



Marine
Management
Organisation

Decision document: Stage 2 call for evidence

January 2023



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Executive summary

MMO held a call for evidence from 14 May to 10 July 2022 to seek views and additional evidence on a draft assessment on the impact of bottom towed fishing on rock and reef features in 13 marine protected areas (MPAs).

The assessment included site level assessments for the 13 MPAs and found that fishing using bottom towed gear poses considerable risks to the condition of these features and management measures are required to address these risks.

MMO received 39 responses to the call for evidence and have considered and reviewed all evidence and views provided. The Stage 2 MPA Fisheries Assessment has now been finalised.

This decision document details MMO's response to key themes raised by stakeholders through the call for evidence.

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1 Introduction

MMO is assessing the impact of, and where necessary introducing management to address, the impacts of fishing in marine protected areas (MPAs) offshore of 6 nautical miles in English waters¹. Stage 2 of this work is focussed on the impacts of bottom towed fishing on rock and reef features of MPAs. These fishing gears and features were selected for Stage 2 as rock and reef habitats are among the most sensitive features to the impacts of bottom towed gear.

As part of Stage 2, MMO held a call for evidence from 14 May to 10 July 2022 to seek views and additional evidence on a draft assessment on the impact of bottom towed fishing on rock and reef features in 13 MPAs (Figure 1). The questionnaire and documents were hosted on a platform called Citizen Space and organised into site level questions and all site questions.

The Stage 2 Fisheries Assessment presents MMO's analysis of the impact of bottom towed fishing gear on rock, reef and related features and includes site level assessments for the 13 MPAs. It found that fishing using bottom towed gear poses considerable risks to the condition of these features and management measures are required to address these risks.

The 13 MPAs that have been assessed in Stage 2 are:

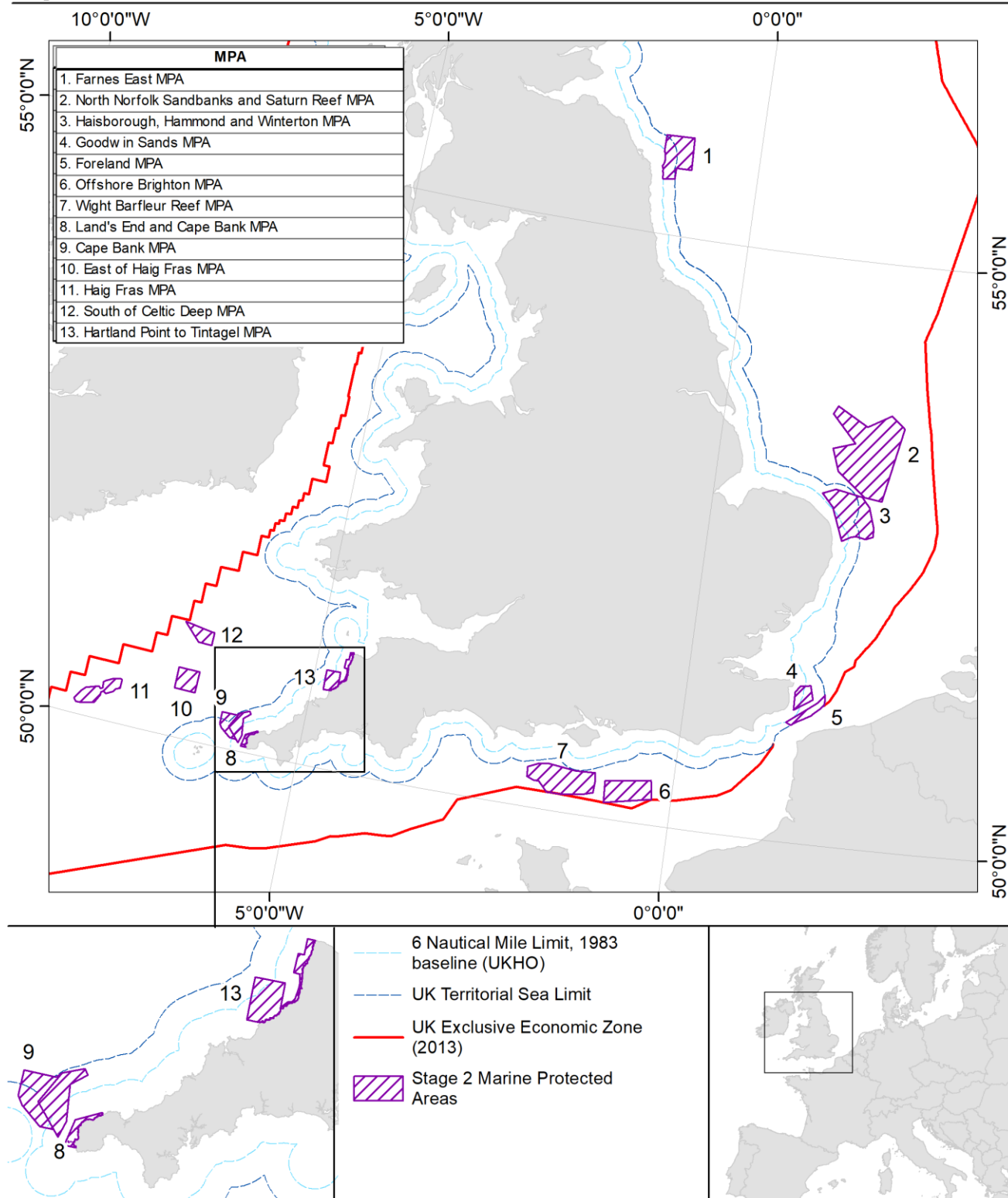
- Cape Bank;
- East of Haig Fras;
- Farnes East;
- Foreland;
- Goodwin Sands;
- Haig Fras;
- Haisborough, Hammond and Winterton;
- Hartland Point to Tintagel;
- Land's End and Cape Bank;
- North Norfolk Sandbanks and Saturn Reef;
- Offshore Brighton;
- South of Celtic Deep;
- Wight-Barfleur Reef.

Further details on the call for evidence are provided [here](#). This document presents the responses received during the call for evidence, and how MMO has addressed those responses.

¹ For more information see: www.gov.uk/government/collections/managing-fisheries-in-marine-protected-areas



Stage 2 Marine Protected Areas



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Figure 1. MPAs included in the Stage 2 MPA Fisheries Assessment.

2 Call for evidence responses

2.1 Methodology for collecting responses

The call for evidence included an online survey, which presented the draft MMO Stage 2 MPA Fisheries Assessment and a range of high-level management options.

Questions in the call for evidence sought additional information from stakeholders for each MPA, about the following:

- the location, condition, or sensitivity of the designated feature(s) assessed
- the level or nature of fishing activity within the site.

There was also the opportunity to upload further information outside these questions.

Stakeholders could answer concerning specific MPAs or within an 'all sites' section if their response was relevant to all MPAs.

The call for evidence presented the following high-level management options which would inform development of management measures for the Stage 2 MPAs:

- **Option 1:** no fisheries restrictions. Introduce a monitoring and control plan for the site.
- **Option 2:** no statutory restrictions. Introduce a voluntary agreement.
- **Option 3:** reduction of pressures associated with bottom towed gear of concern, through zoned management (partial site prohibition of these gears over areas of highly sensitive designated features).
- **Option 4:** removal of pressures associated with bottom towed gear of concern through a whole site prohibition of these gears.

Stakeholders also had the option to answer questions via email. MMO received 11 emailed responses, these have been summarised in this document alongside the online survey responses.

2.2 MMO evidence quality assurance process

MMO always seek to use the best available evidence to inform our decisions. The Stage 2 call for evidence provided an opportunity for stakeholders to provide additional evidence to inform the MMO Stage 2 MPA Fisheries Assessment and development of management measures. Local fishers 'and other interested parties' knowledge and data is an important part of understanding the marine activities within a site. Other evidence sources, including information from the fishing industry and local experts, help strengthen our analysis when considering management options for each MPA.

It is important to understand the strengths and limitations of any evidence to understand how it can contribute to decision making. Any additional information that was provided at the call for evidence has been analysed and verified through the MMO evidence quality assurance process (MMO, 2022). Where appropriate, (i.e. depending on the quality of the evidence submitted compared with that already used), new evidence can be used to update and improve the MMO Stage 2 MPA Fisheries Assessment and inform proposed management measures. However, in this call for evidence, the information provided was not incorporated into the MMO Stage 2 MPA Fisheries Assessment or the economic impact assessment. This was because the evidence provided was already included within these documents or stronger evidence was already included within the assessments, see **Additional evidence** in 2.4.2.

2.3 Summary of responses

MMO would like to thank everyone who responded to the call for evidence. We have reviewed and considered all responses.

During the call for evidence, 39 responses were received, 11 by email and 28 via Citizen Space. These included responses from individuals, academics, fishers, non-governmental organisations, industry groups and other government departments. The number of responses relating to specific sections of the survey are listed below in Table 1. Some responses related to several MPAs.

Table 1. List of sections of the Citizen Space survey and the number of responses received for each section.

Specific section	Number of responses
All sites	13
Cape Bank	12
East of Haig Fras	6
Farnes East	7
Foreland	5
Goodwin Sands	13
Haig Fras	5
Haisborough, Hammond and Winterton	6
Hartland Point to Tintagel	10
Land's End and Cape Bank	11
North Norfolk Sandbanks and Saturn Reef	5
Offshore Brighton	8
South of Celtic Deep	5
Wight Barfleur Reef	7

Responses were categorised by MMO broadly as critical, neutral or supportive. Approximately 43% of responses were neutral, 33% critical and 24% supportive.

Most responses were submitted on behalf of organisations. There were similar numbers of respondents representing fishing industry organisations, environmental non-governmental organisations (NGOs), and individuals (Table 2). For a full list of organisations which responded please see **Annex 1 Organisational respondents**.

Table 2. Breakdown of responses by organisation.

Type of organisation	Number of respondents	Percentage of respondents
Fishing Industry	11 (9 online, 2 email) - 4 of which were non-United Kingdom (UK) fishing organisations	28
Non-governmental organisation	9 (5 online, 4 email)	23
UK Government organisations	6 (3 online, 3 email)	15
Academic	1 (1 online)	3
Individual	12 (10 online, 2 email)	31
Total	39	100

The subjects raised during the call for evidence fall within the following overarching categories:

- MPA fisheries management;
- additional evidence;
- socio-economic impacts;
- displacement;
- highly protected marine area (HPMA) designation; whole site closures;
- in-combination effects;
- precautionary approach;
- wastewater and sewage impacts;
- impacts of lost or abandoned fishing gear;
- blue carbon;
- climate change;
- protected species; and
- natural disturbance, community composition and natural resilience.

2.4 All sites section responses

MMO received consultation responses which relate to many or all of the Stage 2 MPAs. There were also overarching common themes from each of the named site sections of the survey which have been combined in this section. MMO has summarised these consultation responses in the section below together with MMO's response to the comments.

