



Ossian



Marubeni

CIP
Copenhagen Infrastructure Partners

**Appendix 4:
Compensation:
Environmental Impact
Assessment (EIA) Report**

Derogation Case

2024

Revision	Comments	Author	Checker	Approver
FINAL	Final	Ossian OWFL	Ossian OWFL	Ossian OWFL

Approval for Issue		
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1. INTRODUCTION

1.1. PROJECT BACKGROUND

1. Ossian Offshore Wind Farm Limited (Ossian OWFL) (hereafter referred to as the 'Applicant') is proposing to develop Ossian Offshore Wind Farm (the Project), within the E1 Plan Option (PO) Area as following conclusion of the ScotWind Leasing Round. The Project is a joint venture between SSE Renewables Limited (SSER), Copenhagen Infrastructure Partners (CIP) and Marubeni Corporation.
2. The Project will include offshore and onshore infrastructure including an offshore generating station (the Array), offshore export cables to landfall and onshore transmission cables leading to an onshore convertor station connecting to the electricity transmission network.
3. This document is part of a suite of documents that make up the application to Scottish Ministers to construct and operate the Array. The Applicant is seeking the following consents and licences:
 - a Section 36 consent under the Electricity Act 1989 for an offshore generating station in the Scottish offshore region (12 to 200 nm) where generating capacity exceeds 50 MW; and
 - Two Marine Licences under the Marine and Coastal Access Act 2009 (MCAA) (Scottish waters beyond 12 nm) for the following:
 - generating station (wind turbines, including their floating substructures and mooring and anchoring systems and inter-array cables); and
 - transmission infrastructure (OSPs and interconnector cables within the site boundary).
4. The proposed offshore export cable corridor(s) and proposed onshore cable corridor(s) (including all infrastructure such as onshore converter station(s) at the Proposed landfall location(s)) are not included within the application. This is because the proposed landfall location(s) have yet to be agreed and will be decided following the conclusion of the ongoing Offshore Transmission Network Review (OTNR) and National Grid Holistic Network Design Follow Up Exercise (HNDFUE).
5. Key components of the Array include:
 - wind turbines, including floating foundations and mooring, and anchoring systems;
 - inter-array cables;
 - interconnector cables; and
 - OSPs.
6. Mooring and anchoring systems will be used to fix up to 265 floating wind turbines. There will be up to 15 OSPs using piled jackets or suction caisson jackets foundations installed in the Array. Subsea inter-array cables will connect the wind turbines to each other and to the OSPs, while interconnector cables will connect the OSPs to each other.
7. At this stage the overall capacity for the Array is not defined. However, the exported capacity for the Array is expected to be 3.6 GW, although this relies on the number and capacity of the wind turbines installed within the parameters of the Project Design Envelope (PDE) defined for this assessment and as set out in volume 1, chapter 3 of the EIA Report (Ossian OWFL, 2024a).
8. A Report to Inform Appropriate Assessment (RIAA) accompanies the application for the Array (Ossian OWFL, 2024b). The RIAA assesses whether the Array could have an adverse effect, either alone, or in-combination with other plans or projects, on the integrity of any European site. European sites include Special Areas of Conservation (SACs), candidate SACs (cSACs), Sites of Community Importance (SCI),

Special Protection Areas (SPAs) and, as a matter of policy (Scottish Government, 2020), possible SACs (pSACs), potential SPAs (pSPAs) and Ramsar Sites (listed under the Ramsar Convention on Wetlands of International Importance).

9. For SACs with designated features including diadromous fish and marine mammals, the RIAA concluded 'No adverse effect on the integrity of the site', either from the project alone or in-combination with other developments. For SPAs, the RIAA again concluded 'no adverse effect on the integrity of the site' for project-alone impacts. However, the RIAA concludes that a potential adverse effect cannot be ruled out, when considered in-combination with other plans and projects, at seven sites and for three qualifying species. This impact is a result of disturbance and displacement and/or collision during the operation and maintenance phase of the Array. The sites and features where 'adverse effects on the integrity of the site' cannot be ruled out are:
 - Fowlsheugh SPA;
 - Buchan Ness to Collieston Coast SPA;
 - East Caithness Cliffs SPA;
 - Flamborough and Filey Coast SPA;
 - Forth Islands SPA;
 - North Caithness Cliffs SPA;
 - Troup, Pennan and Lion's Head SPA.
10. As such, the Applicant has proposed a Derogation Case, which includes measures to compensate the adverse effects. The chosen package of compensation measures, comprise of the following:
 - Implementation of invasive species controls including mink in Scotland;
 - Seabird bycatch reduction in Portugal.
11. Full details, including the evidence underpinning each measure and the plan for delivery, is provided in the Ecological Evidence Report (Derogation Case, Appendix 1) and the Compensation Plan (Derogation Case, Appendix 2).

