# Marine Conservation Zone Assessment document: CSMMCZ-FA 005

| **Marine Protected Area** | **Coquet to St Mary's MCZ** |
|---|---|
| Features | High energy infralittoral rock, High energy circalittoral rock, High Energy Intertidal Rock, Intertidal Coarse Sediment, Intertidal Mixed Sediments Intertidal Mud, Intertidal Sand & Muddy Sand, Intertidal Underboulder Communities, Low Energy Intertidal Rock, Moderate energy Infralittoral Reef, Moderate Energy Intertidal Rock, Peat & Clay Exposures Subtidal Coarse Sediment, Subtidal Mixed Sediments, Subtidal Mud Subtidal Sand |
| Gear Type | Static – pots/traps |
| Gear/Feature Interaction Reference | CSMMCZ-333 CSMMCZ-335 CSMMCZ-331 CSMMCZ-325 CSMMCZ-326 CSMMCZ-323 CSMMCZ-324 CSMMCZ-332 CSMMCZ-329 CSMMCZ-334 CSMMCZ-330 CSMMCZ-336 CSMMCZ-328 CSMMCZ-327 CSMMCZ-322 CSMMCZ-321 |

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Note: sections of this document have been taken directly from or modified from the MMO Fisheries Assessment Template, Flyde MCZ Fisheries Assessment and West of Walney MCZ Fisheries Assessment.

# Contents

## 1.1 Summary

For the purpose of this assessment potting refers to pots/creels (crustacea/gastropods), cuttle pots and fish traps.

Table 1 shows a summary of the outcomes of the Coquet to St Mary's MCZ Assessment

**Table 1** Assessment Summary

| Features | Activity/gear | Part A outcome | Part B outcome | In-combination assessment | Confidence |
|---|---|---|---|---|---|
| High energy infralittoral rock<br><br>Moderate energy circalittoral rock<br><br>Moderate energy infralittoral rock | Pots/creels (crustacea/gastropods) | Capable of affecting (other than insignificantly) | Not capable of affecting (other than insignificantly) | No significant risk | M |
| | Cuttle pots*<br><br>Fish traps* | Not capable of affecting (other than insignificantly) | N/A | | H |
| High energy intertidal rock<br><br>Intertidal under boulder communities<br><br>Low energy intertidal rock | Cuttle pots*<br><br>Fish traps* | Not capable of affecting (other than insignificantly) | N/A | No significant risk | H |
| Moderate energy intertidal rock | Pots/creels (crustacea/gastropods) | Capable of affecting (other than insignificantly) | Not capable of affecting (other than insignificantly) | | M |
| Intertidal mixed sediments<br><br>Intertidal mud<br><br>Intertidal sand and muddy sand | Cuttle pots*<br><br>Fish traps* | Not capable of affecting (other than insignificantly) | N/A | No significant risk | H |
| | Pots/creels (crustacea/gastropods) | Capable of affecting (other than insignificantly) | Not capable of affecting (other than insignificantly) | | M |
| Peat and clay exposures (at this time only known to be intertidal) | Cuttle pots*<br><br>Fish traps*<br><br>Pots/creels (crustacea/gastropods) | Not capable of affecting (other than insignificantly) | N/A | No significant risk | M |

| | | | | | |
|---|---|---|---|---|---|
| Intertidal coarse sediment | Cuttle pots*<br><br>Fish traps*<br><br>Pots/creels (crustacea/gastropods) | Not capable of affecting (other than insignificantly) | N/A | No significant risk | H |
| Subtidal coarse sediment<br><br>Subtidal mixed sediments<br><br>Subtidal sand | Cuttle pots*<br><br>Fish traps* | Not capable of affecting (other than insignificantly) | N/A | No significant risk | H |
| | Pots/creels (crustacea/gastropods) | Capable of affecting (other than insignificantly) | Not capable of affecting (other than insignificantly) | | M |
| Subtidal mud | Cuttle pots*<br><br>Fish traps* | Not capable of affecting (other than insignificantly) | N/A | No significant risk | H |
| | Pots/creels (crustacea/gastropods) | Capable of affecting (other than insignificantly) | Not capable of affecting (other than insignificantly) | | M |

*Gear/feature interaction does not occur within Coquet to St Mary's MCZ because the activity does not occur or the interaction is incapable of occurring (blue interaction).

## 1.2 Introduction

Table 2 shows the name and legal status of the site.

**Table 2** Site details

| Name and legal Status of site(s): | **Name of site(s)** | **Legal status** |
|---|---|---|
| | Coquet to St Mary's MCZ | MCZ |

Coquet to St Mary's Marine Conservation Zone (MCZ) is an inshore site that runs along the southern half of the Northumberland Coast, within the northern North Sea in the north-east of England. The site covers approximately 192 km² of intertidal and subtidal habitats, stretching from Alnmouth in the north to Whitley Bay to the south, and from mean high water out to approximately 7.5km at its seaward-most extent. Coquet to St Mary's MCZ contains a mosaic of sediment and hard substrate benthic habitats, which in turn support a wide range of diverse communities.

The intertidal habitats range from rocky shore platforms and outcrops to large sandy bays and beaches, each supporting unique communities. Rocky shores support large abundances of red algae, fucoids and kelp, whilst intertidal boulders provides shelter and habitat for a wide variety of crustaceans, molluscs, anemones and encrusting bryozoans. Elsewhere mud and sand flats contain burrowing bivalves and worm communities, whilst amphipods dominate the strandline of sandy beaches. Rare exposures of intertidal peat and clay are found along patches of the coastline, including fossilised tree roots from millions of years ago.

Shallow sloping infralittoral rock platforms also support thriving communities of macroalgae, which in turn support species including hydroids, sponges and anemones. The infralittoral rocky seabed gives way to circalittoral rock, where light penetration is too low to support diverse faunal communities, but instead a large diversity of benthic fauna flourish, including dead man's fingers, hornwrack and sponges. Circalittoral rocky habitats are interspersed between wide areas of subtidal mud, sand and mixed sediments, each of which support their own range of species, including burrowing bivalves, bristle worms, sea pens and urchins. Sandwaves and ripples are formed by underwater currents shaping sediments on the seafloor.

The northern edge of the MCZ abuts with the Berwickshire and North Northumberland Coast SAC, and much of the northern section of the site overlaps with the Northumberland Marine SPA. The site overlaps with the intertidal parts of Coquet Island SPA and St Mary's Island Local Nature Reserve, but does not include the terrestrial parts.

These sites are important for other species too, including marine mammals and seabirds. Grey seals make extensive use of St Mary's Island in the south of the MCZ as a haul out site, whilst the area is also important for white-beaked dolphins and minke whales. The site surrounds Coquet Island SPA, which supports internationally important numbers of terns, including the largest breeding colony of roseate terns in England. These species make extensive use of the MCZ for foraging and other activities.

The conservation objectives for all MCZs are that the features:

(a) so far as already in favourable condition, remain in such condition; and

(b) so far as not already in favourable condition, be brought into such condition, and remain

in such condition.

More specific information on how to achieve the conservation objective of an MCZ is provided in the general management approach within the factsheet for each site[1].

[1] MCZ factsheets are available online: http://publications.naturalengland.org.uk/category/1721481
[2] www.gov.uk/government/publications/fisheries-in-european-marine-sites-matrix
[3] https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery

This assessment uses an initial screen of fishing activities and designated features, based on the Matrix of fisheries gear types and European marine site protected features[2] (hereafter 'the Matrix') developed as part of Defra's revised approach to the management of commercial fishing in European marine sites (EMS)[3]. The Matrix classifies interactions between EMS features and different fishing activities as red, amber, green or blue.

All interactions classified as 'blue' are screened out of this assessment as there is no pathway for impact. Interactions classified as 'green' are considered low risk but are included in this assessment and when assessing impacts in-combination with other activities. Interactions classified as amber are subject to full assessment. A classification of 'red' indicates that an assessment is not required and the interaction should automatically be addressed through a management measure, however they are included in this assessment.

MCZs are associated with an overlapping but different set of designated features to those associated with EMS. Therefore, for the purposes of the initial screen in this assessment, the designated features have been matched with equivalent EMS features. Where there is no clear match, a precautionary (i.e. more sensitive) EMS feature has been used. This precautionary matching applies only to the initial screen, and not to the later, more detailed assessment.

Table 3 shows the features for which this MCZ has been designated and associated general management approach, while Figure 1 shows the locations of features within the MCZ.

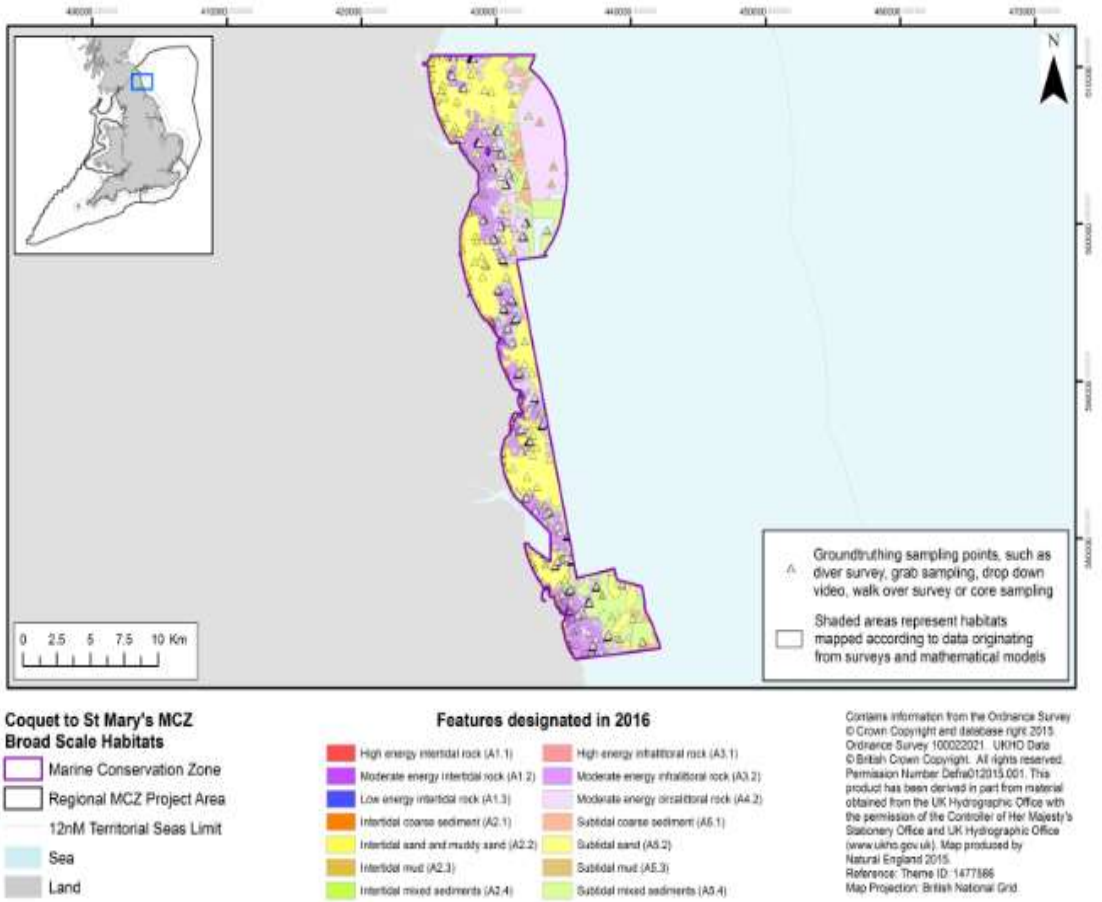



**Figure 1** Coquet to St Mary's MCZ Feature Locations

**Table 3:** Designated features and general management approach

| Feature | Fisheries Matrix Sub-feature | General Management Approach |
|---|---|---|

| | | |
|---|---|---|
| High energy infralittoral rock | Sub-tidal bedrock reef | Maintain in favourable condition |
| High energy intertidal rock | Intertidal bedrock reef | Maintain in favourable condition |
| Intertidal coarse sediment | Intertidal gravel and sand | Maintain in favourable condition |
| Intertidal mixed sediments | Intertidal mixed sediments | Maintain in favourable condition |
| Intertidal mud | Intertidal mud | Maintain in favourable condition |
| Intertidal sand and muddy sand | Intertidal mud and sand | Maintain in favourable condition |
| Intertidal under boulder communities | Intertidal boulder and cobble reef | Maintain in favourable condition |
| Low energy intertidal rock | Intertidal bedrock reef | Maintain in favourable condition |
| Moderate energy circalittoral rock | Sub-tidal bedrock reef | Maintain in favourable condition |
| Moderate energy infralittoral rock | Sub-tidal bedrock reef | Maintain in favourable condition |
| Moderate energy intertidal rock | Intertidal bedrock reef | Maintain in favourable condition |
| Peat and clay exposures | N/A | Maintain in favourable condition |
| Subtidal coarse sediment | Coarse Sediment | Maintain in favourable condition |
| Subtidal mixed sediments | Subtidal mixed sediments | Maintain in favourable condition |
| Subtidal mud | Subtidal mud | Maintain in favourable condition |
| Subtidal sand | Subtidal sand | Maintain in favourable condition |

### 1.2.1 High energy infralittoral rock

High energy infralittoral rock is located below the low tide water limit, but close enough to the surface for plants and algae to grow. This feature is exposed to the full force of strong tidal currents and waves. As a result, this habitat is often dominated by the hardier and current-loving kelp and red algae. This feature is formed by open bedrock shelves, shallow sloping flat reefs, rocky outcrops, gullies and ledges. Areas of boulders may also occur, but all finer sediments are stripped away by the tide and waves.

