

Seazou Aquaculture Ltd Seaweed Farm



Navigation Risk Assessment

Contents

1	Summary	3
2	Description of Marine Environment.....	3
3	Description of Development	3
4	Analysis of Marine Traffic.....	6
4.1	AIS Data Review	6
4.2	Output of Local Stakeholders Consultations	9
4.3	Consultations Conclusions	11
5	Hazard Identification	12
6	Hazard Log and Risk Assessment	14
7	ALARP Declaration.....	18
8	Risk Control Log.....	18
9	Search and Rescue Overview and Assessment	19
9.1	Seaweed Farm Layout and Access	19
9.2	Search and Rescue Helicopters	19
9.3	His Majesty’s Coastguard (HMCG) Stations	20
9.4	Royal National Lifeboat Institution (RNLI)	20
10	Emergency Response Overview and Assessment	20
11	Monitoring and Maintenance	20
12	Marking and Lighting	21
13	Decommissioning	21
14	Appendix A	22

Seazou Aquaculture Ltd Seaweed Farm Navigational Risk Assessment

1 Summary

This report outlines the navigational risk assessment for the 25-hectare Seazou seaweed farm located off the south coast of the Gower Peninsular, on the east side of Oxwich Bay, off the shoreline below the community of Southgate.

The seaweed farm development is deemed to be a small-scale development. As per the guidance outlined in the MCA document 'Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI)', the navigational risk assessment submission includes:

- Analysis of marine traffic
- Hazard list and risk assessment
- Risk control list
- Search and rescue overview
- Emergency response overview

2 Description of Marine Environment

The Seazou seaweed farm is located in the Marine Charter Area (MCA) 25: Gower and Helwick Coastal Waters. The marine area is located south of the Gower Peninsular Area of Outstanding Natural Beauty (AONB).

The marine environment exhibits a significant tidal range and the seabed offshore comprises a mixture of limestone, mudstone, sandstone and halite bedrock overlain by Halocene- derived sands and gravels.

The MCA includes a number of protected areas, including Sites of Special Scientific Interest (SSSI), Special Protected Areas (SPA), Special Areas of Conservation (SAC), Ramsar and Mine Conservation Zones. The seaweed farm location, however, does not directly interface with any designated protected areas.

Section 4 below outline the current marine traffic usage of the area around the seaweed farm location.

3 Description of Development

The primary farm infrastructure will comprise 60no 100m longline arrays. The seeded longlines will be suspended at 2m below the surface of the water from floating mooring buoys spaced at 20m along each longline. Adjacent pairs of longlines will be anchored to the seabed by two 700kg anchors.

The floating mooring buoys will create an obstruction to all vessels using the area and the submerged seaweed longlines will also pose a risk to vessels with deeper keels. The farm infrastructure will be marked by an arrangement of marking buoys arranged as per Trinity House's specifications, see Section 12 and the farm's location will be added to the relevant maritime charts.

Figure 2 and Figure 2 illustrate the location of the seaweed farm in relation to the Gower Peninsular, Swansea and more locally, Oxwich Bay and Southgate. Figure 3 illustrates an aerial view of the seaweed farm in relation to Southgate and Pwlldu Head.

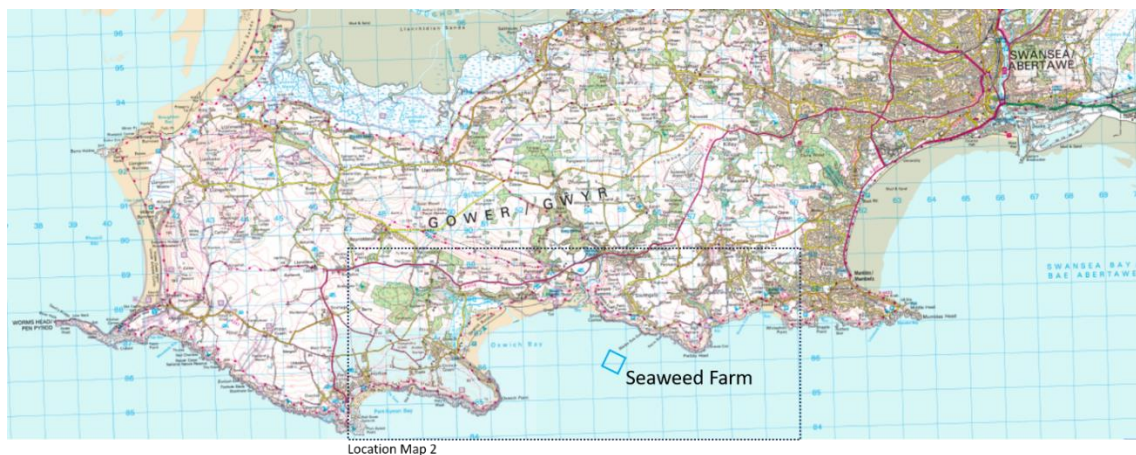


Figure 1: Seaweed farm location map 1



Figure 2: Seaweed farm location map 2



Figure 3: Seaweed farm aerial view

Figure 4 illustrates the proposed farm location overlain on a nautical chart and illustrates the depth of the water at the farm location, the proximity of the knoll sandbank to the west and the proximity of the subsea cables to the south. The farm has been located 200m away from the subsea cable as advised by Trinity House.

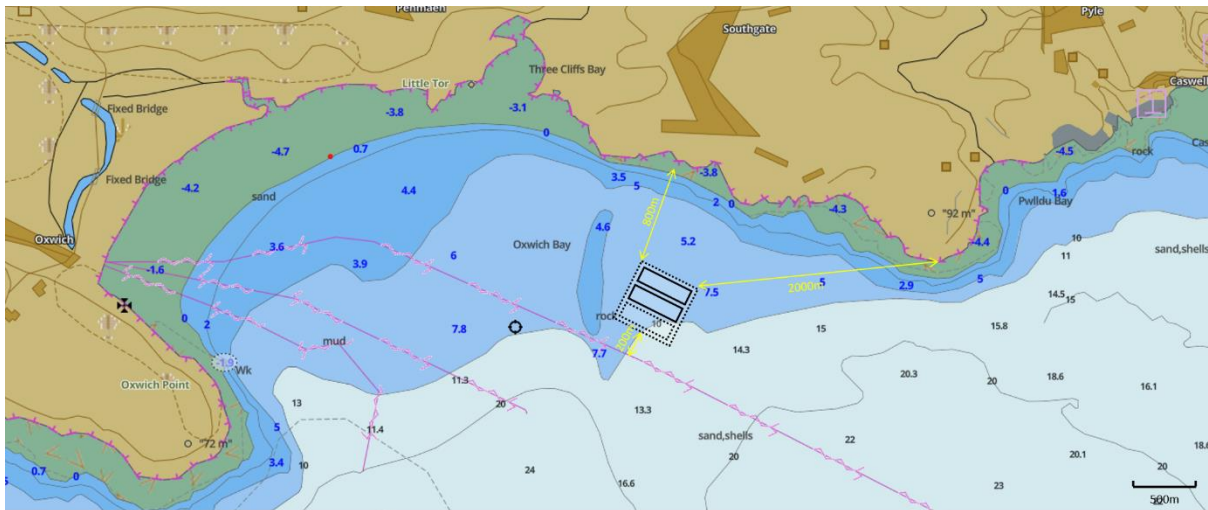


Figure 4: Farm location on navigational chart

The farm location falls outside of a Statutory Harbour Authority and therefore the responsibility for safety of navigation falls under the jurisdiction of the Maritime and Coastguard Agency.

Figure 5 illustrates the draft design for the layout of the infrastructure required for the seaweed farm including the seaweed growing lines, the floating buoys and the anchor weights.

