

## **Information to Inform the Habitats Regulations Appraisal (HRA) Islay Community Demonstration**

**Final**

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# 1 INFORMATION TO INFORM HRA

## 1.1 INTRODUCTION

A Habitats Regulations Appraisal (HRA) has been undertaken for Flex Marine Power Ltd.'s (FMP) proposed deployment of a single 50KW SwimmerTurbine™ in the Sound of Islay, Scotland (the Project), to determine whether the proposal has the potential to affect any European sites.

Pre-application consultation advice received from NatureScot listed the sites and qualifying features relevant to the proposed Project that require consideration in the HRA (see Section 1.5 Consultation Responses).

## 1.2 PROJECT DESCRIPTION

Project description details can be found in the Environmental Management Plan (EMP). This report should be read in conjunction with the other Project documents (EMP, Collision Risk Modelling Report) submitted as part of the Marine Licence application.

## 1.3 REGULATORY BACKGROUND

The requirements of the Habitats Directive and the Wild Birds Directive are transposed into domestic law in Scotland by The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). These Regulations apply on land in Scotland, and in Scottish inshore waters (the area of sea adjacent to Scotland from 0 to 12 nautical miles). The UK's exit from the European Union has resulted in some changes in terminology regarding the Habitats Regulations. European sites are no longer part of the European Union's Natura 2000 network. Instead, they form a UK-wide network of protected sites. The UK site network is made up of Special Areas of Conservation (SACs) and SPAs. It is Scottish Government policy to afford the same protection to proposed SPAs (pSPAs) and candidate SACs (cSACs) as fully classified sites.

## 1.4 OVERVIEW OF HABITATS REGULATIONS APPRAISAL PROCESS

Where a plan or project could affect a site within the UK site network, the Habitats Regulations require the competent authority to consider the provisions of Regulation 61. This means that the competent authority has a duty to:

- determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not
- determine whether the proposal is likely to have a significant effect (Likely Significant Effect, (LSE)) on the site either individually or in-combination with other plans or projects; and, if so, then
- make an appropriate assessment of the implications (of the proposal) for the site in view of that site's conservation objectives.

This process is now commonly referred to as HRA. HRA applies to any plan or project which has the potential to affect the qualifying features of a site within the UK site network, even when those interests may be at some distance from that site. The competent authority will decide whether an appropriate assessment is necessary and carry it out (with advice provided by NatureScot) if required. It is the applicant, in this instance Flex Marine Power, who is usually required to provide the information to inform the appropriate assessment.



The approach to HRA follows the three-step process as detailed in NatureScot guidance (SNH, 2018). The information in this HRA is presented in a format to answer the following three questions:

- Step 1: Is the proposal directly connected with or necessary for site management for conservation management?
- Step 2: Is the proposal likely to have a significant effect (LSE) on the site?
- Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the site?

## 1.5 CONSULTATION RESPONSES

Consultation feedback specific to the HRA was received during pre-application consultations. Details of each of the comments received and how these have been incorporated into the assessment to allow completion of the HRA is presented in Table 1.1.

**Table 1.1 Consultation responses specific to the HRA**

Comment	Relevant section
<b>NatureScot, pre-application advice, 12 October 2021</b>	
<b>South-East Islay Skerries SAC – harbour seal</b>	
The proposed tidal turbine project is located approximately 17km from South-East Islay Skerries SAC and is therefore within the foraging range (50km) of its harbour seal feature. We advise that the HRA should include an assessment of the likely risk of collision and entanglement to the harbour seal qualifying feature.	Noted. The HRA includes an assessment of likely risk of collision and entanglement for the harbour seal qualifying feature (see Section 2.3.2).
Guidance on assessing the collision risk between underwater turbines and marine wildlife <sup>1</sup> is available on our website for developers to use, including a collision risk modelling spreadsheet.  Collision risk estimates for the harbour seal qualifying feature of South-East Islay Skerries SAC should be calculated using the updated ERM model with a 98% avoidance rate.	Noted. Collision risk estimates were calculated in accordance with the guidance (ref to Natural Power CRM report).
A relative risk assessment, as outlined in the Benjamins et al. 2014 <sup>2</sup> should be included in the HRA.	Noted. A relative risk assessment is included in the HRA (see Section 2.3.2).
<b>Inner Hebrides and the Minches SAC - Harbour porpoise</b>	
The proposed tidal turbine project is located close to the Inner Hebrides and the Minches SAC designated for its Harbour porpoise qualifying feature. The Sound of Islay is thought to function as a transit route. We advise that the HRA should include an assessment of the likely risk of collision and entanglement to the harbour porpoise qualifying feature.	Noted. The HRA includes an assessment of likely risk of collision and entanglement for the harbour porpoise qualifying feature (see Section 2.3.4).