1.2. PURPOSE OF THIS DOCUMENT

12. This document presents an assessment of the likely significant environmental effects of the compensatory measures being developed as part of the Derogation Case for the Array. Whilst the proposed compensatory measures themselves are relatively small-scale and do not constitute EIA Schedule 1 or Schedule 2 projects (triggering a need for EIA), the compensatory measures are being brought forward as a consequence of the Array's potential effects on the national site network. Any effects arising from the compensatory measures are, on a precautionary basis, considered to be indirect or secondary to the effects of the Array, and for consideration under the Environmental Impact Assessment (EIA) regulations¹ which requires consideration of indirect and secondary impacts. The purpose of this document is to assess the likely significant effects of the proposed compensation measures on the environment. Full details on the policy and legislative background please see Policy and Legislation (volume 1, chapter 2) (Ossian OWFL, 2024b).

1.3. STRUCTURE OF THIS DOCUMENT

13. This Environmental Impact Assessment Report (EIAR) is set out in a number of stages as follows:
 - Brief description of the proposed compensation measures;
 - Consideration of alternative compensatory measures
 - Consultation

¹ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Marine Works (Environmental Impact Assessment) Regulations 2007.

- A brief summary of the EIA Methodology used for the assessment.

2. PROPOSED COMPENSATION MEASURES

14. A summary of each of the compensation measures is outlined in Table 2.1 (full details are provided in the Compensation Plan and the Ecological Evidence Report). To minimise any potential effect on EIA receptors each measure will be implemented in line with best practice standards. These standards represent commitments made by the Applicant and are captured within the Applicant's Outline Compensation Implementation and Monitoring Plan (CIMP).

Table 2.1: Summary of Proposed Compensation Measures

Compensation Measure	Summary	Built in best practice standards
Invasive species controls in Scotland, including Mink	<p>American mink <i>Neovison vison</i> have been documented as a significant threat to seabird colonies in every part of their invasive range. Large scale impacts have been documented to razorbill and kittiwake.</p> <p>This measure has two objectives:</p> <p>A. Facilitate the continuation plus intensification of the Scottish Invasive Species Initiative’s (SISI) Mink Control Project (MCP) and wider invasive species at key locations across Scotland; and</p> <p>B. Increase the coverage of the MCP to areas not currently within the control area.</p>	<p>Consideration of the timing and location of the MCP will be made to ensure that it will avoid/reduce interaction with sensitive EIA receptor groups. For example, the number of people involved and time on site will be kept to a minimum where sensitive species are known to be present</p> <p>Rafts will either be new, cleaned or from the same river catchment to avoid any potential for non-native invasive species introduction.</p> <p>Live capture traps will be inspected regularly (daily) to ensure that any non-target species caught are released unharmed.</p>
Seabird Bycatch Reduction	<p>This measure will decrease the bycatch mortality rates of gannet and razorbill in Portuguese waters through the application of bycatch reduction techniques. This will be implemented in partnership with the Portuguese Society for the Study of Birds (SPEA). The measure will involve vessel/gear modifications that deter, reduce attraction, or reduce the likelihood of a bird being hooked by a fishing line. In addition, modifications to fishing practices based on bird behaviour are also being considered. For example, this could involve fishers avoiding a bycatch hotspot for a certain seabird species during the months where bycatch has been recorded to be highest.</p>	<p>Consideration of the timing and location of control and monitoring equipment installation and removal activities will ensure that work is undertaken at the optimal time/location and that it will avoid/reduce disruption to fishing operations. Design of the control and monitoring methods will follow current good practise design to minimise impact on sensitive habitats, species.</p>

3. CONSIDERATION OF ALTERNATIVE COMPENSATION MEASURES

15. An important part of the development of the Derogation Case has been the consideration of potential options, selection and the subsequent refinement of compensatory measures and their delivery. Well informed decisions on the selection and consideration of alternatives are critical and the Applicant recognises the need to ensure consultees and stakeholders understand how such decisions have been made. The process undertaken by the Applicant for selection and consideration of alternative compensation measures is detailed within the Compensation Plan (Derogation Case Appendix 2).

