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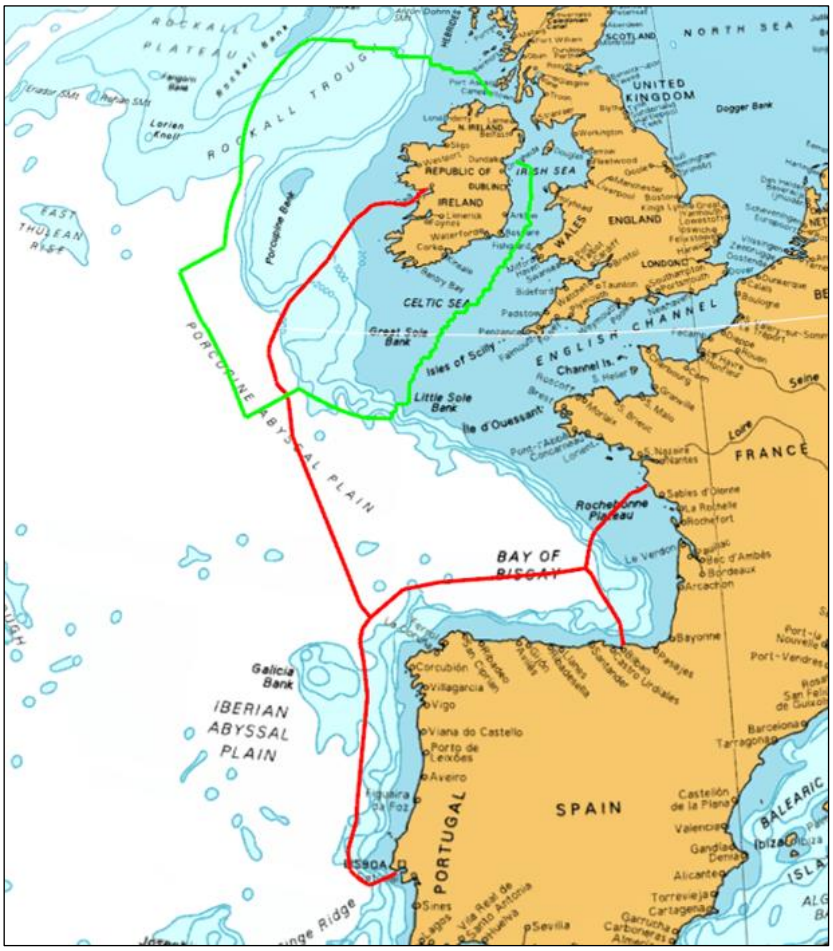
Risk Assessment for Annex IV Species for marine survey and site investigation works at Ballyloughane, Co. Galway.



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On behalf of: McMahon Design and Management Ltd.

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Introduction

This Annex IV Risk Assessment has been prepared on behalf of McMahon Design and Management Ltd. to assess whether the proposed survey works remove the system of strict protection established for Annex IV species. This risk assessment will aid in the application to obtain a survey license for the proposed route of this undersea fibre optic cable. This report will detail the species protected under Annex IV of the Habitats Directive that may be present within the foreshore survey license application area. Under Article 12 and 13 of the Habitats Directive, Member States must establish systems of strict protection for animal and plant species which are particularly threatened, and which are listed on Annex IV of the Habitats Directive. Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulations 51, 52 and 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas. It is an offence to deliberately kill, injure or disturb a specimen in the wild, or damage or destroy a breeding site or resting place of an Annex IV animal species. This report may also contain species which are protected under Annex II, which are protected within Special Areas of Conservation (SACs). Grey seals (*Halichoerus grypus*) have been recorded in the area, however as this species is protected under Annex II and V, it will not be considered any further in this risk assessment.

Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include residential, infrastructural, renewable, oil & gas, private industry, local authorities, EC projects and State/semi-State Departments. [redacted] is the managing director of Altemar. [redacted] is an environmental scientist, MMO and marine biologist with 28 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. [redacted] (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

Annex IV Species

All species listed under Annex IV with the potential to be impacted by the proposed survey works should be included, even if they have been separately assessed in the AA, NIS or EcIA process.

Of the animal and plant species on Annex IV known to occur in Ireland, the following species (Table 1) were identified as relevant to the proposed development:

Table 1. Annex IV protected species in Ireland

Classification	Species	Conservation Status	Potential for Effect
Cetacea	Humpback Whale (*Megaptera novaeangliae*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Bottlenose Dolphin (*Tursiops truncatus*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Short-Beaked Common Dolphin (*Delphinus delphis*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Harbour Porpoise (*Phocoena phocoena*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**