Kelp forests thrive in this high energy environment, dominating the infralittoral fringe. Kelp holdfasts provide stability and shelter for a range of species, protecting them against predators, as well as strong tide and waves. Hardy red algae, such as dulse and sea beech, also thrive in this feature, either attaching to the rock or attaching epiphytically to the kelp canopy or stipes. Kelp holdfasts form microhabitats by providing refuge from the high energy environment for a diverse community of fauna, such as chitons, hydroids,

sponges and topshells. Common lobster and anemones may shelter within cracks and crevices within the bedrock, whilst the bread crumb sponge and keel worms cover stable rocky areas.

High energy infralittoral rock is found just offshore from Seaton Sluice, running down the coast to surround St Mary's Island (Natural England, 2013). This feature is observed close to the intertidal zone, where the wave action is greatest, and is surrounded by moderate energy infralittoral rock on the seaward side.

The extent of this habitat is estimated to be 21.9 ha

### 1.2.2 High energy intertidal rock

High energy intertidal rock is subject to the full force of the tide and waves. Very high exposure to the hydrodynamic forces removes all of the fine sediments, such as sand and mud, from the environment, leaving bare rock and large cobbles behind. This feature can form a wide range of different structures, including sloping bedrock, large gullies and crevices, outcrops, ledges, boulders and temporary rock pools at low tide.

The force of the tide and waves results in resilient communities of hardy plants and animals, such as limpets and acorn barnacles. Cracks and crevices in the rock support dahlia anemones, dog whelks and hermit crabs. Mid-shore rock pools, exposed at low tide, may support coralline red algae crusts, sponges, and some areas of ephemeral green macroalgae (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Wracks and red algae, such as false Irish moss, are found on the lower intertidal rock, whilst kelp dominates the infralittoral fringe. The canopy, stipes and holdfasts of oarweed and dabberlocks provides important refuge from the strong tide and waves for a wide range of species, including chitons, hydroids and anemones (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

High energy intertidal rock can be found at Amble, the eastern side of Coquet Island, between Cresswell and Lynemouth and around Newbiggin. This feature is also observed at the coastline between Seaton Sluice and St Mary's Island (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014), (Natural England, 2013).

The extent of this habitat is estimated to be 52.5 ha.

### 1.2.3 Intertidal coarse sediment

Coarse intertidal shores are comprised of shingle and gravel, sometimes interspersed with sand and empty shells. Coarse sediment beaches are found on exposed and open shores, where the force of the tide and waves wash away fine sands, silts and muds, leaving the larger material behind. This exposed and highly-mobile environment is often unstable and supports relatively low species diversity, especially during the winter months. However, hardy and resilient communities are able to thrive in this highly mobile and disturbed environment. During summer, the more stable cobbles and shells may be colonised by opportunistic macroalgae and barnacles, whilst amphipods dominate the strandline and seek shelter in decaying seaweed and debris. Harbour crabs and brittlestars may also be found within this feature.

Areas of coarse sediment can be found on beaches at Cambois, Blyth and Amble, as well as between Lynemouth and Cresswell (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). A small section of gravel is also observed at Whitley Sands (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

The extent of this habitat is estimated to be 30.9 ha.

### 1.2.4 Intertidal mixed sediments

Intertidal mixed sediment consist of a range of unsorted gravels, rocks, sands and mud. This feature is found in variable energy environments with changeable exposure to the tide and waves, resulting in the poor sorting of sediments. This allows fine sands and silts to accumulate around larger pebbles and cobbles, creating a diverse mosaic of substrates. As a result, areas of intertidal mixed sediment can support a diverse range of communities, which include polychaete worms, crabs and brittlestars, whilst

talitrid amphipods dominate the upper shore and strandline. Opportunistic green macroalgae may attach to the larger and more stable pebbles and cobbles.

Isolated patches of intertidal mixed sediment are observed between St Mary's Island and Seaton Sluice.

The extent of this habitat is estimated to be 4.7 ha.

### 1.2.5 Intertidal mud

Intertidal mud is formed in very sheltered coastal inlets along the sea shore, where the weak influence of the tide and waves is insufficient to strip away fine sediments, allowing fine sand, silts and clay to accumulate. Intertidal mud is a highly hospitable and nutrient rich environment, which supports a diverse community dominated by bivalves, such as the Baltic tellin, and polychaete worms, such as the lugworm, and other burrowing infauna. This in turn provides important feeding grounds for larger species, such as wading birds, some of which feed exclusively upon burrowing invertebrates within this feature during winter. Opportunistic green macroalgae may form mats on the mud during summer.

Intertidal mudflats are located on the flanks of Seaton Burn (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

The extent of this habitat is estimated to be 2.0 ha.

### 1.2.6 Intertidal sand and muddy sand

Intertidal sand and muddy sand represents the vast majority of the intertidal sediment within the site, forming wide beaches along the Northumberland coastline. Pure sandy shores are often highly mobile and species poor, often dominated by polychaete and oligochaete worms, ephemeral green macroalgae and amphipod communities which are resilient to the clean, abrasive and mobile environment. Sandhoppers (talitrid amphipods) reside within the strandline on the upper shore, seeking refuge amongst the decomposing seaweed and debris (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Clean intertidal sand can be found at Whitley Sands, Blyth North and South Beaches, and Newbiggin Beach.

Where sandy shores occur in more sheltered locations, muds and silts can accumulate, forming muddy-sand. This allows the features to support a much wider and diverse community, including burrowing infauna such as lugworm, horseshoe worms, and the Baltic tellin. Striped venus clams and polychaete worms burrow within the sediment. Fucoid wracks and red algae grow on the lower shore of muddy-sand beaches, such as at Cresswell (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014), which also support burrowing bristleworms. Epifauna such as shore crabs and hermit crabs are also found within this feature.

Muddy sandy shores are located at the top of Whitley Sands, Newbiggin Beach, Druridge Bay, Hauxley Beach and Alnmouth Bay (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

The extent of this habitat is estimated to be 500.9 ha.

### 1.2.7 Intertidal under boulder communities

Intertidal boulders host diverse under-boulder communities as a result of the shelter they provide from the tide and waves. Micro-habitats are created underneath boulders and large rocks, and within crevices and cracks in the rock. These rocks can provide a mosaic of habitats and a refuge for life, with the boulders providing a hard substratum for organisms to attach to, whilst also sheltering biological communities from the sun and waves.

The underneath of boulders support diverse and vibrant communities. The boulders themselves are encrusted by mussel sprat, limpets, acorn barnacles, sponges, coralline red algae and bryozoans. Other regularly occurring species include winkles, dog whelk, brittlestars and anemones (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Crabs, lobsters and small fish may also reside in cracks within or underneath the boulders, seeking refuge at low tide. Filamentous red

algae and fucoids also attach to the more stable boulders, including dulse, sea beech, red rags and toothed wrack. In an intertidal verification survey for the site, 59 out of the 86 species found were recorded within underboulder communities, thereby demonstrating the biological diversity and importance of this habitat (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

Intertidal underboulder communities are found distributed throughout the site, including at St Mary's Island, Blyth beaches, Newbiggin, Lynemouth and Cresswell (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

The extent of this habitat is estimated to be 0.25 ha.

### 1.2.8 Low energy intertidal rock

Low energy intertidal rock is found on rocky shores sheltered from the full force of the tide and waves. Often in the form of shallow sloping bedrock, with the addition of rocky boulders, cobbles and gullies. When the tide goes out rockpools may form, providing temporary and highly competitive microhabitats. Due to the low energy of the tide and waves, plants and algae are able to anchor on to the rock and grow in this environment. A thin veneer of sand and mud may also accumulate where the tide and waves are weak.

Low energy intertidal rock supports a wide range of plants and algae through zonation of the intertidal area, which in turn provides a wide variety of habitats for animal communities. Spiral wrack, channelled wrack and green algae dominate the upper intertidal, whilst bladder wrack and knotted wrack dominate the mid-shore. Mussels, limpets and acorn-barnacles colonise the bare rock, whilst dog whelk and winkles reside in the cracks and crevices within the rock.

Rock pools within the mid to upper intertidal support coralline red algae crusts, with some areas of ephemeral green algae (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Rockpools also provide habitat for the beadlet anemone, hermit crab, and common starfish. Toothed wrack can be found at the lower shore and infralittoral fringe, and may host the epiphytic sea mat bryozoan (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

Low energy intertidal rock is found interspersed with other rocky habitats across the site, often on the landward side of other rock formations, which help to shelter this feature from the waves and tide. Examples of low energy intertidal rock are found at Newbiggin Beach, Cresswell and around Coquet Island.

The extent of this habitat is estimated to be 57.6 ha.

### 1.2.9 Moderate energy circalittoral rock

Moderate energy circalittoral rock is located in deep waters, below the level where light can penetrate enough for extensive plant growth. However, where the majority of plant life is unable to survive, faunal turfs and diverse animal communities can be found. This feature consists of open bedrock, shallow sloping reefs, rocky outcrops, gullies and ledges.

Circalittoral boulders, cobbles and bedrock support a wide range of species, which may differ depending on the seabed topography, depth and tidal strength. Regularly occurring species include sponges, dead man's fingers, keel worms, hydroid and hornwrack (Amec, 2011). Faunal turfs of bryozoans, sponges and hydroids coat the bedrock and are grazed by edible urchins. Other common species include edible crabs, lobsters, brittlestars and common starfish.

Moderate energy circalittoral rock is common within the site's deep water habitats, located at the eastern side of the MCZ, offshore from Blyth, Newbiggin, Lynemouth and Cresswell. Additional areas are located offshore from Druridge Bay, Amble and east of Coquet Island. This feature is often overlaid by patches of subtidal mud, which can form a thin veneer over the bedrock (EMODnet, 2016) (Environment Agency (EA) and Cefas, 2014).

The extent of this habitat is estimated to be 6118.0 ha.

### 1.2.10 Moderate energy infralittoral rock

Moderate energy infralittoral rock lies just below the low tide mark, and is constantly submerged by seawater but close enough to the surface to allow plants and algae to flourish. This feature is formed by open bedrock shelves, shallow sloping flat reefs, rocky outcrops, gullies and ledges. Areas of boulders and cobbles may also occur.

Kelp forests of cuvie, dabberlocks and oarweed dominate the intertidal-infralittoral fringe, which in turn support red seaweeds, such as dulse and red rags. Within and below the kelp canopy, red algae grow epiphytically on the kelp stipes and holdfasts, as well as on the rock face. These include sea belt, pink crustose algae and sea beech (Amec, 2011). The kelp canopy and holdfasts provide stability and shelter for a diverse community of fauna, including the dahlia anemone, winkles, top shells, chitons, hydrozoans and bryozoans, protecting them against the tide and waves. Rock gunnels and common lobster may also shelter within the cracks and crevices of the rock face, whilst urchins graze the faunal and algae turfs which grow on the rocks.

