Seazou Aquaculture Ltd Seaweed Farm

Marine Mammal Entanglement Protocol

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1 Introduction

This document will set out a general marine mammal entanglement protocol for the 25 hectare Seazou Aquaculture Ltd seaweed farm located off the coast of the Pennard Cliffs, east of Oxwich Bay, in the Bristol Channel, south of the Gower Peninsular.

The location of the proposed farm is shown in Figure 1 and Figure 2 below.

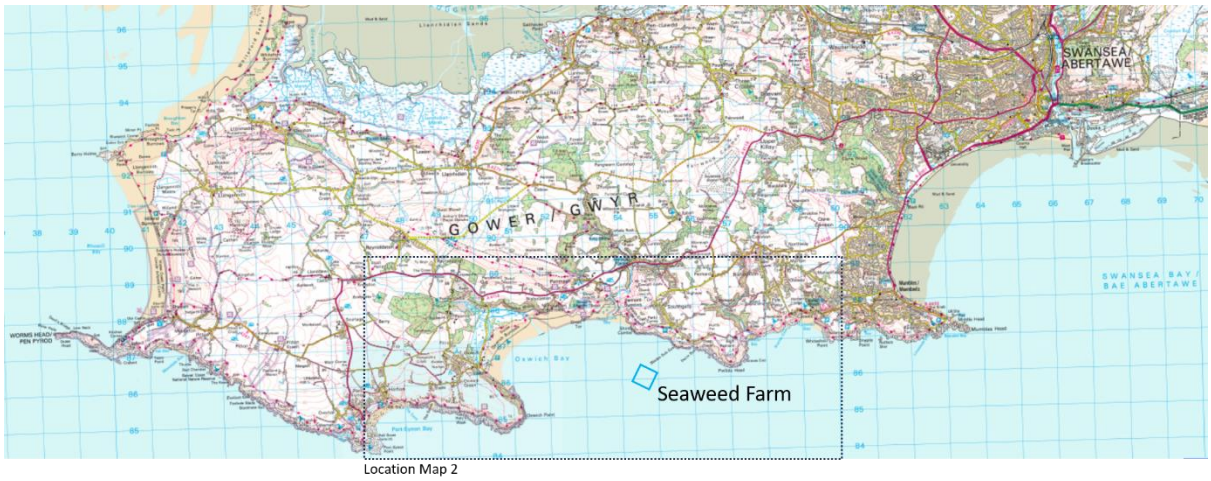

Figure 1: Seaweed farm location map 1

Figure 2: Seaweed farm location map 2

The first part of the document outlines a plan for regular monitoring of the site including the recording of any protected species seen around the site. The plan will outline how employees will be briefed on the proper protocols to observe marine mammals around the site, how to rescue entangled animals and how to report an entanglement incident.

The second part of the document outlines an adaptive management plan. This will include the immediate protocols to follow if an animal is found entangled in the farm, a process for reporting

said entanglement, and the implementation of new practices that help mitigate entanglement incidents from reoccurring including consultations with relevant bodies, i.e., Natural Resources Wales.

The farm is located at the following grid reference.

Grid Reference	Eastings	Northings	Latitude	Longitude
SS 54327 85918	254327	185918	553288	-4.1025395

Table 1: Farm location coordinates

2 Relevant Species

Using the Wales Marine Planning Portal two species of marine mammals have been identified as frequenting Southgate Bay or areas around the bay at a 0.0-0.1 per hour ratio. These mammals are Risso's dolphins and Harbour Porpoise. After consultation, Natural Resources Wales has also identified Minke Whales, Leatherhead Turtles, Loggerhead Turtles, Basking Sharks, Atlantic Grey Seals, Bottlenose Dolphins and Common Dolphins as potentially vulnerable to entanglement. Employees working on the farm will familiarise themselves with these species so that any species found near or interacting with the site can be carefully recorded.