2.4.1 MPA fisheries management

The following responses were received:

1. What is being assessed when, through MMO's offshore MPA fisheries assessment work?
2. There is a lack of speed and scale in MMO's approach, and it should include a whole site, all gear, or ecosystem approach.

MMO response: in response to points 1 to 3, MMO is assessing, and where necessary, introducing management to address, the impacts of fishing in MPAs in England offshore of 6 nm. This work is taking place over four stages (**Figure 2**).

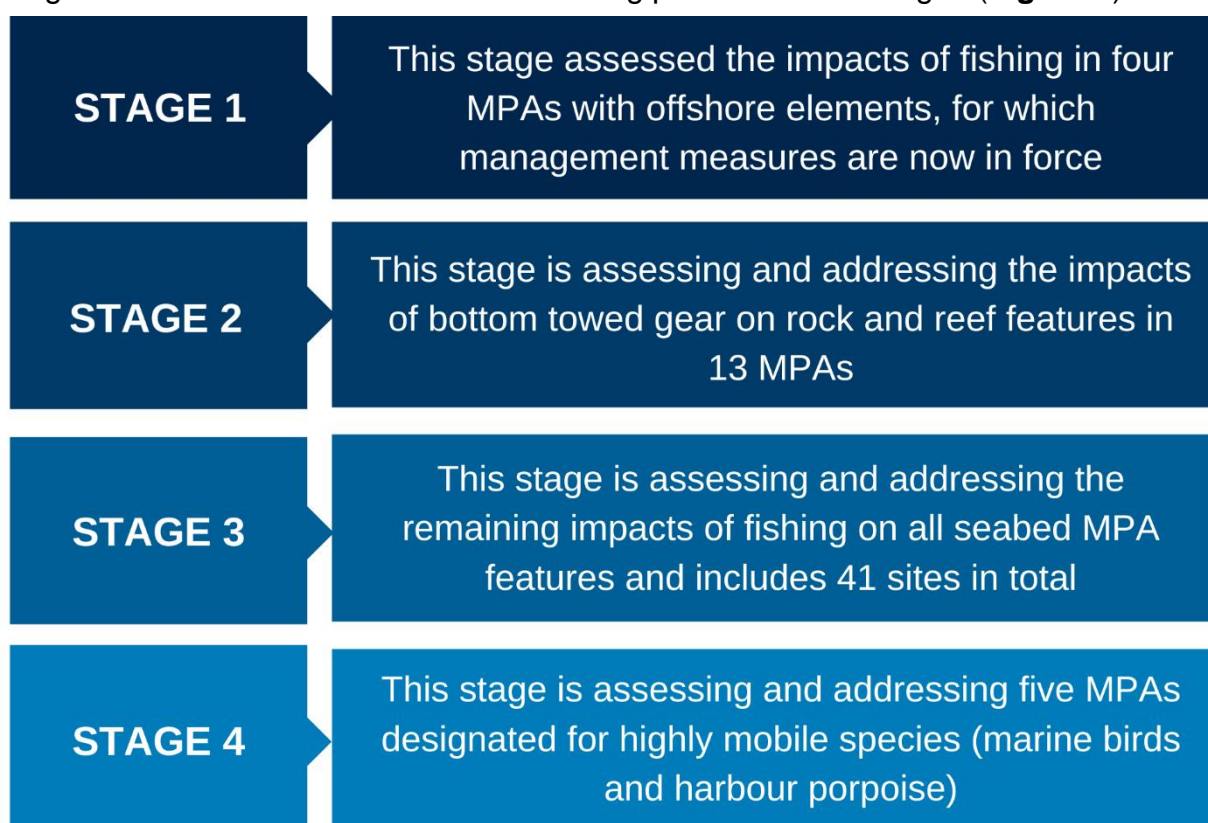


Figure 2. The four stages of the MMOs plan to assess the impacts of fishing in MPAs in England.

Stage 1 assessed all fishing in the following four sites and introduced MMO byelaws for each site to manage certain fishing activities. These byelaws came into force in June 2022.

- Dogger Bank
- Inner Dowsing, Race Bank and North Ridge
- South Dorset
- The Canyons.

Stage 2 assesses the impacts of fishing using bottom towed gear on subtidal rock, and rocky and biogenic reef in 13 MPAs. These features were chosen as they are some of the most sensitive features to impacts of bottom towed gear. Using advice from JNCC and Natural England, MMO produced a detailed assessment of the impacts of bottom towed fishing on the rock and reef features of these MPAs. The purpose of the Stage 2 call for evidence was to gather additional evidence and stakeholder views on the draft Stage 2 MPA Fisheries Assessment. Following the Stage 2 call for evidence, MMO has finalised the assessment and created a draft MMO byelaw for bottom towed fishing in these sites which is now subject to public consultation through the Stage 2 formal consultation.

Stage 3 MMO will complete the assessment of all remaining fishing in MMO led sites, except for MPAs designated for highly mobile species (birds and harbour porpoise) which will be assessed in Stage 4. A series of documents setting out the available evidence and MMO analysis of the impacts of different gear groups on MPA features are being made available for the Stage 3 call for evidence.

All required management measures will be introduced no later than the end of 2024.

3. MMO should first prohibit bottom towed gears inside all MPAs through licence conditions, and then undertake assessments to introduce byelaws as a second step.

MMO response: MMO byelaws are the most appropriate mechanism to deliver fisheries management measures for MPAs and the MMO byelaw making powers were created specifically for this purpose. The current legal framework underpinning MPA protection is feature based, and management interventions will be determined by an evidence-based assessment of each feature and activity. The chosen approach also allows for consultation and engagement, allowing all relevant stakeholders to input to management decisions.

4. Why is MMO is putting in management for bottom towed gear if there is no vessel activity of this kind in the MPA, or when habitats continue to be present, or recent improvements in gear have been adopted to increase sustainability?

MMO response: The purpose of this call for evidence and any subsequent consultations is to gather additional information and evidence from stakeholders on activities and management options of MPAs. MMO will only implement management or prohibit fishing where an MMO MPA fisheries assessment cannot rule out that it is causing an adverse effect on site integrity. For certain features, even a very low level of activity could cause damage, and therefore in some cases it is appropriate to protect features where there is little or no evidence of recent fishing activity.

The Stage 2 MPA Fisheries Assessment has determined that the use of bottom towed gear poses considerable risks to the condition of the rock and reef features, even at very low levels. Protected areas with currently very low levels of activity also protects them from future increases in activity.

5. Appropriate management for the MPA network is essential for enabling marine environment recovery and resilience to the infrastructure development expected by 2050 to meet the net zero target.
6. Monitoring and enforcement are essential for Good Environmental Status (GES) descriptors and an ecologically coherent MPA network.
7. Protection from negative activities is essential for MPAs to achieve conservation objectives, especially important for offshore sites as 11 out of 15 GES descriptors are failing to meet targets.

MMO response: MMO agrees that effective MPA management, including monitoring and enforcement is important to help meet the government's ambition for nature recovery, including the achievement of GES.

8. Figure 1 of the call for evidence document refers to old legislation for the 6 and 12 nm limits (citing 1983 baselines, as opposed to The Territorial Sea (Baselines) Order 2014).
9. The 12 nm limit appears incorrect (most noticeably off the Suffolk/Norfolk coast where the 12 nm limit should extend out further due to the Haisborough Sand).

MMO response: The 6 nm limit used is based on the 1983 baseline (UKHO) and aligns with the inshore fisheries and conservation district boundaries as set out in Article 3 in each of the inshore fisheries and conservation authority (IFCA) designation orders^{2,3} (Figure 3). The 12 nm limit used in the Stage 2 MPA Fisheries Assessment has been updated to show the current territorial waters limit, which is based on the 2014 baselines order⁴.

² www.legislation.gov.uk/ukxi/2010/2189/article/3/made

³ www.legislation.gov.uk/ukxi/2010/2198/made

⁴ www.legislation.gov.uk/ukxi/2014/1353/contents/made

MMO fisheries management jurisdiction

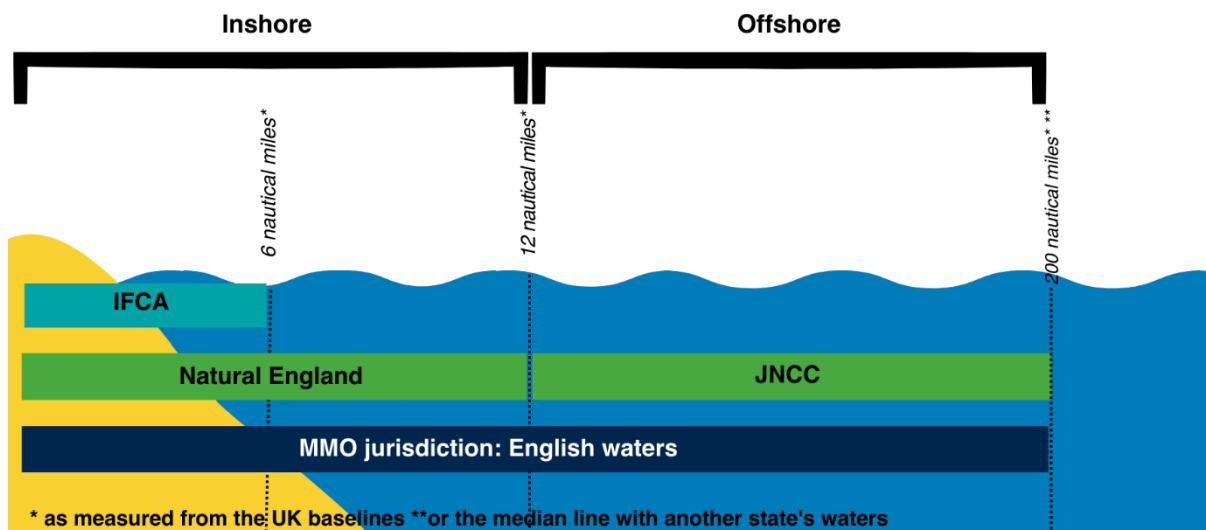


Figure 3. The fisheries jurisdiction of the MMO extends from the UK baselines out to the median line or 200 nm limit. For MPA fisheries management, IFCA is the lead within 6 nm.

2.4.2 Additional evidence

The following responses were received:

1. The data used for the MPA fisheries assessment underestimates effort from under 15 metre vessels.
2. A respondent provided additional information on fishing activity including fishing hours from Global Fishing Watch data for each of the MPAs.
3. A percentage and total area breakdown of the sediment composition of each MPA summarised to European Nature Information System (EUNIS) habitat classification level 3. This was provided alongside a corresponding calculation of sediment carbon content for each site.

MMO response: in response to point 1, the Stage 2 MPA Fisheries Assessment sets out the strengths and limitations of the different evidence sources used. While it is possible that the fisheries activity data used has led to an under estimation of fishing effort from under 15 metre vessels, the assessment concluded that that fishing using bottom towed gears poses considerable risks to the condition of the features considered, and management measures are required to address these risks.

