MERC Consultants
environmental and conservation services

Report to inform Screening for Appropriate Assessment

Subtidal benthic survey: Ballymacrinan Bay, Co. Clare.

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1. Introduction

All EU Member States are obliged to establish a network of sites of conservation importance known as the Natura 2000 network. The network is made up of Special Areas of Conservation (SAC's) established under the EU Habitats Directive (92/43/EEC) and Special Protection Areas (SPA's) established under Directive (2009/147/EC). Under Article 6 (3) of the Habitats Directive, Member States are required to consider the potential effects of any project or plan on the conservation objectives of an SAC or SPA before a decision can be made to allow that project or plan to proceed.

Appropriate Assessment (AA) is the process whereby the potential impacts of a project or plan are assessed in view of the site's conservation objectives. The first step in the process is to conduct AA screening to determine, on the basis of a preliminary assessment and objective criteria, whether the project or plan, alone or in combination with other projects or plans could have significant effects on the conservation objectives of a European site. Where significant effects are likely, uncertain or unknown at the screening stage a Natura Impact Statement is required to enable a consent authority to carry out an appropriate assessment.

This report provides an ecological assessment to inform Appropriate Assessment Screening for proposed ecological surveys in the vicinity of Ballymacrinan Bay, Co. Clare (See figure 1.1 for the location of the proposed survey area). The purpose of the ecological assessment is for compliance with an EPA IED Licence condition.

Moneypoint Generating Station is currently licensed by the EPA (Ref: 0605-04,granted July 10th 2018). Condition 6.15 of the license requires that: "The licensee shall carry out an ecological survey once every two years of the Ballymacrinan Bay habitats and communities and assess whether the conservation objective for the habitats therein are being met. A report on the survey shall be submitted to the National Parks and Wildlife Service, and as part of the AER."

Dr. Louise Scally MCIEEM of MERC Consultants Ltd., conducted this screening assessment.

Figure 1. Overview of proposed sampling location.

2. Statement of Authority

Louise Scally is a professional ecologist with a wide range of experience in the field of conservation biology, habitat mapping, aquatic ecology and taxonomy. She completed a M.Sc. in ecology and taxonomy at the Botany Department Trinity College Dublin in 1989 and a Ph.D. in taxonomy also at the Botany Department Trinity College Dublin in 2001. For the last 15 years she has specialised in the ecology of marine ecosystems.

She has conducted field surveys and assessments for a range of habitats over the last 15 years for private and public sector clients including the National Parks and Wildlife Service, The Marine Institute, Inland Fisheries Ireland, Coillte Teo. Environmental Protection Agency, Sustainable Energy Authority of Ireland (SEAI) and ESB Networks Ltd.

She was the senior ecologist and field survey team member of the 2015-2018 NPWS national monitoring of marine Annex I habitats for compliance under Article 17 of the EU Habitats Directive. In this context she was responsible for the assessment and reporting of marine Annex I habitats and was lead author of all Article 17 reports and the overarching site monitoring reports.

In addition to her scientific expertise she has an in-depth knowledge of Irish and European Environmental legislation and policy. In 2011 she prepared the text describing Activities Requiring Consent (ARCs) for inclusion in a handbook detailing the regulatory framework for all developments within designated sites in Ireland on behalf of the National Parks and Wildlife Service. She was lead author for the preparation of the Department of Communications, Climate Action and Environment (2018*). Guidance on Marine Baseline Ecological Assessments and Monitoring Activities -Offshore Renewable Energy Projects Part 1 and Part 2.*

To-date she has conducted in excess of 70 ecological reports in support of Appropriate Assessment under Article 6(3) of the EU Habitats Directive.

3. Methods

This report has been prepared with reference to the following European Directives and additional 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).
- *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 significantly affecting Natura 2000 sites; Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habits Directive 92/43/EEC*. European Commission, 2002;
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities*. DoEHLG, 2009.

A review of the available literature for the area and potential project related impacts was undertaken.

The literature consulted included the available National Parks and Wildlife Service (NPWS) data sources for all European sites within a 15km radius of the project area. This included the individual site descriptions for each designated area, standard Natura 2000 data forms, conservation objectives and GIS layers (SAC's, SPA's, habitats and species mapping).

