

Marine Mammal Observer's Report

01040-SSE-IRL-WIND

In

Arklow Bank, Ireland

By

XOcean

For

SSE

09/07/2024 – 19/08/2024

MMOs:

**09/07/2024 – 25/07/2024; 10/08/2024 - 16/08/2024: Manon Wells Jesus
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SUMMARY

XOcean, on behalf of SSE conducted a geophysical survey off the coast of Ireland for Arklow Bank Wind Park between 09/07/2024 and 19/08/2024.

The purpose of this report is to outline the observation and mitigation measures taken to ensure no disturbance or injury has been caused to the European Protected Species (EPS) present in the survey area under the DAHG, 2014 guidelines. It will report on the implementation of mitigation for the activities and equipment employed, any marine mammal encounters, survey conditions and assess the compliance with DAHG, 2014.

For the duration of the survey one dedicated Marine Mammal Observer (MMO) undertook mitigation monitoring prior to any operations.

Table 1. Summary of the mitigation undertaken across all phases of the work.

Summary of Daily Activities	
Survey Type	Bathymetric and SBP Survey
Survey Area	The Irish Sea approximately 6-13km off the north Wicklow coast.
Survey Dates	09/07/2024 – 19/08/2024
Mitigation Procedures used	DAHG, 2014 – ‘Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters’
Staffing level (MMO/PAM)	1 MMO
Total time source was operational	1707 hours 56 minutes
Total time of observations – MMO	21 hours 46 minutes
Total time source was operational during MMO observations	6 hours 57 minutes
Total number of source events	14
Total number of soft starts	8
Total number of non-compliances	1
Total number of sightings	2
Total number of mitigation actions required	2



INTRODUCTION

1.1. SURVEY AND LOCATION

The purpose of this survey was to update the site bathymetry and to add to ongoing sediment dynamic studies in the Arklow Bank Wind Park area. To do this, XOcean used unmanned survey vessels (USV) fitted with suitable Multibeam Echosounder (MBES), Sub Bottom Profiler (SBP), Side Scan Sonar (SSS) and Magnetometer to perform a geophysical survey to meet the survey requirements.

When a suitable weather window was selected, the USVs were launched on shore from south pier of Arklow marina and were followed out to the survey area by a support vessel carrying the MMO for observations.

The project area was located approximately 6 - 13km off the north coast of Wicklow. The survey included the existing Arklow Bank Wind Park. The total area covered 133.4km². The location of the survey can be seen in Figure 1 below.

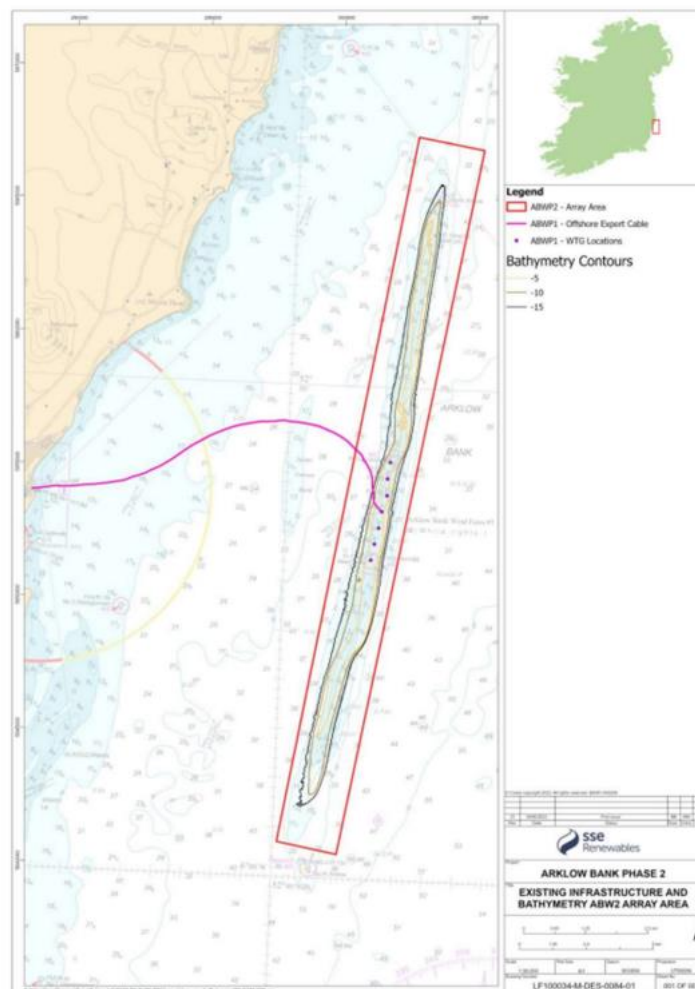


Figure 1. Survey location (Evans, 2024).