This feature is highly abundant within the MCZ, and is observed offshore from Whitley Bay and St Mary's Island, up to Seaton Sluice (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Moderate energy infralittoral rock is also found off the coast from Blyth North Beach, Newbiggin, Lynemouth and Cresswell. This feature is also present off the coast of Low Hauxley, Amble and Coquet Island (Natural England, 2013) (EMODnet, 2016) (Environment Agency (EA) and Cefas, 2014).

The extent of this habitat is estimated to be 1166.9 ha.

### 1.2.11 Moderate energy intertidal rock

This feature is moderately exposed to the force of the tide and waves, which is at a sufficient strength to strip the environment of much of the finer sediments, such as sands and silts, which may overlay the bedrock. Moderate energy intertidal rock can form a wide range of different structures which provide a range of habitats. These include sloping bedrock, large gullies and crevices, ledges, boulders and temporary rock pools at low tide.

Moderate energy intertidal rock supports a wide range of biological communities within the site. Exposed rock on the mid to upper shore support acorn barnacles, limpets, tar lichen and filter feeders, whilst the cracks and crevices in the rock face provide refuge for the beadlet anemone, dog whelks, winkles, hermit crabs, edible crabs and rock gunnels. Mid-shore rock pools, exposed at low tide, may support coralline crusts of red algae with some areas of ephemeral green algae (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014).

Bladderwrack, toothed wrack and red seaweeds, such as pepper dulse, attach to the bedrock at the lower shore, hosting a range of species including topshells and epiphytic bryozoans. Kelps dominate the infralittoral fringe, including cuvie, oarweed and dabberlocks. The stability and shelter of kelp canopies, stipes and holdfasts create microhabitats for a range of species, including crustose sponges, hydroids, anemones and the epiphytic dulse.

Moderate energy intertidal rock is found throughout the rocky shores of this site, including around Hauxley, Coquet Island, and the headlands of Druridge Bay and Blyth.

The extent of this habitat is estimated to be 62.5 ha.

### 1.2.12 Peat and clay exposures

Peat and clay exposures are rare features which occur when strata of peat and clay breach the surface sediment layers, either in the intertidal or subtidal environment. Exposures can constitute of either peat or clay, or both strata can occur together. The influence of the waves and tide can cause areas of erosion and the mobilisation of fine sediments across the site. As a result, peat and clay exposures can be ephemeral, as the local hydrodynamic regime can cover and uncover this feature in a thin veneer of sediment.

Within the site this feature takes the form of exposed intertidal banks of peat or clay. Pebbles and stones on the surface of this feature may provide a hard and stable attachment point for opportunistic green macroalgae in summer. Along the Amble coastline, fossilised peat tree roots can be observed, having been formed millions of years ago. Peat and clay exposures are vulnerable to damage from anthropogenic activities and has no recoverability due to this feature having been formed millions of years ago (Joint Nature Conservation Committee (JNCC), 2008).

Peat and clay exposures are observed within the intertidal zone near Amble and to the north of Seaton Sluice (Marine Ecological Surveys Limited (MES) and The Marine Biological Association (MBA), 2014). Peat and clay exposures within the MCZ are found close to the shore where the tide and waves strip sediments away from this feature, which is characterised by soft rock and fossilised tree roots. Some ephemeral green and red algae may be found within this feature, including Ulva spp. and false Irish moss, Mastocarpus stellatus. Exposures may also be present ephemerally within the subtidal zone, but no records are currently available (Fitzsimmons et al., 2015). Much less is known about peat and clay exposures when located in deeper waters.

The extent of this habitat is estimated to be 2.7 ha.

### 1.2.13 Subtidal coarse sediment

Subtidal coarse sediment is a high energy environment consisting of gravel, shingle, shell fragments and coarse sand. This substrate is scoured by strong tidal currents and waves, which strip away fine sediments, such as silts and clay. The regular and extensive movement of coarse sediment causes significant disturbance and abrasion, resulting in a relatively low diversity but specialised community.

The more stable areas of subtidal coarse sediment support dead man's fingers, tube building worms, hornwrack and hydroids. Hermit crabs, common starfish and brittlestars can be found in abundance on the sea floor, whilst keel worms form tubes on stable rocks, cobbles and shells. Burrowing infauna includes bivalves and the sea potato. Flatfish, such as plaice and dab, hunt over this feature and can submerge themselves within the sediment.

Areas of subtidal coarse sediment are located in the north-eastern section of the site, offshore from the Amble coast, and offshore from Whitley Bay, in the south-eastern corner of the MCZ (Foster-Smith, 1998) (Seasearch, 2013). The confidence in the extent of this feature is low, in the initial site assessment document (SAD) the extent of this feature was reported as 1.00 $km^2$ with low confidence. A post-survey site report using the findings of a dedicated seabed survey conclude that this feature was identified as present but not included in the updated broad-scale habitat (BSH) map as there was insufficient data to reliably map it (Fitzsimmons et al., 2015).

The extent of this habitat is estimated to be 8.7 ha.

### 1.2.14 Subtidal mixed sediments

Subtidal mixed sediments are comprised of a mosaic of substratum, ranging from small rocks, cobbles and shingle, to sand, shell fragments, silts and mud. This feature can have a high diversity in substrate types depending upon the environmental conditions. Fine sands and silts will accumulate in lower energy environments, whilst stronger tides and waves can strip these fine sediments away leaving a coarser substrate composition.

The diversity of habitat types within this feature support a wide variety of plant and animal communities, including both infaunal and epifaunal. Bivalves, such as the white furrow shell, and polychaetes burrow into the mixed sediment, whilst dead man's fingers, keel worms and the bryozoan hornwrack attach to the more stable rocks and cobbles. Brittlestars, starfish, hermit crabs and harbour crabs are common mobile epifauna upon tide-swept mixed sediments.

This feature is found in the deeper offshore water in the north of the site, offshore from the Amble coast. Mixed sediment is also located offshore from St Mary's Island and Whitley Bay (EMODnet, 2016) (Environment Agency (EA) and Cefas, 2014). The confidence in the extent of this feature is low, in the initial site assessment document (SAD) the extent of this feature was reported as 2.58 $km^2$ with low confidence. A

post-survey site report using the findings of a dedicated seabed survey conclude that this feature was identified as present but was not included in the updated broad-scale habitat (BSH) map as there was insufficient data to reliably map this (Fitzsimmons et al., 2015).

The extent of this habitat is estimated to be 37.0 ha.

### 1.2.15 Subtidal mud

Subtidal mud is comprised of very fine sediments which accumulate in sheltered and low energy environments. As a result, subtidal mud is often found in deeper waters where the tidal currents are weaker and are insufficient to mobilise and remove fine mud and silt sediments.

Subtidal mud can be a highly productive environment, supporting a diverse community of burrowing bivalves, including the white furrow shell, the Baltic tellin and the striped venus clam. The sea potato, lugworms, polychaete worms and the economically important Norway lobster also burrow within the muddy sediment. The slender sea-pen is also found within this habitat. The surface of subtidal mud is also used by the flatfish plaice and dab for camouflage and hunting. However, the particular community which subtidal mud supports depends on the softness and cohesiveness of the local sediment.

A large area of subtidal mud is located in the northern offshore area of the MCZ, ranging offshore from the Amble coast down to Druridge Bay. Another area of subtidal mud can be found at the southern end of the MCZ near St Mary's Island. Subtidal mud occupies 29% of the MCZ, the confidence in its extent is medium-high (Fitzsimmons et al., 2015).

The extent of this habitat is estimated to be 4643.1 ha.

### 1.2.16 Subtidal sand

Subtidal sand is one of the most dominant features across the site, extending out to sea from Northumberland's wide sandy bays. Subtidal sand is highly mobile and is shaped by the waves, currents and tides, forming underwater sandwaves and ripples.

Subtidal sand supports a wide diversity of species, especially further offshore where the stability of the seabed is greater (Amec, 2011). A rich infaunal community includes burrowing polychaete and oligochaete worms, such as bristle worms and catworms. Nematodes and bivalves are common, such as the razor clam, Baltic tellin and the striped venus clam. Hermit crabs, edible crabs, brittlestars and common starfish live on the surface of the sand, whilst flatfish, such as plaice and dab reside and hunt over subtidal sand.

Large areas of subtidal sand can be found extending offshore from the site's sandy beaches. Areas of subtidal sand are found offshore from Alnmouth Bay, Druridge Bay, Cambois, Blyth South Beach and Lynemouth (Environment Agency (EA) and Cefas, 2014) (Fitzsimmons et al., 2015) (EMODnet, 2016).

The extent of this habitat is estimated to be 6422.9 ha.

## 1.3 Scope of this assessment - fishing activities assessed

The geographic scope of the assessment covers the whole site, and therefore includes all 16 designated features. As the whole site falls within the Northumberland Inshore Fisheries and Conservation District (Figure 2), the assessment and management of fishing activity will be carried out by Northumberland Inshore Fisheries and Conservation Authority (NIFCA).

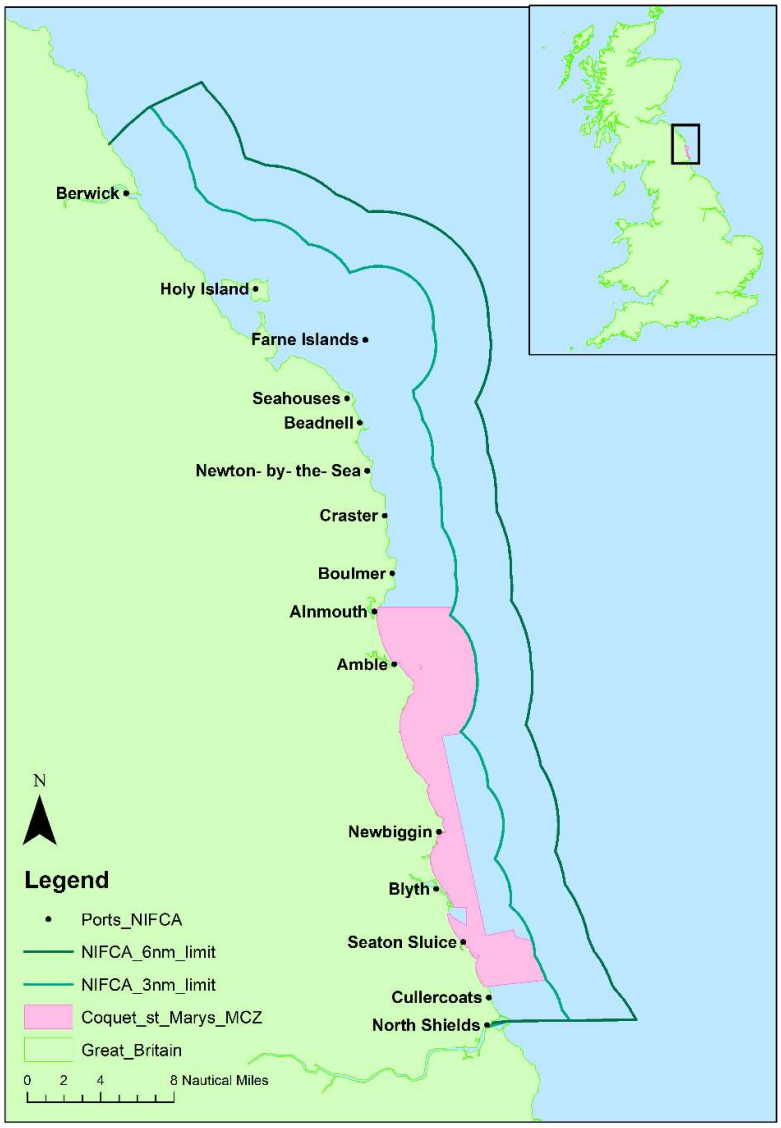



**Figure 2**. Location of Coquet to St Mary's MCZ in relation to the NIFCA District.

All fishing activity/feature interactions at this site identified as 'red', 'amber' and 'green' in the Matrix of fisheries gear types and European marine site protected features[2] (hereafter 'the Matrix') were considered for inclusion in this assessment. Fishing activity-feature interactions are also assessed if there are in-combination effects with other activities. All non-occurring interactions ('blue' interactions have been screened out at a previous stage.

Table 4 shows the fishing activities with amber interactions assessed at this site. The 'Matrix gear type' column shows the categories used in the Matrix. These are matched to the 'aggregated method' categories used in Natural England conservation advice packages.

