Marine Management Organisation

MMO Stage 3 Site Assessment: Bassurelle Sandbank MPA (DRAFT)






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Title: MMO Stage 3 Site Assessment: Bassurelle Sandbank MPA (DRAFT)

Contents

Executive Summary

This assessment analyses the impact of anchored nets and lines, bottom towed gear and traps on the sub-features subtidal coarse sediment, subtidal mixed sediments and subtidal sand of the designated feature 'Sandbanks which are slightly covered by seawater all the time' in Bassurelle Sandbank Marine Protected Area (MPA) to determine whether an adverse effect on site integrity can be excluded. The assessment sets out the evidence considered and analyses the quality of that evidence. **The assessment finds that at the levels described, fishing activities by bottom towed gear may result in an adverse effect on the site integrity of Bassurelle Sandbank MPA. As such the Marine Management Organisation (MMO) concludes that management measures are required**.

1 Introduction

This assessment considers whether fishing activities are compatible with the conservation objectives of Bassurelle Sandbank MPA.

This site is designated as a special area of conservation (SAC). This assessment uses the best available evidence to review site characteristics and fishing activity and determine if there is a significant risk of fishing activities causing an adverse effect on the integrity of the site. If so, MMO will develop and introduce suitable management measures, such as MMO byelaws. If MMO byelaws are required, then these will be subject to public consultation and will require confirmation from the Secretary of State to come into effect.

2 Site information

2.1 Overview

The following Joint Nature Conservation Committee (JNCC) site information was used for background on site geography, designations, features, and conservation objectives:

- JNCC Site Information - Bassurelle Sandbank Special Area of Conservation (SAC) [1]

Bassurelle Sandbank MPA is an offshore site located in the Dover Strait of the Eastern English Channel, straddling the boundary between UK and French waters and covers an area of 67 km^2 **(Figure 1)**.

[1] Bassurelle Sandbank Site Information Centre jncc.gov.uk/our-work/bassurelle-sandbank-mpa/ (Last accessed 8 June 2023)

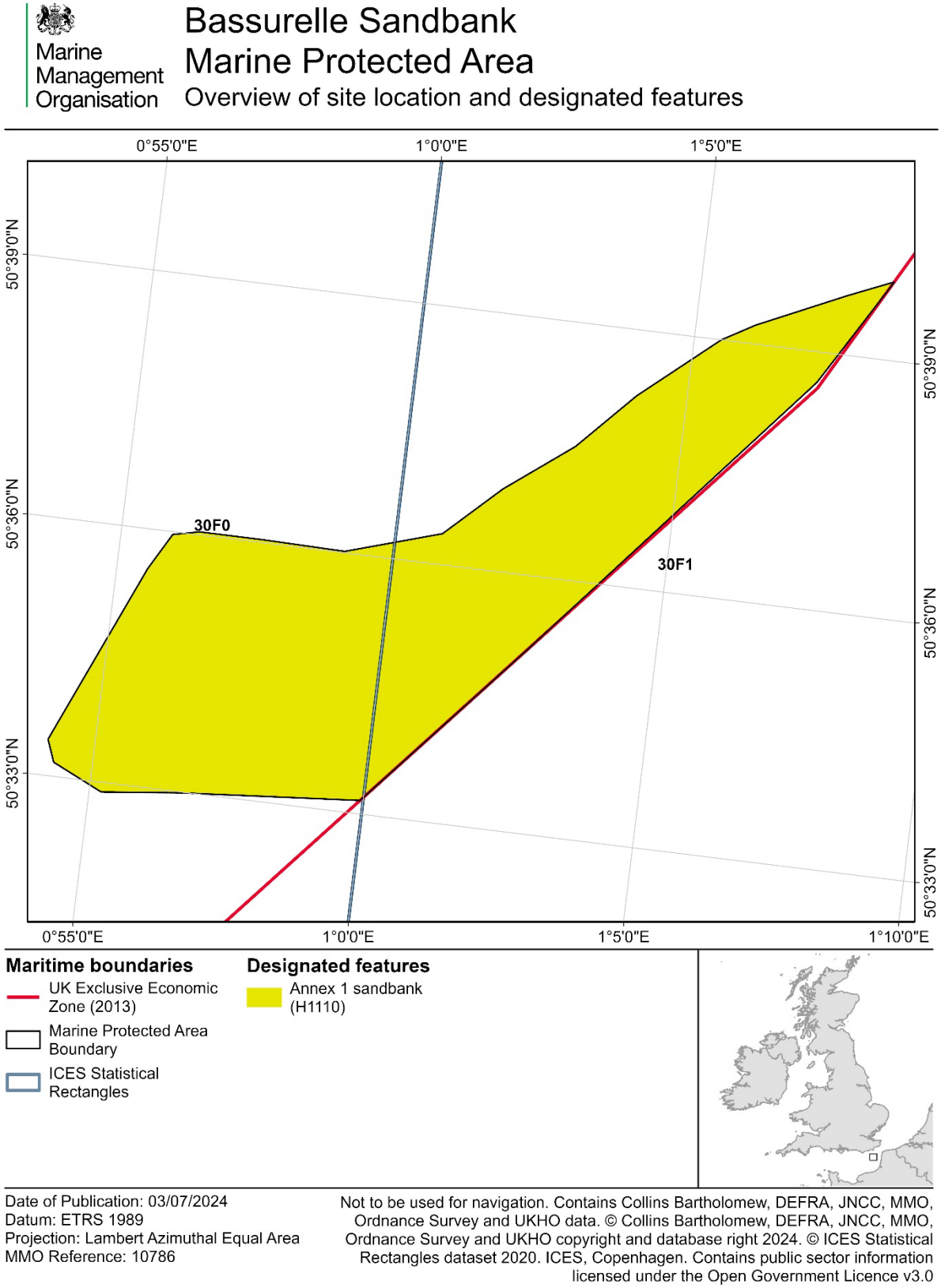

Figure 1: Bassurelle Sandbank MPA location overview.

Bassurelle Sandbank MPA was designated as a SAC in 2017 as a representative example of Annex I Sandbank which is slightly covered by seawater all the time. It is an open shelf ridge sandbank formed by tidal currents with sand waves and megaripples up to 2.5 m in height. The sandbank is comprised of sand and gravelly sand with shell and gravel visible at the surface. The surrounding seabed is predominantly sandy, whilst Bassurelle Sandbank has sediment up to 25 m thick. Biological communities are dominated by polychaete worms, including species such as *Lagis koreni* and *Spiophanes bombyx*, and the bivalves *Moerella pygmaea* (little tellin) and *Ensis* sp. (razorshell) typical of sandy sediments. On the margin of the wider sandwave field, the sediment is slightly more gravelly and shelly, with the coarser sediment often collecting in the troughs between sandwaves. In these areas, a slightly different infaunal community of polychaete worms is found. The region is a nursery area for lemon sole, mackerel and sand eel and a spawning area for cod, lemon sole, sole, plaice, sand eel and sprat. It offers ecosystem services in the form of nutrition via habitat provision and support of commercially important fish species, wildlife watching and climate regulation as a long-term carbon sink. The designated feature, its sub-features and their conservation objectives are set out in **Table 1**.

The conservation objectives for the sub-features of Bassurelle Sandbank MPA have been set based on a vulnerability assessment.

Table 1: Designated features, including supporting habitats, and conservation objectives.

Designated feature	Sub-feature	Conservation objective
Sandbanks which are slightly covered by seawater all the time	Subtidal coarse sediment Subtidal mixed sediments Subtidal sand	Restore to favourable condition.