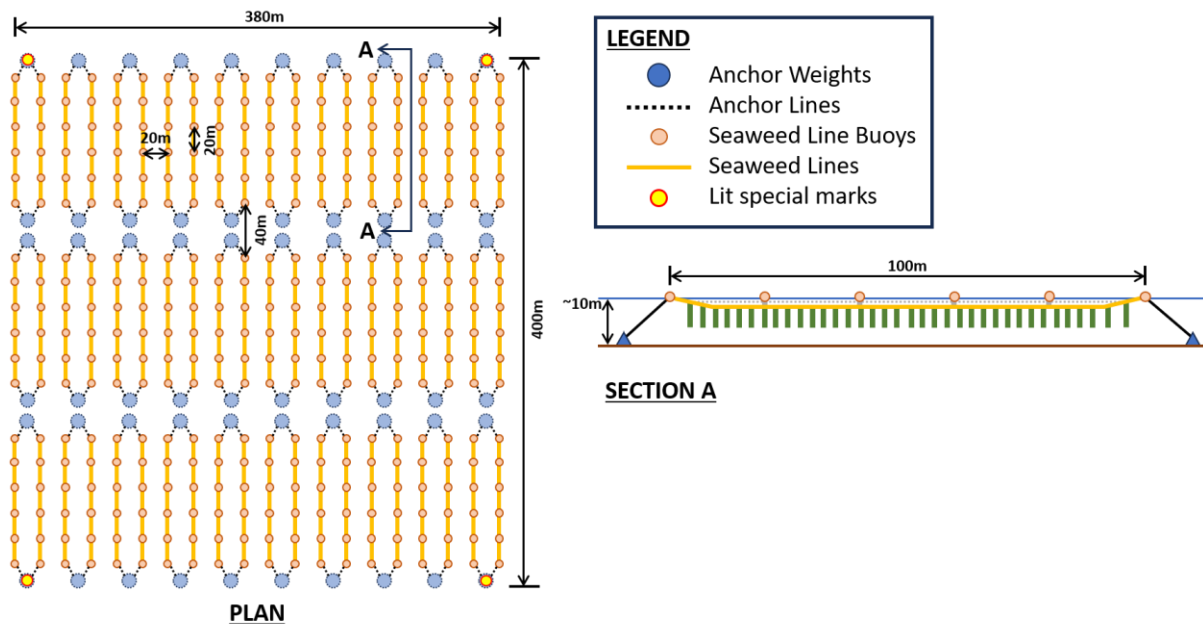


Figure 5: Seaweed farm infrastructure layout

The detailed design of the seaweed farm infrastructure will be done by Kelson Marine Engineering who have experience of designing the infrastructure and anchoring systems for seaweed farms around the UK, to the required load cases, combinations and storm events. The seaweed farm infrastructure will be anchored to the seabed using suitably sized anchor weights.

4 Analysis of Marine Traffic

An analysis of the existing marine traffic has been done to assess existing vessel movements and densities. This then informs the hazard log and navigational risk assessment. The analysis includes a review of the following data sources:

- The Marine Traffic AIS Density Map for 2022;
- The APBmer 2017 detailed AIS dataset; and
- Output from consultations with Swansea Port.

4.1 AIS Data Review

The Marine Traffic AIS Density Map for 2022 provides a colour coded distribution of vessel routes measured in routes/0.15m²/year. This dataset however does not provide a breakdown of the types of vessels using the routes.

The APBmer 2017 detailed AIS dataset is outdated, however it does provide vessel movements broken down by vessel types.

A comparison of the overall densities from the two datasets is illustrated in Figure 6. The comparison illustrates that there are similarities between the 2017 and 2022 densities and it is therefore proposed that the detailed 2017 dataset can be used to infer the breakdown of vessel types shown in the 2022 dataset. The breakdown of the vessel types is illustrated in Figure 6.

This assumption relies on there not being a significant change in vessel routes and distribution between 2017 and 2022. This is verified by the output of the consultation with Swansea Port.