<sup>1</sup> <https://www.nature.scot/doc/assessing-collision-risk-between-underwater-turbines-and-marine-wildlife>

<sup>2</sup> <https://www.nature.scot/doc/naturescot-commissioned-report-791-understanding-potential-marine-megafauna-entanglement-risk>

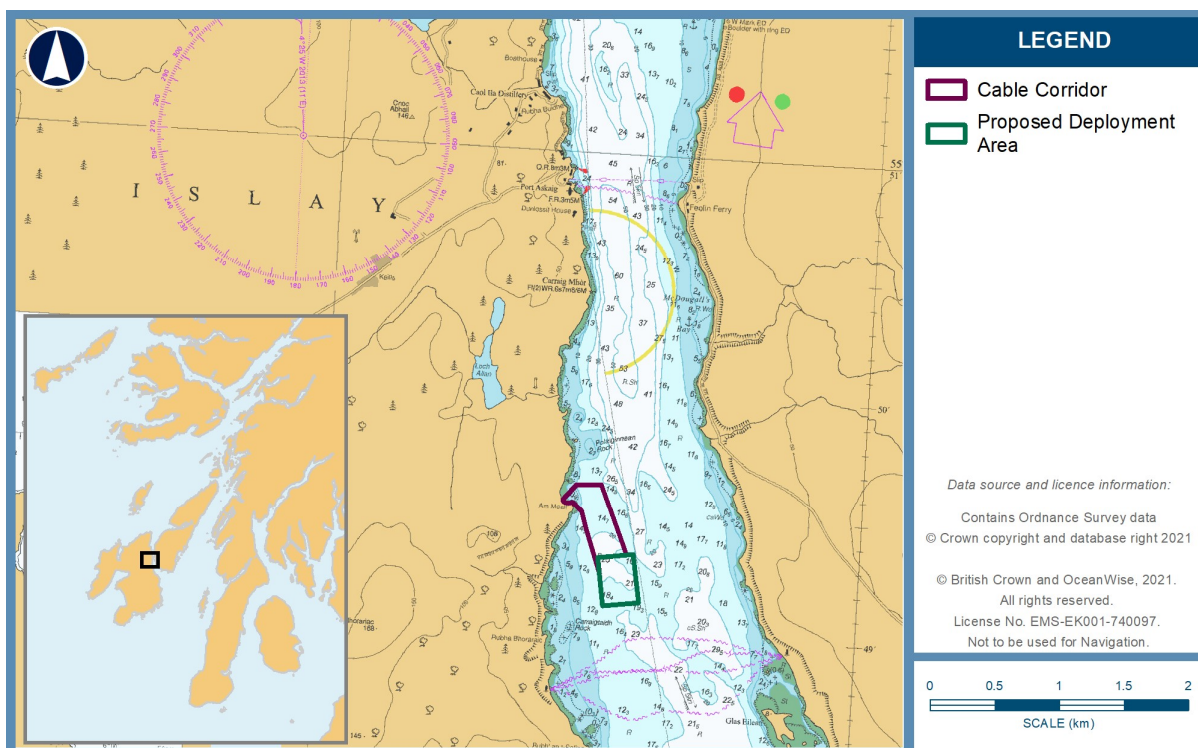




Comment	Relevant section
Collision risk estimates for the harbour porpoise qualifying feature of Inner Hebrides and the Minches SAC should be calculated using the updated ERM model with a 98% avoidance rate.	Noted. Collision risk estimates were calculated in accordance with the guidance (see ref to Natural Power CRM report).
A relative risk assessment, as outlined in the Benjamins et al. 2014 should be included in the HRA.	Noted. A relative risk assessment is included in the HRA (see Section 2.3.4).
<b>NatureScot, pre-application advice, 16 November 2021</b>	
<p>We request that collision risk modelling is undertaken for:</p> <ul style="list-style-type: none"> <li>Both seal species</li> <li>Harbour porpoise</li> </ul> <p>CRM for seals and Harbour porpoise will help inform the HRA process and assessment of impacts to protected species including the need for EPS licencing.</p>	Noted. Collision risk modelling has been undertaken for harbour seal, grey seal and harbour porpoise (see Sections 2.3.2; 2.3.3 and 2.3.4).

## 1.6 PROJECT LOCATION

The HRA was undertaken for the Project using the licence boundary shown in Figure 1.1.



**Figure 1.1 Proposed licence and deployment area**

## 2 SACS

### 2.1 STEP ONE: IS THE PROPOSAL DIRECTLY CONNECTED WITH OR NECESSARY FOR SITE MANAGEMENT FOR CONSERVATION MANAGEMENT?

No, the proposal is not directly connected with or necessary to site management for the conservation of any of the SACs and therefore consideration of Step 2 is required.

### 2.2 IS THE PROPOSAL LIKELY TO HAVE A SIGNIFICANT EFFECT (LSE) ON THE SITE?

#### 2.2.1 Identification of sites relevant to the Project

NatureScot advised during pre-application consultation (see Table 1.1) that the only sites and qualifying features requiring consideration in relation to HRA are:

- South-East Islay Skerries SAC (Harbour seal)
- Inner Hebrides and the Minches SAC (Harbour porpoise)
- Grey seals

#### South-East Islay Skerries SAC

South-East Islay Skerries SAC, designated for harbour seal is located 15.8km to the south of the Project (see Figure 2.1). Harbour seal has a foraging range of 50km therefore there is connectivity between the Project and seals from this SAC, that may use the Sound of Islay for foraging or whilst in transit through the area. Therefore, there is potential for likely significant effects.

There are no other SACs with harbour seal as a qualifying feature within 50km of the Project.