JNCC conducted baseline condition assessments in 2017 and reported the condition of the feature ‘Sandbanks which are slightly covered by seawater all the time’, as ‘unfavourable’. No long-term condition monitoring data is available to determine whether the MPA is moving towards or has reached its conservation objectives. The Supplementary Advice on the Conservation Objectives, however, states that the restore objective in relation to structure and function relates to fishing activity which may be having a continued effect, specifically on the characteristic communities of the site. This is based on expert judgement and understanding of the feature’s sensitivity to pressures exerted by ongoing demersal fishing.

2.2 Scope of this assessment

The scope of this assessment covers fishing activities alone, and relevant plans or projects in combination with fishing. The assessment covers the whole of Bassurelle Sandbank MPA (**Figure 1**).

3 Part A - Identified pressures on the MPA

Part A of this assessment was carried out in a manner that is consistent with the 'likely significant effect (LSE)' test required by regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017[2].

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

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

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

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

[2] For more information: Conservation of Offshore Marine Habitats and Species Regulations 2017 www.legislation.gov.uk/uksi/2017/1013/regulation/28

3.1 Activities taking place

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

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

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

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

Table 2: Fishing activities covered by this assessment present in VMS records (2016 to 2021) and landings data (2016 to 2020) for Bassurelle Sandbank MPA, 2016 to 2021.

Gear	Gear name	Gear code	Justification
Anchored nets and lines	Combined gillnet-trammel net	GTN	Present in under 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Gill nets (not specified)	GN	
	Gillnets and entangling ne	GEN	
	Longline (unspecified)	LL	
	Longline (unspecified)	LLS	
	Set gillnet (anchored)	GNS	
	Trammel net	GTR	Present in VMS and in under and over 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Scottish / fly seine	SSC	
	Pair seine	SPR	Present in VMS and in over 12 m vessel landings data for ICES
	Danish seine	SDN	

[3] MPA Site Assessment Methodology document: www.gov.uk/government/publications/stage-3-site-assessments (Last accessed 13 August 2024).

Gear	Gear name	Gear code	Justification
			statistical rectangle that overlaps the site.
Bottom towed gear	Beam trawl	TBB	Present in VMS and in under and over 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Towed dredge	DRB	
	Twin bottom otter trawl	OTT	
	Bottom otter trawl	OTB	
	Bottom trawls (not specified)	TB	Present in VMS records for ICES statistical rectangle that overlaps the site.
	Nephrops trawl	TBN	Present in under 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Otter trawls (unspecified)	OT	
Midwater gear	Drift gillnet	GND	Present in under 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Hand-operated pole-and-line	LHP	
	Encircling gillnet	GNC	
	Hook and line	LX	
	Jigging or trolling line	LTL	
	Midwater pair trawl	PTM	Present in VMS and in over 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Midwater otter trawl	OTM	Present in VMS and in under and over 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
Traps	Trap	FIX	Present in under 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
	Pot/Creel	FPO	Present in VMS and in under and over 12 m vessel landings data for ICES statistical rectangle that overlaps the site.
Unknown	Unknown	NK	Present in VMS records for ICES statistical rectangle that overlaps the site.

3.2 Activities screened out

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

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

- **Midwater gear:** although the use of midwater gear does occur within Bassurelle Sandbank MPA, there is no feasible pathway for gears of this type to interact with benthic designated features, not considering gear failure or net loss. These gear types are not designed to operate on or near the seabed and are deployed entirely within the water column. Therefore, the use of midwater gear within Bassurelle Sandbank MPA is not considered to be capable of affecting the designated feature other than insignificantly and is not considered further within this assessment.
- **Shore based activities**: although landings data shows that fishing activity using hand mechanised dredge and beach seine occurs within the site, this is based on all activity occurring within the ICES rectangles 30F0 and 30F1 overlapping the site. ICES rectangles encompass the entirety of Bassurelle Sandbank MPA, but also cover a large area of coast where shore based activities occur. As the area of the site being assessed lies beyond the 6 nautical mile (nm) limit, it is not possible that shore-based activities would be capable of affecting the designated feature due to distance; shore based activities are therefore not considered further within this assessment.
- **Unknown gear:** 'other gear' has been declared as having been used to land fish from this ICES statistical rectangle. The gear code used to report these landings does not provide any further information relating to the fishing method used. It is therefore not possible to assess the likelihood of this fishing method interacting with the seabed and it is not considered further within this assessment.

3.3 Pressures to be taken forward to Part B

The Stage 3 Fishing Gear MPA Impacts Evidence documents detail all pressures created by fishing activity on features of interest. The documents justify which pressures should be taken forward for consideration for each feature. This is documented in Table A1.2 in the anchored nets and lines, bottom towed gear, and traps Impacts Evidence documents[4].

[4] Stage 3 MPA Impacts Evidence: www.gov.uk/government/publications/marine-protected-areas-stage-3-impacts-evidence (Last accessed 13 August 2024)

- Stage 3 Fishing Gear MPA Impacts Evidence Anchored Nets and Lines[5]
- Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gear[6]; and
- Stage 3 Fishing Gear MPA Impacts Evidence Traps[7].

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

Table 3 details the pressures for each gear type - anchored nets and lines (A), bottom towed gear (B) and traps (T) - to be assessed in Part B.

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

[5] Stage 3 Fishing Gear MPA Impacts Evidence Anchored Nets and Lines www.gov.uk/government/publications/marine-protected-areas-stage-3-impacts-evidence (Last accessed 13 August 2024)
[6] Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gears www.gov.uk/government/publications/marine-protected-areas-stage-3-impacts-evidence (Last accessed 13 August 2024)
[7] Stage 3 Fishing Gear MPA Impacts Evidence Traps www.gov.uk/government/publications/marine-protected-areas-stage-3-impacts-evidence (Last accessed 13 August 2024)

Table 3: Summary of pressures on the designated feature of Bassurelle Sandbank MPA to be taken forward to Part B.

Potential pressures	Sub-features of designated sandbank feature								
	Subtidal coarse sediment			Subtidal mixed sediments			Subtidal sand		
	A	B	T	A	B	T	A	B	T
Abrasion or disturbance of the substrate on the surface of the seabed									
Changes in suspended solids (water clarity)									
Introduction of microbial pathogens									
Introduction or spread of invasive non-indigenous species									
Litter									
Organic enrichment									
Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion									
Physical change (to another seabed type)									
Removal of non-target species									
Removal of target species									
Siltation rate changes (low) including smothering (depth of vertical sediment overburden)									

4 Part B - Fishing activity assessment

Part B of this assessment was carried out in a manner that is consistent with the 'appropriate assessment' required by regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017[2].

Table 3 shows the fishing activities and pressures identified in Part A which have been included for assessment in Part B. The most relevant attributes of the designated feature that could be compromised by fishing pressures were identified using JNCC conservation advice supplementary advice tables[1] and are shown in **Table 4**.

Table 4: Relevant favourable condition targets for identified pressures (* = Pressures important only for bottom towed gear).

Feature	Attribute	Target	Relevant pressures
Sandbanks slightly covered by seawater all the time	Extent and distribution Supporting processes	Maintain in favourable condition.	• Abrasion or disturbance of the substrate on the surface of the seabed. • Changes in suspended solids (water clarity).* • Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion.* • Removal of non-target species. • Removal of target species. • Siltation rate changes (low) including smothering (depth of vertical sediment overburden).*
	Structure and function	Recover to favourable condition.	

