



Marine Navigational Safety Assessment (NSA) and Emergency Action Plan: Updated September 2025

1.0 Introduction: Project Details & Assessment Approach

The NSA and Emergency Action Plan has been updated for the purposes of this appeal. This is due to the fact that previously, the MMO had requested a joint NSA – for two adjacent seaweed farms of 50.4 Ha each within Port Quin Bay (MLA/2023/00307 and MLA/2023/00308). Pre-decision (determination) by the MMO – MLA/2023/00308 was withdrawn. The Appeal is focused on MLA/2023/00307 (Camel Fish's application) – which was refused.

The result of this is a 50% reduction in cumulative impacts for human health (navigational safety). Furthermore, withdrawal of MLA/2023/00308 enables Camel Fish to further avoid, minimize and mitigate with regards to navigational safety. However, the application remains for a c.50 Ha seaweed farm in Port Quin Bay – as per the original application (Appendix 1).

Camel Fish applied for a Marine Management Organisation (MMO) licence for a c.50 Ha seaweed farm in Port Quin Bay, Cornwall (see Figure 1.0): depositing and removing on the seabed. The site perimeters will be marked according to the standard guidelines usually issued by Trinity House in line with their responses to statutory consultation (Annex I) and in accordance with expected conditions for the MMO licence. Four appropriate navigational safety markers will be placed at the corners of the farm – which will be formally mapped within Admiralty charts and with other appropriate bodies/navigational tools (as per expected condition of the license). This raises sea-user awareness as to its presence and the markers are lit at night to protect human health.

Following information pertaining to the presence of a safe anchorage area within Port Quin



Bay and with consideration to other sea users, the RNLI and NFFO recommendations to space the lines 50 m apart rather than 20 m apart:

The seaweed farm consists of 58 x 160 m anchored longlines (grow lines), orientated in two rows facing north-south and spaced 50 m apart. Previously, there were 144 lines planned. Altering the spacing and the co-ordinates of the farm has reduced total required infrastructure by 60%. And reduced the number of rows of longlines from four to two. The c.50 Ha farm area is 1,360 m x 360 m.

In terms of distances from the coastline and access points into the Bay, distances have increased from the west coast (including Mouls Island) and from the South coast. Distances remain similar from the east coast:

- 1 km from Mouls (west coast) - a 1 km wide access channel in and out of the Bay on the west.
- 900 + m from the south coast (closest point) – larger, open inner Bay area.
- 640 m from Doyden Castle coast (east coast) – access channel in and out of the Bay on the east.
- 570 m from the east coast (closest point). – access channel in and out of the Bay on the east

Working with the Crown Estate, who issue a licence for the farm to operate on the seabed, (post- granting of an MMO licence) Camel Fish intend to place a limited number of trial lines in initially. This would be followed by incremental scale up to the 58 lines over a period of a few years. This would be in agreement with the Crown Estate. The infrastructure has been marine engineered by experienced professionals – to ensure correct levels of anchorage (eco-blocks or reef cubes) relative to appropriate depth of water, wind, current, wave, swell and storm data over the life of the farm. Calculations were relative to the sediment type at the proposed site which is sandy gravel: coarse sediment. Calculations were completed conservatively (accounting for extreme events) and under a recognized standard: DNV-OS-



E301. Therefore, the infrastructure will be stable. Infrastructure will be regularly maintained and tensioned.

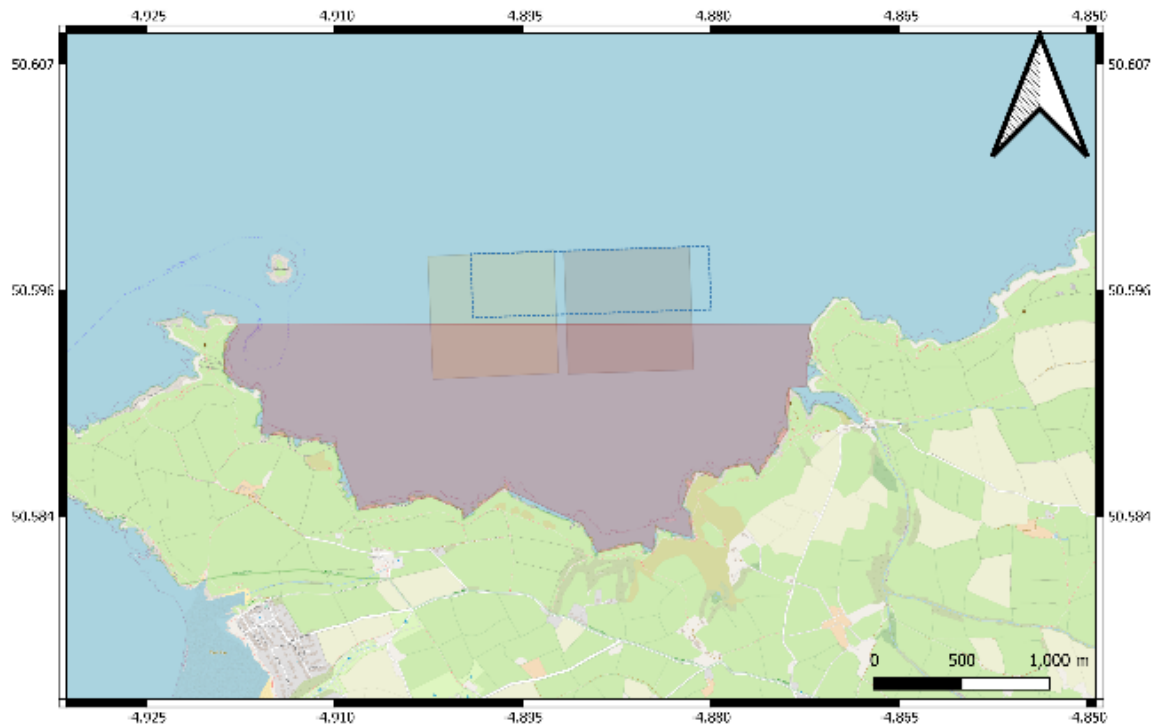


Figure 1.0: Updated farm footprint following Biome Algae’s withdrawal under MLA/2023/00308). The pink area represents the Port Quin Bay area including safe anchorage area, as identified by the MMO/MCA. The two faded squares represent the farm footprints for MLA/2023/00307 and MLA/2023/00308 (cumulative). The blue rectangle is the adapted position for MLA/2023/00307, which would have been proposed with appropriate meaningful engagement.

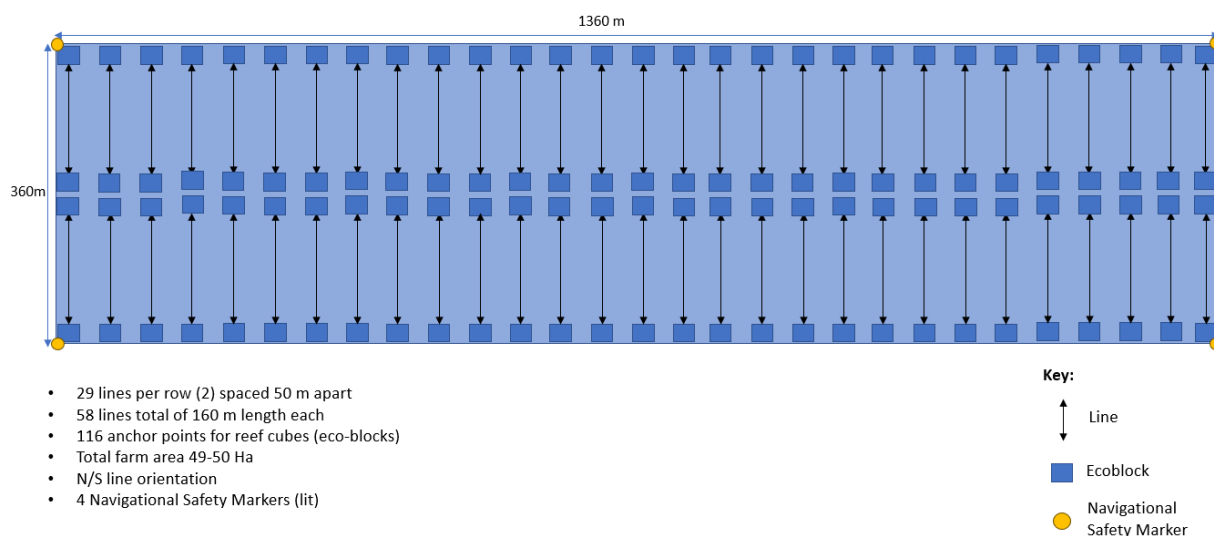
The GPS points* for the adjusted 50 Ha farm footprint are:

- NW: -545383.614 / 6550424.115
- SW: -545365.084 / 6549854.983
- SE: -543226.206 / 6549929.102
- NE: -543247.383 / 6550495.587



* will require updating in original application

The updated farm plan is as follows:



The updated infrastructure requirements are as follows:

Infrastructure/metric	2 x 50 Ha farms	1 x 50 Ha farm (20 m line spacing)	1 x 50 Ha farm (50 m line spacing)
Navigational safety markers	8	4	4
Growing lines	288	144	58
Rows of lines	4 per adjacent farm	4	2
Maximum buoys	2,304	1,152	464
Total anchor points	576	288	116
Total reef cubes (eco-blocks)	2,880	1,440	580
Total area of seabed (each anchor point = 5 x reef cubes & totals 20m ² area)	11,520 m ²	5,760 m ²	2,320 m ²
Total weight reef cubes (Tonnes): 29.5 Tf per anchor point	16,992	8,496	3,422
Total area of seabed as a % of the Bristol SAC (supporting habitat): 5,850 km ²	0.00019	0.000098	0.000039



This highlights the significance of MLA/2023/00308 being withdrawn (50% reduction of the combined footprint) and a further 60% reduction of the infrastructure required for MLA/2023/00307.

Seeded seaweed lines will be deployed onto main headlines in October/November each year. The seeded lines are then removed during harvesting and landed from April onward each year. It is expected that the main harvest will be completed by June end, ahead of the busy summer period for marine traffic.

As the proposed sites are not within the jurisdiction of a statutory Harbour Authority (inclusive of the safe anchorage area), navigational safety associated with the project will fall to the Maritime & Coastguard Agency (MCA) to assess that any identified risks to marine traffic and licensed marine activities in the area have been brought to as low as reasonably possible (ALARP).

The assessment will therefore consider historic and current levels of marine traffic in the Bay, pre-installation of the farm. It will also consider cumulative licensed marine activities within the Bay. Risks post-installment will be assessed and risk levels identified before and after minimization and mitigation measures have been put in place, where required.

To assess navigational safety and risk to human health, the applicants have outlined engagement with marine stakeholders/legitimate users of the sea in Port Quin Bay.

This is followed by a desktop assessment related to marine traffic using a range of data-based evidence. For the purposes of the appeal, this data has been updated to include data from 2017-2023 – due to the marine licensing process taking 22+ months. All types of vessels using the Bay area have been assessed (for AIS vessels). The applicants acknowledge the Bay will be used by fishers, businesses, locals and tourists for recreational purposes. Personal recreational devices (kayaks, SUP, small boats) may not be captured in the AIS data. Engagement with local businesses and fishers has helped to provide insight into activities within the Bay across the



seasons.

Moving the proposed farm further offshore and further away from the coastline results in a larger, open inner Bay area for recreation and wide access points in and out of the Bay. The increased line spacing (50 m) and reduced infrastructure further mitigates/minimizes risk to navigational safety and human health.

The outcomes have been used to clearly identify risks associated with the proposed project with this specific marine location. The applicants analysed the risks associated with the project, and where required, have proposed avoidance, minimization or mitigation measures to reach ALARP in each case.

The applicants have included an emergency response plan which clearly outlines actions, responses and responsibilities should any of the identified risks occur within the proposed farm site. This is to accompany valid Emergency Response Cards (once an MMO license is issued). An example Emergency Response Card has been emailed for draft approval to HM Coastguard – OELO@mcga.gov.uk. Cards are to be submitted formerly post positive determination.

A clear decommissioning plan for the sites is outlined, to ensure that when activity ceases on sites, they will be returned to original condition, ensuring the sites pose no risks to marine traffic and other marine activities – as per agreements with and practices of the Crown Estate. Camel Fish will provide ring-fenced funding evidence to the Crown Estate (as per their policy) to cover the costs of decommissioning.

Although developed for the extensive offshore renewables sector, the applicants referred to the MCA Marine navigational Safety and Emergency Response Risks document/guide. Although the scale and nature of this project is significantly lower than these developments, The applicants have lifted information where it is proportionate and applicable. This approach has been accepted by the MCA for previous and similar sized seaweed farm proposals – although meaningful engagement between the MCA and applicants has previously ensured



the NSA is appropriate, up to standard and meets ALARP.

2.0 Expert Opinion on Safety

The updated NSA (and appeal) has been prepared by Dr Angela Mead. Dr Mead has been involved in licensing of farms and regulations for licensing farms since 2018. She is an active seaweed farmer (2020-2025). As a consultant, she has been involved in several successfully granted MMO licence applications related to seaweed farms.

The longline farm design is based on existing licensed shellfish farms, operated to a high standard in St Austell Bay (100 Ha +) and within Torbay (50 Ha), as well as a seaweed farming site within Torbay (10 ha). Although seaweed farming is a relatively new entrant as legitimate use of the sea, there are clear similarities between infrastructure found in shellfish and seaweed farms (longline aquaculture). The shellfish farms referenced have operated since 2010 and 2015, respectively without significant incident.

In order to further ensure the information used to assess the risks was accurate, the applicants consulted a number of experts. Harbour Master Commissioners were consulted. Active fishers were consulted related to fishing activity within ICES30E5. Local businesses and clubs operating in Port Quin Bay were consulted. The applicants consulted a qualified and experienced naval architect for their input. The risks identified, assessments conducted, final farm design and measures in place to achieve ALARP were determined alongside the information provided by these experts.

3.0 Stakeholder Engagement

The applicants have engaged (where facilitated) with the MMO's marine licensing process. An



initial 28-day public consultation process was undertaken, with the project advertised in a local newspaper, within the Padstow Bay Harbour Masters Office window and on Harbour notice boards (evidence supplied, these Marine Notices were pinned between 16.10.23 to 13.11.23). The applicants also individually published marine notices in Fishing News. This was initially approved by the MMO.

