

MMO Stage 3 Site Assessment: Albert Field MPA (Draft)

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Executive summary

This assessment analyses the impact of anchored nets and lines, bottom towed gear and traps on the designated features, subtidal coarse sediment and subtidal mixed sediments, in Albert Field Marine Protected Area (MPA) to determine whether a significant risk of hindering the conservation objectives of the site can be excluded. The assessment sets out the evidence considered and analyses the quality of that evidence.

The assessment finds that there is a significant risk of the ongoing use of bottom towed gear on the sedimentary features of Albert Field MPA hindering the achievement of the conservation objectives of the MPA as a result of the impacts of abrasion or disturbance, penetration and smothering, siltation rate and suspended solid changes. The Marine Management Organisation (MMO) will therefore introduce management measures to prohibit the use of bottom towed fishing gear throughout the MPA.

1 Introduction

This assessment considers whether fishing activities are compatible with the conservation objectives of Albert Field MPA.

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

2 Site information

2.1 Overview

The following Natural England conservation advice package and Department for Environment Food and Rural Affairs (Defra) factsheet were used for background on site geography, designations, features, supplementary advice on conservation objectives and general management approaches:

- <u>Natural England Conservation Advice Albert Field MCZ¹</u>
- Defra Fact Sheet Albert Field MCZ²

Albert Field MPA is located approximately 20 km south of Poole Harbour in the central English Channel, with depths ranging from 30 to 40 m below chart datum. Covering an area of approximately 192 km², the site is bounded by the 6 nautical mile (nm) limit to the north and the 12 nm limit to the south (**Figure 1**).

¹ Natural England Conservation Advice Package – Albert Field MCZ: <u>designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK</u> <u>MCZ0051</u> (Last accessed on: 1 June 2023).

² Defra Factsheet – Albert Field MCZ: <u>www.gov.uk/government/publications/marine-</u> <u>conservation-zones-albert-field</u> (Last accessed on: 1 June 2023).



Albert Field Marine Protected Area

Management Overview of site location and designated features



Date of Publication: 03/07/2024 Datum: ETRS 1989 Projection: Lambert Azimuthal Equal Area MMO Reference: 10786 Not to be used for navigation. Contains Collins Bartholomew, DEFRA, EMU Ltd., MMO, Natural England, Ordnance Survey and UKHO data. © Collins Bartholomew, DEFRA, EMU Ltd., MMO, Natural England, Ordnance Survey and UKHO copyright and database right 2024. © ICES Statistical Rectangles dataset 2020. ICES, Copenhagen. Contains public sector information licensed under the Open Government Licence v3.0

Figure 1: Site overview map.

Albert Field MPA was designated as an MCZ in 2019 for the protection of the broadscale habitat features 'subtidal coarse sediment' and 'subtidal mixed sediments'. Subtidal coarse sediment covers the majority of the site, interspersed with subtidal mixed sediments including areas of outcropping bedrock and boulders, muddy gravely sands and pebbles and cobbles on sand, mud and gravel. Though this site is only designated for sedimentary habitats, rocky features, including chalk and clay exposures, occur throughout the site. This broad range of substrates makes for a diverse mosaic habitat, supporting nursing grounds for commercially important fish species - such as sea bass, sole and plaice - alongside communities of anemones, barnacles, bivalve molluscs, sea firs, sea mats, sea cucumbers, starfish, urchins, polychaete worms and mixed turfs of hydroids, bryozoans and encrusting and erect sponges (EMU Ltd., 2013).

Admiralty data indicates tides tend to flow roughly east-northeast and westsouthwest, with the tidal flow through the site ranging from 0.9 metres per second (m/s) during neap tides and 1.7 m/s during spring tides, and with tidal strength described by Natural England to have a 'moderate' mean and 'high' maximum current velocity¹. The designated features and general management approaches are set out below in **Table 1**.

Table 1: Designated features and general management approaches.

Designated feature	General management approach					
Subtidal coarse sediment	Pacavar to a favourable condition					
Subtidal mixed sediments	Recover to a favourable condition					

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

A 'recover' approach has been set for the 'distribution: presence and spatial distribution of biological communities' and 'structure: species composition of component communities' attributes of the designated features due to the sensitivity of species and communities recorded in the site to pressures such as physical abrasion, and activities such as mobile towed fishing which could expose these attributes to impacting pressures.

A 'reduce' target has been set for the attribute 'structure: non-native species and pathogens (habitat)', due to the slipper limpet *Crepidula fornicata* being recorded throughout the site in sufficient numbers to become a characterising species of some communities, and the potential for this species to alter the sediment structure and function and out-compete native species (EMU Ltd., 2013). As management of this target is unrelated to fishing that does not specifically aim to reduce slipper limpet

species numbers, and national measures are in place to reduce the spread of invasive non-native species (INNIS) for fishing and non-fishing vessels, this target is not considered further in this assessment (Rayment, 2008).

'Maintain' and 'restrict' targets have been set for all other attributes, due to a lack of evidence that sediment features are being impacted by anthropogenic activities and based on knowledge of the sensitivity of the features to activities that are occurring or have occurred within the site. 'Maintain' targets do not preclude the need for management, now or in the future, to avoid a significant risk of damage or deterioration to the features of the site.

2.2 Scope of this assessment

The scope of this assessment covers fishing activities alone, and relevant activities in combination with fishing.

3 Part A - Identified pressures on the MPA

Part A of this assessment was carried out in a manner that is consistent with the 'capable of affecting (other than insignificantly)' test described by section 126 of the Marine and Coastal Access Act 2009³.

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

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

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

³ For more information see: <u>www.legislation.gov.uk/ukpga/2009/23/section/126</u>.

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);
- MMO catch recording project data;
- 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 <u>MPA</u> <u>Fisheries Assessment Methodology document</u>⁴, which describes each type of fishing activity evidence and summarises the strengths and limitations of each source.

⁴ MPA Fisheries Assessment Methodology:

<u>www.gov.uk/government/publications/stage-3-site-assessments</u> (Last accessed on: 27 August 2024).