Table 2 outlines the marine mammals that may be seen in the survey area.

Table 2. Summary of marine mammal species which were identified in the EPS risk assessment as being common in the Arklow area.

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS (IUCN, 2020)
Family Balaenopteridae		
Fin whale	<i>Balaenoptera physalus</i>	NT
Family Delphinidae		
Bottlenose dolphin	<i>Tursiops truncatus</i>	DD
Risso's dolphin	<i>Grampus griseus</i>	DD
Short-beaked common dolphin	<i>Delphinus delphis</i>	DD
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>	LC
Long-finned pilot whale	<i>Globicephala melas</i>	DD
Family Phocoenidae		
Harbour porpoise	<i>Phocoena phocoena</i>	VU
Family Phocidae		
Common or Harbour seal	<i>Phoca vitulina</i>	LC
Grey seal	<i>Halichoerus grypus</i>	LC

All above mentioned species are likely to be seen in coastal waters off the east coast of Ireland. However, only a few would be commonly seen within the survey area. The survey was conducted in shallow waters close to shore with the furthest point reaching 13 km from the coast. Marine mammals likely to be seen at this time of the year within the survey area are coastal marine mammals such as harbour porpoises (*Phocoena phocoena*), common or harbour seal (*Phoca vitulina*), grey seal (*Halichoerus grypus*), bottlenose dolphin (*Tursiops truncatus*), and the short-beaked common dolphin (*Delphinus delphis*) (Shirihai & Jarrett, 2006).

1.2. MITIGATION REQUIREMENTS

The following methods were applied to all activities carried out in association with sub bottom profiling work in the Arklow Bank Wind Park under the Foreshore License.

As per the license, all surveys followed ‘Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters’ (DAHG 2014).

A pre-watch period of at least 30-minutes duration was required prior to the operation of the Sub Bottom Profiler (SBP).

During visual pre-watch searches, if a marine mammal was observed within the mitigation zone, the start of the equipment activation (or soft start) was delayed until the animal had not been sighted within the mitigation zone for at least 30-minutes.

The MMO maintained a look out during breaks in operations and advised the survey crew if marine mammals were detected within the mitigation zone when on watch during daylight hours. Use of

the sound source could continue at full power without a pre-watch monitoring period and soft-start, if the break in operations lasted less than 10-minutes and there were no marine mammals in the mitigation zone. If the break in operations lasted 10-minutes or more, a 30-minute pre-watch monitoring period and full soft-start were required before operations could resume.

Soft-starts conducted over a 20-minute period were performed to engage ‘full power’ by increasing the frequency over time or power for the SBP for testing or data acquisition.

Table 3. Mitigation measures summary.

Source mitigation zone(s)	500m
Pre-watch period	30-minutes for waters <200 m depth 60-minutes for waters >200 m depth
Soft start length	20 minutes
Soft-start delays	30-minutes
Species covered	All marine mammals
Special requirements	N/A

2. EQUIPMENT AND METHODS

2.1. VESSEL DETAILS

A support vessel was utilized during the project to carry out various roles including providing a platform for the MMO pre-shoot watches. The vessel – *AMS Adventure* (Figure 3) was 19 meters in length and had a beam of 6 meters. The call sign for AMS Adventure is 2GGG9 and MMSI: 235097139.





Figure 2. AMS Adventure support vessel.

2.2. EQUIPMENT AND SOUND EMISSIONS

To complete this survey XOcean used SBP's to acquire the data. To provide SBP data an Innomar Medium Parametric System was mounted to the USV, features of the USV can be seen in Figure 3 and below in Figure 4. The SBP system was configured to provide at least 10m of penetration, operating at 8 kHz, this was also its maximum operating volume and peak frequency. The objective for the SBP was to collect data from 10-15m below the seabed, determine bedrock, identify features, obstructions and geohazards. For the soft start the SBP was switched on at a low ping rate and then over 20 minutes it was gradually increased to the operational setting. Once the SBP was at full power this operational settings remained consistent for the full duration of the survey.