Following the initial 28-day public consultation period the applicants were asked to participate in a second public consultation process for 28-days: which was complied with. During this 28-day period the applicants did not have to publish marine notices in newspapers. However, they did have to post the marine notices in two car parks; one in Port Quin and one in Port Isaac. A further third 28-day public consultation period was completed – with advertisements in a local newspaper, Fishing News and appropriately placed public notices were displayed.

During the second period of public consultation the applicants were involved in a meeting with the public to present and discuss their proposals and to answer questions. This took place in St. Minver Hall, Wadebridge on 27th February 2024. At least 130 + people attended.

In terms of responses from the public, there were both supportive comments and concerns covering a range of topics. The applicants have been working internally and with external and independent support/experts to address all concerns raised by the public, the MMO and statutory advisors related to human health and navigational safety. This included Trinity House but meaningful engagement with CEFAS, the NFFO and MCA was not facilitated by the MMO pre-determination, following the third-round of public and statutory consultation – where all three entities engaged for the first time. There concerns have been addressed as far as reasonably possible within the updated NSA.

Prior to submitting applications to the MMO, the applicants pre-engaged active stakeholders that operate in the proposed area of works. Engagement has continued over the course of the application and during preparation time for the appeal. This included but isn't limited to: fishers (potting, netting, line fishing, beam trawls), fishing charters, boat tours, Harbour



Masters, a sailing club and a diving company. In total three rounds of survey-based consultations were held with fishers (aimed primarily at assessing the impacts on vessels of 10 m or less – which may not be fully captured through AIS-based data). Businesses were also surveyed.

The local RYA (active) sailing club, representing 1,200 members were consulted. This is the Rock Sailing & Waterski Club. They were consulted initially in 2022 and responded on 24th June 2022. They had no objection to the proposed farm. They were consulted again in September 2025 – in the form of a survey. This was related to the proposed farm presented in Figure 1.0 and sailing activity/safe access within the Bay area should the marine licence be granted. They had no objections and did not anticipate safe access issues (please refer to survey summaries below).

During the licensing process the applicants held several meetings with the Crown Estate. This was to generate a conflict plan for the proposed area of works, to ensure the farm had no conflicts with other marine licence applications/proposed works – there were no conflicts. Over the course of the application and appeal, dredging activities commenced but at significant distance from the area of proposed works.

Plans were provided by the Crown and have been submitted to the MMO as evidence. Further discussions with the Crown Estate were related to site planning, site scaling, due diligence and decommissioning arrangements for the sites.

Outcomes of all engagement have been combined within the desktop study to establish vessel use of the Bay. This was achieved using AIS/Non-AIS data records, IFCA VMS data sets, SeaTRK/Coastal Atlas data and surveys. AIS data was obtained from Electronic Navigational Charts (ENC's) such as EMODnet and Marine Traffic.

Overall, the applicants have made significant efforts to engage with a range of key stakeholder groups to ensure navigational safety and human health is a priority. The overall NSA reduces identified risks to ALARP.



Specific outcomes of survey work conducted with both fishers and businesses (September 2025) are detailed in the tables below and overall report no objections and no concerns related to accessing the Bay in light of Figure 1.0. They also indicate vessel activity in the Bay based on their experiences – which is in line with lower scale traffic levels reflected in the other data sources. In summer, traffic levels are elevated to medium levels with an increase in leisure vessels:

Business	1	2	3	4	5
Business type	Charter fishing vessel	Charter fishing vessel	Passenger tours	Dive school	RYA registered sailing club
Vessel size (m)	11.6	11.5	24	8	N/A
Years operating	30	12	Since 1977	30	Since 1970
Months in Port Quin Bay	Sept-Oct	March - Sept	March -October	April-November	May – end Oct
Frequency/month	8-10 times	Not often	Twice daily (weather permitting)	6+ per week	1,200 members – some access/use the Bay but mainly Camel Estuary & Padstow Harbour
Hours/month	10	0-20	1.5 per trip (60 Hrs +)	150	As above
Farm: Negative impacts on business?	No	No impact at all	No – not at all	No	Unlikely to impact
Farm: negatively impact access in Bay?	No	-	No – not at all	No	No
Aware of positives of seaweed farms?	Yes	Yes – currently not a lot of fish in that area.	Yes – attracts more birds and dolphins	Yes - seen good results in St Austell Bay* *(seaweed/mussel farms)	Yes – but members may not know
Types of vessels observed in Bay?	Sea safaris, commercial fishing, leisure & kayaks, commercial	-	Fishing vessels	Every type Sea safaris Fishing (limited levels in Bay)	Safari boats, boat trips, fishing, sailing, powerboats
Seasonal vessel presence	Winter: low Spring: Low Summer: Med Autumn: Low	-	Winter: N/A Spring: Low Summer: High Autumn: Low	Winter: None Spring: limited (4) Summer: 20 Autumn: 4	Winter: None Spring: commercial Summer: leisure Autumn: commercial
Have you observed high sailing levels in the Bay during	No	-	NO - never	No	Sailing is mainly other locations –



business operations?					planned & co-ordinated by PHC
Other comments	-	-	Not a problem for the business at all.	Would not affect business negatively – lots of positives with increased shelter for juvenile fish.	The main concerns with members are aesthetics & rotting seaweed on beaches

Business	1	2	3	4	5
Business type	Charter fishing vessel	Charter fishing vessel	Commercial fisher	Commercial fisher	Commercial fisher
Vessel size (m)	11.6	11.5	5.17	12	10
Years operating	30	12	30+ years	50+ years	Since 1978
Months in Port Quin Bay	Sept-Oct	March - Sept		June-July	None
Frequency/month	8-10 times	Not often	All year (weather permitting)	Most days	None
Hours/month	10	0-20	N/A	40 hours	None
Farm: Negative impacts on business?	No	No impact at all	No	No	No
Farm: negatively impact access in Bay?	No	-	No	No	No
Types of fishing			Pots, lines, nets for lobsters, bass & pollack	Crabs, lobsters, crawfish & nets	Gill nets
Aware of positives of seaweed farms?	Yes	Yes – currently not a lot of fish in that area.	Yes	Yes – as a habitat	Yes – positive impact
Types of vessels observed in Bay?	Sea safaris, commercial fishing, leisure & kayaks, commercial	-	-	-	-
Seasonal vessel presence	Winter: low Spring: Low Summer: Med Autumn: Low	-	-	-	-
Have you observed high sailing levels in the Bay during business operations?	No	-	-	-	-
Other comments	-	-	Welcome the addition of the seaweed farm as being fisherman, I know the	I think the seaweed farm etc. is a very good idea in this zone or area. Totally gather	ATM (at the moment) we don't fish in the Bay. If we chose to in future. No



			habitual benefits it will bring.	nature in its glory and no chemicals etc. involved. Good all round in many ways. It will give jobs to local young men in this area and will not affect any second home owners that come here to live and possibly retire.	negative impact.
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Note: Two businesses are included in both tables. The applicants acknowledge their responses have been repeated within both tables: the two charter vessels engaged in both fishing and tourism/recreation.

4.0 Navigational Risk Assessment

Data sets have been used to assess the risks posed to marine traffic as described above and included Vesselfinder data. Data has been assessed from 2017-2023. Due to COVID, 2020 data was both included and excluded from assessment averages. AIS/VMS data (EMODnet and MarineTraffic) measure vessel density differently. EMODnet presents data within a 1km² pixel resolution. It is measured in hrs/km²/year. MarineTraffic uses routes/0.08km²/year.

To further the analyses, fisheries vessel monitoring systems (VMS) data (ping data) sourced through the MMO were assessed and are detailed within the appeal statement and supportive documents. These data provide spatial information on fisheries vessels (>12m) that are fitted with VMS and have been used to investigate the potential impacts of the proposed farm on existing fisheries activities. The applicants recognize that this source of data combined with EMODnet and MarineTraffic data, does not necessarily capture the fleet of inshore vessels that are 10 m and under. Following CEFAS advice, the applicants requested newly rolled out iVMS data which would capture appropriate information on vessel density/use of the Bay for this category of vessel size. The MMO refused access to this data based on GDPR. In the absence of



this data, and wanting to present sufficient information based on best available data – a qualitative approach was undertaken – surveys of both fishers and local businesses operating in the Bay.

The previously assessed data and newly updated/additional assessments for the purpose of appeal, are summarized below:

Data/Info source	Metrics	Fleet captured (size/fishing methods)
MMO PING data (VMS)	No. of vessels operating between 0-6 knots and 2-4 knots in the Bay (indicative of fishing speeds) over time	Vessels above 12 m length (all fishing types) 2016-2021: 2 vessels captured total
MarineTraffic data	Density levels of fishing within region (routes/0.08 km ² /yr - AIS)	Vessels above 12 m length (all fishing/vessel types) and all other vessel traffic. Under 12 m to a lesser extent. In Bay: was 221 routes within area for MLA/2023/00307 and MLA/2023/00308 (South of original joint sites)
EMODNET data	Density levels of fishing effort within region (1 km ² pixels, hrs/km ² /yr)	Vessels above 12 m length (all fishing types) In Bay: 0.26 hrs/km ² /yr 2017-2020 average. Range 0.45-0.06 from 2017-2020. (average would be 0.32 if exclude 2020 (COVID)). All in low range.
Survey 1 of fishers (December 2023)	Response to impact of MLA/2023/00307 and MLA/2023/00308 on fishing	23 operators approached (capturing 10 m under, 12 m and above)



	activities in the Bay (cumulative)	No objections to proposal
Survey 2 of fishers (May 2024)	As above	15 operators approached (capturing 14 x 10 m under and 1 x 12 m and above) All 15 stated no significant impacts on vessel activity when shown a map for both MLA/2023/00307 and MLA/2023/00308 (100 Ha)

Data/Info source	Metrics	Fleet captured (size/fishing methods)
EMODNET data (updated from 2017 to 2023 (data only available for up to 2023))	Vessel density levels: fishing vessels only (hrs/km ² /yr – AIS)	Vessels above 12 m length (all fishing types). Under 12 to a lesser extent. See data below Low density (see scale)
MarineTraffic data	Density levels of vessel traffic including fishing vessels within region (routes/0.08 km ² /yr - AIS)	Vessels above 12 m length (all fishing types) and all other vessel traffic. Under 12 m to a lesser extent. In Bay: reduced from 221 to 5-38 routes within proposed, updated area for MLA/2023/00307.
Survey 3 of fishers (September 2025)	Full survey (meta data available upon request by Appeals board and in line with GDPR). For MLA/2023/00307 only and in adjusted location.	The updated map (Figure 1.0) was presented. 21 operators approached (capturing range of fishing vessel sizes and fishing types/businesses) 11 of these had responded



		in survey round 2. 5 responded – range of vessel size from 5.17 – 12 m. All pots, nets, lines No objections and no issues with safe access
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Combined, these data sets indicate that vessel traffic in Port Quin Bay, specifically for fishing vessels but also for combined marine traffic data (vessels with AIS/VMS) are in the low to low-medium ranges. Safe access to the Bay is anticipated by those fishers/businesses who engaged across the surveys. AIS data across vessels is presented in more detail below.

4.1 Desktop Study: Vessels With AIS

4.1.1 Annual Vessel Density

Vessel data is presented here to assess vessel activity in Port Quin Bay, for a range of vessel types (2017 – 2023). This is for vessels with AIS/VHM. In the overall averages, 2020 has been excluded from the average values due to COVID. Averages are presented with 2020 included for comparison.

Analysis on EMODnet human activities; average vessel densities (hrs/km²/yr).	2017	2018	2019	2020	2021	2022	2023	2017-2023 av. including 2020	2017-2023 av. excluding 2020
All vessels	7.39	3.17	4.14	2.13	9.04	7.23	7.53	5.804	6.417
Cargo	2.78	0	0	0	0.67	2.98	3.13	1.366	1.593



Dredging or Underwater Operations	0	0	0	0	0.42	0	0	0.06	0.07
Fishing vessels	0.45	0.2	0.32	0.01	1.43	0.16	0.43	0.429	0.498
High Speed Craft	0	0.84	1.71	0.88	4.51	2.64	2.96	1.934	2.11
Military and Law Enforcement	0.16	0	0.04	0.01	0.55	0	0.02	0.111	0.128
Others	0.61	0.08	0.01	0.34	0.2	0.13	0.07	0.206	0.183
Passenger	2.04	1.86	1.94	0.82	1.02	0.7	0.32	1.243	1.313
Pleasure craft vessels	0.63	0.06	0.01	0.02	0.06	0.44	0.38	0.229	0.263
Sailing vessels	0.71	0.03	0.05	0.04	0.08	0.08	0.2	0.17	0.192
Service	0.01	0.11	0.05	0	0.09	0.14	0.02	0.06	0.07
Tanker	0	0	0	0	0	0	0	0	0
Tug and Towing	0	0	0	0	0	0	0	0	0