#### Treshnish Isles SAC

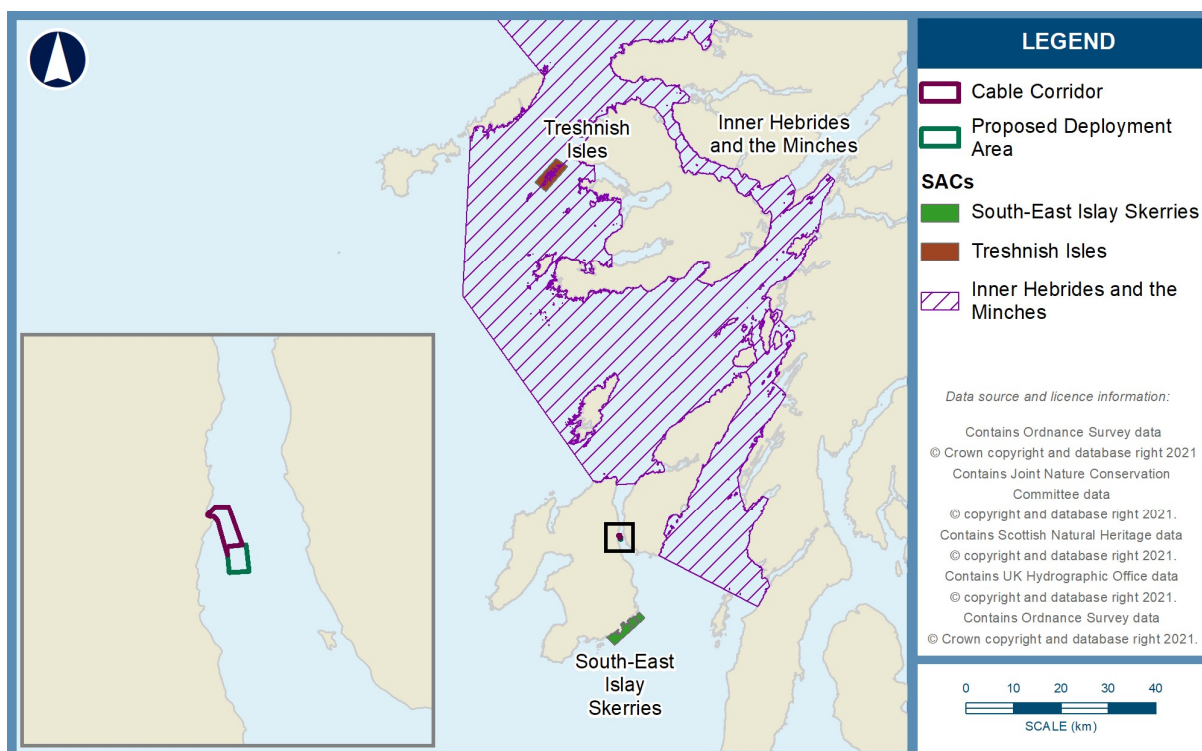
The nearest SAC with grey seal as a qualifying feature is Treshnish Isles SAC located 74.4km to the north of the Project. Grey seals travel large distances to forage and frequently travel over 100km between haul-out sites (SCOS, 2020) therefore there is potential connectivity between the Project and grey seals from Treshnish Isles SAC. Therefore, there is potential for likely significant effects.

There are no other SACs in Scotland with grey seal as a qualifying feature within 100km of the Project.

#### Inner Hebrides and the Minches SAC

Inner Hebrides and the Minches SAC, designated for its population of harbour porpoise, is located 10.7km to the east and 8.6km to the north of the Project (see Figure 2.1). The SAC is an extensive site covering an area of 13,801.74 km<sup>2</sup> and harbour porpoise use the entirety of the site (NatureScot, 2020). The Sound of Islay is thought to function as a transit route for this species therefore there is potential connectivity between the Project and harbour porpoise from the SAC. Therefore, there is potential for likely significant effects.





**Figure 2.1 The location of the Project in relation to SACs with potential connectivity to the Project**

## 2.3 STEP THREE: CAN IT BE ASCERTAINED THAT THE PROPOSAL WILL NOT ADVERSELY AFFECT THE INTEGRITY OF THE SITE?

As there is potential for LSE on the qualifying interest of these three SACs, the Competent Authority, must carry out an appropriate assessment to ascertain whether the proposal might adversely affect the integrity of the SACs. Information is provided in this section to inform that appropriate assessment.

### 2.3.1 Impacts associated with the Project

NatureScot advised in their pre-application advice that the following aspects of the Project are of relevance to both seal species and harbour porpoise and therefore require consideration in the HRA:

