Marine Management Organisation

MMO Stage 3 Site Assessment: Hartland Point to Tintagel MPA (DRAFT)






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MMO Stage 3 Site Assessment Hartland Point to Tintagel MPA (DRAFT)

Contents

Executive Summary

This assessment analyses the impact of anchored nets and lines and traps on the designated features; fragile sponge and anthozoan communities, high energy circalittoral rock, moderate energy circalittoral rock, pink sea-fan, subtidal coarse sediment and subtidal sand in Hartland Point to Tintagel Marine Protected Area (MPA) to determine whether a significant risk of hindering the conservation objectives of the site can be excluded. The assessment sets out the evidence considered and analyses the quality of that evidence.

The assessment finds that without further management, ongoing use of traps over rocky reef features of Hartland Point to Tintagel MPA may hinder the achievement of the conservation objectives of the MPA as a result of the impacts of abrasion. The Marine Management Organisation (MMO) will therefore introduce management measures to prohibit the use of traps in specified areas of the MPA.

1 Introduction

This assessment considers whether fishing activities are compatible with the conservation objectives of Hartland Point to Tintagel MPA.

This site is designated as a marine conservation zone (MCZ). This assessment uses the best available evidence to review site characteristics and fishing activity and determine if there is a significant risk of fishing activities hindering the conservation objectives of the site. If so, MMO will develop and introduce suitable management measures, such as MMO byelaws. If MMO byelaws are required, then these will be subject to public consultation and will require confirmation from the Secretary of State to come into force.

2 Site information

2.1 Overview

The following Natural England conservation advice package was used for background on site geography, designations, features, conservation objectives, general management approach and supplementary advice in this assessment: NE Conservation Advice – Hartland Point to Tintagel MCZ[1].

Hartland Point to Tintagel MPA is an inshore site which straddles the 6 nautical mile (nm) boundary. It is located in the Celtic Sea, on the north coast of Devon and Cornwall in the southwest of England. The site covers 304 km² and extends from the shoreline to depths of approximately 50 m. The site boundary follows the coastline along the mean high-water mark from Tintagel Head in Cornwall to Hartland Point in Devon.

The site falls within three administrative areas:

1) The northern portion of the site falls within the District of Devon and Severn Inshore Fisheries and Conservation Authority (IFCA);

2) the southern portion of the site falls within the District of Cornwall IFCA; and,

3) the 6 to 12 nm portion of the site (hereafter the 'MMO portion') extends outside of Cornwall IFCA's 0 to 6 nm District and into the administrative area where the MMO has responsibility (**Figure 1**).

[1] Natural England Conservation Advice – Hartland Point to Tintagel MCZ. designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UKMCZ0034 (last accessed 15 June 2023)

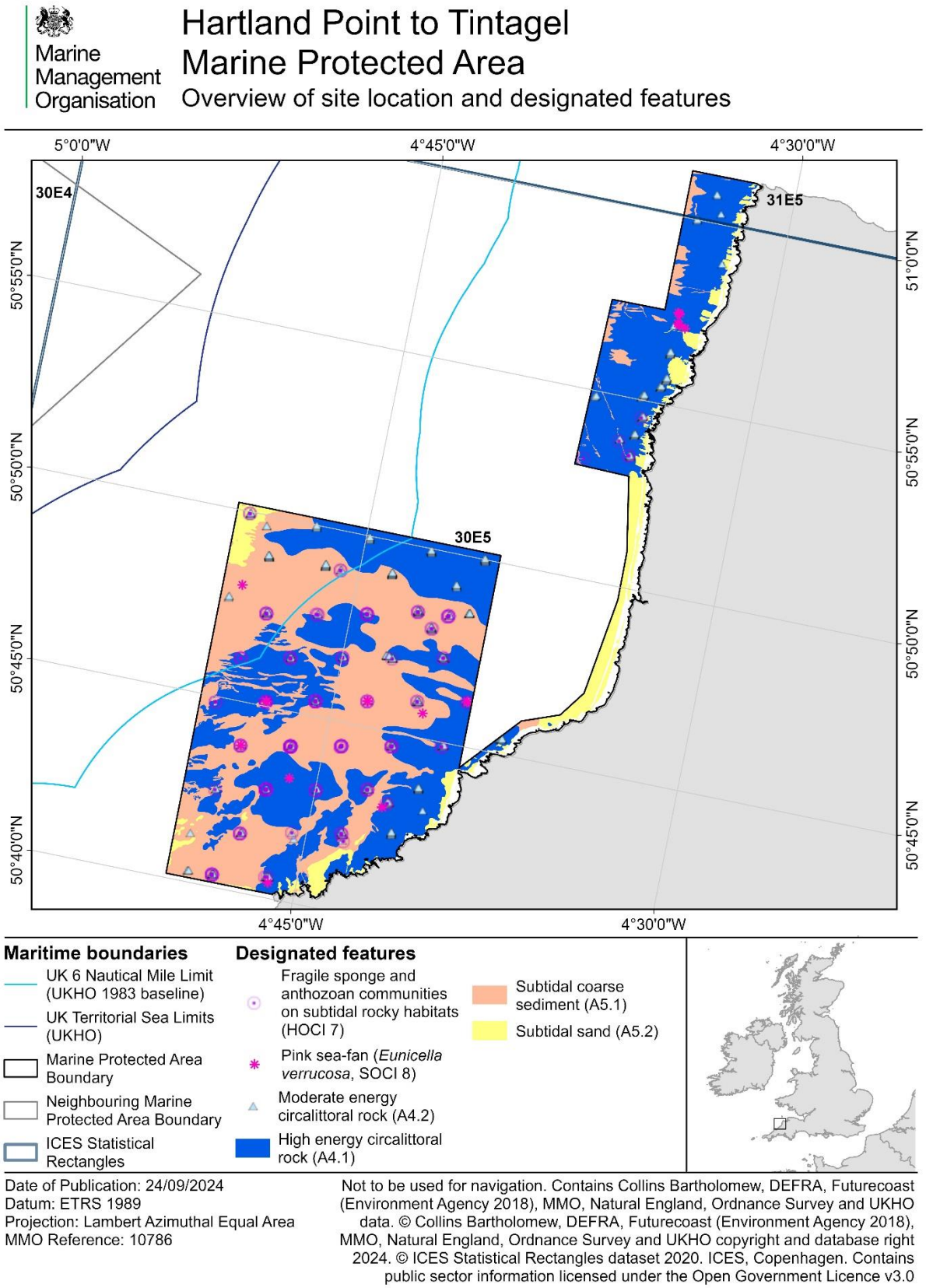

Figure 1: Site overview map. For ease of use only features assessed in Part B of this assessment are displayed here.

Hartland Point to Tintagel MPA was designated as an MCZ in 2016. The site protects a wide range of features from rocky habitats to soft sediment which are important to the MPA network both regionally and nationally. The majority of the site contains rocky habitats in deeper waters (circalittoral rock) interspersed with sublittoral coarse sediments. This mosaic of habitats makes defining boundaries between habitats difficult. Where there is a stable rocky surface, marine creatures such as sponges, anemones and sea fan corals are found. Intertidal sand and rocky areas provide habitats for many species, including the honeycomb worm (*Sabellaria alveolata)*. The designated features and their conservation objectives are set out in **Table 1**.

Pink sea-fan (*Eunicella verrucosa*) typify the fragile sponge and anthozoan communities on subtidal rocky habitat in this site. They are of national and international importance (listed on the IUCN's Red List as 'Vulnerable', and on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)). They are a UK Priority Species and Species of Principal Importance under the Natural Environment and Rural Communities Act 2006, as well as a nationally scarce marine species. Although pink sea-fan are not listed specifically in Natural England's (NE) fisheries advice, impacts to the species will be the same as those described for the fragile sponge and anthozoan communities.