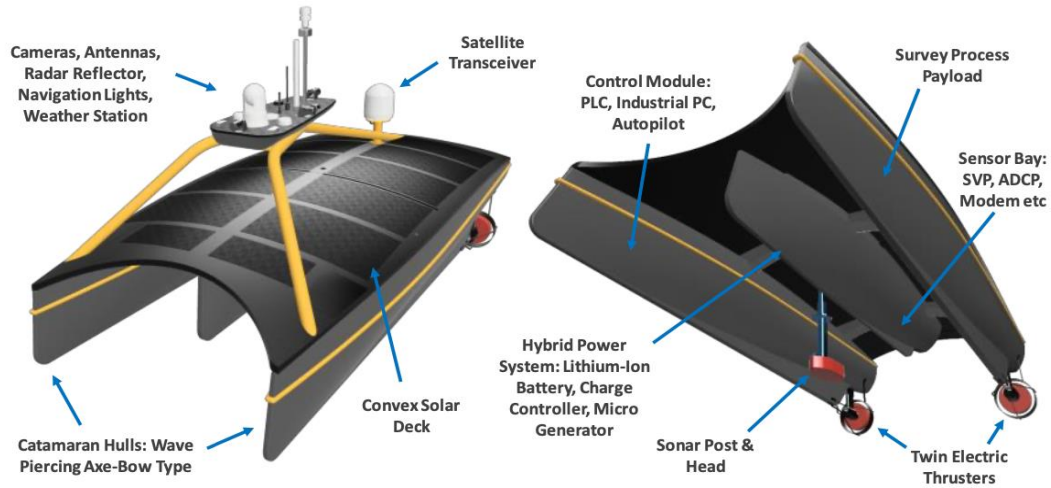


Figure 3. Features of the USV (Bradford, 2022).



Figure 4. USV X18 in transit at skerries harbour.

Table 4. Sound source summary.

Type of source	Sub-bottom Profile
Maximum operating volume	8 kHz
Peak frequency	8 kHz

2.3. MARINE MAMMAL SURVEY METHODS

Marine mammal watches were conducted visually, during the periods before each daylight soft start and test. This was achieved by scanning the sea with a combination of the naked eye and ‘7x50mm’ binoculars.

The AMS Adventure provided few potential positions for MMO observations. However the foredeck of the vessel, is slightly raised and has a secure spot for almost 360° visibility. This portion of the deck is 220cm above sea level. The observer used this spot for all observations.

3. RESULTS

3.1. OBSERVER EFFORT AND SIGHTING CONDITIONS

Overall, a total of 21 hours and 46 minutes of visual monitoring was carried out. Visual monitoring conducted during the time the source was active amounted to 6 hours and 57 minutes. The overall time that the source was active during the survey was 1707 hours and 56 minutes.

Throughout the survey a range of weather conditions were recorded on the Effort forms and these variables should be taken into consideration when attempting to record the distribution and occurrence of marine mammals.

Weather was a main factor in contributing to the successful launches of the USV’s. A ‘toolbox talk’ was held before every launch to decide whether conditions would be suitable. Therefore, watches were only done when the weather was slight, and the largest swell throughout the survey was <2m.

Wind direction was recorded from all points of the compass during the survey, the predominant winds came from the NE and SE (50% & 25 % respectively).