4. CONSULTATION

16. The Applicant has undertaken pre-submission consultation with relevant stakeholders and Statutory Nature Conservation Bodies (SNCBs) as part of the preparation of the Derogation Case (including, Marine Directorate – Licencing Operations Team (MD-LOT), NatureScot, and the RSPB). Further detail on this pre-submission consultation is presented in the Consultation Log which is found in Appendix 2, Annex 1 of the Derogation Case. Engagement will be ongoing with various stakeholders for the proposed compensation measures at various stages through the process, as detailed in the CIMP.

5. EIA REPORT METHODOLOGY

5.1. INTRODUCTION

17. Volume 01, Chapter 06: Environmental Impact Assessment Methodology of the EIA Report sets out the EIA methodology followed for the Array. It describes the approach used to identify, evaluate, and mitigate potential likely significant effects and evaluate whether they are significant in EIA terms. The requirement for EIA and the proposed temporal, spatial and technical scope of the assessments are described in detail and are equally relevant to this Derogation Case EIA. As such, most of this detail is not repeated within this document. However, to enhance the readability of this Derogation Case EIA Report, some elements of EIA methodology are repeated below to allow this document to be read and be understood without extensive cross-referencing to other documents.

5.2. OVERVIEW OF PROCESS

5.2.1. OVERVIEW

18. EIA is a systematic, iterative, and prescribed process framed by statutory requirements as well as the relevant planning and policy context (see Volume 01, Chapter 02: Policy and Legislation). Furthermore, consideration of best, good and advised EIA practice and adoption of a proportionate EIA approach (see Volume 01 Chapter 06: Environmental Impact Assessment Methodology) has guided the specific approach followed by the Applicant in relation to this Derogation Case EIA.

19. The key elements of the Derogation Case EIA process and the identification of significant effects are described in the following sections. An overview of the approach to assessment of the Derogation Case compensation measures is provided in Figure 5.1.

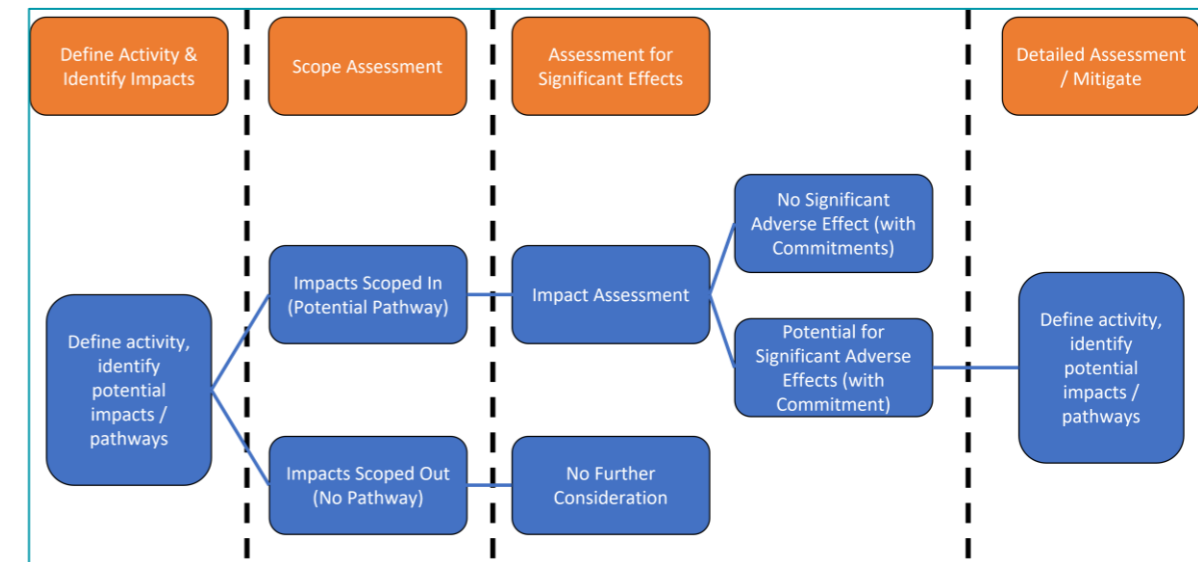


Figure 5.1: Compensation Measures EIA Process

5.3. IMPACTS, EFFECTS, MITIGATION, AND SIGNIFICANCE

20. 'Impacts' are defined as the physical (or chemical) changes that will be caused by the Array activities. 'Effects' are defined as the consequences of these impacts to biological populations, ecosystems, and humans (including their physical and cultural assets). The impacts of the various compensation measures presented in this document have been identified based on knowledge of impact pathways from examining similar projects plus a consideration of the existing baseline environment and subsequent potential for impact.