Seazou Seaweed Farm – Navigational Risk Assessment

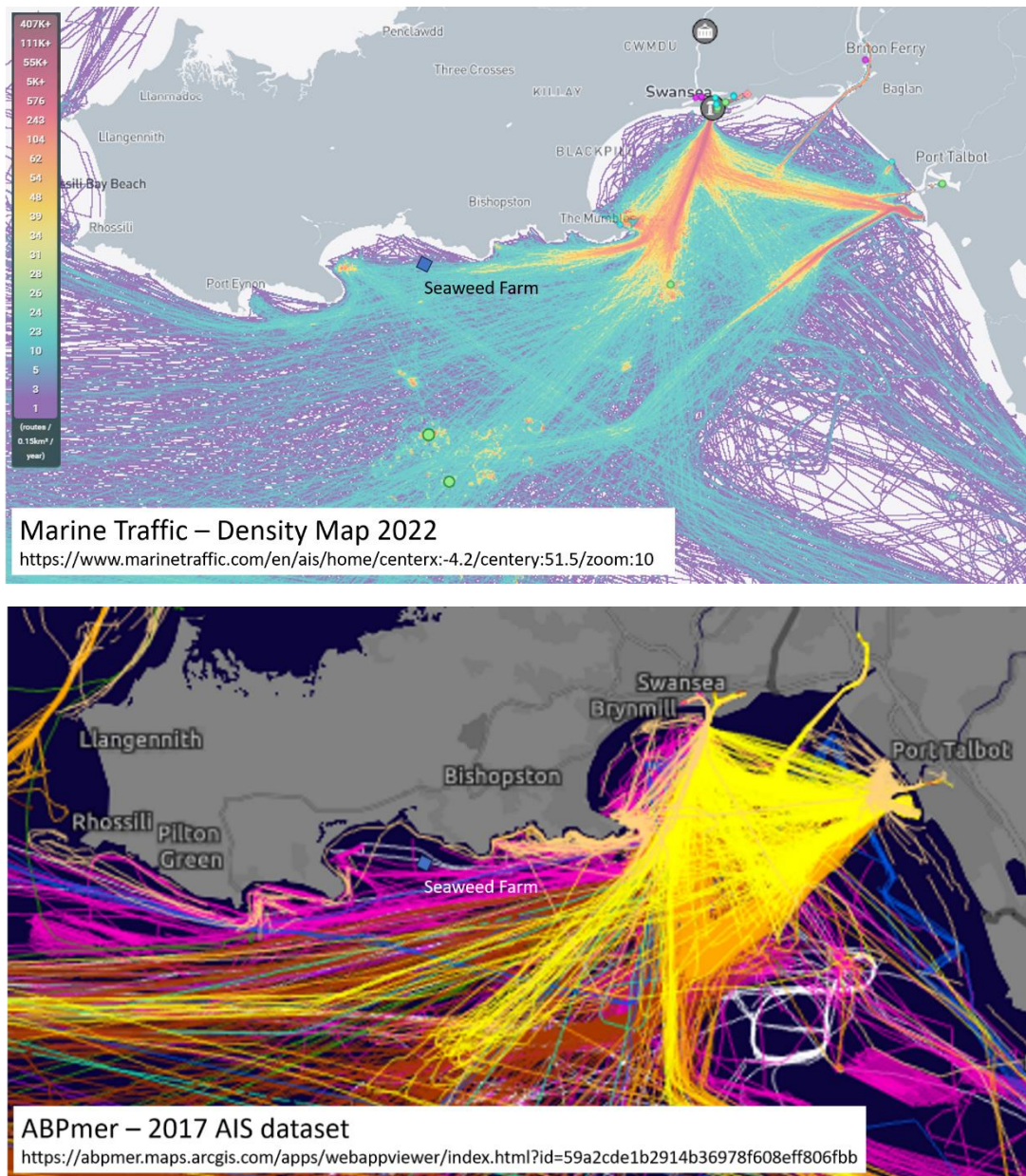


Figure 6: Comparison between 2022 and 2017 AIS datasets

Seazou Seaweed Farm – Navigational Risk Assessment

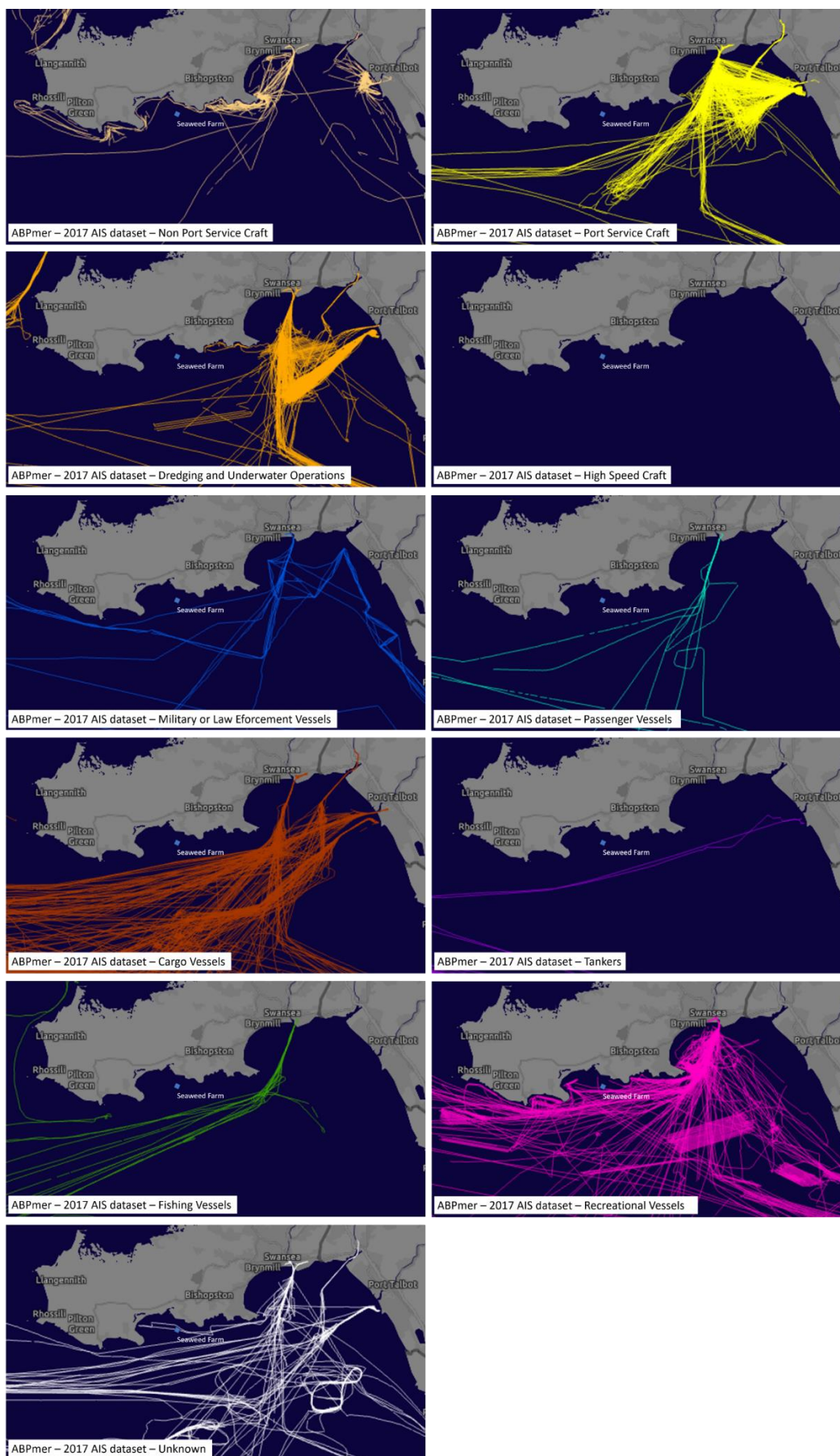


Figure 7: APBmer 2017 AIS dataset by vessel type

A review of the APBmer 2017 AIS dataset illustrates that the proposed seaweed farm location interfaces with the following vessel routes:

- Recreational Vessels
- Unknown Vessels

4.2 Output of Local Stakeholders Consultations

As part of this navigational risk assessment consultations have been held with local stakeholders to better understand the type and quantity of vessels using the water around the seaweed farm location. This will help highlight the vessels that are not illustrated in the AIS data outlined in the section above. These will typically be smaller vessels.

1. The Mumbles RNLI Lifeboat Station:

On Friday 23rd February 2024, a discussion was held with Mr Josh Stewart, the coxswain at the Mumbles Lifeboat Station. In general Mr Stewart did not have any significant concerns with the proposed location and arrangement of the seaweed farm. Mr Stewart confirmed the understanding that it would mainly be pleasure vessels and smaller fishing vessels using the water in the vicinity of the seaweed farm, with larger vessels using routes further out to sea. The pleasure vessels would typically be transiting between Swansea or Mumbles and the beaches at Oxwich Bay. Mr Stewart confirmed that the 800m distance between the shoreline and the seaweed farm would be sufficient for vessels who were transiting along the coast, and for those vessels transiting between Pwlldu Head and Oxwich Point, as long as the farm has sufficient visible markers, vessels would be able to make a small adjustment to their route in order to avoid the farm.

It was noted that Seazou Aquaculture were in discussions with Trinity House with regard to suitable visible markers and the current proposal was to have 4 lit special markers, one at each corner of the farm. This arrangement would be confirmed once Trinity House had reviewed the marine licence application.

Mr Stewart also noted that Seazou Aquaculture should speak with the local fishing clubs to see whether any local fishermen used the area.

Mr Stewart noted that there were significant tides and currents in the area and that this would need to be taken into consideration in the design of the farm infrastructure.

It was noted that the seaweed farm would not be an impenetrable barrier and the risk of collision or entanglement of any smaller vessels and the farm infrastructure would be low as the marker buoys would be spaced at around 20m and the horizontal longlines growing the seaweed would be submerged 2m below the surface of the water. Mr Stewart noted that once the farm had been installed, complete with the recommended markers, and the local navigational charts had been updated, then it was the responsibility of the vessels themselves to avoid the seaweed farm.

Finally, the operation and maintenance regime for the farm were outlined to Mr Stewart and he had no concerns. It was noted that the farm would be provided with GPS tracking and that any unusual movement would trigger a visual inspection in addition to the regular inspections.

2. Swansea Marina

A discussion was held with Michael Bond, the Assistant Marina Manager at Swansea Marina. Mr Bond confirmed that they did not keep records of the activities and routes of the vessels using the Marina.

Seazou Aquaculture sent Mr Bond a slide deck outlining the seaweed farm project and he circulated the information to the marina users mailing list on the 2nd March. The users were then encouraged to send any queries or feedback directly to Seazou Aquaculture. The details of this consultation are included in Appendix A and can be summarised as follows:

- The area in the vicinity of the seaweed farm is used by recreational and commercial bass fishermen using rod and line tactics and recreational fishermen fishing at anchor for tope and other species.
- Oxwich Bay in general is a popular destination for sailing and other pleasure vessels moored at Swansea Marina.

Mr Bond also suggested that the local yacht clubs should be consulted and that they would likely have more information on who uses the water around the seaweed farm. The local yacht clubs are the Swansea Yacht and Sub Aqua Club and the Mumbles Yacht Club.

3. Public Consultation in Pennard

On the 9th March a public consultation was held with the local community at the Pennard Community Hall. The key information related to usage of the waters around the seaweed farm discussed during the consultation is as follows:

- The area in the vicinity of the farm is used by whelk fishermen and recreational fishermen using rods.
- The area adjacent to the farm, closer to the shoreline is used by lobster fishermen.

It was also confirmed that the area was not frequented by pleasure vessels as they tended to use the western side of Oxwich Bay.

4. Welsh Fisherman's Association and the South West Wales Fishing Council

Under guidance from the Natural Resources Wales advisory team, Seazou Aquaculture contacted Marion Warlow, head of the WFA-CPC (the Welsh Fisherman's Association) and she put Seazou Aquaculture in contact with Barry Thomas, Director at the SWWFC (South West Wales Fishing Council). A meeting was held with Mr Thomas where the proposal for the seaweed farm was outlined and he informed Seazou Aquaculture that there are no commercial fishermen currently using the bay and there haven't been in some time. The coordinates of the farm were shared with Mr Thomas and he followed up the meeting with an email to confirm his statement. The email stated: 'I have looked at your proposed area of interest and can confirm it will not affect me or any other trawlers in my opinion. You may need to check with any whelk fishermen from down west. There are no whelk fishermen left in Swansea since the Welsh Government increased the minimum size limit.'

In addition to the consultation with Marion Warlow and Barry Thomas, a discussion was held with the prominent South West Wales commercial fisherman Neil Thomas. Neil Thomas was referenced by the fishermen who attended the public consultation in the Pennard Community Hall on the 9th March. They noted that Neil Thomas would not be in favour of the seaweed in the location to the east of Oxwich Bay. In the discussion with Neil Thomas, however, he confirmed that the proposed location of the seaweed farm will have no impact on the commercial fishing in that area as they only fish the west side of Oxwich bay and not the east, as the ground on the east is too high for them.

The information above contradicts what was discussed at the Pennard public consultation, so as a worse case it is assumed that there are some whelk fishermen fishing the area in the vicinity of the farm.

5. Swansea Yacht and Sub Aqua Club

On Thursday the 29th February, a meeting was held with George Pettifore, the Commodore of Swansea Yacht and Sub Aqua Club, Christine Battersby, the club secretary, and two members of the club's committee. In general, the representatives present at the meeting did not have any significant issues with the proposed seaweed farm.

The Commodore's primary concern was that the farm would need to have lit, visible markers to alert any vessels travelling at night to the size and location of the farm. He noted that typically, vessels travelling along the coast from Swansea to the Gower would traverse Oxwich Bay travelling from Pwlldu Head and Oxwich Point. They would therefore need to adjust their course slightly to avoid the farm.

Seazou Aquaculture informed the representatives that discussions with Trinity House with regard to suitable visible markers were on going and the current proposal was to have 4 lit special markers, one at each corner of the farm. This arrangement would be confirmed once Trinity House had reviewed the marine licence application.

The Commodore noted that the western side of Oxwich Bay was the busier area in terms of sailing and other pleasure vessels, with the eastern side of the bay primarily being used by local fishermen.

One of the committee members queried who was behind the proposal and what the maximum size of the farm would be. Seazou Aquaculture informed him that this was a self-funded, private venture and that the size of the farm would not exceed the 25hectare (500m x 500m) plot as defined in the marine license application.

