck and its immediate vicinity. The adjacent areas will be surveyed to confirm the locations of debris, fishing nets, and similar items.

4.2.5. Digital video acquisition

One or more cameras mounted on a ROV will be used to record visual monitoring of the wreck and adjacent areas during the surveys, salvage and at the completion of works.

4.2.6. Hydrocarbon Leak Detection Survey

A hydrocarbons/HNS survey will be carried out at the wreck site. As hydrocarbons can be considered lighter in weight than seawater, such substances, if emitted from a shipwreck, can be detected using the ROV's OAS. A suitable grid will be overlaid on the survey navigation screen to allow the ROV to make passes across the wreck while detecting for emissions.

Even though the vessel was coal-fired and earlier reports showed little visible pollution risk, it carried about 1,201 barrels of mineral lubricating oil. Because of this, hydrocarbon leak detection will remain a precaution during surveys. The assessment will clearly separate the risks from bunker fuel and from the cargo or packaged mineral oil. Before salvage work starts, a basic inspection for hydrocarbons and hazardous substances will be carried out. Extra monitoring with ROVs will happen when holds, cargo spaces, pipes, machinery, or any areas with barrels of oil residues are disturbed. This element of the scope of works is common to all salvage operations conducted for similar wrecks by Salvocean and is not mitigation based on any perceived risk to the receiving environment.

4.2.7. Photogrammetry survey

Photogrammetry of the wreck and its environment by a ROV-mounted SubSLAM X2 system, an underwater camera system. A fly-out ROV system will be used to inspect internal bow compartments where access allows. A work-class ROV will support both survey verification and salvage activities, including close visual inspection, handling tasks, and the deployment/management of subsea equipment. ROV operations will also support monitoring during recovery works and confirm conditions during "as found" and "as left" inspections.

4.2.8. Vessel presence and dynamic positioning

The survey/salvage vessel will mobilise to the site and maintain station using DP while surveys and subsea works are undertaken. Vessel presence, thruster use and general operations contribute to the overall underwater noise environment.

4.2.9. Controlled access works

Controlled access works at the bow will use WROV cutting tools together with the crane-deployed Hydraulic Shears (Tiny) and Deck Removal Tool (Deep Tek). The deck removal tool will lift, and shift cut deck sections clear of the bow to a dedicated laydown/dump zone, under the project lifting, rigging and HSE controls.

4.2.10. Sediment removal and clearance

Sediment removal will be undertaken where required using the ROV-mounted Excav8 Subsea 6" Dredge Pump (Centurion Subsea Services, UK) and/or the vessel-crane-deployed Controlled Flow Excavator (Coretti, France), depending on local conditions and access requirements.

The Controlled Flow Excavator and ROV-mounted 6" dredge pump will be used where required to move or remove localised overburden. The principal environmental effects remain direct benthic disturbance within the work footprint, short-term suspended sediment/turbidity, localised redeposition and temporary disturbance to mobile fauna.

Cut deck sections/equipment and non-recovered overburden may be moved to dedicated local seabed laydown zones adjacent to the bow work area. While material considered of interest is placed in open-top half-height containers for recovery and surface inspection.

4.2.11. Recovery of cargoes and artefacts

Cargoes and artefacts will be recovered using dedicated open-top half-height secure baskets. Baskets will be positioned adjacent to the work area and recovered to the surface as required, with handling managed via ROV/vessel cranes and deck operations.

4.2.12. Containers and subsea collection workflow

Subsea half-height containers and/or dedicated collection containers will be placed on the seabed adjacent to the worksite to receive recovered materials. Containers will be cycled to the surface for emptying and redeployed as necessary.

4.2.13. UXO avoidance and in-situ protection

Salvage efforts will concentrate on the bow and forward holds, more than 85 m from the identified shell-cargo stack in the stern/No. 4-5 hold area. Following UXO verification/fuse identification, frond matting will be placed over the exposed UXO/lard-crate area to secure it, promote sediment accumulation and provide in-situ protection without disturbing the ordnance.

If any suspect munition is encountered outside the identified stern shell-cargo area, work will stop, and the item will remain in situ pending assessment by the qualified UXO technician. No item will be treated as inert solely because a fuse is not visible.

4.2.14. Deck operations and recovery of seabed equipment

Deck operations will support crane rigging, deployment and recovery of tooling, container emptying, and general handling. At completion, seabed equipment (including positioning beacons and any temporary subsea infrastructure) will be recovered.

4.2.15. Underwater noise source levels and unknowns

The work-class ROV equipment includes T4 + Atlas Manipulators, RTIS, Grinders / Chop Saw, Dynajet Pump, Flange Splitter, Soft and Hard Line Cutters, Track Saw (Aleron), HP Water Jet, MBES, PHINS, DVL, SVP, USBL Beacons and a Diamond Wire Cutter. Remote-intervention equipment includes the DWT OPG 2.2 Large Tine Grab, MEGA CLAW 3 Small Tine Grab, DWT BAG10 Clam Shell Grab, Tiny Hydraulic Shears, Deep Tek Deck Removal Tool, Half Height Baskets and a Controlled Flow Excavator. Except for MBES/USBL, these items are not continuous acoustic transmitters; any underwater noise is expected to be intermittent and task-driven, driven by tool operation and contact with steel/sediment, and strongly dependent on settings and duty cycle. In the absence of equipment-specific referenced data, source levels are not assigned for these tools.

5. Receiving environment

The proposed survey and salvage area covers ~1 km^2. There is no spatial overlap between the proposed MUL application area for the wreck site and any European site/s. Nevertheless, potential pathways for the impact on European sites via mobile receptors (e.g., marine mammals, seabirds and fish) are considered.

The wreck lies in Ireland's EEZ on the Porcupine Bank, approximately 150 miles NW by W of Fastnet, at a water depth of roughly 366–380 m. The site is characterised as low energy, with the wreck sitting relatively upright on a gentle slope.

The seabed around the wreck has been disturbed by four previous salvage attempts, including mass-flow excavator activity, and there are excavation features and the dumping of grab contents along the sides of the wreck. The receiving environment is not "pristine" and already contains disturbed sediments and redistributed material.

Photography/video in 2018 (Salvocean Ltd. Underwater Cultural Heritage Assessment – Internal Report October 2025) was used to confirm the type of seabed sediment. The records provide a baseline description of a soft, silty, sediment-topped seabed dominated by foraminifera-rich (benthic and pelagic) glauconitic quartz sand. With a local hard-substrate habitat provided by wreck structure. While faunal observations include conger eel, tube anemones, pollack, blue mouth rockfish (or blackbelly rosefish), squat lobster, and sea urchins, including fauna associated with exposed wreck structure/steel plate and creases.

Mobile marine animals are found in Atlantic waters off western Ireland. National collation platforms (e.g., the National Biodiversity Data Centre's Biodiversity Maps) provide regional context on cetacean records in Irish waters, and the State ObSERVE programme has collected aerial and acoustic survey data on cetaceans and seabirds across large portions of Ireland's EEZ. Consistent with this wider offshore setting, the receiving environment may support transient and/or foraging use by cetaceans such as bottlenose dolphin (*Tursiops truncatus*) and harbour porpoise (*Phocoena phocoena*), noting that mobile receptor occurrence offshore is expected to be patchy and temporally variable in response to oceanographic and prey processes (Irish Whale and Dolphin Group, 2009). Grey seal (*Halichoerus grypus*) may also occur given its capacity for wide-ranging offshore movements, whereas harbour seal (*Phoca vitulina*) typically forages closer to haul-out sites and is less likely to be far offshore (NPWS, 2011).

The MUL area may also provide foraging habitat for seabird species connected to more distant SPAs, within foraging range such as Manx Shearwater, Gannet and Fulmar.

Atlantic salmon may transit through the areas surrounding the MUL application area during their migration periods, although they do not actively forage during this period.

The MUL area surrounding the wreck site is too far offshore to provide habitat for any additional mobile Annex II species.

6. Zone of Influence

The Zone of Influence (ZoI) for this SISAA is defined by pathway, reflecting the extent to which project pressures could plausibly extend. For underwater noise (vessel/ROV/survey systems/ salvage), the ZoI includes the area over which sound may be detectable above ambient levels at magnitudes capable of

eliciting behavioural response, noting that propagation is context-dependent and that marine mammals, fish and seabirds are mobile and may occur transiently. For vessel presence (transit, DP, lighting and activity), the ZoI comprises the operational area and immediately surrounding waters where disturbance could occur, with mobile receptors encountering the works during passage or foraging. For seabed interaction, the ZoI is limited to the direct footprint of seabed salvage contact and a small surrounding area for localised sediment resuspension/deposition, principally relevant to benthic habitats. For pollution risk, the ZoI reflects the area potentially affected by a credible worst-case loss-of-containment scenario; however, with standard controls, any such effect would be expected to be short-lived and localised. These pathway definitions keep the assessment proportionate for fixed seabed receptors while retaining appropriate precaution for mobile receptors.

Potential project-related impacts have been identified and assessed in the context of a Source-Pathway-Receptor matrix, as given in Table 7.

