Risk Assessment in relation to European Protected Species and use of Sub-Bottom Profiling for sub-sea cable survey purposes – *Bagh nam Faoileann, Loch Carnan, South Uist*

A survey is proposed to accurately define the location of a subsea communications cable, BT Highland & Islands Fibre Segment 115, within the outer reach of Bagh nam Faoileann, Loch Carnan, South Uist. Sub-Bottom Profiling (SBP) is proposed to detect the cable along a localised section, with the survey area being approximately 800m in length. Determining accurate positioning of the cable at this location will allow progression of a proposed marine farm development in the area by screening out risk to cable integrity or future cable maintenance.

The following document summarises the steps undertaken to assess potential impacts on European Protected Species (EPS) from the proposed SBP survey, identify mitigation measures and carry out quantitative assessment.

1. Baseline Information – cetacean distribution

Information on the presence, density and abundance of cetaceans has been derived from SCANS-III aerial and shipboard study, 2016 (as reported in Hammond et al. 2017).

The relevant SCANS-III survey block for the proposed survey area is Block I. The area of Block I is 13,979km^2 relative to a proposed cable survey area 0.8km in length.

Harbour porpoise, Minke whale and unspecified dolphins (Common or Striped) are identified as present within Block I, at densities of 0.397, 0.0204 & 0.0148 individuals per km^2 respectively and a total respective abundance of 5556, 285 & 206.

While there are concerns regarding the application of data from such a large study area to the very localised scale of this survey, the SCANS-III data has been taken to indicate potential presence of these cetaceans in the general area and density/abundance data used to inform the impact assessment.

2. Alternatives & mitigation measures

As set out in EPS guidance alternatives and mitigation measures have been considered, as follows -

Alternative siting of activity: The location this application relates to is an existing subsea cable. The proposed survey work is to ascertain the exact location of the cable, following its installation in 2014. This is to prevent potential damage to the cable associated with proposed marine farm development in the vicinity. Development of marine farm facilities takes into account many factors including hydrographic suitability, fish health management, environmental interactions and other marine users. Alternative siting has been considered in the site development process to date, with the given location being selected on the basis of the aforementioned factors, and being in an area used for marine farming for many years. The cable is already in-situ, and the location proposed for survey is out-with areas designated for cetacean conservation. As such, alternative siting for the activity has not been considered further.

Alternative methods for carrying out the work: Visual survey methods have been considered, however due to the installation method of the cable, reported to be buried at 0.6 - 1.0m at the survey location, surface observations are not appropriate. The SBP survey method is proposed as a reliable and rapid way to locate the cable position.

Alternative dates/timings: The proposed survey work will be short in duration, anticipated to take 1-2 days to complete. This is proposed to take place in late summer/autumn 2022. This timing is suggested as calm weather is needed to successfully and efficiently complete the SBP survey. Operating in a less favourable season could result in a longer period to complete the works. During the survey a Marine Mammal Observer (MMO) will be present on the survey vessel, and SBP activity will be ceased should cetaceans be sighted within the 500m mitigation zone. This will ensure flexibility in terms of survey activity timing and minimise the risk of activity coinciding with cetacean presence in the area.

'Do nothing' approach: By not completing the proposed survey, the as-laid location of the subsea fibre communications cable will not be accurately determined. This would mean that the proposed marine farm development could not be progressed without undue risk to the cable. This risk would be in terms of potential direct damage from installation of moorings or disruption of future cable maintenance / repair as working space could be constrained by mooring equipment. This could have a significant impact on cable functionality, and therefore it is considered preferable to complete a short-duration survey to ascertain the accurate cable location so risk of this may be avoided.

Mitigation measures: In addition to the MMO and 500m mitigation zone for postponement of SBP activity should a cetacean be sighted, the survey work will be completed in a shore-out direction to minimise the potential for diversion of EPS towards shore. The vessel will therefore commence work at the western-most end of the survey area, closest to shore, and work east towards open water.

The above measures have been developed as part of this assessment process, and we believe represent a responsible application of mitigation and good practice in relation to the proposed SBP survey.

3. Quantitative assessment

Based on the above information a quantitative assessment has been completed for the proposed survey location. This assumes a 1km radius of effect from the SBP unit, which is believed to be worst-case representation of potential effect. The assessment does not subtract land-area from the calculation, or the impact of sound-shadow, and so is very much a worst-case representation of the impacted area around the activity.

The table below summarises the calculated sea area and resulting estimate of potential cetacean impacts:

Species	Impact area km^2	Animal density per km^2	Abundance	# Individuals affected	% of Pop'n affected
P.phocoena (Harbour porpoise)	3.14	0.397	5556	1.25	0.02%
B.acutorostrata (Minke whale)		0.0204	285	0.06	0.02%
D.delphis / S.coeruleoalba (Common or Striped dolphin)		0.0148	206	0.05	0.02%

In terms of cumulative assessment we are not aware of other activity currently licensed in the proposed area that would interact in terms of potential effect on EPS; therefore cumulative impact has not been considered further.

4. Conclusion

Assessment suggests that less than two individual Harbour porpoise may be intermittently affected by the proposed works, and less than one Minke whale or Common / Striped dolphin. These figures equate to 0.02% of the populations within the region (Block I).

It is important to note the worst-case approach that has been adopted for the purposes of the assessment:

- SBP activity is proposed to take place over a limited time span of 1-2 days, therefore any effect will be intermittent and short-lived
- Land area has not been subtracted from the area-based estimates of number of cetaceans potentially affected by the activity
- Mitigation measures with an MMO on board the survey vessel, postponement of SBP activity should an EPS be identified within 500m of the vessel and shore-outwards survey direction will reduce the likelihood of any interaction with EPS

References

Hammond et al. (2017). Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys.

Marine Scotland (July 2020). The Protection of Marine European Protected Species from Injury and Disturbance – Guidance for Scottish Inshore Waters