4.1 Fisheries access and existing management

Non-UK vessels can operate within Bassurelle Sandbank MPA, provided that they have a licence issued by the UK to do so. Nationalities which fished within the MPA from 2016 to 2020 include Belgian, German, Danish, French, Irish and Dutch. VMS records indicate that French, Dutch and Belgian vessels are most prevalent.

There are no management measures currently in place in the MPA.

More information on non-UK vessel access to UK waters can be found on MMO's Single Issuing Authority page[8].

4.2 Fishing activity summary

Table A1. 1 to Table A1. 8 in the **Annex** display a detailed breakdown of fishing activity within Bassurelle Sandbank MPA. Of the fishing activities not screened out in Part A of this assessment, the most prevalent gear types from over 12 m vessels within the site are demersal seines and demersal trawls, and from under 12 m vessels the most prevalent gears are traps. Effort was highest in the western third of the site within ICES rectangle 30F0 for all gear types. The distribution of the sub-features and fishing activity data show that all gear types interact with all sub-features.

Bottom towed gear

Demersal trawls accounted for 49 % of VMS records between 2016 and 2021 with an annual average of 615 records per year. As for live weight landings estimates (2016 to 2020), demersal seines at 46 % of total landings for UK and EU over 12 m vessels had a combined average of 75.6 tonnes (t) per year, and demersal trawls at 30.8 % of total landings for UK and EU over 12 m vessels had an average of 49.9 t per year, whilst dredges made up 5.2 %. VMS records indicate that bottom towed gear is highest in density in the southern third of the site with a slight increase along the northernmost edge. Presence of demersal trawls and demersal seines are scattered throughout the site whilst dredges are nearly absent beyond the higher density southern zone with only a couple of records scattered throughout the site.

In relation to the combined UK and EU activity from under 12 m vessels, demersal trawls accounted for 14.4 % of live weight landings, dredges 2 % and demersal seines 0.5 %. Days at sea for bottom towed gear was approximately 100 days combined for the total period of 2016 to 2021.

Surface SAR values for C-squares intersecting Bassurelle Sandbank MPA for combined bottom towed gear ranged from 6.7 to 11.8 each year between 2016 and 2020. A SAR value of one means that each area C-square experiences a pass of fishing gear on average once a year. The combined bottom towed gear values for Bassurelle Sandbank mean more than one, and up to nearly 12, passes of fishing gear take place per year over C-squares within the site. Demersal seines had the highest surface SAR value ranging between 2.86 to 8.84, then demersal trawls at 2.67 to 3.83 and dredges 0.05 to 0.33. Subsurface SAR values for bottom towed gear overall ranged from 1.44 to 2.41. For subsurface values however, demersal

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

trawls had the highest, ranging from 1.23 to 2.05, with dredges second at 0.05 to 0.33 and demersal seine lowest at 0.08 to 0.22.

Static gear

With regards to fishing effort for under 12 m vessels, static gear contributed to the highest number of days at sea for both ICES rectangles, with approximately 411 days in total for the period of 2016 to 2021 for both ICES rectangles 30F0 and 30F1 apportioned for the site's overlap.

VMS records indicate that anchored nets and lines, and traps, like bottom towed gear are highest in density in the southern third of the site.

Traps

Traps are nearly absent outside of the southern third of the site, except for a few scattered records. The combined EU, UK over and under 12 m average landing estimates per year for traps was 28.5 t. In relation to the combined UK and EU activity from under 12 m vessels, traps accounted for the highest proportion of live weight landings, estimated at 61.2 % of all under 12 m gear between 2016 and 2020.

Anchored nets and lines

Beyond the higher density of anchored nets and lines activity in the southern third of the site, there are a couple of isolated high intensity patches in the northern third of the site with medium to low density of VMS records throughout the site.

In relation to the combined UK and EU activity from under 12 m vessels, anchored nets and lines accounted for 20.3 % of live weight landings. The combined EU, UK over and under 12 m average landing estimates per year for anchored nets and lines was 10.4 t.

4.3 Pressures by gear type

The Stage 3 Fishing Gear MPA Impacts Evidence documents for anchored nets and lines[5], bottom towed gear[6] and traps[7] collate and analyse the best available evidence on the impacts of different fishing gears on MPA features. This section summarises the analyses and conclusions of those documents, and considers these alongside site level information, including the nature and condition of the habitats and species present, conservation objectives, intensity of fishing activity taking place and exposure to natural disturbance.

As the designated sub-features subtidal coarse sediment and subtidal mixed sediments have similar sensitivities to the pressures identified for different gear types, these features have been considered together. Where there are differences between the features or the potential impacts of different gears within each grouping, this has been highlighted.

In the context of MPA assessment, the pressures removal of target and non-target species refer to any damage, loss, or removal of species defined as a designated feature, or integral to the integrity of a designated feature (for example key structural or influential species). This may occur through intentional or unintentional catch associated with the act of commercial fishing. For the purposes of benthic feature assessments, the physical aspects of fishing gears on seabed communities are best addressed through the assessment of abrasion and penetration pressures. As there are no designated species features associated with Bassurelle Sandbank MPA, and the detail of key structural and influential species is yet to be fully defined, we conclude that impacts from target and non-target removal pressures can be scoped out from further assessment of this site. The pressures may required consideration as a result of any future evidence review, in conjunction with updated conservation advice from JNCC and Natural England.

There is limited survey information available for this site so available information on biotopes of the features in the site have been assessed at the Eastern English Channel subregion level. Bassurelle Sandbank MPA's location in terms of sub-region and information about the biotopes was taken from evidence from 'Assigning the EUNIS classifications to UK's Offshore Regional Seas 2020' (Tillin *et al.*, 2020) which lists those European Nature Information System (EUNIS) biotopes that were present, likely to be present ('possible'), or absent from each UK offshore sub-region based on survey data, environmental information, species records, literature and expert judgement. Sensitivity information was extracted from Marlin[9].

Using this information biotopes were screened out if:

- they were not located in the same bioregion as Bassurelle Sandbank MPA;
- if they were only found in the inshore area; or
- if they were not sensitive or had low sensitivity to the relevant pressures in **Table 4**.

The resulting screened in biotopes are listed in **Table 5**.

[9] Sensitivity information from Marlin. www.marlin.ac.uk/habitats/eunis (Last accessed 23 June 2023)

Table 5: Biotopes in Eastern English Channel sub-region 3 to be considered.

Sub-feature	Biotope name	Sensitivity
Subtidal coarse sediment	*Hesionura elongata* and *Microphthalmus similis* with other interstitial polychaetes in infralittoral mobile coarse sand (Marshall, Ashley and Watson, 2023)	Medium sensitivity to penetration.
	Branchiostoma lanceolatum in circalittoral coarse sand with shell gravel (Tillin and Watson, 2023)	
	Neopentadactyla mixta in circalittoral shell gravel or coarse sand (Tyler-Walters, Durkin and Watson, 2023)	Medium sensitivity to penetration and changes in suspended solids.
Subtidal mixed sediments	*Sabella pavonina* with sponges and anemones on infralittoral mixed sediments (Perry, 2016)	Medium sensitivity to abrasion, penetration and smothering (light).
	Cerianthus lloydii and other burrowing anemones in circalittoral muddy mixed sediments (Perry and Watson, 2024)	
	Cerianthus lloydii with *Nemertesia* spp. and other hydroids in circalittoral muddy mixed sediments (Perry and Watson, 2023)	
	Ophiothrix fragilis and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediments (De-Bastos, Hill, Garrard, *et al.*, 2023)	
	Flustra foliacea and *Hydrallmania falcata* on tide-swept circalittoral mixed sediments (Readman and Watson, 2024)	Medium sensitivity to abrasion and penetration.