Table 7. Source-Path-Receptor matrix

Element	Potential Source (pressure)	Path	Receptor
Vessel presence (incl. transit, port calls, DP operations at site)	Disturbance, harm or injury from vessel operations (presence, lighting, movement, thrusters)	Water, Air	Marine Mammals, Birds, Fish
Vessel (operations)	Accidental spillage of hydrocarbons/chemicals (fuel, oils, hydraulics)	Water	Benthic habitats, Marine Mammals, Birds, Fish, Water quality
Vessel (biosecurity)	Introduction/spread of Invasive Alien Species (IAS) via hull fouling/sea chests/ballast pathways	Water	Benthic habitats, Fish
Vessel DP (DP2 thrusters)	Underwater noise (thrusters), physical disturbance of the water column during station keeping	Water	Marine Mammals, Birds, Fish
Acoustic transponders	Underwater noise from acoustic positioning systems	Water	Marine Mammals, Birds, Fish
Underwater navigational signals (USBL)	Underwater noise from USBL signalling during subsea positioning	Water	Marine Mammals, Birds, Fish
Obstacle avoidance sonars	Underwater noise from sonar transmissions during close-proximity operations	Water	Marine Mammals, Birds, Fish
ROV-mounted MBES (UHR MBES)	Underwater noise from ROV-mounted MBES transmissions	Water	Marine Mammals, Birds, Fish
SVP (sound velocity profiling)	Short-duration disturbance from deployment/recovery; potential minor noise during operation	Water	Benthic habitats, Marine Mammals, Birds, Fish
Unexploded ordnance (UXO)	Potential interaction with shells, fuses, propellants, explosives or small-arms ammunition during inspection, cutting, grab recovery or cargo handling; potential uncontrolled UXO event if material is misidentified or mishandled. Salvage is to be confined to the bow/forward holds more than 85 m away from where shells have been identified;	Water	Benthic habitats, Marine Mammals, Birds, Fish

Element	Potential Source (pressure)	Path	Receptor
	any verification is to be directed by a qualified UXO technician, and frond matting is proposed to cover the aft hold areas.		
As found / as left survey reporting (incl. Ultra high MBES/video/leak detection outputs)	No additional pressure beyond constituent survey activities (reporting output only)	N/A	N/A
General visual inspection (GVI) / As-left video survey	Disturbance from ROV presence, lighting and proximity operations	Water	Benthic habitats, Marine Mammals, Fish
Digital video acquisition / Photogrammetry (ROV-mounted camera system)	Disturbance from ROV presence, lighting; localised contact risk if operating close to the structure	Water	Marine Mammals, Fish; Cultural heritage receptor (wreck fabric)
Hydrocarbon leak detection survey (ROV/vessel deployed)	Disturbance from ROV operations; potential minor additional acoustic source depending on sensor type (TBC)	Water	Marine Mammals, Fish; Water quality
Environmental survey (where required)	Physical interaction with seabed (if sampling is undertaken), Sediment disturbance/resuspension	Water and Sediment	Benthic habitats, Fish; Water quality (turbidity/local plume)
Cultural heritage assessment survey	Close-range inspection/recording; potential contact risk with sensitive wreck fabric	Water	Benthic habitats
Work-class ROV operations (WROV)	Underwater noise (ROV thrusters/hydraulics); disturbance from presence/lighting; potential collision/contact and resuspension	Water	Marine Mammals, Birds, Fish; Benthic habitats
Vector fly-out ROV internal inspection	Disturbance and contact risk in confined spaces; local resuspension within compartments	Water	Water quality (localised turbidity); Fish
Heavy-lift crane operations	Physical disturbance from lifting/lowering equipment; dropped object hazard; indirect disturbance via seabed contact of loads/tools - turbidity	Water and Sediment	Benthic habitats; Fish
Secondary/auxiliary crane (deck handling/support)	As above (support lifts, container handling, equipment deployment/recovery)	Water and Sediment	Benthic habitats
Hydraulic Shears (Tiny) / Deck Removal Tool (Deep Tek)	Physical damage to wreck structure during access works; localised vibration/contact noise; debris generation	Water and Sediment	Benthic habitats
Subsea excavation - Controlled Flow Excavator	Seabed disturbance and Sediment resuspension; local plume, turbidity and redeposition	Water and Sediment	Benthic habitats; Fish; Water quality (turbidity/plume)
Subsea dredging - Excav8 Subsea 6" Dredge Pump	As above (more localised), plus potential re-suspension near wreck fabric	Water and Sediment	Benthic habitats; Fish Water quality
Recovery baskets (cargoes/artefacts)	Physical interaction with seabed/wreck during placement and recovery; dropped object hazard	Water and Sediment	Benthic habitats
Subsea containers	Physical placement on seabed; localised seabed footprint; potential snagging/interaction with debris	Water and Sediment	Benthic habitats;

Element	Potential Source (pressure)	Path	Receptor
Subsea grab/WROV recovery of approved non-UXO cargoes	Intermittent mechanical contact; local disturbance/resuspension during recovery of silver, mail/parcel-post cargoes or other approved non-UXO materials	Water and Sediment	Benthic habitats; Fish
Remote intervention grabs (large/small tine; clam shell)	Low, intermittent mechanical noise; physical contact disturbance dependent on substrate and handling	Water and Sediment	Benthic habitats
Remote intervention cutting/removal tooling	Mechanical cutting/contact from Hydraulic Shears (Tiny), Deck Removal Tool (Deep Tek), Track Saw and Diamond Wire Cutter; potential local debris and disturbance	Water and Sediment	Benthic habitats
Container cycling workflow (lift, empty, redeploy)	Repeated lifting operations; dropped object hazard; repeated seabed placement and retrieval	Water and Sediment	Benthic habitats
Deck handling/recovery of seabed equipment and beacons	Physical disturbance during deployment/recovery; dropped object hazard	Water and Sediment	Benthic habitats
HiPAP reference beacons (deployment and recovery)	Seabed placement/recovery disturbance; potential snagging interaction if poorly sited	Water and Sediment	Benthic habitats
Residual fuels and lubricants (legacy source within wreck structure)	Residual hydrocarbons retained in tanks, pipework and machinery; degraded lubricants following >100 years submergence and structural deterioration from previous salvage attempts (4)	Water	Water quality
Corrosion products, antifouling agents and historic coatings	Iron oxides and associated trace metals from long-term steel corrosion; degraded historic paint/coating residues	Water and Sediment	Benthic habitats (localised)
Survey/salvage seabed disturbance	Physical disturbance from ROV contact, lifting, anchoring or cutting; repeated historic disturbance; mobilisation of fine mud fraction	Water and Sediment	Benthic habitats (very localised)
Sediment plume generation	Localised resuspension of fine Sediments potentially containing bound hydrocarbons/corrosion residues; deep-water limits plume dispersion; plume expected to be small, short-lived and settle locally before re-covering	Water and Sediment	Benthic habitats (very localised and temporary)

The survey/salvage vessel used will be covered by MARPOL regulations. The MARPOL Convention is the main international convention covering the prevention of pollution of the marine environment by ships from operational or accidental causes. The Convention includes regulations aimed at preventing and minimising pollution from ships – both accidental pollution and that from routine operations.

Ballast Water Management: International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), 2004.
Anti-Fouling Systems: Covered by the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (AFS Convention), 2001.
MARPOL Convention: MARPOL consists of six technical Annexes covering Oil (I), Noxious Liquid Substances in Bulk (II), Harmful Substances Carried in Packaged Form (III), Sewage (IV), Garbage (V), and Air Pollution (VI).

While the BWM and AFS conventions are separate, they work in conjunction with MARPOL to reduce environmental impact.

Considering water depths, the sedimentary benthic environment and previously disturbed condition of the wreck, any direct impacts associated with the proposed survey and salvage works are expected to be localised and largely confined to the immediate Maritime Usage Licence (MUL) application footprint, extending only marginally beyond the physical dimensions of the wreck. With due regard to mobile species that may transit through or utilise the area, including breeding seabirds, Annex II marine mammals and Annex II fish, the Zone of Influence (ZoI) is taken to include all European sites where a potential direct or indirect connection via such species may occur.

7. Identification of impacts

This section identifies and considers potential impacts, direct and indirect, on the conservation status of the QIs and SCIs for all sites within the ZoI by reference to their defined attributes, measures and targets as set out by NPWS in the relevant site-specific Conservation objectives for each site.

The results of the SPR analysis (Table 7) indicated that vessel noise and disturbance as well as noise associated with the deployment of acoustic instrumentation and mechanical salvage had the potential to impact marine mammals, birds and fish, along with disturbance to sediment and pollution of the water column. These potential impacts are further assessed in section 7.1 and 7.2 and in-combination effects are addressed in section 9

7.1. Direct and Indirect Impacts

Water-column activities, including ROV operations, video inspection, photogrammetry, hydrocarbon/HNS detection, crane deployment/recovery cycles, container/basket handling, and DP station-keeping, will create temporary and localised disturbance through the water column.

Physical seabed disturbance will be confined to discrete, controlled locations associated with access works and recovery, including deck plate removal, grab/contact tooling, placement of recovery baskets/containers and equipment, and sediment clearance. Redeposition of sediments during specified salvage operations is likely to occur in a localised area surrounding the wreck site.

The proposed salvage operations will have a controlled, direct impact on the wreck itself, as salvage involves the precise, systematic removal of structures and specific cargoes.

The use of noise-producing acoustic equipment (including MBES, acoustic transponders and USBL) and mechanical salvage operations will result in an increase in ambient noise around the impact and a small buffer zone surrounding it.

7.2. Review of sources of impact

7.3. Noise

Vessels generate non-pulsed (non-impulsive) underwater sound, characterised by either continuous sound or discrete sound events occurring singly or repeatedly over a 24-hour period. These sounds typically lack the rapid rise time and distinct acoustic pulse characteristic of impulsive noise.

The MBES, USBL and acoustic transponder are active underwater acoustic sources. Sound generated by these systems attenuates with increasing distance from the source, with propagation characteristics influenced by local bathymetric and oceanographic conditions.

Mechanical salvage activities will also generate task-specific mechanical and contact noise. These activities may include underwater cutting, grabbing, dredging and excavation, with the associated sound levels and characteristics varying according to the equipment and task being undertaken.