In response to point 2, the Global Fishing Watch data is an analysis of automatic identification system (AIS) information, however, not all fishing vessels currently use

AIS. The data source provided therefore does not provide full insight to the activity levels occurring to assess interactions with site features. MMO uses data from vessel monitoring systems (VMS), which is required from all vessels over 12 metres in length, alongside landings data to create a picture of the fishing activity in the area. In response to additional data received, see section **2.2**.

In response to point 3, MMO are using the best available evidence, including habitat data to EUNIS level 3 where available. JNCC and Natural England are responsible for monitoring MPAs and maintaining up to date designated feature data, including assessing the condition of habitats and species designated through MPAs. This is carried out using an agreed approach for assessing the condition of statutory sites designated through UK and international legislation (JNCC, 2019a). For MMO's response regarding blue carbon please see **2.4.9**.

2.4.3 Socio-economic impacts and displacement

The following responses were received:

1. The Eastern English Channel area is one of the most congested sea areas in the world, with UK and EU fishing fleets sharing the area with shipping lanes, anchorage areas, ferries, dredge spoil areas, aggregate extraction areas, and offshore windfarms and their associated cables. This development has significantly reduced fishing areas for those who have historically fished the area, and potential fishing restrictions will further reduce available fishing grounds in and around the MPAs.
2. The proximity of the MPAs in the Eastern Channel, alongside the proposed expansion of Rampion offshore wind farm, aggregate extraction sites and the IFCA management measures, restrict UK fishing activities in this area. Further restrictions would result in increased pressure on nearby grounds and create potential gear conflict issues between sectors, as well as impacting the marine environment by increasing pressure on fisheries.
3. Displacement of fishing further offshore will result in increased fuel costs (both in terms of increased distance to travel and the rising prices of fuel) and safety concerns for vessels.

MMO response: MMO aims to continue protecting and improving the health of the marine environment to help support a diverse, profitable, and sustainable UK fishing industry into the future. While developing MPA management measures, MMO strives to avoid any unnecessary costs to the fishing industry, financial or otherwise. However, we have duties to ensure MPAs receive the protection they require and the potential for management to have a socio-economic impact does not override this duty.

Introducing management measures within MPAs alongside for example, the expansion of offshore wind, poses a huge spatial challenge. MMO is currently

undertaking work alongside Defra to better understand the impacts of displacement and spatial squeeze, and how to address these. MMO must also have regard to marine plan policies, including the requirement that proposals which may have significant adverse impacts on access for fishing activities demonstrate that they will, in order of preference: a) avoid, b) minimise, or c) mitigate adverse impacts so they are no longer significant.

These considerations have been compiled into an impact assessment for both site level considerations and wider cumulative effects. This includes considering displacement issues during the decision-making process for fisheries management measures within MPAs. MMO consider impacts on businesses and individuals, including safety issues. As we consult on potential measures during formal consultation, we will maintain engagement with stakeholders, working with them to incorporate their knowledge and to minimise any negative impacts. We are keen to work with and learn from stakeholders to gain a deeper understanding of socio-economic impacts of proposed fisheries management measures to ensure that any byelaws introduced are effective.

Although displacement resulting from any management measures put in place may result in higher levels of fishing pressure on areas outside of MPAs, the location (and thus the associated environmental costs) of displaced fishing activity is unclear. The Stage 2 MMO Fisheries Assessment found that fishing using bottom towed gear poses considerable risks to the condition of these features and management measures are required to address these risks.

MMO recognises the severe impacts that COVID-19, fuel costs and the rising costs of living are having on the UK fishing industry. MMO has been at the forefront of supporting the fishing industry, including setting up and administering the [Fisheries Response Fund](#) which provided £10 million of support to England's fishing industry, and administering a £23 million support fund for seafood exporters across the UK. We also recently relaunched the [Fisheries and Seafood Scheme \(FaSS\)](#) which will provide at least £6 million to support the long-term sustainability, resilience, and prosperity of the seafood sector across England. Fishers will not receive compensation for any changes in income because of management measures. This is in line with how other marine industries are regulated.

4. There is limited fishing activity from Belgian vessels within the North Sea MPAs, therefore fishing restrictions may have limited impact on the fleet. However, seasonal activity at the beginning and end of the year (1st and 4th quarter) is essential.

MMO response: The estimated impact of the proposed management measures on non-UK fishing fleets is presented in the draft impact assessment. MMO will maintain engagement with a broad range of stakeholders to incorporate their knowledge and to minimise any negative impacts resulting from management measures. We are

keen to work with and learn from stakeholders to gain a deeper understanding of socio-economic impacts of proposed fisheries management measures to ensure that any management introduced is effective, for additional information see **2.4.1**.

2.4.4 HPMA designation and whole site closures

The following responses were received:

1. There were requests from some respondents for designation of specific MPAs to be HPMA.
2. Full site closures will increase fish populations and biodiversity, and there will be greater retention of juvenile and some adult commercial fish populations if habitat, species and prey abundance is also allowed to recover.
3. Some respondents stated preference for a whole site prohibition of bottom towed gear to achieve the conservation objectives, for the purpose of carbon storage and for movement of species outside of feature areas. Some also endorse that specific sites should be HPMA and that this would increase fisheries and biodiversity benefits to the eastern channel.

MMO response: Defra is leading the project to pilot HPMA in English waters. The process for identifying five pilot HPMA is described in the HPMA consultation documents (Defra, 2022b). Defra, using data from Cefas, MMO, IFCAs, Natural England and JNCC, applied social and economic criteria to narrow down the list of potential pilot sites (see Annex B document, Defra, 2022b). The ecological criteria are based on the principles outlined in the Benyon Review (Defra, 2022a).

A public consultation on five candidate HPMA was open from 6 July until 28 September 2022.

Offshore Brighton MPA overlaps partially with the Dolphin Head candidate HPMA, and there is overlap with the area covered by the Stage 2 Byelaw. For additional information on management preferences see sections **2.4.1** and **2.4.2**.

Full site closures were considered for all MPAs, and in some cases have been proposed to protect the rock and reef features. In other cases, the rock and reef features only form part of the MPA, and therefore a whole site closure is not required. The impacts of fishing on other features in these MPAs will be considered in Stage 3.

2.4.5 In-combination effects

The following responses were received:

1. Implications for the lucrative, high effort nephrops fishery were raised alongside the proposed plans to route the Scotland-England GreenLink interconnector cable down the western side of the site, spanning 26 km.

A range of other activities occur within each of the MPAs, including oil and gas development, telecommunication cables, aggregate extraction (along the site boundary), shipping, recreational activities (eg sailing) and heritage assets (eg shipwrecks).

2. The Norfolk Boreas offshore windfarm position paper sets out the position of the Norfolk Boreas Limited on the Habitats Regulations Assessments for Norfolk Boreas Windfarm Farm in Haisborough, Hammond and Winterton MPA (Royal HaskoningDHV, 2020)
3. There was concern raised for a lack of consideration of cumulative or in-combination impacts in the MMO Stage 2 MPA fisheries assessment.

MMO response: Regarding licensable activities and heritage assets within the sites, the environmental impacts of these activities are considered in the marine licence application process by MMO or through the Development Consent Order granted by the Planning Inspectorate, depending on whether the development is deemed a nationally significant infrastructure project (NSIP). Statutory duties under the Marine and Coastal Access Act 2009 or the Planning Act 2008 will be discharged by the regulatory body accordingly.

In response to point 4, during the process of implementing management for an MPA, MMO considers other activities and fisheries which may have a cumulative impact on the management of the site, assessing which ongoing activities may hinder the site's conservation objectives. However, the rock and reef features considered in Stage 2 require management due to their sensitivity, regardless of any cumulative impact with other activities and/or fishing gear.

2.4.6 Precautionary approach

The following responses were received: MMO's approach was either too precautionary or not precautionary enough.

MMO response: The precautionary principle is defined in the 1992 Rio Declaration, to which the UK government is a signatory, and states: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

MMO decision making is taken in accordance with the precautionary principle. In addition, MMO completes assessments to ensure the fullest possible scientific evaluation of the potential impacts of marine non-licensable or fishing activities on the designated features of MPAs.

2.4.7 Wastewater and sewage impacts

The following response was received: there is a need to stop water companies dumping effluent within the marine environment.

MMO response: Effluent discharges in the form of wastewater and sewage are regulated and monitored by the Environment Agency. The scope of the call for evidence was the impact of bottom towed fishing on rock and reef MPA features.

2.4.8 Impacts of lost or abandoned fishing gear

The following response was received: the potential impacts of lost or abandoned fishing gear were highlighted, and the lack of consideration in the Stage 2 MPA Fisheries Assessment was raised.

MMO response: MMO acknowledges the impacts of marine litter, lost and discarded gear and 'ghost fishing'. This is a diffuse problem in the marine environment and site based management is unlikely to be an effective way of dealing with this issue. International legislation, however, is in place, such as Annex V of the International Convention for the Prevention of Pollution from Ships (1973) (International Maritime Organization, 2019).

2.4.9 Blue carbon

The following response was received: information was provided on carbon storage in marine sediments (blue carbon). Estimates were provided for a number of sites, stating that this was further evidence for full site closures.

MMO response: Within the MMO Stage 2 MPA Fisheries Assessment, the potential for fisheries restrictions to protect vital ecosystem services such as carbon storage are explored. Protection of MPAs may result in additional benefits such as the protection of blue carbon stores. The non-monetary benefits of the proposed byelaw, including potential blue carbon storage, are considered in the draft impact assessment.

2.4.10 Climate change

The following response was received: mitigation of the effects of climate change is needed, including enabling the adaptation of designated species and adjustments in relation to shifting species ranges as a result of climate change.

MMO response: The Stage 2 MPA Fisheries Assessment states that 'prohibiting the use of damaging activities may enhance the level of certain ecosystem services provided by MPA features and sub-features, such as climate regulation (Fletcher et al., 2012)'. By providing areas closed off to damaging activities, space is being

provided for refuge of species, and negative impacts minimised, thereby promoting increased resilience against impacts including those felt from climate change.

2.4.11 Protected species

The following response was received: information was provided concerning cetacean deaths and proposed links to ghost fishing and accidental bycatch within a number of the sites. There was also a link to fishing impacts on marine mammals, and concerns raised regarding gear switch, resulting from restrictions on bottom towed gear, and subsequent increased risk of bycatch with other gear.

MMO response: Harbour porpoise are a designated feature of two offshore MPAs in English waters. MMO will assess and manage the impacts of fishing on these sites in Stage 4 of the MMO's MPA fisheries management work (see 2.4.1). Seals, sharks, and other species of cetaceans, although protected species, are not designated features of the MPAs under consideration in Stage 2, therefore neither the assessment nor management proposals have been developed specifically for the protection of those species. MMO recognises, however, that management of bottom towed gear may have a wide range of ancillary benefits such as enhanced fish stocks, marine biodiversity and ecosystem recovery which is likely to subsequently benefit animals such as seals, sharks and cetaceans through, for example, habitat recovery and increased prey availability.