#### Operational phase

- Collision with turbine blades leading to injury or death
- Entanglement in mooring lines or cables leading to injury or death

### 2.3.2 South-East Islay Skerries SAC

#### Conservation objectives

The conservation objectives of South-East Islay Skerries SAC are:

- To avoid deterioration of the habitats of the qualifying species (harbour seal) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

- To ensure for the qualifying species that the following are maintained in the long term:
  - Population of the species as a viable component of the site
  - Distribution of the species within site
  - Distribution and extent of habitats supporting the species
  - Structure, function and supporting processes of habitats supporting the species
  - No significant disturbance of the species

Of these, one conservation objective is relevant to the Project and is considered in the Project's effect on site integrity:

- to maintain the population of the species as a viable component of the site

### Baseline conditions

The harbour seal abundance estimate for West Scotland Seal Management Unit (SMU) is 15,600 (SCOS, 2020). The most recent count data available for South-East Islay Skerries SAC recorded 706 harbour seals in 2018 which was 35% lower than the previous count of 1,087 harbour seals in 2015 which was the highest completed count for the area for surveys dating back to 1996 (SCOS, 2020). Overall, counts have remained relatively stable over the period 1990 to 2018. The south-east Islay coastline areas are extensively used as pupping, moulting and haul-out sites by harbour seals, which represent between 1.5% and 2% of the UK population<sup>3</sup>. The latest assessed site monitoring condition for harbour seal at the SAC (in 2009) is 'favourable maintained'<sup>4</sup>.