To inform the assessment of potential underwater noise impacts on marine mammals and fish within the receiving environment, the Marine Institute commissioned a noise modelling and environmental risk assessment (Thomsen *et al.*, 2023). The study modelled the potential effects of a sparker and mini-airgun on two proxy species: minke whale (*Balaenoptera acutorostrata*) and Atlantic herring (*Clupea harengus*). These species were selected to provide representative information on potential effects on baleen whales and fish species in which the swim bladder plays a role in hearing, respectively.

For minke whale, the modelling indicated that the effects of both the sparker and mini-airgun were relatively short-range when considering TTS and PTS resulting from a single pulse, as well as cumulative PTS. Predicted impact ranges increased where cumulative exposure was considered for TTS, with greater effects predicted for the mini-airgun than the sparker. The maximum predicted impact areas were approximately 19.7 km² for the mini-airgun and 2.5 km² for the sparker. Behavioural response effects associated with the mini-airgun were approximately twice those predicted for the sparker, with a maximum affected area of approximately 6.3 km².

For Atlantic herring, predicted TTS and PTS effects from a single pulse, together with cumulative PTS effects, were similarly short-range for both sound sources. Where multiple pulses were considered, TTS ranges were greater for the mini-airgun, although effects remained relatively close to the source, with a maximum predicted impact area of approximately 1.1 km². Behavioural effects associated with the mini-airgun were substantially greater, extending to approximately 13.6 km, corresponding to an impact area of approximately 460.5 km². For the sparker, behavioural responses were predicted within an area of approximately 2.2 km².
The proposed project does not involve the use of either sparkers or mini-airguns. The Thomsen *et al.* (2023) modelling therefore represents a conservative, worst-case reference point for considering the potential effects of underwater noise on baleen whales and relevant fish species. The acoustic sources and mechanical activities proposed for the project are expected to generate substantially different sound characteristics and exposure profiles.

Pinnipeds

Pinnipeds can be impacted by disturbance and underwater noise. The foraging ranges for Grey seal can be large, travelling up to several hundred kilometres from their breeding areas (Kiely *et al*, 2000) while the foraging distance travelled by Harbour seals is generally less, it can also extend for 100's of kilometres (Vance *et al,* 2021). Recent research (Carter, *el al*, 2022) estimates foraging ranges of 273km for harbour seal and 448km for grey seal. We have undertaken a screening exercise in ARCGIS to calculate the distance of all European sites where grey seal and harbour seal are a QI within these ranges. While NPWS site conservation objectives only apply to these species within their site, the present assessment is based around a presumed ZoI of 448km for Grey seal and 273km for Harbour seal, as supported by current knowledge in relation to foraging ranges for both species.

Cetaceans

Cetaceans can be be affected by disturbance and underwater noise. Excessive underwater noise can cause behavioural disturbance, displacement, communication masking, hearing impairment (TTS/PTS) and, at high exposure levels, physical injury.

Harbour porpoise and Bottlenose dolphin are wide-ranging and highly mobile, although some populations do appear to be relatively site faithful. However, it can be assumed they travel many 100's of kilometres depending on prey availability and distribution. It is not appropriate to give definitive foraging areas for either of the aforementioned species. As part of the assessment, European sites where Harbour porpoise and/or Bottlenose dolphin form a QI within any Management Unit overlapping within the proposed project site have been included within the scope of the assessment.

Fish

Atlantic salmon can be affected by underwater noise. Atlantic salmon migration routes may include the wider area of the proposed works. However, it is considered highly unlikely that salmon would be impacted by the proposed survey and salvage work due to limited spatial and temporal overlap, taking account of the modelled zone of influence for activities creating acoustic impacts. The ZoI distances applied (14 km for fish) are conservatively derived from worst-case acoustic propagation modelling for DP thrusters, continuous and pulsed sound sources in deep offshore Atlantic conditions. These values represent precautionary bounding distances. Therefore, impacts on the conservation objectives for Atlantic salmon in any connected European site are considered highly unlikely.

Sea lamprey functional hearing is poorly understood, although one available published study suggests that sea lamprey can detect frequencies in the range of 50–300 Hz (Mickle *et al*., 2018). Sea lamprey at sea are highly mobile and are known to prefer shallow coastal waters, where they may attach to host fish species. Some spatial and/or temporal overlap between migrating lamprey and the proposed works may occur; however, considering available knowledge in relation to sound detection ability, together with habitat preferences, life history and behaviour, significant effects are considered unlikely, particularly factoring in the limited spatial and temporal aspects of the works. Impacts on the conservation objectives of lamprey species in any European site are not considered likely.

Seabirds

Diving seabirds can be affected by disturbance and underwater noise. Seabird foraging ranges are well studied and vary widely between species (see Appendix 12.1). There are a range of breeding seabird species associated with SPAs within foraging range of the proposed project site. Site specific surveys of the proposed project area for seabirds have not been undertaken. However, for seabird species during the summer breeding months, the ZoI for indirect impacts is considered to extend to all SPAs within foraging range of the proposed project site. A screening exercise using the mean max foraging distances published in Woodward *et al*. (2019) has been conducted. This brings a number of SPAs designated for species with known wide foraging range capabilities such as Manx Shearwater, Gannet and Fulmar within the scope of the assessment.

7.4. Sediment disturbance

Benthic habitats

At discrete, controlled locations associated with access works and recovery (e.g., deck plate removal, grab/shear contact, placement of containers/equipment, and sediment clearance using MFE and/or ROV

where required). These activities will generate short-lived increases in suspended sediment during contact, excavation, and retrieval, with any plume expected to be small, rapidly diluted, and largely settling close to the source, resulting in limited potential for deposition outside the immediate works footprint. The potentially relevant sensitive receptors for seabed contact and sediment disturbance are benthic habitats and species (including any reefs and other sensitive seabed features where present), benthic invertebrate communities, and demersal fish and their eggs/larvae in the near field; indirectly, marine mammals could be affected, though only at a very local scale. Overall, seabed interaction and sediment disturbance are assessed as highly localised and temporary, and not likely to lead to likely significant effects (LSE) for European site QIs/SCIs. The nearest SAC, designated for benthic habitats (Reefs), is the Hovland Mound Province SAC, located at a distance of 56 km from the proposed project site. Therefore, all benthic habitats which form a QI for any SAC have been screened out for further assessment.

7.5. Water column activities

ROV operations (including video inspection, digital acquisition, photogrammetry, and hydrocarbon/HNS detection), crane deployment/recovery cycles, container/basket handling, and general vessel/DP station-keeping will create temporary, localised disturbance through the water column. Effects arise primarily from intermittent thruster wash, short-duration positioning manoeuvres, and task-driven underwater noise (notably from DP thrusters and any active acoustic systems, such as USBL/MBES, when used). The potentially relevant sensitive receptors for these water-column pressures are Annex II marine mammals (e.g., harbour porpoise, bottlenose dolphin and grey seal), Atlantic salmon and foraging/diving seabirds. These pressures are expected to be confined to the immediate wreck/work area, variable rather than continuous, and of insufficient magnitude/duration to affect receptor populations at the European site scale; accordingly, water-column disturbance is assessed as highly localised and not likely to lead to any significant effect for relevant QIs/SCIs.

8. European sites

The ZoI is defined with reference to the full MUL scope, including survey corridors and transits. Species and habitats with no plausible linkage, or credible pathway, to the marine environment are therefore outside of the ZoI.

The European sites **closest** to the RMS *Laconia* project area are presented below to provide context for the screening that follows:

- Northwest Porcupine Bank SAC – designated Annex I habitat *Reefs 1170* (1)
- Porcupine Shelf SAC – designated for Annex I habitat *Reefs 1170* (2)
- Porcupine Bank Canyon SAC – designated for Annex I habitat *Reefs 1170* and Annex II species *Bottlenose dolphin 1349* (3)
- Southwest Porcupine Bank SAC – designated for Annex I habitat *Reefs 1170* and Annex II species *Bottlenose dolphin 1349* (4)
- East Hovland Mound Province SAC – designated for Annex I habitat *Reefs 1170* (5)
- Belgica Mound Province SAC – designated for Annex I habitat *Reefs 1170* and Annex II species *Bottlenose dolphin 1349* and *Harbour porpoise 1351* (6)

Table 9 shows **all European sites** (SAC's) within the ZoI which have been further assessed here i.e. the sites contain habitats or species which are considered to be sensitive receptors. All SAC's occuring within the ZoI

and which have screened in shown in Figure 3. Table 9 gives indicative foraging ranges for seabird species, while Table 8 present species, foraging ranges and distances (km) to European sites (SPA's).

The nearest SPA to the wreck site is Blasket Islands SPA (004008), located approximately 220 km from the RMS Laconia MUL application area. All SPA's supporting breeding seabirds with foraging ranges that could include the RMS Laconia MUL application area (see Table 10) are therefore considered to fall within the ZoI and are screened in. These SPAs are listed in Table 11.

Table 9. SAC's within the ZoI which have been screened in.