Table 1. Designated features and general management approaches (features found within the MMO portion of the site and relevant to this assessment are highlighted in green).

Designated feature	General management approaches
High energy circalittoral rock	Be brought into favourable condition
Moderate energy circalittoral rock	
Fragile sponge and anthozoan communities on subtidal rocky habitats	
Pink sea-fan (*E. verrucosa*)	
Subtidal coarse sediment	Maintained in favourable condition
Subtidal sand	
Moderate energy infralittoral rock	Maintained in favourable condition
High energy infralittoral rock	
Coastal saltmarsh and saline reedbed (0 to 6 nm)	
Low energy intertidal rock (0 to 6 nm)	
Moderate energy intertidal rock (0 to 6 nm)	
High energy intertidal rock (0 to 6 nm)	
Intertidal coarse sediment (0 to 6 nm)	
Intertidal sand and muddy sand (0 to 6 nm)	

Designated feature	General management approaches
Honeycomb worm (*S. alveolata*) reef (0 to 6 nm)	

There is no feature condition assessment available for this site; in its absence a vulnerability assessment, which includes sensitivity and exposure information for features and activities in a site, is used as a proxy for condition. More information on this can be found in Natural England's supplementary advice on conservation objectives[1].

2.2 Scope of this assessment

The scope of this assessment covers fishing activities alone, and relevant activities in combination with fishing. It does not cover areas of this site inshore of 6 nm, for which Cornwall IFCA and Devon and Severn IFCA are regulating those areas which fall into their Districts respectively. The area of Hartland Point to Tintagel MPA outside of 6 nm is 38.4 km^2.

The use of bottom towed gear in Hartland Point to Tintagel MPA will not be included within this assessment, as this interaction was considered as part of MMO's Stage 2 assessment of the site. Marine Protected Areas Bottom Towed Fishing Gear Byelaw 2023[2] now prohibits bottom towed fishing gear within the entire MMO portion of Hartland Point to Tintagel MPA. Please see the MMO Stage 2 MPA Fisheries Assessment[3] for further information.

[2] Marine Protected Areas Bottom Towed Fishing Gear Byelaw 2023: www.gov.uk/government/publications/marine-protected-areas-bottom-towed-fishing-gear-byelaw-2023 (last accessed 29 August 2024)

[3] MMO Stage 2 MPA Fisheries Assessment: www.gov.uk/government/publications/marine-protected-areas-bottom-towed-fishing-gear-byelaw-2023 (last accessed 29 August 2024)

3 Part A - Identified pressures on the MPA

Part A of this assessment was carried out in a manner that is consistent with the 'capable of affecting (other than insignificantly)' test required by section 126 of the Marine and Coastal Access Act 2009[4].

Part A assesses the interactions between pressures from fishing gears on the designated features of this site, screening for interactions that require further consideration. Assessment of interactions not screened out in Part A will form Part B of the assessment. For each activity assessed in Part A, there are two possible outcomes for each identified pressure-feature interaction:

1. The pressure-feature interactions **are not** included for assessment in Part B and screened out:
    a. if the feature is not exposed to the pressure, and is not likely to be in the future;
    b. the pressure is not capable of affecting the feature, other than insignificantly; or
    c. if MMO has information that the activity or pressure is not occurring in the site and/or does not need to be considered further.

2. The pressure-feature interactions **are** included for assessment in Part B:
    a. if the feature is exposed to the pressure, or is likely to be in the future;
    b. the pressure is capable of affecting the feature, other than insignificantly;
    c. if it is not possible to determine whether the pressure is capable of affecting the feature, other than insignificantly; or
    d. if MMO has information that the activity or pressure is occurring in the site and/or does need to be considered further.

Consideration of a pressure on a protected feature in an MPA includes consideration of the pressure's exposure to, or effect on, any ecological or geomorphological process on which the conservation of the protected feature is wholly or in part dependent.

3.1 Activities taking place

Table 2 lists all commercial fishing gears included for assessment. All other gears have been screened out of further assessment as they do not take place and are not likely to take place in the future, as there are no vessel monitoring system (VMS) records present within the site linked to these gear codes, nor do they appear in landings data for International Council for the Exploration of the Sea (ICES) statistical rectangles that overlap the site.

[4] For more information: www.legislation.gov.uk/ukpga/2009/23/section/126

To determine fishing activity occurring within the site, the following evidence sources were used:

- VMS data;
- fisheries landings data (logbooks and sales records);
- MMO catch recording project data;
- ICES rectangle level fishing effort data in days (reference: MMO1264); and
- swept area ratio data.

For more information about the above evidence sources, please see the Stage 3 MPA Site Assessment Methodology document[5], which describes each type of fishing activity evidence and summarises the strengths and limitations of each source.

Table 2. Fishing activities covered by this assessment present in VMS records (2016 to 2021) and landings data (2020 to 2020) for Hartland Point to Tintagel MPA.

Gear type	Gear name	Gear code	Justification
Anchored nets and lines	Set gillnet (anchored)	GNS	Present in under 12 m landings data for ICES statistical rectangles that overlap the site.
	Gill nets (not specified)	GN	
	Gillnets and entangling nets	GEN	
	Longline (unspecified)	LL	
Midwater gear	Drift gillnet	GND	
	Encircling gillnet	GNC	
	Hook and line (unspecified)	LX	
	Hand-operated pole-and-line	LHP	
Shore based	Beach seine	SB	
Traps	Pot/creel	FIX	
	Trap	FPO	Present in VMS records and under 12 m landings data for ICES statistical rectangles that overlap the site.

3.2 Pressures, features and activities screened out

This section identifies activities or pressures that are **occurring but do not need to be considered** for Hartland Point to Tintagel MPA.

[5] Stage 3 MPA Site Assessment Methodology document: www.gov.uk/government/publications/stage-3-site-assessments (last accessed 29 August 2024)

The gear types screened out on this basis are listed below with justification:

- **Bottom towed gear interactions with the features fragile sponge and anthozoan communities on subtidal rocky habitats, high energy circalittoral rock, moderate energy circalittoral rock and pink sea-fan *(E. verrucosa*)):** these interactions have not been included in this assessment as they have already been addressed in the Stage 2 assessment of Hartland Point to Tintagel MPA[3]. Stage 2 assessed the impacts of fishing using bottom towed gears on rock, rocky and biogenic reef in 13 MPAs. These features were chosen for Stage 2 as they are some of the most sensitive to the impacts of bottom towed gears.

- **Midwater gears:** although the use of midwater gears does occur within Hartland Point to Tintagel MPA, there is no feasible pathway for gears of this type to interact with benthic designated features, not considering gear failure or net loss. These gears are not designed to operate on or near the seabed and are deployed entirely within the water column. Therefore, the use of midwater gear within Hartland Point to Tintagel MPA is not considered to be capable of affecting the designated features other than insignificantly and is not considered further within this assessment.

- **Shore based activities:** although landings data shows that fishing activity using beach seines occurs within the site, this is based on all activity occurring within site-overlapping ICES rectangles. The MMO portion of Hartland Point to Tintagel MPA is outside of 6 nm. It is not possible that beach seining is occurring within the MMO portion of the site, and it would not be capable of affecting the designated features due to distance. Beach seining is therefore not considered further within this assessment.

3.3 Pressures to be taken forward to Part B

The Stage 3 Fishing Gear MPA Impacts Evidence documents detail all pressures created by fishing activity on features of interest. The documents justify which pressures should be taken forward for consideration for each feature. This is documented in Table A1.2 in the anchored nets and lines, bottom towed gear and traps Impacts Evidence documents:

- Stage 3 Fishing Gear MPA Impacts Evidence Anchored Nets and Lines[6]
- Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gear[7]; and

[6] Stage 3 Fishing Gear MPA Impacts Evidence Anchored Nets and Lines: www.gov.uk/government/publications/stage-3-impacts-evidence (last accessed 29 August 2024).
[7] Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gear: www.gov.uk/government/publications/stage-3-impacts-evidence (last accessed 29 August 2024).