3 Risk to the Species

- Harbour Porpoise - LOW - This is due to echolocation and a preference to faster moving tidal areas.
- Risso's Dolphin - LOW - This is due to echolocation and a preference to faster moving tidal areas.
- Consultation with the Marine Advice sector of the NRW has shown Bottlenose Dolphins, Common Dolphins and Atlantic Grey Seals frequent the area. Basking Sharks, Leatherhead Turtles, Loggerhead Turtles and Minke Whales have also been sighted but are a far less common visitor, Keeping the risk - LOW -

Other species such as seals may visit the site due to curiosity and the farm creating a new marine ecosystem. All ropes will be kept taught and moored to minimise entanglement risk. The site will also force a reduction in boat speeds around the area minimising risk to mammals visiting the area. 'Ghost fishing gear' becoming attached to the site will be made a priority for removal.

4 Additional Justification

- Limited data is available on marine mammal entanglement in macroalgae aquaculture due to the nature of it being a relatively new industry. Many animals use the kelp forests as a form of shelter or habitat in the wild.
- Studies of entanglement in shellfish farms show that globally the risk has been low.
- A major cause of entanglement in aquaculture sites has been found to be opportune feeding. As seaweed is not a natural food for visiting mammals then entanglement risk remains low.
- The site will increase biodiversity in the area and so habitual visiting by local mammals may occur with risk of entanglement remaining low.
- The great number of lines and buoys on the site will deter cetaceans from visiting as it would make it too difficult to forage effectively.
- 'Throughout the centuries-long history of seaweed farming, there have been no documented reports of marine mammal entanglement in the rope infrastructures that farmers use for growing seaweed.1, 2 Because absence of evidence does not necessarily

equate to absence of risk, the seaweed industry's proactive efforts will help reduce that risk as much as possible.' (Quoted by WWF)

5 Monitoring Plan

A monitoring plan and adaptive management plan will be essential to understanding and reducing the risk of any entanglements that may occur in the set up and ongoing works involved in the running of the farm.

The monitoring plan has 4 parts in all.

1. Training
2. Surface Inspections
3. Subsurface Inspections
4. GPS Monitoring

It is important to state that these operations will not reduce the risk of entanglement but will alert us if interactions with the site occur. All data collected will be shared with Natural Resources Wales Advisory in the form of an 'Annual Entanglement Inspection Report'. If an entanglement does occur it will be reported immediately.

The Annual Entanglement Inspection Reports will include:

- Summaries of any entanglement incidents that have occurred, (in addition to the immediate incident report);
- Details of all inspections;
- Date & time, duration, conditions, survey type; (surface, subsurface, or GPS), vessel used (if any), number of inspectors, any identified entanglement hazards;
- Actions taken to remedy identified hazards; and
- Marine mammals or other large megafauna identified in proximity to the farm area, in accordance with Marine Mammal Observer training: position of animal, species ID, number of animals, number of sightings, behaviour.

6 Training

Marine mammal entanglement monitoring training is essential to gain a better understanding of how mammals will interact with the farm and how best to deal with an entanglement if it should occur. In order to adhere to these protocols effectively, one member of the Seazou Aquaculture Ltd crew will complete both the following two training courses:

- Marine Mammal Medic Training Course offered by The British Divers Marine Life Rescue

https://bdmlr.org.uk/marine-life-medic-mmm-training-course

- Marine Mammal Observer Training Course offered by JNCC

https://jncc.gov.uk/our-work/marine-mammal-observer-training

These courses are designed to give farm operators a better understanding of how mammals interact with their farm as well as offering comprehensive guidance in entanglement procedures.

7 Surface Inspections

Site visits are conducted once every three weeks, decreasing to once every four weeks if monitoring is successful. The vessel type and contactor are yet to be confirmed but will be departing from Swansea Marina. During the site visits the following checks will be undertaken:

- Checking and adjusting of rope tension;
- Checking wear of ropes;
- Checking for displacement of line buoys;
- Checking for marine debris (ghost fishing nets); and
- Checking for mammals in the area (via binoculars).