NPWS Site code	Site name	Qualifier for screening in	Distance (km) to SAC	RMS Laconia inside/outside MU for HP or BND	Screened in/out	Screening Rationale
3001	Porcupine Bank Canyon SAC	Reefs [1170]; Bottlenose dolphin [1349]	56	MU overlap	Yes (precautionary)	Nearest offshore SAC; direct mobile cetacean disturbance pathway plausible
2328	Hovland Mound Province SAC	Reefs [1170]	56	N/A	No	Offshore reef feature; no direct/indirect habitat pathway plausible
2329	South-West Porcupine Bank SAC	Reefs [1170]; Bottlenose dolphin [1349]	69	MU overlap	Yes (precautionary)	Mobile Annex IV receptor; underwater noise pathway plausible
2327	Belgica Mound Province SAC	Reefs [1170]; Harbour porpoise [1351]; Bottlenose dolphin [1349]	159	MU overlap	Yes (precautionary)	Mobile Annex IV receptors; exposure via noise/disturbance plausible
2330	North-West Porcupine Bank SAC	Reefs [1170]	183	N/A	No	Offshore reef feature; no direct/indirect habitat pathway plausible
2953	Blackwater Bank SAC	Harbour porpoise [1351]	226	MU overlap	Yes (precautionary)	Mobile Annex IV receptors; exposure via noise/disturbance plausible
2165	Lower River Shannon SAC	Reefs [1170]; Bottlenose dolphin [1349]	277	MU overlap	Yes (precautionary)	Mobile Annex IV receptors; exposure via noise/disturbance plausible
2998	*West Connacht Coast SAC*	*Harbour porpoise [1351]; Bottlenose dolphin [1349]*	*340*	*MU overlap*	*Yes (precautionary)*	*Large coastal SAC supporting wide-ranging cetaceans; precautionary screen-in*
495	*Duvillaun Islands SAC*	*Bottlenose dolphin [1349]; Grey seal [1364]*	*341*	*MU overlap*	*Yes (precautionary)*	*Mobile Annex IV receptors; offshore range overlap possible*
507	*Inishkea Islands SAC*	*Grey seal [1364]*	*340*	*N/A*	*Yes (precautionary)*	*Grey seal capable of wide offshore foraging movements*
2278	*Southern Canyons SAC*	*Reefs [1170]*	*350*	*N/A*	*No*	*Offshore reef feature; no direct/indirect habitat pathway plausible*
3002	*South-East Rockall Bank SAC*	*Reefs [1170]*	*404*	*N/A*	*No*	*Offshore reef feature; no direct/indirect habitat pathway plausible*

** All distances are hydrological distances.*

Table 10. Indicative foraging ranges.

Species		Approx. foraging range (km)
Lesser Black-backed Gull	*Larus fuscus*	127.0
Atlantic Puffin	*Fratercula arctica*	137.1
Black-legged Kittiwake	*Rissa tridactyla*	156.1
European Storm-petrel	*Hydrobates pelagicus*	336.0
Northern Gannet	*Morus bassanus*	315.2
Leach's Storm-petrel	*Hydrobates leucorhous*	657.0
Northern Fulmar	*Fulmarus glacialis*	542.3
Manx Shearwater	*Puffinus puffinus*	1346.8

Table 11. Species, foraging ranges, distance (km) and SPAs.

Species	Foraging range (km)	Distance to SPA (km)	SPA (Code)
Kittiwake	156.1	N/A	N/A
Fulmar	542.3	261	Beara Peninsula SPA (004155)
		256	Deenish Island and Scariff Island SPA (004175)
		244	Iveragh Peninsula SPA (004154)
		238	Skelligs SPA (004007)
		245	Puffin Island SPA (004003)
		230	Blasket Islands SPA (004008)
		320	Cliffs of Moher SPA (004005)
		302	High Island, Inishshark and Davillaun SPA (004144)
		329	Clare Island SPA (004136)
		341	Duvillaun Islands SPA (004111)
		457	West Donegal Coast SPA (004150)
Guillemot	73.2	N/A	N/A
Razorbill	88.7	N/A	N/A
Puffin	137.1	N/A	N/A
Manx shearwater	1346.8	256	Deenish Island and Scariff Island SPA (004175)
		238	Skelligs SPA (004007)
		245	Puffin Island SPA (004003)
		230	Blasket Islands SPA (004008)
		303	Cruagh Island SPA (004170)

		473	Seas off Wexford SPA (004237)
		<1346	North-west Irish Sea SPA (004236)
Storm petrel	336	254	The Bull and The Cow Rocks SPA (004066)
		256	Deenish Island and Scariff Island SPA (004175)
		238	Skelligs SPA (004007)
		245	Puffin Island SPA (004003)
		230	Blasket Islands SPA (004008)
		269	Magharee Islands SPA (004125)
		326	Bills Rocks SPA (004177)

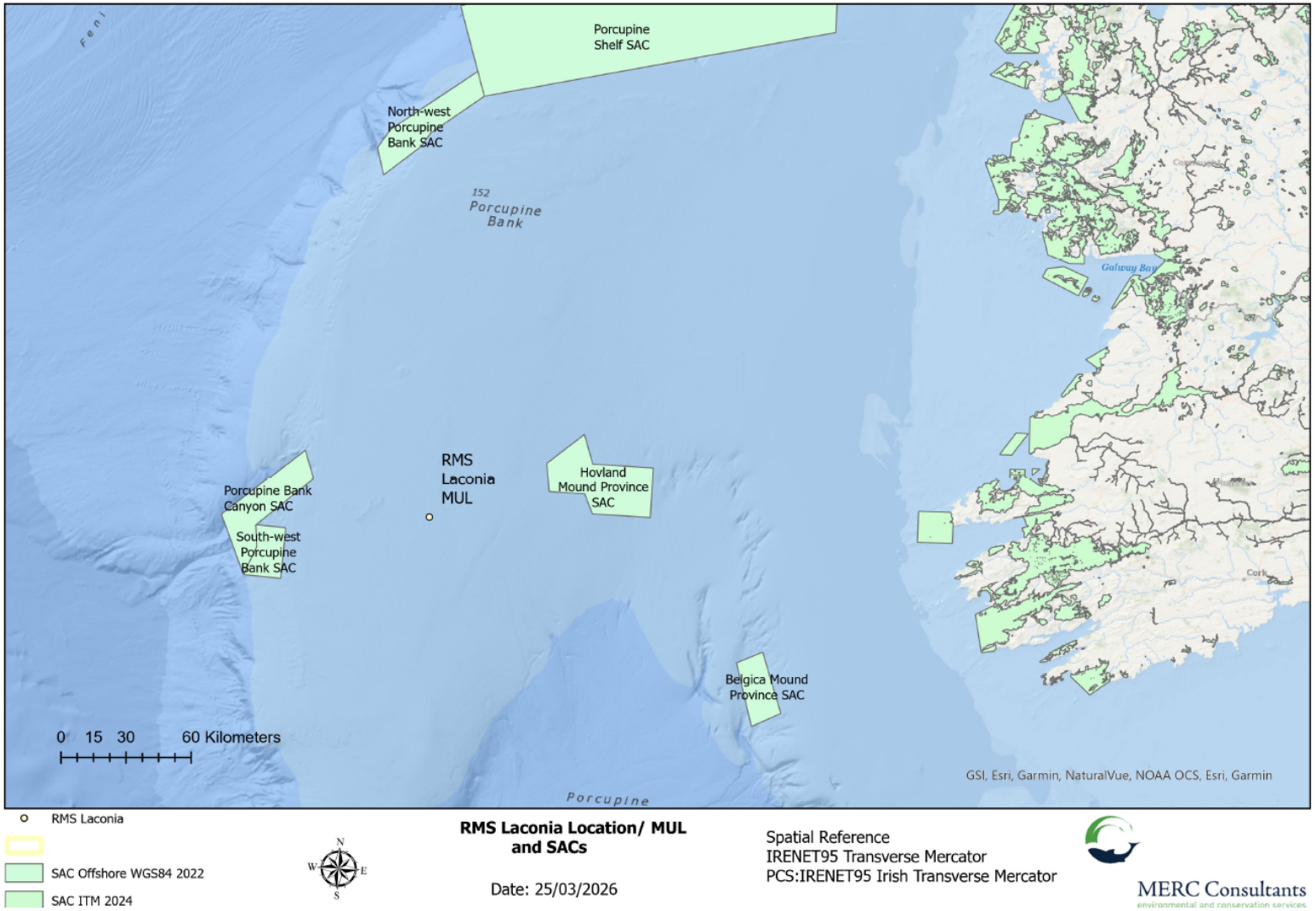

Figure 3. RMS Laconia and SACs.