4. Details of proposed project or plan

4.1 Background to the proposed project

Moneypoint Generating Station, operated by ESB, is located on the northern shore of the Shannon Estuary in County Clare approximately 6 km southeast of Kilrush and 3 km west of Killimer. The total site area is 170 hectares (24 hectares were reclaimed from the estuary). Construction of the three generating units began in 1979 with commissioning in May 1985 to April 1987. The plant has three generating units of 305 We1 each. All units are dual-fired, capable of full load on coal and/or HFO firing. Coal is the primary fuel with approximately 2 million tonnes consumed per annum.

The resulting ash from the coal burning is landfilled on-site as are flue-gas desulphurisation residues. The site directly abuts the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. Several discharge points, including cooling water discharge under licence directly to the Shannon estuary from the site.

ESB Moneypoint generating station holds an EPA IED licence. The licence requires that "*The licensee shall carry out an ecological survey once every two years of the Ballymacrinan Bay habitats and communities and assess whether the conservation objective for the habitats therein are being met. A report on the survey shall be submitted to the National Parks and Wildlife Service, and as part of the AER"*

To comply with this licence condition, MERC Consultants have been engaged by ESB to carry out subtidal benthic sampling by Day grab, and reef surveys of the intertidal area by walkover survey in the area delimited by the red polygon in figure 1.

In the context of this screening assessment, which only relates to **subtidal benthic sampling of Ballymacrinan Bay** within the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA, the zone of influence is considered to be the local area of **Ballymacrinan Bay (see section 7.1 for further detail).**

Previous sampling efforts carried out for compliance with the Habitats and Water Framework Directives has already provided considerable information for the marine habitats of the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA. However, data is lacking for an area of Ballymacrinan Bay to the west of ESB Moneypoint generation station.

As per standard protocols for the characterisation of marine communities, it is proposed that a section of the subtidal within Ballymacrinan Bay and environs is sampled to assess the sediment structure and macrofaunal component of the area. See figure 1 for sampling area and likely sampling station positions.

4.2 Scope of works

4.2.1 Day grab survey

It is proposed that a maximum of nine (9) subtidal grab samples are collected using a Day Grab with a sampling area of 0.01 m^2.

Sampling will be confined to the area shown in figure 1. Locations of sample stations are also provided in figure 1. The station locations provided are approximate and may need to be altered slightly based on the sediment composition of the subtidal areas, as assessed at the time of survey. This will occur if gravel or stone is present at the predicted stations. However, the sample locations will all remain within the general sampling area shown in figure 1.

Each sample retrieved will be sieved through a 1mm mesh sieve and images of the grab contents before and after sieving will be taken. The remainder of the sample will be preserved in buffered 4% w/v formaldehyde solution for subsequent transport and analysis at an NMBAQC certified laboratory. A subsample of the grab contents (approx. 100g) will be retained for granulometric analysis.

Sampling will be carried out over a maximum of 2 days during daylight hours.

5. Ecology of the receiving environment

The project site is within Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA, the boundaries of both European sites overlapping at this location.

The benthic ecology of Lower River Shannon SAC is known from sampling carried out for compliance with the Habitats and Water Framework Directives. Lower River Shannon SAC is designated for the following marine Annex I qualifying interests:

- Sandbanks which are slightly covered by sea water all the time [1110]
- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons [1150]
- Large shallow inlets and bays [1160]
- Reefs [1170

Within Ballymacrinan Bay and environs, two community types are recorded.