It was noted that the farm would be installed, operated and maintained using a vessel berthed in Swansea Marina. The typical operational cycle of the farm was outlined, with the seeded ropes being placed in October/ November and the seaweed harvest being done in May/ June. It was noted that the eventual yield from the farm would around 80 tonnes. The seaweed would be harvested over a couple of weeks with all operations and transport done through Swansea Marina. One of the committee members noted that there would be some impact on the local road network and it was therefore very important for the local council to be aware and in favour of the project.

6. Mumbles Yacht Club

Mumbles Yacht Club were contacted but have not responded. However, as noted by the Commodore of the Swansea Yacht Club, the Mumbles Yacht Club was primarily for dinghy sailing. This was echoed by a visit to the yacht club where it was noted that there is no marina at the club and sailing dinghies are stored on the sea wall and launched via the slipway.

4.3 Consultations Conclusions

The key conclusions from the stakeholder consultations that need to be considered in the navigation risk assessment are:

- Sailing and other pleasure vessels typically either traverse Oxwich Bay directly from Pwlldu Head to Oxwich Point or navigate around the coastline in close proximity to the shoreline.
- The west side of Oxwich Bay is more heavily used by sailing and other pleasure vessels.
- The seaweed farm must be well lit and visible to vessels navigating across or around Oxwich Bay.
- The seaweed farm is located in an area that is used for various types of fishing activities.

5 Hazard Identification

Hazards have been assessed in relation to the following marine accident categories. Where a category is not applicable to this type and scale of seaweed farm then it is not included in the hazard log in the following section.

	Category	Description
1	Foundering	To sink below the surface of the water.
2	Collision	Collision is defined as a vessel striking, or being struck, by another vessel, regardless of whether either vessel is under way, anchored or moored; but excludes hitting underwater wrecks.
3	Allision	Defined as a violent contact between a vessel and a fixed structure.
4	Contact	Contact is defined as a vessel striking, or being struck, by an external object that is not another vessel or the sea bottom. Sometimes referred to as Impact
5	Fire	Fire is defined as the uncontrolled process of combustion characterised by heat or smoke or flame or any combination of these.
6	Explosion	An explosion is defined as an uncontrolled release of energy which causes a pressure discontinuity or blast wave.
7	Loss of Hull Integrity	Loss of Hull Integrity (LOHI) is defined as the consequence of certain initiating events that result in damage to the external hull, or to internal structure and sub-division, such that any compartment or space within the hull is opened to the sea or to any other compartment or space.
8	Flooding	Flooding is defined as sea water, or water ballast, entering a space, from which it should be excluded, in such a quantity that there is a possibility of loss of stability leading to capsizing or sinking of the vessel.
9	Grounding	Grounding is defined as the ship coming to rest on, or riding across underwater features or objects, but where the vessel can be freed from the obstruction by lightening and/or assistance from another vessel (e.g. tug) or by floating off on the next tide.
10	Stranding	Stranding is defined as being a greater hazard than grounding and is defined as the ship becoming fixed on an underwater feature or object such that the vessel cannot readily be moved by lightening, floating off or with assistance from other vessels (e.g. tugs).
11	Machinery Related Accidents	Machinery related accidents are defined as any failure of equipment, plant and associated systems which prevents, or could prevent if circumstances dictate, the ship from manoeuvring or being propelled or controlling its stability.
12	Payload Related Accidents	Payload related accidents include loss of stability due to cargo shifting and damage to the vessel's structure resulting from the method employed for loading or discharging the cargo. This category does not include incidents which can be categorised as Hazardous Substance, Fires, Explosions, Loss of Hull Integrity, Flooding accidents etc.
13	Hazardous Substance Accidents	Hazardous substance accidents are defined as any substance which, if generated as a result of a fire, accidental release, human error, failure of process equipment, loss of containment, or overheating of electrical equipment; can cause impairment of the health and/or functioning of people or damage to the vessel. These materials may be toxic or flammable gases, vapours, liquids, dusts or solid substances.

14	Accidents to Personnel	Accidents to personnel are defined as those accidents which cause harm to any person on board the vessel e.g. crew, passengers, stevedores; which do not arise as a result of one of the other accident categories. Essentially, it refers to accidents to individuals, though this does not preclude multiple human casualties as a result of the same hazard, and typically includes harm caused by the movement of the vessel when underway, slips, trips, falls, electrocution and confined space accidents, food poisoning incidents, etc.
15	Accidents to the General Public	Accidents to personnel are defined as those accidents which lead to injury, death or loss of property amongst the population ashore resulting from one of the other ship accident categories.
16	Capsizing	The overturning of a vessel after attaining negative stability

In addition to the marine accident categories listed above, the hazards posed by the seaweed farms physical infrastructure have been considered in the hazard log. The infrastructure that makes up the seaweed farm is as follows:

Submerged:

- Anchor weights
- Anchor chains and ropes
- Seaweed longlines

Floating:

- Marker buoys
- Seaweed longline mooring buoys

The hazard log lists all the various hazards associated with the seaweed farm installation, operation and maintenance, assesses the associated risks, outlines the proposed risk mitigation measures and calculates the future risk levels. Acceptability of the risk levels is defined by the following risk matrix:

RISK MATRIX							
Probability ↑	Very Likely	5	5	10	15	20	25
	Likely	4	4	8	12	16	20
	Possible	3	3	6	9	12	15
	Unlikely	2	2	4	6	8	10
	Very Unlikely	1	1	2	3	4	5
		1	2	3	4	5	
		Nigligible	Slightly	Moderate	High	Very High	
		Severity →					
Risk		Risk Level	Condition				
1 to 6		Low Risk	May be acceptable but review task to see if risk can be reduced further.				
8 to 12		Medium Risk	Task should only be executed with appropriate management authorization after consulting with specialist personel.				
15 to 25		High Risk	Task must not proceed until adequate action taken to minimse the risk.				

Probability		Severity	
1	1 every 100 years	1	minor injury
2	1 every 10 years	2	major injury
3	1 every year	3	multi major injury
4	1 every 6 months	4	death
5	1 every month	5	multi death

Figure 8: Risk matrix

6 Hazard Log and Risk Assessment

Hazard Category	Identified Hazard	Associated Risk (consequence)	Level of Risk (no mitigation)	Further Mitigation Measures	Level of Risk (with mitigation)	Notes
Foundering	Subsea obstacle snags the anchor of a vessel causing it to founder or capsize.	Capsizing and/or sinking vessel, possible loss of life	Severity: 4 Likelihood: 3 Tolerability: 12	The layout of the seaweed farm is added to the local maritime charts. The layout of the seaweed farm is advertised at the local marina and port. The seaweed farm is provided with an arrangement of marker buoys detailed as per the Trinity House guidelines.	Severity: 4 Likelihood: 2 Tolerability: 8	Given the size of vessel that are likely to interface with the seaweed farm, the risk of a small recreational or fishing vessel foundering is tolerable.
Collision	A vessel navigating around the seaweed farm collides with another vessel also navigating around the seaweed.	Sinking vessel, possible loss of life	Severity: 4 Likelihood: 2 Tolerability: 8	The layout of the seaweed farm is added to the local maritime charts. The layout of the seaweed farm is advertised at the local marina and port. The seaweed farm is provided with an arrangement of marker buoys detailed as per the Trinity House guidelines.	Severity: 4 Likelihood: 1 Tolerability: 4	Given the baseline marine traffic density, the likelihood of a collision between two vessels is low.
Collision	A vessel used for the seaweed farm installation collides with another vessel also navigating around the seaweed.	Sinking vessel, possible loss of life	Severity: 4 Likelihood: 3 Tolerability: 12	Vessels used for the installation of the seaweed farm are briefed on which other vessels are likely to be in the vicinity of the	Severity: 4 Likelihood: 1 Tolerability: 4	To be added to the installation method statement.

Seazou Seaweed Farm – Navigational Risk Assessment

				seaweed farm during the proposed activities. The local marina and port are briefed on the scope and programme of the installation works.		
Collision	A vessel used for the seaweed farm operation collides with another vessel also navigating around the seaweed.	Sinking vessel, possible loss of life	Severity: 4 Likelihood: 3 Tolerability: 12	Vessels used for the operation of the seaweed farm are briefed on which other vessels are likely to be in the vicinity of the seaweed farm during the proposed activities. The local marina and port are briefed on the scope and programme of the activities.	Severity: 4 Likelihood: 1 Tolerability: 4	To be added to the O&M manual.
Collision	A vessel used for the seaweed farm maintenance collides with another vessel also navigating around the seaweed.	Sinking vessel, possible loss of life	Severity: 4 Likelihood: 3 Tolerability: 12	Vessels used for the maintenance of the seaweed farm are briefed on which other vessels are likely to be in the vicinity of the seaweed farm during the proposed activities. The local marina and port are briefed on the scope and programme of the activities.	Severity: 4 Likelihood: 1 Tolerability: 4	To be added to the O&M manual.