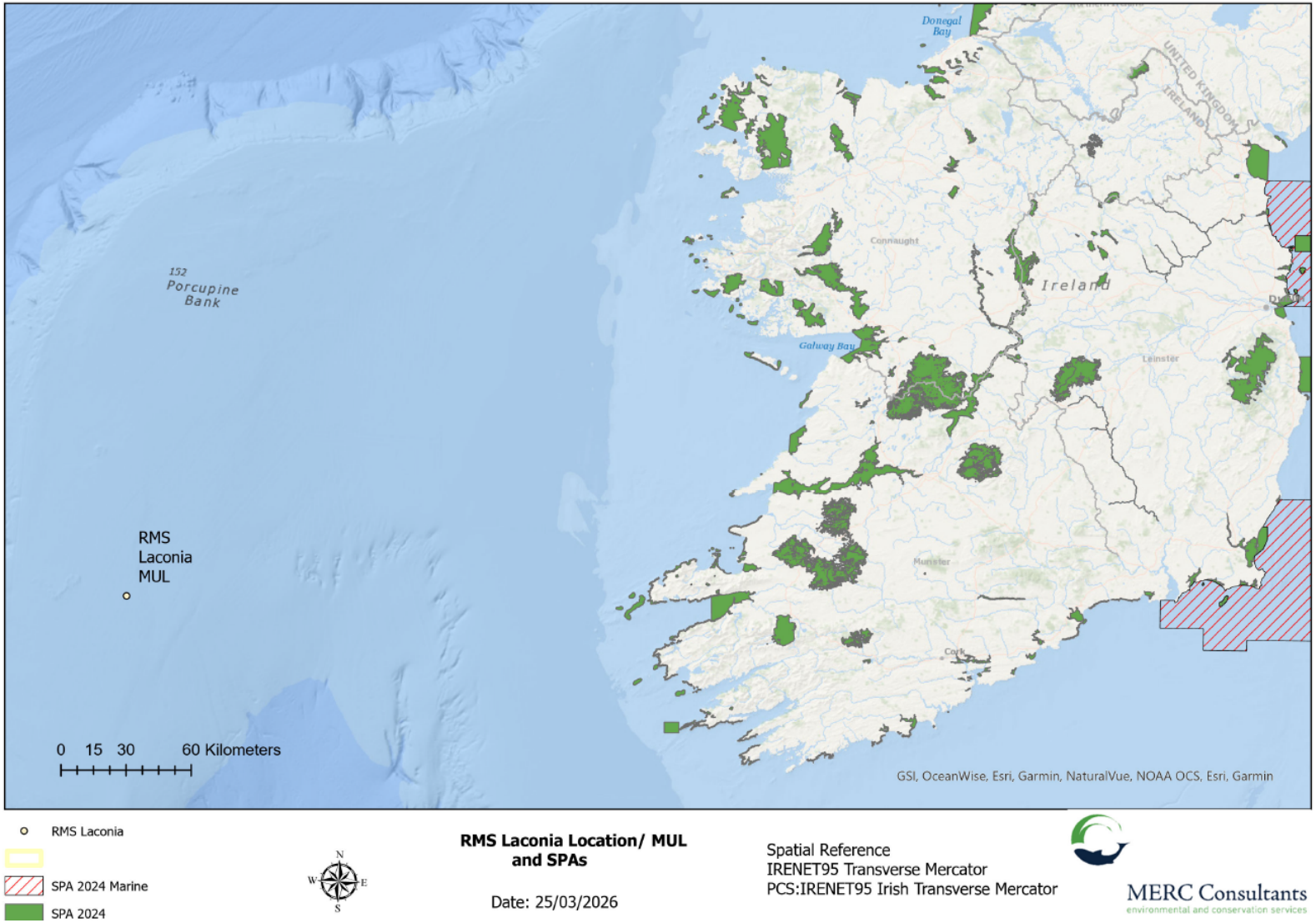

Figure 4. RMS Laconia and SPAs.

9. In-combination impacts

While a single project or plan may not lead to a significant effect on the conservation objectives of a site, a combination of projects within a localised area may have a significant effect on a site. Therefore, the cumulative impacts must be taken into consideration when assessing the possible impacts of a project.

9.1. Approach to identification of in-combination effects

Potential project-related impacts were identified in section 6 of this SISAA and included potential pressures resulting from: vessel presence and acoustic surveys. Additional projects identified as having potential to act in combination with the proposed project are considered to be those projects most likely to contribute to these pressures and generate additional underwater noise, vessel disturbance and impacts on benthic habitats.

MARA has developed a stepwise approach for identifying in-combination plans and projects. As such, using professional and scientific judgement, the key steps for assessing cumulative effects employed were as follows:

- Defining the Cumulative Effects Spatial Scope (CESS)
- Defining the Cumulative Effects Temporal Scope (CETS)
- Impact identification
- Pathway identification
- Prediction
- Identification of Plans or Projects that could act in combination
- Screening Stage Cumulative Effects Assessment conclusion
- Managing cumulative impacts identified - to be carried out as part of Stage 2 AA process

For the proposed project, the CESS remains defined as 25 km from the boundary of the proposed MUL area. There will be approximately 32.4 days of Phase I-IV operational activity at the wreck site, within an overall campaign of 1,258 hours (53 days) including mobilisation, transit, demobilisation, a mid-project crew change and 20% weather downtime. The MUL application covers a two-year period to allow for operational contingencies and other logistical and/or seasonal constraints. The nearest identified similar project is MUL230036, located approximately 24 km away (Table 11).

Table 12. Potential In-Combination Projects within the Wider Zone of Influence: Summary of Consents and Activities

Ref	Regime (as per doc)	Approx. distance from wreck	Status	Location (as per doc)	Works description (as per doc)	Applicant	Term/date (as per doc)	Relevance for in combination
MUL230 036 (SEATEC)	MUL	24 km 51ºN 52.720; 014ºW 16.880 Depth 330 meters	MUL applicati on with MARA	SS Ohio wreck site (far offshore; 142 NM from Irish territorial waters)	Salvage of non-ferrous metals from a WWI steamship wreck; minimise environmenta l impact	(SEATEC)	The licence is proposed for a duration of 2 years to accommoda te salvage operations depending on weather conditions.	Similar project activity (salvage/ROV/lifts) - possible cumulative vessel activity, seabed interaction, pollution risk pathways.

Table 13 summarises national and sectoral plans reviewed for potential in-combination interactions with the proposed project—namely Ireland's Climate Action Plan 2023, River Basin Management Plans (RBMPs) and Designated Maritime Area Plans (DMAPs)—which collectively guide sustainable development and environmental management in the maritime area (including delivery of offshore renewables to support the ambition for 80% renewable electricity by 2030); however, no in-combination effects were identified, as the proposed project does not introduce impact pathways that could interact with plan-led activities to cause adverse effects.

Table 13: Policy and Strategic Plans Considered for In-Combination Assessment

	Plans		
1	**The Climate Action Plan 2023**	These plans promote sustainable development in the maritime environment, particularly in line with Ireland's Climate Action Plan's renewable electricity target of 80% of energy generated from renewable sources by 2030.	No element of the proposed project has the potential to act in-combination with any of the 3 identified projects to result in any negative in-combination effects. Rather, the proposed project may contribute to positive, sustainable development in the maritime environment without causing negative impacts on any European site.
2	**River Basin Management Plans (RBMP)**		
3	**Designated Maritime Area Plans (DMAPs)**		

9.2. Assessment of In-Combination Effects

Based on the available information, significant in combination effects are unlikely. The proposed project and the SS Ohio activity are both highly localised, short-duration, and spatially discrete (with effects largely confined to immediate operational footprints and associated vessel movements).

A review of the MARA website for current licence applications proposed or determined does not indicate any additional projects for the MUL area that could act in combination with the proposed project with regard to cumulative effects. Similarly, no plans for the proposed MUL area or its environs were identified.

Therefore, it is concluded that the proposed project does not have the potential to act in combination with other projects and plans that could result in a significant effect on the conservation objectives of any European site.

10. Transboundary effect

Transboundary effects refer to significant effects that a proposed development in one country may have on the environment of another. The United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment in a Transboundary Context, (referred to as the 'Espoo Convention') adopted in 1991 documents the requirement to consider transboundary impacts. The Espoo Convention requires that assessments be extended across borders between Parties of the Convention when a planned activity may cause significant adverse transboundary impacts.

Since 1 January 2021, nature conservation areas in the UK (including Northern Ireland) are no longer part of the Natura 2000 network. On this basis, the nearest European sites outside Ireland's jurisdiction are located in mainland Europe. Given the offshore, localised and temporary nature of the proposed works, together with the absence of a credible transboundary impact pathway, no potential for likely significant effects on European sites associated with other EU Member States was identified.

11. Conclusion

Following a review of the proposed project, information to support a screening assessment, following the guidelines of *Assessment of plans and projects significantly affecting Natura 2000 sites* - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC has been prepared.

The assessment concludes that, the proposed project may give rise to significant effects on the conservation objectives of a number of European sites without mitigation. Accordingly, it is concluded that Appropriate Assessment of the proposed project is required.

12. Selected references and data sources

Carter MID, Boehme L, Cronin MA, Duck CD, Grecian WJ, Hastie GD, Jessopp M, Matthiopoulos J, McConnell BJ, Miller DL, Morris CD, Moss SEW, Thompson D, Thompson PM and Russell DJF (2022). Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management. Front. Mar. Sci. 9:875869. doi: 10.3389/fmars.2022.875869.

Department of the Environment, Climate and Communications (DECC) (n.d.). *ObSERVE Programme. https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/observe-programme*

European Marine Observation and Data Network (EMODnet). Available at: https://emodnet.ec.europa.eu/en/seabed-habitats

Government of Ireland (2007) Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2007/si/299/made/en/print

Government of Ireland (2007) Stores for Explosives Order 2007 (S.I. No. 804 of 2007). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2007/si/804/made/en/print

Government of Ireland (2008) Chemicals Act 2008 (No. 13 of 2008). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2008/act/13/enacted/en/html

Government of Ireland (2010) Chemicals (Amendment) Act 2010 (No. 32 of 2010). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2010/act/32/enacted/en/html

Government of Ireland (2013) Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2013/si/291/

Government of Ireland (2016) Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016). Irish Statute Book. Available at: https://www.irishstatutebook.ie/eli/2016/si/36/

INFOMAR Seabed and sediment data. Available at: https://www.infomar.ie/maps/interactive-maps/seabed-and-sediment

Irish Statute Book (1993). Merchant Shipping (Salvage and Wreck) Act 1993. https://www.irishstatutebook.ie/eli/1993/act/34/enacted/en/html

Irish Statute Book (2021). Maritime Area Planning Act 2021 – Schedule 7. https://www.irishstatutebook.ie/eli/2021/act/50/schedule/7/enacted/en/html

Irish Whale and Dolphin Group (2009). *Cetaceans on the Frontier: A report on cetacean distribution and habitat features from dedicated surveys of deep-water canyons and continental margin off western Ireland (August 2009).* Irish Whale and Dolphin Group, Kilrush, Ireland. https://www.iwdg.ie/downloads/2009_Cetaceans_on_the_Frontier_Survey.pdf

JNCC (2020) Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). JNCC Report No. 645. Peterborough: JNCC.

Kiely, O., Lidgard, D, McKibben, M., Connolly, N. & Baines, M., (2000). Grey Seals : Status and Monitoring in the Irish and Celtic Seas, Maritime Ireland/Wales INTERREG Report, Marine Institute.
Law Reform Commission (Ireland) (2005) Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) (Revised/Consolidated). Revised Acts (Law Reform Commission). Available at: https://revisedacts.lawreform.ie/eli/2005/act/10/front/revised/en/html
(Accessed: 11 February 2026).