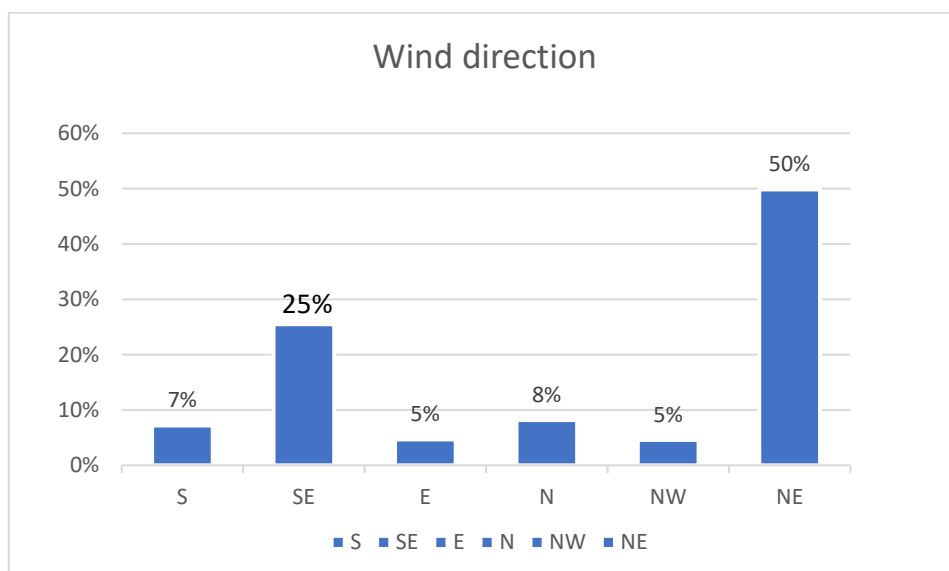


Figure 5. Wind direction during the survey.

Wind force was recorded from 0 to 5, using the Beaufort scale, with the dominant force being force 2 (26,4% of the time). Force 3 and below, along with other variables being of low ratings,

is typically considered good conditions to sight marine mammals (this occurred for approximately 72,5% of the time). Overall, wind force was recorded as being above force 3 for over 27,5% of the recorded time.

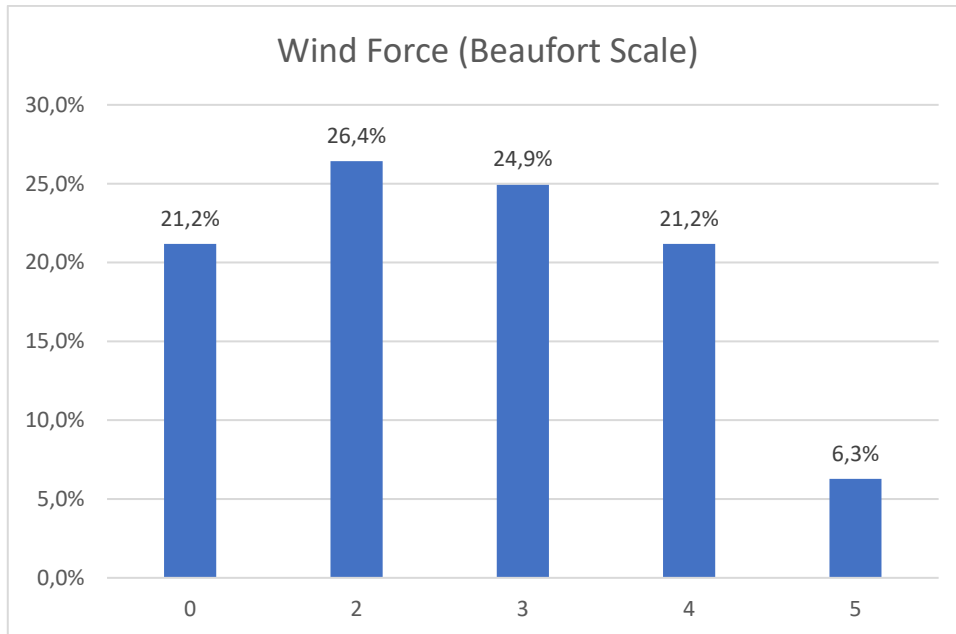


Figure 6. Wind force during the survey.

Sea state was categorised by slight (74%) and choppy (26%), with swell of <2m throughout the survey time.