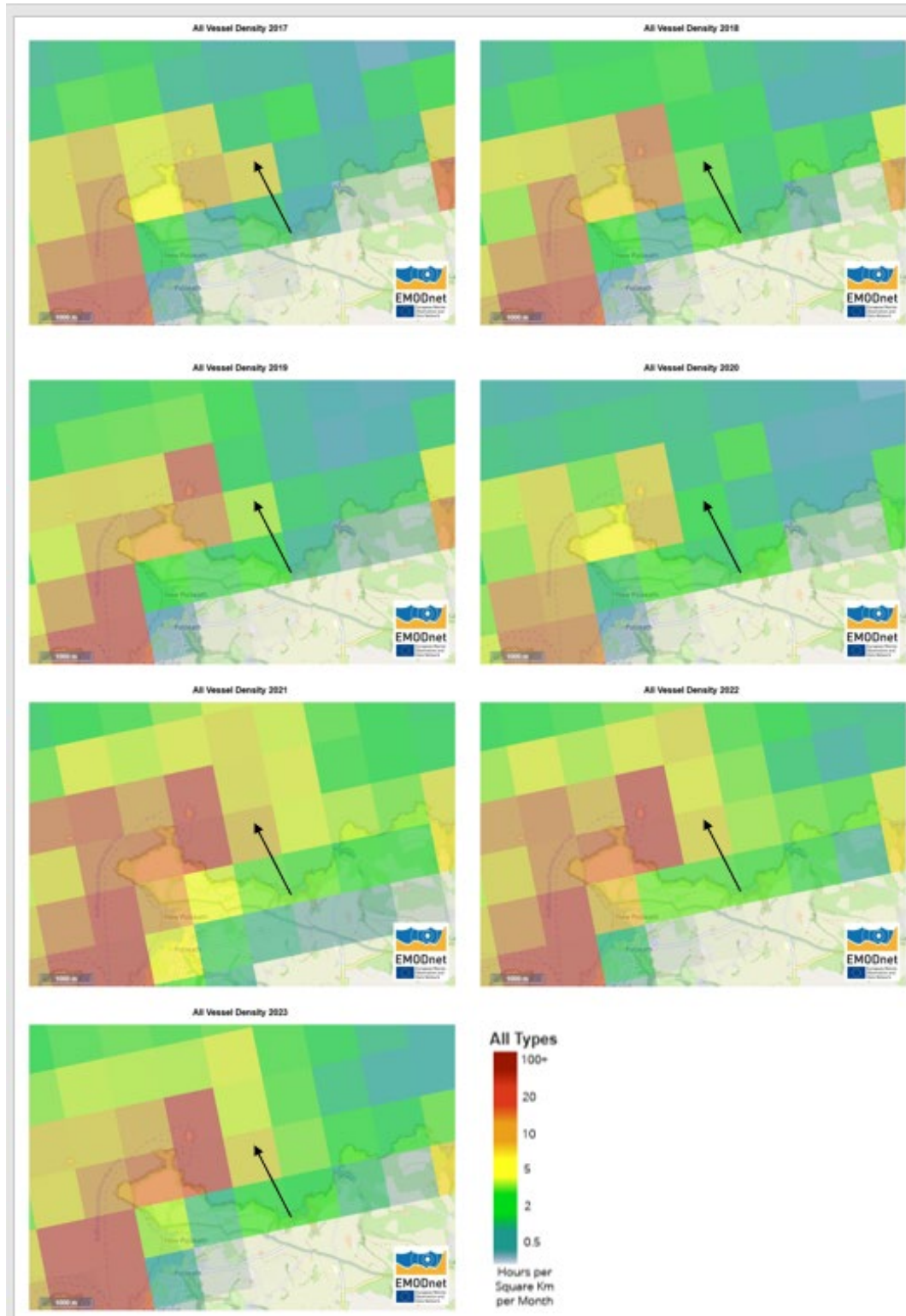
Table 1.0. Summary of density of marine vessel traffic at the proposed Port Quin Bay farm for 2017-2023 (1 km² pixel). Spatial Extent: Within ICES30E5, EMODnet reference C-Square

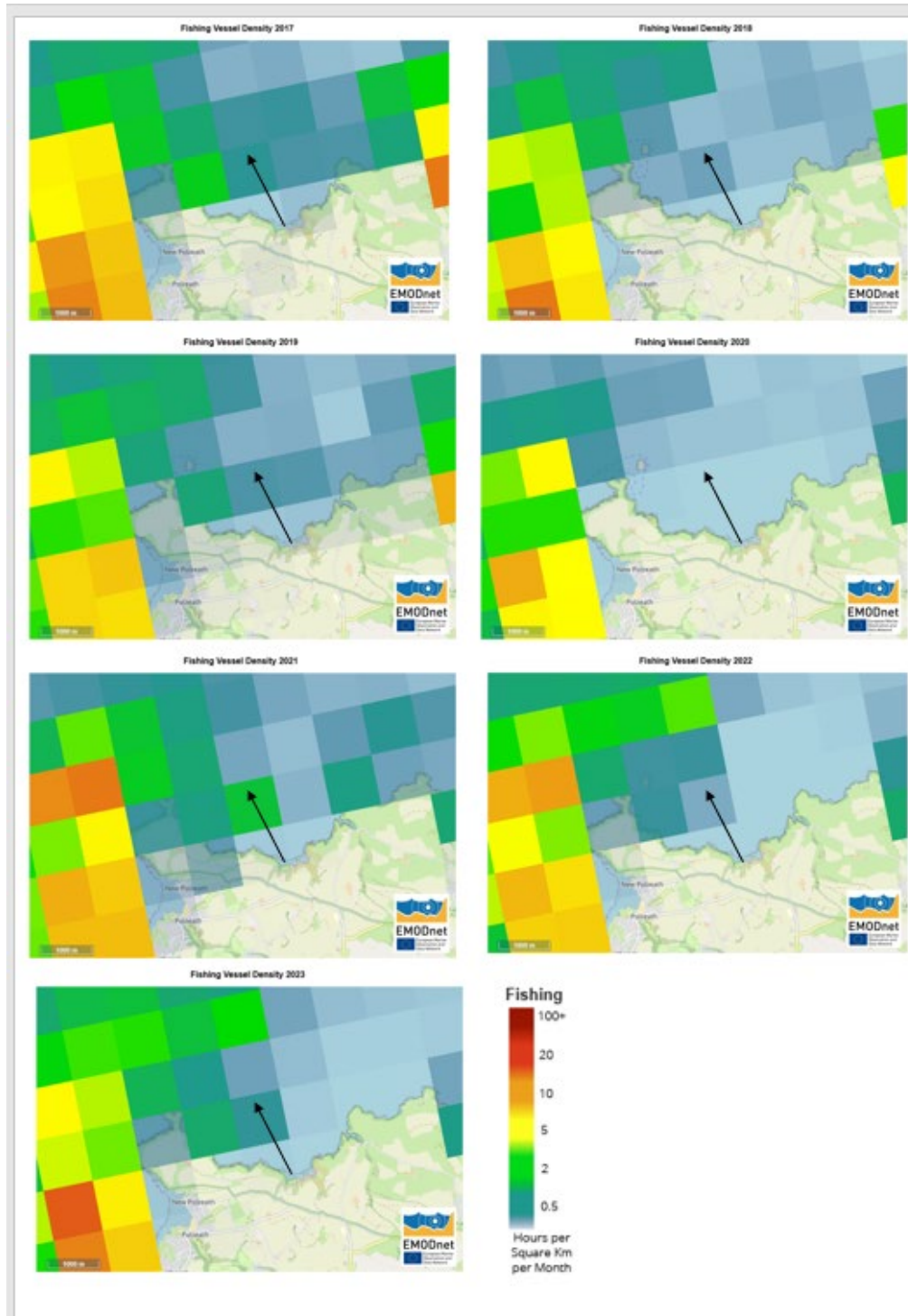
Analysis using EMODnet data indicated vessel traffic levels were variable across the years of available data (Table 2). The average vessel activity for All vessels ranged from 0.07 to 2.11 hrs/km²/year across the pixel used to assess vessel density (2017-2023 – excluding 2020). The lowest was dredging vessels. The highest was high speed craft. The overall average (excluding COVID 2020) was 6.147 hrs/km²/year.

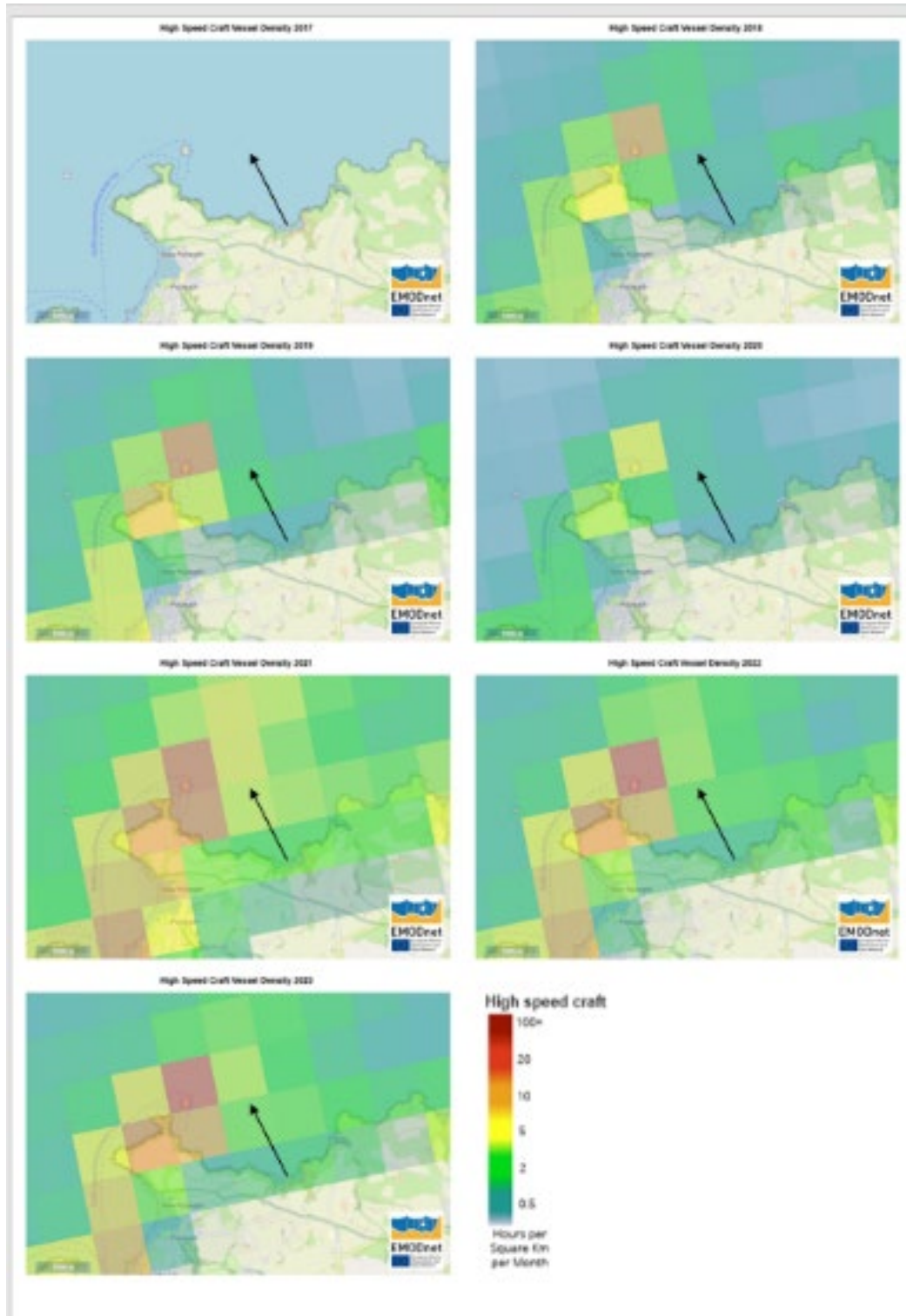
Three focus vessel categories combined (sailing, fishing, pleasure) remain at low levels (0.953 hrs/km²/yr). This increases if high speed vessels are included (3.063 hrs/km²/yr) – which is approximately 50% of Bay traffic. The area of the proposed farm appeared to be used by transitioning passenger vessels and cargo vessels for safe anchorage (1.593 hrs/km²/yr). MarineTraffic data was compared for the previous MLA/2023/00307 and MLA/2023/00308 cumulative 100 ha farm footprint and the single farm presented in figure 1.0. Vessel routes within the site were significantly reduced (from 221 to 5-38 routes).

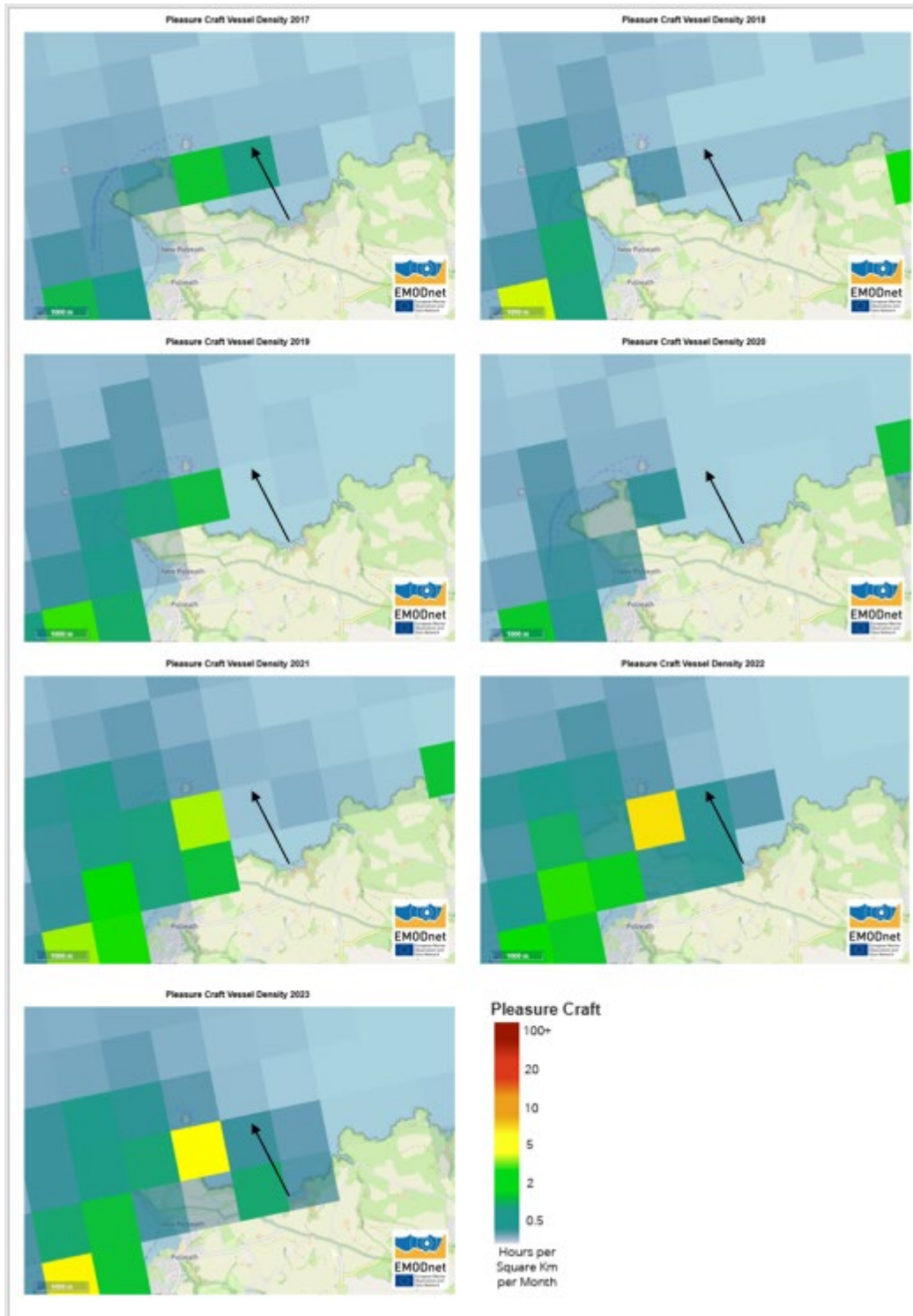
Assessments indicate a low to low-medium level of marine traffic for AIS/VHM vessels.