MARA 2024. Guidance Note Identification of Unexploded Ordinance (UXO) in the Maritime Area Guidance for Consent Holders on the identification of Unexploded Ordnance (UXO) in the Maritime Area. Guidance Note 001 October 2024. https://www.maritimeregulator.ie/wp-content/uploads/2025/10/CER-Guidance-001-UXO-Unexploded-Ordinance.pdf

National Biodiversity Data Centre (NBDC) (n.d.). *Biodiversity Maps.*

National Parks and Wildlife Service (NPWS) (2011). *Tracking grey seals to identify offshore foraging areas.* NPWS, Dublin.
https://www.npws.ie/sites/default/files/publications/pdf/Tracking%20grey%20seals_Final%20report%202011.pdf

Nowacek, D.P., Thorne, L.H., Johnston, D.W. and Tyack, P.L. (2007). *Responses of cetaceans to anthropogenic noise*. Mammal Review, 37(2), pp.81–115. https://doi.org/10.1111/j.1365-2907.2007.00104.x

ObSERVE Aerial Surveys for Seabirds and Cetaceans in the Irish Atlantic Margin. Available at: https://maps.biodiversityireland.ie/Dataset/322
Accessed 26.06.2025.

Salvocean Ltd. (2025) Underwater Cultural Heritage Assessment: Target NA/C3-B, RMS Laconia. Document ref: UCHA-001 (Draft). October 2025. (Based on a 2018 survey; unpublished report provided by the client/project team).

The Commercial and Financial Chronicle (1917) 'Bank & Quotation Section; Railway Earnings Section; Railway & Industrial Section; Bankers' Convention Section; Electric Railway Section; State and City Section', 104(2697), p. 828. 3 March.

United Nations (1982). United Nations Convention on the Law of the Sea (UNCLOS) – Part XII. https://www.un.org/depts/los/convention_agreements/texts/unclos/part12.htm

UNESCO (2001). Convention on the Protection of the Underwater Cultural Heritage. https://www.unesco.org/en/legal-affairs/convention-protection-underwater-cultural-heritage

UNESCO General Conference (2001). Records of the General Conference, 31st session, Paris, 15 October to 3 November 2001. Volume 1: Resolutions (31 C/Resolutions). Paris: UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000124687

Vance, H. M., Hooker, S. K., Mikkelsen, L., van Neer, A., Teilmann, J., Siebert, U. and M. Johnson (2021). Drivers and constraints on offshore foraging in harbour seals. Nature. Scientific Reports, 11:6514.

Woodward, I., Thaxter, C.B., Owen, E., and Cook, A.S.C.P. 2019. Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 724.

Wrecksite.eu (n.d.) 'Salvocean – ocean liner (1911–1917)', Wreck site wreck database, wreck ID 13710. Available at: https://www.wrecksite.eu/wreck.aspx?13710
(Accessed: 11 February 2026).

https://www.ggarchives.com/OceanTravel/ImmigrantShips/Laconia.html#Article1912

https://www.wrecksite.eu/wreck.aspx?13710

JNCC MU resource page (includes downloads):
https://jncc.gov.uk/resources/b48b8332-349f-4358-b080-b4506384f4f7

JNCC Report 734 PDF:
https://data.jncc.gov.uk/data/b48b8332-349f-4358-b080-b4506384f4f7/jncc-report-734.pdf

NPWS Cetaceans Conservation Plan (2009) PDF:
https://www.npws.ie/sites/default/files/publications/pdf/2009_Cetaceans_CP.pdf

13. Appendices

13.1. Relevant foraging ranges for breeding seabirds (RMS Laconia)

**After Woodward et al. (2019).*

Species		Mean Max (km)	SD (km)	MM + 1SD (km)
Manx shearwater	*Puffinus puffinus*	**1346.8**	**1018.7**	**2365.5**
Leach's storm petrel	*Hydrobates leucorhous*	**657**		
Northern fulmar	*Fulmarus glacialis*	**542.3**	**657.9**	**1200.2**
Great skua	*Stercorarius skua*	**443.3**	**487.9**	**931.2**
European storm petrel	*Hydrobates pelagicus*	**336**		
Northern gannet	*Morus bassanus*	**315.2**	**194.2**	**509.4**
Black-legged kittiwake	*Rissa tridactyla*	**156.1**	**144.5**	**300.6**
Atlantic puffin	*Fratercula arctica*	**137.1**	**128.3**	**265.4**
Lesser black-backed gull	*Larus fuscus*	**127**	**109**	**236**
Razorbill	*Alca torda*	**88.7**	**75.9**	**164.6**
Common guillemot	*Uria aalge*	**73.2**	**80.5**	**153.7**
Great black-backed gull	*Larus marinus*	**73**		
Herring gull	*Larus argentatus*	**58.8**	**26.8**	**85.6**
Common gull	*Larus canus*	**50**		
Sandwich tern	*Thalasseus sandvicensis*	**34.3**	**23.2**	**57.5**
Arctic tern	*Sterna paradisaea*	**25.7**	**14.8**	**40.5**
Cormorant	*Phalacrocorax carbo*	**25.6**	**8.3**	**33.9**
Common eider	*Somateria mollissima*	**21.5**		
Mediterranean gull	*Ichthyaetus melanocephalus*	**20**		
Black-headed gull	*Chroicocephalus ridibundus*	**18.5**		
Common tern	*Sterna hirundo*	**18**	**8.9**	**26.9**
European shag	*Gulosus aristotelis*	**13.2**	**10.5**	**23.7**
Roseate tern	*Sterna dougallii*	**12.6**	**10.6**	**23.2**
Red-throated diver	*Gavia stellata*	**9**		
Little tern	*Sternula albifrons*	**5**		
Black guillemot	*Cepphus grylle*	**4.8**	**4.3**	**9.1**

13.2. European Sites assessed (QIs and SCIs)

Appendix 13.2. European sites considered in the ZoI review (QIs and SCIs).

European site	QI Screened
SACs -SPAs	
Porcupine Bank Canyon SAC (003001)	Reefs [1170]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Hovland Mound Province SAC (002328)	Reefs [1170]
South-West Porcupine Bank SAC (002329)	Reefs [1170]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Belgica Mound Province SAC (002327)	Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]
North-West Porcupine Bank SAC (002330)	Reefs [1170]
Blasket Islands SAC (002172)	European dry heaths [4030]; Halichoerus grypus (Grey Seal) [1364]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Submerged or partially submerged sea caves [8330]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Blackwater Bank SAC (002953)	Phocoena phocoena (Harbour Porpoise) [1351]; Sandbanks which are slightly covered by sea water all the time [1110]
Valentia Harbour / Portmagee Channel SAC (002262)	Annual vegetation of drift lines [1210]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Coastal lagoons [1150]; Embryonic shifting dunes [2110]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Machairs (* in Ireland) [21A0]; Mudflats and sandflats not covered by seawater at low tide [1140]; Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]; Perennial vegetation of stony banks [1220]; Phoca vitulina (Harbour Seal) [1365]; Reefs [1170]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Mount Brandon SAC (000375)	Alpine and Boreal heaths [4060]; Blanket bogs (* if active bog) [7130]; Calcareous rocky slopes with chasmophytic vegetation [8210]; European dry heaths [4030]; Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]; Northern Atlantic wet heaths with Erica tetralix [4010]; Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]; Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]; Siliceous rocky slopes with chasmophytic vegetation [8220]; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]; Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]; Vandenboschia speciosa (Killarney Fern) [6985]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Killarney National Park, MacGillycuddy's Reeks and Caragh River Catchment SAC (000365)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]; Alosa fallax killarnensis (Killarney Shad) [5046]; Alpine and Boreal heaths [4060]; Blanket bogs (* if active bog) [7130]; Calaminarian grasslands of the Violetalia calaminariae [6130]; Depressions on peat substrates of the Rhynchosporion [7150]; Euphydryas aurinia (Marsh Fritillary) [1065]; European dry heaths [4030]; Geomalacus maculosus (Kerry Slug) [1024]; Juniperus communis formations on heaths or calcareous grasslands [5130]; Lampetra fluviatilis (River Lamprey) [1099]; Lampetra planeri (Brook Lamprey) [1096]; Lutra lutra (Otter) [1355]; Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]; Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]; Najas flexilis (Slender Naiad) [1833]; Northern Atlantic wet heaths with Erica tetralix [4010]; Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]; Oligotrophic to mesotrophic standing waters

European site	QI Screened
SACs -SPAs	
	with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]; Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]; Petromyzon marinus (Sea Lamprey) [1095]; Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]; Salmo salar (Salmon) [1106]; Taxus baccata woods of the British Isles [91J0]; Vandenboschia speciosa (Killarney Fern) [6985]; Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Kenmare River SAC (002158)	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Calaminarian grasslands of the Violetalia calaminariae [6130]; European dry heaths [4030]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Juniperus communis formations on heaths or calcareous grasslands [5130]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Perennial vegetation of stony banks [1220]; Phoca vitulina (Harbour Seal) [1365]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Submerged or partially submerged sea caves [8330]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]; Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
Kerry Head Shoal SAC (002263)	Reefs [1170]
Magharee Islands SAC (002261)	Reefs [1170]
Tralee Bay and Maghaгees Peninsula, West to Cloghane SAC (002070)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]; Annual vegetation of drift lines [1210]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Coastal lagoons [1150]; Dunes with Salix repens ssp. argentea (Salicion arenariae) [2170]; Embryonic shifting dunes [2110]; Estuaries [1130]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Humid dune slacks [2190]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Perennial vegetation of stony banks [1220]; Petalophyllum ralfsii (Petalwort) [1395]; Reefs [1170]; Salicornia and other annuals colonising mud and sand [1310]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Kilkee Reefs SAC (002264)	Large shallow inlets and bays [1160]; Reefs [1170]; Submerged or partially submerged sea caves [8330]
Castlemaine Harbour SAC (000343)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]; Annual vegetation of drift lines [1210]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Dunes with Salix repens ssp. argentea (Salicion arenariae) [2170]; Embryonic shifting dunes [2110]; Estuaries [1130]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Humid dune slacks [2190]; Lampetra fluviatilis (River Lamprey) [1099]; Lutra lutra (Otter) [1355]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Perennial vegetation of stony banks [1220]; Petalophyllum ralfsii (Petalwort) [1395]; Petromyzon marinus (Sea Lamprey) [1095]; Salicornia and other annuals colonising mud and sand [1310]; Salmo salar (Salmon) [1106]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]