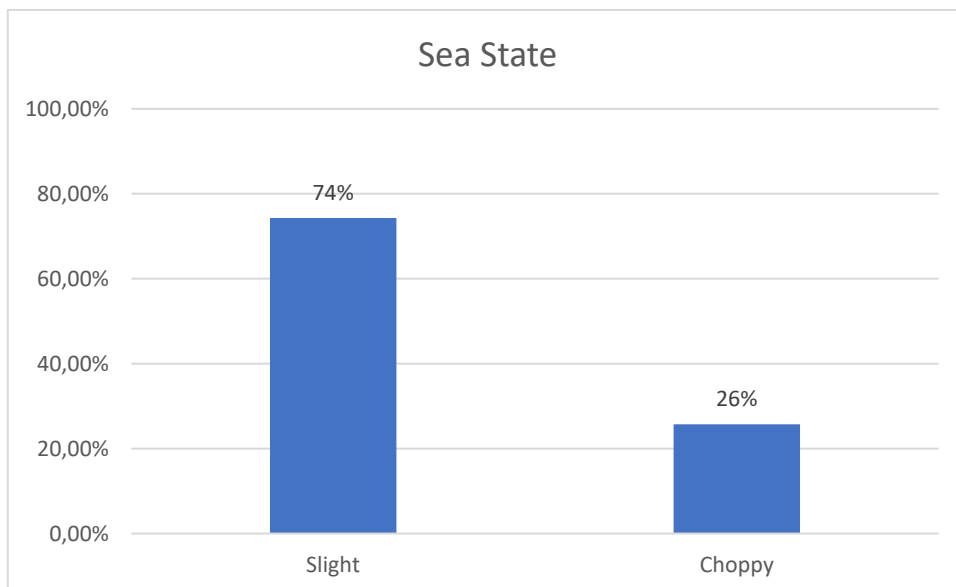


Figure 7. Sea state during the survey.

Overall visibility was good (5 Km+) for 95% of the time and sun glare was recorded as none for 62,1%, strong 16,6%, weak 16,2%, and variable for the remaining 5%.



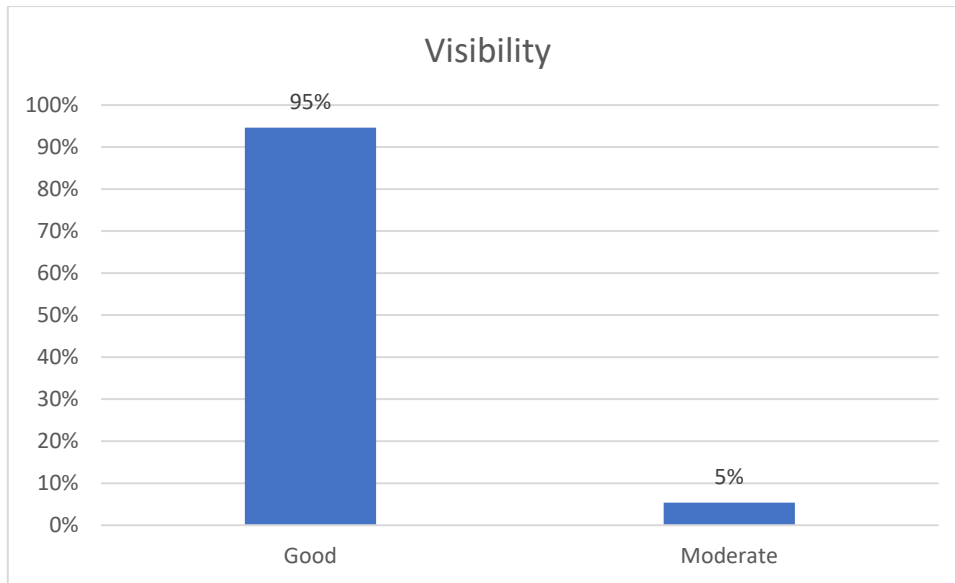


Figure 8. Visibility during the survey.

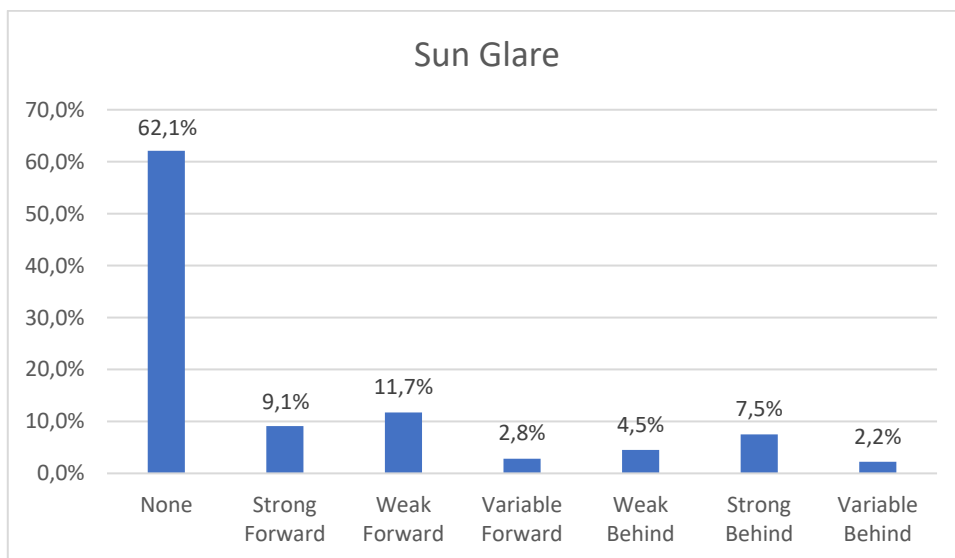


Figure 9. Sun glare during the survey.