2.4.12 Natural disturbance, community composition and natural resilience

Respondent comment: a paper by van Denderen et al. (2015) was provided in support of the suggestion of using community composition and natural resilience to guide management requirements for trawling activities.

MMO response: As set out in the Stage 2 MPA Fisheries Assessment, the impacts of bottom towed gear on the seabed may vary with several factors, including potentially the levels of natural disturbance (Lambert et al., 2014), sediment type (Rijnsdorp et al., 2018) and exposure to previous fishing activity (Sciberras et al., 2018). For example, in areas of high natural disturbance, benthic communities may recover faster from bottom towed gear (Lambert et al., 2014). Meanwhile, as they contain large proportions of long-lived sessile epifauna, communities in gravel habitats may be more sensitive to bottom towed gear (Rijnsdorp et al., 2018). The impacts of bottom towed gear on lightly fished areas may also be greater (Sciberras et al., 2018); however, this could be because historic trawling in core fishing grounds has removed sensitive species (Hiddink et al., 2017). Delineating variation in habitat sensitivity (for example by levels of natural disturbance, sediment type and previous fishing exposure) does not, however, consider species-specific sensitivities, for example fragile species will be more vulnerable (Hiddink et al., 2006). Studies on how the impacts of bottom towed gear vary with sediment type can, at times, also provide conflicting results (Stewart and Howarth, 2016; Hiddink et al., 2017). While

some information is available detailing how bottom towed gear impacts vary, the intensity and extent of bottom towed gear that is sustainable, even in more resilient habitats, remains unclear (Stewart and Howarth, 2016). Although the impacts may vary, trawling can have large negative effects on the biomass and production of benthic communities (Hiddink et al., 2006).

2.5 Site specific responses

This section provides a summary of site level responses, alongside MMO's response, including how these have been addressed, in relation to specific MPAs.

2.5.1 Cape Bank

Additional evidence

The following responses were received:

1. The site is important for French trawlers and Belgian fishing vessels including smaller (less than 24 m) beam trawlers (Eurocutter fleet) inside of 12 nm and larger vessels outside of 12 nm.
2. Belgian beam trawl fleet has evolved towards sumwings and ecorolls and are therefore less damaging.
3. Negative impacts of beam trawls have been overstated.
4. Displacement of activity is likely increasing fishing pressure. High value seasonal trawling activity occurs.
5. The interaction of bottom towed gears on rocky reef will lead to a significant risk of hindering the conservation objectives of the MPA.

MMO response: In response to point 1, this data has already been included in the MMO Stage 2 MPA Fisheries Assessment via VMS. VMS is required from all vessels (of all nationalities) over 12 metres length. MMO recognises the importance of the site to French and Belgian fishing vessels. While the nationality of a fishing vessel does not influence the impact of its fishing operations, the impact of proposed management measures on fishing vessels from different states is captured in the impact assessment produced alongside the proposed management measures. MMO strives to avoid any unnecessary costs to the fishing industry, financial or otherwise in the development of management measures. However, we have duties to ensure MPAs receive the protection they require and the potential for management to have a socio-economic impact does not override this duty. For more detail on socio-economic impacts, please see section **2.4.3**.

In response to points 2 and 3, the evidence set out in the MMO Stage 2 MPA Fisheries Assessment demonstrates the potential for beam trawl activity to negatively impact sensitive habitats such as the designated reef feature within Cape Bank. Although the overall environmental impacts may be reduced by sumwing and

ecoroll beam trawl design, MMO has not seen evidence to demonstrate that this reduction would be sufficient to rule out a significant risk of beam trawling hindering the achievement of the site's conservation objectives.

In response to point 4, although displacement resulting from any management measures put in place may result in higher levels of fishing pressure on areas outside of MPAs, the location (and thus the associated environmental costs) of displaced fishing activity is unclear, see section **2.4.2**.

Point 5 supports the conclusion of the assessment that a significant risk of beam trawling hindering the achievement of the site's conservation objectives cannot be ruled out.

Management options

The following responses were received:

1. Bottom towed gear will risk the conservation objectives of the site.
2. Option 4 (whole site prohibition) must be taken, as it will deliver conservation objectives for rock and all other MPA features including coarse sediment.
3. Feature based approach would not adequately protect features. A whole site ecosystem approach would be more effective.
4. The northwest portion of the site is important as a sole fishery and vessels using bottom towed gear have operated there for decades. Fishers believe that the less sensitive features are in the western parts of the site. The respondent noted that for the industry, a voluntary/zoned approach would be the preferred approach for this site.
5. There should be a temporal open season to allow for fishing as part of scientific studies within the site.
6. A full closure of the site to all types of fishing is required, as well as jet skis and boats travelling at high speed to protect whales and dolphins.

MMO response: In response to points 1 to 4 please see sections **2.4.1** and **2.4.2**.

In response to point 5, proposed management measures will include an exemption for scientific purposes. Therefore, subject to permission, bottom towed gear surveys for scientific purposes can still occur within Cape Bank MPA, provided that it can be demonstrated that these surveys will not result in a significant risk to the achievement of the site's conservation objectives.

In response to point 6, please see section **2.4.11**.

2.5.2 East of Haig Fras

Additional evidence

The following responses were received:

1. The site is important to vessels using bottom towed gear, particularly for mixed fishery species such as sole, monkfish and megrim, which is already spatially restricted. These grounds have been fished for many years and continue to produce a diverse range of species that are important to the fleet and supply chain to produce the diverse range of species into the south-west markets.
2. In 2021, 19 French fishing boats have worked in this MPA, catching 1,886 tonnes of fish for €6,607,920 of benefits. This area is important to the respondent's fleet, with over 20% of our effort focussed on this area.
3. The gill and trammel nets have just one rope on the seabed, and because they both have floats on the headlines, this rope does not affect the benthic substrate. There is gill netting activity in this area (shown by a plotter picture attached). Gill netters target hake year-round.
4. Reference to the Biodiversity Action Plan for fan mussel (*Atrina fragilis*) (JNCC, 2007). There are only 20 populations recorded throughout the UK, and sponge and sea-pen communities form habitats for other organisms. Thus persistent, or even occasional, bottom trawling will damage or kill these species and reduce their associated ecosystem services.

MMO response: In response to points 1 and 2, MMO recognises that the site is important for mixed fishery species for multiple fleets. While the nationality of a fishing vessel does not influence the impact of its fishing operations, the impact of proposed management measures on fishing vessels from different states is captured in the impact assessment produced alongside the proposed management measures. MMO strives to avoid any unnecessary costs to the fishing industry, financial or otherwise in the development of management measures. However, we have duties to ensure MPAs receive the protection they require and the potential for management to have a socio-economic impact does not override this duty. For more detail on socio-economic impacts, please see section **2.4.3**.

In response to points 3 and 4, this call for evidence is part of Stage 2 which is focussed on the impacts of bottom towed fishing gear on subtidal rock, and rocky and biogenic reef. The impacts of gill and trammel nets on designated seabed features, and the impacts of all fishing gears on fan mussel (*Atrina fragilis*) and sea-pen and burrowing megafauna communities will be assessed at Stage 3. Please see **Figure 2** in section **2.4.1** for more detailed information on each stage.

Management options

The following responses were received:

1. Option 2 (voluntary agreement) or option 3 (zoned closure) should be considered for bottom towed gear due to the omnipresence of vessels using these gear types across the site. This would allow industry and fisheries management to understand the range of impacts on the seabed from bottom towed gears through to natural disturbance.
2. Coupling options 2 and 3 with a monitoring and evaluation study to understand the impacts of bottom towed gear and the effectiveness of MPA's would offer valuable data and evidence to further inform future management of the site and the MPA network.

MMO response: MMO agrees that, as set out in the Stage 2 MPA Fisheries Assessment, the impacts of bottom towed gear on the seabed vary with several factors, including the levels of natural disturbance (Lambert et al., 2014) and exposure to previous fishing activity (Sciberras et al., 2018). While some information is available detailing how bottom towed gear impacts vary, the intensity and extent of bottom towed gear that is sustainable, even in more resilient habitats, remains unclear (Stewart and Howarth, 2016). It would not be appropriate to allow bottom towed fishing gear to operate in areas where there is a significant risk of hindering the achievement of the site's conservation objectives. Please also see section **2.4.2**.

Other responses

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores. A response to this has been included in section **2.4.9**.

MMO received information on cetacean bycatch throughout the Celtic Sea area, reported as a link to fishing within the area, a response to this has been included in section **2.4.11**.

2.5.3 Farnes East

Additional evidence

The following responses were received:

1. The nephrops fishery is commercially important at a local and international scale, restrictions to the nephrops grounds would have significant impacts on the local industry and would likely cause some significant displacement of this effort elsewhere.
2. Northumberland Inshore Fisheries and Conservation Authority (IFCA) is currently in the process of amending its dredging byelaw, which would prohibit

dredging within the entirety of the Northumberland Inshore Fisheries and Conservation (IFC) District (0 – 6 nm). Further dredging restrictions would add further pressure to this industry and would remove commercially important local grounds.

3. Vessel monitoring system (VMS) data for scalloping vessels in the vicinity of the Northumberland IFC District, using data from 2016 to 2019, indicates high activity within the Farnes East MPA. It was recommended that more contemporary VMS data be analysed to best understand the levels of both trawling and dredging within the site.
4. VMS data for scalloping vessels were provided within the Northumberland IFC District
5. Scallop dredging is not occurring within the site at present.
6. Scallop dredging should be a regional fishery managed by the IFCA during poor weather periods.
7. Fisheries which are not under pressure should remain open especially with other pressures impacting on entry into fishing careers.
8. Management of the fishery should be based on timings or bag limits rather than full site closure.
9. Closure of the site to bottom towed gears will result in additional potting activity occurring in the site.

MMO response: In response to points 1 and 2, MMO strives to avoid undue pressure on fisheries through restriction of fishing grounds, however, we have duties to ensure MPAs receive the protection they require and the potential for management to have a socio-economic impact does not override this duty. For additional information see sections **2.4.1** and **2.4.3**.

In response to points 3 and 4, the use of VMS data indicated a level of fishing effort which meant it was not possible to exclude a significant risk of hindering the achievement of the conservation objective of the MPA. Additional information on evidence used is presented in **2.2** and for additional information on use of VMS see **2.4.1** and **2.4.2**.

In response to point 5, there is evidence of bottom towed gears operating within the site as detailed in the MMO Stage 2 MPA Fisheries Assessment. In response to point 6, the IFCA jurisdiction to manage fisheries extends out to 6 nm (Figure 3), therefore Farnes East falls within the MMOs jurisdiction to assess and if required, identify and implement any management.

In response to points 7 and 8, MMO strives to implement appropriate management based on accurate and up to date evidence, management will only be implemented whereby the evidence suggest that the fishing activity taking place will hinder the conservation objectives of the MPA, please see sections **2.4.2** and **2.4.3**.