- Stage 3 Fishing Gear MPA Impacts Evidence Traps[8].

Bottom towed gear interactions with the features fragile sponge and anthozoan communities on subtidal rocky habitats, high energy circalittoral rock, moderate energy circalittoral rock and pink sea-fan (E. verrucosa) have not been included in this assessment as they have already been addressed in the Stage 2 assessment of Hartland Point to Tintagel MPA, Stage 2 MPA Fisheries Assessment[3]. Stage 2 assessed the impacts of fishing using bottom towed gears on rock, rocky and biogenic reef in 13 MPAs. These features were chosen for Stage 2 as they are some of the most sensitive to the impacts of bottom towed gears.

To determine whether a pressure should be taken forward for this site, **Table 3** uses the information from the Impacts Evidence documents, alongside site level information, including sensitivity assessments, risk profiling of pressures from conservation advice packages, and Natural England advice to assess the sensitivities of pressures on the designated features of the site.

Table 3 details the pressures for anchored nets and lines (A), and traps (T) to be assessed in Part B, taking into account the activities screened out in **sections 3.2** and **3.3.**

Key	
	Dark blue highlighting indicates that the feature is sensitive to this pressure from the gear type in this site, and that the interaction should be taken forward for consideration.
	Light blue highlighting indicates that feature is sensitive to the pressure in general, but the gear type is unlikely to exert this pressure to an extent where impacts are of concern in the site.
	Grey highlighting indicates that there is insufficient evidence to make sensitivity conclusions, or that a sensitivity assessment has not been made for this feature to this pressure from the gear type.
	If there is no highlighting within a cell, this indicates that the pressure from the gear type is not relevant to the feature, or that the feature is not sensitive to the pressure.

[8] Stage 3 Fishing Gear MPA Impacts Evidence Traps: www.gov.uk/government/publications/stage-3-impacts-evidence (last accessed 29 August 2024).

Table 3. Summary of pressures on designated features to be taken forward to Part B.

Potential pressures	Designated Features											
	Fragile sponge and anthozoan communities		High energy circalittoral rock		Moderate energy circalittoral rock		Pink sea-fan		Subtidal coarse sediment		Subtidal sand	
	A	T	A	T	A	T	A	T	A	T	A	**T**
Abrasion or disturbance of the substrate on the surface of the seabed												
Barrier to species movement												
Deoxygenation												
Hydrocarbon and PAH contamination												
Introduction of light												
Introduction or spread of invasive non-indigenous species												
Litter												
Organic enrichment												
Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion												
Removal of non-target species												
Removal of target species												
Synthetic compound contamination												
Transition elements and organo-metal contamination												
Underwater noise changes												
Visual disturbance												

4 Part B – Fishing activity assessment

Part B of this assessment was carried out in a manner that is consistent with the 'significant risk of hindering the achievement of the conservation objectives' test required by section 126 of the Marine and Coastal Access Act 2009[4].

Table 3 shows the fishing activities and pressures identified in Part A which have been included for assessment in Part B. The important targets for favourable condition were identified within Natural England's conservation advice supplementary advice tables and are shown in **Table 4** to **Table 7**. 'Important' in this context means only those targets relating to attributes that will most efficiently and directly help to define condition. These attributes should be clearly capable of identifying a change in condition.

Table 4. Relevant favourable condition targets for identified pressures on rocky reef features (fragile sponge and anthozoan communities on subtidal rocky habitats).

Attribute	Target	Relevant pressures
Distribution: presence and spatial distribution of biological communities	Recover	• Abrasion or disturbance of the substrate on the surface of the seabed • Removal of non-target species • Removal of target species
Extent and distribution	Maintain	
Structure and function: presence and abundance of key structural and influential species	[Maintain OR Recover OR Restore]	
Structure: species composition of component communities	Recover	
Structure: physical structure of rocky substrate	Maintain	• Abrasion or disturbance of the substrate on the surface of the seabed

Table 5. Relevant favourable condition targets for identified pressures on rocky reef features (high and moderate energy circalittoral rock).

Attribute	Target	Relevant pressures
Distribution: presence and spatial distribution of biological communities	Recover	• Abrasion or disturbance of the substrate on the surface of the seabed • Removal of non-target species • Removal of target species
Extent and distribution	Maintain	
Structure and function: presence and abundance of key structural and influential species	[Maintain OR Recover OR Restore]	
Structure: species composition of component communities	Recover	
Structure: physical structure of rocky substrate	Maintain	• Abrasion or disturbance of the substrate on the surface of the seabed

Table 6. Relevant favourable condition targets for identified pressures on sediment features (subtidal coarse sediment and subtidal sand).

Attribute	Target	Relevant pressures
Distribution: presence and spatial distribution of biological communities	Recover	• Abrasion or disturbance of the substrate on the surface of the seabed
Extent and distribution	Maintain	
Structure and function: presence and abundance of key structural and influential species	[Maintain OR Recover OR Restore]	
Structure: sediment composition and distribution	Maintain	
Structure: species composition of component communities	Recover	

Table 7. Relevant favourable condition targets for identified pressures on Pink sea-fan (*Eunicella verrucosa*).

Attribute	Target	Relevant pressures
Presence and spatial distribution of the species	Recover	• Abrasion or disturbance of the substrate on the surface of the seabed • Removal of non-target species • Removal of target species
Population: population size	Recover	
Population: recruitment and reproductive capability	Recover	
Supporting habitat: extent and distribution	Maintain	• Abrasion or disturbance of the substrate on the surface of the seabed

4.1 Fisheries access and existing management

Non-UK vessels can operate within the region of Hartland Point to Tintagel MPA offshore of 6 nm, provided that they have a licence issued by the UK to do so. French and Belgian vessels may operate within the MPA, however, VMS records from 2016 to 2020 indicate that only UK vessels operated within this MPA.

More information on non-UK vessel access to UK waters can be found on MMO's Single Issuing Authority page[9].

The Kingfisher fishing restriction map (Seafish, 2023) contains information on MPA management measures for the portion of the site inside of 6 nm.

Offshore of 6 nm, Hartland Point to Tintagel MPA is subject to the following MMO byelaw:

- **Marine Protected Areas Bottom Towed Fishing Gear Byelaw 2023** prohibiting bottom towed fishing gear within specified areas of English waters including the entire MMO portion of Hartland Point to Tintagel MPA[2].

4.2 Fishing activity summary

Table A1.1 to **Table A1.6** in **Annex 1.** display a detailed breakdown of fishing activity within Hartland Point to Tintagel MPA. When discussing weights from landings in this section, figures used are a total of weights from UK vessels, there is no activity from non-UK vessels.

The most frequently operated fishing gear within Hartland Point to Tintagel MPA is pots. VMS records show that only UK vessels are operating within the site and the only gear type used by these vessels are pots. VMS records show a total of 214 VMS records between 2016 and 2021, varying between 1 and 94 records per year with an average annual of 36. The annual average of landings between 2016 and 2020 was 2.51 tonnes (t) and varies between 0.07 and 6.75 tonnes annually with the highest landings in 2016. VMS activity shows that the activity is spread across the MMO portion of the site which is 38.4 km^2 and there is a marginal increase in activity closer to the 6 nm limit.

Under 12 metre vessel landings are apportioned to the site from ICES rectangle level and shows that potting is the most prevalent gear type used by the under 12 m fleet, with landings equating to an annual average of 4.4 tonnes 2016 and 2020, although

[9] The UK Single Issuing Authority: www.gov.uk/guidance/united-kingdom-single-issuing-authority-uksia (Last accessed on: 26 July 2023).

this is highest in 2018 and 2019 with these years making up over 60 % of the landings for the five-year period.