21. For many technical topics, the likely significance of an effect is established by combining the magnitude of an impact with the sensitivity of the receptor to that impact (noting that sensitivity is not considered as an inherent characteristic but how something specifically responds to an external factor). The magnitude of an impact is the consideration of the extent, duration, frequency, and reversibility of an impact. In defining the sensitivity for each receptor/receptor group, the vulnerability, recoverability, and value/importance of that receptor will be taken into consideration. The conclusion of significance of effect is determined through a significance matrix as presented in Table 5.1.

22. A level of effect of moderate or more will be considered a 'significant' effect for the purposes of the EIA. A level of effect of minor or less will be considered 'not significant'. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance are afforded less weight in the decision-making process.

Table 5.1: Matrix used for the assessment of the significance of the effect

Sensitivity of receptor	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
Low	Negligible to minor	Negligible to minor	Minor	Minor to Moderate
Medium	Negligible to minor	Minor	Moderate	Moderate to Major
High	Minor	Minor to Moderate	Moderate to Major	Major
Very High	Minor	Moderate to Major	Major	Major

5.4. SCOPING OF IMPACTS

23. To facilitate a proportionate level of environmental assessment of the compensation measures, a simplified scoping process was undertaken to identify the potential impacts. The results of the scoping stage are presented in Table 5.2 Scoping was undertaken based on the knowledge of the proposed locations of each measure and the baseline environment, and potential impacts of the measures from other similar projects already undertaken elsewhere in the UK. Where no pathway for impact exists or all impacts on a particular receptor have been scoped out, that receptor is scoped out and not examined further in this EIAR. Justification for scoping out is presented in Table 5.2.

5.5. CUMULATIVE, INTER-RELATIONSHIPS AND TRANSBOUNDARY EFFECTS

- 24. For consideration of cumulative effects, where it is considered that a potential likely significant effect exists cumulatively with other plans and projects this has been assessed within the section for each individual compensation measure.
- 25. Inter-relationships refer to a situation where several impacts may combine on a particular receptor. This EIA Report has given due consideration using expert judgement to the potential for different residual impacts to have a combined impact on key sensitive receptors, however, within the context of this assessment it has been considered that there is no potential for inter-relationships.
- 26. Transboundary effects (likely significant effects on another country or countries) have also been considered during the assessment process where appropriate.

Table 5.2: Results of Scoping of Environmental Impacts of the Compensation Measures

Compensation Measure	EIA Receptor Group	Potential Impacts Scoped In	EIA Receptor Group Scoped Out	Rationale for Scoping Out
Mink Control in Scotland	Offshore and intertidal ornithology	Potential for disturbance from human activity due to control and monitoring measures	Air Quality; Aviation and radar; Benthic and intertidal ecology; Commercial fishing; Fish and shellfish; Geology and ground conditions; Human Health; Hydrology and flood risk; Infrastructure and other users; Land use and agriculture; Marine archaeology; Marine geology, oceanography, and physical processes; Marine Mammals; Noise and vibration; Seascape, landscape, and visual resources; Shipping and navigation; Socio-economics; and Traffic and transport.	The effects associated with the proposed method for this measure will be restricted to onshore areas and will not directly impact on any of the offshore receptors with the exception of the target receptor (offshore and intertidal ornithology). Therefore, the marine archaeology, marine geology oceanography and physical processes, benthic and intertidal ecology, commercial fishing and socio-economics, marine mammals, shipping and navigation receptor groups have been scoped out as no pathways for impact have been identified. Following best practice guidance will remove any potential for invasive species to be introduced into freshwater systems, so effects associated with freshwater fish and shellfish ecology will also be scoped out. Additionally, the proposed methodology is not anticipated to impact on air quality, aviation and radar, geology and ground conditions, human health, hydrology and flood risk, infrastructure and other users, land use and agriculture, noise and vibration, and traffic and transport and therefore they have been scoped out as no pathways for impact have been identified. Furthermore, no risks of major accidents and/or disasters are anticipated to occur as a result of this measure.
	Onshore ecology	Impacts to onshore plants and animals other than the targeted mink species		
Seabird Bycatch Reduction	Commercial fishing and socio-economics	Adverse effect through disruption to fishing operations caused by the implementation of bycatch reduction measures	Air Quality; Aviation and radar; Benthic and intertidal ecology; Geology and ground conditions; Historic environment; Human Health; Hydrology and flood risk; Infrastructure and other users; Land use and agriculture; Marine archaeology; Marine geology, oceanography, and physical processes; Noise and vibration; Onshore ecology; Seascape, landscape, and visual resources; Shipping and navigation; and Traffic and transport.	The areas being investigated for this measure are offshore fisheries. It is considered therefore considered that there are no impacts on onshore ecology receptors, geology and ground conditions, land use and agriculture, and therefore these have been scoped out as no pathways for impact have been identified. The proposed measure will not result in any lasting infrastructure or physical intrusions meaning that there will be no impact on either the seascape, landscape, and visual resources receptor group so this receptor group has been scoped out. Additionally, the proposed measure is not anticipated to impact on air quality, aviation and radar, benthic and intertidal ecology, historic environment, human health, hydrology and flood risk, infrastructure and other users, marine archaeology, marine geology, oceanography, and physical processes, noise and vibration, seascape, landscape, and visual resources, shipping and navigation, socio-economics, and traffic and transport. Furthermore, no risks of major accidents and/or disasters are anticipated to occur as a result of this measure. Therefore, these receptor groups have been scoped out from assessment as no impact pathways exist.
	Fish and shellfish ecology	Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures		
	Marine mammals	Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)		
	Offshore and intertidal ornithology	Beneficial effect on seabirds through a reduction in bycaught seabirds		