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

Gear type	Gear name	Gear code	Justification				
	Gill nets (not specified)	GN					
Anchorod	Gillnets and entangling nets	GEN	Present in under 12 m landings data				
note and	Longline (unspecified)	LL	for ICES statistical rootangles that				
	Longlines (demersal)	LLS	overlap the site				
lines	Set gillnet (anchored)	GNS	ovenap the site.				
	Trammel net	GTR					
	Beam trawl	TBB	Present in VMS records and under 12				
	Bottom otter trawl	ОТВ	m landings data for ICES statistical rectangles that overlap the site.				
Bottom	Nephrops trawl	TBN	Present in under 12 m landings data				
towed	Otter trawls (unspecified)	ОТ	for ICES statistical rectangles that overlap the site.				
gear	Scottish / fly seine	SSC	Present in VMS records and under 12				
	Towed dredge	DRB	m landings data for ICES statistical rectangles that overlap the site.				
	Twin bottom otter trawl	OTT					
	Drift gillnet	GND	Dresent in under 12 m landings data				
	Encircling gillnet	GNC	for ICES statistical restangles that				
	Hand fishing	HF	overlap the site				
Midwator	Hand-operated pole-and-line	LHP	ovenap the site.				
apar	Hook and line (unspecified)	LX					
gear	Midwater otter trawl	ОТМ	Present in VMS records and under 12 m landings data for ICES statistical rectangles that overlap the site.				
	Midwater shrimp trawls	TMS	Present in under 12 m landings data				
Shore based	Hand dredge	DRH	for ICES statistical rectangles that				
	Fyke net	FYK	overlap the site.				
Traps	Pot/Creel	FPO	Present in VMS records and under 12 m landings data for ICES statistical rectangles that overlap the site.				
	Тгар	FIX	Present in under 12 m landings data				
Other	Miscellaneous	MHX, MIS	for ICES statistical rectangles that overlap the site.				

3.2 Pressures, features and activities screened out

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

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

- **Midwater gears:** although the use of midwater gears does occur within Albert Field MPA, there is no feasible pathway for gears of this type to interact with benthic designated features under normal operation. These gears are not designed to operate on or near the seabed and are deployed entirely within the water column. Therefore, the use of midwater gear within Albert Field MPA is not considered to be capable of affecting the designated features other than insignificantly and is not considered further within this assessment.
- Shore based activities: although landings data show that fishing activity using hand dredges occurs within the site, this is based on all activity occurring within site-overlapping ICES rectangles. ICES rectangle 30E8 intersects the north east corner of Albert Field MPA, but also covers a large area of coast where shore based activities occur. As the site lies beyond the 6 nm limit, it is not possible that hand dredges would be capable of affecting the designated features due to distance; hand dredging is 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:

- Stage 3 Fishing Gear MPA Impacts Evidence Anchored Nets and Lines⁵;
- Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gear⁶; and
- Stage 3 Fishing Gear MPA Impacts Evidence Traps⁷.

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 Natural England advice to assess the sensitivities of pressures on the designated features 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, taking into account the pressures screened out in **sections 3.1** and **3.2**.

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 the 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: <u>www.gov.uk/government/publications/stage-3-impacts-evidence</u> (Last accessed on: 27 August 2024).

⁶ Stage 3 Fishing Gear MPA Impacts Evidence Bottom Towed Gear: <u>www.gov.uk/government/publications/stage-3-impacts-evidence</u> (Last accessed on: 27 August 2024).

⁷ Stage 3 Fishing Gear MPA Impacts Evidence Traps:

<u>www.gov.uk/government/publications/stage-3-impacts-evidence</u> (Last accessed on: 27 August 2024).

Table 3: Summary of pressures on designated features of Albert Field MPA tobe taken forward to Part B.

	Designated features							
	Subt	tidal m	ixed					
Potential pressures	S	edimei	nt	sediments				
	Α	В	Т	Α	В	Т		
Abrasion or disturbance of the substrate								
on the surface of the seabed								
Changes in suspended solids (water clarity)								
Deoxygenation								
Hydrocarbon and PAH contamination								
Introduction of light								
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)								
Physical change (to another sediment type)								
Removal of non-target species								
Removal of target species								
Smothering and siltation rate changes								
Synthetic compound contamination								
Transition elements and organo-metal								
contamination								

4 Part B - Fishing activity assessment

Part B of this assessment was carried out in a manner that is consistent with the 'significant risk of hindering the achievement of the conservation objectives' test described by section 126 of the Marine and Coastal Access Act 2009³.

Table 3 shows the fishing activities and pressures identified in Part A which have been included for assessment in Part B. The important targets for favourable condition were identified within Natural England's conservation advice supplementary advice tables and are shown in **Table 4**¹. 'Important' in this context means only those targets relating to attributes that will most efficiently and directly help to define condition. These attributes should be clearly capable of identifying a change in condition.

Attribute	Target	Relevant pressures
Distribution: presence and spatial distribution of biological communities	Recover the presence and spatial distribution of subtidal coarse and mixed sediment communities	 Abrasion or disturbance of the substrate on the surface of the seabed. Departmention and/or
Structure and function: presence and abundance of key structural and influential species	[Maintain OR Recover OR Restore] the abundance of listed species, to enable each of them to be a viable component of the habitat	 Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion. Removal of non-target
Structure: sediment composition and distribution	Maintain the distribution of sediment composition types across the feature	 species. Removal of target species. Smothering and siltation
composition of component	Recover the species composition of component communities	rate changes (subtidal mixed sediments only).

communities

Table 4: Relevant favourable condition targets for identified pressures for a	all
site features.	

4.1 Fisheries access and existing management

As Albert Field MPA lies entirely within the 6 to 12 nm zone, the only non-UK vessels that can operate within the site are French vessels licensed by the UK to do so. While VMS records indicate that flag states of vessels operating within the MPA from 2016 to 2021 included the UK, Belgium, France, Ireland, and the Netherlands, it is likely that vessels from nations other than France and the UK were transiting through the site rather than fishing. More information on non-UK vessel access to UK waters can be found on MMO's <u>Single Issuing Authority</u> page⁸.

4.2 Fishing activity summary

The tables in Annex 1 display a detailed breakdown of fishing activity within Albert Field MPA. The following analysis considers only fishing activities not screened out in Part A of this assessment; midwater and shore-based gears are therefore not examined here. Unless otherwise stated, figures cover fishing activity attributed to Albert Field MPA between 2016 and 2020, apart from VMS records of over 12 m vessel activity (**Table A1. 1**), and under 12 m vessel effort data (**Table A1. 8**), both of which cover 2016 to 2021. When discussing weights from landings in this section, figures used are a total of weights from UK and EU member state vessels.

For vessels under 12 m in length, landings data have been used to determine activity in the absence of VMS records. These data are recorded at ICES rectangle level and have been attributed to Albert Field MPA based on the proportion of the ICES rectangles intersected by the MPA (**Figure 1**). Because of this, there are limitations on the accuracy of this data, as it is only possible to estimate how much activity is occurring in the MPA based on the average activity across the entire ICES rectangle, rather than at specific locations within the site. For instance, while approximately 89 % of Albert Field MPA lies within ICES rectangle 29E8, this area of the site covers only 4.3 % the total ICES rectangle. Likewise, while 11 % of the site lies within ICES rectangle 30E8, a sliver of the north-east corner, this area makes up just 1.3 % of the total ICES rectangle. Therefore, while VMS data from over 12 m vessels show approximate locations of fishing activity within the site and can be used to analyse activity across designated features, apportioned landings data for under 12 m vessels are only indicative of an average level of activity, rather than activity that can be directly attributed to the MPA.