Gillnets are the second most frequently deployed gear type in Hartland Point to Tintagel MPA for under 12 m vessels according to ICES rectangle-based landings, with average annual landings of 2.02 tonnes between 2016 and 2020. ICES rectangle-based landings data indicates that very low levels of demersal trawling, demersal seining, dredging and midwater netting as well as long lining occurred within the site between 2016 and 2020. MMOs Marine Protected Areas Bottom Towed Fishing Gear Byelaw 2023[2] came in to force on 22 March 2024 and therefore bottom towed gear is prohibited from this date.

Fishing effort days are derived from logbooks and is collected at ICES rectangle and then apportioned accordingly. Hartland Point to Tintagel MPA overlaps with the ICES rectangle 30E5. The majority of fishing effort within the site is occurring using static gear. Annual average fishing effort recorded by UK vessels under 12 m in length using traps between 2016 and 2021 was 16.38 days. For under 12 m vessels using anchored nets and lines the annual average fishing effort between 2016 and 2021 was 1.92 days.

4.3 Pressures by gear type

The Stage 3 Fishing Gear MPA Impacts Evidence documents for anchored nets and lines and traps collate and analyse the best available evidence on the impacts of these fishing gears on MPA features. This section summarises the analyses and conclusions of those documents, and considers these alongside site level information, including the nature and condition of the habitats and species present, site conservation objectives, intensity of fishing activity taking place and exposure to natural disturbance.

As subtidal coarse sediment and subtidal sand designated features have similar sensitivities to the pressures identified for different gear types, these features have been considered together. High and moderate energy circalittoral rock designated features also have similar sensitivities to the pressures identified, and these features have also been considered together with pink sea-fan and fragile sponge and anthozoan communities. Pink sea-fan and fragile sponge and anthozoan communities are similar to some of the biotopes associated with rocky reef features such as high and moderate circalittoral rock and therefore fisheries impacts will likely be similar. They are also often found overlaid rocky reefs and sediment veneers creating a complex mosaic of multiple features and habitats. Where there are differences between the designated features or the potential impacts of different gears within each grouping, this has been highlighted.

In the context of MPA assessment, the pressures removal of target and non-target species refer to any damage, loss, or removal of species defined as a designated

feature or integral to the integrity of a designated feature (for example key structural or influential species). This may occur through intentional or unintentional catch associated with the act of commercial fishing.

Impacts from target and non-target removal pressures have been scoped out from this assessment in most cases, as the detail of key structural and influential species is yet to be fully defined and they are assessed more completely within the abrasion and penetration pressures. These pressures may require consideration as a result of any future evidence review, in conjunction with updated conservation advice from Natural England. Where separate consideration of these pressures is required, this has been stated.

4.3.1 Anchored nets and lines

The following features of Hartland Point to Tintagel MPA have been considered in relation to pressures from anchored nets and lines. **Section 4.2** describes fishing activity within Hartland Point to Tintagel MPA which includes limited under 12 m activity only of gill netting.

The relevant pressures on designated features of Hartland Point to Tintagel MPA from anchored nets and lines were identified in **Table 4 to Table 7** and are:

- abrasion or disturbance of the substrate on the surface of the seabed;
- removal of non-target species; and
- removal of target species.

As noted above, impacts from target and non-target removal pressures have been scoped from further assessment, as they are assessed more completely within the abrasion and penetration pressures.

Impacts on the designated features relating to abrasion or disturbance of the substrate on the surface of the seabed occur primarily from the footrope and anchors during the hauling of the gear, and during movement along the seabed due to tides, currents or storms.

Rocky reef features

Whilst abrasion impacts from anchored nets and lines may cause damage to both epifauna and epifloral communities, physical damage to the rocky reef structure is less likely. A number of studies indicate that slow growing branching species and rock with erect branching species are considered particularly sensitive to damage from netting, whilst rock with low-lying fast growing faunal turf has been determined as having moderate sensitivity to moderate levels of netting. Repeated netting activity could damage reefs and the associated communities through cumulative damage. As the fishing activity data for the under 12 m fleet does not indicate where it occurs within the

site, the use of anchored nets and lines may be occurring over the circalittoral rock feature.

Fragile sponge and anthozoan community biotopes which are interspersed across the site show varying resilience and sensitivity to abrasion impacts[6]. Of the biotopes which are present for rocky reef features in Hartland Point to Tintagel, many are defining biotopes for Fragile sponge and anthozoan community and the high and moderate energy circalittoral rock, the most sensitive part of the features and biotope for all the Hartland Point to Tintagel rocky reef features is *E. verrucosa* (pink sea-fan) and *Pentapora foliacea* on wave-exposed circalittoral rock, which is a highly sensitive biotope with low resistance and very low resilience (Readman *et al.*, 2023). Surveys at Hartland Point to Tintagel MPA found evidence of pink sea-fan occurring inshore of 6 nm, however the area beyond 6 nm has not been extensively surveyed. Confidence in the extent and distribution of pink sea-fan feature data outside of 6 nm is therefore low. Advice from Natural England suggested a precautionary approach to the presence and absence of pink sea-fan would be important in the offshore area of this site, due to known presence from the same habitat and at similar depths in the inshore area. The more resilient biotope (Bryozoan turf and erect sponges on tide-swept circalittoral rock) whilst having a low resistance, has a medium rating for both resilience and sensitivity[1], this biotope is commonly found across the MMO portion of the site (Readman, Lloyd and Watson, 2023). The conservation advice for all the rocky reef features is that they should be brought into favourable condition including its extent, structure and the quality and composition of its communities (**Table 1**). As previously stated, all recorded anchored nets and lines activity is undertaken by the under 12 m fleet, therefore it cannot be specified where within the site this activity is occurring. However, the fishing effort for this gear is low, with an annual average effort of 1.92 days (Annex 1, **Table A1.6**), as such even if this activity were to occur over the rocky reef features the footprint of the gear is small. At the described activity level, with the biotopes present, although the rocky reef features have a recover GMA, it is unlikely that anchored nets and lines will have an impact on the conservation objectives of the site.

Sediment features

Abrasion impacts are considered likely to be greatest on subtidal coarse sediment compared to subtidal sand as the coarser habitats often contain populations of sessile epifauna. However, as per section 9.3 of the Anchored Nets and Lines Impacts Evidence document[6], abrasion impacts from this gear type are unlikely to negatively impact the extent or distribution of any sediment feature or structure and function of the ecosystem in a significant manner, as subtidal sediment habitats are considered resilient to all but intense fishing activity using anchored nets and lines on species rich sediment habitats or those with long-lived bivalves.

There are four biotopes found within the Hartland Point to Tintagel MPA for subtidal coarse sediment, all have high resilience to abrasion and disturbance impacts (Natural England, 2022). Of the four, three are listed as not sensitive to abrasion and

disturbance with high levels of resistance (Natural England, 2022). Whilst the biotope; *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles, has a low sensitivity and low resistance to abrasion, it is characterised by faster growing ephemeral species which are able to colonise small stones, cobbles and pebbles which are highly dynamic and moved my both tide and wave action (Tyler-Walters and Tillin, 2023), there is no evidence that it occurs within the MMO portion outside of 6 nm (Natural England, 2022).

There are four biotopes found within the MPA for subtidal sand also[1]. Three of these have high resilience, low resistance and low sensitivity to abrasion pressures (Natural England, 2022). However, the biotope; *Echinocardium cordatum* and *Ensis* spp. in lower shore and shallow sublittoral slightly muddy fine sand, which has a medium sensitivity and medium resilience, is more commonly found in the infralittoral and shallower depths and it is unlikely to occur in abundance over the MMO portion of the site outside on 6 nm (Natural England, 2022; De-Bastos *et al.*, 2023).