6. EIA – MINK CONTROL IN SCOTLAND

6.1. INTRODUCTION

- 27. This section considers the potential impacts arising from mink control in Scotland. Due to the widespread and adaptive nature of mink control, this EIA assumes that mink control could occur anywhere in Scotland.
- 28. A characterisation of the physical, biological and human environmental baseline is presented (Table 6.1) followed by the results of an assessment of potential likely significant effects arising from the proposed compensation measure (Section 6.3.1).

6.2. BASELINE

- 29. Table 6.1 provides a description of the baseline environment for each receptor which was identified during the scoping stage as potentially being affected by the proposed compensation measure (Table 5.2).

Table 6.1: The baseline environment for the receptor groups scoped into this assessment.

Receptor Group	Summary of Baseline Environment
Offshore and Intertidal Ornithology	<p>Scotland is globally important for its seabird colonies, supporting over 65% of the British and Irish seabird population (National Trust for Scotland, 2020) and 24 species of breeding seabirds. Key factors affecting the abundance and productivity of seabirds are food availability, weather conditions/ climate, pollution, and the occurrence of predators. Monitoring of breeding seabirds by the UK Seabird Monitoring Programme shows that seabird numbers in Scotland in 2019 were 49% of the initial 1986 level, having declined due to three key pressures: fisheries, climate change, and non-native species.</p> <p>Scotland has a network of 162 SPAs covering 2.75 million hectares of land and sea (NatureScot, 2023), selected with the aim to protect vulnerable or threatened protected bird species from decline.</p>
Onshore Ecology	<p>Scotland is characterised by a range of onshore habitat types including, for example: rivers, wetlands, freshwater lochs, woodlands, peatlands, mountains, and moorlands. These habitats support a range of vulnerable or threatened species within a network of SPAs. Protected species in Scotland include, for example:</p> <ul style="list-style-type: none"> • Bats; • Great crested newt; • Otters; • Natterjack toads; and • Water vole.

6.3. ASSESSMENT

6.3.1. IDENTIFICATION OF IMPACTS AND SCOPE OF ASSESSMENT

- 30. Based on the information presented in this document and the Compensation Plan, all activities associated with the mink control compensation measure were defined and potential impact pathways identified. The potential impact pathways identified are presented here with respect to the relevant receptor groups:
 - Offshore and intertidal ornithology:
 - Potential for disturbance from human activity due to monitoring and control methods
 - Beneficial effect on seabird populations from reduced predation
 - Onshore ecology:
 - Impacts to onshore plants and animals other than the targeted mink.

6.3.2. IMPACT ASSESSMENT ALONE

- 31. The assessment for the effects of the compensation alone is presented below:

Offshore and intertidal ornithology

Potential for disturbance from human activity due to control and monitoring measures

- 32. There is a potential for disturbance to offshore and intertidal ornithological receptors from monitoring and control methods, as those undertaking the proposed measure may cause disturbance and stress to birds on site.
- 33. The spatial extent of disturbance is anticipated to be small, limited to the immediate area around the monitoring rafts and live capture traps. The temporal extent is also anticipated to be small, with any disturbance caused being temporary (typically in terms of hours). When factoring in the small spatial and temporal extent, it is considered that the proposed activities have a magnitude of low (adverse).
- 34. During sensitive times of year bird species will have a medium tolerance to disturbance. Therefore, it is considered that the receptors have a sensitivity of medium (adverse).
- 35. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of medium results in a **minor adverse** significance of effect, which is not significant in EIA terms.