**Table 4:** Fishing activities with amber interactions to be included for assessment if they take place:

| Features | Matrix Gear Type | Natural England Aggregated Method |
|---|---|---|
| High energy infralittoral rock | Pots/creels (crustacean/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| High energy intertidal rock | Pots/creels (crustacea/gastropods)<br>Cuttle pots | Traps |

[2] www.gov.uk/government/publications/fisheries-in-european-marine-sites-matrix

| | | |
|---|---|---|
| | Fish traps | |
| Intertidal coarse sediment | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Intertidal mixed sediments | Pots/creels (crustacea/gastropods)<br>Cuttle pots | Traps |
| Intertidal mud | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Intertidal sand and muddy sand | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Intertidal under boulder communities | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Low energy intertidal rock | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Moderate energy circalittoral rock | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Moderate energy infralittoral rock | Pots/creels (crustacean/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Moderate energy intertidal rock | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Peat and clay exposures | Unknown | N/A |
| Subtidal mixed sediments | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |
| Subtidal mud | Pots/creels (crustacea/gastropods)<br>Cuttle pots<br>Fish traps | Traps |

Commercial and recreational sea fishing have the potential to vary in nature and intensity over time. This assessment considers a particular range of recent and likely future activity based on activity levels and type as identified in section 1.4.3 Fishing gear types used.

To ensure the achievement of the conservation objectives of the site is not hindered should future activity occur outside of this range, activity will be monitored at this site, and this assessment will be reviewed should certain limits be triggered, please see section 7. Review of this assessment.

## 1.4 Activity description: All occurring activities

### 1.4.1 Fisheries Access/existing management

UK vessels operate throughout this site. However, as the MCZ is an inshore MCZ (within 0-3nm), no non-UK vessels operate within the boundary of the site.

There are various Northumberland IFCA byelaws[3] that pertain to Coquet to St Mary's MCZ. The byelaws below are therefore relevant to this assessment:

TRAWLING

- Restricted assess: a permit is required to fish using a trawl within the NIFCA district.

[3] https://www.nifca.gov.uk/byelaws/

- Vessel size restrictions: no vessels over 12m in length can fish in the inner area (0-3nm from shore), no vessel over 18.3m can fish in the outer area (3-6nm).
- Gear restriction: only a single trawl fitted with a single cod end and one pair of otter boards is permitted.
- This byelaw prohibits the use of bottom towed fishing gear within the Coquet to St Mary's MCZ except using specified gear in accordance with an exemption from the Authority.

DREDGING

- A person must not use a dredge for the exploitation of sea fisheries resources. within the Northumberland IFCA district and therefore the whole MCZ.
- A relevant fishing vessel transiting through the District must have all dredges onboard, lashed and stowed.

CRUSTACEA CONSERVATION

- Prohibits landing of v-notched or mutilated lobster, and soft or berried (egg bearing) edible crab and lobster, and detached parts of velvet crab, edible crab and lobster.

MINIMUM SIZES BYELAW

- This byelaw prohibits the removal from the fishery, retention on board, transhipping, landing, transporting, storing, selling, displaying or offering for sale specified marine organisms below specified sizes.

CRUSTACEA AND MOLLUSC PERMITTING AND POT LIMITATION

- Restricted assess: a permit is required to fish within the Northumberland IFCA district and therefore the whole MCZ.
- Pot limitation restricts the number of pots fished per permitted vessel to 800.
- Restricts the number of specified species that can be retained per day dependent on permit type.

MARKING OF FISHING GEAR AND KEEP BOXES

- All static fishing gear should be marked with a marker buoy or dahn that is clearly visible on the surface of the water and marked with the identification of the boat or contact details of the owner.

FIXED ENGINES

- Spatial and seasonal closures for static nets.

### 1.4.2 Evidence Sources

To determine the levels of fishing activity, the following evidence sources and analyses were used:

- VMS data
- iVMS data
- NIFCA patrol sightings, recording GPS location of vessel and potting activity.
- NIFCA shore patrol sightings of intertidal activities within two hours of low tide.
- Expert opinion from inshore fisheries and conservation officers (IFCOs).
- Information from the fishing industry and stakeholders.

Table 5 summarises the description, strengths and limitations of some of the evidence sources used.

**Table 5:** Summary of generic confidence associated with fishing activity evidence (evidence used in this assessment highlighted in yellow)

| Evidence source | Confidence | Description, strengths and limitation |
|---|---|---|

| | | |
|---|---|---|
| VMS data | Low | VMS data were requested from the MMO. Vessels over 12m must be fitted with VMS. VMS sends routine 'pings' to the control centre every 2 hours to track a vessel's course and speed. NIFCA has worked with the MMO to get information for every vessel operating in the district. The data has been filtered for speed (only boats travelling under 4 knots analysed). From this, officers have inferred that no mobile gear fishing activity can be detected in or around the MCZ. However, this can only be **inferred** from these data (see limitations below). The VMS data from the MMO is not fit for purpose in this case. Inferences can be made from the data available, however the infrequency of the tracking 'pings' (every 2 hours per vessel) and the lack of detail about the vessel's activity makes it unsuitable for detecting fishing activity with confidence. Further, information is only available for vessel over 12m, any activity within the MCZ will be carried out by vessels under 12 m (NIFCA Byelaw 1). Data analysed was from 2017 and 2018. |
| I-VMS | Low - Moderate | I-VMS devices monitor inshore fishing activity by under-12 metre vessels and are more accurate than VMS devices. However, I-VMS data are not available for all <12m vessels who have indicated that they fish within Coquet to St Mary's MCZ. I-VMS tracks vessel activity, location and speed every three minutes. Inferences can be made to differentiate fishing activity as either being paused or steaming to identify speeds and distances at which vessels are likely to be fishing. In this instance trawling was determined to take place if I-VMS points were between 140-310m from each other, and vessel speeds were between 1.5-4.3 knots (nautical miles per hour).<br><br>NIFCA have moderate confidence in the data for vessels fitted with I-VMS that report trawling in the MCZ via their permit returns. However, gaps lie where vessels do not have I-VMS working, and have not stated they are trawling in the MCZ.<br><br>One full year of data was analysed from March 2022 to February 2023 to identify vessels potentially fishing within the MCZ. |
| NIFCA patrol sightings<br>- At sea<br>- On shore | Moderate | At sea<br>NIFCA officers conduct routine at sea patrols throughout the district. Officers record all vessels sighted and their activity (fishing or steaming). Due to the nature of how this is recorded sightings data is estimated to be accurate to within 100m. NIFCA sightings data has a low sampling effort as it is limited by the number of patrols and the proximity of the patrol vessel to fishing activity<br><br>On shore<br>NIFCA officers conduct routine shore patrols throughout the district. Officers record all sightings of individuals fishing in intertidal areas when two hours either side of low tide. Activities include periwinkle gathering, lobster potting, bait digging and other forms of collection. The location and timing of these is accurate and is now submitted via an app contemporaneously, increasing accuracy from the beginning of 2021. To calculate the proportion of patrols where activities are sighted, sightings of 'No Activity' are also recorded which are likely less accurate or well-represented, though data is checked against patrol locations to account for this. This data is impacted by variables such as patrols targeting commercial fishing locations leading to some areas being underrepresented. |
| Expert judgement (IFCOs) | Moderate | The NIFCA district is a relatively small area (~1400km$^2$) and a number of NIFCA officers have been in post for many years. Coquet to St Mary's MCZ is in the south of the district located in close proximity to the NIFCA patrol vessels and the NIFCA office. This results in a higher patrol effort in the south than the north if the district. Broad scale knowledge of fishing activity for this area is therefore very good. |
| Information from fishing industry and stakeholders | Low - Moderate | NIFCA maintain a good working relationship with the local fishing industry and through which information on fishing activity, extent and intensity can be shared. |

| | | |
|---|---|---|
| | | NIFCA also have the capacity to run consultations in order to get the views of stakeholders on different topics. For example, in 2020 NIFCA sent out a Hand Gathering Call for Information, an open-ended consultation to summarise the thoughts and opinions of stakeholders in relation to bait collection and hand gathering activities throughout the district.<br><br>From this, NIFCA are able to identify that activity occurs and, with a reasonable degree of confidence, where it occurs but cannot quantify effort due to a lack of available data such as VMS, log books etc. |

### 1.4.3 Fishing gear types used

#### 1.4.3.3 Traps (pots/creels)

Pots, also known as creels and traps are classed as a type of passive static fishing gear, which sit on the seabed to lure and trap benthic species, such as crabs, lobsters and nephrops. For commercial purposes they are set in fleets where each pot is connected by a ground rope to form a line (a groundline) consisting of 10 – 40 pots. At either end of the fleet a weight is attached to help fix the position of the pots to the seabed, however slack in the groundline (the space between the pots) allows for movement by waves and tidal current across the seabed (Stephenson 2016). A float line generally twice the length of the depth, leads to the surface and has a buoy or dahn attached providing a visible marker at the surface.

There are different designs of pots, dependant of the target species. Lobster pots (fig.1) are D-shaped and have generally not changed in their design for hundreds of years. More modern pots have replaced the wooden frame with a plastic-coated steel and have an additional chamber, known as a parlour, to increase the difficulty of lobsters and crabs escaping. The opening, known as the ‘eye’ which can be either ‘hard’, held open by a rigid plastic ring or ‘soft’, just a cut in the netting. The pots targeting nephrops (prawns) are very similar in design to lobster pots but tend to be lighter and have a smaller mesh size to target prawns.

# Chapter 2 Part A Assessment

## 2.1 Introduction

Part A of this assessment was carried out in a manner that is consistent with the 'capable of affecting (other than insignificantly)' test required by section 126(1)(b) of the Marine and Coastal Access Act 2009[4].

For each fishing activity, a series of questions were asked:

1. Does the activity take place, or is it likely to take place in the future?
2. What are the potential pressures exerted by the activity on the feature?
3. Are the pressures capable of affecting (other than insignificantly) the protected features of the MCZ?

For each activity assessed in Part A, there were two possible outcomes for each identified pressure-feature interaction:

1. The pressure-feature interactions were not included for assessment in Part B if:
    a. the feature is not exposed to the pressure, and is not likely to be in the future; or
    b. the pressures are not capable of affecting (other than insignificantly) the protected features of the MCZ.

2. The pressure-feature interactions were included for assessment in Part B if:
    a. the feature is exposed to the pressure, or is likely to be in the future; and
    b. the pressure is capable of affecting (other than insignificantly) the feature; or
    c. it is not possible to determine whether the pressure is capable of affecting (other than insignificantly) the feature.

Consideration of exposure to or effect of a pressure on a protected feature of the MCZ includes consideration of exposure to or effect of that pressure on any ecological or geomorphological process on which the conservation of the protected feature is wholly or in part dependent.

Table 6 shows the Natural England conservation advice package used to inform this assessment.

**Table 6:** Advice packages used for assessment

| Feature | Package | Link |
|---|---|---|
| High energy infralittoral rock<br>High energy intertidal rock<br>Intertidal coarse sediment<br>Intertidal mixed sediments<br>Intertidal mud<br>Intertidal sand and muddy sand<br>Intertidal under boulder communities<br>Low energy intertidal rock<br>Moderate energy circalittoral rock<br>Moderate energy infralittoral rock<br>Moderate energy intertidal rock<br>Peat and clay exposures<br>Subtidal coarse sediment<br>Subtidal mixed sediments<br>Subtidal mud<br>Subtidal sand | Natural England Conservation Advice for Marine Protected Areas Coquet to St Mary's MCZ | https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UKMCZ0030&SiteName=coquet&countyCode=&responsiblePerson=&SeaArea=&IFCAArea= |

[4] www.legislation.gov.uk/ukpga/2009/23/contents

## 2.2 Activities not taking place

Table 7 shows activities which are excluded from further assessment as they do not take place and are not likely to take place in the future.