The conservation objectives for sediment features at Hartland Point to Tintagel MPA are maintain. Considering the levels of anchored nets and lines use within the site are low (average fishing effort of 1.92 days (Annex 1, **Table A1.8**) and the small spatial footprint of this gear type, the sediment features are unlikely to be significantly impacted due to the high levels of resilience and low levels of sensitivity of the biotopes present to abrasion pressure.

Therefore, **MMO concludes that the ongoing use of anchored nets and lines does not pose a significant risk of hindering the achievement of the conservation objectives of high and moderate energy circalittoral rock, pink sea-fan, fragile sponge and anthozoan communities, subtidal coarse sediment and subtidal sand features of the Hartland Point to Tintagel MPA.**

4.3.2 Traps

The following features of Hartland Point to Tintagel MPA have been considered in relation to pressures from traps. **Section 4.2** describes fishing activity within Hartland Point to Tintagel MPA highlighting the most commonly used fishing gear in the area is traps.

The relevant pressures on subtidal sediment features of Hartland Point to Tintagel MPA from traps were identified in **Table 4 to Table 7** and are:

- abrasion or disturbance of the substrate on the surface of the seabed;
- removal of non-target species; and
- removal of target species.

As noted above, impacts from target/non-target removal pressures have been scoped out from further assessment, as they are assessed more completely within the abrasion and penetration pressures.

Impacts on subtidal sediments relating to abrasion occur primarily during the setting and retrieval of traps and their associated ropes, weights and anchors, as well as by their movement over the seabed during rough weather.

Rocky reef features

As described in Section 7.5 of the Traps Impacts Evidence document[8], much of the literature before 2015 has suggested that traps are unlikely to significantly impact rocky reef biotopes. However, more recent studies suggest that traps will have negative impacts on the biological functions of reef habitats at increased spatial and temporal densities (Rees, 2018; Gall *et al.*, 2020; Rees, Sheehan and Attrill, 2021) . Studies show that upright and branching species that protrude from the reef (such as sponges or bryozoans) were found to be particularly vulnerable to damage from the hauling of pots. Moreover, a study of trap activities in Lyme Bay (UK) found that repetitive damage from sustained potting activity to biotopes potentially found in this site such as *Eunicella verrucosa* and *Pentapora foliacea* on wave-exposed circalittoral rock (Rees, 2018; Readman *et al.*, 2023) has potential to cause a decline in abundance of these populations. Traps are the most frequently used gear within the MMO portion of the site for all vessel sizes with 214 VMS records for over 12 m vessels and an annual average fishing effort of 16.38 days for under 12 m vessels. (**section 4.2 and Annex 1, Table A1.6**). Whilst some species may show a resilience to traps being dropped and hauled there may still be an increased risk of cumulative damage from higher intensities (Eno *et al.*, 2001). In addition, as previously discussed, the under 12 m fishing effort data does not indicate where in the site activity is occurring, as such the described trap activity may be occurring over rocky reef features. Due to this uncertainty a precautionary approach to management has been applied here.

The rocky reef feature at Hartland Point to Tintagel is characterised by biotopes which are more resilient to abrasion impacts at low levels of activity, however, the levels of potting within the site may be considered more significant given the small size of the MMO managed portion of the MPA, concentrating this activity. Fragile sponge and anthozoan community biotopes which are interspersed across the site show varying resilience and sensitivity to abrasion impacts. *E. verrucosa* and *P. foliacea* on wave-exposed circalittoral rock is a highly sensitivity biotope with low resistance and very low resilience (Readman *et al.*, 2023). Surveys at Hartland Point to Tintagel MPA found evidence of pink sea fans occurring inshore of 6 nm, however the offshore area beyond 6 nm has not been extensively surveyed. Confidence in the extent and distribution of *Eunicella* feature data in the offshore area is therefore low. Advice from Natural England suggested a precautionary approach to the presence/absence of pink sea-fan would be important in the offshore area of this

site, due to known presence from the same habitat and at similar depths in the inshore area. Bryozoan turf and erect sponges on tide-swept circalittoral rock is a biotope with low resistance and a medium rating for both resilience and sensitivity (Readman, Lloyd and Watson, 2023). This biotope is known to occur across the site and is present in the MMO portion of the site. While it is suggested that we do not fully understand the impacts of abrasion impact from static gears, even more resilient features may become increasingly vulnerable to disease and suffer from delayed mortality after prolonged damage. Given the unknown location of trap fishing from the under 12 m fleet, there is potential that these vessels may be targeting reef features which would increase the likelihood of these impacts through consistent gear deployment.

The conservation advice for all the rocky reef features is that they should be brought into favourable condition including its extent, structure and the quality and composition of its communities (**Table 1**). The level of trap activity at the site may have an impact on the sensitive biotopes of the rocky reef features over time, as much of the activity is undertaken by under 12m vessels which have no VMS reporting at present. VMS recordings for over 12 m vessels indicate that this activity is evenly distributed throughout the site, reducing the occurrence of spatial overlap between reef features and fishing pressures. By contrast the unknown location of under 12 m vessels means that the spatial overlap between trap activity from these vessels and rocky reef features is not able to be inferred, therefore a precautionary approach to management of these activities may be necessary. In addition, while trap activity is not classified as high, with average landings of 6.91 tonnes (2.51 for over 12 m vessels and 4.4 tonnes for under 12 m vessels), due to the small size of the MMO managed portion of the site (38.4 km^2) this activity is concentrated. As a result, this may pose a significant risk of hindering the achievement of the conservation objectives of the MPA.

Sediment features

There is little primary evidence of the physical impacts of traps on subtidal sediments. In section 9.3 of the Traps Impacts Evidence document[8], abrasion impacts from traps are unlikely to negatively impact the extent or distribution of any sediment feature or structure and function of the ecosystem in a significant manner unless used at particularly high levels of intensity, or if particularly sensitive species are present. Subtidal sediment habitats are generally resilient to all but intense levels of trap activity on species rich sediment habitats or sediments with long-lived bivalves.

As described in **Section 4.3.1** the subtidal coarse sediment biotopes found within the Hartland Point to Tintagel MPA have high resilience to abrasion and disturbance impacts. Of the four, three are listed as not sensitive to abrasion and disturbance with high levels of resistance (Natural England, 2022). Whilst the biotope *P. triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles has

a low sensitivity and low resistance to abrasion and is characterised by faster growing ephemeral species which are able to colonise small stones, cobbles and pebbles which are highly dynamic and moved my both tide and wave action (Tyler-Walters and Tillin, 2023). Whilst this biotope occurs within the site, there is no evidence that it occurs within the MMO portion outside of 6 nm[1].

Of the four biotopes found in the subtidal sand feature, three have high resilience, low resistance and low sensitivity to abrasion pressures (Natural England, 2022). *E. cordatum* and *Ensis* spp. in lower shore and shallow sublittoral slightly muddy fine sand, which has a medium sensitivity and resilience, is more commonly found in the infralittoral and shallower depths and may not occur in abundance over the MMO portion of the site outside on 6 nm (Natural England, 2022; De-Bastos *et al.*, 2023).

Despite traps being the most frequently deployed gear in the site, it is unlikely that the sediment features will be impacted due to the high levels of resilience and low levels of sensitivity of the biotopes to abrasion.

Therefore, MMO concludes that the ongoing use of traps over the sediment features is unlikely to pose a significant risk to hinder the conservation objectives of the site. However, potting over the rocky reef features may pose a significant risk of hindering the achievement of the conservation objectives of the MPA.

4.4 Part B conclusion

The assessment of anchored nets and lines on subtidal coarse sediment, subtidal sand, high energy circalittoral rock, moderate energy circalittoral rock, pink sea-fan and fragile sponge and anthozoan communities on rocky sediments features of Hartland Point to Tintagel MPA has revealed that these fishing activities will not result in a significant risk of hindering the achievement of the conservation objectives of the MPA. As such MMO conclude that management measures are not required to restrict anchored nets and lines from Hartland Point to Tintagel MPA.