In response to point 9, although displacement and gear changes resulting from management measures may result in higher levels of fishing pressure on areas outside of MPAs, it is not possible to accurately predict the location (and thus the associated environmental costs) of displaced fishing activity. Please see section **2.4.1**.

Management options

The following responses were received:

1. A whole site approach should be undertaken.
2. All fishing activity is harmful to the ocean floor and its habitats. Farnes East MPA's seven designated features are sensitive and should be protected by a complete ban on fishing of all types, to ensure full recovery. A byelaw prohibiting all fishing must be the way forward for a good outcome to enable this site to recover.
3. Assessing the impact of bottom towed gear alone, separate to all other fishing methods and activities, does not consider combined and cumulative impacts.
4. With features already in unfavourable condition, recovery isn't possible without assessing all activities which may impact on the features.
5. The feature covered in this consultation is also found within the Coquet to St Mary's MPA, found within the Northumberland IFC District with the same conservation objectives (to maintain in favourable condition). Under the Northumberland IFCA byelaw, it is now prohibited to fish with any trawl, unless using gear which has been modified to reduce the impact on the seafloor when trawling over hard substrates. This has been viewed as a success by the industry, who supported this above a total prohibition of activity on the designated features. This is a good example of how management can be in place to afford protection to the features, whilst still allowing the activity to occur.
6. Additional buffers around the feature would stretch into the Northumberland IFC District, putting further pressure on the inshore trawling fleet inside of the 6 nm boundary.
7. Buffers around the designated features would likely result in a vast network of prohibited areas which would be difficult to police and enforce and put undue pressure on the fishing industry.

MMO response: In response to point 1 please see section **2.4.2**. In response to points 2, 3 and 4, please see sections **2.4.1** and **2.4.5**.

In response to point 5, there is uncertainty and conflicting evidence regarding the impact of bottom towed gear on different types of sediment. MMO undertakes assessments of each MPA on a site-by-site basis and whilst an approach may be sufficient for one MPA, it may not be appropriate for a similar MPA nearby. MMO will only implement management or prohibit fishing in parts of a site where an MPA

fisheries assessment cannot rule out that fishing activities are hindering the conservation objectives of that site. In this case the Northumberland IFCA byelaw requirement of an adapted otter trawl is based on shallower reefs which are exposed to higher levels of natural disturbance and therefore likely to host biological communities which are more resistant to physical impacts. Based on the available evidence, the Stage 2 MPA Fisheries Assessment concluded that a significant risk of hindering the achievement of the site's conservation objectives could not be excluded from any interaction between bottom towed gears and the moderate energy circalittoral rock within the site, and therefore the potential for this interaction to occur must be removed by prohibiting the use of bottom towed gear over these features (and within a minimum 300 m buffer around the edge of the features). MMO remain open to any further evidence and will regularly review the measures in line with our monitoring and control strategy.

In response to points 6 and 7, a depth-based buffer applied around the edge of management areas is necessary to account for fishing gear warp length (ie the length of the lines, rope or wires that connect the gear to the seabed and to the towing vessel) and to ensure that fishing activities taking place adjacent to the feature, do not negatively impact it. Whilst buffers may extend into the neighbouring Northumberland IFC District and may further restrict fishing activities, these can be adapted on a site-by-site basis. Where a designated feature of an MPA straddles the 6 nm limit, MMO work closely with the relevant IFCA to ensure appropriate management is in place for the straddling feature. This may be in the form of spatial restrictions within both the MMO and the IFCA section of the site or a monitoring and control plan where it has been concluded that a statutory restriction is not required. Farnes East MPA sits adjacent to the 6 nm limit, and therefore the designated feature occurs along the outer edge of the limit, but not within the Northumberland IFC District. As a result, there is no designated feature for Northumberland IFCA to assess and consider management for, thus requiring MMO to include a buffer into the Northumberland IFC District to ensure the appropriate level of protection for features that adjoin it. The MMO Stage 2 MPA Fisheries Assessment, section 2.4 'management options' discusses the use of buffer zones which are an adopted MMO approach following guidance from JNCC and Natural England to ensure appropriate protection of relevant features.

Other responses

MMO received information on the cumulative impacts of activities within the MPA, a response to this has been included in section **2.4.5**.

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores, a response to this has been included in section **2.4.9**.

MMO received information on cetacean bycatch throughout the area, detailing the importance of the site for white beaked dolphins and stating the issue of bycatch from ghost fishing gears and netting, a response to this has been included in section 2.4.11.

2.5.4 Foreland

Additional evidence

The following responses were received:

1. The site is important for commercial fishing for the Belgian fleet. The site has been highlighted by respondents for its importance for the growing squid fishery.
2. Fishing pressure does not allow the site to recover. A whole site approach should be taken to protect the entirety of the MPA to include protected features and associated species as well as to maintain carbon storage at the site. The site should be considered to become a HPMA.

MMO response: In response to point 1, MMO recognises the importance of the site to Belgian fishing vessels. While the nationality of a fishing vessel does not influence the impact of its fishing operations, the impact of proposed management measures on fishing vessels from different states is captured in the impact assessment produced alongside the proposed management measures. MMO strives to avoid any unnecessary costs to the fishing industry, financial or otherwise in the development of management measures. However, we have duties to ensure MPAs receive the protection they require and the potential for management to have a socio-economic impact does not override this duty. For more detail on socio-economic impacts, please see section 2.4.3.

In response to point 2, please see sections 2.4.4 and 2.4.9.

2.5.5 Goodwin Sands

Additional evidence

The following responses were received:

1. Concerns were expressed regarding the socio-economic impact on the national fishing industry. Respondents questioned the need for further restrictions on important fisheries sites, while expressing that they would prefer that non-UK fleets be restricted, not UK ones that already struggle.
2. Bottom towed gears might disturb seals, as they use the site for breeding.

MMO response: In response to point 1, MMO will only introduce management measures that are non-discriminatory and apply equally to vessels regardless of the

country conducting the fishing activity. However, due to varying levels of activity in Goodwin Sands MPA, some countries may be impacted more than others. Please see sections **2.2**, **2.4.1**, **2.4.2** and **2.4.3**.

In response to point 2 regarding protected species such as seals, which are not features of a particular MPA, please see section **2.4.11**.

Management options

The following responses were received:

1. Dredging and any form of aggregate extraction should be banned. The aggregated impacts from these activities disturb sensitive bottom fauna, such as mussels and Ross worms.
2. Option 4 (whole site prohibition) is the only way to ensure the site is properly protected.

MMO response: in response to point 1, marine licensable activities such as aggregate dredging are not being considered as part of this call for evidence. Marine licensable activities are subject to an in-depth, technical assessment of their impacts on relevant MPAs as part of the marine licensing determination process.

In terms of aggregate dredging in the area of Goodwin Sands MPA, a condition of the marine licence for aggregate dredging at this site states that 'all dredging within the licensed area under this marine licence must cease by 31 December 2021 or once the total quantity of material licensed to be extracted has been removed, whichever occurs first.' No aggregate dredging within Goodwin Sands MPA took place before 31 December 2021.

Further information regarding the licence for aggregate dredging at the site and the environmental considerations of this activity can be found on the [MMO marine licensing public register](#) (licence reference L/2018/00311/1).

In response to point 2, please see section **2.4.2**.

2.5.6 Haig Fras

Additional evidence

The following responses were received:

1. There is limited to no bottom towed gears operating here but there is netting and potting in the area.
2. There are recorded incidents of bottom trawling and seining in the site, which is damaging to upright sensitive demersal species.
3. Netters have operated within this area since before the introduction of VMS, however, there has not been much activity there in the last two years due to

the crayfish market and the coronavirus pandemic, although this is now increasing.

4. Using Global Fishing Watch analysis that the site was subject to 40.67 hours demersal towed fishing in 2021. This equates to 0.09 hours per kilometre square.
5. Trawlers do not work this area because the ground is too hard.

MMO response: in response to points 1 to 5, please see sections **2.2**, **2.4.1** and **2.4.2**. For Haig Fras MPA, there is evidence of bottom towed gear within the site as detailed in the MMO call for evidence within the MMO Stage 2 MPA Fisheries Assessment.

Management options

The following responses were received:

1. A full site closure (option 4) for all bottom towed gear.
2. Due to the importance of the corridor between the reefs for John Dory fisheries, it is important to consider a zoned or voluntary approach (option 2).

MMO response: in response to points 1 and 2 please see sections **2.4.1** and **2.4.2**.

Feature information

The following responses were received:

1. The evidence document only lists one habitat and recommended that JNCC and MMO consider the site to be effectively a 'one feature site' and as such all bottom towed gear should be prohibited.
2. Areas of coral present in the site which are believed to be intact due to the lack of trawling in the area. Fishermen are unsure of whether the coral is alive or dead because they only sometimes bring up small pieces of dead broken coral.
3. The distribution of the rocky and sediment features creating a mosaic of habitats, highlighting the potential for beneficial spill over from the site to surrounding fisheries outside of the site.

MMO response: In response to point 1, the Stage 2 call for evidence focussed on gathering information on bottom towed gear impacts on the one designated feature of Haig Fras MPA, Annex I rocky reef. MMO will only implement management or prohibit fishing in parts of the site where the Stage 2 MPA Fisheries Assessment cannot rule out that it is causing an adverse effect on site integrity.

In response to point 2, the purpose of the Stage 2 call for evidence is to gather information on the site, including the features and potential activity occurring within

that site. Information on the location of coral will be compared with known feature data to further the evidence base when considering management measures.

In response to point 3, please see section **2.4.1**.

Other responses

MMO received responses calling for this site to become a HPMA and afforded the same proposed protections, a response to this has been included in section **2.4.4**.

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores. a response to this has been included in section **2.4.9**.

MMO received information on cetacean bycatch throughout the area, reported as a link to fishing within the area, a response to this has been included in section **2.4.11**.

2.5.7 Haisborough, Hammond and Winterton

Additional evidence

The following responses were received:

1. Belgian activity in the site is most frequent just outside of 12 nm. The site is very important to the Belgian fishing fleet and will become more so in future due to decreased fishing grounds.
2. Fishing takes place mostly in the south east of the MPA (including dredging, bottom otter trawling and beam trawling by UK and non-UK vessels), and as well as in a small part of the north-west corner of the MPA.
3. Due to containing flatfish and sandeels, biodiverse rich troughs are likely targeted for fishing.
4. Fishing hours were provided for the site for 2019 to 2021 based on Global Fishing Watch data, with total fishing hours ranging from 587 – 1,555 hours per year.

MMO response: in response to point 1 to 4, please see sections **2.2** and **2.4.1**. For Haisborough, Hammond and Winterton, there is evidence of bottom towed gears operating within the site, particularly in the southeast, as detailed in the MMO Stage 2 MPA Fisheries Assessment.

Management options

The following responses were received:

1. A whole site (option 4) would allow increases in biodiversity beyond the individual features including sandbank troughs, where the majority of the ecological and carbon richness can be found.