**Table 7:** Activities not taking place and not likely to take place in the future

| Feature | Gear type | Justification |
|---|---|---|
| High energy infralittoral rock<br>High energy intertidal rock<br>Intertidal coarse sediment<br>Intertidal mixed sediments<br>Intertidal mud<br>Intertidal sand and muddy sand<br>Intertidal under boulder communities<br>Low energy intertidal rock<br>Moderate energy circalittoral rock<br>Moderate energy infralittoral rock<br>Moderate energy intertidal rock<br>Peat and clay exposures<br>Subtidal coarse sediment<br>Subtidal mixed sediments<br>Subtidal mud<br>Subtidal sand | Towed demersal:<br>- Beam trawl (whitefish, shrimp, pulse/wing)<br>- Multi-rig trawls*<br>- Pair trawl*<br>- Anchor seine*<br>- Scottish seine/fly*<br>Towed pelagic<br>- Mid water trawl (single/pair)*<br>- Industrial trawls*<br>Dredges:<br>- Mussels/clams/oysters<br>- Pump scoop (cockles/clams)<br>- Suction (cockles)<br>- Tractor<br>Intertidal handwork<br>- Access from vessel<br>Static gear – pots/traps<br>- Cuttle pots<br>- Fish traps<br>Nets<br>- Drift nets (pelagic/demersal)<br>Lines<br>- Longlines (pelagic/demersal)<br>- Handlines<br>- Jigging/trolling<br>Seine nets<br>- Purse seine*<br>- Beach seines/ring nets*<br>- Shrimp push nets<br>- Fyke and stakenets<br>Miscellaneous<br>- Commercial diving<br>- Bait dragging<br>- Crab tiling | No interaction between activity and features within the Coquet to St Mary's MCZ because:<br>- Activity does not occur<br>- Gear does not interact with feature |
| High energy infralittoral rock<br>High energy intertidal rock<br>Intertidal coarse sediment<br>Intertidal mixed sediments<br>Intertidal mud<br>Intertidal sand and muddy sand<br>Intertidal under boulder communities<br>Low energy intertidal rock<br>Moderate energy infralittoral rock<br>Moderate energy intertidal rock | Towed demersal:<br>- Heavy otter trawl<br>- Light otter trawl<br>Dredges:<br>- Scallops | No interaction between activity and features within the Coquet to St Mary's MCZ because:<br>- Gear does not interact with feature. |
| Intertidal coarse sediment<br>Intertidal mixed sediments<br>Intertidal mud | Intertidal handwork<br>- Access from land | No interaction between activity and features within the Coquet to St Mary's MCZ because: |

| | | |
|---|---|---|
| Intertidal sand and muddy sand<br>Moderate energy circalittoral rock<br>Subtidal coarse sediment<br>Subtidal mixed sediments<br>Subtidal mud<br>Subtidal sand | | - Gear does not interact with feature. |
| Intertidal coarse sediment<br>Intertidal mixed sediments<br>Intertidal mud<br>Intertidal sand and muddy sand | Static gear – Pots / Traps<br>- Pots/creels (crustacea/gastropods) | No interaction between activity and features within the Coquet to St Mary's MCZ because:<br>- Gear does not interact with feature. |
| High energy infralittoral rock<br>High energy intertidal rock<br>Intertidal under boulder communities<br>Low energy intertidal rock<br>Moderate energy circalittoral rock<br>Moderate energy infralittoral rock<br>Moderate energy intertidal rock<br>Peat and clay exposures<br>Subtidal coarse sediment<br>Subtidal mixed sediments<br>Subtidal mud<br>Subtidal sand | Digging with forks | No interaction between activity and features within the Coquet to St Mary's MCZ because:<br>- Gear does not interact with feature. |
| Peat and clay exposures (Intertidal). | Pots/creels (crustacea/gastropods) | No interaction between features and activity within Coquet to St Mary's MCZ (NIFCA sightings data) for intertidal peat and clay. Subtidal peat and clay has not been considered in this assessment due to insufficient evidence. |

* Regulated activity and is prohibited within the NIFCA district under NIFCA Byelaw 1: Trawling.

** Regulated activity and is prohibited within the NIFCA district under NIFCA Byelaw 2: Dredging.

## 2.3 Potential pressures exerted by the activities on the feature

For the remaining activities, potential pressures were identified using the Natural England conservation advice identified in table 6 and associated advice on operations tables. All pressures identified other than those categorised as 'not sensitive' or 'not relevant' were included.

Tables 8a-j show the potential pressures identified for each feature and if each pressure is capable of affecting (other than insignificantly) the site's feature(s). The sensitivity assessments and risk profiling of pressures from the advice on operations section of the Natural England conservation advice package were used to do this.

Where a pressure from a particular gear is identified as not being capable of affecting (other than insignificantly) (N), justification is provided. Features with similar sensitivities have been considered together. Where a pressure from a particular gear is identified as being capable of affecting a feature (Y), it is taken to the next stage of assessment. Justification is given the first time a conclusion is reached about a potential pressure, after which only the decision is noted to avoid repetition.

**Table 8a:** Potential pressures for gears on High energy infralittoral rock (pressures capable of effecting other than insignificantly are in bold).

| **Aggregated method** | **Potential pressures** | **Capable of affecting (other than insignificantly)?** |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |

| | | |
|---|---|---|
| | **Removal of non-target species** | **Y** |
| | **Removal of target species** | **Y** |
| | Introduction of light | N |
| | Introduction or spread of invasive non-indigenous species (INIS). | N |
| | Organic enrichment | N |

**Table 8b:** Potential pressures for gears on Moderate Energy Infralittoral Rock (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |
| | **Removal of non-target species** | **Y** |
| | Introduction of light | N |
| | Deoxygenation | N |
| | Introduction or spread of invasive non-indigenous species (INIS) | N |
| | Organic enrichment | N |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N |

**Table 8c:** Potential pressures for gears on Moderate Energy Circalittoral Rock (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |
| | **Removal of non-target species** | **Y** |
| | **Removal of target species** | **Y** |
| | Barrier to species movement | N - Fishing activity is unlikely to significantly affect movement of species. |
| | Introduction of light | N |
| | Introduction or spread of invasive non-indigenous species (INIS) | N |
| | Organic enrichment | N |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N |

**Table 8d:** Potential pressures for gears on Subtidal Coarse Sediment and Subtidal Mixed Sediment (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |
| | **Removal of non-target species** | **Y** |
| | **Removal of target species** | **Y** |
| | Deoxygenation | N |
| | Introduction of light | N |
| | Introduction or spread of invasive non-indigenous species (INIS). | N |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N |

**Table 8e:** Potential pressures for gears on Subtidal Mud (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |
| | **Removal of non-target species** | **Y** |
| | **Removal of target species** | **Y** |
| | Barrier to species movement | N - Fishing activity is unlikely to significantly affect movement of species. |
| | Deoxygenation | N |
| | Introduction or spread of invasive non-indigenous species (INIS) | N |
| | Organic enrichment | N |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N – Gears not designed to penetrate the seabed. |

**Table 8f:** Potential pressures for gears on Subtidal Sand (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y** |
| | **Removal of non-target species** | **Y** |
| | **Removal of target species** | **Y** |
| | Deoxygenation | N |
| | Introduction of light | N |
| | Introduction or spread of invasive non-indigenous species (INIS) | N |
| | Organic enrichment | N |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N |

**Table 8g:** Potential pressures for gears on Intertidal Underboulder Communities (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y -** Abrasion/surface disturbance can be caused by contact between the gear and the seabed. |
| | **Removal of non-target species** | **Y -** Removal of non-target species by fishing activities will affect the presence and/or population size of the feature. |
| | **Removal of target species** | **Y -** Removal of target species by fishing activities will affect the presence and/or population size of the feature. |
| | Introduction of light | N – Introduction of light is unlikely from fishing activities. |
| | Introduction or spread of invasive non-indigenous species (INIS) | N – Fisheries involve working from the shore or from small vessels locally. Transmission of INIS unlikely. |

| | | |
|---|---|---|
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N – Gears not designed to penetrate the seabed. |

**Table 8h:** Potential pressures for gears on Low, Moderate & High energy Intertidal Rock (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed.** | **Y -** Abrasion/surface disturbance can be caused by contact between the gear/anchors and the seabed. |
| | **Removal of non-target species.** | **Y -** Removal of non-target species by fishing activities will affect the presence and/or population size of the feature. |
| | Deoxygenation | N - Coquet to St Mary's MCZ is a highly dynamic environment, oxygen levels will be replenished by wave and tidal movements. |
| | Introduction of light | N - Introduction of light from fishing activities is unlikely to significantly affect the feature. |
| | Introduction or spread of invasive non-indigenous species (INIS) | N - Fisheries involve working from the shore or from small vessels locally. Transmission of INIS unlikely. |
| | Organic enrichment | N - Habitat is subject to a degree of wave action or tidal currents suitable enough to make organic enrichment unlikely |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N - Gears not designed to penetrate the seabed. |
| | **Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion** | **N -** Gears not designed to penetrate the seabed. |
| | **Removal of non-target species** | **N -** Activity carried out by hand and target species are selected for. Unlikely to remove non-target species. |
| | **Removal of target species** | **Y** - Removal of target species by fishing activities will affect the presence and/or population size of the feature. |
| | Deoxygenation | N |
| | Introduction of light | N |
| | Introduction or spread of invasive non-indigenous species (INIS) | N |

**Table 8i:** Potential pressures for gears on Intertidal mud and Intertidal mixed sediments (pressures capable of effecting other than insignificantly are in bold).

| Aggregated method | Potential pressures | Capable of affecting (other than insignificantly)? |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y -** Abrasion/surface disturbance can be caused by contact between the gear/anchors and the seabed. |

| | | |
|---|---|---|
| | **Removal of non-target species** | **Y -** Removal of non-target species by fishing activities will affect the presence and/or population size of the feature. |
| | Introduction or spread of invasive non-indigenous species (INIS) | N - Fisheries involve working from the shore or from small vessels locally. Transmission of INIS unlikely. |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N - Gears not designed to penetrate the seabed. |

**Table 8j:** Potential pressures for gears on Intertidal Sand and muddy sand (pressures capable of effecting other than insignificantly are in bold).

| **Aggregated method** | **Potential pressures** | **Capable of affecting (other than insignificantly)?** |
|---|---|---|
| Pots/creels (crustacea/gastropods) | **Abrasion/disturbance of the substrate on the surface of the seabed** | **Y -** Abrasion/surface disturbance can be caused by contact between the gear/anchors and the seabed. |
| | **Removal of non-target species** | **Y -** Removal of non-target species by fishing activities will affect the presence and/or population size of the feature. |
| | Deoxygenation | N - Coquet to St Mary's MCZ is a highly dynamic environment, oxygen levels will be replenished by wave and tidal movements. |
| | Introduction of light | N - Introduction of light from fishing activities is unlikely to significantly affect the feature. |
| | Introduction or spread of invasive non-indigenous species (INIS) | N - Fisheries involve working from the shore or from small vessels locally. Transmission of INIS unlikely. |
| | Organic enrichment | N - Habitat is subject to a degree of wave action or tidal currents suitable enough to make organic enrichment unlikely |
| | Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion | N - Gears not designed to penetrate the seabed. |

*Removal of target species pressure is not listed on Natural England DSS as a pressure for these gear feature interactions. NIFCA have included this pressure as it may impact the conservation objectives of the feature and so should be assessed.

To ensure the effects of fishing activities in-combination with other activities (including other fishing activities) are fully assessed, the pressures from amber activities which are not capable of affecting (other than insignificantly) the site's feature(s) but which do interact with the feature(s) are included in the in-combination assessment [4. In-combination Assessment].

# Chapter 3 Part B Assessment

## 3.1 Pots/creels x features

Part B of this assessment was carried out in a manner that is consistent with the 'significant risk' test required by section 126(2) of the Marine and Coastal Access Act 2009.

Table 9 show the fishing activities and pressures included for assessment in part B.

This chapter is the assessment for the interaction between traps (pots/creels), and a number of features. These features include: intertidal rock features (high, moderate and low energy intertidal rock; intertidal under boulder communities); subtidal soft sediment features (subtidal coarse sediment; subtidal mixed sediments; subtidal mud; and subtidal sand), and subtidal rock features (moderate energy infralittoral rock; moderate energy circalittoral rock and high energy infralittoral rock).

**Table 9:** Fishing activities and pressures included for part B assessment for a number of intertidal rock features, as well as subtidal rock and subtidal soft sediment features

| Natural England Aggregated Method | Fishing gear type | Pressures |
|---|---|---|
| Traps | Pots/creels | • Abrasion/disturbance of the substrate on the surface of the seabed<br>• Removal of non-target species<br>• Removal of target species |

The important targets for favourable condition were identified within Natural England's conservation advice supplementary advice tables. '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.