Nevertheless, landings data do indicate a high proportion of under 12 m activity using the traps gear group occurring within both ICES rectangles, with trap usage in the site split approximately 80:20 between 30E8 and 29E8. Under 12 m vessels employing traps landed approximately 58 % of the total weight of all catches apportioned to the site, averaging approximately 14.20 tonnes (t) per year. UK under

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

12 m vessels using traps also had higher annual average apportioned fishing effort days in the site than those using any other gear, at approximately 47 days. The highest weight of landings for this gear group occurred in 2016, with landings generally trending downwards to less than half of that amount landed annually in 2018, 2019 and 2020.

After traps, the greatest landings for under 12 m vessels were from anchored nets and lines and dredges, averaging approximately 2.90 t and 3.57 t annually, and with effort averaging approximately 24 and 28 days respectively. As with traps, most landings for these gears are attributed to ICES rectangle 30E8, with approximately 82 % of anchored net and line and 97 % of dredge catch by weight ascribed to the area overlapping the top northeast corner of the MPA. This again suggests a sparse distribution of usage throughout the larger part of the site lying in rectangle 29E8.

While the lowest annual average landings for under 12 vessels in Albert Field MPA were from vessels using demersal seines and demersal trawls, demersal trawls were the most prevalent gear group in VMS records and landings data for over 12 m vessels, with annual average landings of approximately 1 t. While the majority of VMS records in this gear group are for bottom otter trawls, beam trawls accounted for the highest total weight of landings for over 12 m vessels in the site, approximately 87 % of total demersal trawl landings for this vessel length. VMS data show that demersal trawling activity occurred sporadically in the southern half of Albert Field MPA, with more activity from bottom towed gear occurring beyond the southern site boundary than within the MPA itself.

SAR analysis for demersal trawls indicate that average surface SAR values across C-squares intersecting Albert Field MPA ranging from 0.02 to 0.05. An SAR value of one would indicate that each C-square experienced a pass of fishing gear on average once per year. Given the prevalence of under 12 m vessel activity within the site, it should be noted that SAR analysis uses VMS data, and therefore only captures over 12 m vessel activity. However, these values nevertheless indicate that demersal trawl activity was low for the period under discussion.

For all other gear groups under consideration that were employed by over 12 m vessels, activity was also limited, with only three VMS records of demersal dredges operating in the site and only one record each for traps and demersal seines. The total annual average landings for over 12 m vessels employing all gear types in the site between 2016 and 2020 were approximately 2.1 t.

4.3 Pressures by gear type

The Stage 3 Fishing Gear MPA Impacts Evidence documents for anchored nets and lines⁵, bottom towed gear⁶ and traps⁷ 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, the general management approaches for designated features, intensity of fishing activity taking place and exposure to natural disturbance.

As the designated 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.

Relevant biotopes, described as characteristic of the subtidal coarse sediment and subtidal mixed sediments features for the Eastern Channel bioregion, have been drawn from Natural England's conservation advice package¹ for the site. These biotopes, their sensitivity to relevant pressures and the screening criteria used, are summarised in Annex 2 in **Table A2 1** and **Table A2 2**.

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 effects 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 Albert Field 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. These pressures may require consideration as a result of any future evidence review, in conjunction with updated conservation advice from JNCC and Natural England.

4.3.1 Anchored nets and lines

The relevant pressures on subtidal sediment features of Albert Field MPA from anchored nets and lines were identified in **Table 3** and are:

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

As noted above, impacts from target/non-target removal pressures have been scoped out from 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 this gear, and during movement along the seabed due to tides, currents, or storms. Abrasion impacts are considered likely to be greatest on subtidal mixed and coarse sediments as the coarser habitats often contain populations of sessile epifauna. However, as per section 9.3 of the anchored nets and lines Impacts Evidence document⁵, 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. Subtidal sediment habitats are considered resilient to all but intense fishing activity using anchored nets and lines on species rich sediment habitats or those with long-lived bivalves.

As **section 4.2** above describes, there appears to be a limited amount of activity from vessels using anchored nets and lines within Albert Field MPA. Indeed, between 2016 and 2021 there were no VMS records of over 12 m vessels employing this gear group and the majority of landings are attributed to the small area of ICES rectangle 30E8 overlapping the site's north east corner.

Relevant biotopes, their sensitivity to identified pressures and the screening criteria used for their inclusion, are summarised in Annex 2 in **Table A2** 1 and **Table A2** 2.

Of the biotopes identified in Natural England's conservation advice package¹ as characteristic of the subtidal coarse sediment and subtidal mixed sediments features for the Eastern Channel bioregion, the majority are described by The Marine Life Information Network (MarLIN) as having 'low' or 'no' sensitivity and 'high' resilience to the 'abrasion or disturbance' pressure (Tillin and Rayment, 2001; McQuillan and Tillin, 2006; De-Bastos and Marshall, 2016; Tillin and Tyler-Walters, 2016, 2023; Tyler-Walters and Durkin, 2016; De-Bastos and Tyler-Walters, 2016; Readman, 2016; Readman and Rayment, 2016; Tillin, 2016a, 2016b, 2022a, 2022b; Ashley and Marshall, 2022). Likewise, the only biotope that exhibits 'high' sensitivity and 'low' resilience, 'Ostrea edulis beds on shallow sublittoral muddy mixed sediment', is characterised by keystone species which are unlikely to be found within Albert Field MPA, due to the shallow depth (0-20 m) and sheltered location of their usual habitat, compared to the depth range of the site (30-40 m) and the exposure of the sediment features to high tidal energy (Perry, Tyler-Walters and Garrard, 2023). Given the low levels of activity from anchored nets and lines within the site, an adverse effect on these biotopes is unlikely.

For subtidal mixed sediments, five biotopes are noted to experience 'medium' sensitivity and 'medium' resilience to abrasion, of which three are also more likely to be found in more sheltered waters, in areas of lower salinity or at depths below that of the site (Perry, 2016; Perry and Watson, 2023, 2024). Evidence from 2013 benthic surveys suggest the presence of one of the two remaining 'medium' sensitivity biotopes in the site, '*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment', with the other - '*Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment' – found in the vicinity of the site (EMU Ltd., 2013). For both medium sensitivity biotopes that could be present, MarLIN profiles note that resilience is likely to be high in all but instances where impacts have caused significant mortality or the removal of the majority of the population of characterising species (De-Bastos *et al.*, 2023; Readman and Watson, 2024).