The assessment of traps on subtidal coarse sediment and subtidal sand features of Hartland Point to Tintagel MPA has revealed that these fishing activities will not result in a significant risk of hindering the achievement of the conservation objectives of the MPA. The assessment of traps on high energy circalittoral rock, moderate energy circalittoral rock, pink sea-fan and fragile sponge and anthozoan communities on rocky sediments features of Hartland Point to Tintagel MPA has revealed that these fishing activities may result in a significant risk of hindering the achievement of the conservation objectives of the MPAAs such MMO conclude that management measures are required to restrict traps from specified areas of Hartland Point to Tintagel MPA. **Section 6** contains further details of these measures.

5 Part C - In-combination assessment

This section assesses the impacts of fishing activities in-combination with relevant activities taking place. This includes the following:

- fishing interactions assessed in Part B but which were not considered, alone, to pose a significant risk of hindering the achievement of the conservation objectives; and
- other activities: such as marine development infrastructure plans and projects that occur in the MPA.

ArcGIS software has been used to check relevant activities that occur within, or adjacent to, the assessed site where there could be a pathway for impact. To determine relevant activities to be included in this part of the assessment, a distance of 5 km was selected as suitable to capture any potential way in which the activity could impact the benthic features of the site in-combination with effects of the fishing activities assessed. Hartland Point to Tintagel MPA straddles the 6 nm limit and therefore, only activities that are within 5 km of the portion of the site seawards of the 6 nm limit were considered. This assessment considers the in-combination impacts of marine licensable activities that are ongoing or upcoming, and with the same medium to high-risk pressure impact pathways as permitted fishing activity. As the models were run using ArcGIS in August 2023, any licences that ended before this date were screened out of the assessment.

The North Sea Transition Authority (NSTA) is responsible for regulating the oil, gas and carbon storage industries, and as such these activities fall outside of MMO's marine licensing remit. Oil, gas and carbon storage industry activities are not currently considered in this draft assessment, as information on the potential pressures exerted by associated activities is currently under review, and the likelihood of these activities resulting in an in-combination adverse effect on site integrity with fishing is expected to be very low. Following formal consultation, relevant oil, gas and carbon storage industry activities that could impact the site in-combination with the effects of assessed fishing activities will be included before finalising this assessment, alongside marine licence applications submitted after August 2023.

There may be operational submarine cables within this MPA, these cables are already in-situ and are unlikely to have any residual abrasion/removal pressure in-combination with the assessed fishing activity. Any abrasion/removal pressure from submarine cable operation and maintenance activity will be temporary with limited seabed impacts and is therefore unlikely to have significant in-combination effects with assessed fishing.

Trap interactions with high energy circalittoral rock, moderate energy circalittoral rock, pink sea-fan and fragile sponge and anthozoan communities on rocky sediment features have been identified in Part B as requiring management to avoid a

significant risk of hindering the achievement of the conservation objectives of the site. Traps over sediment features and anchored nets and lines over all features are the only remaining fishing activities occurring within Hartland Point to Tintagel MPA that interact with the seabed. In-combination effects of these fishing activities, as well as these activities in-combination with other relevant activities, will be assessed in this section.

In accordance with the methodology detailed above, ArcGIS identified one active marine licence, within the 5 km buffer applied. **Table 8** shows this licence and the relevant categories from the Joint Nature Conservation Committee (JNCC) Pressures-Activities Database (PAD)[10]. Details on this licence can be viewed on the public register of marine licence applications and decisions by searching for the marine licence case reference number[11].

Table 8: Summary of marine licensable activities and associated PAD categories.

Marine licence case reference number	PAD Category	Description
MLA/2022/00280	Construction of new works	2AFRICA Submarine Cable System. A proposed subsea fibre-optic cable system linking a number of countries in Africa, the Middle East and Europe with the United Kingdom via Cornwall. Inside the site boundary. **Possible in-combination effects.**

Error! Not a valid bookmark self-reference. summarises the pressures exerted by fishing and non-fishing activities and identifies those exerted by both (Y: pressure exerted). Activity-pressure interactions are highlighted dark blue to illustrate an in-combination effect. Only fishing activity with no proposed or current fisheries

[10] JNCC Pressures-Activities Database (PAD**):** hub.jncc.gov.uk/assets/97447f16-9f38-49ff-a3af-56d437fd1951 (last accessed 28 March 2024).

[11] Public register of marine licence applications and decisions: marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_PUBLIC_REGISTER (last accessed 11 March 2024)

management in place are considered.

Table 9: Pressures exerted by fishing and non-fishing activities.

	Non-fishing activities	Fishing activities	
Potential pressures	**Telecommunication cable: Laying, burial and protection**	**Anchored nets and lines**	**Traps**
Abrasion or disturbance of the substrate on the surface of the seabed	Y	Y	Y
Removal of non-target species		Y	Y

5.1 Fishing vs Fishing in-combination pressures

Fisheries vs fisheries in-combination pressures will be considered in this section.

5.1.1 Abrasion and disturbance of the substrate on the surface of the seabed and Removal of non-target species

As noted in Part B (**Section 4.3.1** nets and lines and **Section 4.3.2** traps), impacts from the removal of target and non-target species pressure is not being considered in detail in this assessment. In-combination impacts from the removal of target and non-target species pressures are more fully assessed under the pressure abrasion, as the detail of key structural and influential species is yet to be fully defined. Therefore, the removal pressures are not considered further in this in-combination assessment. The pressures may require further consideration as future evidence becomes available, in conjunction with updated conservation advice from JNCC and Natural England.

The annual average VMS records for over 12 m vessels using traps within the MPA totalled 36. There were no VMS records for over 12 m vessels using anchored nets and lines. For under 12 m vessels, between 2016 and 2021, the annual average fishing effort estimated to have been derived from the MPA via traps and anchored nets and lines was 18.3 days (16.38 days for traps, 1.92 days for anchored nets and lines, Annex 1, calculated from **Table A1.8**). For the same period (2016-2021), the total fishing effort (under 12s) estimated to have been derived from the MPA were 109.79 days (98.26 days for traps, 11.53 days for anchored nets and lines (Annex 1, calculated from **Table A1.8**). The fishing effort data is further supported by the

estimated live weight landings for under 12 m vessels that equal an annual average of 6.42 tonnes, 4.4 tonnes for traps and 2.02 tonnes for anchored nets and lines, between 2016 and 2020 (**Section 4.2**).

The combined impacts from anchored nets and lines and traps could potentially increase the risk of negative effects from the pressure abrasion and disturbance of the substrate on the surface of the seabed. Anchored nets and lines activity within the site is limited, with no over 12 m vessels using this gear type recorded within the site, and low fishing effort for under 12 m vessels supported by low annual average landings (2.02 tonnes). As noted in Part B, trap activity over high and moderate energy circalittoral rock features will be managed, therefore any in-combination impacts of traps an anchored nets and lines will only occur over sediment features. As previously discussed in **Section 4.3** sediment habitats are resilient to all but intense fishing activity via static gear. Trap activity at the described levels has been assessed alone as not posing a significant risk of hindering the achievement of the conservation objectives. Considering this and the resilience of the sediment habitats over which these interactions may occur, the addition of such low-level anchored nets and lines activity is unlikely to result in a significant in-combination impact.

Therefore, MMO concludes that the combined pressures from anchored nets and lines and traps will not result a significant risk of hindering the achievement of the conservation objectives for the Hartland Point to Tintagel MPA at the levels described.

5.2 Fishing vs non-fishing activities in-combination pressures

The pressures exerted by the non-fishing activity will also be considered in-combination with the anchored nets and lines and traps fishing pressures.