European site	QI Screened
SACs -SPAs	
Lower River Shannon SAC (002165)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Coastal lagoons [1150]; Estuaries [1130]; Lampetra fluviatilis (River Lamprey) [1099]; Lampetra planeri (Brook Lamprey) [1096]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Perennial vegetation of stony banks [1220]; Petromyzon marinus (Sea Lamprey) [1095]; Reefs [1170]; Salicornia and other annuals colonising mud and sand [1310]; Salmo salar (Salmon) [1106]; Sandbanks which are slightly covered by sea water all the time [1110]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]; Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Akeragh, Banna and Barrow Harbour SAC (000332)	Annual vegetation of drift lines [1210]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Embryonic shifting dunes [2110]; European dry heaths [4030]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Humid dune slacks [2190]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Salicornia and other annuals colonising mud and sand [1310]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Sheep's Head SAC (000102)	European dry heaths [4030]; Geomalacus maculosus (Kerry Slug) [1024]; Northern Atlantic wet heaths with Erica tetralix [4010]
Three Castle Head to Mizen Head SAC (000109)	European dry heaths [4030]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Barley Cove to Ballyrisode Point SAC (001040)	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; European dry heaths [4030]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Perennial vegetation of stony banks [1220]; Petalophyllum ralfsii (Petalwort) [1395]; Salicornia and other annuals colonising mud and sand [1310]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Farranamanagh Lough SAC (002189)	Coastal lagoons [1150]; Perennial vegetation of stony banks [1220]
Cregduff Lough SAC (001251)	Najas flexilis (Slender Naiad) [1833]; Transition mires and quaking bogs [7140]
Inishbofin and Inishshark SAC (000278)	Coastal lagoons [1150]; European dry heaths [4030]; Halichoerus grypus (Grey Seal) [1364]; Northern Atlantic wet heaths with Erica tetralix [4010]; Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]
Roaringwater Bay and Islands SAC (000101)	European dry heaths [4030]; Halichoerus grypus (Grey Seal) [1364]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Submerged or partially submerged sea caves [8330]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Omey Island Machair SAC (001309)	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]; Machairs (* in Ireland) [21A0]; Petalophyllum ralfsii (Petalwort) [1395]
Aughrusbeg Machair and Lake SAC (001228)	Northern Atlantic wet heaths with Erica tetralix [4010]; Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]

European site	QI Screened
SACs -SPAs	
Inishmore Island SAC (000213)	Alpine and Boreal heaths [4060]; Coastal lagoons [1150]; Dunes with Salix repens ssp. argentea (Salicion arenariae) [2170]; Embryonic shifting dunes [2110]; European dry heaths [4030]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Humid dune slacks [2190]; Limestone pavements [8240]; Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]; Machairs (* in Ireland) [21A0]; Perennial vegetation of stony banks [1220]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Submerged or partially submerged sea caves [8330]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]; Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
Murvey Machair SAC (002129)	Machairs (* in Ireland) [21A0]; Petalophyllum ralfsii (Petalwort) [1395]
Kilkieran Bay and Islands SAC (002111)	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Coastal lagoons [1150]; Large shallow inlets and bays [1160]; Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]; Lutra lutra (Otter) [1355]; Machairs (* in Ireland) [21A0]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Najas flexilis (Slender Naiad) [1833]; Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]; Phoca vitulina (Harbour Seal) [1365]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]
Dog's Bay SAC (001257)	Annual vegetation of drift lines [1210]; Embryonic shifting dunes [2110]; European dry heaths [4030]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Carrowmore Point to Spanish Point and Islands SAC (001021)	Coastal lagoons [1150]; Perennial vegetation of stony banks [1220]; Petrifying springs with tufa formation (Cratoneurion) [7220]; Reefs [1170]
Carrowmore Dunes SAC (002250)	Embryonic shifting dunes [2110]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Reefs [1170]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
Inishmaan Island SAC (000212)	Embryonic shifting dunes [2110]; European dry heaths [4030]; Limestone pavements [8240]; Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]; Machairs (* in Ireland) [21A0]; Perennial vegetation of stony banks [1220]; Reefs [1170]; Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Black Head–Poulsallagh Complex SAC (000020)	Alpine and Boreal heaths [4060]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Juniperus communis formations on heaths or calcareous grasslands [5130]; Limestone pavements [8240]; Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510]; Perennial vegetation of stony banks [1220]; Petalophyllum ralfsii (Petalwort) [1395]; Petrifying springs with tufa formation (Cratoneurion) [7220]; Reefs [1170]; Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]; Submerged or partially submerged sea caves [8330]; Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Achill Head SAC (002268)	Large shallow inlets and bays [1160]; Mudflats and sandflats not covered by seawater at low tide [1140]; Reefs [1170]
Inagh River Estuary SAC (000036)	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Salicornia and other annuals colonising mud

European site	QI Screened
SACs -SPAs	
	and sand [1310]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Lough Hyne Nature Reserve and Environs SAC (000097)	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]; European dry heaths [4030]; Large shallow inlets and bays [1160]; Padion, Alnion incanae, Salicion albae) [91E0]; Reefs [1170]; Submerged or partially submerged sea caves [8330]
Croaghaun/Slievemore SAC (001955)	Alpine and Boreal heaths [4060]; Blanket bogs (* if active bog) [7130]; European dry heaths [4030]; Northern Atlantic wet heaths with Erica tetralix [4010]; Siliceous rocky slopes with chasmophytic vegetation [8220]; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]
Inishkea Islands SAC (000507)	Halichoerus grypus (Grey Seal) [1364]; Machairs (* in Ireland) [21A0]; Petalophyllum ralfsii (Petalwort) [1395]
West Connacht Coast SAC (002998)	Phocoena phocoena (Harbour Porpoise) [1351]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Duvillaun Islands SAC (000495)	Halichoerus grypus (Grey Seal) [1364]; Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Clew Bay Complex SAC (001482)	Annual vegetation of drift lines [1210]; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Coastal lagoons [1150]; Embryonic shifting dunes [2110]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Machairs (* in Ireland) [21A0]; Mudflats and sandflats not covered by seawater at low tide [1140]; Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]; Perennial vegetation of stony banks [1220]; Phoca vitulina (Harbour Seal) [1365]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Mullet/Blacksod Bay Complex SAC (000470)	Alkaline fens [7230]; Atlantic decalcified fixed dunes (Calluno-Ulicetea) [2150]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Large shallow inlets and bays [1160]; Lutra lutra (Otter) [1355]; Machairs (* in Ireland) [21A0]; Mudflats and sandflats not covered by seawater at low tide [1140]; Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150]; Petalophyllum ralfsii (Petalwort) [1395]; Reefs [1170]; Salicornia and other annuals colonising mud and sand [1310]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Southern Canyons SAC (002278)	Reefs [1170]
South-East Rockall Bank SAC (003002)	Reefs [1170]
Streedagh Point Dunes SAC (001680)	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Mediterranean salt meadows (Juncetalia maritimi) [1410]; Mudflats and sandflats not covered by seawater at low tide [1140]; Perennial vegetation of stony banks [1220]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]; Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
Rathlin O'Birne Island SAC (000181)	Reefs [1170]
Bunduff Lough & Machair/Trawalua And Mullagh SAC (000625)	Alkaline fens [7230]; Euphydryas aurinia (Marsh Fritillary) [1065]; Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]; Humid dune slacks [2190]; Juniperus communis formations on heaths or calcareous grasslands [5130]; Large shallow inlets and bays [1160]; Machairs (* in Ireland) [21A0]; Mudflats and sandflats not covered by seawater at low tide [1140]; Petalophyllum ralfsii (Petalwort) [1395]; Phocoena phocoena (Harbour Porpoise) [1351]; Reefs [1170]; Semi-natural dry grasslands and scrubland facies on calcareous substrates