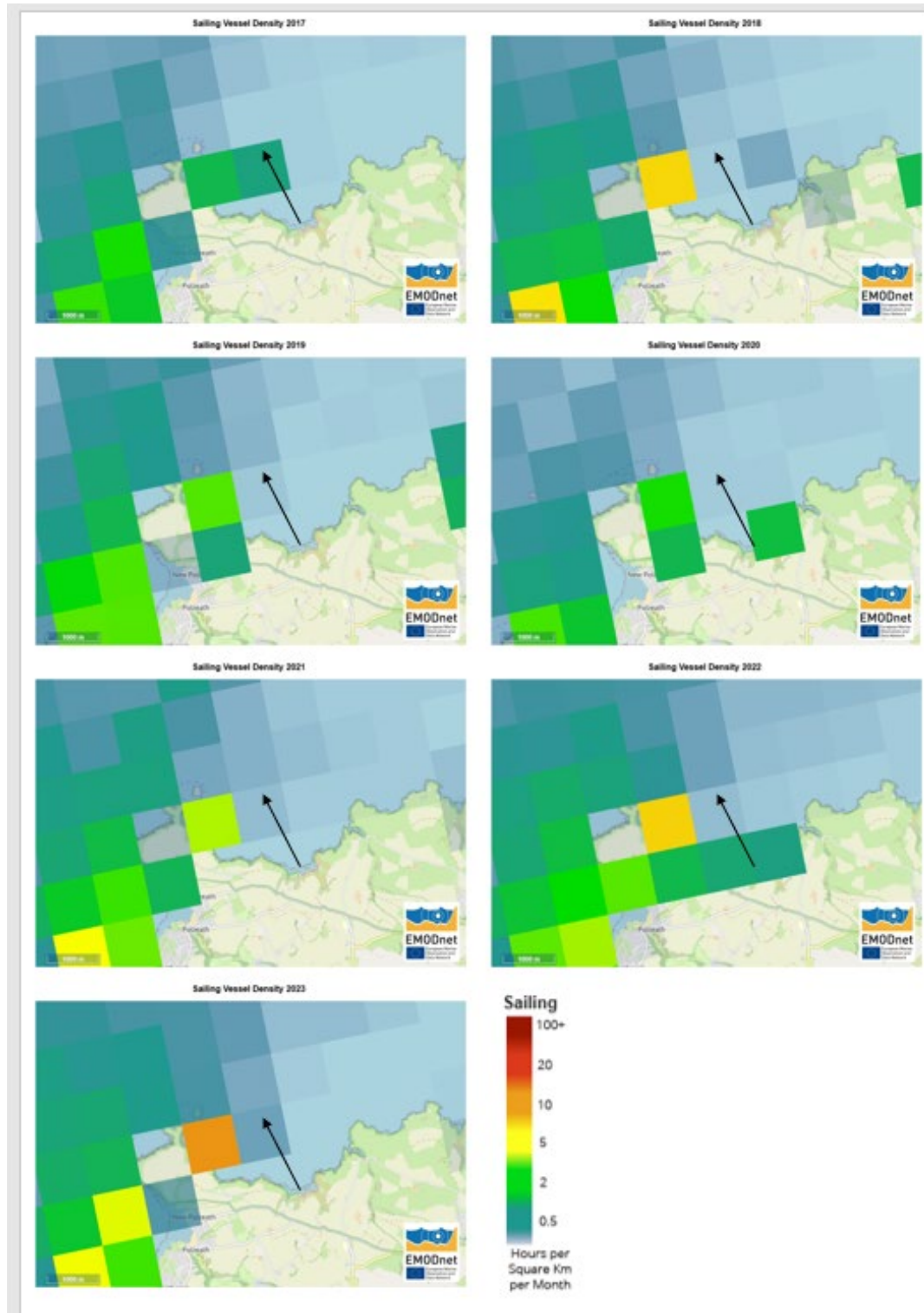
The following maps are presented for all traffic and selected vessel types, to support Table 2.0:













4.1.2 Monthly Vessel Density

Previously, average vessel density (EMODnet) was analysed (hrs/km²/month) between 2017-2021 at the proposed farm in Port Quin Bay during the two busiest months of seaweed farming; April (harvesting) and November (deployment and seeding) and for a peak recreational month as comparison (in this instance, June; Table 3.0). This is presented as was analysed. 2022 and 2023 can be incorporated with meaningful engagement with the MCA, if deemed appropriate.

Out of the months selected (and with the exception of June 2020) the vessel activity for All vessels was shown to peak in June each year (Table 3.0). Within the Fishing sector, activity was more variable with activity appearing to peak in the shoulder seasons. No fishing vessel activity was recorded during the key months in 2020 and for all vessels the average across the three months in 2020 was 0.03 hrs/km²/month, and this is likely associated with the Covid-19 Pandemic. One anomalous peak in fishing vessels activity was recorded in November 2021 where activity was recorded at 15.77 hrs/km²/month and contributed to 98% of all vessel activity recorded that month. This peak likely drives the increased average in November Table 3. Excluding the peak, fishing activity ranged from 0 to 3.06 hrs/km²/month across all years. With the exception of this peak in fishing activity, the general activity within the area of the proposed farm suggests that farm operations undertaken by the applicants will be occurring outside of periods of the year that are typically busy with other operators. The proposed farm will therefore likely have minimal impact on other sectors within the Bay.

It is anticipated that one vessel will be required to seed the lines (October-November) and harvest seaweed (April-June). Monthly vessel data is captured within the qualitative surveys from fishers and businesses operational at sea to support data findings.

All Vessels Key Month Averages 2017-2021 (hrs/km ² /month).					
Month / Year	2017	2018	2019	2020	



					2021
April	2.75	0.69	3.33	0.00	4.49
June	12.84	6.64	4.71	0.05	24.80
November	0.04	0.08	0.02	0.05	16.13

Sailing Vessels Key Month Averages 2017-2021 (hrs/km²/month).

Month / Year	2017	2018	2019	2020	2021
April	0.00	0.00	0.00	0.00	0.00
June	0.00	0.23	0.03	0.00	0.30
November	0.00	0.00	0.00	0.00	0.00

Fishing Vessels Key Month Averages 2017-2021 (hrs/km²/month).

Month / Year	2017	2018	2019	2020	2021
April	0.10	0.00	0.98	0.00	0.43
June	3.06	0.63	0.00	0.00	0.00
November	0.04	0.00	0.00	0.00	15.77

Averages 2017-2021 (exc. 2020).

Month / vessel category	All vessels (hrs/km ² /month)	Sailing vessels (hrs/km ² /month)	Fishing vessels (hrs/km ² /month)	Pleasure craft vessels (hrs/km ² /month)
April	2.815	0	0.3775	0.015
June	10.7475	0.14	0.9225	1.87
November	4.0675	0	3.9525	0

Table 3. Monthly vessel density data (hrs/km²/month) averaged from the available 2017-2021



EMODnet data for the key months of April (harvesting) and November (seeding & deployment) and using June as representative for increased recreational activity (summer month). Spatial Extent: Within ICES30E5, EMODnet reference C-Square 7500:104:459:3.

Overall, the annual and monthly AIS data and surveys indicates that the area of the proposed farm site does experience a range of marine traffic. The data indicates that marine traffic within the updated location of the farm will be mainly low with lower-medium levels in summer (as per the overall Bay).

4.2 Desktop Study: Vessels Without AIS

Smaller vessels without AIS have also been considered within the NSA. We contacted the Station Managers at the National Coastwatch Institution (NCI) Boscastle and Stepper Point stations. In previous applications the NCI has been able to provide supplementary data for vessels without AIS which have then been used to assess the usage of the proposed area by these types of vessels. The proposed farm in Port Quin Bay however lies within the blind spots of the two nearest stations. NCI Boscastle and Stepper Point were able to provide some anecdotal evidence (qualitative). Which adds value to the data-based assessment and is a reasonable and proportionate approach. They informed that:

- There are six fishing vessels that have AIS and are associated with the neighbouring bay at Port Isaac. Two of which are UK registered vessels and have been observed fishing in the waters around the Bay. The remaining four are UK registered vessels that have Port Isaac as their home port however have not been documented in the waters around the Bay. The two that fish the waters have AIS and moor in Padstow over winter. This coincides with the EMODnet data detailed above.
- The wildlife charter boat operating from Padstow visits both Port Quin Bay and Port Isaac Bay and may contribute towards some of the Passenger vessel data listed above.



- Vessels from within the leisure sector rarely travel far enough out to sea to fall within the field of view of stations.
- Vessels from within the military and law enforcement sector are documented as always being further out to sea than the waters associated with the Bay.

In the absence of vessel counts, this provides important qualitative insights in addition to the quantitative data sets and qualitative surveys presented.

The applicants calculated those vessels over the size of a large cabin rib (16+ m long, 0.96+ max draft and 4.1 m+ width) risk entanglement (see 'under-keel clearance'). **Mitigated avoidance** is assisted by the applicant's understanding their responsibility for ALARP through ensuring all navigational maps/charts are appropriately updated with the marine farm's location, mariners' notices are issued, ensuring navigational safety markers are in place and maintained/serviced and notices are actively placed according to the MMO license conditions and with the appropriate bodies (see risk matrices in Annex II).

5.0 Farm Construction and Layout

This is all covered in detail above. Specific information regarding limited trial lines and subsequent expansion has been covered above.

6.0 Safe Activity Within & Around the Farm

Post-installment of the site, the applicants have considered what risks are posed to all marine users within the vicinity of the farm (all vessel types and sizes).

In terms of regularly transitioning vessels in and out of Port Quin Bay, the risks that in reality



cannot be ruled out 100%, post-installment are identified as follows:

1. During storms, vessels with deeper keels could find themselves transitioning through the farm accidentally or seeking safe anchorage across a range of depths appropriate for different vessel drafts.
2. The potential break-away of farm infrastructure from the farm.

In response:

- Appropriate insurances will be in place by the applicants (The Crown Estate lease rules/MMO requirements)
- An appropriate under keel clearance assessment (UKC) has been made by the applicants, applying the expertise of an experienced naval architect.
- A range of keel lengths were identified through engagement with legitimate users of the sea. There are vessels that would have keel lengths that would interact with the farm infrastructure (which is 1-2 m below sea). Keels ranged from less than 1 m to 4 m +. Therefore, entanglement risk with the proposed farm is possible in adverse conditions for vessels with a keel size that exceeds what can safely navigate over the farm longlines (see UKC). This is likely to occur during adverse weather conditions.
- The potential break-away of farm infrastructure from the farm is covered within the ERP and matrices below. Prevention includes regular maintenance and tensioning. In the event, it requires a pro-active approach by the applicants, in line with standard ERP protocol and notification of all relevant bodies and mariners within the area. Responses should be within the timeframes indicated within the ERP or sooner if conditions/safety considerations allow.

The applicants have further mitigated and minimized (reasonably) these potential impacts as follows:

Prevention is best:



- Ensuring required marine notices are provided to the full range of stakeholders (mariners, authorities and Regulatory Bodies) related to commencement and the end of scheduled works.
- Ensuring that navigational safety markers are in place, regularly maintained and serviced, with reports available to the MMO and the Crown Estate (as per Trinity House recommendations).
- Ensuring that appropriate marine notices are in place ahead of scheduled works.
- Ensuring that the farm information (in terms of extent) is updated as required to the appropriate navigational tools, charts and with the appropriate bodies.
- Regular and appropriate communication with all appropriate bodies.
- Regular maintenance and tensioning of the farm infrastructure.
- Drills by the applicants (undertaken for safety at sea but also in response to the ERP).
- Drills with the RNLI and applicants to respond appropriately to emergencies (facilitated by reduced cumulative impacts due to the withdrawal of MLA/2023/00308 (50%), increased spacing between longlines and reduced infrastructure (additional 60%), reduced row number (four to two), moving the farm significantly further offshore and ensuring access channel either side of the farm and within the farm can easily accommodate RNLI vessels.

In an emergency situation (human health is at risk/navigational safety is at risk) that cannot be prevented for reasons outside of the applicant's control:

- Understanding that navigational safety and human health/life are the priority in emergency situations. And working with appropriate organisations to achieve this. If longlines need to be cut, to preserve life – this is the priority. Appropriate and timeous measures will be taken as per the ERP – including communications with the appropriate authorities and resultant reports. Navigational safety has to be a priority in these cases.
- All appropriate authorities will be alerted as per the EMP.



- Facilitating the emergency services (RNLI/coastguard) to respond.

In terms of taking responsibility for human life and vessels operating within the proposed farm:

- Insurances must be in place that cover crew, vessels and the public if present on a vessel undertaking operations for or on behalf of the proposed farm.
- All crew members must be STCW qualified, covering survival, first aid, fire at sea (firefighting) and general knowledge of operations and risks at sea. This includes qualifications to Captain a vessel. And to operate machinery, such as a crane or davits.
- All crew/staff members must wear appropriate HSE led-PPE at all times, including life vests and protective head gear. And importantly MCA approved life vests and access to other life-saving equipment as per vessel code. Best practice is expected legally and operationally.
- Appropriate lifesaving equipment must be on board any vessel operating within the farm to enable safe crew deployment in the case of an emergency.
- Vessels must have valid MCA certification to this effect and meet MCA code at any given time.
- Operations should only be undertaken in favourable/safe sea conditions as well as visual and weather conditions for both vessel and crew.
- All crew/staff members should be regularly trained in procedures and protocols for emergency situations related to their specific vessel and other vessels.
- There should always be a known land-based operative that is contactable by authorities and crew members in an emergency.
- Where appropriate, AIS/VMS should be implemented.
- Briefings for crew/third-party service providers ahead of scheduled works and for each farm visit should be held and recorded.
- Regular drills for crew will be implemented to ensure muster stations and procedures in a range of emergencies.