Seazou Seaweed Farm – Navigational Risk Assessment

Contact	Vessel makes contact with the surface infrastructure of the seaweed farm, i.e. marker buoys or the seaweed longline mooring buoys.	Damage to vessel, damage to seaweed farm	Severity: 3 Likelihood: 3 Tolerability: 9	The layout of the seaweed farm is added to the local maritime charts. The layout of the seaweed farm is advertised at the local marina and port. The seaweed farm is provided with an arrangement of marker buoys detailed as per the Trinity House guidelines.	Severity: 3 Likelihood: 2 Tolerability: 6	There will always be a residual risk of a vessel steering or drifting into the farm and making contact with the surface infrastructure.
Contact	Vessel makes contact with the submerged infrastructure of the seaweed farm, i.e. the seaweed ropes.	Damage to vessel, damage to seaweed farm	Severity: 3 Likelihood: 3 Tolerability: 9	The layout of the seaweed farm is added to the local maritime charts. The layout of the seaweed farm is advertised at the local marina and port. The seaweed farm is provided with an arrangement of marker buoys detailed as per the Trinity House guidelines.	Severity: 3 Likelihood: 2 Tolerability: 6	There will always be a residual risk of a vessel steering or drifting into the farm and making contact with the submerged infrastructure.
Machinery Related Accidents	Failure of the installation, operational or maintenance vessel machinery which prevents the vessel from manoeuvring. being propelled or controlling its stability.	Damage to vessel, damage to seaweed farm	Severity: 3 Likelihood: 3 Tolerability: 9	The vessels used for the installation, operation and maintenance will be well maintained and checked prior to use.	Severity: 3 Likelihood: 2 Tolerability: 6	

Seazou Seaweed Farm – Navigational Risk Assessment

Accidents to personnel	Slips, trips and falls resulting from personnel movement on the installation, operation and maintenance vessels whilst underway.	Injury to personnel	Severity: 4 Likelihood: 3 Tolerability: 12	Crew on each of the vessels will be briefed on a safe way of working. Accidents and near misses will be recorded and lessons learnt session will be held with the results fed back into the safe way of working methodology.	Severity: 4 Likelihood: 2 Tolerability: 8	A vessel is an inherently risky place of work. Vessel personnel will be trained in the safe ways of working and with suitable management in place this risk level is tolerable.
Untethered seaweed farm infrastructure	Seaweed farm infrastructure becomes untethered and adrift and collides with a vessel.	Damage to vessel	Severity: 3 Likelihood: 3 Tolerability: 9	The seaweed farm infrastructure will be designed by Kelson Marine Engineers who will assess the robustness of the infrastructure to typical (1 year) and extreme (25 and 50 year) storms.	Severity: 3 Likelihood: 2 Tolerability: 6	The seaweed farm will be provided with GPS tracking. If the seaweed farm drifts then an alert will be sent to the maintenance vessel operator and to the local coastguard. This will be defined in the emergency response plan.
Untethered seaweed farm infrastructure	Seaweed farm infrastructure becomes untethered and washes up on a local beach or cliff.	Injury to general public	Severity: 3 Likelihood: 3 Tolerability: 9	The seaweed farm infrastructure will be designed by Kelson Marine Engineers who will assess the robustness of the infrastructure to typical (1 year) and extreme (25 and 50 year) storms.	Severity: 3 Likelihood: 2 Tolerability: 6	The seaweed farm will be provided with GPS tracking. If the seaweed farm drifts then an alert will be sent to the maintenance vessel operator and to the local coastguard. This will be defined in the emergency response plan.

7 ALARP Declaration

The hazard identification and risk assessment process has identified a series of risk mitigations that has reduced the risk level to a low as reasonably possible for all the identified hazards.

8 Risk Control Log

The hazard identification and risk assessment process has identified the following risk mitigations / control.

- The layout of the seaweed farm is added to the local maritime charts.
- The layout of the seaweed farm is advertised at the local marina and port.
- The seaweed farm is provided with an arrangement of marker buoys detailed as per the Trinity House guidelines.
- Vessels used for the installation, operation and maintenance of the seaweed farm are briefed on which other vessels are likely to be in the vicinity of the seaweed farm during the proposed activities.
- The local marina and port are briefed on the scope and programme of the installation, operation and maintenance works.
- Installation method statements will outline safe methods of working.
- O&M manuals will outline safe methods of working.
- The seaweed farm infrastructure will be designed by Kelson Marine Engineers who will assess the robustness of the infrastructure to typical (1 year) and extreme (25 and 50 year) storms.
- The seaweed farm will be provided with GPS tracking. If the seaweed farm drifts then an alert will be sent to the maintenance vessel operator and to the local coastguard. This will be defined in the emergency response plan.

9 Search and Rescue Overview and Assessment

9.1 Seaweed Farm Layout and Access

Figure 5, earlier in the document, illustrates the layout of the seaweed farm and Figure 9 outlines which parts of the infrastructure will be submerged and which parts will be floating. The seaweed lines will be submerged below the water surface by 2m.

The seaweed lines are separated by 20m, which will provide sufficient space for vessel access and escape throughout the farm. There will also be two 40m corridors between the three banks of lines running east / west through the farm. These corridors will provide additional flexibility in terms of access and escape throughout the farm. A typical escape route through the farm is illustrated in Figure 9 below.

Away from the seaweed farm the nearest land access from the sea is the beach at Foxhole, approximately 800m north of the farm. The beach is accessed via a steep path from the National Trust car park in Southgate. This beach is only accessible from the sea at low tide. Further west there are beaches at Three Cliffs Bay and Oxwich Bay, both of which are accessible from the sea at both high and low tide. There is a slipway at Oxwich Bay.

All installation, operation and maintenance activities will be done using a vessel operating out of Swansea Marina. In addition, a standby vessel, also operating out of Swansea Marina, will be nominated to assist with any search and rescue that is required. However, in exceptional circumstances, regional search and rescue resources will need to be called upon. The following sections outline the existing search and rescue resources in the vicinity of the seaweed farm.

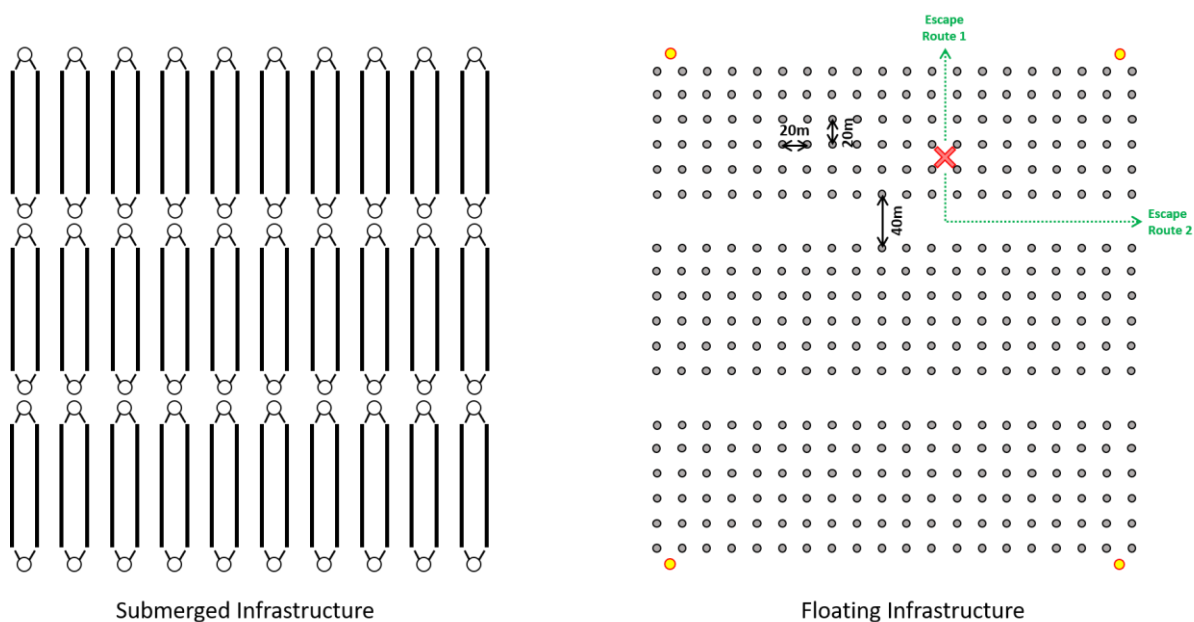


Figure 9: Seaweed farm submerged and floating infrastructure

9.2 Search and Rescue Helicopters

The Bristow Group provide helicopter search and rescue operation in the UK on behalf of the Maritime and Coastguard Agency. There are 10 base locations around the UK and the closest one to the seaweed farm location is in St Athan in the Vale of Glamorgan, approximately 55 nautical miles east of the farm. The location of the St Athan helicopter base is shown in Figure 10.