All of these checks will determine whether an entanglement has taken place and once the checks are complete and no entanglement has occurred the site will be at a point of low risk again. If an entanglement has occurred immediate action will be undertaken by the appropriately trained crew member.

8 Subsurface Inspections

Site visits to be conducted once every 6 weeks. Changing to once every 4 weeks to align with surface inspections should they prove successful.

- A (UROV) underwater remote operated vehicle or 'diver' will inspect all the mooring and seeded lines.

Subsurface inspections can be determined by the elements. With this in mind site visits will be carried out the next day in which conditions allow. The 'diver' or 'UROV' will be checking for debris attached to the lines or an entanglement. Both of which, if discovered, will be removed immediately using the correct protocol. These checks cannot prevent entanglement but will give us vital data on frequency of debris attachment and possible entanglement to strengthen the adaptive management plan.

9 GPS Monitoring

GPS trackers will be fitted to the four corner marker buoys of the boundary lines as well as the two central marker buoys of the boundary lines. These will alert when any abnormal movement in the lines has been sensed and an immediate visual check will take place.

These trackers can alert the Seazou Aquaculture Ltd crew remotely of any interference on the site peripheries. Year 2 and 3 will see underwater cameras installed in and around the seeded lines. This will give regular visual data of interactions within the site by mammals that can be logged and reported back to NRW in the Annual Entanglement Inspection Report.

10 Adaptive Management Plan

10.1 Entanglement incident:

To be updated once training is complete.

10.2 Identification of relevant protection organisations:

Natural Resources Wales, (NRW) Tel. 0300 065 3000 email - icc@naturalresourceswales.gov.uk

Cetacean Stranding Investigation Programme, (CSIP) Tel. 0800 6520333

British Divers Marine Life Rescue, (BDMLR) Tel. 01825 765546 email - info@bdmlr.org.uk

Welsh Marine Life Rescue, (WMLR) Tel. 01646 692943

Royal Society for the Prevention of Cruelty to Animals, (RSPCA) Tel. 0300 1234 999

10.3 Reporting trapped or deceased species:

In the event of a live animal becoming entangled BDMLR, RSPCA or WMLR will be contacted immediately. The incident will then be reported to NRW and CSIP.

In the event of a deceased animal being discovered, NRW and CSIP will be contacted immediately with work ceasing on the farm until the animal has been removed by the appropriately trained crew member. A sample of macroalgae may need to be tested in order to rule out any disease being present.

In all cases of entanglement, a follow up 'incident report' will be made to decipher what drew the animal to the site, how the animal became entangled and what steps can be taken to avoid the incident occurring again.

11 Incident Report

Details found in the 'incident report' will be as follows:

- Location; (GPS coordinates)
- Time and Date the entanglement was identified;
- Status; (alive or dead upon discover)
- Species; (specific ID characteristics)
- Estimated size;
- Condition;
- Description of entanglement;
- Post discovery actions and results;

12 Occurrence of Regular Entanglement

Should entanglements become a regular incident at the site, the layout of the farm and changes to protocol will need to be made, for example:

- Underwater cameras placed in the specific entanglement areas to observe how the entanglement is occurring.
- Acoustic deterrents (dolphin pingers) added to the site.

If entanglements continue to occur frequently, then all farm infrastructure will be removed from the water. Discussions with Natural Resources Wales will then take place on how best to move forward to prevent future entanglements, and ensure a safely operated farm.

13 Conclusion

- The risk of entanglement on the macroalgae site is Low
- To minimise risk, training and regular inspections will take place
- All data collected during inspections will be logged physically and recorded digitally
- Any ghost fishing gear to be removed from site immediately upon discovery
- An annual 'Entanglement Inspection Report' will be made and submitted to NRW
- An adaptive management plan is in place should regular entanglement occur

14 References

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