Given landings data suggesting very low levels of fishing using this gear type, and the small footprint of static gears (Jennings and Kaiser, 1998; Roberts *et al.*, 2010), it is unlikely that levels of interaction significant enough to cause this degree of damage are occurring between anchored nets and lines and the designated sediment features. The impact of abrasion and disturbance pressures are consequently likely to be limited. Therefore, **MMO concludes that the ongoing use of anchored nets and lines does not pose a significant risk of hindering the achievement of the conservation objectives of the subtidal coarse sediment and subtidal mixed sediments features of Albert Field MPA.**

4.3.2 Bottom towed gear

The relevant pressures on subtidal sediment features of Albert Field MPA from bottom towed gear were identified in **Table 3** and are:

- abrasion or disturbance of the substrate on the surface of the seabed;
- penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion;
- removal of non-target species;
- removal of target species (dredges only); and
- smothering and siltation rate changes (subtidal mixed sediments only).

As noted above, impacts from target/non-target removal pressures have been scoped out from further assessment, as they are assessed more completely within the 'abrasion or disturbance' and 'penetration' pressures. Likewise, 'abrasion' and 'penetration' pressures have been consolidated, due to the similar nature of their impacts on sediment features. Where there are differences between the features or the potential impacts of different gears within each grouping, this has been highlighted.

As **section 4.2** describes, VMS data indicate that the use of bottom towed gear in the site between 2016 and 2021 was limited, with a total of 15 VMS reports within the site, and total landings between 2016 and 2020 averaging less than six tonnes per year. In this gear group the majority of landings by weight came from under 12 m vessels employing dredges, averaging 3.57 t per year.

As described in section 8.4.1 of the bottom towed gear Impacts Evidence document⁶, 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 of bottom towed gear 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 by dredges. These impacts are unlikely, however, at the levels of fishing activity described above, to significantly impact the large-scale topography of sediment features. Of more concern are the impacts to the biological structure of sediment habitats. 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. Communities in subtidal coarse sediment and subtidal mixed sediments can be particularly sensitive to bottom towed gear activity because they generally contain large proportions of long-lived and sessile epifauna which are easily damaged or removed by the pass of bottom towed gears leading to reduced diversity, abundance and occurrence.

Relevant biotopes, their sensitivity to identified pressures and the screening criteria used for their inclusion, are summarised in Annex 2 **Table A2 1** and **Table A2 2**.

Of the biotopes identified in Natural England's conservation advice package¹ as characteristic of the sediment features for the Eastern Channel bioregion, the majority are described by MarLIN as having 'low' or 'no' sensitivity and 'high' resilience to 'abrasion' and 'penetration' pressures from bottom towed gear (Tillin and Rayment, 2001; McQuillan and Tillin, 2006; De-Bastos and Marshall, 2016; Tillin and Tyler-Walters, 2016, 2023; Tyler-Walters and Durkin, 2016; De-Bastos and Tyler-Walters, 2016; Readman, 2016; Readman and Rayment, 2016; Tillin, 2016a, 2016b, 2022a, 2022b; Ashley and Marshall, 2022). Among biotopes found to have 'medium' or 'high' sensitivity, six are unlikely to be found in the site, due to the depth range, tidal energy level or salinity that characterise their preferred habitats (Perry, 2016a, 2016b, 2018; Tillin and Tyler-Walters, 2016; Ashley and Marshall, 2023).

The remaining three biotopes with 'medium' sensitivity to abrasion and penetration are '*F. foliacea* and *H. falcata* on tide-swept circalittoral mixed sediment'; '*Neopentadactyla mixta* in circalittoral shell gravel or coarse sand'; and 'O. fragilis and/or *O. nigra* brittlestar beds on sublittoral mixed sediment' (De-Bastos *et al.*, 2023; Tyler-Walters, Durkin and Watson, 2023; Readman and Watson, 2024). While the 2013 benthic survey did not find the '*N. mixta*' biotope in the vicinity of Albert Field MPA, areas of '*O. fragilis*' were observed both inshore and to the southeast of the site. Likewise, the '*F. foliacea*' biotope was found throughout coarse sediments surrounding bedrock and boulder reefs in the region (EMU Ltd., 2013).

For the 'O. fragilis' and 'F. foliacea' biotopes, MarLIN profiles note that penetrative gear may adversely affect populations, removing and damaging deep buried species and that damage caused by abrasion and entanglement of epifaunal species can build incrementally. Resilience is likely to be high in all but instances where impacts have caused significant mortality or the removal of the majority of the population of characterising species (De-Bastos *et al.*, 2023; Readman and Watson, 2024). However, MarLIN notes the sensitivity of infaunal and epifaunal communities in brittlestar beds to repeated abrasion and penetration from fishing, where removal or displacement of the substrata is possible, leading to potential loss or severe damage to the biotope over time (De-Bastos *et al.*, 2023). Likewise, the recruitment processes of echinoderms like '*N. mixta*' can be sporadic, meaning that penetrative

gear may cause long term adverse effects on populations that characterise this biotope, with variable rates of recruitment and repopulation after damage or removal (Tyler-Walters, Durkin and Watson, 2023).

High levels of natural disturbance may mean the effects of 'abrasion' and 'penetration' pressures are limited on the physical structure of sedimentary habitats. However, while the relative resilience of biological communities on sandy sedimentary habitats could be due to natural disturbance, there is also evidence that use of bottom towed gear can result in shifting baselines for biological communities from lower resilience, long-lived, slowly recruiting fauna to more resilient opportunistic, short-lived, faster reproducing species (Plumeridge and Roberts, 2017).

As noted in section 8.4.2 of the bottom towed gear Impacts Evidence document⁶, the 'smothering and siltation rate changes' pressure occurs when bottom towed gear connects with the seabed, causing the top layer of the sediment to mix with the surrounding water. Sediments and faunal communities react differently to these pressures depending on grain size, the degree of sediment impaction and frequency/severity of the pressure upon them. For Albert Field MPA, 'smothering and siltation rate changes' are applicable only to the subtidal mixed sediments feature. The most sensitive characterising biotope of this feature that prefers habitats likely to be found within the site, the '*O. fragilis*' biotope, experiences 'medium' sensitivity to this pressure (De-Bastos *et al.*, 2023).

While at certain levels of intensity this pressure has the potential to impact on the species of a site, communities that live in sediment habitats will be adapted to some level of sedimentation in accordance with rates of natural disturbance. Given the 'moderate' to 'high' current velocity of Albert Field MPA, it is likely that biological communities that predominate are acclimatised to some level of disturbance and variation in water conditions due to the hydrodynamic regime in the site, and that any increased sediment load in the water column would be quickly dispersed. However, as noted previously, the presence of more resilient biotopes cannot be untethered from potential changes to the community structure caused by these species dominating in areas regularly disturbed by fishing activity over less resilient biotopes, alongside the effects of natural hydrodynamic processes on community composition.