Beneficial effect on seabird populations from reduced predation

- 36. The proposed measure will result in reduced mink populations, and therefore a reduction in the predation of offshore and intertidal ornithological receptors at the chosen sites. This would be a beneficial effect to the ornithological receptors.
- 37. The proposed measure is anticipated to result in a significant increase in the population of Razorbill and Kittiwake and therefore it is considered that the magnitude of activities is high (beneficial). Given the high sensitivity of the receptors to predation from mink, it is also considered that their sensitivity is high (beneficial).
- 38. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of high and sensitivity of high results in a **major beneficial** significance of effect, which is significant in EIA terms.

Onshore ecology

Impacts to onshore plants and animals other than the targeted mink species

- 39. There is a potential for non-target animals (i.e. any species other than mink) to interact with the live capture traps, and potential for interaction with plants when carrying out the monitoring and control methods, and for both receptor groups to be disturbed.
- 40. During implementation of the invasive species controls the Applicant will ensure established good practice standards are implemented at all times, as detailed in Table 2.1, to ensure an avoidance/reduction of interaction with sensitive receptors. Therefore, due to the implementation of these best practice standards, the magnitude of effect is considered to be negligible (adverse).
- 41. It is anticipated that if any non-target species and plants were to interact with the live capture traps, most would exhibit a medium sensitivity to small scale disturbance (adverse).
- 42. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of negligible and sensitivity of negligible to minor results in a **negligible to minor adverse** significance of effect, which is not significant in EIA terms.

6.3.3. CUMULATIVE EFFECT ASSESSMENT

- 43. Due to the small magnitude of adverse effects associated with mink control methods, it can be concluded that there would be no cumulative significant effects. Furthermore, no other plans or projects that have the same impacts have been identified by the Applicant.

6.3.4. TRANSBOUNDARY IMPACTS

- 44. No transboundary impacts are predicted as the outlined impacts are anticipated to be limited to Scotland.

7. EIA – SEABIRD BYCATCH REDUCTION

7.1. INTRODUCTION

- 45. This section considers the potential impacts arising from seabird bycatch reduction measures. Due to the widespread and adaptive nature of Bycatch Reduction, this EIA assumes that this measure could occur anywhere in Portuguese waters.
- 46. A characterisation of the physical, biological and human environmental baseline is presented (Table 7.1) followed by the results of an assessment of potential likely significant effects arising from the proposed compensation measure (Section 7.3.1).

7.2. BASELINE

- 47. Table 7.1 provides a description of the baseline environment for each receptor which was identified during the scoping stage as potentially being affected by the proposed compensation measure (Table 5.2).

Table 7.1: The baseline environment for the receptor groups relevant to seabird bycatch reduction measures in Portuguese waters

Receptor Group	Summary of Baseline Environment
Commercial fishing and socio-economics	<p>Commercial fishing is a major economic activity in Portugal:</p> <ul style="list-style-type: none"> • In 2022 the total catches of the Portuguese fleet amounted to 165,801 tonnes, resulting in 1,329 million Euros of fishery product export sales (Statistics Portugal, 2023). • Consumption of fish per capita in Portugal is the highest in the EU (European Commission, 2021), and third highest in the world (Almeida, C., Karadzic, V. & Vaz, S., 2015). • Portugal is ranked fifth among the EU-27 for employment within the fishing industry (Albo-Puigserver, M., Bueno-Pardo, J., Pinto, M. <i>et al.</i>, 2022).
Fish and shellfish ecology	<p>The North-East Atlantic is inhabited by a range of fish and shellfish. Examples of fish and shellfish with the highest Tonnes Live Weight caught in 2021 within area 27.9 off Portugal (ICES, 2021) include:</p> <ul style="list-style-type: none"> • European pilchard (sardine); • Atlantic chub mackerel; • Atlantic horse mackerel; • European anchovy; • Blue whiting; • Blue jack mackerel; • Common edible cockle; • Jack and horse mackerels nei; • Black scabbardfish • European hake; • Deep-water rose shrimp; • Atlantic mackerel; • Pouting (Bib); • Solid surf clam; and • Common cuttlefish.
Marine mammals	<p>The North-East Atlantic is inhabited by a range of cetaceans and pinniped species. Common resident and migrating species include, for example:</p> <ul style="list-style-type: none"> • Migrating humpback, blue, and fin whales; • Common minke whales; • Harbour porpoises; • Common dolphins; • Risso’s dolphins; • Common bottlenose dolphins; and • Harbour seals.
Offshore and intertidal ornithology	<p>Aerial surveys conducted on Western Iberian waters between 2010-2015 show that Portugal regularly supports a range of seabird species (Araújo <i>et al.</i>, 2022). Species observed in this area include, for example:</p> <ul style="list-style-type: none"> • Northern Gannet; • Cory’s Shearwater; • Balearic Shearwater; • Storm petrel; • Shearwaters;