Subtidal sand	Semi-permanent tube-building amphipods and polychaetes in sublittoral sand (De-Bastos, Rayment, *et al.*, 2023)	Medium sensitivity to penetration.
	Echinocardium cordatum and *Ensis* spp. in lower shore and shallow sublittoral slightly muddy fine sand (De-Bastos, Hill, Lloyd, *et al.*, 2023)	Medium sensitivity to abrasion and penetration.
	Acrocnida brachiata with *Astropecten irregularis* and other echinoderms in circalittoral muddy sand (De-Bastos, Lloyd and Watson, 2023)	
	Maldanid polychaetes and *Eudorellopsis deformis* in offshore circalittoral sand or muddy sand (Ashley, 2016)	
	Owenia fusiformis and *Amphiura filiformis* in offshore circalittoral sand or muddy sand (De-Bastos, 2023)	

4.3.1 Anchored nets and lines

The relevant pressures on the sediment sub-features Bassurelle Sandbank MPA from anchored nets and lines were identified in **Table 4** and are:

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

As noted, impacts from non-target and target species removal pressures have been scoped out of this assessment, as they are assessed more completely within the abrasion pressure.

Impacts on sediment features relating to abrasion or disturbance of the substrate on the surface of the seabed occur primarily from the footrope and anchors during the hauling of gear, and during movement along the seabed due to tides, currents or storms. As set out in section 9.3 of the anchored nets and lines Impacts Evidence document[5], abrasion impacts from this gear type are unlikely to negatively impact the extent or distribution of

any sediment feature, or structure and function of the ecosystem in a significant manner due to the static nature of the gear type. Subtidal sediment habitats are considered as being resilient to all but intense fishing activity using anchored nets and lines, on species rich sediment habitats, or those with long-lived bivalves. There is therefore some potential for damage to the biological communities present in intensively fished areas. Abrasion impacts are considered likely to be greatest on subtidal mixed and coarse sediments compared to subtidal sand as the coarser habitats often contain populations of more sensitive sessile epifauna.

Table 5 lists those biotopes which may be present in Bassurelle Sandbank MPA that have a medium sensitivity to pressures, or higher. There were 37 biotopes in total that were present or possible for the bioregion for the sub-features. For subtidal mixed sediments there are five with medium sensitivity to abrasion. For subtidal sand, four biotopes have medium sensitivity to abrasion.

Section 4.3 describes fishing activity within Bassurelle Sandbank MPA, and notes that anchored nets and lines within the site had annual average landings of 10.4 t for combined over 12 m and under 12 m vessels between 2016 and 2020. The risk of abrasion and disturbance is limited, and lowest for subtidal sand. It is considered that anchored nets and lines activity is unlikely to create heavy disturbance over an extensive range and hence the resilience of the community should be maintained at these activity levels.

Therefore, **MMO concludes that at activity levels described, the use of anchored nets and lines does will not result in an adverse effect on site integrity for Bassurelle Sandbank MPA.**

4.3.2 Bottom towed gear

The relevant pressures on the sediment sub-features of Bassurelle Sandbank MPA from bottom towed gear were identified in **Table 4** and are:

- abrasion or disturbance of the substrate on the surface of the seabed[A];
- changes in suspended solids (water clarity);
- penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion[A];
- removal of non-target species;
- removal of target species; and
- siltation rate changes (low) including smothering (depth of vertical sediment overburden).

As noted previously, impacts from non-target and target species removal pressures have been scoped out of this assessment, as they are assessed more completely within the abrasion and penetration pressures.

Pressures marked with matching superscript symbols (Δ) have been consolidated due to the similar nature of their impacts on the sediment features.

As outlined in section 8.5 of the bottom towed gear Impacts Evidence document[6], the abrasion and penetration pressures caused by bottom towed gears have both biological and physical impacts to sediment features, varying based on levels of activity and fishing intensity. Physical impacts range from the creation of furrows and berms in the sediment, to the flattening of bottom features such as ripples and the homogenisation of sediments. Biological impacts include damage and mortality to flora and fauna on the seabed via surface and subsurface abrasion and penetration, as well as long term shifts in biological communities towards smaller, short-lived, opportunistic species that exhibit greater resilience to anthropogenic activity.

Smothering, siltation rate and suspended solid changes occur when bottom towed gear connect with the seabed, causing the top layer of the sediment to mix with the surrounding water. This can affect the ability of some organisms to feed or breathe. The subsequent settling rate of different sediment types, and entrainment in prevailing currents, can result in a change in the structure and function of the feature in finer scale topography, sediment quality and sediment composition. The degree of impact will vary according to the amount of fishing activity, the gear used and the sediment type. Sediments and faunal communities react differently to these pressures depending on grain size, the degree of sediment impaction and frequency or severity of the pressure upon them.

Table 5 lists those biotopes which may be present in Bassurelle Sandbank MPA that have a medium sensitivity to pressures, or higher. There were 37 biotopes in total that were present or possible for the bioregion for the sub-features. For subtidal coarse sediment, two have a medium sensitivity to penetration, and one biotope a medium sensitivity to penetration and suspended solids. For subtidal mixed sediments there are four with medium sensitivity to abrasion, penetration and siltation, and one with medium sensitivity to abrasion and penetration. For subtidal sand one biotope has medium sensitivity to penetration and four to abrasion and penetration.

As described in **Section 4.3**, the fishing activity that predominates Bassurelle Sandbank MPA is bottom towed fishing. Within bottom towed gear, demersal trawls and demersal seines are the highest, with activity concentrated in the south but spread throughout the site between 2016 and 2021, overlapping each of the component habitats of the designated feature. Dredge activity is quite low but again focused mainly in the south of the site. The feature ‘sandbanks covered by seawater all of the time’ comprised of the component habitats subtidal coarse sediment, subtidal mixed sediments and subtidal sand, is considered to be in unfavourable condition and for structure and function has a restore objective. Additionally, the first pass of fishing gear over features causes the most damage (Hiddink *et al.*, 2006) ,

so any interaction at all may be of concern, particularly with biotopes present that have a medium sensitivity to pressures created by bottom towed gear, as listed in **Table 5**. Concerns over the gear-feature impact pathway are heightened by the issues of changing fishing patterns over time, in response to changes in target species and/or changes in the spatial distribution of target species in response to climate change and fisheries displacement, and competition with other activities and conservation measures for space.

Therefore, given the sensitivity of the features to bottom towed gear with the maximum impact on initial passes, MMO concludes that there is a significant risk of ongoing fishing activity having an adverse effect on the site integrity of the MPA. With regards to the discussion above, the assessed activity levels and the evidence available for the impact of bottom towed gears, **MMO concludes that at the activity levels described, impacts from ongoing use of bottom towed gear, on the subtidal sand, subtidal coarse sediment and subtidal mixed sediments sub-features of Bassurelle Sandbank MPA does pose a significant risk of adverse effect on site integrity of the MPA.**

4.3.3 Traps

The relevant pressures on sediment sub-features of Bassurelle Sandbank MPA from traps were identified in **Table 4** and are:

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

As noted, impacts from non-target and target species removal pressures have been scoped out of this assessment, as they are assessed more completely within the abrasion pressure.

Table 5 lists those biotopes which may be present in Bassurelle Sandbank MPA that have a medium sensitivity to pressures, or higher. There were 37 biotopes in total that were present or possible for the bioregion for the sub-features. For subtidal mixed sediments there are six biotopes with medium sensitivity to abrasion. For subtidal sand four biotopes have a medium sensitivity to abrasion.