Subtidal sand to mixed sediment with Nephtys spp. community complex. This community complex occurs extensively east of Battle Island to Foynes; elsewhere it is recorded from Labasheeda Bay, Clonderalaw Bay, Ballymacrinan Bay, Ballylongford Bay and Carrigaholt Bay. It also occurs from Kilconly Point along the Loop Head Peninsula to the western boundary of the site. It occurs in depths between 2m and 44m. The sediment of the complex is that of sand to mixed sediment with a great deal of variation within the sediment fractions. Gravel ranges from 59% to 0%, very coarse sand from 28% to 0%, coarse sand from 42.8% to 0%, medium sand from 70.6% to 0%, fine sand from 91.7% to 0.8%, very fine sand from 66.6% to 0.1% and silt-clay from 52.5% to 0%. In the upper to mid estuary the sediment is predominately mixed sediment with pockets of muddy sand while the sediment of the outer estuary is that of sand. The community is distinguished by the polychaete genera Nephtys spp. Nephtys sp. occurs in moderate to low abundances at the confluence of the Fergus and Shannon, in Clonderalaw Bay and on the Ballybunnion Bank. *Nephtys cirrosa* occurs in moderate to low abundances northeast of Aughinish Island and throughout the Turbot and Ballybunnion Banks. The amphipod *Bathyporeia elegans* is recorded in moderate to low abundances at Foynes and on the Turbot and Ballybunnion Banks. The polychaete *Magelona johnstoni* generally occurs in low abundances in the western part of the site.

Subtidal sand to mixed sediment with Nucula nucleus community complex This community complex occurs in the area from Foynes Island to Kilcredaun Point; it is recorded due west of Leck Point and to the south of Kilbaha Bay. The community complex occurs in depths of 3m to 43m. The sediment of this community complex varies from sand to mixed sediment. This variability is reflected in the range of the various sediment fractions, with gravel ranging from 51.4% to 0.2%, very coarse sand from 20.7% to 0.4%, coarse sand from 35.1% to 0.7%, medium sand from 26.4% to 2.3%, fine sand from 80.4% to 3.7%, very fine sand from 60.5% to 1.3% and silt-clay from 20.7% to 0.3%.The bivalve *Nucula nucleus* and the polychaete *Paradoneis lyra* are ubiquitous throughout

the complex, occurring in moderate to low abundances. The polychaete *Scoloplos armiger* is recorded in moderate to low abundances in the lower Shannon Estuary around Carrig Island and Scattery Island. The occurrence of the calcareous tube dwelling polychaetes Pomatoceros sp. and *Pomatoceros triqueter* along with the amphipods *Metaphoxus simplex* and *Urothoe elegans*, all in moderate to low abundances reflects the variability of the sediment within this complex. From Kilcredaun Point to Foynes the reef-building polychaete *Sabellaria spinulosa* occurs in low abundances. West of Scattery Island it occurs in high abundances but not in such densities as to constitute a biogenic reef.

6. European Sites

All European sites within a 15km radius of the proposed project site are shown in figure 6.1 and listed in table 6.1 and 6.2 below.