9.3 His Majesty's Coastguard (HMCG) Stations

His Majesty's Coastguard (HMCG), a division of the Maritime and Coastguard Agency, is responsible for requesting and tasking search and rescue operations and coordinating the subsequent search and rescue operations. The HMCG coordinates search and rescue operations through a network of 11 Maritime Rescue Coordination Centres (MRCC). The closest MRCC to the seaweed farm location is the Milford Haven MRCC. This is also illustrated in Figure 10.

9.4 Royal National Lifeboat Institution (RNLI)

There are two RNLI lifeboat stations in close proximity to the seaweed farm location, as illustrated in Figure 10, RNLI Horton and Port Eynon and RNLI The Mumbles.

The following lifeboats operate out of the two lifeboat stations:

- RNLI Horton and Port Eynon – 1 no D Class Lifeboat
- RNLI The Mumbles – 1 no Tamar Class Lifeboat and 1 no D Class Lifeboat

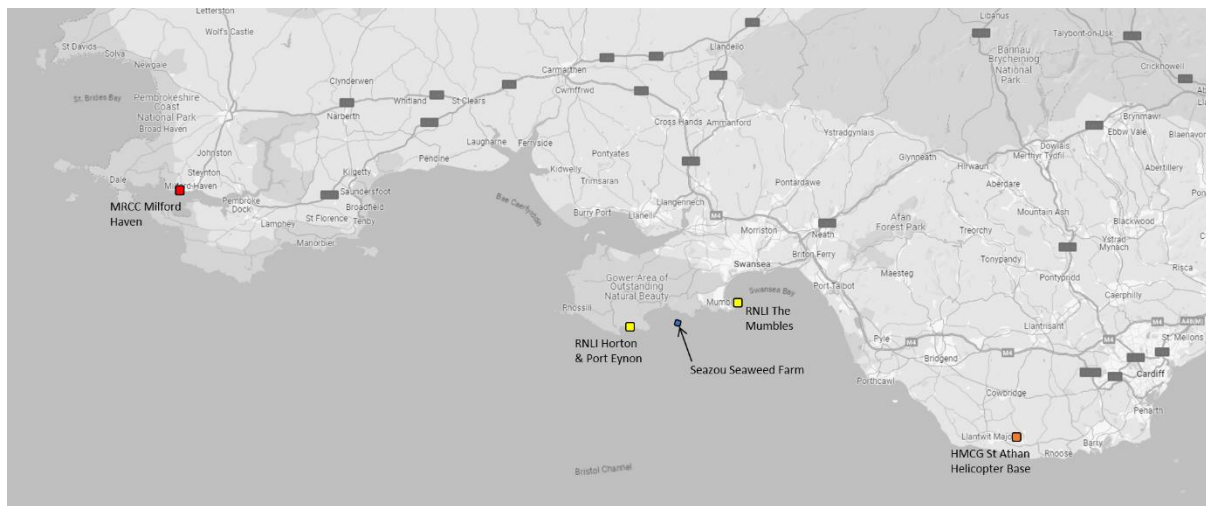


Figure 10: The existing search and rescue resources in the vicinity of the seaweed farm

10 Emergency Response Overview and Assessment

The emergency response arrangements will be detailed in the Marine Emergency Action Card and will be agreed with HM Coastguard in advance of any maritime operations related to the seaweed farm commencing.

11 Monitoring and Maintenance

The seaweed farm will be provided with GPS tracking. If the seaweed farm drifts then an alert will be sent to the maintenance vessel operator and to the Maritime and Coastguard Agency and the local RNLI lifeboat Station at Mumbles. This will minimise the response time and mitigate the risk of drifting infrastructure making contact with other vessels or being washed up on the shoreline. Once the sea conditions are suitable for the maintenance vessel to access the farm, a recovery and repair exercise will commence.

In the event that any lines or buoys break free, this untethered debris will create a significant risk to the local marine traffic. Within 24 hours of the notification that parts of the farm had broken free, the Natural Resources Wales, the Maritime and Coastguard Agency, the local sailing clubs and the local RNLI lifeboat stations will be alerted. Once the sea conditions are suitable for the maintenance vessel to access the farm, a recovery and repair exercise will commence.

Both these recovery and repair operations will be included in the operational contract of the maintenance vessel.

The maintenance strategy for the seaweed farm will include an annual maintenance regime for the permanent infrastructure as well as regular site inspections. The site inspections will be every 3 weeks during the growing season and every 6 weeks during the non-growing season. These inspections will either be done by the contracted maintenance vessel, or through an arrangement with a local fishing vessel. Onsite monitoring will include a visual inspection of the seaweed farm, farm infrastructures and water quality testing. These inspections will ensure that no ropes have become tangled and no infrastructure has broken free. They will also highlight whether any infrastructure is requiring urgent maintenance or replacement.

One monitoring option that requires further research is the option of monitoring the farm via a live feed video monitoring system. This would allow live daily images of the farm to be recorded and would allow for a more agile inspection, monitoring and maintenance regime.

12 Marking and Lighting

Figure 5 and Figure 9 illustrate the marking and lighting arrangement for the seaweed farm. The arrangement consists of 4no lit special markers located one at either corner of the farm. This provisional layout has been discussed with the Trinity House and they will confirm the final layout of the markers once they have received the marine license application.

13 Decommissioning

In the event that the seaweed farm operations cease, the farm infrastructure will be decommissioned. All buoys and lines will be removed from the water. Natural Resources Wales will be consulted prior to the removal of the reef block anchor weights to establish whether there is any benefit in leaving the blocks on the seabed and preserving the artificial habitat that they have created.