As outlined in section 9 of the Traps Impacts Evidence documents[7], traps and associated lines and anchors, may cause abrasion of subtidal sediments during setting and retrieval of gear, as well as from movement of set gear on the seabed as a result of storms, tides or currents. The impact of abrasion or disturbance of the substrate on the surface of the seabed by traps is considered to be relatively low given the small footprint of gear, though the different sizes, materials and number of traps will mean the impact varies. There is also little primary evidence on the physical impact of traps on subtidal sediments, however the evidence that is

available, indicates that traps are not likely to be a concern except for particularly high levels of intensity, or if particularly sensitive species are present.

Section 4.3 describes the fishing activity within Bassurelle Sandbank and estimates that an annual combined average for both over and under 12 m vessels of 27.5 t were landed from within the MPA using traps. Traps were also concentrated primarily in the south of the site.

With regards to the discussion above, the assessed activity levels and the evidence available for the impact of traps, **MMO concludes that at the activity levels described, the use of traps will not result in an adverse effect on site integrity for Bassurelle Sandbank MPA.**

4.4 Part B conclusion

The assessment of anchored nets and lines, and traps on subtidal coarse sediment, subtidal mixed sediments and subtidal sand sub-features of Bassurelle Sandbank MPA has concluded that these fishing activities will not result in an adverse effect on the site integrity of the MPA. As such, MMO concludes that at the levels described, management measures to restrict fishing activities using anchored nets and lines, and traps are not required in Bassurelle Sandbank MPA.

The assessment of bottom towed gear on subtidal coarse sediment, subtidal mixed sediments and subtidal sand sub-features of Bassurelle Sandbank MPA however has concluded that ongoing activities may result in an adverse effect on the site integrity of the MPA. Management measures will therefore be implemented for bottom towed gear to ensure that there is no adverse effect on the site integrity of Bassurelle Sandbank MPA.

Section 6 contains further details of these measures.

5 Part C - In-combination assessment

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

- fishing interactions assessed in Part B but which were not considered, alone, to have an adverse effect on the site integrity; and
- other activities: such as marine development infrastructure plans and projects that occur in the MPA.

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

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

There may be operational and historic submarine cables within the buffer of this MPA, these cables are already in-situ and it is unlikely that there is any direct or indirect pressure pathway for impact and therefore, it is unlikely that there will be any in-combination effects.

Bottom towed gear was identified in Part B as requiring management to avoid adverse effects to site integrity. Anchored nets and lines, and traps, are the only remaining fishing activities occurring within Bassurelle Sandbank MPA that interact with the seabed. In-combination effects of these fishing activities as well as these

activities in-combination with other relevant activities will be assessed in this section.

In accordance with the methodology detailed above, ArcGIS identified one licence held by The Crown Estate, within the 5 km buffer applied. The project is to ground truth geophysical datasets regarding key aggregates resources in the East English Channel. The licence as such is associated with removal of sediment within Bassurelle Sandbank MPA. **Table 6** shows this activity and the relevant category from the JNCC Pressures-Activities Database (PAD)[10].

Table 6: summary of marine licensable activities and associated PAD categories.

Marine licence case reference number[11]	PAD Category	Description
MLA/2023/00222	Physical sampling	Vibrocore sampling by The Crown Estate to ground truth geophysical datasets regarding key aggregates resources in the East English Channel. **Potential in-combination effects.**

The PAD and **Table 3** from section 3.3, were used to identify medium-high risk pressures exerted by fishing and non-fishing activities to identify those which require in-combination assessment (**Table 7**).

Table 7 summarises the pressures exerted by fishing and non-fishing activities and identifies those exerted by both (Y: pressure exerted). Activity-pressure interactions

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

[11] Detail on the marine licence activity can be viewed on the public register of marine licence applications and decisions, searching by the marine licence case reference number: marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_PUBLIC_REGISTER

are highlighted dark blue to illustrate an in-combination effect. Only fishing activity with no proposed or current fisheries management in place are considered.

Table 7: Pressures exerted by fishing and non-fishing activities.

	Non-fishing activities	Fishing activities	
Potential pressures	**Physical sampling**	**Anchored nets and lines**	**Traps**
Abrasion or disturbance of the substrate on the surface of the seabed	Y	Y	Y
Removal of non-target species		Y	Y
Removal of target species		Y	Y

5.1 In-combination pressure sections

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

5.2 Fishing vs Fishing in-combination pressures

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

As noted in Part B (**Section 4.3.1** nets and lines and **Section 4.3.3** traps), impacts from the removal of target and non-target species pressure is not being considered in detail in this assessment. In-combination impacts from the removal of target and non-target species pressures are more fully assessed under the pressure abrasion, as the detail of key structural and influential species is yet to be fully defined. Therefore, the removal pressures are not considered further in this in-combination assessment. The pressures may require further consideration as future evidence becomes available, in conjunction with updated conservation advice from JNCC and Natural England.

The annual average VMS records for over 12 m vessels within the MPA totalled 302 (150 counts for anchored nets and lines, and 152 counts for traps). Annual average landings from this fleet are sourced exclusively from non-UK vessels, landing 1.17 tonnes from anchored nets and lines and 0.66 tonnes from traps. For under 12 m vessels, between 2016 and 2020, the annual average fishing effort estimated to have been derived from the MPA via traps and anchored nets and lines was 68.58 (43.26 days for anchored nets and lines, and 25.32 days for traps (Annex 1 **Table A1. 8**)). For the same period (2016-2021), the total fishing effort (under 12s) estimated to have been derived from the MPA were 412 days (259.55 for anchored

nets and lines, and 151.95 for traps). The fishing effort data is further supported by the estimated live weight landings for under 12 m vessels (both UK and EU) that equal an annual average of 37 tonnes (9.22 tonnes for anchored nets and lines, and 27.85 tonnes for traps), between 2016 and 2020.

The combined impacts from anchored nets and lines and traps could potentially increase the risk of negative effects from the pressure abrasion and disturbance of the substrate on the surface of the seabed. VMS records show that trap activity is concentrated within the south of the site with a few records scattered around the boundaries of the site. Anchored nets and lines records are also most densely located within the south, but activity from this gear type also aggregates in areas in the north of the MPA, covering much of the site. Despite the apparent overlap of VMS records in the south of the site, the low annual average landings for over 12m vessels of both gear types (1.83 tonnes) indicate that fishing effort by these vessels is low, as such overlap of deployed gears is unlikely. There are no biotopes thought to be present with high sensitivity to abrasion pressures and the sediment sub-features are considered to be resilient to all but particularly intense levels of static gear use. Trap activity at the described levels has been assessed alone as not posing a risk to site integrity. Considering the low combined anchored nets and lines landings from under and over 12m vessels (10.4 tonnes) and the resilience of sediment habitats to these gear types, any in-combination impact is considered insignificant.

Therefore, the MMO concludes that the combined pressures from anchored nets and lines and traps will not result in an adverse effect on site integrity for Bassurelle Sandbank MPA at the levels described.