	<ul style="list-style-type: none"> • Great Shearwater; • Great Skua; • Red Phalarope; and • Sabine's Gull.
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7.3. ASSESSMENT

7.3.1. IDENTIFICATION OF IMPACTS AND SCOPE OF ASSESSMENT

48. Based on the information presented in this document and the Compensation Plan, activities associated with the seabird bycatch compensation measure were defined and potential impact pathways identified. The potential impact pathways identified are presented here with respect to the relevant receptor groups:

- Commercial fishing and socio-economics
 - Adverse effect through disruption to fishing operations caused by the implementation of bycatch reduction measures.
- Fish and shellfish ecology.
 - Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures.
- Marine mammals
 - Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds).
- Offshore and intertidal ornithology:
 - Beneficial effect on seabirds through a reduction in bycaught seabirds.

7.3.2. IMPACT ASSESSMENT ALONE

49. The assessment for the effects of the compensation alone is presented below:

Commercial Fishing and Socio-economics

Adverse effect through disruption to fishing operations caused by the implementation of bycatch reduction measures.

50. There is a potential for disruption to fishing operations due to the implementation of these measures and monitoring mechanisms. The spatial extent of disturbance would be small, with any disturbance from the measures being limited to the individual fishing vessels. The temporal extent is also anticipated to be small, with any disturbance caused expected to be temporary (typically in terms of hours) during the implementation of the mitigation measures and monitoring equipment, after which the fishing operations will continue as normal. When factoring in the small spatial and temporal extent, it is considered that the proposed activities have a magnitude of low (adverse).
51. The proposed mitigations are not anticipated to affect fishing vessel productivity, and implementation by individual skippers is consented on a voluntary basis. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).
52. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of low results in a negligible **to minor adverse** significance of effect, which is not significant in EIA terms.

Fish and Shellfish Ecology

Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures

53. There is a potential for increased predation on fish and shellfish from seabirds that are saved by bycatch reduction measures.
54. While the proposed measure is expected to make a large contribution to reducing bycatch, the number of seabirds saved is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions (i.e. without bycatch). On this basis, it is considered that the identified potential effect has a magnitude of low (adverse).
55. Although fish and shellfish will experience an increase in predation from seabirds saved from bycatch, it is anticipated the effect on fish stocks will be negligible relative to other impacts such as commercial fishing. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).
56. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of low results in a **negligible to minor adverse** significance of effect, which is not significant in EIA terms.

Marine mammals

Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)

57. There is a potential for a decrease in prey resource for marine mammals due to increased predation from seabirds saved by bycatch reduction methods.
58. While the proposed measure is expected to make a large contribution to reducing bycatch, the number of seabirds saved is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions (i.e. without bycatch). On this basis, it is considered that the identified potential effect has a magnitude of low (adverse).
59. Although marine mammals will experience a small decrease in prey resource due to increased predation from seabirds saved by bycatch measures, it is anticipated the effect on the prey resource will be negligible relative to other impacts such as commercial fishing. Therefore, it is considered that the receptors have a sensitivity of low (adverse).
60. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of low results in a **negligible to minor adverse** significance of effect, which is not significant in EIA terms.

Offshore and intertidal ornithology

Beneficial effect on seabird populations from reduced seabird bycatch

61. The proposed measure will result in a reduction in bycaught seabird. This would be a beneficial effect to the ornithological receptors.
62. The proposed measure is anticipated to result in a significant reduction in the number of bycaught razorbill and gannet, and therefore it is considered that the magnitude of activities is high (beneficial). Given the high sensitivity of the receptors to bycatch reduction measures, it is also considered that their sensitivity is high (beneficial).
63. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of high and sensitivity of high results in a **major beneficial** significance of effect, which is significant in EIA terms.

7.3.3. CUMULATIVE EFFECT ASSESSMENT

64. Due to the small magnitude of adverse effects associated with bycatch reduction, it can be concluded that there would be no cumulative significant effects. Furthermore, no other plans or projects that have the same impacts have been identified by the Applicant.