- All the above will be a matter of record to be presented to the MMO and MCA, including for third parties – in line with expected reporting protocols.
- All policies pertaining to the marine wildlife code, marine litter and other applicable company policies must be adhered to.

Third-party providers operating on the farm will be held to the same expectations, standards and checks, including operational reports to be submitted to the MMO.

Please refer to the site-specific matrices below. This would all be in line with expected marine license conditions and the emergency response plan (ERP) detailed within this document.

6.1 Under Keel Clearance Assessment

6.1.1 Introduction

A naval architect was contracted by the applicants to compare a kelp farm design, against the guidance set out by the Maritime and Coastguard Agency (MCA), MGN 654, Annex 3. They are a naval architecture consultancy who specialise in the design of aquaculture and offshore wind support vessels. This was a general assessment.

6.1.2 Farm Location, Water Depth and Navigation

Where appropriate, general assessments were adjusted for the Port Quin Bay license application and specifics of the site by the applicants.

On the updated maps, upon positive determination of the MMO licence, there should be a notice for marine farms that advises caution when operating in the vicinity. Example:



MARINE FARMS

Marine farms exist within the areas indicated. They may not all be shown individually and their positions may change frequently. Marine farms may be marked by lit or unlit buoys or beacons. Mariners are advised to avoid these structures and their associated moorings.

Navigational safety markers (maintained) would be present as described above. Given the presence of infrastructure (longlines), this would give a CVD value of 1 m between the buoys (potentially 2 m but a pre-cautionary approach is applied).

If a larger vessel (with a deeper keel) was to drift into the farm it would become entangled in the longlines. This is anticipated based on all quantitative and qualitative data to be low – but in reality, can never be ruled out 100% for any development at sea.

6.1.3 Typical Craft in Area

Local fishing operators have been consulted on the draft of typical vessels going in and out of Port Quin Bay. They have indicated that they are typically 1-2 m but could be up to 4 m or beyond. A UKC calculation has been carried out for typical designs of vessels with a canoe body draft of this depth (ignoring yacht keels as they get shallower as they heel).



6.1.4 UKC Calculation

Vessels referenced:

Vessel Description	Length (m)	Max Draft (m)	Width at Waterline (m)
Large Cabin RIB	15	0.95	4.0
Wind farm CTV	32	1.75	10.5
Police Patrol Vessel	49	3.1	16.1

Assuming a maximum heel of 15 degrees when turning at full speed and an increase of vessel draft due to movement squat, the following calculation has been carried out.

Vessel Description	Ds (Still Water Draft) (m)	Dd (Dynamic Draft) (m)	Dc (Safe Clearance Depth) (m)
Large Cabin RIB	0.95	1.482	1.927
Wind farm CTV	1.75	3.134	4.074
Police Patrol Vessel	3.1	5.228	6.796

Within the area of the kelp farm, but not directly over the lines, the vessels will have the following UKC.

Vessel Description	UKC (Clearance Under Keel) (m)
Large Cabin RIB	8.043 – 13.043
Wind farm CTV	5.926 – 10.926
Police Patrol Vessel	3.204 – 8.204

The Dd (Dynamic Draft) assumes the vessels would be going full speed, conducting high speed maneuvers within a licensed and mapped area known to have marine farms.

As shown above, the large Cabin RIB is technically above the kelp farm, but realistically it is highly likely that it could get caught up in the lines.



It clearly indicates that vessels with a draft of 0.95 m or lower may be able to enter the farm without becoming entangled within the permanent farm infrastructure. Vessels exceeding 0.95 m draft will become entangled within farm infrastructure. Therefore, this is a risk posed to marine vessels.

6.2 Risk Mitigation Measures

The applicants propose that the following measures will mitigate the risk to ALARP:

1. Navigational marker buoys will be in place and maintained during the life of the farm.
2. A staged farm expansion – raising awareness of its presence over time and with familiarity.
3. Proposed farms are plotted on all appropriate/required marine ENC's before activities commence.
4. Notice to mariners will be issued as per the conditions of the MMO licence, to inform stakeholders and mariners accordingly ahead of and after proposed works are completed.
5. The removal of grow lines from the farm from June to October (covering the higher vessel activity periods associated with summer) will help mitigate entanglement.
6. Wide Bay access channels around the farm (east and west) to enable safe passage to anchorage in bad weather or an emergency; with the anchorage area offering the full range of depths required for the full range of vessels. Distances not concentrating access into unreasonable sized channels
7. Reduced cumulative impacts, infrastructure and widened channels between longlines.
8. All mitigation under section 6.0
9. If deemed appropriate, the farm could be reasonably and proportionately reduced on the east side to widen that access channel further, as a condition of the licence.



Generally, rules for notifications of farm activity are as follows:

- Local mariners and FO to be made aware 5 days or more before activity commencement.
- MMO/Coastguard and UKHO notified within 24 hours of these notices issued. But in the case of a break-away, this will happen within 3 hours.
- When activities cease, the same parties are notified within 10 days of activity ceasing and the MMO must be notified within 1 week of issuing notices.

In terms of the stability of the infrastructure and potential breakaway, the risks are mitigated to ALARP by Arc Marines engineer's report (detailed in sections within the appeal document covered in 6.5 and 7.2 and FIR documents). Infrastructure is engineered to be stable for the life of the farm – within Port Quin Bay. In addition to this:

1. Infrastructure will be regularly replaced ahead of the end of its lifespan.
2. Buoys will be marked accordingly and regularly assessed with lashes replaced as required.
3. General and regular research/monitoring/maintenance activities.

The Hazard matrices forming the annexes at the end of the NRA detail the potential risks in more detail, consequences, risk level before mitigation and risk level with minimization and mitigation measures in place. In each case, identified risks are reduced to ALARP.

6.3 Use of Navigational Safety Markers

The presence of four navigational safety markers in the corners of the proposed farm area has



been covered (Trinity House recommendations).

Marking is required in accordance with the local lighthouse authority (LLH) and General lighthouse authority (GLA) regulations. The following guidance had been applied:

- IALA Guideline G1162, The Marking of Man-Made Offshore Structures, Edition 1.1, December 2021
- IALA Guidance 1077, Maintenance of Aids to Navigation, Edition 1, December 2009
- DfT Port Marine Safety Code (DfT 2016).
- DfT A Guide to Good Practice on Port Marine Operations, February 2018

Their standard advice for projects of this type is presented in Annex 1. Performance and effectiveness of the marking system will be under inspection regularly as per the requirements of the Regulatory Bodies and licence requirements (servicing/record keeping):

* = RECOMMENDED + = TO BE CONSIDERED	Lights (yellow)	Radar Beacon	AIS Ato N	Floatin g Ato N
Aquaculture	*	+	+	*

Marking the site in accordance with Trinity House involves the use of yellow spherical shaped lighted buoys exhibiting FLY.5/3s light character and surmounted with a yellow 'X' shaped top-mark.. Numbers and locations required are decided by Trinity House. They will be present seaward of MHWS for the life of the farm. Positions of these markers will be reported to all relevant authorities including Trinity House, alongside contact details. This will be within 10 days of deployment so that nautical charts can be amended. An emergency contact will be on record for 24-hour contact purposes.



7.0 Decommissioning Statement

This section will cover the following:

1. Recovery arrangements in the unlikely event that infrastructure breaks away from the farm
2. The full decommissioning of the site in the event of the licence ending and non-renewal by the applicants OR the applicants go into receivership/liquidation and operations on site cease indefinitely.

Please refer to all comments related to decommissioning and The Crown Estate presented above.

The applicants emphasise that the farm will be front and foremost monitored regularly and maintained to a high standard of integrity. This covers the main infrastructure, growth lines and associated buoys.

Note: In the event that equipment should break away from the farm, all equipment will be marked so that it is traceable (including contact details for notification). In the event of a significant structure failure, the applicants will report this to regulatory bodies, local Harbour Masters and local mariners (including MMO, MCA, Trinity House and UKHO). The priority will then be to contain the situation with immediate effect – to prevent further loss, to retrieve lost equipment and remediate the situation. Fast response times will reduce risk to other vessels, from floating debris. A crew can be onsite to repair or retrieve within 3 hours (tide permitting), and inside the 24-hour MMO licence requirement but within 3 hours of discovery for coastguard, UKHO and MMO.

Decommissioning of the site is the actionable and financial responsibility of the applicants/licence holders. This will be undertaken as a legal priority of the applicants, in line with all licence conditions. The Crown Estate complete due diligence in this respect as part of The Crown Estate licensing and tenancy agreement. The Crown Estate ringfence funding from the applicants to ensure decommissioning can take place and navigational safety/risk to



human health is managed and avoided. At the end of the farm life or in other circumstances, the proposed farm site will be returned to baseline conditions, unless agreed otherwise by the regulatory bodies.

Decommissioning involves safe removal of all infrastructure from site, including anchors (eco-blocks or reef cubes). Decommissioning is done in consultation with all appropriate regulatory authorities and under the same licence conditions that relate to the start and end of scheduled work at sea.

8.0 Site Operations & Emergency Response Plan

8.1 Deployment and Harvest

All conditions outlined under 6.0 will be adhered to.

8.2 Monitoring and Site Maintenance

All conditions outlined under 6.0 will be adhered to.

Given Padstow is the harbour Camel Fish currently operate from and moor vessels, it is anticipated incidence response impacting navigational safety can be responded to within a period of 45 minutes to an hour (if not on site), or as quickly as is reasonably possible. Communication with the appropriate authorities and entities will be key in co-ordinating this, making an appropriate action and response plan, and reporting when the issue is resolved and navigational safety is restored.

Incidences where damage results in an immediate navigational safety hazard outside of the farm footprint will be dealt with as high priority.



8.2.3 RNLI And Rescues

The applicants consulted with the RNLI with respect to navigational safety generally and within the Bay.

The RNLI vessel at Port Isaac is a D-class (LB1) lifeboat which is 5m long and 2m wide. The main RNLI vessel at Padstow is a Tamar-class lifeboat (Spirit of Padstow) and is 16.3 m long and 5.3 m wide.

With the 50% reduced cumulative impacts (50 Ha adjacent farm removed MLA/2023/00308), relocation of the proposed farm further offshore, resulting in no infrastructure within the inner Bay area, reduced farm infrastructure (60%), wider spacing of long lines (50 m access channels instead of 20 m channels), reduced longline rows from four to two and clear, wide access channels in the west and east of the Bay – it is anticipated these minimization and mitigation methods will not impede the RNLI in their role to maintain navigational safety and prioritise human life in the event of emergencies.

Please refer to 6.0.

The applicants have discussed in principle, with the RNLI, that RNLI training exercises and drills will be made possible within the farm footprint to facilitate practice rescue scenarios.

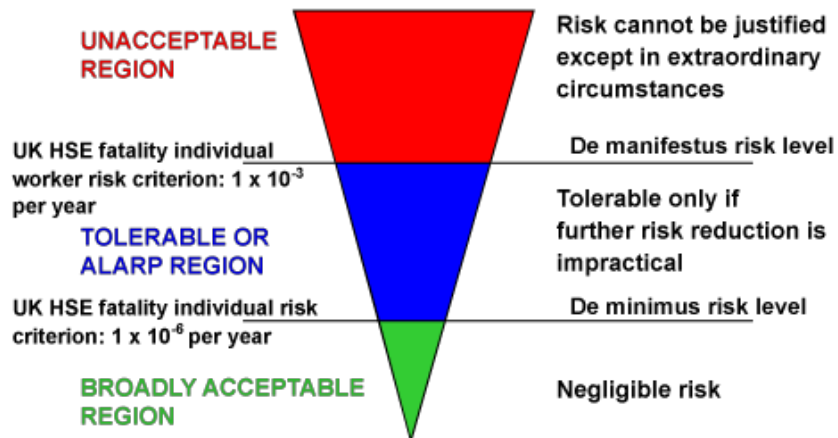


8.3 Standard Operational Procedures

1. The farm and marine operations shall be conducted to the relevant maritime safety regulations from STCW, ISO, SOLAS, IMO, COLREGs, MCA, MMO).
2. Vessels operating within farm operations will only be operated by crew who are fully qualified and have current medicals to operate within 12 Nm of a safe haven. These will be updated/checked accordingly, and insurances will be in place/checked as per legal requirements. Training and medicals will be undertaken at accredited clinics and training centres only.
3. All crew will wear appropriate safety gear and PPE as per maritime safety guidelines including the use of appropriate personal floatation devices (PFDs)/life jackets (see 6.0)
4. Vessels will have/be checked for clear postings for muster stations. Crew will be/checked to have been inducted per vessel and briefed on muster procedures.
5. All vessels will carry the appropriate emergency equipment in line with the number of insured crew aboard the vessel (such as life rafts).
6. All vessels will undertake regular emergency drills to ensure crew are aware of procedures and protocols during emergencies.
7. Vessels will be inspected annually (MCA) to ensure they meet all requirements legally to comply with safety requirements as per the legal requirements.
8. All incidents will be reported immediately and procedures followed as per maritime safety guidelines.
9. All vessel trips will be logged within a vessel log by the master. These logs will detail trip dates, crew, duration and purpose, fuel used, weather and general conditions, state of the vessel and if any issues/incidents occurred.
10. All operational procedures will be conducted through implementation of the ALARP principle:



The ALARP principle. Source Primatech.



Note: UK HSE criteria are per person for all hazards for a facility.

8.4 Procedures During Emergency Scenarios (Immediate Actions)

For emergency scenarios at sea during all farm operations the first point of contact is the coastguard (Call 999) and through channel 16 or 13 on the VHF radio (using either MAYDAY or PAN-PAN signals) to liaise with the local coastguard.

For any emergencies involving third party vessels, the Coastguard should liaise with the farm DPA so that the farm operations team can provide assistance.



8.4.1 Emergency Scenarios

8.4.1.1. Vessel Stranded in the Farm

8.4.1.1.1 Initial Actions

- Determine nature of problem – i.e. strayed into farm, entanglement etc.
- In the case of an emergency contact the coastguard.
- Obtain as much information as possible - Location, vessel name, names and number of people on board, state of vessel.
- Inform CEO, DPA, Operations Manager and Skipper.

8.4.1.1.2 Farm Vessels

- If farm vessels are on location, they may be required to act as on scene assistance under the guidance of the coastguard/RNLI/Harbour Masters.
- Initially assist the vessel via radio instruction to exit the farm by the safest route.
- If a vessel is entangled in the farm the farm vessel team may provide manual assistance to free a vessel and guide the vessel out of the farm.
- Liaise with coastguard via radio if necessary to provide and relay additional information.
- When appropriate, exchange contact information for insurance purposes.