Classification	Species	Conservation Status	Potential for Effect
Cetacea	Killer Whale (*Orcinus orca*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Long-Finned Pilot Whale (*Globicephala melas*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Risso's Dolphin (*Grampus griseus*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Atlantic White-Sided Dolphin (*Lagenorhynchus acutus*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	White-Beaked Dolphin (*Lagenorhynchus albirostris*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Striped Dolphin (*Stenella coeruleoalba*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Cuvier's Beaked Whale (*Ziphius cavirostris*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Sowerby's Beaked Whale (*Mesoplodon bidens*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Minke Whale (*Balaenoptera acutorostrata*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Fin Whale (*Balaenoptera physalus*	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Blue Whale (Balaenoptera musculus)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Sperm Whale (*Physeter macrocephalus*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Northern Bottlenose Whale (*Hyperoodon ampullatus*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetacea	Sei Whale (*Balaenoptera borealis*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**

Classification	Species	Conservation Status	Potential for Effect
Cetancea (Vagrant)	Northern Right Whale (*Eubalaena glacialis*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetancea (Vagrant)	False Killer Whale (*Pseudorca crassidens*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetancea (Vagrant)	True's Beaked Whale (*Mesoplodon mirus*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetancea (Vagrant)	Pygmy Sperm Whale (*Kogia breviceps*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetancea (Vagrant)	Beluga/White *Whale (Delphinapterus leucas*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Cetancea (Vagrant)	Gervais' Beaked Whale (*Mesoplodon europaeus*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Mustelidae	Otter (*Lutra lutra*)	Favourable	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Testudines	Leatherback Turtle (*Dermochelys coriacea*)	Unknown	There is potential for this species to be located within the survey area and therefore be effected. **Further Assessment Required**
Chiroptera	Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	Inadequate	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Common Pipistrelle (*Pipistrellus pipistrellus*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**

Classification	Species	Conservation Status	Potential for Effect
Chiroptera	Soprano Pipistrelle (*Pipistrellus pygmaeus*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Nathusius' Pipistrelle (Pipistrellus nathusii)	Unknown	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Natterer's Bat (*Myotis nattereri*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Daubenton's Bat (*Myotis daubentonii*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Whiskered Bat (*Myotis mystacinus*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Brown Long-Eared Bat (*Plecotus auritus*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of

Classification	Species	Conservation Status	Potential for Effect
			bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Leisler's Bat (*Nyctalus leisleri*)	Favourable	The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Chiroptera	Other bat species not listed above if present		The works are in the coastal environment where structures are near the HWM. There is no potential for this species to be effected by the proposed survey works. Works at landfall will be carried out during daylight hours only and no artificial lighting is required. The works will not impact on resting or breeding places of bats. No demolition or modifications to buildings are required. No lighting is required. **Further Assessment Not Required**
Mollusca	Kerry Slug (*Geomalacus maculosus*)	Favourable	There is no potential for this species to be effected by the proposed survey works. **Further Assessment Not Required**
Anura	Natterjack Toad (*Epidalea calamita*)	Bad	There is no potential for this species to be effected by the proposed survey works. **Further Assessment Not Required**
Hymenophyllaceae	Killarney Fern (*Vandenboschia speciosa*)	Favourable	There is no potential for this species to be effected by the proposed survey works. **Further Assessment Not Required**
Najadaceae	Slender Naiad (*Najas flexilis*)	Inadequate	There is no potential for this species to be effected by the proposed survey works. **Further Assessment Not Required**
Saxifragaceae	Marsh Saxifrage (*Saxifraga hirculus*)	Favourable	There is no potential for this species to be effected by the proposed survey works. **Further Assessment Not Required**

Baseline

Cetaceans

A number of the 24 aforementioned cetacean species have been identified within the survey area, including the harbour porpoise and bottlenose dolphin (IWDG, 2017). Many of the other cetacean species from Annex IV have been recorded in the area or region. The harbour porpoise, bottlenose dolphin and common dolphin, in particular, have been recorded frequently within the survey area and surrounding region. These species of cetacean may be present year-round in the region (Wall *et al.,* 2013). Whereas larger species such as fin whale or humpback whale are seasonal visitors during the late summer months (Wall *et al.,* 2013). From the (IWDG, 2017) data, many of the cetacean species' sightings in the region, were recorded between the late summer and early autumn months.

Turtles

The leatherback turtle (*Dermochelys coriacea*) is the only turtle species that is protected under Annex IV of the Habitats Directive in Ireland. This species has been recorded within both the marine and terrestrial aspects of the survey license area and within Galway Bay (NBDC, 2023). This species is another seasonal visitor, leatherback turtles migrate north during the summer months to more temperate waters, some visit the northeast Atlantic and Irish waters where they feed on jellyfish before turning south again in Autumn (NPWS, 2019). These sightings mostly range from the late 1970s, 1980's to the early 2000s, however, there are some more recent sightings from 2014 located proximate to the marine survey license area in Galway Bay. There is, therefore, a possibility that the leatherback turtle may be present at the time of survey works.

Otters

Ireland continues to be a stronghold for the European otter (*Lutra lutra*). The most recent data shows that otter continues to be widespread across Ireland with a total of 44 SACs being designated with otter as a conservation objective (NPWS, 2019). The nearest Special Area of Conservation (SAC) which contains otter as a qualifying interest is Galway Bay Complex SAC, located within the proposed survey route corridor. The National Biodiversity Data Centre records indicate a previous presence of otters along the coastline proximate to the survey license area (NBDC, 2023), the most recent sighting noted in 2017. There is, therefore, the possibility that the European otter may be present during the survey works.