2. The sandbank feature of the site should also be closed to bottom towed gear as all features within the site are interlinked; the sandbank is in unfavourable condition; and is sensitive to bottom towed gears as per the conservation advice.
3. Disadvantages of a feature-based approach include the increased cost to fishers to manage fishing activities around each feature.
4. A whole-site approach must be considered due to the size and significance of the site, and its carbon storage potential.
5. A feature-based approach is against global best practice for managing bottom towed gear in MPAs, and against multiple legislative commitments and MMO legal duties.
6. Whole-site management would better implement the ecosystem approach.
7. The MMO fisheries assessments for Dogger Bank and Inner Dowsing, Race Bank and North Ridge concluded that bottom towed gears were not compatible with restoring the biological communities; therefore, by extension such activity would be similarly damaging to the sandbanks of Haisborough, Hammond and Winterton MPA.
8. Spatial closures are needed for all sensitive sub-features as per the impact assessment for the Eastern IFCA MPA byelaw (Eastern IFCA, 2019).
9. Protecting the MPA habitats from bottom towed gear allows ecosystem recovery, and also benefits cetaceans via habitat recovery and increased prey availability, which in turn supports the Agreement on the Conservation of Small Cetaceans of the Baltic, Northeast Atlantic, Irish and North Seas (ASCOBANS) conservation plan for harbour porpoise in North Sea (ASCOBANS, 2009).
10. Strong agreement with the assessment's conclusion that the use of bottom towed gears poses considerable risks to the condition of the features considered and may lead to an adverse effect on site integrity of the MPA.

MMO response: in response to points 1 to 7, please see sections **2.4.1** and **2.4.2**. In response to point 4, please see section **2.4.9**.

In response to point 8, the impact assessment for the Eastern IFCA MPA Byelaw 2019⁵ considered three MPAs: The Wash and North Norfolk Coast MPA, Haisborough, Hammond and Winterton MPA, and Cromer Shoal Chalk Bed MPA (Eastern IFCA, 2019). For Haisborough, Hammond and Winterton MPA, the preferred management option for bottom towed gear related solely to *Sabellaria spinulosa* reef. The byelaw as such provided protection for the sub-feature 'subtidal biogenic reef: *Sabellaria* spp. (Ross worm)' (Eastern IFCA, 2019). The MMO Stage 2

⁵ www.eastern-ifca.gov.uk/wp-content/uploads/2019/06/2019_05_01_Marine_protected_Areas_Byelaw_2019_ver6.pdf

MPA Fisheries Assessment similarly concluded that management of bottom towed gear is required in relation to the Sabellaria reef feature.

In response to point 9, please see section **2.4.11**. The MMO Stage 2 MPA Fisheries Assessment concluded that bottom towed gear has the potential to have significant impacts on the protected reef feature of Haisborough, Hammond and Winterton MPA and thus management measures will be required.

In response to point 10, MMO acknowledges the respondent's agreement with the conclusion in the Stage 2 MPA Fisheries Assessment for Haisborough, Hammond and Winterton MPA that the impact of bottom towed gears on the features may have an adverse effect on site integrity. MMO has therefore proposed a prohibition of bottom towed gears where Annex I reef is known to occur within the Haisborough, Hammond and Winterton MPA.

Feature information

The following responses were received:

1. Information was provided on the location of Sabellaria reef within the site: Ross worm reef is widespread throughout the troughs of the sandbanks, and in some instances on the flanks. The most extensive reef is at Haisborough Gat, with smaller reefs occurring in the southwest of the site, between the Middle Cross Sand and Newarp Banks.
2. Information was provided on the ecological role of Sabellaria reef, including that the reefs stabilise the shifting sands and provide structural complexity, and create a biodiversity hotspot by providing habitats, food, support and/or attachment points for numerous species, including infauna, reef-forming epifauna, polychaetes, bivalve species and mobile species, such as brittlestars and crustaceans.
3. Haisborough, Hammond and Winterton MPA is one of only 12 sites in the UK that contain Ross worm reef.
4. In the UK, 23% of 'reefs' (Habitat 1170) habitat is thought to be in unfavourable (not good) condition, whilst 68% is in favourable condition and 10% in unknown condition (JNCC, 2019b).
5. As part of the 2021 MMO MPA fisheries assessment for Inner Dowsing, Race Bank and North Ridge MPA, the features were reassessed and found to be in unfavourable condition. The conservation objectives were also revised to 'restore' for both the reef and sandbank features. Given the revised conservation objectives for Inner Dowsing, Race Bank and North Ridge MPA, and the national conservation status of this feature, a similar change in the fisheries assessment for this site is suggested.
6. Harbour porpoise are listed as a 'D' feature ('non-significant presence') in the site.

7. Information was provided regarding the sensitivity of *Sabellaria spinulosa* reef to abrasion via physical disturbance and the role of fisheries in the decline of *Sabellaria spinulosa* reef across the North Sea (Last et al., 2012; OSPAR Commission, 2013; Gibb et al., 2014; Van Der Reijden et al., 2019).
8. Trawl scars provide evidence that part of the Haisborough Gat reef had been damaged by benthic trawling and that demersal fishing poses a high risk to the features of interest (JNCC and Natural England, 2013).

MMO response: in response to point 1, MMO notes the additional information on reef location. MMO is using the most recent feature data provided by JNCC and Natural England to define the area to be managed as reef. This is based on a 'core reef approach' where areas to be managed as reef are those where reef has been present at a certain frequency over a series of surveys.

In response to points 2 to 4, MMO acknowledges the ecological information provided. This information is consistent with the conclusions of the MMO Stage 2 MPA Fisheries Assessment.

In response to points 4 and 5, JNCC and Natural England are responsible for monitoring MPAs, including assessing the condition of habitats and species designated through MPAs. This is carried out using an agreed approach for assessing the condition of statutory sites designated through UK and international legislation (JNCC, 2019a). The most recent assessment of H1170 reefs in the site was in 2018 and concluded that the feature was in unfavourable condition with no change (Natural England, 2016).

In response to point 5, JNCC and Natural England are responsible for providing conservation advice for individual MPAs, including determining the ecological aims (conservation objectives) for the protected habitats. The conservation objectives for the reef feature of Haisborough, Hammond and Winterton MPA are to restore the extent and distribution, structure and function, and supporting processes of the reef habitat. Given that the feature currently under consideration (Annex I reef) is sensitive to interaction with bottom towed gears, MMO has proposed a prohibition of bottom towed gear fishing over areas identified as potentially supporting reef formation.

In response to point 6, please see section **2.4.11**.

In response to points 7 and 8, evidence shows that biogenic reefs are highly sensitive to bottom towed gears which may damage and reduce the extent of biogenic reefs; consequently, this pressure must be removed to allow sustained recovery, please see section **2.4.4**.

Other responses

MMO received responses calling for this site to become a HPMA and afforded the same proposed protections, a response to this has been included in section **2.4.4**.

MMO received information on the cumulative impacts of activities within the MPA, a response to this has been included in section **2.4.5**.

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores. a response to this has been included in section **2.4.9**.

MMO received information on cetacean bycatch throughout the area, detailing prohibition of bottom towed gear is likely to lead to risk of gear switching and increased gillnetting, which would increase bycatch risk for cetaceans, a response to this has been included in section **2.4.11**.

2.5.8 Hartland Point to Tintagel

Additional evidence

The following responses were received:

1. Data has shown that either minimal or no bottom towed gear activity takes place within the 12 nm limit of the MPA.
2. A bottom towed gear prohibition will lead to an increase in static gear use that will impact to anthozoan and sponge communities.
3. Sandy, non-sensitive areas of the site are of significant economic importance for ray and dover sole for smaller inshore trawlers and are towed 10 to 20 times per year with expected minimal impact.
4. Restrictions would push vessels further offshore which would incur higher running costs from fuel use.
5. Access to specific areas of the site for safety; being able to operate close to shore for inshore trawlers when strong easterly winds are present making fishing further offshore dangerous.

MMO response: in response to point 1, two designated features within the MMO portion (6 to 12 nm limit) of Hartland Point to Tintagel MPA are currently in unfavourable condition: fragile sponge and anthozoan communities on subtidal rocky habitats, and pink sea-fan (*Eunicella verrucosa*). While there is very limited evidence of bottom towed fishing activity in this area, these features are extremely sensitive to even very low levels of bottom towed gear. Closing these areas to bottom towed gear fishing will help to ensure the site can recover and will protect these features from any future increases in fishing activity. Please also see sections **2.4.1** and **2.4.3**.

In response to point 2, please see section **2.4.1**.

In response to point 3, the sandy/coarse sediments in the MMO portion of the site (6 to 12 nm limit) are interspersed with the presence of the designated feature, fragile sponge and anthozoan communities on subtidal rocky habitats, which is highly vulnerable to the impacts of bottom towed gear. There are no records of pink sea fan in the MMO portion of the site, but due to presence of this species within the IFCA portion of the site on the same habitats and at similar depths as the MMO portion, this species has been considered in the impact pathway assessment. Natural England's conservation advice considers these features to be highly sensitive to even low levels of bottom towed gear fishing activity. The conservation objectives are to recover these features to favourable condition/status. Therefore, MMO must consider management options to further the conservation objectives of this site.

In response to points 4 and 5, MMO takes safety of life at sea extremely seriously and we strive to avoid any unnecessary impacts to the fishing industry in the development of management measures, please see section **2.4.3**.

Management options

The following responses were received:

1. Preferred voluntary or zoned management (option 2) with a plan for detailed consultation with local boats to allow research to be conducted on any restrictions and the effectiveness of MPAs.
2. The suggested management (options 2 and 3) is precautionary, based on vulnerability rather than risk. A monitoring and control plan with trigger points would be more appropriate than a ban of this activity and consistent with usual byelaw making processes.
3. Site should be managed on a site based, rather than feature-based approach due to the importance of the area (inside and outside of the MPA) for grey seals in the Celtic Sea.
4. Whole site should be closed to all forms of bottom towed gear due to the potential impacts of speculative trawling. The Cornish section of the site is rarely fished due to strong tides, swell and rough ground. As a result, any speculative trawling in the area is likely to result in high ecological damage and low return in the form of catch. Non-trawled areas of the site are shown through research to be richer in upright benthic fauna than adjacent fished sediment areas.

MMO response: in response to point 1 to 4 please see. In response to point 2 please see section **2.4.3**. In response to point 3 and 4, please see section **2.4.11**.

Feature information

The following responses were received:

1. Disturbance of grey seals from fishing activity has been observed within the MPA and five sensitive grey seal haul out sites found within Tintagel to Widemouth Site of Special Scientific Importance (SSSI) bordering the MPA. Seals in this SSSI have been linked to 24 other sites along the Celtic Sea coastline. It is really important that fishing activities just offshore from these seal sites are not impacting resting or pupping activities.
2. The site is significant for its higher-than-average species and habitat diversity, especially for sharks and cetaceans.
3. A precautionary approach to pink sea fan is important due to the known presence of this species in the Cornwall IFCA portion of the site with same habitats and similar depths.