8.4.1.1.3 Farm Operations/Designated Person Ashore

- Liaise with coastguard and farm vessels and if requested by coastguard liaise with the vessel in difficulty.

8.4.1.1.4 Communications

- Vessel in difficulty to contact coastguard, provide location, status, nature of problem, no. of pax onboard, nature of assistance required.
- Coastguard to inform Farm staff there is a vessel stranded in the farm and provide information as above to enable optimal response from the farm operations team.



8.4.1.2 Vessel Grounding

8.4.1.2.1 Initial Actions

- Inform skipper
- Stop engines
- Sound emergency alarm
- Close watertight and fire doors
- Display shapes and turn on navigational lights
- Turn on deck lights
- Turn on fire pumps
- Prepare life raft, epirb, flares and grab bags in case of abandonment

8.4.1.2.2 Communications

- Contact designated person ashore
- GMDSS messages as appropriate
- Inform MAIB

8.4.1.2.3 Bridge Team/Person's Tasks

- Check and record position on chart
- Check and record tidal information
- Check and record weather forecasts
- Consult contingency plan
- Consult SOPEP manual
- Consider refloating if possible – adjust ballast as necessary
- Consider assistance available – tugs or large vessels in vicinity
- Maintain a log of events

8.4.1.2.4 Emergency Team/Person's Tasks

- Sound around the vessel



- Deploy pollution prevention boom if necessary
- Sound all tanks and cargo holds
- Record all damage and report to skipper
- Maintain watch for pollution
- Assess internal damage – particularly tanks and collision bulkheads

8.4.1.2.5 Engine Team/Person's Tasks

- Sound all tanks
- Switch to high level suction pumps
- Record all damage and report to skipper
- Inspect fuel lines and pipes for fractures

8.4.1.3 Vessel Collision

8.4.1.3.1 Initial Actions

- Inform skipper
- Stop engines
- Sound general emergency alarm
- Manoeuvre vessel to minimise effects of collision (damage on leeward side)
- Close watertight and fire doors
- Switch on deck lighting
- Switch on fire pumps
- Muster crew
- Prepare life raft, epirb, flares and grab bags in case of abandonment

8.4.1.3.2 Communications

- VHF to Channel 16 and 13 if appropriate
- Updated GMDSS with vessel's position
- Broadcast Distress Alert and Message
- Inform designated person ashore



- Inform MAIB

8.4.1.3.3 Bridge Team/Person's Tasks

- Stop main engines
- Start fire pumps
- Check and record vessel position
- Check and record nearest port options
- Consider additional risks from fire/explosion
- Initialise SOPEP if required
- Stability assessment
- Consult contingency plan
- Offer assistance to other vessel – exchange details when appropriate
- Display correct shapes and turn on lights
- Check and record weather forecasts

8.4.1.3.4 Emergency Team/Person's Tasks

- Check for fire/damage/pollution
- Sound bilges and tanks
- Estimate size of damaged area and location above or below waterline
- Check for casualties or missing persons
- Assess whether repairs can be carried out

8.4.1.4 Vessel Taking on Water/Flooding

8.4.1.4.1 Initial Actions

- Inform skipper
- Stop engines
- Sound general emergency alarm
- Manoeuvre vessel to minimise the effects of conditions
- Close watertight and fire doors



- Switch on deck lighting
- Switch on fire pumps
- Muster crew
- Consider causes
 - Collision with another vessel or object at sea
 - Collision with shore or jetty
 - Collision with submerged object
 - Following explosion onboard
 - Following fire onboard
- Consider dangers
 - Loss of watertight integrity consequent loss of buoyancy
 - Loss of buoyancy will ultimately lead to vessel sinking
- Prepare life raft, epirob, flares and grab bags in case of abandonment

8.4.1.4.2 Emergency Team/Person's Tasks

- Assess whether vessel is holed above or below waterline
- Estimate the rate of ingress
- Attempt temporary repairs if possible
- Sound all tanks and spaces
- Look for signs of pollution

8.4.1.4.3 Bridge Team/Person's tasks

- Close all watertight and fire doors
- Start bilge/ballast pumps in affected areas
- Record times and sequence of events in log book
- Assess stability
- Inform designated person ashore and emergency services if necessary
- Send urgency/distress messages as appropriate
- Consider refloating if possible



- Consider abandoning ship
- Initiate SOPEP if applicable.

8.4.1.5 Man Overboard (MOB)

8.4.1.5.1 Initial Action

- Inform skipper
- Raise alarm and inform skipper
- Maintain visual contact with MOB
- Relay position of MOB in relation to vessel
- If possible, release lifebuoy with light and smoke signal
- Steer wheel over to side of casualty
- If possible, push MOB button on vessel GPS
- Sound 3 prolonged blasts: Morse "O"

8.4.1.5.2 Emergency Team/Person's Tasks

- Muster crew
- Radio Coastguard and ask for assistance
- Rig pilot ladder/floatation devices for assistance in recovery

8.4.1.5.3 Bridge Team/Person's Tasks

- Maintain lookout, pointing at target
- Hoist signal flag "O"
- Note vessel position, wind and tide speed and direction at time
- Commence recovery manoeuvre
- Engines on stand-by

8.4.1.5.4 Communications

- Broadcast emergency message
- Update GMDSS information log
- Distribute VHF for internal communication



8.4.1.6 Fire Onboard Vessel

8.4.1.6.1 Initial Action

- Inform skipper
- Sound general emergency alarm
- Manoeuvre vessel to minimise effects of wind and consider anchoring
- Stop engines
- Muster crew
- Close watertight and fire doors
- Switch on fire pumps
- Determine the location and extent of fire
- Consider sending distress signal
- Contain fire if possible (fans, vents, watertight doors)
- Ready other available firefighting equipment (PPE and extinguishers)
- Record location and weather conditions (tide and wind direction)
- Prepare life raft, epirb, flares and grab bags in case of abandonment

8.4.1.6.2 Emergency Actions

- Investigate a search if muster list isn't completed
- Ensure fire doors are closed
- Isolate electrical supplies
- Exhibit NUC signals/shapes
- Confirm and record position

8.4.1.6.3 Communications

- Send distress signal
- Inform of vessel position, nature and size of fire, number of passengers and crew onboard, measures being taken, and nature of assistance required



8.4.1.6.4 Out of Control Fires

- Consider using fixed-firefighting system to tackle and boundary cool
- Anchor vessel if possible
- Regularly update coastguard and fire brigade
- Consider protocol of abandoning ship

8.4.1.6.5 Manageable Fires

- Consider temperatures and risk of reignition - maintain boundary cooling
- Check fire has not spread - if possible, check internal walls and behind bulkheads
- Consider restoring ventilation to clear smoke
- Update fire brigade and coastguard

8.5 Vessels, Equipment and Personnel for Response

A detailed risk assessment will be conducted with the vessel operator (skipper) before leaving shore for all farm operations. This will ensure that the vessel and equipment on board are suitable and adhere to maritime safety guidelines. The MCA are the main points of contact should an emergency arise while working on the site. All other relevant bodies will be notified within 24 hours of an incident occurring, except for in the case of a break away where the coastguard, UKHO and MMO will be notified within maximum 3 hours of discovery.

8.6 Emergency Contact Details

- **Camel Fish: To be provided**
- **Vessel Operator: To be confirmed and regularly reviewed/on record**



8.7 Emergency Equipment and Disaster Recovery Plan

The primary objective of this disaster recovery plan is to ensure the safety of personnel, minimise damage to infrastructure, and facilitate the swift recovery of seaweed farm equipment in the event of a serious incident.

With regards to an infrastructure incident (minor or major), the applicants understand and conform to the 'polluter pays' principle, which is the commonly accepted practice that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment.

8.7.1. Emergency Response

- a. Emergency Contacts: - List emergency contacts, including local authorities, medical services, and relevant government agencies.
- b. Emergency Procedures: - Clearly outline emergency procedures for establishing communication. A chain for internal updates and alerts among farm personnel as well as external communication with local authorities, media, and relevant stakeholders.

8.7.2. Infrastructure And Equipment

- a. Equipment Inspection: - Establish a routine inspection schedule for equipment and infrastructure to identify and address potential issues before they become critical.
- b. Equipment Redundancy: - Consider having redundant systems for critical equipment to ensure continuous operation.



8.7.3. Recovery Procedures

- a. Assessment and Documentation: - After an incident, conduct a thorough assessment of damage and document all findings.
- b. Prioritise Recovery Efforts: based on the criticality of operations, with a focus on restoring essential functions first.
- c. Resource Allocation: - Allocate resources efficiently, considering manpower, equipment, and financial resources.

8.7.4. Training And Drills

- a. Regular Training: - Conduct regular training sessions for farm personnel on emergency response and recovery procedures.
- b. Simulation Drills: - Schedule simulation drills to ensure personnel are familiar with their roles and responsibilities during a serious incident.

8.7.5. Continuous Improvement

- a. Post-Event Evaluation: - After a serious incident, conduct a thorough evaluation of the effectiveness of the response and recovery efforts.
- b. Update the NSA/ERP if required: - Based on post-event evaluations and lessons learned, update the recovery plan to enhance future response capabilities.

8.7.6. Contact Information

- a. Key Contacts: - Compile a list of key contacts, including personnel, emergency services, and relevant stakeholders.



b. Plan Distribution: - Ensure that all personnel have access to the updated disaster recovery plan.

Annex I: Trinity House

Trinity House have been engaged regarding the proposed licensed site. Their lighting requirements are detailed within the NSA. Their concerns/comments are addressed with the appeal and supportive documents that accompany this NSA and the NSA itself.

10.2 Activities Assessed Cumulatively in Relation to Traffic in the Area

Within ICES30E5 there will be 2 seaweed farms operated individually. One of the c.50 Ha site is in Port Quin Bay (MLA/2023/00307). The second site has been granted a licence (L/2023/00169/1) and is located 3.1 miles NE of the proposed farm. This site is c.100 Ha. This results in a foot print of 50 Ha in Port Quin and 100 Ha in the Port Isaac region. The Port Isaac license has been suspended for a period of 18 months and to date, license holders have not operated in the site. The Port Isaac farm co-ordinates are:

Farm Corner	Latitude	Longitude
Northeast	50.63397	-4.81122
Northwest	50.63359	-4.8244
Southeast	50.62505	-4.81054
Southwest	50.62479	-4.82444



Annex II: Safety Assessment and Risk Matrices

- Formal safety assessment I – Summary table: Hazard Log
- Risk control matrices x 2 (should be considered collectively with Hazard Log)
- MEAC cards to be submitted upon approval of licence

11.1 Formal Safety Assessment I – Summary Table: Hazard Log

Brief description of the work or Method Statement Title	Navigational Risks and Hazards in proximity of Seaweed Farm	Project No/ Location:	MLA/20 23/0030 7: PORT QUIN BAY	Method Statement Ref No	Marine procedures		
		Assessed d	Dr Angela Mead	Assessed On Site By:	Dr Angela Mead	Expected	
		By:				Duration of	
		Date of Assessment:	30/09/2025	Date of on-site assessment:	15/05/2024	Review Cycle:	1
Persons & Vessels at Risk:	EMP - Employee CON - Contractor PUB - Public CV - Company OV - Other Vessels Vessels						



+ Formal safety assessment I – Summary table: Note: green – 1-7 (LOW RISK), yellow – 8-12 (MODERATE RISK) and red – 13+ (HIGH RISK) to assess tolerability levels with regards to ALARP (standard) – reducing risks through control measures and monitoring will reduce initial tolerability/risk levels, with green being acceptable (ALARP). This scale indicates what the tolerability levels mean and the applicant's consultant has worked through these scales with the MCA on a number of different seaweed farm licences.

Hazard Ref No	Risk	Hazard Identification & Foreseeable Risks	Without Controls			Control Measures	Method of Monitoring Control Measures	With Controls		
			C	L	R			C	L	R
1	Vessel Collisions with company Vessels	Reasons this may happen: - Inattention from fatigue, from excessive driving or arduous work resulting in exhaustion. - Unaware of the correct destination. - Poor visibility - Too many vessels in a constrained area (the farm) - Distraction		3	15	In terms of control measures the applicants/operators can take to prevent pertaining to their vessel/s and other (which applies to all risks): Leave plenty of time for the intended journey including a rest period before starting work. Take regular rest breaks. Adhere to working hours. Ensure skippers and crews are properly inducted and familiarised with farm location and entry and exit points, escape channels and marker buoys Understand exact destination and passage objectives prior to departing to familiarise yourself as much as possible. Make use of radar and AIS There will usually only be one vessel operating within the farm	In terms of control measures the applicants can take to prevent pertaining to their vessel/s/others (which applies to all risks): Company management to ensure all masters and crew are properly qualified and current. Vessel log to be recorded after each use - collisions or near misses to be recorded Near miss log to be recorded Toolbox talks / safety briefings issued daily with awareness	2	1	2



		Inclement weather conditions				Only necessary personnel in the wheelhouse during navigation and no mobile Ensure the crew complete regular safety drills and have all the required Licences/medicals up to date (STCW, ISO, SOLAS, IMO). Ensure all seaweed farm the crew has access to a copy of the NRA and ERP and are familiar with the document and procedures within. Operate in safe sea conditions, in daylight hours where possible. Ensure all crew know what their responsibilities are on the boat in an emergency and who to immediately alert about any collision (muster stations). Ensure the correct safety equipment is on board and that crew wear life vests at all times (e.g. life rafts and vest) Ensure the skipper/master uses the correct methods to alert other boats to their presence in low visibility Make sure the navigational safety markers are in sound working order/serviced to alert other sea users to the farm perimeters Ensure lines are maintained at the correct distances and that channel sizes are correct. Use eco-blocks (reef cubes) as per marine engineering report, to ensure stability: the longlines remain in place. Regularly maintain the lines in excellent condition. Ensure That if multiple crews are operating in the area, they are briefed and aware of where each other are operating.	raised of other company boats in operation Farm maintenance log to be recorded Logs/records for navigational safety markers – ongoing maintenance and servicing All appropriate records and reports provided to the MMO and the Crown Estate by applicants/farm operators Responsibility of vessel masters to ensure all maritime laws and company guidelines are adhered to and regular refresher training and drills carried out. Current operated farms have experienced 0 entanglement or collisions			
--	--	--	--	--	--	---	--	--	--	--