Overall, MMO consider that the 'abrasion', 'disturbance' and 'penetration' pressures caused by bottom towed gear will affect the extent, distribution and structure of biological communities of the MPA to the extent that the conservation objectives of the site are hindered. It is possible that 'smothering, siltation rate and suspended solid changes' could also have an effect, but on their own these would probably be insufficient to hinder the conservation objectives.

With regards to the discussion above, the assessed activity levels and the evidence available for the impact of bottom towed gears, **MMO concludes that there is a significant risk of the ongoing use of bottom towed gear over the subtidal**

coarse sediment and subtidal mixed sediments features hindering the achievement of the conservation objectives for the MPA.

4.3.3 Traps

The relevant pressures on subtidal sediment features of Albert Field MPA from traps were identified in **Table 3** and are:

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

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

As **section 4.2** describes, vessels using traps had the largest total apportioned landings for Albert Field MPA by weight (71.77 t), despite only one VMS record of an over 12 m vessel employing this gear group. However, as described above, approximately 80 % of landings by weight for this gear group are attributed to ICES rectangle 30E8, which only overlaps the top north east corner of the MPA. Given that this area makes up only 11 % of the site, this suggests a sparse distribution of trap usage throughout the larger part of the site that lies in rectangle 29E8.

Relevant biotopes, their sensitivity to identified pressures and the screening criteria used for their inclusion, are summarised in Annex 2 in **Table A2 1** and **Table A2 2**. These characteristic biotopes, identified by Natural England in their Supplemental Advice on Conservation Objectives¹, are the same as those set out in **section 4.3.1**, 'anchored nets and lines', alongside the likelihood that they might be found within the site. As before, the resilience to the 'abrasion' pressure of the two highest sensitivity biotopes potentially present within the site ('*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment' and '*Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment') is described by MarLIN to be high in all but instances where impacts cause significant mortality or the removal of the majority of the population of characterising species.

As outlined in the traps Impacts Evidence document⁷, 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. There is little primary evidence on the physical impact of traps on subtidal sediments, and the footprint of traps is likely to be small. The evidence that is available indicates that traps are not likely to be a concern unless used at particularly high levels of intensity, or if particularly sensitive species are present.

Fishing effort and landings data indicate that interactions between traps and the designated features are occurring, so there is a risk of the 'abrasion and disturbance'

pressure impacting on sediments within the site. However, because of the small footprint of this gear group (Roberts *et al.*, 2010), as there are no species with a particular sensitivity to traps likely to be present and because there is minimal primary evidence of negative impacts of traps on sediment habitats, the current activity levels are unlikely to be of a concern. Therefore, **MMO concludes that the ongoing use of traps does not pose a significant risk of hindering the achievement of the conservation objectives of the subtidal coarse sediment, or subtidal mixed sediments features of the MPA.**

4.4 Part B conclusion

The assessment of anchored nets and lines, bottom towed gear and traps on subtidal coarse sediment and subtidal mixed sediments features of Albert Field MPA has concluded that there is a significant risk of the ongoing use of bottom towed gear hindering the achievement of the conservation objectives of the MPA. Given the mosaic nature of sediment features in the site, management measures will therefore be implemented for bottom towed gear across the whole MPA: **Section 6** contains further details of these measures.

5 Part C - In-combination assessment

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

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

ArcGIS software has been used to check relevant activities that occur within, or adjacent to, the assessed site where there could be a pathway for impact. To determine relevant activities to be included in this part of the assessment, a distance of 5 km was selected as suitable to capture any potential way in which the activity could impact the benthic features of the site in combination with effects of the fishing activities assessed. 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, which have the same medium to high-risk pressure impact pathways as permitted fishing activity. As the model to identify activities was run using ArcGIS in August 2023, any licences that ended before this date have been 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 significant risk of hindering the achievement of the site's conservation objectives 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.

Bottom towed gear was identified as requiring management to avoid a significant risk of hindering the achievement of the conservation objectives of Albert Field MPA. Anchored nets and lines and traps are therefore the only remaining gear groups able to operate within Albert Field MPA that interact with the seabed. In-combination effects of these fishing activities with each other, as well as in combination with other relevant activities, will therefore be assessed in Part C.

In accordance with the methodology detailed above, the following projects were identified within the applied 5 km buffer. **Table 5** shows this activity and the relevant

category from the Joint Nature Conservation Committee (JNCC) Pressures-Activities Database (PAD)⁹.

Table 5: Summary of marine licensable activities and associated PA	۱D
categories.	

Marine licence	PAD	Description
case reference ¹⁰	category	
MLA/2013/00058	Offshore wind: construction	Navitus Bay Wind Park meteorological mast. This wind farm project, including meteorological mast construction, was refused development consent by the Secretary of State in 2015, and the construction of the mast will therefore not go ahead. No direct or indirect pressure pathway for in-combination impacts with pressures from fishing as construction has been refused consent. Therefore, no in-combination effects possible.
MLA/2013/00037/2	Physical sampling Aggregate dredging	Hanson Aggregates Marine Ltd. are licensed to remove sediment for sampling and to extract aggregates via dredging in Area 127, west of the Isle of Wight. The applicant notified MMO that dredging operations ceased in 2016; should dredging resume, the works area is almost 5 km from Albert Field MPA. No direct or indirect pressure pathway for impact and therefore, no in- combination effects possible.

⁹ JNCC Pressures-Activities Database (PAD): <u>hub.jncc.gov.uk/assets/97447f16-</u> <u>9f38-49ff-a3af-56d437fd1951</u> (Accessed on: 23 April 2024).

¹⁰ Detail on marine licence activities can be viewed on the public register of marine licence applications and decisions, by searching the marine licence case reference: <u>www.marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_PUBLIC_R</u><u>EGISTER</u> (Accessed on: 23 April 2024).

Marine licence case reference ¹⁰	PAD category	Description
MLA/2013/00038/2	Physical sampling Aggregate dredging	Tarmac Marine Ltd. are licensed to remove sediment for sampling and to extract aggregates via dredging in Area 127, west of the Isle of Wight, however the works area is almost 5 km from Albert Field MPA. No direct or indirect pressure pathway for impact and therefore, no in-combination effects possible.
MLA/2015/00491/3	Physical sampling Aggregate dredging	Tarmac Marine Ltd. are licensed to remove sediment for sampling and to extract aggregates via dredging in Area 500/1-4, west of the Isle of Wight, however the works area is approximately 3 km from Albert Field MPA at the closest point. No direct or indirect pressure pathway for impact and therefore, no in-combination effects possible.
MLA/2015/00492	Physical sampling Aggregate dredging	Hanson Aggregates Marine Ltd. are licensed to remove sediment for sampling and to extract aggregates via dredging in Area 500/1, 2, 5 and 6, west of the Isle of Wight, however the works area is approximately 3 km from Albert Field MPA at the closest point. No direct or indirect pressure pathway for impact and therefore, no in-combination effects possible.