MMO response: in response to points 1 and 2, please see sections **2.4.11** and **2.4.1**.

In response to point 3, MMO uses the best available data for the presence and absence of designated features, whilst also drawing on advice from JNCC and Natural England where appropriate. For more information on the precautionary approach please see section **2.4.6**.

Other responses

MMO received information on cetacean bycatch throughout the Celtic Sea area, reported as a link to fishing within the area, a response to this has been included in section **2.4.11**.

2.5.9 Land's End and Cape Bank

Additional evidence

The following responses were received:

1. The site is important for French trawlers and Belgian fishing vessels including smaller (less than 24 m) beam trawlers (Eurocutter fleet) inside of 12 nm and larger vessel outside of 12 nm.
2. Belgian beam trawl fleet has evolved towards sumwings and ecorolls and are therefore less damaging.
3. The negative impacts of beam trawls are overstated.

MMO response: in response to points 1 to 3, please see sections **2.2**, **2.4.1** and **2.4.2**. In response to points 2 and 3, sufficient evidence exists to ensure confidence in the potential for beam trawl activity to negatively impact sensitive habitats such as the designated Annex I reef habitat within Land's End and Cape Bank MPA. Although the overall environmental impacts may be reduced by sumwing and ecoroll beam trawl design, MMO has seen no evidence to suggest reduction would be sufficiently significant to rule out adverse effect on site integrity.

Management options

The following responses were received:

1. Protecting the whole site is obvious due to the nature of the seabed, the lack of serious fishing activity, and the sensitivity of the habitat.
2. Interactions between bottom towed gears and Annex I reef features will lead to an adverse effect on site integrity of the MPA.
3. Socio-economic consequences should be taken into account and in the future the same level of income should be guaranteed to Belgian fishermen.
4. It was queried whether management measures would apply to ring netting, and whether that gear type would be included as 'bottom towed gear'.
5. Netting should be managed alongside bottom towed gear.
6. 103 egg cases and 35 shark sightings have been collected from citizen science projects for this site, and though these are not necessarily assessed designated features, these occurrences may be associated.

MMO response: in response to point 1 and 2, please see sections **2.4.1** and **2.4.2**. MMO agrees that the feature currently under consideration (Annex I reef) is sensitive to interaction with bottom towed gear, and such fishing activity has the potential to result in an adverse effect on site integrity irrespective of current feature condition.

In response to point 3, MMO has proposed management measures to meet its legal duties, please see section **2.4.3**. In response to point 4 and 5 please see section **2.4.1**. In response to point 6, please see section **2.4.11**.

Other responses

MMO received responses calling for this site to become a HPMA and afforded the same proposed protections, a response to this has been included in section **2.4.4**.

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores, a response to this has been included in section **2.4.9**.

2.5.10 North Norfolk Sandbanks and Saturn Reef

Additional evidence

The following responses were received:

1. Belgian activity within the site is most frequent within the north east section of the site. It was noted that the area was historically a very important site for Belgian fisheries and may one day become important again.

2. The area has become an important area for Danish vessels targeting sand eels following the closure of Dogger Bank MPA to bottom towed gear and that fishing occurs in the areas where the sand is most dynamic, and as a result, fishing impacts are minimal. The respondent stated that bycatch in the fishery is currently very low. A map was provided of fishing records from Danish vessels.
3. The east and central part of site is fished, and biodiverse troughs are likely targeted as this is where target species can be found.
4. Global Fishing Watch data was provided for 2019 to 2021 indicating the location of apparent fishing activity within the site. North Norfolk Sandbanks and Saturn Reef MPA was among the most heavily bottom-fished of all UK offshore MPAs, with over 1,000 fishing hours in a year with towed gear.

MMO response: in response to points 1 to 4, MMO acknowledges the information provided, see sections **2.2**, **2.4.1** and **2.4.2**. For North Norfolk Sandbanks and Saturn Reef MPA, there is evidence of bottom towed gears operating within the site as detailed in the MMO call for evidence within the Stage 2 MPA Fisheries Assessment.

Management options

The following responses were received:

1. To enable reefs to recover, all sediments that are suitable to support reef feature should also be protected.
2. The whole site be closed to bottom towed gears, including the troughs between the sandbanks as this is where the majority of the ecological and carbon richness can be found.
3. If management was to be implemented, further reef building species will emerge in troughs between sandbanks, particularly if the if whole site were to be protected. The respondent provided a paper to support this (Ellis et al., 2011).

MMO response: In response to point 1 please see section **2.4.1**. In response to point 2 and 3, please see sections **2.4.1** and **2.4.2**.

Feature information

The following responses were received:

1. The distribution of Sabellaria reef within the site is likely to be greater than currently displayed in the feature map presented for the site if the whole site had been surveyed.
2. Information was provided on the sediment composition of the site and the estimated carbon content of this sediment.

3. Survey information was provided for the site wherein species detected at three survey locations were provided attached to spatial data for the survey location.
4. A report by Cefas and JNCC detailing the extent and distribution of Sabellaria reef throughout the site was also provided (Jenkins et al., 2015).
5. Respondents provided information regarding the sensitivity of Sabellaria reef to abrasion via physical disturbance and the role of fisheries in the decline of *Sabellaria spinulosa* reef across the North Sea.
6. The use of bottom towed gears poses considerable risks to the condition of the features considered.

MMO response: in response to point 1, MMO is using the most recent feature data provided by JNCC and Natural England to define the area to be managed as reef.

In response to point 2, please see section **2.4.2**. In response to points 2 to 4, MMO notes the additional information provided by respondents. This has been considered by MMO whilst checking we have the best available data for this site. Please see section **2.2**.

In response to point 5, MMO agrees that biogenic reefs are highly sensitive to bottom towed gear and fishing using these gears may reduce the extent of biogenic reefs, meaning this pressure must be removed to allow sustained recovery. MMO has therefore proposed a prohibition of bottom towed gear where biogenic reef is known to occur within the North Norfolk Sandbanks and Saturn Reef MPA.

In response to point 6, MMO acknowledge the respondent's agreement with the conclusion in the Stage 2 MPA Fisheries Assessment for North Norfolk Sandbanks and Saturn Reef MPA that the impact of bottom towed gears on the features may have an adverse effect on site integrity. MMO has therefore proposed a prohibition of bottom towed gears where biogenic reef is known to occur within the North Norfolk Sandbanks and Saturn Reef MPA. Please see section **2.4.1**.

Other responses

MMO received responses calling for this site to become a HPMA and afforded the same proposed protections, a response to this has been included in section **2.4.4**.

2.5.11 Offshore Brighton

Additional evidence

The following responses were received:

1. The bottom towed gear VMS activity map provided in the call for evidence (Figure 24) gives the impression that towed gear is used throughout the site, and that this may be the case if the EU fleet is incorporated into this data.

2. The bottom towed gear activity seen throughout the site in Figure 24 must be from EU vessels, as UK towed gear vessels only have an interest in the eastern part of the site, in the vicinity of the least vulnerable features to bottom towed gears.
3. The proportion of fishing activity identified as non-UK seems very high. There may be considerably more UK fishing activity undertaken by the under 15 m fleet within the site.
4. Do all fishing vessels in the site have to supply VMS data to British authorities?
5. A respondent provided demersal fishing activity information in hours per km of demersal trawls from global fishing watch from 2015 to 2020.
6. Some respondents stated that they fish regularly within this area using bottom towed gear but focus on the eastern part of the site (subtidal mixed sediment) and avoid the rocky reef in the northwest and central areas of the site. Vessel plotter data was also provided.
7. Over the last twenty years, there has been a decrease in midwater pair trawlers, an increase in large industrial trawlers and more demersal French trawlers (particularly since EU Exit). They have also observed demersal trawlers and, in the winter, industrial pelagic ships.

MMO response: In response to points 1 and 2, Figure 24 in the MMO Stage 2 MPA Fisheries Assessment shows all bottom towed gear VMS activity from all vessels over 12 metres length (UK and non-UK) in the area from 2016 to 2020. VMS records show that bottom towed gear activity within the site consists mainly of non-UK activity (97%). The majority of the non-UK activity is from French vessels using mostly otter trawls followed by dredges and then demersal seines. The limited fishing activity from UK vessels is split evenly between dredging and seining. Bottom towed gear activity occurs throughout the site. Vessels under 12 metres in length are not required to have VMS. MMO would expect more UK than non-UK vessels under 12 metres in length fishing in this site given the location.

In response to points 3 and 4, all fishing vessels (UK and non-UK) that are 12 m and greater in overall length must have VMS installed and transmitting data to the MMO when they are at sea in English waters. Legislation is due to come into force which will make it a legal requirement for all vessels under 12 m in length to have an inshore vessel monitoring system (I-VMS) installed and transmitting data to the MMO when they are at sea in English waters.

In response to point 5 and 6, VMS records show that bottom towed gear activity within the site consists mainly of non-UK activity (97%). MMO is grateful for the provision of the fishing vessel activity data, the data included in the assessment is high confidence VMS data which contains gear information as well as verified location data as a result the data provided is already contained within the evidence base. The location of designated features and their sensitivities to different gears will be considered when proposing management areas, see sections **2.2** and **2.4.1**.

In response to additional data provided, in points 4 and 7, see section **2.2**.

Feature information

The following responses were received:

1. All features should be considered at this stage, namely subtidal coarse sediment and subtidal mixed sediment.
2. The call for evidence stressed that towed gear is not compatible with rocky reef, this site is predominantly sand and gravel, especially in the eastern area of the site, with identified areas of rocky reef predominantly in the west of the site.
3. High energy sand/gravel seabed types, which are affected by natural wave/tide/storm action, are far more appropriate for the use of towed gears as they are continually modified by nature and the species that occupy these habitats are therefore adapted to the continual flux.
4. There was a lack of scientific rationale during the site's designation and the site was designated due to a perceived lack of subtidal sand or gravel in the southeast area, and it was not demonstrated that there was circalittoral rock in the area.

MMO response: in response to point 1, please see section **2.4.1**.

In response to points 2 and 3, MMO use the best available evidence, alongside advice from JNCC and Natural England to determine the location of each designated feature as well as compatibility of these features with gear types and the resistance to natural disturbance, for additional information please see section **2.2**.

In response to point 4, JNCC and Natural England advise on site designation queries, but high energy circalittoral rock is listed as a protected feature in the designation order from 2016⁶ and high energy circalittoral rock data from January 2015 can be viewed via [JNCC's Mapper](#).

Management options

The following responses were received:

1. Based on the designated features of the site, a zonal management structure whereby bottom towed gear is inappropriate and therefore banned in the western section of the site (west of the 0°40'00" line) but allowed to continue in the eastern section (east of the 0°40'00" line).
2. The most vulnerable features within the site are not heavily fished, and the less vulnerable features (sand/gravel) are fished by several UK vessels. Therefore, a zonal approach be adopted to site management, focussing on reducing fishing

⁶ www.legislation.gov.uk/ukmo/2016/15/pdfs/ukmo_20160015_en.pdf

pressures on the most vulnerable features and monitoring pressures on other features.