### Collision with turbine blades leading to injury or death

The deployment and operation of a tidal device in the water column presents a potential collision risk for grey seals that may be present in the area. The Project comprises a single 50kW SwimmerTurbine™ tidal device which has two blades with a rotor diameter of 5m. Collision risk modelling was undertaken by Natural Power, in accordance with NatureScot guidance<sup>5</sup> (Natural Power, 2021). The predicted annual collision rate for harbour seal using a 98% avoidance rate is:

- Harbour seal: 0.07 (C.I: 0.04 – 0.13) collisions per year.

The predicted collision of 0.07 harbour seals per year is equivalent to one collision every 14 years.

The Permitted Biological Removal (PBR) value for harbour seals for the West Scotland Seal Management Unit (SMU) is 936 (SCOS, 2020). The predicted collision risk of 0.07 harbour seals per year constitutes just 0.007% of the allowable take suggested by the PBR value.

### Determination of effects on site integrity

The South-East Islay Skerries SAC is one site in the network of SACs for harbour seals within the West Scotland SMU. The rate of predicted collision is well below 1% of the PBR for the West Scotland SMU therefore it can be concluded that the predicted collision risk is sufficiently low that the conservation objective 'to maintain the population of the species as a viable component of the site' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for South-East Islay Skerries SAC.

<sup>3</sup> [South-East Islay Skerries - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk/south-east-islay-skerries-special-areas-of-conservation)

<sup>4</sup> [SiteLink \(nature.scot\)](https://nature.scot/site-link)

<sup>5</sup> <https://www.nature.scot/doc/assessing-collision-risk-between-underwater-turbines-and-marine-wildlife>



### Entanglement in mooring lines or cables leading to injury or death

A relative risk assessment for entanglement has been undertaken as outlined in Benjamins *et al.*, (2014). A taut mooring system with accessory buoy presents low risk to seals and small cetaceans.

Technical monitoring of the SwimmerTurbine™ will be undertaken for operational purposes using equipment installed on the device with outputs monitored in real time using cloud-based communications. Remote sensors on the device will be used to monitor pitch and roll and accelerometers will be used to identify any movement. Using a GPS system, the movement of the device will be monitored, and an alert will be triggered if the system moves outside of the predefined operational area. The control system will have a shock sensor for the purpose of giving indication should an object strike the device. These systems would allow FMP to detect any changes or failings in the moorings or any entanglement event should it occur and enable any necessary inspections or retrieval operations to be actioned as soon as possible. In the highly unlikely event that any of the key device components should become detached from their substructure, an alarm will immediately be sent to the operator on duty who will co-ordinate retrieval operations.

#### Determination of effects on site integrity

The relative risk of entanglement resulting from a single taut mooring line and accessory buoy presents a low risk to harbour seals. The monitoring measures that will be implemented to monitor the device for operational purposes will ensure that an entanglement event is rapidly identified in the highly unlikely event should one occur. It can be concluded that the entanglement risk is sufficiently low that the conservation objective 'to maintain the population of the species as a viable component of the site' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for South-East Islay Skerries SAC.