Given that there are no direct or indirect pressure pathways for impact from these activities, no in-combination effects from these plans or projects are possible. Likewise, while there may be operational submarine cables within this MPA, these cables are already in-situ and are unlikely to have any residual abrasion pressure in-combination with the assessed fishing activity. Any abrasion/removal pressure from submarine cable operation and maintenance activity will be temporary with limited seabed impacts and is therefore unlikely to have significant in-combination effects with assessed fishing activity. Therefore, only fishing in combination with other fishing activities are considered hereafter.

Table 3 from section 3.3 was used to identify medium-high risk pressures exerted by fishing activities to identify those which require in-combination assessment (Table 6).

Table 6 summarises the pressures exerted by fishing activities and identifies those exerted by all gears (Y: pressure exerted). Activity-pressure interactions are highlighted dark blue to illustrate an in-combination effect. Only fishing activities with no proposed or current fisheries management in place are considered.

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

Table 6: Pressures exerted by fishing activities.

5.1 In-combination pressures

The in-combination pressures exerted by anchored nets and lines and traps will be considered in this section.

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** - anchored nets and lines, and **section 4.3.3** - traps), the impacts of 'removal of target and non-target species' pressures are 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 'abrasion' pressure, as the detail of key structural and influential species is yet to be fully defined. Therefore, removal pressures are not considered further in this in-combination assessment. These pressures may require further consideration as future evidence becomes available, in conjunction with updated conservation advice from JNCC and Natural England.

As **section 4.2** describes, most fishing activity using traps and anchored nets and lines within the site can be attributed to under 12 m vessels. Between 2016 and 2021 the estimated annual average fishing effort for Albert Field MPA from UK vessels under 12 m using static gear totalled 71 days, with 47 fishing effort days for traps and 24 days for anchored nets and lines (**Table A1. 8**). Between 2016 and 2020, the annual landings average for all under 12 m vessels using either gear group totalled 17.14 t, with 14.24 t for traps and 2.90 t for anchored nets and lines (**Table A1. 6**). Fishing activity for over 12 m vessels using static gear within the site was very limited, with only one VMS record of an over 12 m vessel using traps within the MPA between 2016 and 2021, and no records for anchored nets and lines (**Table A1. 1**).

For both anchored nets and lines and traps, around 80 % of landings are attributed to ICES rectangle 30E8, which overlaps the northeast corner of Albert Field, covering 11 % of the site. As previously noted in **section 4.2**, under 12 m landings and UK under 12 m fishing effort (days) are both collected at ICES rectangle level and then apportioned to the site based on percentage overlap. This reduces confidence in the actual levels of activity taking place within the MMO portion of the MPA, as it suggests fishing activity is distributed equally across each ICES rectangle. Nevertheless, greater levels of static gear activity occurring across the whole of 30E8 could indicate a possible concentration of fishing activity from anchored nets and lines and traps in the northeastern part of the site. 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.

As discussed in **section 4.3** the features subtidal coarse sediments and subtidal mixed sediments are of low sensitivity to impacts from static fishing gears. Of the biotopes identified in Natural England's conservation advice package¹ as characteristic of the subtidal coarse sediment and subtidal mixed sediments features for the Eastern Channel bioregion likely to be found within Albert Field MPA, the majority are described by The Marine Life Information Network (MarLIN) as having 'low' or 'no' sensitivity and 'high' resilience to the 'abrasion or disturbance' pressure (**Table A2 1** to **Table A2 2**).

Evidence from 2013 benthic surveys suggest the presence of one 'medium' sensitivity biotope in the site, '*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment', with another - '*Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment' – found in the site's vicinity (EMU Ltd., 2013). For both medium sensitivity biotopes that could be present, it is noted that their resilience is likely to be high in all but instances where impacts have caused significant mortality or the removal of the majority of the population of characterising species (De-Bastos *et al.*, 2023; Readman and Watson, 2024). Given the activity levels described by landings data for fishing using these gear types, even in combination, and the small footprint of static gears (Jennings and Kaiser, 1998; Roberts *et al.*, 2010), it is unlikely that levels of interaction significant enough to cause this degree of damage are occurring between anchored nets and lines and traps and the designated sediment features.

Although the majority of activity attributed to the site for the years considered in this assessment is from under 12 m vessels, and therefore a precise understanding of spatial overlap is not possible, at assessed levels the combined pressure from these fishing gears, even if fully overlapping, is not likely to have been at a level which could undermine the condition of the designated features of the site, given the sensitivity of component biotopes. Therefore, MMO concludes that the combined pressures from anchored nets and lines and traps will not result in a

significant risk of hindering the achievement of the conservation objectives for Albert Field MPA at the levels described.

5.3 Part C conclusion

MMO concludes that fishing interactions in combination, and fishing in-combination with other relevant activities will not result in a significant risk of hindering the achievement of the conservation objectives of Albert Field MPA.

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

6 Conclusion and proposed management

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

Part B of this assessment concluded that ongoing use of bottom towed gear on the sedimentary features of Albert Field MPA at the activity levels described may hinder the achievement of the conservation objectives of the MPA as a result of the impacts of abrasion or disturbance, penetration and smothering, removal of target and non-target species and siltation rate changes.

Part C of this assessment concluded that the ongoing use of anchored nets and lines and traps at the activity levels described, alone or in combination, does not pose a significant risk of hindering the achievement of the conservation objectives of Albert Field MPA.

To ensure that fishing activities do not result in a significant risk of hindering the conservation objectives of the MPA, MMO will implement a byelaw to prohibit the use of bottom towed gear throughout Albert Field 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 <u>Stage 3 MPA Site Assessment Methodology</u> document⁴.



Albert Field Marine Protected Area

Management Proposed specified area for the prohibition of bottom-towed gear



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); and
- 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 States) 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.