Potential Impacts on Annex IV Species

Cetaceans

The proposed survey works are temporary, with the inshore works only predicted to last between 2-3 days. However, due to the high number of cetacean records within the survey license area and surrounding region, it cannot be assumed that there is no risk to marine mammals from the proposed survey works. The survey activity which poses the greatest threat to cetacean species is the underwater noise levels produced by the survey equipment. However, these levels have been kept within an acceptable range as described by (Southall et al., 2019). Survey vessels will generate some subsea noise in the marine environment from engine noise and dynamic positioning thrusters. Shipping noise is typically within the 50-300 Hz frequency band and is the dominant noise source in deeper water (DECC, 2011). Propellers on vessels all have the potential to produce cavitation noise. This sound is caused by vacuum bubbles that were generated by the collapse of bubbles created by the spinning of the propellers. There are a large number of cetacean species that have been previously recorded within the survey license area, therefore, the potential for a collision between the survey vessel or equipment and marine mammals must also be factored in as a potential risk. All of this considered, the speed of the survey vessel will be at a low speed at which cetacean species will be able to move away from the area with no pressure from the vessel. Mitigation measures will be in place to ensure no harm on any cetacean species from the proposed survey works.

Turtles

Although there have been several leatherback turtle sightings proximate to the survey license area, the potential for impact on this species is incredibly low. This is due to the date of the majority of sightings, of which most occurred over 20 years ago, and also due to the relatively limited scale and duration of these surveys. The only potential for impact to this Annex IV species is by collision with the vessel of equipment over the duration of the survey works, which as previously stated are temporary. The proposed works do not offend the system of strict protection of turtles under Article 12 of the Habitats Directive.

Otters

Impacts to otters can occur as a result of permanent loss of breeding or resting sites, habitat loss, disturbance/displacement, and injury/mortality. The desk-based study with the aid of NBDC data showed that otters have been sighted in the last 10 years (2017) in intertidal habitats located in proximity to the to the proposed survey area (NBDC, 2023). No otters or otter holts were noted during the site assessments. Out of an abundance of caution, it is considered that there is the potential for the survey works to impact on otter species. Although the likelihood for potential impact is very low, specific mitigation will be put in place to ensure there are no negative impacts on this species during the proposed survey works.

Mitigation Measures

Cetaceans

The mitigation measures proposed for the protection of cetacean species in proximity of the proposed survey works are as follows: Having an ecologist/MMO on site during the marine works. All works will be carried out in compliance with the Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters and as previously stated, the levels of noise produced from the survey works will be kept within an acceptable range as described by (Southall et al., 2019) and the vessel will travel at speed at which cetacean species will be able to deviate course and move away with ease and under no pressure from the survey vessel. The application of these proposed mitigation measures will ensure no significant impacts on cetacean species from the proposed survey works in or in proximity to the survey license application area.

Turtles

The potential risk of impact on a leatherback turtle from the proposed survey works are extremely low, however, the possible impacts must be mitigated against in an abundance of caution. An experienced ecologist (MMO) will be present on board for the duration of the survey works in both the marine and terrestrial stages. An ecologist will be present on-site during beach works. The survey works will aim to be undertaken outside of peak seasons for migration of leatherback turtles into Irish waters. The potential for impacts on this species are minimal and the survey works are temporary, but out of an abundance of caution this specific mitigation will be applied.

Otters

The European otter (*Lutra lutra*) has been previously recorded within the last decade in direct proximity to the proposed survey license application area. Therefore, there is potential for this species to be located foraging within the intertidal zone. To mitigate any potential impact on this species an experienced ecologist/MMO will be in the intertidal/on board and present at all times during the intertidal and marine phases of the proposed survey works. This mitigation is important even though the potential for impact is low and the works are temporary and will be implemented for the duration of the survey works.

Conclusion

This Risk Assessment of Annex IV has taken all species under this annex of the Habitats Directive into consideration. All species have been assessed on whether there is a potential of impact. Any species in which this was possible were further assessed. This narrowed the list down to all cetacean species (including vagrant species), leatherback turtles and European otter. The presence of these species within the region was discussed using historical data (NBDC 2023), the use of this data in combination with the proposed survey works, potential impacts were assessed and finally mitigation measures were specifically designed to protect the species protected under Annex IV of the Habitats Directive (EC, 2023).

There is potential for impact on all of the discussed species from the proposed survey works, however, out of an abundance of caution, and with the strict implementation of the specific mitigation measures provided, the risk of potential impact of these species or their interests has been significantly lowered.

There is no significant risk for potential impact on Annex IV species (Cetaceans, Bats, Turtle or Otter) from the proposed survey works under the Survey License Application following the implementation of mitigation measures.

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