European site	QI Screened
SACs -SPAs	
	(Festuco-Brometalia) (* important orchid sites) [6210]; Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
Termon Strand SAC (001195)	Coastal lagoons [1150]
Tory Island Coast SAC (002259)	Coastal lagoons [1150]; Perennial vegetation of stony banks [1220]; Reefs [1170]; Submerged or partially submerged sea caves [8330]; Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
SPAs	
Blasket Islands SPA (004008)	Arctic Tern (Sterna paradisaea) [A194]; Chough (Pyrrhocorax pyrrhocorax) [A346]; Fulmar (Fulmarus glacialis) [A009]; Herring Gull (Larus argentatus) [A184]; Kittiwake (Rissa tridactyla) [A188]; Lesser Black-backed Gull (Larus fuscus) [A183]; Manx Shearwater (Puffinus puffinus) [A013]; Puffin (Fratercula arctica) [A204]; Razorbill (Alca torda) [A200]; Shag (Phalacrocorax aristotelis) [A018]; Storm Petrel (Hydrobates pelagicus) [A014]
Skelligs SPA (004007)	Fulmar (Fulmarus glacialis) [A009]; Gannet (Morus bassanus) [A016]; Guillemot (Uria aalge) [A199]; Kittiwake (Rissa tridactyla) [A188]; Manx Shearwater (Puffinus puffinus) [A013]; Puffin (Fratercula arctica) [A204]; Storm Petrel (Hydrobates pelagicus) [A014]
Iveragh Peninsula SPA (004154)	Chough (Pyrrhocorax pyrrhocorax) [A346]; Fulmar (Fulmarus glacialis) [A009]; Guillemot (Uria aalge) [A199]; Kittiwake (Rissa tridactyla) [A188]; Peregrine (Falco peregrinus) [A103]
Puffin Island SPA (004003)	Fulmar (Fulmarus glacialis) [A009]; Lesser Black-backed Gull (Larus fuscus) [A183]; Manx Shearwater (Puffinus puffinus) [A013]; Puffin (Fratercula arctica) [A204]; Razorbill (Alca torda) [A200]; Storm Petrel (Hydrobates pelagicus) [A014]
The Bull and The Cow Rocks SPA (004066)	Gannet (Morus bassanus) [A016]; Puffin (Fratercula arctica) [A204]; Storm Petrel (Hydrobates pelagicus) [A014]
Deenish Island and Scariff Island SPA (004175)	Arctic Tern (Sterna paradisaea) [A194]; Fulmar (Fulmarus glacialis) [A009]; Lesser Black-backed Gull (Larus fuscus) [A183]; Manx Shearwater (Puffinus puffinus) [A013]; Storm Petrel (Hydrobates pelagicus) [A014]
Beara Peninsula SPA (004155)	Chough (Pyrrhocorax pyrrhocorax) [A346]; Fulmar (Fulmarus glacialis) [A009]
Castlemaine Harbour SPA (004029)	Wetland and Waterbirds [A999]
Tralee Bay Complex SPA (004188)	Wetland and Waterbirds [A999]
Loop Head SPA (004119)	Kittiwake (Rissa tridactyla) [A188]
Sheep's Head to Toe Head SPA (004156)	Chough (Pyrrhocorax pyrrhocorax) [A346]; Peregrine (Falco peregrinus) [A103]
River Shannon and River Fergus Estuaries SPA (004077)	Wetland and Waterbirds [A999]
Slyne Head to Ardmore Point Islan SPA (004159)	Little Tern (Sternula albifrons) [A885]
Cliffs of Moher SPA (004005)	Puffin (Fratercula arctica) [A204]
Inishkea Islands SPA (004004)	Shag (Phalacrocorax aristotelis) [A018] Barnacle Goose (Branta leucopsis) [A045] Ringed Plover (Charadrius hiaticula) [A137]

European site	QI Screened
SACs -SPAs	
	Sanderling (Calidris alba) [A144] Purple Sandpiper (Calidris maritima) [A148] Turnstone (Arenaria interpres) [A169] Common Gull (Larus canus) [A182] Herring Gull (Larus argentatus) [A184] Arctic Tern (Sterna paradisaea) [A194] Dunlin (Calidris alpina schinzii) [A466] Little Tern (Sternula albifrons) [A885]
Blacksod Bay/Broad Haven SPA (004037)	Red-throated Diver (Gavia stellata) [A001] Great Northern Diver (Gavia immer) [A003] Slavonian Grebe (Podiceps auritus) [A007] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Common Scoter (Melanitta nigra) [A065] Red-breasted Merganser (Mergus serrator) [A069] Ringed Plover (Charadrius hiaticula) [A137] Sanderling (Calidris alba) [A144] Dunlin (Calidris alpina) [A149] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Dunlin (Calidris alpina schinzii) [A466] Sandwich Tern (Thalasseus sandvicensis) [A863] Wetland and Waterbirds [A999]
Inishmurray SPA (004068)	Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]
Sheskinmore Lough SPA (004090)	Greenland White-fronted Goose (Anser albifrons flavirostris) [A395]
Duvillaun Islands SPA (004111)	Fulmar (Fulmarus glacialis) [A009] Storm Petrel (Hydrobates pelagicus) [A014] Barnacle Goose (Branta leucopsis) [A045]
Illaunonearaun SPA (004114)	Barnacle Goose (Branta leucopsis) [A045]
Inishkeel SPA (004116)	Barnacle Goose (Branta leucopsis) [A045]
Rathlin O'Birne Island SPA (004120)	Barnacle Goose (Branta leucopsis) [A045]
Roaninish SPA (004121)	Barnacle Goose (Branta leucopsis) [A045] Herring Gull (Larus argentatus) [A184]
Magharee Islands SPA (004125)	Storm Petrel (Hydrobates pelagicus) [A014] Shag (Phalacrocorax aristotelis) [A018] Barnacle Goose (Branta leucopsis) [A045] Common Gull (Larus canus) [A182] Common Tern (Sterna hirundo) [A193] Arctic Tern (Sterna paradisaea) [A194] Little Tern (Sternula albifrons) [A885]
Illancrone and Inishkeeragh SPA (004132)	Barnacle Goose (Branta leucopsis) [A045] Common Tern (Sterna hirundo) [A193] Arctic Tern (Sterna paradisaea) [A194] Little Tern (Sternula albifrons) [A885]
Ardboline Island and Horse Island SPA (004135)	Cormorant (Phalacrocorax carbo) [A017] Barnacle Goose (Branta leucopsis) [A045]
Clare Island SPA (004136)	Fulmar (Fulmarus glacialis) [A009] Shag (Phalacrocorax aristotelis) [A018] Common Gull (Larus canus) [A182] Kittiwake (Rissa tridactyla) [A188] Guillemot (Uria aalge) [A199] Razorbill (Alca torda) [A200] Chough (Pyrrhocorax pyrrhocorax) [A346]
High Island, Inishshark and Davillaun SPA (004144)	Fulmar (Fulmarus glacialis) [A009] Barnacle Goose (Branta leucopsis) [A045] Arctic Tern (Sterna paradisaea) [A194]
West Donegal Coast SPA (004150)	Fulmar (Fulmarus glacialis) [A009] Cormorant (Phalacrocorax carbo) [A017] Shag (Phalacrocorax aristotelis) [A018] Peregrine (Falco peregrinus) [A103]

European site	QI Screened
SACs -SPAs	
	Herring Gull (Larus argentatus) [A184] Kittiwake (Rissa tridactyla) [A188] Razorbill (Alca torda) [A200] Chough (Pyrrhocorax pyrrhocorax) [A346]
Inishmore SPA (004152)	Kittiwake (Rissa tridactyla) [A188] Arctic Tern (Sterna paradisaea) [A194] Guillemot (Uria aalge) [A199] Little Tern (Sternula albifrons) [A885]
Dingle Peninsula SPA (004153)	Fulmar (Fulmarus glacialis) [A009] Peregrine (Falco peregrinus) [A103] Chough (Pyrrhocorax pyrrhocorax) [A346]
Cruagh Island SPA (004170)	Manx Shearwater (Puffinus puffinus) [A013] Barnacle Goose (Branta leucopsis) [A045]
Bills Rocks SPA (004177)	Storm Petrel (Hydrobates pelagicus) [A014] Puffin (Fratercula arctica) [A204]
Mid-Clare Coast SPA (004182)	Cormorant (Phalacrocorax carbo) [A017] Barnacle Goose (Branta leucopsis) [A045] Ringed Plover (Charadrius hiaticula) [A137] Sanderling (Calidris alba) [A144] Purple Sandpiper (Calidris maritima) [A148] Dunlin (Calidris alpina) [A149] Turnstone (Arenaria interpres) [A169] Wetland and Waterbirds [A999]
Inishbofin, Omey Island and Turbot Island SPA (004231)	Corncrake (Crex crex) [A122]
Ballintemple and Ballygilgan SPA (004234)	Barnacle Goose (Branta leucopsis) [A045]
Seas off Wexford SPA (004237)	Red-throated Diver (Gavia stellata) [A001] Fulmar (Fulmarus glacialis) [A009] Manx Shearwater (Puffinus puffinus) [A013] Gannet (Morus bassanus) [A016] Cormorant (Phalacrocorax carbo) [A017] Shag (Phalacrocorax aristotelis) [A018] Common Scoter (Melanitta nigra) [A065] Mediterranean Gull (Larus melanocephalus) [A176] Black-headed Gull (Chroicocephalus ridibundus) [A179] Lesser Black-backed Gull (Larus fuscus) [A183] Herring Gull (Larus argentatus) [A184] Kittiwake (Rissa tridactyla) [A188] Roseate Tern (Sterna dougallii) [A192] Common Tern (Sterna hirundo) [A193] Arctic Tern (Sterna paradisaea) [A194] Guillemot (Uria aalge) [A199] Razorbill (Alca torda) [A200] Puffin (Fratercula arctica) [A204] Sandwich Tern (Thalasseus sandvicensis) [A863] Little Tern (Sternula albifrons) [A885]
North-west Irish Sea SPA (004236)	Red-throated Diver (Gavia stellata) [A001] Great Northern Diver (Gavia immer) [A003] Fulmar (Fulmarus glacialis) [A009] Manx Shearwater (Puffinus puffinus) [A013] Cormorant (Phalacrocorax carbo) [A017] Shag (Phalacrocorax aristotelis) [A018] Common Scoter (Melanitta nigra) [A065] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Gull (Larus canus) [A182] Lesser Black-backed Gull (Larus fuscus) [A183] Herring Gull (Larus argentatus) [A184] Great Black-backed Gull (Larus marinus) [A187] Kittiwake (Rissa tridactyla) [A188] Roseate Tern (Sterna dougallii) [A192]

European site	QI Screened
SACs -SPAs	
	Common Tern (Sterna hirundo) [A193] Arctic Tern (Sterna paradisaea) [A194] Guillemot (Uria aalge) [A199] Razorbill (Alca torda) [A200] Puffin (Fratercula arctica) [A204] Little Gull (Hydrocoloeus minutus) [A862] Little Tern (Sternula albifrons) [A885]