7.3.4. TRANSBOUNDARY IMPACTS

Fish and shellfish ecology

Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures

65. There is a potential for increased predation on fish and shellfish from seabirds that are saved by bycatch reduction measures along migratory routes outside of the chosen sites, therefore a transboundary impact is anticipated.
66. While the proposed measure is expected to make a large contribution to reducing bycatch, the number of seabirds saved is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions (i.e. without bycatch). On this basis, it is considered that the identified potential effect has a magnitude of low (adverse).
67. Although fish and shellfish will experience an increase in predation from seabirds saved from bycatch, it is anticipated the effect on fish stocks will be negligible relative to other impacts such as commercial fishing. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).
68. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of low results in a **negligible to minor adverse** significance of effect, which is not significant in EIA terms.

Marine mammals

Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)

69. There is a potential for a decrease in prey resource for marine mammals due to increased predation from seabirds saved by bycatch reduction methods along migratory routes outside of the chosen sites, therefore a transboundary impact is anticipated. The assessment presented here is based on the compensation measures description within the Compensation Plan and the CIMP.
70. While the proposed measure is expected to make a large contribution to reducing bycatch, the number of seabirds saved is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions (i.e. without bycatch). On this basis, it is considered that the identified potential effect has a magnitude of low (adverse).
71. Although marine mammals will experience a small decrease in prey resource due to increased predation from seabirds saved by bycatch measures, it is anticipated the effect on the prey resource will be negligible relative to other impacts such as commercial fishing. Therefore, it is considered that the receptors have a sensitivity of low (adverse).
72. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of low and sensitivity of low results in a **Negligible to minor adverse** significance of effect, which is not significant in EIA terms.

Offshore and intertidal ornithology

Beneficial effect on seabird populations from reduced bycatch

73. The reduction of bycatch will increase seabird populations along migratory routes outside of the chosen sites, therefore a transboundary impact is anticipated. The assessment presented here is based on the compensation measures description within the Compensation Plan.
74. This transboundary impact is anticipated to result in a significant increase in the population of razorbill and gannet and therefore it is considered that the magnitude of activities is high (beneficial). Given the high sensitivity of the receptors to bycatch, it is also considered that their sensitivity is high (beneficial).
75. Following the significance matrix utilised in this assessment (Table 5.1), a magnitude of high and sensitivity of high results in a **major beneficial** significance of effect, which is significant in EIA terms.

8. CONCLUSIONS

76. This Derogation Case has considered the environmental impacts associated with the implementation of the following proposed compensation measures:
- Invasive species control, including mink, in Scotland;
 - Seabird bycatch reduction.
77. The assessment provided in this document is based on the current understanding of the location, scope and nature of the proposed compensation measures as provided within the Compensation Plan. For each of the proposed compensation measures, the parameters of each measure have defined from the Compensation Plan and the potential impacts identified (Table 5.2) following the process outlined in Section 16, with some impacts scoped out and others taken forward for assessment. The magnitude of impact and sensitivity of each receptor has been considered, and the level of significance have been derived following the matrix approach (Table 5.1).
78. Following the above methodology, a range of impacts were identified and assessed with respect to each compensation measure. Those impacts where an assessment of likely significant effects was undertaken are shown in Table 6. No adverse impacts were considered to be likely significant effects in EIA terms with respect to any of the proposed compensation measures, with all of the significant likely effects considered to have a beneficial impact (see Table 8.1).

Table 8.1: Summary of impacts considered to have significance in EIA terms

Receptor	Impact Pathways Assessed	Level of effect	Significant (in EIA terms)
Mink Control			
Offshore and intertidal ornithology	Potential for disturbance from human activity due to control and monitoring mechanisms	Negligible adverse	No
	Beneficial effect on seabird populations from reduced predation	Major beneficial	Yes
	Impacts to non-target species	Negligible adverse	No
Onshore ecology	Impacts to onshore plants and animals other than the targeted mink species	Negligible adverse	No
Transboundary Impact (Offshore and intertidal ornithology)	Beneficial effect on seabird populations from reduced predation	Major beneficial	Yes
Seabird Bycatch Measures			
Commercial fishing and socio-economics	Adverse effect through disruption to fishing operations caused by the implementation of bycatch reduction measures	Negligible to minor adverse	No
Fish and shellfish ecology	Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures	Minor adverse	No
Marine mammals	Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)	Minor adverse	No
Offshore and intertidal ornithology	Beneficial effect on seabird populations from reduced seabird bycatch	Major beneficial	Yes
Transboundary Impact (Fish and shellfish ecology)	Adverse effect on fish and shellfish populations through increased predation from birds saved due to bycatch reduction measures	Minor adverse	No
Transboundary Impact (Marine mammals)	Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)	Minor adverse	No
Transboundary Impact (Offshore and intertidal ornithology)	Beneficial effect on seabird populations from reduced seabird bycatch	Major beneficial	Yes

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