						Ensure there is an employee on land who is the designated person to send out the appropriate alerts if required MEAC card maintained up to date Keep lines within navigational markers Regularly review data sources recording annual traffic in the area (AIS and non-AIS) Break-aways will be reported to the coastguard/UKHO/MMO within 3 hours of discovery. Ensure all local mariners are made aware of activities 5 days ahead of commencement AND within 10 days after activities cease (marine notices). Ensure the navigational safety markers are well maintained, to include the yellow spherical shaped lighted buoys (Fly.5s light character, surmounted with a yellow shaped cross topmark and the unlighted yellow markers (as per trinity House guidelines. Ensure nautical charts are updated. Ensure vessels are of a CAT level appropriate. Maintain the lines below the surface (2 m). Monitor lines weekly.				
--	--	--	--	--	--	---	--	--	--	--



						Operate within 12 NM of a safe haven Ensure appropriate insurances are in place Ensure boats will pass annual inspections (safety). Equipment will be marked and traceable/retrievable Site will be fully decommissioned at the end of life of the farm. Call the coast guard and RNLI. Assist and guide vessels to safety in the event of a collision. Follow all STCW action protocols. Sailing crew should aim to avoid entering the marine farm area due to clear warning signs within the Bay area, updated charts, solas tape markings on all buoys and appropriately maintained navigational safety aids. Follow all protocols required related to coastguard, RNLI – in the case of a collision and ensure all staff are aware of those protocols. Ensure appropriate safety equipment is on board, for the right numbers of crew members. SAFE ANCHORAGE (see supplement); ensure farm is maintained within licensed area and that farm infrastructure is stable and does not move in a way that impedes on the access channels (tensioning, maintenance, replacement) and ensure channels between longlines are maintained at 50 m.				
--	--	--	--	--	--	--	--	--	--	--



2	Vessel Collisions with Other Vessels	Reasons this may happen: • Lack of situational awareness. • Failure to set priorities – lack of positive action. • Preoccupation with administrative tasks. • Failure to communicate intentions (officer/master/pilot). • Lack of assertiveness – failure to challenge incorrect decisions (officer/master/pilot). • Failure to comply with standard procedures and international regulations. • Failure to utilise available data and resources. • Lack of training • “Human-technology”	5	3	1 5	In terms of control measures the applicants can take to prevent pertaining to their vessel/s/other vessels: As per 1 above.	In terms of control measures the applicants can take to prevent pertaining to their vessel/s/other vessels: As per 1 above	2	1	2
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3	Propeller Fouling: snagging on ropes and buoys	Fouled propeller disabling propulsion of vessel With sailing vessels most likely to accidentally enter a farm, traffic levels were assessed as moderate (low to lower-medium)	3	4	1 2	Preventative approaches that the farm operators can take to reduce risks to ALARP: • Grow lines on the farm will be kept at a depth of 1-2m and lines tensioned - Grow lines clearly marked by buoys and channels maintained. - Grow lines to be removed during July/August (busier sailing months) • company vessels to be equipped with anti-propeller fouling guards • Vessel will be equipped with multiple knives/equipment that can be used to free the vessel from snags/entanglement if necessary • company vessel crews to be well drilled in releasing fouled propellers by safe methods and carry appropriate equipment and PPE to do so (ref 1,2) • Should Other vessels get fouled, company vessels will assist as above • The farm location will be clearly marked on marine charts and farm operators will ensure lines are within the footprint of the farm • Farm will be clearly marked by lit special marks which are maintained and serviced for the benefit of other sea users • Authorities and coastguard/RNLI will be informed if assistance needed in an incident – with priority given to safe navigation and human health (life). • If lines are cut to free a vessel 9as per above), lines will be repaired or replaced within ERP timeframes and appropriate authorities/marine notices will be issued by the farm operators.	<i>In terms of how the farm operators monitor/manage:</i> Crew and Master to regularly drill/train for freeing of propellers Removal of grow lines when not in use by farm operators All incidents to be recorded in a company log	2	1	2
4	Rudder / Skeg fouling or snagging ropes or buoys	Ropes or buoys getting entangled in a vessels hull or elements of the structure e.g. rudder or skeg and getting disabled	3	4	12	• Seed lines on the farm will be kept at a depth of 1m and deeper (ref 1,2) • company vessels to be equipped with anti-propeller fouling guards (ref 3) • Vessel will be equipped with multiple knives/tools that can be used to free the vessel from snags/entanglement if necessary (ref 3) • company vessel crews to be well drilled in releasing fouled lines by safe methods and carry appropriate equipment and PPE to do so (ref 1,2) • Should Other vessels get fouled or entangled company vessels will deploy to assist (ref 1,2) – the oprators will have made sure: • The farm location will be clearly marked on marine charts (ref 1,2)	Crew and Master to regularly drill for freeing of entangled lines (ref 1,2) Crews to regularly monitor navigation aids around the site to ensure they are in correct working (ref 1,2)	2	1	2



						• Farm will be clearly marked by lit special marks (ref 1,2) – serviced and maintained • Equipment that is lose to be retrieved by the farm operators as soon as possible (ERP)				
5	Grounding	Uncharted wrecks, shallow areas, rocks	3	4	12	• The farm is in an area of 12-15m of water at LAT. So, grounding on the seabed is highly unlikely. • Farm is located away from any charted wrecks, foul ground or rocks • It is highly unlikely there will be any uncharted wrecks in the area after considerable discussion with the local trawler and potting fleets and after undertaking an English Heritage archaeology assessment. • Otherwise – preventative methods by the farm operators as above (Ref 1,2 above)	In house Master and crews to be familiar with the local area and charting and knowledgeable about hazardous areas both near the farm and on the passage out and back (ref 1,2). Any changes to the seabed topography to be logged and reported Ref 1,2 above	2	1	2
6	Fishing vessels Snagging Underwater moorings	Anglers, trawlers or pots snagging fishing gear on mooring blocks	5	3	15	Farm operators will ensure the following to protect other sea users: The eco-blocks (reef cubes) will be located inside the clearly marked perimeter of the farm so vessels should not encounter them at the depths they are located, even for large keel sizes. Company Vessel will be equipped with suitable equipment and trained in safe methods to cut away any snagged gear Vessel will be equipped with multiple knives/tools that can be used to free the vessel from snags/entanglement if necessary (ref 3) All actions as per ref 1,2	Farm operators will: Ensure farm location is well known and understood by proper engagement with key local stakeholders - fishers, yacht clubs especially during early operations – marine notices (to be assisted through a staged roll out of lines from trial lines to full farm compliment of lines over years and in line with guidance from The Crown Estate.	2	1	2



7	Impact with Structure	vessel collision with farm infrastructure	3	4	12	The farm operators will ensure that, to keep other users of the sea safe and reduce risks to ALARP: refer to 1,2, 3 and 4 above	Farm staff to monitor traffic around farm Refer to 1,2, 3 and 4 above	2	1	2
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11.2 Risk Control Matrix 1

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/981718/MGN_654_Annex_1_NR

[A Method p.102](#) – *apply to all infrastructure-based operations at sea as good practice with regard to human health/safety of operations*

		Description	Risk Control Type				Risk Control Effect		
			Asset	Rule	Good Practice	Option	Prevention	Mitigation	Emergency Response
1		Vessel Assets							
	1	Emergency Response - Requisitioned Vessels	✓						✓
	2	Search and Rescue - Inshore	✓						✓
	3	Search and Rescue - Lifeboats	✓						✓
	4	Search and Rescue Requisitioned Vessels	✓						✓
	5	Tugs				✓			✓
2		Aviation Assets							
	1	Search and Rescue - Helicopter	✓						✓
	2	Oil Spill Dispersant - Aircraft	✓						✓
3		Offshore Seaweed Farm Installation Assets							
	1	Marks and Lights	✓				✓	✓	
	2	Design specifications e.g., to aid SAR	✓					✓	✓
5		Shore Based Assets							
	1	Marine Radar, Navigation and Communications Systems	✓				✓		
	2	Marine Rescue Coordination Centres	✓						✓
6		Other Assets							
	1	Pilot Services	✓				✓		
	2	Charts	✓				✓		
8		Configuration & Design							
	1	Optimise location, alignment, size and layout			✓		✓		
	2	Minimum safe (sea) clearances		✓			✓		



9	Site Designation							
1	Safety zones of appropriate configuration and extent during construction, operation and decommissioning phases.				✓	✓		
10	Routeing and Routeing Management							
1	Implementation of IMO routeing measures within or near the development e.g., Traffic Separation Scheme, Recommended Route, Area to be Avoided etc.				✓	✓		
2	Manage traffic through VTS from MCA Control Centre				✓	✓		
3	Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC) from farm workboats			✓		✓		
4	Monitoring by radar, AIS and/or closed-circuit television (CCTV) from farm workboats				✓	✓		
5	Speed limits to control wash			✓		✓		
11	Navigational Marking							
1	External Marking of farm to Trinity House requirements based on IALA recommendations		✓			✓		
4	Aids to Navigation to Trinity House requirements		✓			✓		
12	Communication & Training							
1	Promulgation of information and warnings through notices to mariners and other appropriate media		✓	✓		✓		
2	Marking on Navigation Charts		✓			✓		



13	Safety Management							
	1 Operator's Safety Management System			✓			✓	
	2 Operators Safety and Operations Plan			✓			✓	
	3 Operators Emergency Plan			✓			✓	
	4 Contingency plan if GPS switched off/failed			✓				
	5 Emergency Response Plan	✓				✓	✓	✓
14	Regulatory							
	1 MMO				✓			
15	Search & Rescue							
	1 SAR response planning			✓				✓
	2 SAR asset provision planning			✓				✓
	3 Emergency Response Cooperation Plan		✓					✓
16	Emergency Planning							
	1 Salvage response planning			✓			✓	
	2 Salvage asset provision planning			✓			✓	
	3 Oil Spill response planning			✓			✓	
	4 Oil Spill asset provision planning			✓			✓	



11.3 Risk Control Matrix 2

NOTE: red indicates level 3 or 4 hazards, yellow indicates level 2 hazards and green indicates level 1 hazards. NOTE: Marine collision frequency has been raised from level 2 to 3, in line with re-assessment of recreational traffic levels from low to moderate. This does not materially change tolerability with monitoring levels.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/981718/MGN_654_Annex_1_NRA_Method_p.102 NOTE: Storm activity has been given a level 1 due to the marine engineering of the infrastructure within the Port Quin Bay Site (stability), based on current data and alongside valid mitigation methods suggested within the NSA: However the applicants acknowledge that storm activity could increase in frequency in the future through climate change and this is something that will be carefully monitored. However, this has been factored in across the engineering life of the farm (See Arc Marine Engineering Report). Guides to categories/scoring system provided here.



			Severity				Frequency				Tolerability					
			Minor	Significant	Severe	Catastrophic	Extremely Remote	Remote	Reasonably Probable	Frequent	Broadly Acceptable	Broadly Acceptable	Tolerable with Monitoring	Tolerable with Additional Controls	Tolerable with Modifications	Unacceptable
1		Physical Hazards	1	2	3	4	1	3	5	7	1	2	3	4	5	6
	1	Operational Injuries	1						5				3			
	2	Mechanical Injuries		2				3							5	
	3	Chemical Hazards		2			1						3			
	4	Biological Hazards (Pathogens & Parasites)		2				1					3			
2		Environmental Hazards														
	1	Biological Pollution (non-endemic species introduction)		2				2						4		
	2	Organic Pollution		2			1					2				
	3	Chemical Pollution		2			1					2				
	4	Habitat Modification		2			1						3			
3		Climate Hazards														
	1	Storm Activity	1					2				2				
	2	Flooding		2				2					3			



KEY						
Severity Index (IMO)			Frequency Matrix (IMO)		Tolerability Index (HSE)	
1	Minor	Single or Minor Injuries	1	Extremely Remote Once in 20 years in a 5000 ship fleet	1	Broadly Acceptable Technical review is required to confirm the risk assessment is reasonable. No further action is required
2	Significant	Multiple or Severe Injuries	3	Remote Once a year in a 1000 ship fleet	2	Tolerable with Monitoring Risk must be mitigated with engineering and/or administrative controls. Must verify that procedures and controls cited are in place and periodically checked
3	Severe	Single Fatality or Multiple Severe Injuries	5	Reasonably Probable Once a year in a 10 ship fleet	3	Tolerable with Additional Controls Risk should be mitigated with design modification, engineering and/or administrative control to a Risk Class 3 or below before operation
4	Catastrophic	Multiple Fatalities	7	Frequent Once per month on 1 ship	4	Tolerable with Modifications Risk should be mitigated with design modification, engineering and/or administrative control to a Risk Class of 4 or below before construction
					5	Unacceptable Risk must be mitigated with design modification and/or engineering control to a Risk Class of 5 or lower before consent





Annex III: Supplementary Assessment: Safe Anchorage

There is an safe anchorage area located within Port Quin Bay. This is for vessels to anchor in the event of bad weather or sea conditions. This anchorage has been designated under EU Directive 2002/59 which states that *“Member States shall draw up plans for the accommodation of ships in order to respond to threats presented by ships in need of assistance in the waters under their jurisdiction, including, where applicable, threats to human life and the environment. The authority or authorities referred to in Article 20(1) shall participate in drawing up and carrying out those plans.”*

The anchorage is not within the jurisdiction of the Harbour Authorities at Padstow, but rather the MCA. Figure 1.0 demonstrates where the c.50 Ha proposed seaweed farm will be located, relative to the Bay and the safe anchorage zone (shaded pink):

