Marine Management Organisation

Stage 3 Fishing Gear MPA Impacts Evidence: Summary (DRAFT)

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MMO Stage 3 Fishing Gear MPA Impacts Evidence: Summary

This summary report provides a concise overview of the Marine Management Organisation (MMO) analysis of the impacts of fishing using anchored nets and lines, bottom towed gear, and traps on features of marine protected areas (MPAs) in England. The sources of evidence, procedures and rationale used in each of these analyses are outlined in the respective full reports, which are available here:

Stage 3 Fishing Gear MPA Impacts Evidence: Anchored nets and lines

Stage 3 Fishing Gear MPA Impacts Evidence: Bottom towed gear

Stage 3 Fishing Gear MPA Impacts Evidence: Traps

1 Key definitions

Traps are stationary structures of many shapes and sizes into which fish and shellfish are drawn by bait or other attractants. Pots and creels are included within this definition of traps.

Anchored nets and lines include gillnets, entangling nets and trammel nets, and demersal longlines that are anchored or weighted to the seafloor.

Bottom towed fishing gear means any trawls, seines, dredges or similar gear, including trawls towed on or very close to the seabed, which are actively moved in the water by one or more fishing vessels or by any other mechanised system and in which any part of the gear is designed and rigged to operate on, and be in contact with, the seabed.

Designated features ('features') are habitats or species found within a marine protected area (MPA) and for which the area has been designated to protect. The '**sensitivity**' of a feature (species or habitat) is a measure that is dependent not only on the ability of the feature to resist change, but also its ability to recover. A very sensitive habitat or species is one that is very easily impacted by a pressure and/or is expected to recover over a very long period or not at all.

Pressure is the mechanism through which an activity impacts any part of the ecosystem. The nature of the pressure is determined by activity type, intensity and distribution.

An **impact** is the consequence of pressures (for example habitat degradation) where a change occurs that is different to that expected under natural conditions.

2 Key findings

Tables 1, 2 and 3 summarise the outcomes and management considerations of MMO analysis for anchored nets and lines, bottom towed gear, and traps respectively. The tables also highlight causes of variability in impact to be considered when conducting site assessments.

Site level assessments will be undertaken for fishing in each MPA considered in Stage 3. Site level assessments will consider the evidence analysed in the Stage 3 Fishing Gear MPA Impacts Evidence documents alongside site specific details, including:

- the conservation objectives of the MPA,
- the intensity and nature of fishing activity,
- the environmental conditions of the site,
- the ecological characteristics of the designated feature and/or biological community, and
- for habitats, the presence of particularly sensitive species.

Management measures for each MPA will be developed based on the outcome of the site level assessments.

Table 1. Summary of MMO analysis of the impacts of anchored nets and lines on MPA features.

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
Sea-pen and burrowing megafauna communities	Anchored nets and lines are unlikely to have a significant negative impact on sea-pen and burrowing megafauna communities	• Ecological characteristics of the biological community • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor • Presence of particularly sensitive species	There is extremely limited literature available. Evidence on traps will be used as a proxy.
Fan mussel	Anchored nets and lines are unlikely to have a significant negative impact on fan mussel	• Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor • Population characteristics including population density, life history stage and growth rates	There is limited literature available. In some cases, evidence on anchor impact and trampling has been considered.
Ocean quahog	Anchored nets and lines are unlikely to have a significant negative impact on ocean quahog	• Population characteristics including age dynamics which affect growth rates, shell strength and burial depth • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor	There is limited literature available.
Rocky reef, circalittoral rock, pink sea fan, and 'fragile sponge and anthozoan communities' on rocky habitats'	Anchored nets and lines have the potential to have a significant negative impact on rock and reef features	• Gear type and soak times • Ecological characteristics of the biological community • Presence of particularly sensitive species • Environmental variables	There is limited literature available. In some cases, evidence on traps has been considered.

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
Biogenic reef (*Sabellaria spp.*)	Anchored nets and lines have the potential to have a significant negative impact on biogenic reefs	• Gear type • Sedimentary characteristics • Species of *Sabellaria spp*. present at the site	There is limited literature available. In some cases, evidence on traps and trampling has been considered.
Annex I Sandbanks and MCZ sediments	Anchored nets and lines are unlikely to have a significant negative impact on Annex I sandbanks or MCZ sediment features	• Ecological characteristics of the biological community • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor • Sedimentary characteristics • Presence of particularly sensitive species	There is limited literature available. In some cases, evidence on traps has been considered.