		20	16	20	17	20	18	20	19	20	20	20	21	To (2016 to	tal o 2021)	Average	
Gear group	Gear code	Nation group	Count	%	Count	%	(2016 to 2021)										
Demersal	SSC	EU	0	0	0	0	0	0	0	0	1	100	0	0	1	100	<1
seine	SSC tot	al	0	0	0	0	0	0	0	0	1	100	0	0	1	100	<1
Demersal sein	e total		0	0	0	0	0	0	0	0	1	50	0	0	1	5	<1
	OTB	EU	2	100	1	100	3	100	3	100	0	0	0	0	9	100	2
Demersal	OTB tot	al	2	100	1	50	3	100	3	100	0	0	0	0	9	82	2
trawl	TBB	EU	0	0	1	100	0	0	0	0	1	100	0	0	2	100	<1
	TBB total		0	0	1	50	0	0	0	0	1	100	0	0	2	18	<1
Demersal traw	l total		2	100	2	100	3	60	3	38	1	50	0	0	11	58	2
Dredge	DRB	EU	0	0	0	0	1	100	2	100	0	0	0	0	3	100	<1
Dieuge	DRB tot	al	0	0	0	0	1	100	2	100	0	0	0	0	3	100	<1
Dredge total			0	0	0	0	1	20	2	25	0	0	0	0	3	16	<1
Midwater	ΟΤΜ	EU	0	0	0	0	1	100	2	100	0	0	0	0	3	100	<1
trawl	OTM tot	tal	0	0	0	0	1	100	2	100	0	0	0	0	3	100	<1
Midwater traw	l total		0	0	0	0	1	20	2	25	0	0	0	0	3	16	<1
Trans	FPO	UK	0	0	0	0	0	0	1	100	0	0	0	0	1	100	<1
11495	FPO tot	al	0	0	0	0	0	0	1	100	0	0	0	0	1	100	<1
Traps total			0	0	0	0	0	0	1	13	0	0	0	0	1	5	<1
Grand total			2	0	2	0	5	0	8	0	2	0	0	0	19	0	3

Table A1. 2: UK live weight landings tonnage (t) estimates by gear from vessels over 12 m in length in Albert Field MPA (2016 to 2020). All numbers are rounded to two decimal places.

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Traps	FPO	0	0	0	0.59	0	0.59	0.12
Traps total		0	0	0	0.59	0	0.59	0.12
Grand total		0	0	0	0.59	0	0.59	0.12

Table A1. 3: EU27 live weight landings tonnage (t) estimates by gear from vessels over 12 m in Albert Field MPA (2016 to 2020). All numbers are rounded to two decimal places.

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Demersal seine	SSC	0	0	0	0	2.14	2.14	0.43
Demersal seine total		0	0	0	0	2.14	2.14	0.43
Domoreal trawl	OTB	0.20	0.08	0.29	0.12	0	0.69	0.14
Demersal trawi	TBB	0	3.37	0	0	1.08	4.45	0.89
Demersal trawl total		0.20	3.45	0.29	0.12	1.08	5.14	1.03
Dredge	DRB	0	0	0	0.06	0	0.06	0.01
Dredge total		0	0	0	0.06	0	0.06	0.01
Midwater trawl	OTM	0	0	1.62	0.92	0	2.53	0.51
Midwater trawl total		0	0	1.62	0.92	0	2.53	0.51
Grand total		0.20	3.45	1.90	1.10	3.22	9.88	1.98

Table A1. 4: Percentage of each ICES rectangle intersected by Albert Field MPA. All numbers are rounded to two decimal places.

ICES rectangle	Percentage overlap (%)
29E8	4.33
30E8	1.26

Table A1. 5: UK live weight landings tonnage (t) estimates by gear from vessels under 12 m in length for Albert Field MPA(2016 to 2020). All numbers are rounded to two decimal places.

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
	GEN	0.02	0	0	0	0	0.02	<0.01
	GN	2.75	2.50	2.27	2.17	2.17	11.86	2.37
Anchored net/line	GNS	0.02	<0.01	0	0	0	0.02	<0.01
Anchored neutine	GTR	0.05	0.01	0.17	0.07	0.03	0.33	0.07
	LL	0.01	0.02	0.01	0.01	0.01	0.06	0.01
	LLS	0	0.02	0	0	0	0.02	<0.01
Anchored net/line total		2.85	2.54	2.45	2.26	2.21	12.31	2.46
	OT	0.59	0.09	0	0	0	0.68	0.14
	OTB	0	0.24	0.26	0.18	0.11	0.80	0.16
Demersal trawl	OTT	0.12	0.04	0.03	0.03	0.31	0.52	0.10
	TBB	0.49	0.31	0.05	0.39	0.53	1.78	0.36
	TBN	0	0.004	0	0	0.11	0.11	0.02
Demersal trawl total		1.20	0.69	0.34	0.60	1.06	3.89	0.78
Dredge	DRB	3.70	3.44	2.91	3.37	4.32	17.74	3.55
Dicage	DRH	0	<0.01	0	0	0	<0.01	<0.01
Dredge total		3.70	3.44	2.91	3.37	4.32	17.74	3.55
Midwater gill drift	GND	0.07	0.01	0	0	0	0.08	0.02
Midwater gill drift total	-	0.07	0.01	0	0	0	0.08	0.02
Midwater gill encircling	GNC	<0.01	0	0	0	0	<0.01	<0.01
Midwater gill encircling to	otal	<0.01	0	0	0	0	<0.01	<0.01
	HF	0.09	0.05	0.19	0.43	0.35	1.11	0.22
Midwater hook/line	LHP	<0.01	0.08	0.12	0.10	0.12	0.44	0.09
	LX	0.30	0.30	0.16	0.25	0.25	1.25	0.25
Midwater hook/line total		0.40	0.44	0.47	0.78	0.72	2.80	0.56

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Midwater trawl	TMS	<0.01	<0.01	0	0	0	<0.01	<0.01
Midwater trawl total		<0.01	<0.01	0	0	0	<0.01	<0.01
	FIX	3.11	1.04	0	0	0	4.15	0.83
Traps	FPO	22.13	13.70	9.07	11.28	10.66	66.84	13.37
	FYK	<0.01	0	0	0	0	<0.01	<0.01
Traps total		25.24	14.75	9.07	11.28	10.66	71.00	14.20
Unknown	MIS	0	0.05	0.06	0.14	0.31	0.56	0.11
Unknown total		0	0.05	0.06	0.14	0.31	0.56	0.11
Grand total		33.45	21.91	15.31	18.44	19.28	108.38	21.68

Table A1. 6: EU27 live weight landings tonnage (t) estimates by gear from vessels under 12 m in length for Albert FieldMPA (2016 to 2020). All numbers are rounded to two decimal places.

Gear group	Gear code	2016	2017	2018	2019	2020	Total (2016 to 2020)	Average (2016 to 2020)
Anchored net/line	LLS	0.70	0.36	0.78	0.34	0	2.18	0.44
Anchored neutine	GTR	0	0	0	0.01	<0.01	0.01	<0.01
Anchored net/line tot	al	0.70	0.36	0.78	0.35	<0.01	2.19	0.44
Demersal seine	SSC	0	0	0	0	0.07	0.07	0.01
Demersal seine total		0	0	0	0	0.07	0.07	0.01
Domoreal trawl	OTB	0	0.19	0.02	0.04	0	0.25	0.05
Demersartrawi	TBB	0	0.01	0	0	0	0.01	0
Demersal trawl total		0	0.20	0.02	0.04	0	0.26	0.05
Dredge	DRB	0	0.05	0	0.05	0	0.09	0.02
Dredge total		0	0.05	0	0.05	0	0.09	0.02
Midwater gill drift	GND	0	0	0	0.02	0	0.02	0.01
Midwater gill drift tota	al	0	0	0	0.02	0	0.02	0.01
Midwater trawl	OTM	0	0.11	0	0	0	0.11	0.02
Midwater trawl total		0	0.11	0	0	0	0.11	0.02
Traps	FPO	0.02	0.03	0.02	0.08	0.03	0.18	0.04
Traps total		0.02	0.03	0.02	0.08	0.03	0.18	0.04
Grand total		0.72	0.75	0.83	0.54	0.10	2.94	0.59

Table A1. 7: Mean annual surface and subsurface SAR values for C-squares intersecting Albert Field MPA (2016 to 2020).All numbers are rounded to two decimal places.