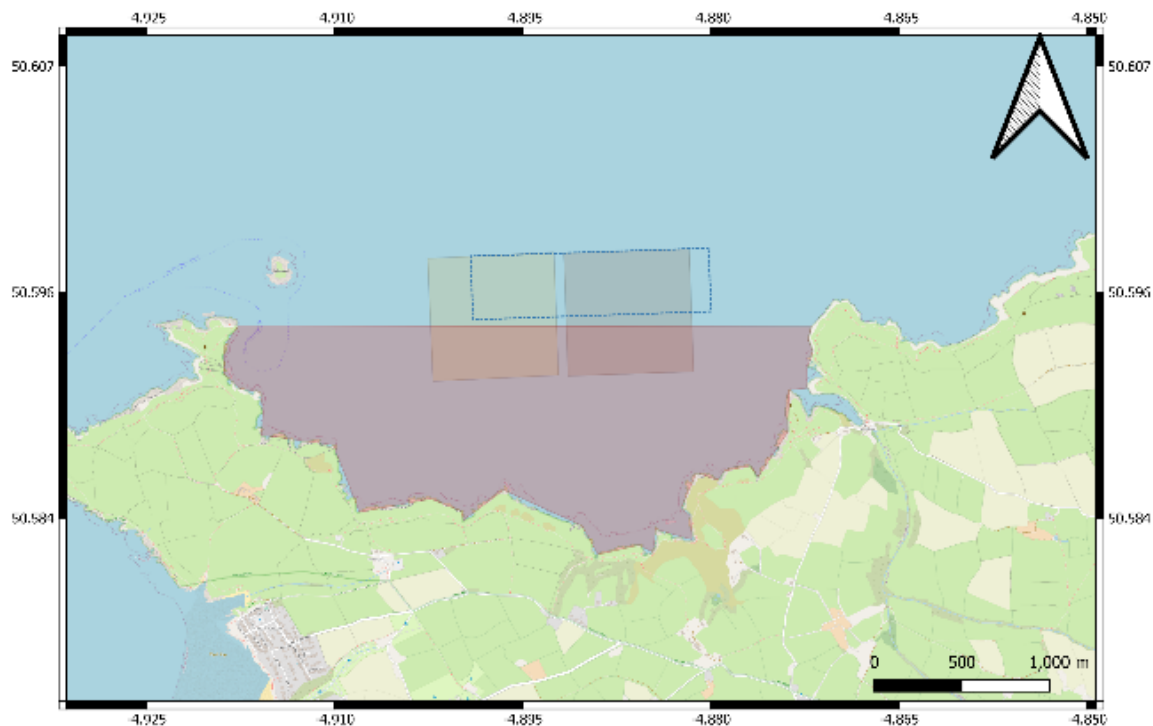




Figure 1.0: Updated farm footprint following Biome Algae's withdrawal under MLA/2023/00308). The pink area represents the Port Quin Bay area including safe anchorage area, as identified by the MMO/MCA. The two faded squares represent the farm footprints for MLA/2023/00307 and MLA/2023/00308 (cumulative). The blue rectangle is the adapted position for MLA/2023/00307, which would have been proposed with appropriate meaningful engagement (as minimizing and mitigating any potential effects – bringing them to ALARP.

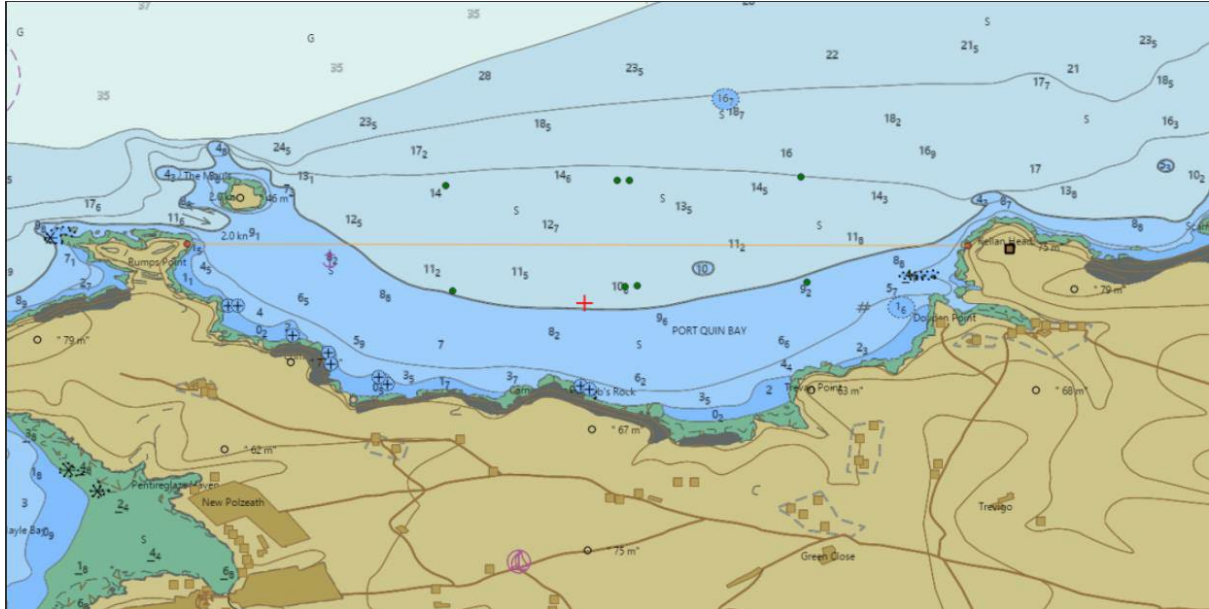
The distances of the farm (illustrated in Figure 1.0), from the coastline are:

- 1 km from Moulds (west coast) - a 1 km wide access channel in and out of the Bay on the west.
- 900 + m from the south coast (closest point) – larger, open inner Bay area.
- 640 m from Doyden Castle coast (east coast) – access channel in and out of the Bay on the east.
- 570 m from the east coast (closest point). – access channel in and out of the Bay on the east

Therefore, there are significant access channels in and out of the Bay on the west and east access points. The applicants recognize the size of the access channels will be important in bad weather or sea conditions and with poor visibility. They need to be sufficient to allow access in difficult conditions without causing a concentration effect (squeeze) between the farm and the coastline.

The farm is located outside of designated anchorage area (with multiple depths available for anchoring of different sized vessels).

The map below (provided within the MMO Decision Report) illustrates the anchorage area and how the previous adjacent farms (MLA/2023/00307 and MLA/2023/00308) cumulatively would have encroached into the safe anchorage area. In addition, the channels on the west and east were narrower:



Reducing the cumulative effects by 50% (through the withdrawal of MLA/2023/3008), adapting the location of MLA/2023/00307, reducing the farm infrastructure proposed for MLA/2023/00307 by 60% and increasing the channels between longlines from 20 m to 50 m provides a range of mitigation and minimization methods to ensure impact on the safe anchorage is not significant.

Besides increasing the distance in the west channel to 1 km of open sea from the coastline, the adapted location completely frees up shallower and deeper locations throughout the Bay within the whole anchorage area, for vessels of various draughts to anchor safely.

In the event a vessel does need to enter the farm to access anchorage, the increased channel size between longlines and reduced infrastructure will reduce impacts for the vessel.

The new, extended distances from the farm site to the west coast (1 km +) facilitates good vessel access in adverse conditions without squeeze, along with the farms recorded location on nautical charts and presence of navigational safety markers, as per Trinity House instructions.

The distances are similar from the proposed farm site to the east coast as they were in the



combined farm site applications. The distances are 500 m plus. The distance should facilitate good vessel access in adverse conditions. However, the comments raise in the third round of statutory consultations raised concerns of squeeze in adverse conditions.

It is the applicant's full intention to minimise and mitigate risks to human health and navigational safety as far as possible to ensure ALARP. The applicants are open to suggestion (if considered necessary by the appropriate authority) that a condition of the licence could be to reasonably reduce the farm footprint on the east side to ensure ample channel access to the anchorage area for vessels of all sizes from both the east and west; even in adverse weather conditions or poor visibility. In addition, this would further reduce the infrastructure required.

The applicants presented **examples** of different sized vessels anchoring in the Bay over time. It was not an exhaustive list. Vessel data for cargo and other vessel types has been updated above and presented below.

Examples vessels included:

Arslan I: 91m x 14m

Fokko Ukena: 88.63m x 12.4m

Hav Zander: 88.28m x 12.5m

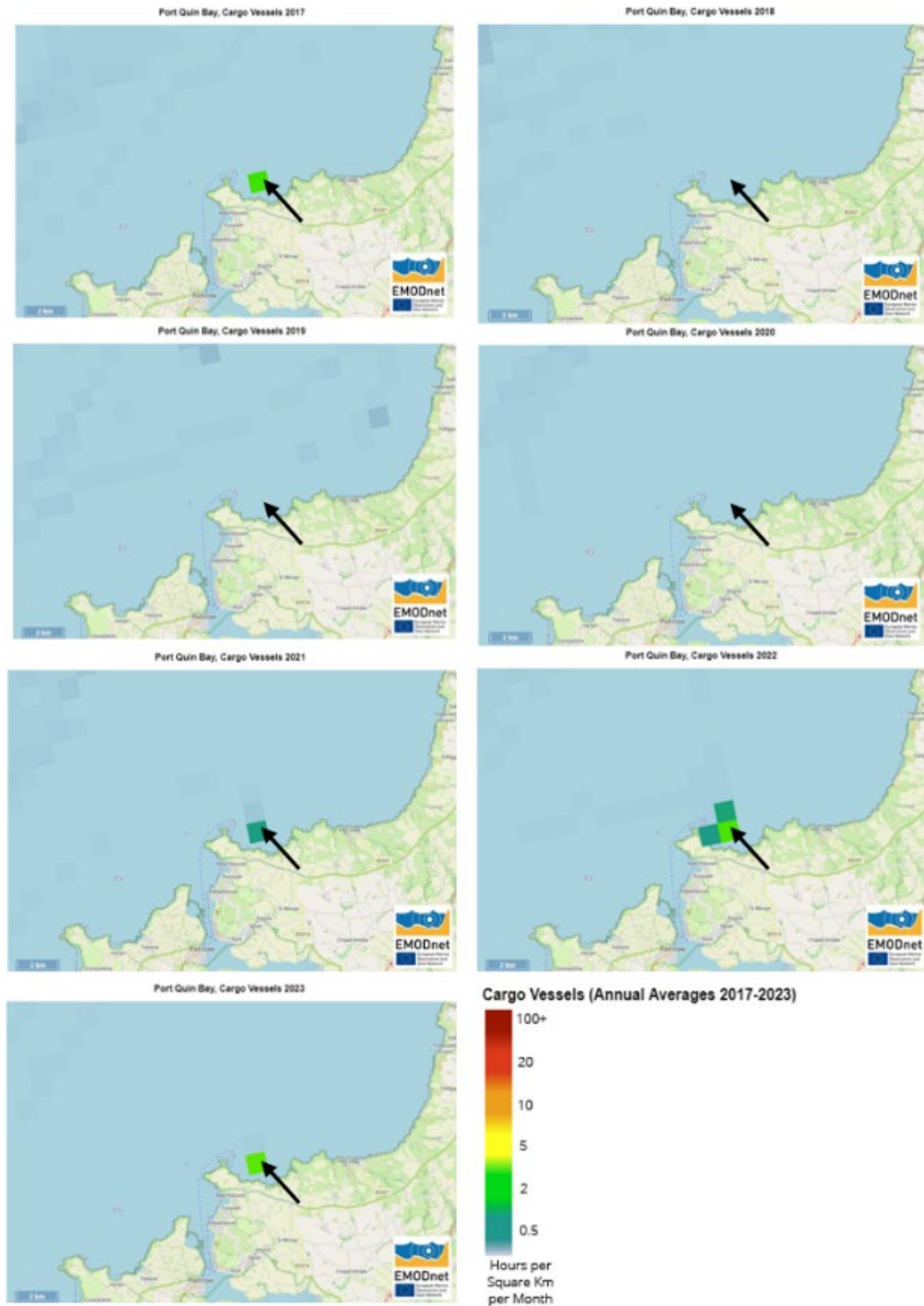
Hendrik S: 82.51m x 12.4m

Hendrika Margaretha: 81.05m x 12.29m

Prins 2: 62.02m x 10.95m

Kingdom of Fife: 61.2m x 13.8m

In addition, AIS/VMS EMODnet data was investigated to understand use of the Bay by Cargo ships (indicated within this report):



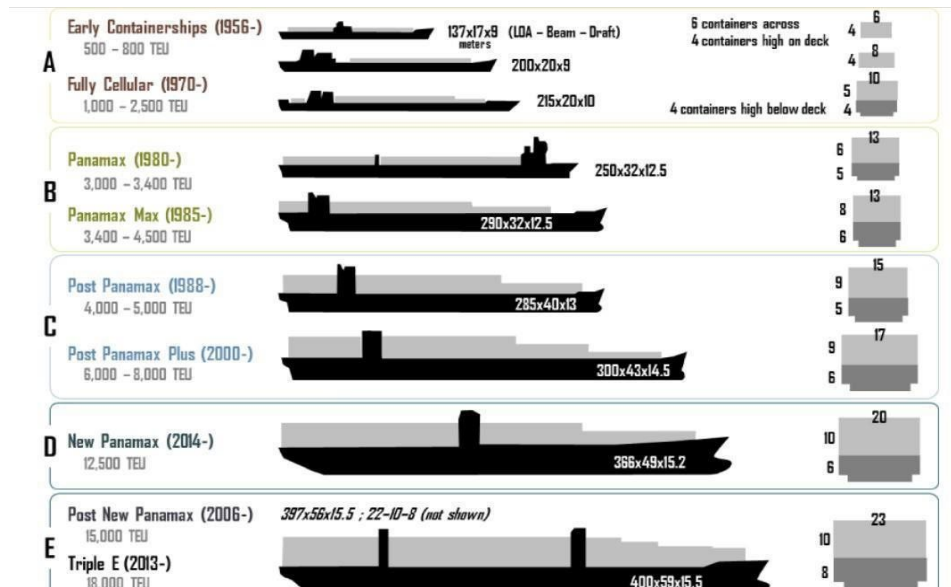
These assessments indicate marine traffic levels within the Bay for much larger vessels, such as Cargo or military vessels, using the Bay each year (as anchorage) from 2017-2023.



hrs/km ² /Yr	2017	2018	2019	2021	2022	2023
Cargo	2.78	0.00	0.00	0.00	2.94	3.31
Military/Navy	0.16	0.00	0.04	0.55	0.00	0.02
Total	2.94	0.00	0.04	0.55	2.94	3.33

The applicants consulted generally with a Naval Architect related to typical sizes of significantly larger cargo vessels traversing the seas and oceans. Some size indicative data is presented:

Dimensions	Length (m)	Beam (m)	Draft (m)
ULCV	380-400	57-59	14-16
Panama Canal	294.1	32.3	12
Panama Canal expansion	366	49	15
Suez Canal	No-limitation	77	20



The draft sizes now remain accommodated within the safe anchorage area as the entire space allocated (Figure 1.0 and MMO map) remains open.