The impacts of pressures on features were assessed against these targets to determine whether the activities causing the pressures are compatible with the site's conservation objectives.

**Table 10:** Relevant attributes and targets for identified pressures to intertidal rock features (high energy intertidal rock, moderate energy intertidal rock, intertidal under boulder communities, low energy intertidal rock).

| Potential pressures | Advice on Operations | Considered in Part B assessment? | Relevant attributes (that could be impacted by identified pressures) | Target |
|---|---|---|---|---|
| Abrasion/disturbance if the substrate on the surface of the seabed | S | Y | - Distribution: presence and spatial distribution of biological communities.<br>- Structure: species composition of component communities<br>- Structure: physical structure of rocky substrate | Maintain |
| Removal of non-target species | S | Y | - Distribution: presence and spatial distribution of biological communities.<br>- Structure: species composition of component communities<br>- Structure and function: presence and abundance of key structural and influential species* | Maintain<br><br>*Maintain or recover or restore |
| Removal of target species | S | Y | - Distribution: presence and spatial distribution of biological communities. | Maintain<br><br>*Maintain or recover or restore |

| | | | | |
|---|---|---|---|---|
| | | | - Structure: species composition of component communities<br>- Structure and function: presence and abundance of key structural and influential species* | |

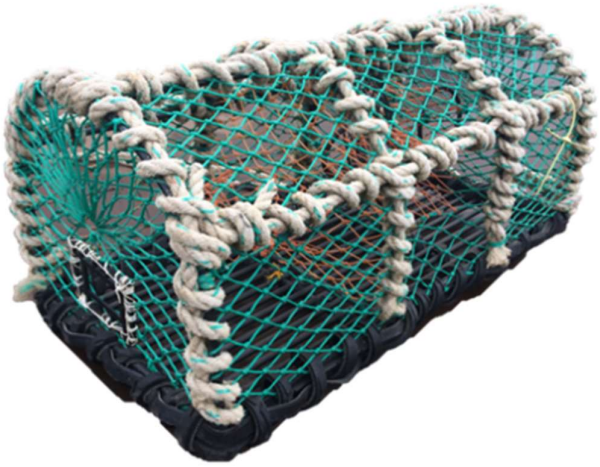
**Table 11:** Relevant attributes and targets for identified pressures to subtidal soft sediment features (subtidal coarse sediment, subtidal mixed sediments, subtidal mud, and subtidal sand) and subtidal rock features (moderate energy infralittoral rock, moderate energy circalittoral rock and high energy infralittoral rock).

| **Potential pressures** | **Advice on Operations** | **Considered in Part B assessment?** | **Relevant attributes (that could be impacted by identified pressures)** | **Target** |
|---|---|---|---|---|
| Abrasion/disturbance if the substrate on the surface of the seabed | S | Y | - Distribution: presence and spatial distribution of biological communities.<br>- Structure: species composition of component communities<br>- Structure: sediment composition and distribution<br>- Structure: physical structure of rocky substrate | Maintain |
| Removal of non-target species | S | Y | - Distribution: presence and spatial distribution of biological communities.<br>- Structure and function: presence and abundance of key structural and influential species*<br>- Structure: species composition of component communities | Maintain<br><br>*Maintain or recover or restore |
| Removal of target species | S | Y | - Distribution: presence and spatial distribution of biological communities.<br>- Structure and function: presence and abundance of key structural and influential species*<br>- Structure: species composition of component communities | Maintain<br><br>*Maintain or recover or restore |

## 3.2 Fishing gear types used

### 3.2.1 Commercial fishers

Most fishers in the district use parlour pots (Figure 3) of various sizes (single or double 'eyed'), baited with frozen or fresh fish. Pots are typically worked in fleets of 10-40, dependant on the size of the vessel. Pots are attached by ~1m straps to a mainline and spaced ~20-30 metres apart. End weights (e.g. clumps of heavy chain or cast-iron sash weights) are fitted to both ends of the mainline and marker buoys or dahns are attached to each end of the fleet with a rope length usually twice as long as the water depth. The end weights are designed to remain secure on the seabed, however, slack in the mainline allows the pots the freedom to move. There is evidence from a study carried out in Northumberland that pot movement occurs due to environmental factors such as waves and tidal currents, however, the frequency and extent of



movement and associated impacts on the seabed is relatively unknown (Stephenson S. , 2016). In order to protect fishing gear in bad weather fishers tend to move their pots further offshore in winter months and inshore during summer months.

Fleet deployment is initiated by dropping the first buoy-line and end weight into the water, the weight of which pulls the remaining pots overboard one at a time, as the vessel moves along at a speed of ~7 knots heading into the direction of the tide.  Pots are then left to soak for typically 1-3 days (weather depending)

**Figure 3** An example of a metal framed parlour pot with a fitted escape gap that has been netted and roped for protection (Seafish, 2023)

before being hauled. Pots are lifted by onboard hydraulic pot haulers fitted off the starboard bow or abeam to starboard. Pots are generally lifted in the direction of the tide and so during hauling the vessel is either stationary or moving with the tide. As each pot is hauled it is re-baited and by-catch species such as brittle stars, squat lobsters, sea urchins, hermit crabs, starfish and whelk (depending on the habitat/area) are discarded along with undersized lobsters, crabs and fish.

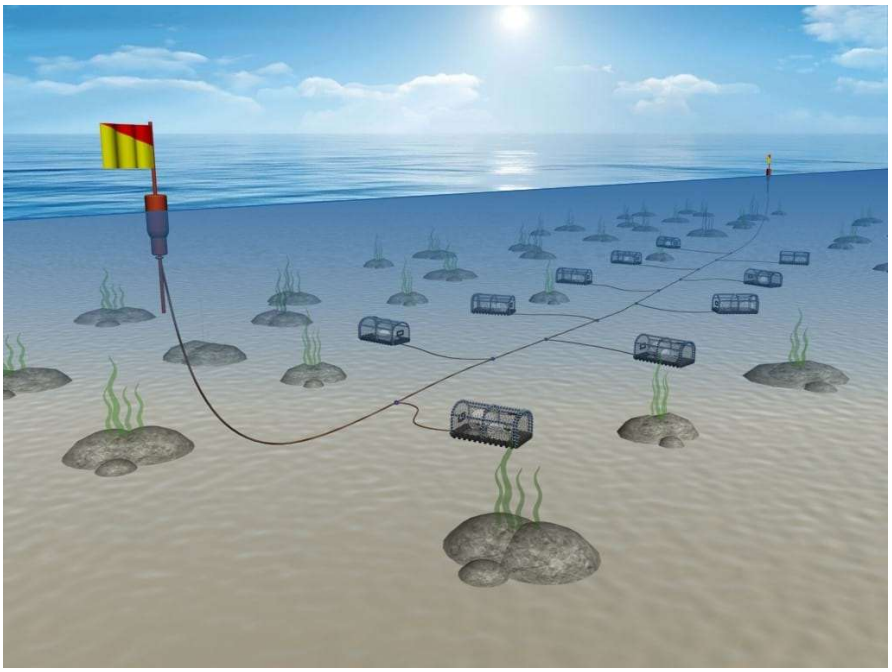


**Figure 4** A fleet of parlour pots on the seabed (Seafish, 2023)

### 3.2.2 Recreational fishers

The pots are similar in structure to commercial pots, but they are often set individually with a dahn attached to one end. They can be set off the shore by private boats, but most permit holders set them around the intertidal rocky areas that they are able to reach by foot.

### 3.2.3 Potting for Nephrops

There are a small number of fishers in the District targeting *Nephrops*, using lighter weight gear than that used for lobsters and brown crab. Pots are made of lighter material, with lighter anchors at the end of each fleet and 'hard eyed' entrances, allowing prawns to enter and exit more easily. Pots for *Nephrops* are set on subtidal muddy ground, where the target species live in burrows.

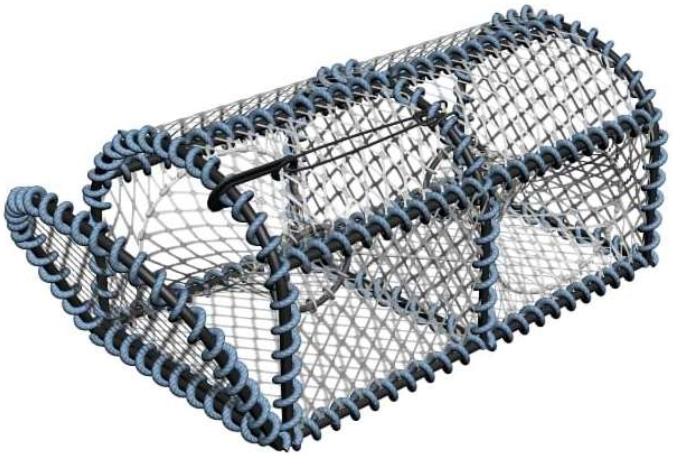


**Figure 5** An example of a *Nephrop*s pot, with hard eyed entrances (Seafish, 2023)

## 3.3 Fishing activity levels in Coquet to St Mary's MCZ

Potting for European lobster (*Homarus gammarus*) and brown crab (*Cancer pagurus*) is the principal fishery within the Northumberland IFCA district, with a small amount of potting for Dublin bay prawns (*Nephrops norvegicus*).

In assessing commercial potting within the NIFCA district, two sources of data have been analysed:

1. Monthly shellfish permit returns, submitted by NIFCA commercial shellfish permit holders as a requirement of their permit (high data confidence). The number of permit holders may not be representative of the number of people actively engaged in the fishery as some will hold a permit but will not fish using pots. A requirement of the permit is to submit monthly returns to NIFCA; fishers who have not fished submit a nil return. Any fishers that submit returns showing fishing activity are classed as 'active'.
2. Offshore sightings from NIFCA patrol vessels (high data confidence)

### 3.3.1 Monthly Shellfish Permit Returns

Permit returns data (no. pots fished, no. of days fished, area fished and total landings) has been used from 2015 onwards (when NIFCA introduced a new shellfish permit returns system). With this system came a higher level of data confidence and therefore comparability allowing data between the years of 2015-2022 to be analysed. In 2015, there were 112 permit holders, 86 of which actively fished compared to 2022's 91 permit holders, with 77 actively fishing.

Shellfish permit returns data is divided into 7 sectors in the District. Parts of sectors 1 – 4 fall within the Coquet –to St Mary's MCZ (Figure 6). However, it is important to note that these four Sectors cover the area from 0 - 6nm, an area larger than the St Mary's to Coquet MCZ. This gives a lower level of data confidence, as data will be an overestimate of activity in the MCZ.