5.3 Fishing vs non-fishing activities in-combination pressures

5.3.1 Abrasion and disturbance of the substrate on the surface of the seabed

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

Activities associated with the vibrocore sampling by the Crown Estate (MLA/2023/00222) might cause abrasion or disturbance of the seabed. As detailed in section 3.3 abrasion and disturbance of seabed surface substrate, at current activity levels anchored nets and lines and traps are not considered to be causing significant pressure through abrasion and disturbance. It is possible that activities linked to the sampling regime, in-combination with anchored nets and lines and traps may increase the potential for this pressure to have negative cumulative effects on the designated features of the MPA. However, the activity involves removal of 0.038 m^3

at each sampling location. There are 7 survey locations within the MPA which totals a removal of 0.23 m³ of sediment, representing less than 0.0001 % of the area of the designated sandbank feature. Given the small spatial scale of the seabed footprint, the temporary nature of the works, it is unlikely there would be an adverse effect on site integrity. Therefore, the scale of the in-combination impacts from abrasion and disturbance of the substrate on the surface of the seabed between anchored nets and lines and traps and non-fishing activity is considered insignificant.

Therefore, MMO concludes that the combined pressures from anchored nets and lines and traps and other relevant activities will not result in an adverse effect on site integrity for Bassurelle Sandbank MPA.

5.4 Part C conclusion

MMO concludes that different fishing gear types in-combination, and fishing in-combination with other relevant activities will not result in an adverse effect on the site integrity for Bassurelle Sandbank MPA.

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

6 Conclusion and proposed management

Part A of this assessment concluded that anchored nets and lines, bottom towed gear, and traps, alone, are likely to have a significant effect on the designated features of Bassurelle Sandbank MPA.

Part B of this assessment concluded that, at the activity levels described, use of bottom towed gear on the sedimentary features of Bassurelle Sandbank MPA may cause an adverse effect on site integrity of the MPA as a result of the impacts of abrasion or disturbance, penetration and smothering, siltation rate and suspended solid changes whilst anchored nets and lines, and traps will not.

Part C of this assessment concluded that, at the activity levels described, use of anchored nets and lines and traps, in combination with each other and with other relevant activities, will not result in an adverse effect on site integrity of the MPA.

To ensure that fishing activities do not result in an adverse effect on site integrity of the MPA, MMO will implement a byelaw to prohibit the use of bottom towed gear throughout Bassurelle Sandbank MPA.

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

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

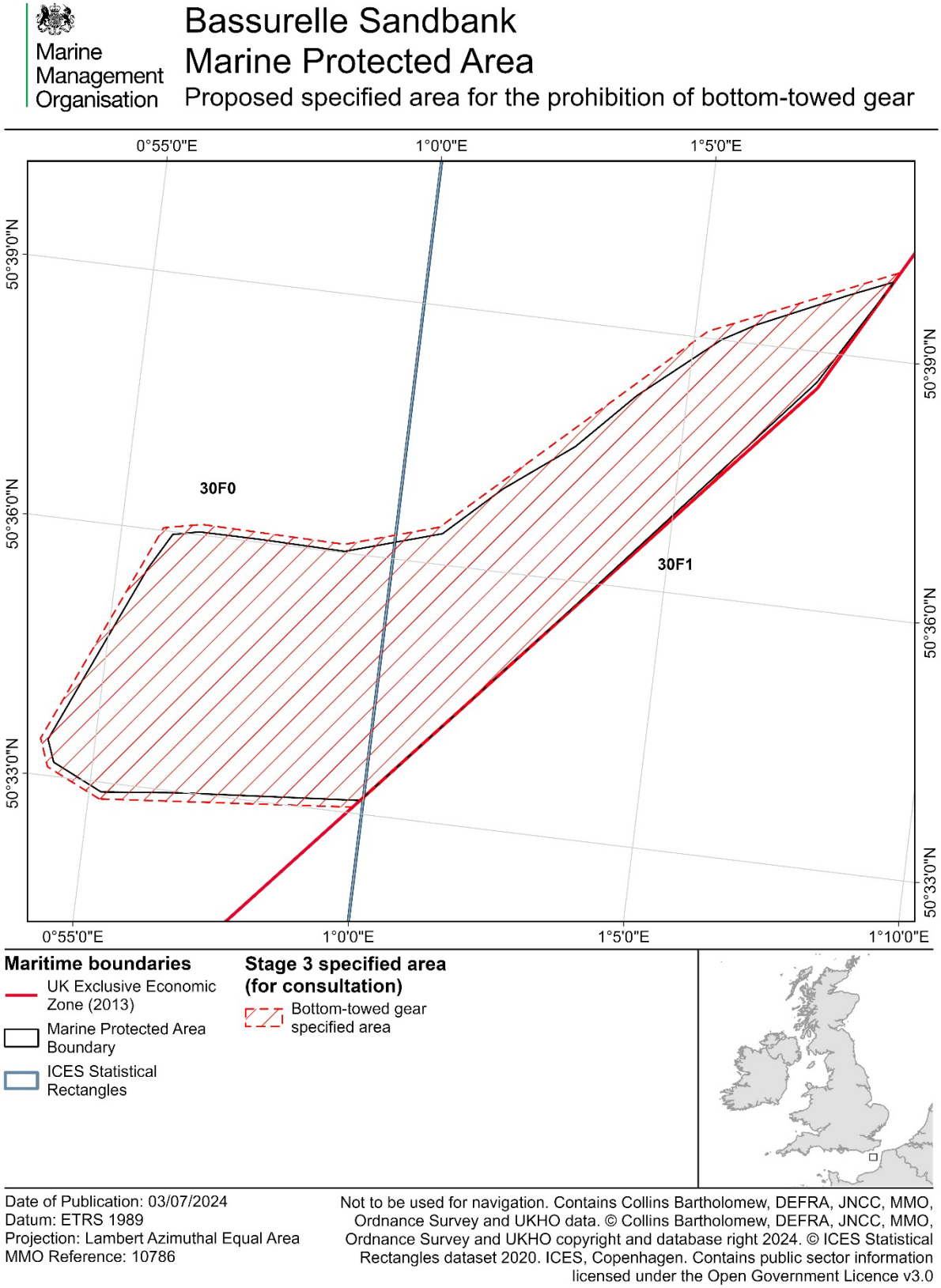

Figure 2: Map of proposed management.

7 Review of this assessment

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

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

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

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Annexes

Annex 1 - Fishing activity data

Table A1. 1: VMS record count per nation group (UK and EU Member State) and proportional activity (%), per gear, per gear group, per year (2016 to 2021), totals and annual average (2016 to 2021). All numbers are rounded to the nearest whole number.

			2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	**Gear code**	**Nation group**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**
Anchored Net/Line	GTR	EU Member State	348	100	188	100	101	100	91	100	66	100	105	100	899	100	150
	GTR Total		**348**	**100**	**188**	**100**	**101**	**100**	**91**	**100**	**66**	**100**	**105**	**100**	**899**	**100**	**150**
Anchored Net/Line Total			**348**	**29**	**188**	**16**	**101**	**9**	**91**	**8**	**66**	**8**	**105**	**5**	**899**	**12**	**150**
Demersal Seine	SDN	EU Member State	28	100	40	100	95	100	212	100	212	100	196	100	783	100	131
	SDN Total		**28**	**55**	**40**	**33**	**95**	**51**	**212**	**50**	**212**	**81**	**196**	**43**	**783**	**52**	**131**
	SPR	EU Member State	1	100	4	100	25	100	3	100	0	0	0	0	33	100	6