3. Using bottom towed gear over rocky reef damages the gear and these habitats are also void of king scallops. A full closure of the site (option 4) to bottom trawling would unnecessarily displace [their] activity.

MMO response: in response to point 1 and 2, please see sections **2.4.1**, **2.4.2** and , **2.4.12**. In response to point 3, see section **2.4.3**.

Other responses

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores, a response to this has been included in section **2.4.9**.

2.5.12 South of Celtic Deep

Additional evidence

The following responses were received:

1. Gills nets and trammel nets have a single rope on the seabed due to floats on headlines. There is therefore no effect to the benthic substrate.
2. There is a consistent effort of fishing throughout the whole site, but particularly on the eastern side of the site where it is largely soft ground. This area is of higher importance to the fleet. This area is formed of predominantly soft ground and targeted using bottom towed gears for valuable mixed fisheries species (sole, monkfish, megrim).
3. 10 fishing vessels are on average 16.93% dependent on this site for their income to a value of over €2.5 million.
4. 128 hours of fishing used demersal bottom towed gears (dredges seines and trawls) in 2021 equating to 0.46 hours per km² representing a minimal amount of fishing in UK continental shelf waters.

MMO response: in response to point 1, please see section **2.4.1**. In response to point 2 and 4, please see section **2.2**. In response to point 3 see sections **2.4.2** and **2.4.3**.

Management options

The following responses were received:

1. Voluntary (option 2) or zonal management (avoiding rocky reef) is preferred and should be complemented by monitoring and evaluation to understand the effectiveness of MPAs and inform future management of the site and other MPAs.

2. Zonal management would be a useful exercise with industry and fisheries management given the knowledge of the range of impacts of the seabed from bottom towed gear and natural tidal and storm impacts.
3. A whole-site approach to managing fishing within the site is needed. The site is host to a range of soft sediment communities and is likely to host sponge and anthozoan communities and species of conservation concern (eg fanshells). Biogenic crust forming species may accrue in future. Preventing abrasion of the seabed will help towards recovery. Many of these species support life that sequesters and stores carbon.

MMO response: in response to points 1 and 2, please see sections **2.4.1** and **2.4.2**.

In response to point 3, whilst not a designated feature of South of Celtic Deep MPA, fragile sponge and anthozoan communities are a component community of the circalittoral rock feature. As a result, there may be benefits to these communities through the introduction of management.

Other responses

MMO received responses calling for this site to be added to the HPMA network and afforded the same protections, a response to this has been included in section **2.4.4**.

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores, a response to this has been included in section **2.4.9**.

2.5.13 Wight-Barfleur Reef

Additional evidence

The following responses were received:

1. The site has experienced increased fishing activity since EU exit, with greater numbers of industrial trawlers and French demersal trawlers. However, the number of French pair trawlers has decreased since changes in rules for bass.
2. Increased fishing activity was noted in the north and west of the site.
3. A report was provided on analysis of fishing activity within the site between 1 January 2020 and 31 December 2021 using AIS and Synthetic Aperture Radar (SAR) data. This report concluded that:
 - fishing activity is evenly distributed throughout the site
 - the main fishing methods were potting, beam trawling and dredging
 - most fishing and especially foreign flagged vessels within the site are primarily transiting through
 - it is likely that there are 'dark vessels' operating within the site (those vessels which do not transmit on AIS).

4. While currently Wight Barfleur Reef MPA experiences limited fishing activity from the Belgian fleet, the site may become more important for these fishers if the area of other fishing grounds is decreased by conservation measures.

MMO response: in response to points 1 to 3, MMO acknowledges the information provided. There is evidence of bottom towed gears operating within the site, with demersal trawling activity concentrated primarily around the edges, and dredging activity occurring throughout, but mainly in the eastern section, as detailed in the Stage 2 MPA Fisheries Assessment. Please see sections **2.2** and **2.4.1**.

In response to point 4, for additional information on spatial squeeze and displacement see section **2.4.3**.

Feature information

The following responses were received:

1. The reef features of this site hosts associated species which are likely to be damaged by the abrasion of bottom towed gears.
2. Information was provided regarding a shark egg case that was collected as part of a citizen science project, which may be associated with the site's designated features.
3. Harbour porpoise and bottlenose dolphins are listed as 'D' features ('non-significant presence') in the site; protecting MPA habitats from damaging bottom towed gear allows ecosystem recovery, benefiting cetaceans via habitat recovery and increased prey availability.

MMO response: in response to point 1 and 2, see sections **2.2**, **2.4.1**, **2.4.2** and **2.4.11**. In response to points 3, see section **2.4.11**.

Other responses

Several responses provided information on the blue carbon estimates within the site and the potential impact of bottom towed gears on these stores. a response to this has been included in section **2.4.9**.

MMO received information on cetacean bycatch throughout the area, reported as a link to fishing within the area, a response to this has been included in section **2.4.11**.

Reviewing and updating MPA fisheries assessments

MMO will monitor every MPA by undertaking annual reports of fishing activities and pressures within MPAs, and by regularly reviewing and updating the MPA assessments to reflect any such changes that have been observed. We will continue to engage with fishers throughout the MPA fisheries management measure process, including monitoring and evaluation following implementation. MMO closely monitors

fishing activity, through onboard VMS data, landings records and surface and aerial surveillance, and will respond to any threats to the marine environment because of displacement. Effective monitoring helps us balance risk and precaution appropriately.

MMO reviews the fisheries assessments for all MPAs every five years to ensure all assessments and management are appropriate and well evidenced. More regular reviews could occur if the circumstances related to the site change and this may hinder the conservation objectives of the site. Reviews of the fisheries assessment also consider impacts from gears and any updated conservation advice regarding conservation status and conservation objectives of the site when considering appropriate measures.

3 Decisions and next steps

Having analysed all responses received during the call for evidence and finalised the MMO Stage 2 MPA Fisheries Assessment, MMO has concluded that management measures are required.

MMO launched formal consultation on a draft byelaw which prohibits the use of bottom towed gear in areas of the MPAs where rock and reef features are present. This is accompanied by a draft impact assessment which examines the monetised and non-monetised costs and benefits of the proposed byelaw.

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Annex 1 Organisational respondents

NGOs

- Seal Research Trust
- Goodwin Sands Conservation Trust
- Marine Conservation Society
- The Shark Trust
- Blue Marine Foundation

Government bodies

- Cornish Sardine Management Association
- Cornwall IFCA
- Devon and Severn IFCA
- Northumberland IFCA

Fishing Industry

- Macduff Shellfish Ltd
- North Atlantic Fishing Holdings Ltd
- Southwestern Fish Producer Organisation (PO) Ltd
- Western Fish PO

Non-UK Fishing Industry

- Rederscentrale, Belgian PO
- COBRENORD PO
- Danish Fishermen PO
- Les Pêcheurs de Bretagne (French fishery organisation)

Academic

- University of Plymouth

Annex 2 Glossary

Call for evidence – informal consultation conducted by MMO during byelaw process. The purpose of this is to collect evidence from stakeholders. This allows the best available evidence to be used for the drafting of site level assessments and recommended management options (if required).

Conservation objectives - conservation objectives are set for each designated feature of an MPA, to either maintain or restore a designated feature of the protected site.

Designated features – a species, habitat, geological or geomorphological entity for which an MPA is identified and managed.

Ecosystem services – the benefits provided by ecosystems that contribute to making human life both possible and worth living. Ecosystem services is the term used in conservation advice to describe the service provided by the habitat or species. For example: nutrition, nutrient cycling, climate regulation or bird and whale watching.

Impact - the consequence of pressures (such as habitat degradation) where a change occurs that is different to that expected under natural conditions.

Inshore Fisheries and Conservation Authorities (IFCAs) – IFCAs are responsible for fisheries management from 0 to 6 nautical miles (nm). There are 10 IFCAs in England, each one funded by local authorities. Please see Figure 3.

Joint Nature Conservation Committee (JNCC) - a public body that advises the government on UK and international nature conservation. This includes aspects related to the marine environment from 12 nm to 200 nm and have a statutory responsibility to provide conservation advice for MPAs and report on the condition of protected features. Please see Figure 3.

Highly protected marine areas (HPMA) - areas of the sea that allow the protection and recovery of marine ecosystems by prohibiting extractive, destructive and depositional uses and allowing only non-damaging levels of other activities to the extent permitted by international law. Defining non-damaging levels is complex and will likely be species, habitat and site specific.

Marine conservation zone (MCZ) – a type of MPA in English, Welsh and Northern Irish waters designated under the Marine and Coastal Access Act 2009⁷ (for England and Wales) or the Marine Act (Northern Ireland) 2013⁸ (for Northern Ireland).

Marine Management Organisation (MMO) - [MMO](#) is an executive non-departmental public body, sponsored by the Department for Environment, Food and Rural Affairs and is the manager and independent regulator of England's seas. Please see Figure 3.

Marine plans – MMO marine plans have been designed to help manage the seas around England.

Marine protected area (MPA) - a generic term to cover all marine areas that are a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. This includes special areas of conservation (SAC), special protection areas (SPA) and marine conservation zones (MCZ).

Natural England - government advisor for the environment in England. This includes aspects of the marine environment of 0 to 12 nm. This organisation has a statutory responsibility to provide conservation advice for MPAs and report on the condition of protected features. Please see Figure 3.

Precautionary principle - the precautionary principle is defined in the 1992 Rio Declaration, to which the UK government is a signatory, and states: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

Pressure – the mechanisms through which an activity has an effect on a feature. Individual pressures are broadly defined in [JNCC's Marine Pressures-Activities Database \(PAD\)](#) in the 'pressures' tab of the data tables.

Resilience – the ability of a species or habitat to recover from disturbance or stress.

Resistance – the ability of a species or habitat to absorb disturbance or stress without changing in character.

⁷ www.legislation.gov.uk/ukpga/2009/23/contents

⁸ www.legislation.gov.uk/nia/2013/10/contents

Sensitivity – the sensitivity of a feature (species or habitat) is a measure that is dependent on the ability of the feature (species or habitat) to resist change and its ability (time taken) to recover from change.

Special area of conservation (SAC) – SACs are MPAs designated under the Conservation of Habitats and Species Regulations 2017⁴, and the Conservation of Offshore Marine Habitats and Species Regulations 2017⁵ to protect important habitats and species.

Special protection areas (SPA) – SPAs are MPAs put into place to protect threatened bird species, classified under the Conservation of Habitats and Species Regulations 2017⁹, and the Conservation of Offshore Marine Habitats and Species Regulations 2017¹⁰.

Vessel monitoring system (VMS) – all commercial fishing vessels over 12 metres in length in UK waters must report their position via VMS when at sea. VMS devices on the vessels send regular reports of position and vector.

⁹ www.legislation.gov.uk/ukxi/2017/1012/contents

¹⁰ www.legislation.gov.uk/ukxi/2017/1013/contents