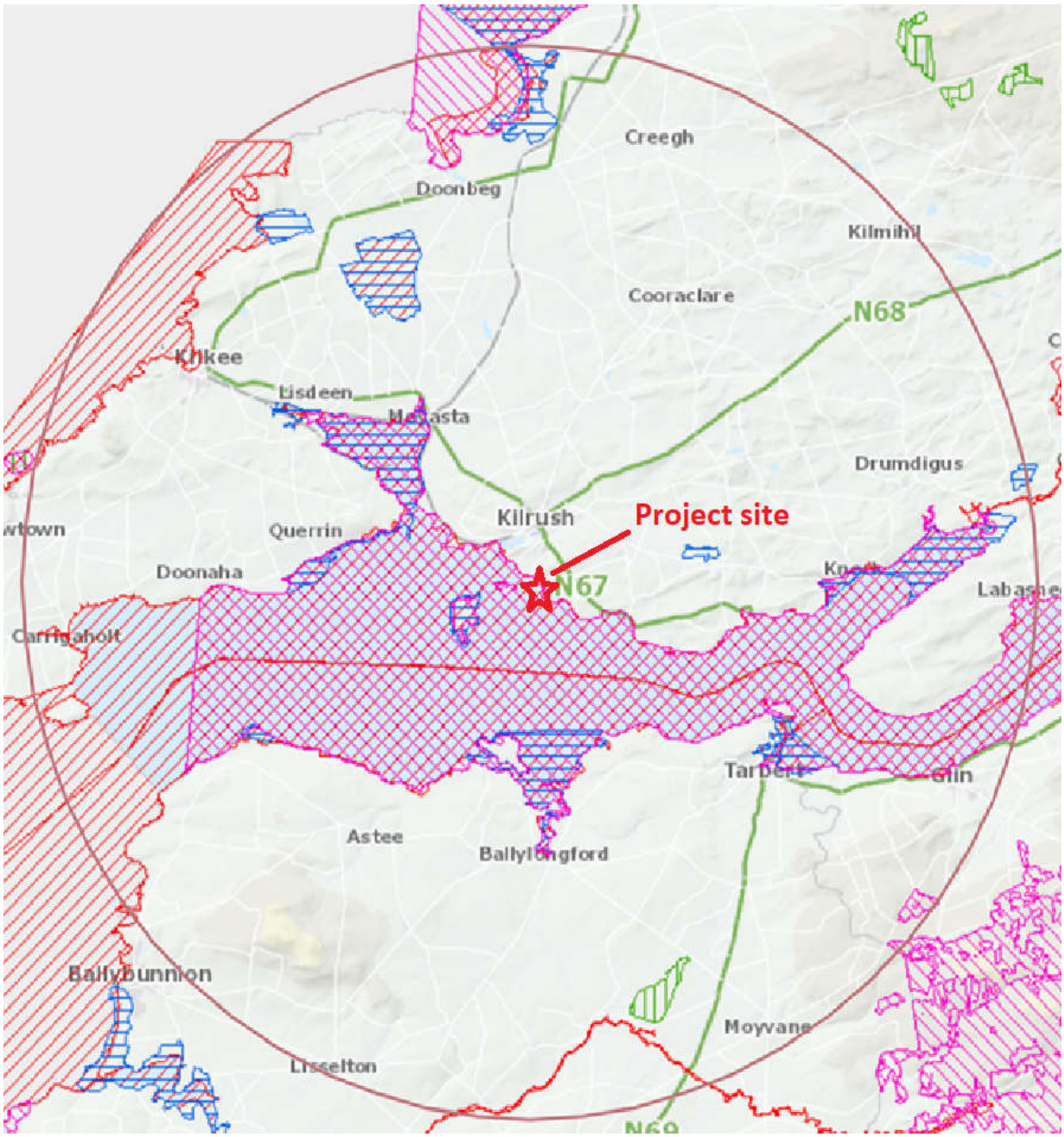

Figure 6.1. All European sites within a 15km radius of the proposed project site. © NPWS Map Viewer, June 2020.

Due to the scale and scope of the proposed **benthic sampling** project, it is considered that negative impacts on European sites that have no direct or indirect connectivity to the proposed project site, either alone or in combination with other projects and plans, will not occur. Other than Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA no other sites within a 15 km radius of the project area have any direct or indirect connectivity with the proposed project site. Therefore, with due consideration to the scale and scope of the project, impacts on the conservation objectives of these additional sites are not considered possible and have not been further considered in this report.

Table 6.2 shows the features of interest for which Lower River Shannon SAC is selected. Table 6.2 shows the features of interest for which River Shannon and River Fergus Estuaries SPA is selected.

Table 6.1: Features of interest for Lower River Shannon SAC.

Lower River Shannon SAC
Sandbanks which are slightly covered by sea water all the time [1110]
Estuaries [1130]
Mudflats and sandflats not covered by seawater at low tide [1140]
Coastal lagoons [1150]
Large shallow inlets and bays [1160]
Reefs [1170]
Perennial vegetation of stony banks [1220]
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
Salicornia and other annuals colonising mud and sand [1310]
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]
Mediterranean salt meadows (Juncetalia maritimi) [1410]
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0]
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]
Petromyzon marinus (Sea Lamprey) [1095]
Lampetra planeri (Brook Lamprey) [1096]
Lampetra fluviatilis (River Lamprey) [1099]
Salmo salar (Salmon) [1106]
Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Lutra lutra (Otter) [1355]