### 2.3.3 Treshnish Isles SAC

#### Conservation objectives

The conservation objectives of Treshnish Isles SAC are:

- To avoid deterioration of the habitats of the qualifying species (grey seal) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
- To ensure for the qualifying species that the following are maintained in the long term:
  - Population of the species as a viable component of the site
  - Distribution of the species within site
  - Distribution and extent of habitats supporting the species
  - Structure, function and supporting processes of habitats supporting the species
  - No significant disturbance of the species

Of these, one conservation objective is relevant to the Project and is considered in the Project's effect on site integrity:

- to maintain the population of the species as a viable component of the site

#### Baseline conditions

The most recent count data for grey seals for the West Scotland SMU from August 2017 is 4,174 grey seals (SCOS, 2020). The count for Treshnish Isles was 85 grey seals in 2014 (Duck and Morris, 2019). Treshnish Isles SAC supports



a breeding colony of grey seals that contributes just under 3% of the annual UK pup production<sup>6</sup>. The latest assessed site monitoring condition for grey seal at Treshnish Isles SAC (in 2014) is 'favourable maintained'<sup>7</sup>.

### Collision with turbine blades leading to injury or death

The deployment and operation of a tidal device in the water column presents a potential collision risk for grey seals that may be present in the area. The Project comprises a single 50kW SwimmerTurbine™ tidal device which has two blades with a rotor diameter of 5m. Collision risk modelling was undertaken by Natural Power, in accordance with NatureScot guidance<sup>8</sup> (Natural Power, 2021). The predicted annual collision rate for grey seal using a 98% avoidance rate is:

- Grey seal: 0.04 (C.I: 0.01 – 0.07) collisions per year.

The predicted collision of 0.04 grey seals per year is equivalent to one collision every 25 years.

The Permitted Biological Removal (PBR) value for grey seals for the West Scotland Seal Management Unit (SMU) is 966 (SCOS, 2020). The predicted collision risk of 0.04 grey seals per year constitutes just 0.004% of the allowable take suggested by the PBR value.

### Determination of effects on site integrity

The Treshnish Isles SAC is one site in the network of SACs within the West Scotland SMU. The rate of predicted collision is well below 1% of the PBR for the West Scotland SMU therefore it can be concluded that the predicted collision risk is sufficiently low that the conservation objective 'to maintain the population of the species as a viable component of the site' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for Treshnish Isles SAC.

### Entanglement in mooring lines or cables leading to injury or death

A relative risk assessment for entanglement has been undertaken as outlined in Benjamins *et al.*, (2014). A taut mooring system with accessory buoy presents low risk to seals.

Technical monitoring of the SwimmerTurbine™ will be undertaken for operational purposes using equipment installed on the device with outputs monitored in real time using cloud-based communications. Remote sensors on the device will be used to monitor pitch and roll and accelerometers will be used to identify any movement. Using a GPS system, the movement of the device will be monitored, and an alert will be triggered if the system moves outside of the predefined operational area. The control system will have a shock sensor for the purpose of giving indication should an object strike the device. These systems would allow FMP to detect any changes or failings in the moorings or any entanglement event should it occur and enable any necessary inspections or retrieval operations to be actioned as soon as possible. In the highly unlikely event that any of the key device components should become detached from their substructure, an alarm will immediately be sent to the operator on duty who will co-ordinate retrieval operations.

<sup>6</sup> [Treshnish Isles - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk)

<sup>7</sup> <https://sitelink.nature.scot/site/8398>

<sup>8</sup> <https://www.nature.scot/doc/assessing-collision-risk-between-underwater-turbines-and-marine-wildlife>





### Determination of effects on site integrity

The relative risk of entanglement resulting from a single taut mooring line and accessory buoy presents a low risk to grey seals. The monitoring measures that will be implemented to monitor the device for operational purposes will ensure that an entanglement event is rapidly identified in the highly unlikely event should one occur. It can be concluded that the entanglement risk is sufficiently low that the conservation objective 'to maintain the population of the species as a viable component of the site' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for Treshnish SAC.