Table 2. Summary of MMO analysis of the impacts of bottom towed gear on MPA features. Rock and reef features are not included as the impacts of bottom towed gears on these features have already been addressed during Stages 1 and 2.

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
Sea-pen and burrowing megafauna communities	Bottom towed gears have the potential to have a significant negative impact on sea-pen and burrowing megafauna communities	• Gear type and components affecting penetration depth • Sediment characteristics • Levels of natural disturbance impacting recovery rates • Ecological characteristics of the biological community • Presence of particularly sensitive species	There is limited literature available. The majority of evidence concerns demersal trawls and dredges.
Fan mussel	Bottom towed gears have the potential to have a significant negative impact on fan mussel	• Gear type and components affecting penetration depth • Prior history of fishing • Oceanographic conditions • Seabed topography • Sediment characteristics • Population characteristics including growth rates and population density	There is limited literature available. The majority of evidence concerns demersal trawls and dredges.
Ocean quahog	Bottom towed gears have the potential to have a significant negative impact on ocean quahog	• Gear type and components affecting penetration depth • Prior history of fishing • Levels of natural disturbance impacting recovery rates • Oceanographic conditions • Sediment characteristics • Population characteristics including population density and age dynamics which affect growth rates, shell strength and burial depth	There is limited literature available. The majority of evidence concerns demersal trawls and targeted hydraulic dredges.

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
Annex I Sandbanks and MCZ sediments	Bottom towed gears have the potential to have a significant negative impact on Annex I sandbanks and MCZ sediment features	• Gear type and components affecting penetration depth • Sediment characteristics • Levels of natural disturbance impacting recovery rates • Ecological characteristics of the biological community • Presence of particularly sensitive species	There is extensive literature available. Evidence on specific ecological components of sediment habitats, and on how impacts may vary between bottom towed gear types, is limited in some cases.

Table 3. Summary of MMO analysis of the impacts of traps on MPA features.

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
Sea-pen and burrowing megafauna communities	Traps are unlikely to have a significant negative impact on sea-pen and burrowing megafauna communities	• Fishing intensity • Weather conditions when setting and retrieving gear • Seasonality of fishing effort • Ecological characteristics of the biological community • The suitability for resettlement of the substrate that uprooted sea-pens are relocated to	There is limited literature available. The majority of evidence concerns impacts of traps on biological communities, rather than the physical environment.
Fan mussel	Traps are unlikely to have a significant negative impact on fan mussel	• Fishing intensity • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor • Population characteristics including population density, life history stage and growth rates	There is limited literature available. Evidence from other species within the *Pinnidae* family has been cautiously considered in some cases, alongside evidence for impacts on suitable fan mussel habitats.
Ocean quahog	Traps are unlikely to have a significant negative impact on ocean quahog	• Fishing intensity • Population characteristics including age dynamics which affect growth rates, shell strength and burial depth • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor	There is extremely limited literature available. Evidence on suitable sedimentary habitats has been assessed.
Rocky reef, circalittoral rock, pink sea fan, and	Traps have the potential to have a significant negative	• Fishing intensity • Gear variations	There is limited literature available. The majority of

Feature	MMO analysis summary	Factors which may cause variability in impact (intensity of fishing activity is relevant for all gear-feature interactions)	Evidence considerations
'fragile sponge and anthozoan communities' on rocky habitats'	impact on rock and reef features	• Ecological characteristics of the biological community • Oceanographic conditions • Presence of particularly sensitive species	studies do not consider long term impacts.
Biogenic reef (*Sabellaria spp.*)	Traps have the potential to have a significant negative impact on biogenic reefs	• Fishing intensity • Oceanographic conditions • Sedimentary characteristics • Species of *Sabellaria spp*. present at the site	There is limited literature available.
Annex I Sandbanks and MCZ sediments	Traps are unlikely to have a significant negative impact on Annex I sandbanks or MCZ sediment features	• Fishing intensity • Ecological characteristics of the biological community • Levels of natural disturbance affecting the extent to which gear is dragged across the seafloor • Presence of particularly sensitive species	There is limited literature available, with levels of evidence varying depending on sediment type.