Table 6.2: Features of interest for River Shannon and River Fergus Estuaries SPA

River Shannon and River Fergus Estuaries SPA
Cormorant (*Phalacrocorax carbo*) [A017]
Whooper Swan (*Cygnus cygnus*) [A038]
Light-bellied Brent Goose (*Branta bernicla* hrota) [A046]
Shelduck (*Tadorna tadorna*) [A048]
Wigeon (*Anas penelope*) [A050]
Teal (*Anas crecca*) [A052]
Pintail (*Anas acuta*) [A054]
Shoveler (*Anas clypeata*) [A056]
Scaup (*Aythya marila*) [A062]
Ringed Plover (*Charadrius hiaticula*) [A137]
Golden Plover (*Pluvialis apricaria*) [A140]
Grey Plover (*Pluvialis squatarola*) [A141]
Lapwing (*Vanellus vanellus*) [A142]
Knot (*Calidris canutus*) [A143]
Dunlin (*Calidris alpina*) [A149]
Black-tailed Godwit (*Limosa limosa*) [A156]
Bar-tailed Godwit (*Limosa lapponica*) [A157]
Curlew (*Numenius arquata*) [A160]
Redshank (*Tringa totanus*) [A162]
Greenshank (*Tringa nebularia*) [A164]
Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
Wetland and Waterbirds [A999]

7. Impact prediction

This section identifies and considers potential impacts; direct and indirect, on the conservation status of the qualifying interests of Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA as a result of the proposed **benthic sampling** project. Cumulative impacts are considered under section 7.2.

7.1 Direct and Indirect impacts

The zone of influence 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. This has the potential to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. In the marine environment, zones of influence can be extensive and lead to effects well beyond the construction site (CIEEM, 2018). This is particularly relevant in the case of sediment and nutrient transport in marine habitats. Within the zone of influence those receptors that are sensitive to change must be identified and considered.

While the zone of influence may be large, many of the constituent habitats and species may not represent receptors sensitive to change. Furthermore, in the case of Appropriate Assessment Screening only those habitats and species for which a European site is designated are considered further.

Following a review of the project scope of works i.e. collection of a maximum of nine Day grab samples, the zone of influence of the proposed project is considered to include those habitats within the direct footprint of Day grab sampling stations. This zone of influence has been decided based on expert judgement relative to the scale and scope of the project, corridors of connectivity and potential cumulative impacts.

Subtidal grab sampling is the standard method by which marine habitats are monitored within all SAC's and SPA's under Article 17 of the EU Habitats Directive. Similarly, it is also the method used to monitor transitional and coastal waterbodies under the EU Water Framework Directive. While it is the nature of these standard protocols that small sub-samples of sediments are removed from the habitat for assessment and analysis it is recognised as standard scientific practice and scientifically accepted that such minor sampling has no significant impact on the habitats or species communities being sampled.

The total volume of sediment removed by subtidal grab sampling using a Day grab ($0.1m^2$ sampling area) will amount to an absolute maximum of $0.9m^2$ of sediment removed.

NPWS (2012c) states that *"Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area, at which point an inter-Departmental management review is recommended prior to further licensing of such activities".* The removal of $0.9m^2$ of sediment from within the Estuary Annex I habitat (EU code:1130) is therefore insignificant in terms of disturbance of this habitat. Furthermore, the benthic sampling proposed for this project does not constitute a source of continuous or ongoing disturbance.

River Shannon and River Fergus Estuaries SPA is selected for a range of wintering bird species. Cormorant, *Phalacrocorax carbo* is the only species which also breeds within the site. Sampling will take place during the summer months when wintering species are absent. Suitable breeding or nesting sites for Cormorant do not occur at the sampling location.

A review of the potential for impact, relative to the proposed benthic sampling on those habitats and species considered to be within the zone of influence of the proposed project, is provided in table 7.1.