5.2.1 Abrasion and disturbance of the substrate on the surface of the seabed and Removal of non-target species

The designated features of the Hartland Point to Tintagel MPA are sensitive to physical damage through surface abrasion and disturbance of the substrate from anchored nets and lines and traps during gear deployment, movement of the gear on the seabed due to tidal movements and storm activity, and as the gear is dragged along the seabed during retrieval.

Activities associated with the 2AFRICA Submarine Cable System (MLA/2022/00280) which might cause abrasion or disturbance of the seabed relate to the laying, burial and protection of a telecommunication cable. There will be no deposits of cable protection or removal or detonations of unexploded ordinance during cable installation activities. The maximum diameter of the cable will be 50 mm and the route through UK territorial waters will extend over 39 km. Within Hartland Point to Tintagel MPA the cable will be surface laid and will have limited movement on the seabed once installed as it is held in position under its own weight. The cable route

running through the MPA will be approximately 13.5 km in length. The cable is expected to operate for 25 years post instalment and there are no planned maintenance works during the lifespan of the cable. Installation was targeted for Q2 of 2023.

As detailed in **Section 5.1.1** abrasion and disturbance of seabed surface substrate, at current activity levels anchored nets and lines and traps are not considered to be causing significant pressure through abrasion and disturbance. It is possible that activities linked to the 2AFRICA Submarine Cable System (a telecommunication cable), in-combination with anchored nets and lines and traps may increase the potential for this pressure to have negative cumulative effects on the designated features of the MPA. However, as previously stated, the small diameter of the cable, the lack of cable protection and the installation method of this being surface laid within the MPA means that there will be a limited spatial footprint of this activity on the seabed. Furthermore, the installation activity will be temporary and there is no maintenance scheduled, as such any abrasion and disturbance of the seabed is likely to be limited. Given the small spatial scale of the seabed footprint, the temporary nature of the works, it is unlikely there would be a significant risk of hindering the achievement of the conservation objectivise. Therefore, the scale of the in-combination impacts from abrasion and disturbance of the substrate on the surface of the seabed between anchored nets and lines and traps and non-fishing activity is considered insignificant.

Therefore, MMO concludes that the combined pressures from anchored nets and lines and traps and other relevant activities will not result in a significant risk of hindering the achievement of the conservation objectives for the Hartland Point to Tintagel MPA.

5.3 Part C conclusion

MMO concludes that different fishing gear types in combination, and fishing in-combination with other relevant activities will not result in a significant risk of hindering the achievement of the conservation objectives for the Hartland Point to Tintagel MPA.

Further management measures will not therefore be implemented for fishing activities currently occurring within the MPA.

6 Conclusion and proposed management

Part A of this assessment concluded that bottom towed gear, anchored nets and lines and traps are capable of affecting (other than insignificantly) the designated features of Hartland Point to Tintagel MPA.

Bottom towed gear interactions with the features fragile sponge and anthozoan communities on subtidal rocky habitats, high energy circalittoral rock, moderate energy circalittoral rock and pink sea-fan (*E. verrucosa*) have not been included in this assessment as they have already been addressed in the MMO Stage 2 assessment of Hartland Point to Tintagel MPA and prohibited by the MMO Marine Protected Areas Bottom Towed Fishing Gear Byelaw 2023[2].

Part B of this assessment concluded that ongoing use of traps on the high and moderate energy circalittoral rock features of Hartland Point to Tintagel may result in a significant risk of hindering the achievement of the conservation objectives of the MPA. However, it was concluded that the ongoing use of traps on the sediment features of the site at the described levels does not pose a significant risk of hindering the conservation objectives. Part B also concluded that the ongoing use of anchored nets and lines at the described levels does not pose a significant risk of hindering the achievement of the conservation objectives.

Part C of this assessment concluded that combined pressures from anchored nets and lines and traps and other relevant activities do not pose a significant risk of hindering the achievement of the conservation objectives of the MPA.

To ensure that fishing activities do not result in a significant risk of hindering the conservation objectives, MMO propose to implement a byelaw to prohibit the use of traps on the high and moderate energy circalittoral rock features of Hartland Point to Tintagel MPA.

Figure 2 shows the proposed management area in line with the conclusions set out above.

The boundaries of the proposed management area include an appropriate buffer zone to prevent direct damaging physical interactions between fishing activities and the designated features to be protected. The rationale for determining buffer size can be found in in Annex 2 of the Stage 3 MPA Site Assessment Methodology document[5].

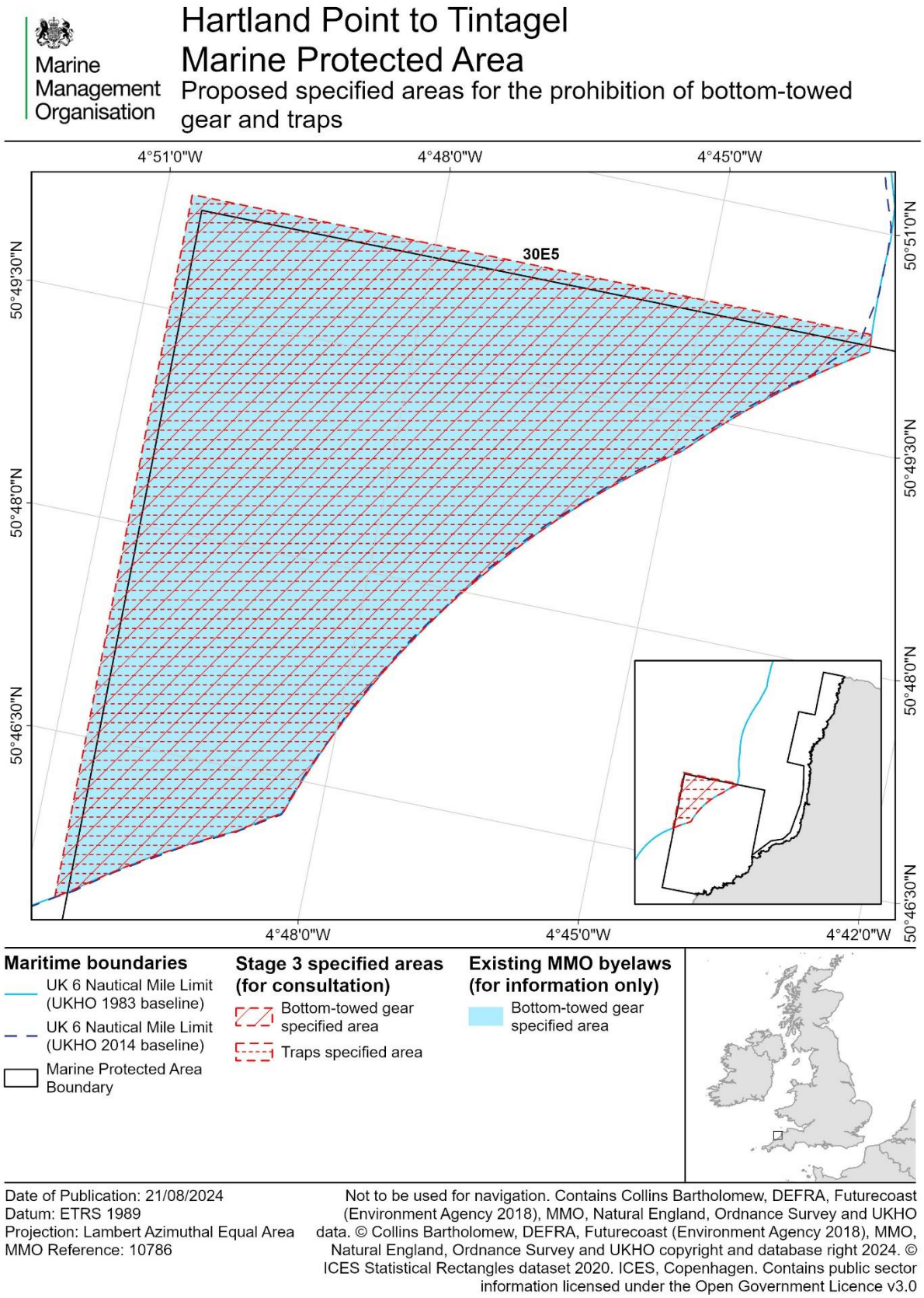

Figure 2: Map of proposed management.