			2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	**Gear code**	**Nation group**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**
	SPR Total		**1**	**2**	**4**	**3**	**25**	**13**	**3**	**1**	**0**	**0**	**0**	**0**	**33**	**2**	**6**
	SSC	EU Member State	20	91	71	91	61	92	200	98	41	84	259	99	652	96	109
	SSC	UK	2	9	7	9	5	8	5	2	8	16	3	1	30	4	5
	SSC Total		**22**	**43**	**78**	**64**	**66**	**35**	**205**	**49**	**49**	**19**	**262**	**57**	**682**	**46**	**114**
Demersal Seine Total			**51**	**4**	**122**	**11**	**186**	**17**	**420**	**38**	**261**	**30**	**458**	**22**	**1498**	**20**	**250**
Demersal trawl	OT	EU Member State	0	0	0	0	0	0	0	0	0	0	99	100	99	100	17
	OT Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**99**	**9**	**99**	**3**	**17**
	OTB	EU Member State	419	100	425	100	411	100	210	100	233	100	746	100	2444	100	407
	OTB Total		**419**	**61**	**425**	**75**	**411**	**75**	**210**	**57**	**233**	**67**	**746**	**64**	**2444**	**66**	**407**
	OTT	EU Member State	0	0	16	100	21	100	16	100	7	100	0	0	60	100	10

			2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	Gear code	Nation group	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count
	OTT Total		**0**	**0**	**16**	**3**	**21**	**4**	**16**	**4**	**7**	**2**	**0**	**0**	**60**	**2**	**10**
	TB	EU Member State	0	0	0	0	0	0	0	0	0	0	2	100	2	100	0
	TB Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**
	TBB	EU Member State	268	100	128	100	119	100	144	100	109	99	314	100	1082	100	180
	TBB	UK	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0
	TBB Total		**268**	**39**	**128**	**22**	**119**	**22**	**144**	**39**	**110**	**31**	**314**	**27**	**1083**	**29**	**181**
Demersal trawl Total			**687**	**57**	**569**	**50**	**551**	**51**	**370**	**33**	**350**	**40**	**1161**	**55**	**3688**	**49**	**615**
Dredge	DRB	EU Member State	0	0	17	100	5	7	9	11	17	89	151	84	199	53	33
	DRB	UK	11	100	0	0	63	93	73	89	2	11	28	16	177	47	30
	DRB Total		**11**	**100**	**17**	**100**	**68**	**100**	**82**	**100**	**19**	**100**	**179**	**100**	**376**	**100**	**63**
Dredge Total			**11**	**1**	**17**	**1**	**68**	**6**	**82**	**7**	**19**	**2**	**179**	**9**	**376**	**5**	**63**

			2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	**Gear code**	**Nation group**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**
Midwater Trawl	OTM	EU Member State	0	0	1	100	8	100	1	100	4	100	10	100	24	100	4
	OTM Total		**0**	**0**	**1**	**20**	**8**	**28**	**1**	**10**	**4**	**13**	**10**	**13**	**24**	**15**	**4**
	PTM	EU Member State	0	0	4	100	21	100	9	100	28	100	69	100	131	100	22
	PTM Total		**0**	**0**	**4**	**80**	**21**	**72**	**9**	**90**	**28**	**88**	**69**	**87**	**131**	**85**	**22**
Midwater Trawl Total			**0**	**0**	**5**	**0**	**29**	**3**	**10**	**1**	**32**	**4**	**79**	**4**	**155**	**2**	**26**
Traps	FPO	EU Member State	103	100	241	100	155	100	144	100	151	100	117	100	911	100	152
	FPO Total		**103**	**100**	**241**	**100**	**155**	**100**	**144**	**100**	**151**	**100**	**117**	**100**	**911**	**100**	**152**
Traps Total			**103**	**9**	**241**	**21**	**155**	**14**	**144**	**13**	**151**	**0**	**117**	**0**	**911**	**12**	**152**
Unknown	NK	EU Member State	0	0	1	100	1	100	0	0	0	0	0	0	2	100	0
	NK Total		**0**	**0**	**1**	**100**	**1**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**100**	**0**

			2016		2017		2018		2019		2020		2021		Total (2016 to 2021)		Annual average (2016 to 2021)
Gear group	Gear code	Nation group	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count
Unknown Total			0	0	1	0	1	0	0	0	0	0	0	0	2	0	0
Grand Total			1200	2	1143	2	1091	2	1117	2	879	1	2099	3	7529	2	1256

Table A1. 2: UK live weight landings tonnage (t) estimates by gear from vessels over 12 m in length in Bassurelle Sandbank MPA (2016 to 2020).

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Demersal seine	SSC	1.59	6.73	2.07	5.95	5.38	21.73	4.35
Demersal seine total		**1.59**	**6.73**	**2.07**	**5.95**	**5.38**	**21.73**	**4.35**
Demersal trawl	TBB	0	0	0	0	0.13	0.13	0.03
Demersal trawl Total		**0**	**0**	**0**	**0**	**0.13**	**0.13**	**0.03**
Dredge	DRB	3.00	0	18.48	10.68	1.60	33.77	6.75
Dredge	HMD	0	0	0	0	0	0	0
Dredge total		**3.00**	**0.00**	**18.48**	**10.68**	**1.60**	**33.77**	**6.75**
Grand total		**4.59**	**6.73**	**20.56**	**16.63**	**7.12**	**55.63**	**11.13**

Table A1. 3: EU27 live weight landings tonnage (t) estimates by gear from vessels over 12 m in length in Bassurelle Sandbank MPA (2016 to 2020).

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Anchored net/line	GTR	2.68	0.95	0.88	0.41	0.95	5.87	1.17
Anchored net/line total		**2.68**	**0.95**	**0.88**	**0.41**	**0.95**	**5.87**	**1.17**
Demersal seine	SDN	5.91	7.38	11.58	19.30	20.18	64.34	12.87
Demersal seine	SPR	0	0	0	<0.01	0.00	<0.01	<0.01
Demersal seine	SSC	24.72	88.08	63.24	84.40	31.37	291.81	58.36
Demersal seine total		**30.63**	**95.46**	**74.81**	**103.69**	**51.55**	**356.14**	**71.23**
Demersal trawl	OTB	24.97	24.38	26.88	14.73	14.39	105.35	21.07
Demersal trawl	OTT	0	0	<0.01	0	0	<0.01	<0.01
Demersal trawl	TBB	45.74	25.70	29.03	26.98	16.40	143.85	28.77
Demersal trawl Total		**70.71**	**50.09**	**55.91**	**41.70**	**30.79**	**249.20**	**49.84**
Dredge	DRB	0	3.96	1.45	1.45	1.64	8.49	1.70
Dredge total		**0**	**3.96**	**1.45**	**1.45**	**1.64**	**8.49**	**1.70**
Midwater trawl	OTM	0	2.75	60.54	16.13	49.09	128.50	25.70
Midwater trawl	PTM	0	1.36	0.17	0.18	1.14	2.85	0.57
Midwater trawl total		**0**	**4.11**	**60.70**	**16.31**	**50.23**	**131.35**	**26.27**
Traps	FPO	0.25	0.89	0.51	0.53	1.15	3.32	0.66
Traps total		**0.25**	**0.89**	**0.51**	**0.53**	**1.15**	**3.32**	**0.66**
Grand total		**104.27**	**155.45**	**194.27**	**164.09**	**136.30**	**754.38**	**150.88**

Table A1. 4: Percentage of each ICES rectangle intersected by Bassurelle Sandbank MPA.

ICES rectangle	Percentage overlap (%)
30F0	1.24
30F1	1.37

Table A1. 5: UK live weight landings tonnage (t) estimates by gear from vessels under 12 m in Bassurelle Sandbank MPA (2016 to 2020).