Table 7.1 Summary of impact prediction

Lower River Shannon SAC			
Feature of interest	**Potential for impact**	**Assessment of impact**	**Screening assessment**
Estuaries [1130]	No potential for impact. Removal of 0.9m^2 of sediment is considered insignificant, is far less than the requirement for disturbance of less than 15% of the interpolated area and does not represent a significant continuous or ongoing disturbance of communities. Any disturbance caused would be unlikely to be detectable within a very short period of time (weeks).	No Impact predicted	No Impact predicted
Mudflats and sandflats not covered by seawater at low tide [1140]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Coastal lagoons [1150]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Large shallow inlets and bays [1160]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Reefs [1170]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Perennial vegetation of stony banks [1220]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Salicornia and other annuals colonising mud and sand [1310]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Mediterranean salt meadows (Juncetalia maritimi) [1410]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted

Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	No potential for impact. Species does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Petromyzon marinus (Sea Lamprey) [1095]	No potential for impact. Sampling by day grab does not have the potential to negatively impact on any of the conservation objective targets for this species.	N/A	No Impact predicted
Lampetra planeri (Brook Lamprey) [1096]	No potential for impact. Species does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Lampetra fluviatilis (River Lamprey) [1099]	No potential for impact. Sampling by day grab does not have the potential to negatively impact on any of the conservation objective targets for this species.	N/A	No Impact predicted
Salmo salar (Salmon) [1106]	No potential for impact. Sampling by day grab does not have the potential to negatively impact on any of the conservation objective targets for this species.	N/A	No Impact predicted
Tursiops truncatus (Common Bottlenose Dolphin) [1349]	The conservation objectives state that: 1. Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site. 2. Species range within the site should not be restricted by artificial barriers to site use. 3. Critical areas, representing areas preferentially used by bottle nose dolphin, should be maintained and a natural condition. None of the aforementioned targets for the species will be negatively impacted. The vessel will be on-site during sampling for no more than 2 days. No significant noise is generated from the deployment of a Day grab. Bottlenose dolphin in this SAC are habituated to the noise of vessel traffic. No artificial barriers will be created. No significant	No Impact predicted	No Impact predicted

	impact on the habitat as a result of the proposed sampling will occur		
Lutra lutra (Otter) [1355]	No potential for impact. While otter may utilise the area within the zone of influence of the proposed project only temporary disturbance would be possible.	N/A	No Impact predicted
River Shannon and River Fergus Estuaries SPA			
Feature of interest	**Potential for impact**	**Assessment of impact**	**Screening assessment**
All wintering bird species for which the site is selected	No potential for impact. Survey will take place during the summer months when these species are absent.	N/A	No Impact predicted
Cormorant, *Phalacrocorax carbo* (breeding and wintering)	No potential for impact. No suitable breeding habitat at the sampling site	No Impact predicted	No Impact predicted
Wetlands	No potential for impact. No impact to any wetland habitat will occur.	No Impact predicted	No Impact predicted

7.2 Cumulative Impacts

While a single development may not in itself cause a significant impact on the conservation objectives of a site, a combination of projects within a localised area may cause a negative impact on a site. Therefore the cumulative impacts of a project or plan in association with other projects and plans must be taken into consideration when assessing the possible impacts of a project.

No additional project or plans with the potential to give rise to cumulative impacts with the proposed benthic sampling are known.

8. Invasive Alien species

It is considered that there is no potential for impact relative to the spreading of invasive alien species on the conservation objectives of any European site. Full biosecurity protocols are carried out as standard practice by the scientific survey team prior to all surveys. All survey equipment is routinely cleaned in accordance with standard biosecurity protocols following each and every survey.

9. Concluding Statement

No impacts on the habitats or species which form a feature of interests for the Lower River Shannon SAC or River Shannon and River Fergus Estuaries SPA are foreseen as a result of the proposed project. Therefore, impacts on the conservation objectives of Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA are not predicted. There will be no direct or indirect impacts on the qualifying interests or conservation objectives of any additional European sites.

10. Screening statement

Based on this screening assessment, the proposed project does not have the potential to lead to impacts on the the conservation objectives of Lower River Shannon SAC, River Shannon and River Fergus Estuaries SPA or any additional European site alone or in combination with other projects or plans. Therefore, further Appropriate Assessment is not required.

11. References

Assessment of plans and projects significantly affecting Natura 2000 sites; Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habits Directive 92/43/EEC. European Commission, 2002.

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