7 Review of this assessment

MMO will review this assessment every five years, or earlier if significant new information is received. Such information could include:

- updated conservation advice
- updated advice on the condition of the site's feature(s)
- significant increase in activity levels

To coordinate the collection and analysis of information regarding activity levels, and to ensure that any required management is implemented in a timely manner, a monitoring and control plan will be implemented for this site. This plan will be developed in line with MMO's Monitoring and Control Plan framework.

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Annexes

Annex 1. Fishing activity data

Table A1.1: VMS record count and proportion and proportional activity (%), per gear, per gear type, totals and annual average in the MMO section for Hartland Point to Tintagel MPA (2016 to 2021). There are no VMS records from non-UK vessels within the MPA.

		2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	Gear code	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count
Traps	FPO	94	100	39	100	13	100	1	100	10	100	57	100	214	100	36
	FPO Total	**94**	**100**	**39**	**100**	**13**	**100**	**1**	**100**	**10**	**100**	**57**	**100**	**214**	**100**	**36**
Traps Total		**94**	**100**	**39**	**100**	**13**	**100**	**1**	**100**	**10**	**100**	**57**	**100**	**214**	**100**	**36**
Grand Total		**94**	**0**	**39**	**0**	**13**	**0**	**1**	**0**	**10**	**0**	**57**	**0**	**214**	**0**	**36**

Table A1.2: UK live weight tonnage (t) estimates by gear from vessels over 12 m in length in the MMO section of Hartland Point to Tintagel MPA (2016 to 2020). There are no landings from non-UK vessels within the MPA.

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Annual average (2016 to 2020)
Traps	FPO	6.75	2.58	0.74	0.07	2.41	12.55	2.51
	FPO Total	**6.75**	**2.58**	**0.74**	**0.07**	**2.41**	**12.55**	**2.51**
Traps Total		**6.75**	**2.58**	**0.74**	**0.07**	**2.41**	**12.55**	**2.51**
Grand Total		**6.75**	**2.58**	**0.74**	**0.07**	**2.41**	**12.55**	**2.51**

Table A1. 3: Percentage of each ICES rectangle intersected by the MMO section of Hartland Point to Tintagel MPA.

ICES rectangle	Percentage overlap
30E5	2.99

Table A1.4. UK under 12 m live weight tonnage (t) estimates by gear for Hartland Point to Tintagel MPA. There are no landings from non-UK vessels within the MPA.

Gear		Year					Total (2016 to 2020)	Annual average (2016 to 2020)
Gear group	Code	2016	2017	2018	2019	2020		
Anchored Nets and Lines	GEN	0.04	0.05	0	0	0	0.09	0.02
	GN	0.72	2.73	2.71	1.23	2.61	9.99	2.00
	GNS	0	0	0.02	0	0	0.02	<0.01
	LL	0	0	0.01	<0.01	0	0.02	<0.01
Anchored Nets and Lines Total		**0.75**	**2.78**	**2.74**	**1.23**	**2.61**	**10.12**	**2.02**
Demersal Seine	SB	<0.01	0	0	0	0	<0.01	<0.01
Demersal Seine Total		**<0.01**	**0**	**0**	**0**	**0**	**<0.01**	<0.01
Demersal trawl	OT	0.11	0.88	0	0	0	0.99	0.20
	OTB	0	0.33	0.65	1.51	0.45	2.93	0.59
	OTT	0	<0.01	0	0	0.00	<0.01	<0.01
	TBB	0	0	0.32	0.46	0.06	0.84	0.17
Demersal trawl Total		**0.11**	**1.21**	**0.97**	**1.97**	**0.51**	**4.77**	**0.95**
Dredge	DRB	0	0	0.06	0.19	0.14	0.39	0.08
Dredge Total		**0**	**0**	**0.06**	**0.19**	**0.14**	**0.39**	**0.08**
Midwater Gill Drift	GND	0	0	0	<0.01	0	<0.01	<0.01

Gear		Year					Total (2016 to 2020)	Annual average (2016 to 2020)
Gear group	**Code**	**2016**	**2017**	**2018**	**2019**	**2020**		
Midwater Gill Drift Total		**0**	**0**	**0**	**<0.01**	**0**	**<0.01**	**<0.01**
Midwater Hooks and Lines	LHP	0.06	0.05	0.03	0.05	0.04	0.23	0.05
	LX	0	0.02	0.002	0	0	0.02	<0.01
Midwater Hooks and Lines Total		**0.06**	**0.06**	**0.04**	**0.05**	**0.04**	**0.25**	**0.05**
Traps	FIX	0.02	<0.01	0	0	0	0.02	<0.01
	FPO	2.74	2.19	5.70	7.70	3.65	21.98	4.40
Traps Total		**2.76**	**2.19**	**5.70**	**7.70**	**3.65**	**21.99**	**4.40**
MPA total		**3.69**	**6.25**	**9.50**	**11.14**	**6.96**	**37.54**	**7.51**

Table A1. 5: Mean and maximum annual surface and subsurface SAR values for C-squares intersecting the MMO section of Hartland Point to Tintagel MPA (2016 to 2020).

Gear group	SAR Category	2016		2017		2018		2019		2020	
		Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Demersal seine	Surface	0	0	0	0	0	0	0	0	0	0
	Subsurface	0	0	0	0	0	0	0	0	0	0
Demersal trawl	Surface	0	0	0	0	0	0	0	0	0	0
	Subsurface	0	0	0	0	0	0	0	0	0	0
Dredge	Surface	0	0	0	0	0	0	0	0	0	0
	Subsurface	0	0	0	0	0	0	0	0	0	0
Bottom towed gear total	**Surface**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Subsurface	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Table A1.6. Fishing effort (days) recorded by UK vessels under 12 m in length, separated by gear type for the area of Hartland Point to Tintagel MPA, that intersects the marine portion of ICES rectangle 30E5 (2016 to 2021). ICES rectangle level data has been apportioned to the MPA based on the percentage area of the ICES rectangle that intersects the MPA (Table A1.4).

Gear group	Fishing effort (days at sea)							
	2016	2017	2018	2019	2020	2021	Total (2016 to 2021)	Annual average (2016 to 2021)
Demersal seine	0.04	0	0	0	0	0	0.04	0.01
Demersal trawl	0.18	1.11	1.24	2.86	0.60	2.28	8.27	1.38
Dredge	0	0	0.13	0.22	0.03	0	0.39	0.06
Bottom towed gear total	**0.22**	**1.11**	**1.37**	**3.08**	**0.63**	**2.28**	**8.71**	**1.45**
Midwater gill drift	0	0	0	0.01	0	0	0.01	>0
Midwater trawl	0	0	0	0	0	0.18	0.18	0.03
Midwater hooks and lines	2.34	1.33	1.18	1.82	0.97	0.60	8.24	1.37
Midwater gear total	**2.34**	**1.33**	**1.18**	**1.84**	**0.97**	**0.78**	**8.43**	**1.41**
Traps	13.48	14.38	21.53	23.53	14.84	10.51	98.26	16.38
Anchored nets and lines	2.11	1.96	2.40	1.09	1.85	2.12	11.53	1.92
Static gear total	**15.59**	**16.33**	**23.93**	**24.62**	**16.69**	**12.63**	**109.79**	**18.30**
MPA total	**18.15**	**18.78**	**26.48**	**29.54**	**18.30**	**15.68**	**126.93**	**21.15**