14 Appendix A

Swansea Marina Consultation Summary

Consultation Record

	Company	In person / Online	Date	Comments (1)	Received	Response (1)	Sent	Comments (2)	Received	Response (2)	Sent
Josh Stewart (Coxswain)	RNLi	Telephone conversation	23/02/2024	n/a	n/a	Summary of discussion: - In general, there were no significant concerns with the location and/or arrangement of the seaweed farm. - Josh confirmed the understanding that it would mainly be pleasure vessels using the water in the vicinity of the seaweed farm, with larger vessels using routes further out to sea. - The pleasure vessels would typically be transiting between Swansea or Mumbles and the beaches at Owich Bay. - Josh confirmed that the 800m distance between the shoreline and the seaweed farm would be sufficient for vessels who were transiting along the coast, and for those vessels transiting between Pwlldu Head and Owich Point, as long as the farm has sufficient visible markers, vessels would be able to make a small adjustment to their route in order to avoid the farm. - Guy informed Josh that Seazou were in discussions with Trinity House with regards to suitable visible markers and the current proposal was to have 4 lit special markers, one at each corner of the farm. This arrangement would be confirmed once Trinity House had reviewed the marine licence application. - Josh also noted that we should speak with the local fishing clubs to see whether any local fishermen used the area. - Josh noted that there were significant tides and currents in the area and that this would need to be taken into consideration in the design of the farm infrastructure. - Guy noted that the seaweed farm would not be an impenetrable barrier and the risk of collision or entanglement of any smaller vessels and the farm infrastructure would be low as the marker buoys would be spaced at around 25m and the horizontal longlines growing the seaweed would be submerged 2m below the surface of the water. - Josh noted that once the farm had been installed, complete with the recommended markers, and the local navigational charts had been updated, then it was the responsibility of the vessels themselves to avoid the seaweed farm. - Guy took Josh through the operation and maintenance regime for the farm and he had no concerns. It was noted that the farm would be provided with GPS tracking and that any unusual movement would trigger a visual inspection in addition to the regular inspections.	04/03/2024				
George Pettifore (Commodore) Christine Batterley (Secretary) 2 x committee members	Swansea Yacht and Sub Aqua Club	In person meeting	29/02/2024	n/a	n/a	Summary of discussion: - In general, the representatives present at the meeting did not have any significant issues with the proposed seaweed farm. - The Commodore's primary concern was that the farm would need to have lit, visible markers to alert any vessels travelling at night to the size and location of the farm. He noted that typically vessels travelling along the coast would traverse Owich Bay travelling from Pwlldu Head and Owich Point. They would therefore need to adjust their course slightly to avoid the farm. - We informed the representatives that we were in discussions with Trinity House with regard to suitable visible markers and the current proposal was to have 4 lit special markers, one at each corner of the farm. This arrangement would be confirmed once Trinity House had reviewed the marine licence application. - One of the committee members queried who was behind the proposal and what the maximum size of the farm would be. We informed him that this was a self-funded, private venture and that the size of the farm would not exceed the 25hectare (500m x 500m) plot as defined in the marine licence application. - We informed the representatives that the farm would be installed, operated and maintained using a vessel berthed in Swansea Marina. We outlined the typical operational cycle of the farm with the seeded ropes being placed in October/ November and the seaweed harvest being done in May/ June. It was noted that the eventual yield from the farm would around 50 to 60 tonnes. The seaweed would be harvested over a couple of weeks with all operations and transport some through Swansea Marina. One of the committee members noted that there would be some impact on the local road network and it was therefore very important for the local council to be aware and in favour of the project.	TBD				
Philip Garvey	Mumbles Motor Boat & Fishing Club	Email circulation via the Swansea Marina	n/a	I have read your proposal. 1. Can you provide images of what the site will look like when completed. 2. How large will be the no go area in terms of fishing and pleasure boats. 3. Will the construction be from land or by sea. I am asking on behalf of Mumbles Motor Boat & Fishing Club. (MMBFC)	02/03/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. The answers to your questions are as follows: 1. Please see attached an image of the site showing the seaweed lines. The seaweed lines will be arranged in three banks of 20x 100m long lines. 2. The overall area of the licensed farm will be 500m500m (25 hectares). The farm will be marked by 4 special lit markers, one at each corner, and relevant nautical charts will be updated to show the farm's location. The farm will have no further constraints beyond the 25 hectare area. 3. The construction will be done by sea using a vessel out of Swansea Marina.	05/03/2024	Thanks Guy, it all seems good to me. One remaining question? How is the seaweed collected how often and where is it taken? I think that's 3 questions.	06/03/2024	The seeded lines will be placed in the water in October/ November. It will then be harvested in May/ June. Harvesting will be done by lifting the lines onto a vessel, one by one, and then cutting the seaweed by hand. The seaweed will then be taken to Swansea Marina to be loaded onto trucks. Installation, operation and maintenance of the farm will be done via a vessel out of Swansea Marina. Hopefully that answers your questions, but please don't hesitate to email again if you have any further questions.	06/03/2024
Chris Williams	n/a	Email circulation via the Swansea Marina	n/a	I would like to state my interest in this matter and be advised of all developments, announcements, presentations or any opportunity to state any possible concerns in regard of this proposal. I am a leisure boat user, based at Swansea Marina and regularly fish this area.	02/03/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. Your interest in the project has been noted. We will be doing a public consultation this coming Saturday at the Pennard Community Hall from 2pm, see attached poster. If you are available to come to that then we could discuss any concerns you have in person. We are committed to making sure all concerns are noted and where possible taken into account in the design, installation, operation and maintenance of the farm.	05/03/2024				
Howard Blackwell	Shoreline Management	Email circulation via the Swansea Marina	n/a	With regard to the consultation in relation to the aquaculture proposals at Owich, I write object to the proposal. Owich bay is the most important and favourite destination for the boating fraternity of Swansea marina and used by passing/ visiting yachts. I would not be in favour of any obstruction or navigation restriction in and around Owich Bay. Tide, wind, coastal features and bathymetry makes navigating around the shores of the Gower difficult at times without further challenges in this prime destination area being introduced. The proposal would, in my view, be particularly problematic for sailing vessels and I wish to register my objection to the proposed scheme. Would be grateful if you could register this objection and keep me informed.	03/04/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. Your response has been noted and will be included in the record of consultation submitted as part of the marine licence application. We are committed to making sure all concerns are noted and where possible taken into account the design, installation, operation and maintenance of the farm. We understand your concern that the farm will create an obstruction or navigation restriction and we have managed that risk in the development of the proposal in the following ways: 1. We have located the farm 800m off the low water mark of the shoreline below Southgate. This allows sufficient space for vessels who are navigating around the coastline to pass between the shore and the farm. 2. We have positioned the farm as far as possible away from the direct line between Pwlldu Head and Owich Point to avoid the route that vessels use when traversing the bay. This is a challenge but we are managing any residual risk through item 3 below. 3. We have been in consultation with Trinity House and they have advised that the farm should include 4 lit special markers, one at either corner. This will ensure that the farm is visible even at night. In addition, relevant nautical charts will be updated with the farm's location. We have also consulted with the RNLi at the Mumbles Lifeboat Station and the Commodore of the Swansea Yacht and Sub Aqua Club. In general they were both happy with the proposal, but also noted the need to make sure the farm was always visible. We will be doing a public consultation this coming Saturday at the Pennard Community Hall from 2pm, see attached poster. If you are available it would be great to have the opportunity to discuss your concerns in person.	05/03/2024				
Thomas Methuen-Campbell	Penrice Estate	Email	n/a	As the owners of Owich beach and part of the bay, we are somewhat surprised that we have not been consulted over the proposed seaweed farm. We have only heard about it on the off chance from a third party. Please can you ask Seazou to consult with us and provide further information? In particular we would like to know: - Will anything be visible above the sea level? - What process they would go through to harvest and manage the seaweed? - What ecological and marine issues may arise from the seaweed farm? What studies have been commissioned in this regard?	04/03/2024	Thank you for getting in touch. Apologies for not contacting you directly. We would indeed like to consult with Penrice Estate with regards to the seaweed farm proposal. We are committed to making sure all concerns are noted and where possible taken into account the design, installation, operation and maintenance of the farm. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. Attached is a presentation outlining the project. We will be doing a public consultation this coming Saturday at the Pennard Community Hall from 2pm, as per the attached poster, and it would be great if you were available to attend so we could discuss the project in person. Alternatively we would be happy to visit the Penrice Estate for a separate discussion. As you can see from the location maps, the seaweed farm is located to the east of Owich Bay off the coastline below Southgate, approximately 2km from the eastern end of Owich Beach and 4km from the western end. The answers to your queries are as follows: 1. Yes, a grid of floating buoys will be visible above the water. The seaweed lines themselves will be suspended 2m below the surface. You can see the farm infrastructure on Slides 13 and 14 of the presentation. 2. The seeded ropes will be placed in the water in October / November and the seaweed will be harvested in May / June. For the harvest, the lines will be lifted onto the back of the harvesting vessel and the seaweed is cut from the lines by hand, see image below. Installation, operation and maintenance of the farm will be done using a vessel out of Swansea Marina. We will not be using the slipway at Owich Beach. 3. Seaweed farming is a regenerative farming technique with the farm benefitting the marine environment and increasing biodiversity. Even so, as part of the marine application process, we have prepared the following documents: - A Water Framework Directive assessment. The aim of this assessment is to demonstrate that the project will not cause 'deterioration in the water body'. The farm is located in the Bristol Channel North water body which currently has a water body status of 'moderate'. - A Basecurity Risk Assessment and Management Plan. This document allows the marine operator to understand and minimise the risk of introducing non-native species (NNS). - A Protected Site Features report. This report illustrates the proximity of the project to the various Marine Protected Areas. The farm has been located to avoid impacting protected areas. - A Mammal Entanglement Protocol report which sets out a plan for monitoring the site, to record sightings of protected species, and an adaptive management plan, which outlines what to do in the event of an entanglement and how to adapt practices to mitigate future entanglements. Please let me know if you have any further questions.	05/03/2024				
Jo	About Wild Wales	Email circulation via the Swansea Marina	n/a	Hi Could you send me some information about the project? Many thanks Jo	04/03/2024	Info sent. Waiting for a response.					
Robin Vaughan	Cambrian Boats	Email circulation via the Swansea Marina	n/a	Sounds like a good idea.	04/04/2024	n/a					
Neale Griffiths	n/a	Email circulation via the Swansea Marina	n/a	Best of luck. I've recently been informed that you propose to farm seaweed east end of Owich bay off Three Cliffs area. Having studied the map location, this area is frequently fished by recreational and commercial bass fishermen using rod and line tactics. Often the method of fishing is drifting in close proximity to the proposed location which would make it hazardous. This is a very busy area during the summer months. Also, recreational fishermen frequent this area and fish at anchor for tope and other species. Large fish and or boats anchored in strong tides near this proposed site is also extremely dangerous.	04/04/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. Your concerns have been noted and will be included in the record of consultation submitted as part of the marine licence application. We are committed to making sure all concerns are noted and where possible taken into account the design, installation, operation and maintenance of the farm. We know that there will be some impact to the use of Owich Bay and some restrictions introduced to where you can fish. We are managing this impact by: - Limiting the size of the farm to 25 hectares (500m500m). - Locating the farm 800m off the low water mark of the shoreline below Southgate, which would allow vessel access between the shoreline and the farm. Seaweed farming is a regenerative farming technique. The seaweed will act as an underwater forest that absorbs carbon, nitrogen and phosphorus, (making it a valuable tool to fight climate change), and as a water purifier. It will also create new habitats for a diversity of marine life. We hope to be able to illustrate that the farm increases fish stocks and biodiversity within the bay which would hopefully benefit fishing activities. We would like the opportunity to discuss the farm layout with you to see if there is any other way we can address your concerns. It is worth noting that the floating buoys are the only parts of the farm that are at the water surface. These will be spaced at around 25m centres. The growing lines themselves will be suspended 2 to 2.5m below the water surface. So, in the event that a smaller vessel drifts into the farm then the risk is one of collision with the floating buoys as opposed to entanglement with the seaweed lines. We have been in consultation with Trinity House and they have advised that the farm should include 4 lit special markers, one at either corner. This will ensure that the farm is visible even at night. In addition, relevant nautical charts will be updated with the farm's location. We have also been in consultation with the RNLi at the Mumbles Lifeboat Station and the Commodore of the Swansea Yacht and Sub Aqua Club. In general they were both happy with the proposal, but also noted the need to make sure the farm was always visible. Finally, we have also been in consultation with Barry Thomas the SWWFC Director, and he confirmed that the project would not impact trawler fishermen. Please review our response and let me know if you have any further questions. I would be happy to organise a call with you if you think that would be beneficial.	05/03/2024				
Michael Davis	n/a	Email circulation via the Swansea Marina	n/a	As a regular boat angler in the area how will affect the seabed and will there be any restriction on angling in the area? If so I would have to appose the proposal.	04/03/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazou Aquaculture Ltd and have put together the proposal for the seaweed farm in Owich Bay. The impact to the seabed will be minimal. The seaweed farm will be anchored to the seabed using weighted blocks. These blocks will be specified as reef cube type blocks, https://arcmarine.co.uk/products/reef-cube/ , which are scientifically proven to enhance marine biodiversity. We know that there will be some impact to the use of Owich Bay and some restrictions introduced to where you can fish. We have tried to manage the impact of the farm by: - Limiting the size of the farm to 25 hectares (500m500m). - Locating the farm 800m off the low water mark of the shoreline below Southgate, which would allow vessel access between the shoreline and the farm. Seaweed farming is a regenerative farming technique. The seaweed will act as an underwater forest that absorbs carbon, nitrogen, and phosphorus, (making it a valuable tool to fight climate change), and as a water purifier. It will also create new habitats for a diversity of marine life. We hope to be able to illustrate that the farm increases fish stocks and biodiversity within the bay which would hopefully benefit fishing activities. Let me know if you have any further questions.	05/03/2024	Thank you for replying. I can see on the map that the proposed site is very near a favorite fishing mark, i.e. the sand bank and ridge called knol which is a sand bank.	06/03/2024	Thanks for your email and continued dialogue. We want to work together with people who know the area, such as yourself, to make sure we minimise the impact of the farm as far as reasonably possible. There are many constraints that have to be taken into account in locating the farm, including but not limited: proximity to protected marine areas, marine traffic routes, submerged cables and fishing areas. Please could you therefore mark up on the map the location and extent of the fishing area around the sand bank. We could then see whether it would be possible to make a small adjustment to the location of the farm in order to maintain the fishing area. Thanks. Your input to this process is greatly appreciated.	07/03/2024