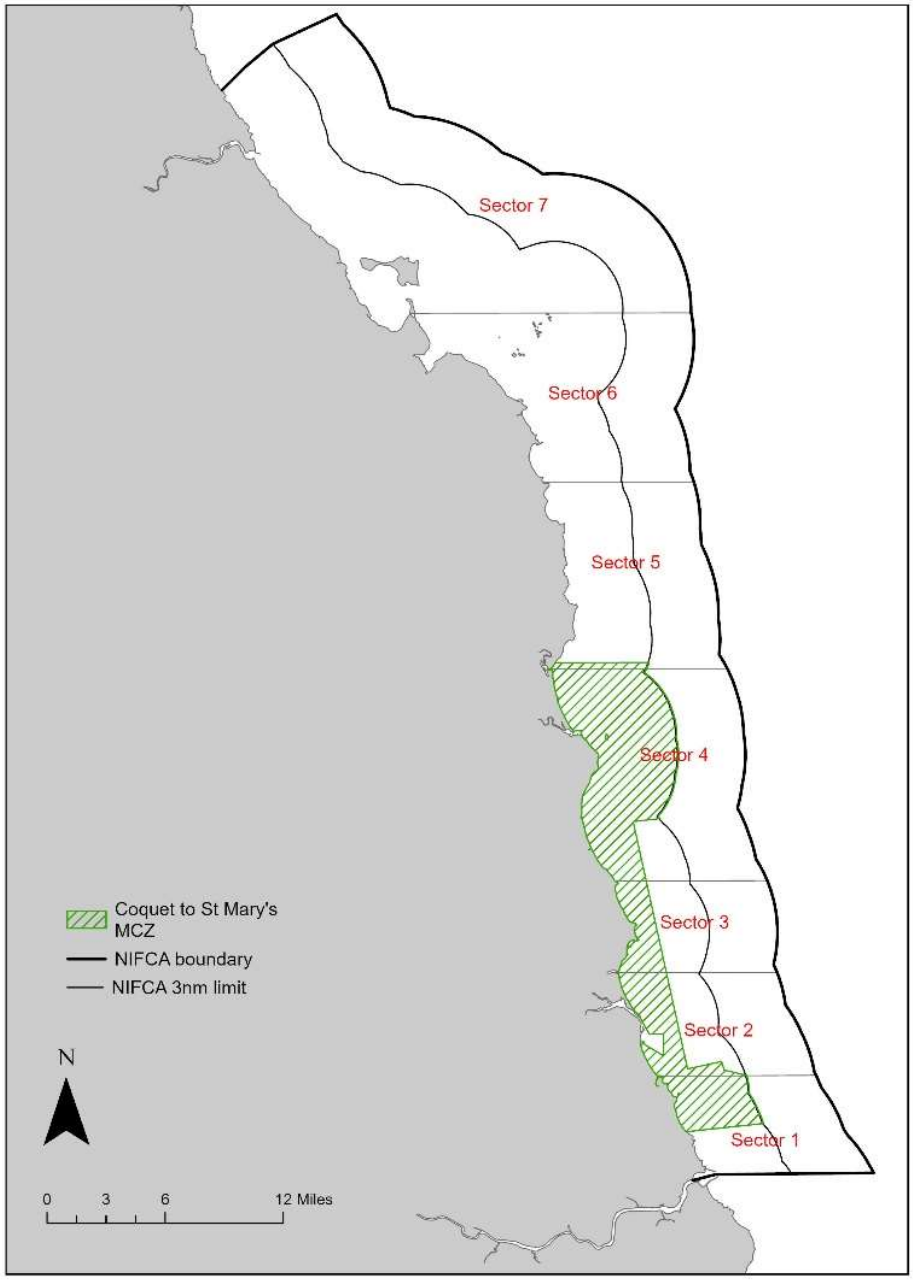



**Figure 6**: NIFCA district sectors, with the Coquet to St Mary's MCZ overlaid on sectors 1-4

### 3.3.2 Vessel Numbers

Table 12 shows the numbers of active fishing vessels in the NIFCA District from 2015-2022. When looking at the sectors that correspond to the MCZ (1-4) in all years the highest number of active vessels is in Sector 4, the northern end of the MCZ.

**Table 12**: Number of vessels actively potting for shellfish within each sector of the NIFCA district from 2015 to 2022. Sectors within the Coquet to St Mary's MCZ (1-4) are shaded in green. Note that some vessels will be fishing in more than one sector. * indicates that this number for 2017 is likely inflated. This is due to a changeover in the data management, with some vessels lacking identifying features, meaning multiple returns from a small number of vessels have been treated as separate vessels.

| Sector | Number of vessels actively potting | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Sector 1 | 15 | 12 | 12 | 17 | 20 | 17 | 19 | 12 |
| Sector 2 | 12 | 7 | 14 | 22 | 8 | 21 | 25 | 15 |
| Sector 3 | 13 | 13 | 16 | 19 | 8 | 15 | 21 | 14 |
| Sector 4 | 24 | 28 | 26 | 29 | 21 | 26 | 31 | 29 |
| Sector 5 | 22 | 22 | 18 | 23 | 14 | 24 | 27 | 28 |
| Sector 6 | 20 | 17 | 16 | 29 | 10 | 21 | 21 | 21 |
| Sector 7 | 30 | 28 | 35 | 38 | 20 | 31 | 30 | 29 |
| Total in District | 86 | 79 | 106* | 93 | 88 | 89 | 95 | 77 |

### 3.3.3 Number of pot hauls across the District

The number of pot hauls across the district (2015-2022), divided by Sectors, is shown in Figure 7.

In all years, the number of pots hauled in Sectors 1-4 make up approximately one third of all pot hauls in the District. Sector 7, at the northern end of the District, makes up the highest percentage of pot hauls every year.

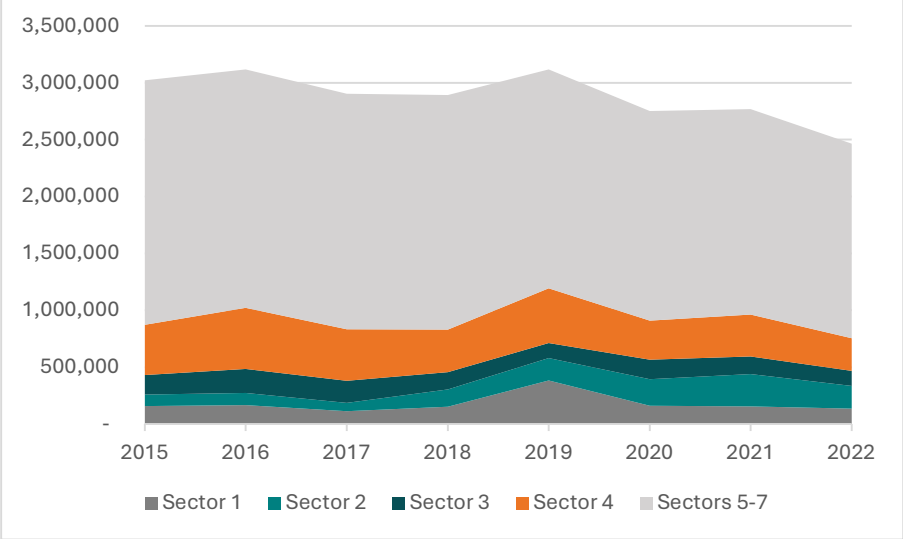



**Figure 7** Total pot hauls across the NIFCA District (2015-2022) divided into Sectors 1-4, with Sectors 5-7 grouped together (NIFCA permit returns data)

### 3.3.4 Number of pots hauled and set in Sectors 1-4

The total number of pots hauled between 2015-2022 in Sectors 1-4 (Figure 8) displays variability, with a peak across all sectors in 2019, before decreasing in the following years. The peaks in the number of pots hauled in 2016 and 2019 are likely due to good weather allowing more activity, the 2019 peak can be

explained further by an increase in the number of pots in the sea. The decline in 2020 may be due to the Covid-19 pandemic and associated restrictions. The number of pots hauled has not reached 2019 levels since (Table 13).

In all years the highest number of pots hauled is in Sector 4, the northern end of the MCZ.

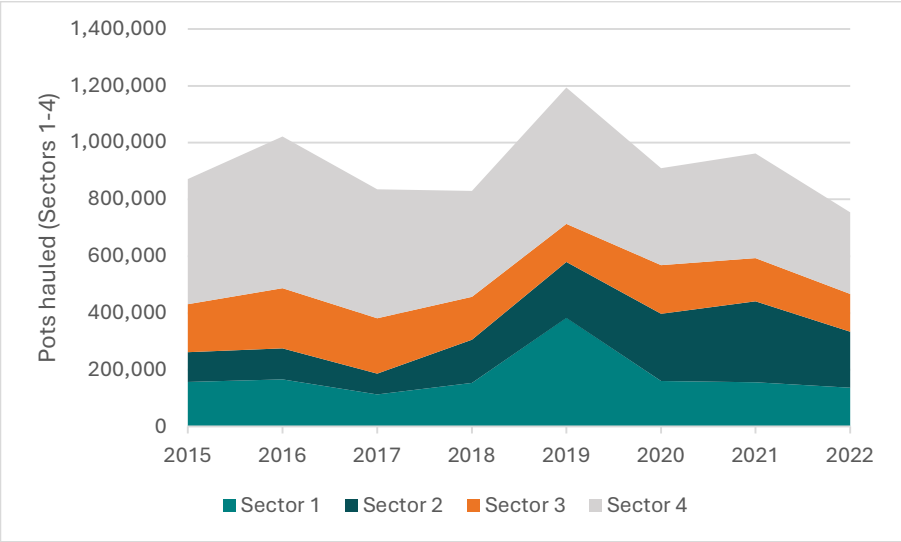



**Figure 8** Total number of pots hauled for Sectors 1-4 between the years of 2015 and 2022 (NIFCA permit returns data)

**Table 13:** Estimated number of pots hauled in Sectors 1-4 from 2015-2022 (NIFCA permit returns data)

| Year | Sector 1 | Sector 2 | Sector 3 | Sector 4 | Total |
|---|---|---|---|---|---|
| 2015 | 156,960 | 105,092 | 168,690 | 440,307 | 871,048 |
| 2016 | 165,554 | 109,513 | 211,418 | 534,789 | 1,021,274 |
| 2017 | 112,790 | 73,355 | 194,770 | 453,889 | 834,804 |
| 2018 | 153,475 | 152,483 | 151,193 | 373,097 | 830,249 |
| 2019 | 382,980 | 197,098 | 133,275 | 480,188 | 1,193,541 |
| 2020 | 160,517 | 235,581 | 172,491 | 341,174 | 909,762 |
| 2021 | 155,697 | 284,991 | 152,149 | 368,941 | 961,778 |
| 2022 | 136,524 | 198,075 | 131,762 | 288,234 | 754,595 |

Figure 9 shows the maximum number of pots in the sea in Sectors 1-4 from 2015-2022. This shows variability across years but an overall increase in the number of pots until a peak in 2019, before a decrease from 2019-22. This is a similar pattern to the number of pot hauls (Figure 8/Table 13).

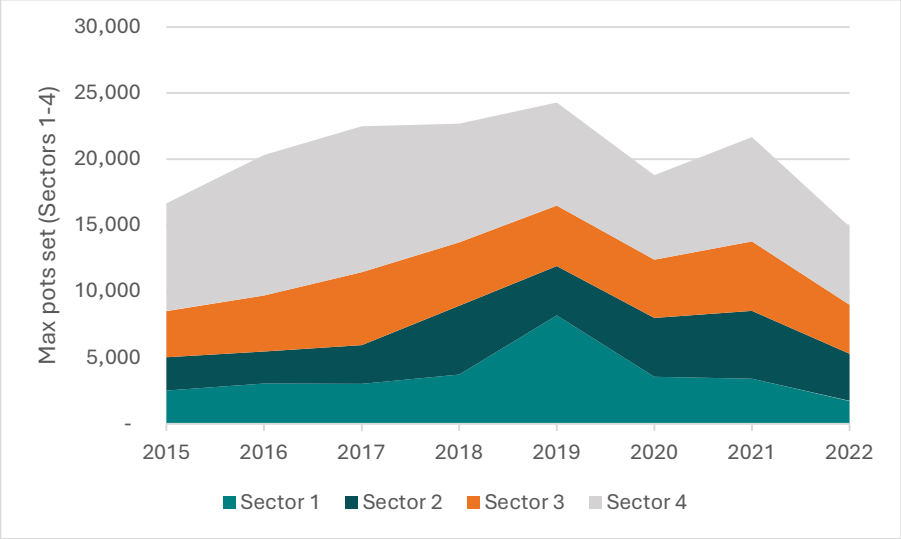



**Figure 9** Maximum number of pots set in Sectors 1-4 per year between the years of 2015 and 2022 (NIFCA permit returns data**)**

### 3.3.5 Seasonality

The pot fishery is active all year around, but activity and catch changes with the season. In the summer months pots are generally set closer inshore to target active lobster and catches are high, peaking in August. During the winter months pots are generally set further offshore, to protect gear from winter storms, target brown crab and catch any lobster still moving on the fishing grounds. The seasonality of the lobster fishery is reflected in landings in the NIFCA District (Figure 10), with brown crab showing a much steadier catch throughout the year (Figure 11).