### 2.3.4 Inner Hebrides and the Minches SAC

#### Conservation objectives

The conservation objectives of Inner Hebrides and the Minches SAC are:

1. To ensure that the Inner Hebrides and the Minches SAC continues to make an appropriate contribution to harbour porpoise remaining at favourable conservation status.
2. To ensure for harbour porpoise within the context of environmental changes, that the integrity of the Inner Hebrides and the Minches SAC is maintained through 2a, 2b and 2c:
  - a. Harbour porpoise within the Inner Hebrides and the Minches are not at significant risk from injury or killing.
  - b. The distribution of harbour porpoise throughout the site is maintained by avoiding significant disturbance.
  - c. The condition of supporting habitats and the availability of prey for harbour porpoise are maintained

Of these, one conservation objective is relevant to the Project and is considered in the Project's effect on site integrity:

- to ensure that harbour porpoise are not at significant risk from injury or killing

#### Baseline conditions

The Inner Hebrides and the Minches SAC is designated to protect harbour porpoise on the west coast of Scotland and provides protection to approximately 32% of the harbour porpoise population found on the west coast of Scotland (NatureScot, 2020). The feature condition for harbour porpoise in the SAC is assessed as 'Favourable' in 2018 (NatureScot, 2020). The number of harbour porpoise using the site is likely to vary as this is a wide-ranging species and there is likely to be a lot of movement of animals in and out of the site therefore there is not a population estimate for the site (NatureScot, 2020).

#### Collision with turbine blades leading to injury or death

The deployment and operation of a tidal device in the water column presents a potential collision risk for harbour porpoise that may be present in the area. The Project comprises a single 50kW SwimmerTurbine™ tidal device which has two blades with a rotor diameter of 5m. Collision risk modelling was undertaken by Natural Power, in accordance with NatureScot guidance<sup>9</sup> (Natural Power, 2021). The predicted annual collision rate for harbour porpoise using a 98% avoidance rate is:

- Harbour porpoise: 0.17 (C.I: 0.05 – 0.28) collisions per year.

The predicted collision of 0.17 harbour porpoises per year is equivalent to one collision every 5.9 years.

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<sup>9</sup> <https://www.nature.scot/doc/assessing-collision-risk-between-underwater-turbines-and-marine-wildlife>



For harbour porpoise, the site lies within the West Scotland cetacean Management Unit (MU). The population estimate for harbour porpoise within the West Scotland MU is 28,936 (21,140 – 39,608) (IAMMWG, 2021). The predicted collision risk of 0.17 harbour porpoise fatalities per year would represent 0.0006 % of the total population within the West Scotland MU.

#### *Determination of effects on site integrity*

The rate of predicted collision is well below 1% of the total population of the West Scotland MU therefore it can be concluded that the predicted collision risk is sufficiently low that the conservation objective 'to ensure that harbour porpoise are not at significant risk from injury or killing' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for Inner Hebrides and the Minches SAC.

#### **Entanglement in mooring lines or cables leading to injury or death**

A relative risk assessment for entanglement has been undertaken as outlined in Benjamins *et al.*, (2014). A taut mooring system with accessory buoy presents low risk to small cetacean species such as harbour porpoise.

Technical monitoring of the SwimmerTurbine™ will be undertaken for operational purposes using equipment installed on the device with outputs monitored in real time using cloud-based communications. Remote sensors on the device will be used to monitor pitch and roll and accelerometers will be used to identify any movement. Using a GPS system, the movement of the device will be monitored, and an alert will be triggered if the system moves outside of the predefined operational area. The control system will have a shock sensor for the purpose of giving indication should an object strike the device. These systems would allow FMP to detect any changes or failings in the moorings or any entanglement event should it occur and enable any necessary inspections or retrieval operations to be actioned as soon as possible. In the highly unlikely event that any of the key device components should become detached from their substructure, an alarm will immediately be sent to the operator on duty who will co-ordinate retrieval operations.

#### *Determination of effects on site integrity*

The relative risk of entanglement resulting from a single taut mooring line and accessory buoy presents a low risk to harbour porpoises. The monitoring measures that will be implemented to monitor the device for operational purposes will ensure that an entanglement event is rapidly identified in the highly unlikely event should one occur. It can be concluded that the entanglement risk is sufficiently low that the conservation objective 'to ensure that harbour porpoise are not at significant risk from injury or killing' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity** for Inner Hebrides and the Minches SAC.





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