The greatest difficulty was differentiating buoys for lobster pots from seals. Local fishermen use black/white square drums as marks in the water that are easily mistaken for a seal bottling from over 300m.



3.2. DISTRIBUTION AND OCCURRENCE

During the survey one MMO kept a vigilant watch prior to all daylight source activity. There were 2 visual sightings during the survey.

A seal was spotted during the first 2 minutes of prewatch on the 20th of July. It was not sighted surfacing again and soft start was only delayed a couple minutes.

On the 11th of August a seal was sighted 1 minutes after MMO had given all clear for soft start. Due to communication delays, the soft start had not yet began, and MMO was not made aware of the delay until full power was reached. This did result in a non compliance.

Table 5. Marine Mammal Sightings.

Sighting Number	Common name	Scientific name	Minimum number of individuals	Closest distance to the source	Mitigation Action Required
1	Unidentified Seal Species	<i>Phocoena sp.</i>	1	150m	A 2minute delay to soft start
2	Unidentified Seal Species	<i>Phocoena sp.</i>	1	235m	Accidental non-compliance due to slow communication.

COMPLIANCE WITH GUIDELINES

3.3. SOFT-STARTS

In total there were 14 source events, of which all 8 were soft starts. Operations on soft starts were communicate to the MMO and support vessel through group call via the USV operators on board. The soft start only went ahead after the MMO had advised to do so.

X-08 and X-09 did not have a SBP and did not require pre-watches or soft starts prior to launch. However, MMO maintained on watch during the launches of these USVs as per client request.

3.4. MITIGATION ACTION

During the prewatch on the 20th of July a seal was spotted traveling in the opposite direction of the vessel 150m of the port bow. The animal was only spotted briefly as it was travelling, and the vessel maintained its course out to open water. The soft start was delayed until 30 minutes after the animal was last seen.

On the 11th of August a seal was sighted within the mitigation zone 1 minute after the MMO had given all clear for soft start. The MMO asked the operator on deck if the soft start had begun, and the operator responded that the process had already begun. MMO observed the seal for 10mins as it travelled across the mitigation zone and away from the back of the vessel. With slow communication, it wasn't until after the soft start was completed and the USV times sent back to the MMO did the MMO realise the soft start didn't start immediately when she asked for it resulting in this accidental non compliance.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. CONCLUSIONS

In conclusion, Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters, 2014 were compiled with well throughout the survey.

Communications with the team were made through Microsoft teams and WhatsApp. Generally, communication between the support vessel, MMO and surveyor team was very good. This was due to the understanding and toolbox talks done between the MMO and the team on the vessel, ensuring requirements were clearly stated prior to each launch and time estimates given regularly, but the idea of waiting for the MMO's all clear prior to beginning soft start being consistently reinforced. This did ensure all soft starts were the appropriate length but the relay between MMO and crew and the survey team onshore, caused delays that led to an accidental noncompliance.

During the survey there were a few technical issues with survey equipment which caused survey equipment to come back to shore and be relaunched, this extended the length of the survey, therefore extending the period of time that excess noise was in the environment.

4.2. RECOMMENDATIONS



XOcean performed the SSE survey very efficiently. The MMO only suggestion would be to use a better form of communication. Instant communications can make a big difference in ensuring compliance with the legislation. Using a group call made it hard for the support vessel to stay in contact with the full team on shore, and relay messages efficiently. Communication of when soft start was completed may have been communicated more efficiently with the use of VHF radios.

4.3. REFERENCES

Bradford, FB, Davenport, TD, 2022 ‘00555-SSE-IRE-WIND_OPS_MS_Rev01’, p1-14

Evans R., 2024 ‘USV Operations Method Statement 01040-SSE-IRL-WIND’

Shirihai, H. & Jarrett, B. (2006): Whales, dolphins and seals. A field guide to the marine mammals of the world. A & C Black, London, UK.