Richard Tierman	n/a	Email circulation via the Swansea Marina	n/a	As a berth holder at Swansea Marina and a regular visitor to Owchik Bay is there a possibility that you could provide visitor mooring buoys to prevent accidental damage to your proposed Seweed Farm?	05/03/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazoo Aquaculture Ltd and have put together the proposal for the seaweed farm in Owchik Bay. This is a very good suggestion. It has been noted and will be taken into consideration as the detailed design of the farm develops.	05/03/2024				
Andrew Jenkins	n/a	Email circulation via the Swansea Marina	n/a	Thanks very much for the information on the proposed seaweed farm at Owchik/Pwllidi Point. Can I please ask some questions: 1. Will it be fitted with an AIS target system to avoid boat collisions? 2. Will it be visible for either Three Cliffs Bay or Owchik Bay?	05/03/2024	Thank you for taking the time to review the seaweed farm proposal and responding to the consultation. My name is Guy Macleod and together with my brother in law Wross Lawrence we are Seazoo Aquaculture Ltd and have put together the proposal for the seaweed farm in Owchik Bay. The answers to your queries are as follows: 1. No, we do not intend to fit an AIS target system to the farm. However to mitigate the risk of vessel collision, the farm will include 4 ft special markers and the farm will be added to updates of the relevant nautical charts. This strategy has been discussed and agreed with Trinity House. As part of the marine license application a navigational risk assessment has also been undertaken. Within the assessment there is a study of the AIS data for the area. This has informed the positioning of the seaweed farm and the farm has been located in order to avoid the primary vessel routes in the area. 2. Yes. The seaweed farm will include a grid of floating buoys. As such, the farm will be visible from Three Cliffs Bay and Owchik Bay, particularly from the cliff top footpath. Less so from the beaches. Please let me know if you have any further questions.	05/03/2024	Thanks very much for the response. I sail this area frequently, anchoring in the bay regularly throughout the Spring and Summer and have close friends that fish the area. My biggest concerns are for the sustainability impact to the natural balance we have now. The area has recently been affected by overfishing from European fishing fleets, now removed due to Brexit, but is already showing signs of recovery. I read with interest the Atkins report on the area in the proposal. It seems to be missing some relevant information: The bay has witnessed spawning of Moon Jellyfish in recent years. The area supports seasonal grounds for a number of species including sand eels, mackerel, sea bream, bass, pollack as well as a very healthy population of spider crab, edible crab, numerous star fish and other crustaceans. There are a number of healthy pods of Common Dolphin resident in the area that take advantage of the vast numbers of mackerel and other fish available. Your report correctly states that bottlenose dolphins are not commonly seen in the area but does not mention the Common Dolphin species. Alpine blooms are commonly seen in the bay. The blue and green luminous water have become quite the tourist attraction. Total gatherings of fish can be witnessed to the east of a sand bank in the bay, the area you have chosen for your farm, which makes it a popular spot for fishermen. I don't know where the impact will be, whether it will provide habitat for shoals, or displace them. Whether the impact will be positive or negative. Perhaps you have some information on this? Seals are common. Your report highlights that there are no haul out areas but does not mention the feeding areas for seals that haul out at Tenby, Worms Head and Lundy. Please understand that I am not against the development of such projects, as we need to replace our reliance on oils at some point in the future and it is by ventures such as this that we develop a sustainable way forward. I hope you can answer my concerns above and wish you every success.	06/03/2024	Thanks for your email and continued dialogue. I don't think I have seen the Atkins report you have referenced in your email. It sounds like it has very important information that I will, so if possible please could you send me a link to it. We understand your concerns around sustainability and the risk of impacting the natural balance of the waters in Owchik Bay. Seaweed farming is a regenerative farming technique. The seaweed will act as an underwater forest that absorbs carbon, nitrogen and phosphorus, (making it a valuable tool to fight climate change), and as a water purifier. It will also create new habitats for a diversity of marine life. We hope to be able to illustrate that the seaweed farm will benefit the flora and fauna within the bay. There are some potential environmental impacts such as equipment loss, shading of sensitive habitats such as seagrass, mammal entanglement and the introduction of non native species. (see: https://media.mcsuk.org/documents/15-5909-2023_Seweed_Policy_Paper_phuadvR.pdf), but these have all been assessed in the marine license application. From an environmental impact perspective the marine license application has included the following reports/ assessments: A Water Framework Directive assessment. This assessment is to demonstrate that the project will not cause 'deterioration in the water body'. The farm is located in the Bristol Channel North water body which currently has a water body status of 'moderate'. A Biosecurity Risk Assessment and Management Plan. This document allows us to understand and minimise the risk of introducing non native species (INNS). A Protected Site Features report. This report illustrates the proximity of the project to the various Marine Protected Areas. The farm has been located to avoid impacting protected areas. A Mammal Entanglement Protocol report which sets out a plan for monitoring the site, to avoid sightings of protected species, and an adaptive management plan, which outlines what to do in the event of an entanglement and how to adapt practices to mitigate future entanglements. We also plan to work closely with Cŵr-y-Môr to make sure we are implementing proven farming techniques that minimise the impact throughout the process. Cŵr-y-Môr have established a seaweed farm in heavily protected waters in the Ramsay Sound in St Davids. (https://www.cymru.org/wales/). We can see that you have a profound love for Owchik Bay and a deep understanding of how the waters in the bay are used. It would be great if we could meet with you to discuss the plans for the farm to see if there are any adjustments to the design that could further limit the impact to the local users. We will be doing a public consultation this coming Saturday at the Penard Community Hall from 2pm, see the attached poster, if you are available. If not, then we could arrange a separate meeting. Thanks again, we really appreciate your input.	06/03/2024