Gear group	SAR category	2016	2017	2018	2019	2020
Bottom towed gear	Surface	0.02	0.04	0.04	0.05	0.02
Dottom towed gear	Subsurface	0.01	0.01	0.01	0.01	0
Domorcal trawl	Surface	0.02	0.04	0.04	0.05	0.02
Demersartiawi	Subsurface	0.01	0.01	0.01	0.01	<0.01
Drodgos	Surface	0	0	<0.01	<0.01	0
Diedges	Subsurface	0	0	<0.01	<0.01	0

Table A1. 8: Fishing effort (days) recorded by UK vessels under 12 m in length, separated by gear type for the area of Albert Field MPA that intersects the marine portion of ICES rectangles 29E8 and 30E8 (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). All numbers are rounded to two decimal places.

	Fishing effort (days at sea)									
Gear group	2016	2017	2018	2019	2020	2021	Total (2016 to 2021)	Average (2016 to 2021)		
Demersal trawl	5.71	2.93	1.29	1.47	3.28	5.25	19.93	3.32		
Dredge	25.95	24.19	26.18	27.46	21.94	22.61	148.33	24.72		
Bottom towed gear total	31.66	27.12	27.46	28.93	25.23	27.86	168.26	28.04		
Midwater gill drift	0.94	0.13	0	0	0	0	1.07	0.18		
Midwater gill encircling	0.01	0	0	0	0	0	0.01	<0.01		
Midwater hooks and lines	6.36	8.51	9.31	9.36	9.45	11.17	54.15	9.02		
Midwater lift net	0	0.03	0	0	0	0	0.03	<0.01		
Midwater trawl	0.02	0.01	0	0	0	0	0.03	<0.01		
Midwater gear total	7.33	8.67	9.31	9.36	9.45	11.17	55.28	9.21		
Anchored nets and lines	29.05	24.56	25.08	23.22	19.12	20.76	141.79	23.63		
Traps	67.46	56.33	51.36	46.88	34.54	26.86	283.43	47.24		
Static gear total	96.51	80.88	76.44	70.10	53.66	47.63	425.22	70.87		
Unknown	0.04	0.65	0.95	1.26	1.14	1.65	5.69	0.95		
Unknown total	0.04	0.65	0.95	1.26	1.14	1.65	5.69	0.95		
MPA total	135.54	117.32	114.17	109.64	89.47	88.31	654.45	109.08		

Annex 2: Biotope Screening

Table A2 1 Subtidal coarse sediment biotopes.

Biotope name	Found at depth of site?	Sensitivity to relevant pressures	
Neopentadactyla mixta in circalittoral shell gravel or coarse sand (Tyler-Walters et al., 2023)		Medium sensitivity to penetration and changes in suspended solids from bottom towed gear, and removal of non-target species from all gear groups.	
<i>Mediomastus fragilis</i> , <i>Lumbrineris</i> spp. and venerid bivalves in circalittoral coarse sand or gravel (Tillin and Watson, 2023a)	Yes	Low sensitivity	
<i>Pomatoceros triqueter</i> with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles (Tyler-Walters et al., 2024)		Low or no sensitivity	
Sparse fauna on highly mobile sublittoral shingle (cobbles and pebbles) (Tillin, 2023)		Not sensitive	
<i>Protodorvillea kefersteini</i> and other polychaetes in impoverished circalittoral mixed gravelly sand (Tillin and Watson, 2023b)	Precautionarily included - maximum depth 30 m	Low or no sensitivity	
Dense <i>Lanice conchilega</i> and other polychaetes in tide-swept infralittoral sand and mixed gravelly sand (McQuillan and Tillin, 2006) <i>Hesionura elongata</i> and <i>Microphthalmus similis</i> with other interstitial polychaetes in infralittoral mobile coarse sand (Marshall et al., 2023)	No - maximum depth 20 m	Not relevant to site due to habitat depth	

Table A2 2 Subtidal mixed sediments biotopes.

Biotope name	Found at depth of site?	Sensitivity	
<i>Flustra foliacea</i> and <i>Hydrallmania falcata</i> on tide-swept circalittoral mixed sediment (Readman and Watson, 2024)	Yes	Medium sensitivity to abrasion and removal of target species from all gear groups, to removal of target species from traps and dredges, and to penetration from bottom towed gear	
<i>Mysella bidentata</i> and <i>Thyasira</i> spp. in circalittoral muddy mixed sediment (De-Bastos, Marshall, et al., 2023)		Low or no sensitivity	
<i>Ophiothrix fragilis</i> and/or <i>Ophiocomina nigra</i> brittlestar beds on sublittoral mixed sediment (De-Bastos, Hill, et al., 2023)		Medium sensitivity to abrasion and removal of non-target species from all gear groups, and to penetration and smothering and siltation rate changes from bottom towed gear	
<i>Cerianthus lloydii</i> and other burrowing anemones in circalittoral muddy mixed sediment (Perry and Watson, 2024) <i>Cerianthus lloydii</i> with <i>Nemertesia</i> spp. and other hydroids in circalittoral muddy mixed sediment (Perry and Watson, 2023)	Precautionarily included - maximum		
<i>Venerupis corrugata, Amphipholis squamata</i> and <i>Apseudes holthuisi</i> in infralittoral mixed sediment (Tillin et al., 2023)	depth 30 m.	Low sensitivity	
 <i>Crepidula fornicata</i> with ascidians and anemones on infralittoral coarse mixed sediment (Readman, 2016) <i>Crepidula fornicata</i> and <i>Mediomastus fragilis</i> in variable salinity infralittoral mixed sediment (Readman and Rayment, 2016) <i>Ostrea edulis</i> beds on shallow sublittoral muddy mixed sediment (Perry et al., 2023) <i>Sabella pavonina</i> with sponges and anemones on infralittoral mixed sediment (Perry, 2016) 	No - maximum depth 20 m	Not relevant to site due to habitat depth	
<i>Aphelochaeta</i> spp. and <i>Polydora</i> spp. in variable salinity infralittoral mixed sediment (De-Bastos and Tyler-Walters, 2016)	No - estuarine habitat	Not relevant to site due to habitat	