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Anchored net/line	GEN	0.07	0	0	0	0	0.07	0.01
Anchored net/line	GN	4.35	3.53	3.66	3.73	2.32	17.59	3.52
Anchored net/line	GNS	0.57	0.19	0.46	0.26	0.17	1.66	0.33
Anchored net/line	GTR	2.88	2.47	2.01	1.92	1.01	10.28	2.06
Anchored net/line	LL	<0.01	<0.01	0	0	<0.01	<0.01	<0.01
Anchored net/line total		**7.87**	**6.18**	**6.14**	**5.91**	**3.50**	**29.60**	**5.92**
Demersal trawl	OT	5.08	1.71	0	0	0	6.79	1.36
Demersal trawl	OTB	0.11	5.10	8.13	6.30	3.30	22.94	4.59
Demersal trawl	OTT	0.06	0.22	0.06	0.02	0.04	0.40	0.08
Demersal trawl	TBB	0.32	0.30	0.21	0.16	0.16	1.15	0.23
Demersal trawl	TBN	0	0.02	0	0	0	0.02	0
Demersal trawl Total		**5.56**	**7.35**	**8.40**	**6.49**	**3.50**	**31.31**	**6.26**
Dredge	DRB	0.50	0.30	0.15	0.64	0.73	2.33	0.47
Dredge total		**0.50**	**0.30**	**0.15**	**0.64**	**0.73**	**2.33**	**0.47**

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Midwater - gill drift	GND	0.40	0.04	0.03	0.03	0.0002	0.48	0.10
Midwater - gill drift total		**0.40**	**0.04**	**0.03**	**0.03**	**0.00**	**0.48**	**0.10**
Midwater hook/lines	LHP	<0.01	0.02	0.15	0.11	0.21	0.48	0.10
Midwater hook/lines	LX	0.25	0.36	0.25	0.28	0.37	1.51	0.30
Midwater hook/lines total		**0.25**	**0.38**	**0.40**	**0.39**	**0.57**	**1.99**	**0.40**
Traps	FIX	1.40	0.49	0	0	0	1.89	0.38
Traps	FPO	24.05	18.75	19.31	25.77	36.48	124.37	24.87
Traps total		**25.45**	**19.24**	**19.31**	**25.77**	**36.48**	**126.26**	**25.25**
Grand total		**40.04**	**33.49**	**34.43**	**39.23**	**44.78**	**191.97**	**38.39**

Table A1. 6: EU27 live weight landings tonnage (t) estimates by gear from vessels under 12 m in Bassurelle Sandbank MPA (2016 to 2020).

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Anchored Net/Line	LLS	0	0.01	0	<0.01	0.03	0.04	0.01
Anchored Net/Line	GTR	4.74	4.58	3.29	1.74	1.54	15.89	3.18
Anchored Net/Line	GNS	0.13	0.13	0.17	0.05	0.06	0.55	0.11
Anchored Net/Line	GTN	<0.01	0.01	0	0.01	<0.01	0.02	<0.01
Anchored Net/Line Total		**4.87**	**4.73**	**3.46**	**1.80**	**1.63**	**16.49**	**3.30**
Demersal Seine	SB	0	0	0	0	0	0	0
Demersal Seine	SSC	0	0	0.21	0.66	0.21	1.07	0.21

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Demersal Seine Total		**0**	**0**	**0.21**	**0.66**	**0.21**	**1.07**	**0.21**
Demersal trawl	OTB	0.42	0.35	0.29	0.13	0.16	1.35	0.27
Demersal trawl	OTT	0	<0.01	0.01	0	0	0.01	<0.01
Demersal trawl	TBB	0.07	0.06	0.02	0.02	0.01	0.17	0.03
Demersal trawl Total		**0.48**	**0.41**	**0.32**	**0.15**	**0.17**	**1.53**	**0.31**
Dredge	DRB	0.74	0.38	0.41	0.37	0.34	2.24	0.45
Dredge Total		**0.74**	**0.38**	**0.41**	**0.37**	**0.34**	**2.24**	**0.45**
Midwater - Gill Drift	GND	0.05	0.15	0.17	0.08	0.06	0.51	0.10
Midwater - Gill Drift Total		**0.05**	**0.15**	**0.17**	**0.08**	**0.06**	**0.51**	**0.10**
Midwater - Gill Encircling	GNC	0	0	0	<0.01	0	<0.01	<0.01
Midwater - Gill Encircling Total		**0**	**0**	**0**	**<0.01**	**0**	**<0.01**	**<0.01**
Midwater Hook/Lines	LHP	0.01	0.01	0.01	0.01	<0.01	0.05	0.01
Midwater Hook/Lines	LTL	0.01	0.01	<0.01	<0.01	0.01	0.03	0.01
Midwater Hook/Lines Total		**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.09**	**0.02**
Midwater Trawl	OTM	0.14	0.04	0.02	0.34	0.14	0.68	0.14
Midwater Trawl Total		**0.14**	**0.04**	**0.02**	**0.34**	**0.14**	**0.68**	**0.14**
Traps	FPO	1.59	1.80	1.84	3.53	4.24	12.99	2.60
Traps Total		**1.59**	**1.80**	**1.84**	**3.53**	**4.24**	**12.99**	**2.60**
Grand Total		**7.90**	**7.52**	**6.43**	**6.94**	**6.81**	**35.61**	**7.12**

Table A1. 7: Mean annual surface and subsurface SAR values for C-squares intersecting Bassurelle Sandbank MPA (2016 to 2020).

Gear group	SAR category	2016	2017	2018	2019	2020
Demersal Seines	Surface	2.86	6.06	7.74	7.68	8.84
	Subsurface	0.08	0.22	0.21	0.15	0.15
Dredges	Surface	0.23	0.10	0.29	0.33	0.05
	Subsurface	0.23	0.10	0.29	0.33	0.05
Demersal Trawls	Surface	3.63	3.42	3.83	3.61	2.67
	Subsurface	2.05	1.90	1.91	1.76	1.23
Bottom Towed Gear Total	Surface	6.71	9.58	11.85	11.63	11.56
	Subsurface	2.36	2.22	2.41	2.24	1.44

Table A1. 8: Fishing effort (days) recorded by UK vessels under 12 m in length, separated by gear type for the area of Bassurelle Sandbank MPA that intersects ICES rectangles 30F0, 30F1 (2016 to 2021). ICES rectangle level data has been apportioned to the MPA based on the percentage area of the ICES rectangle that intersects the MPA (Table A1. 4).

Gear group	Fishing effort (days at sea)							
	2016	2017	2018	2019	2020	2021	Total (2016 to 2021)	Annual average (2016 to 2021)
Demersal trawl	17.36	17.71	21.26	18.40	11.06	8.91	94.70	15.78
Dredge	0.97	0.65	0.23	1.19	0.91	2.15	6.09	1.02
Bottom towed gear total	**18.33**	**18.36**	**21.49**	**19.59**	**11.97**	**11.06**	**100.80**	**16.80**
Midwater gill drift	4.23	0.48	0.26	0.43	0.02	0	5.42	0.90
Midwater hooks and lines	6.03	7.87	8.82	7.05	10.21	11.93	51.91	8.65
Midwater gear total	**10.25**	**8.35**	**9.08**	**7.49**	**10.23**	**11.93**	**57.34**	**9.56**
Anchored nets and lines	68.77	54.39	48.93	36.50	28.04	22.92	259.55	43.26
Traps	26.43	20.63	22.00	26.98	32.39	23.52	151.95	25.32
Static gear total	**95.20**	**75.02**	**70.93**	**63.48**	**60.43**	**46.44**	**411.50**	**68.58**
MPA total	**123.78**	**101.73**	**101.50**	**90.56**	**82.63**	**69.43**	**569.63**	**94.94**