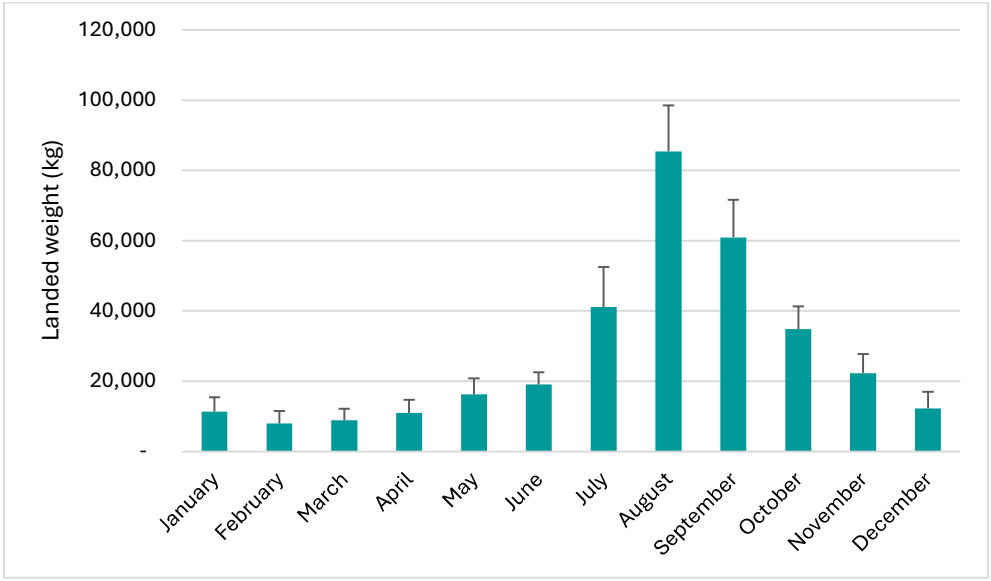



**Figure 10** Weight of lobster landed (kg) in the NIFCA district by month (averaged 2011-2022)

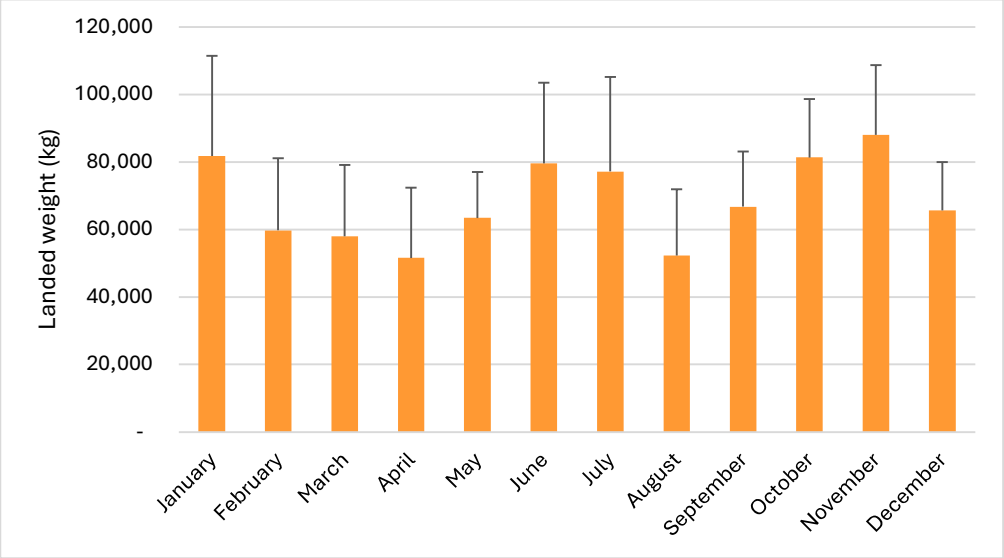



**Figure 11** Weight of crab landed (kg) in the NIFCA district by month (averaged 2011-2022)

### 3.3.6 Lobster and crab landings in Sectors 1-4

The landings of both lobster (Figure 12) and crab (Figure 13) from Sectors 1-4 between 2015 and 2022 show variability. Both show a peak in landings in 2019 and subsequently drop in 2020, again possibly related to the Covid-19 pandemic. Variability in the brown crab market may also be partly responsible for the drop in landings in 2020. Up until 2019 demand from the Chinese market pushed up the price per kg, however, these markets were effectively closed to UK fishers in 2020.

The landings per unit effort (LPUE) of both species across the NIFCA district has remained stable (Figures 14 and 15), which suggests factors other than the health of the stock (i.e. increased activity or pot numbers) have driven these peaks and drops.

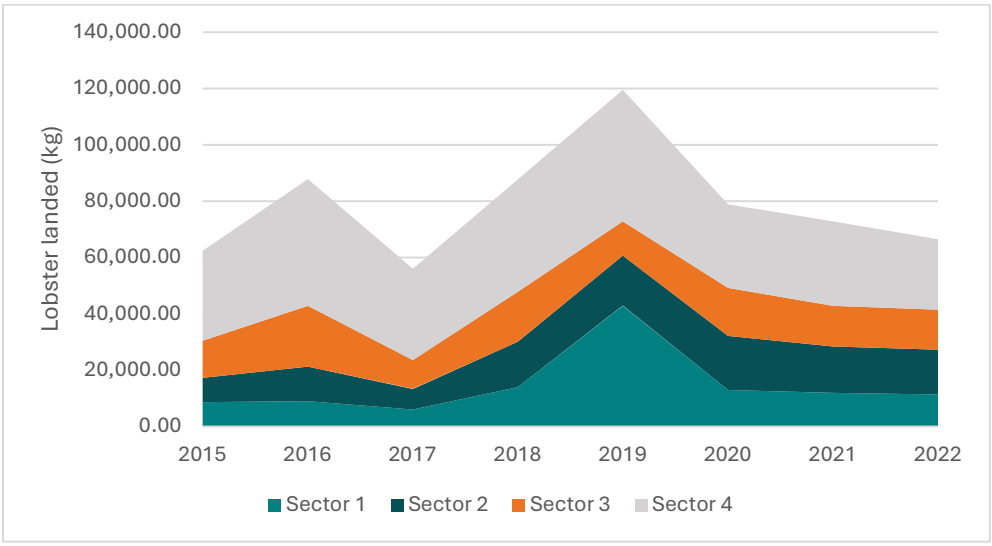



**Figure 12** Lobster landed (kg) from Sectors1-4 from 2015-2022 (NIFCA permit returns data)

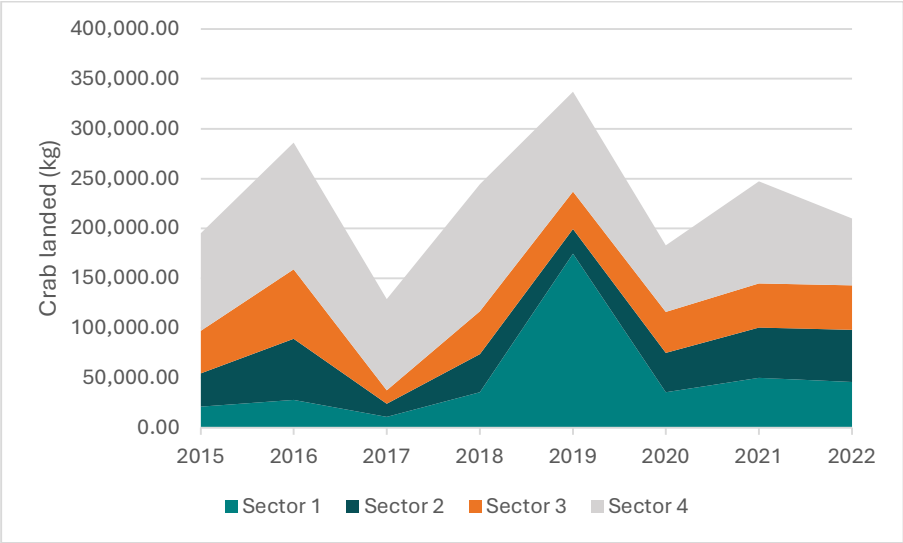



**Figure 13** Brown crab landed (kg) from Sectors1-4 from 2015-2022 (NIFCA permit returns data)

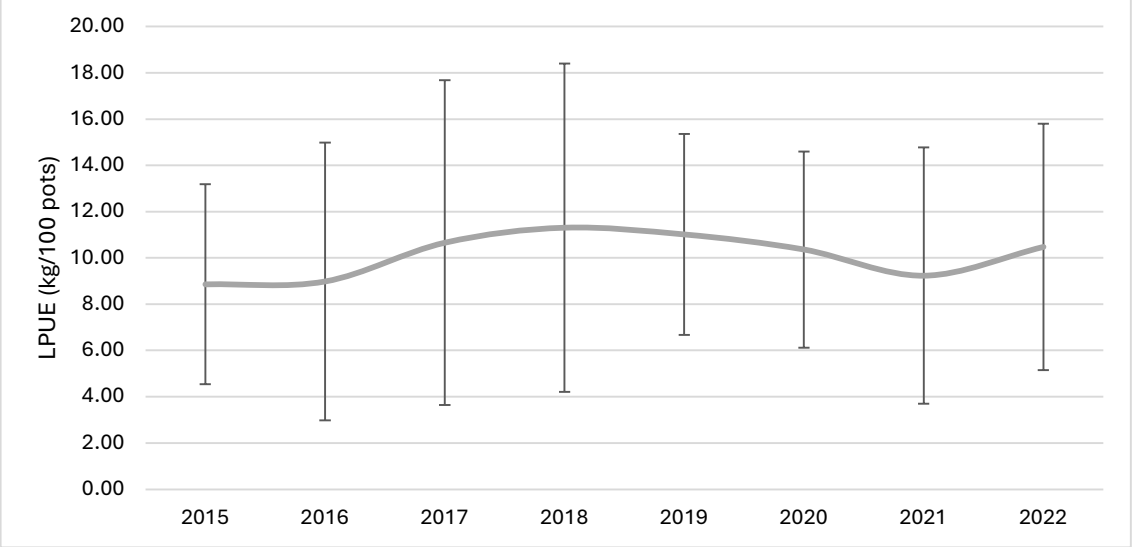



**Figure 14** Average Annual LPUE (kg/100 pots) for lobster in the NIFCA District

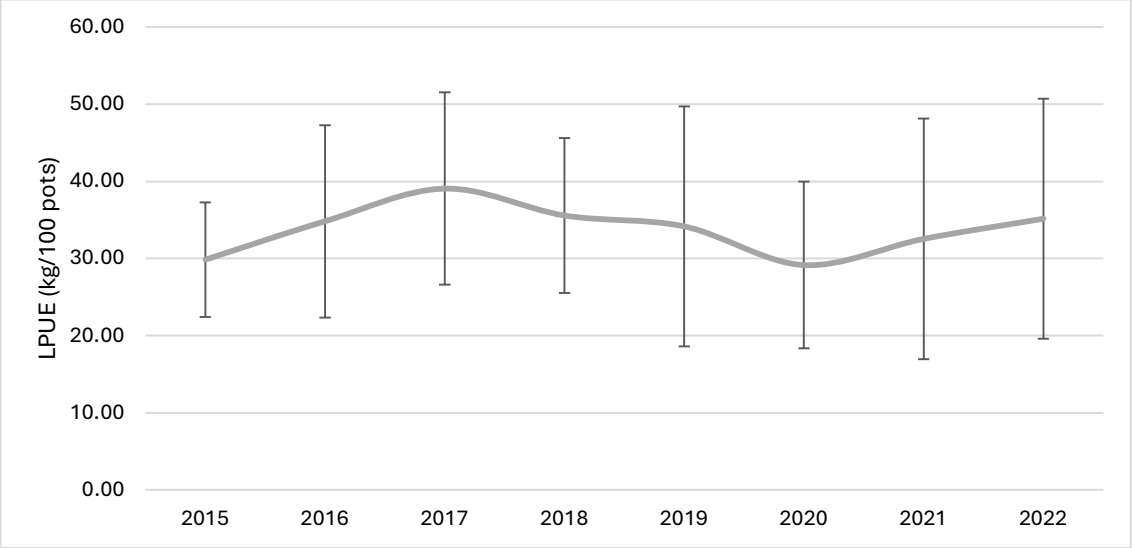



**Figure 15** Average Annual LPUE (kg/100 pots) for brown crab in the NIFCA District

### 3.3.7 Lost fishing pots

NIFCA also collect data from fishers about any pots lost at sea (Figure 16). The number of pots lost each year varies and is noticeably higher in years where severe winter storms were experienced, such as 2018 and 2021. In most years, approximately half of the lost pots were inside Sectors 1-4. However, this is likely to be an overestimate of pots lost in the MCZ for two reasons. Firstly, pots have been included where multiple fishing areas (including Sectors 1-4) were stated. Secondly, Sectors 1-4 cover an area significantly larger than CSM MCZ. In addition, not all of the pots reported as 'lost' will be permanently lost, in following months fishers sometimes find missing fleets which have been moved on the seabed.

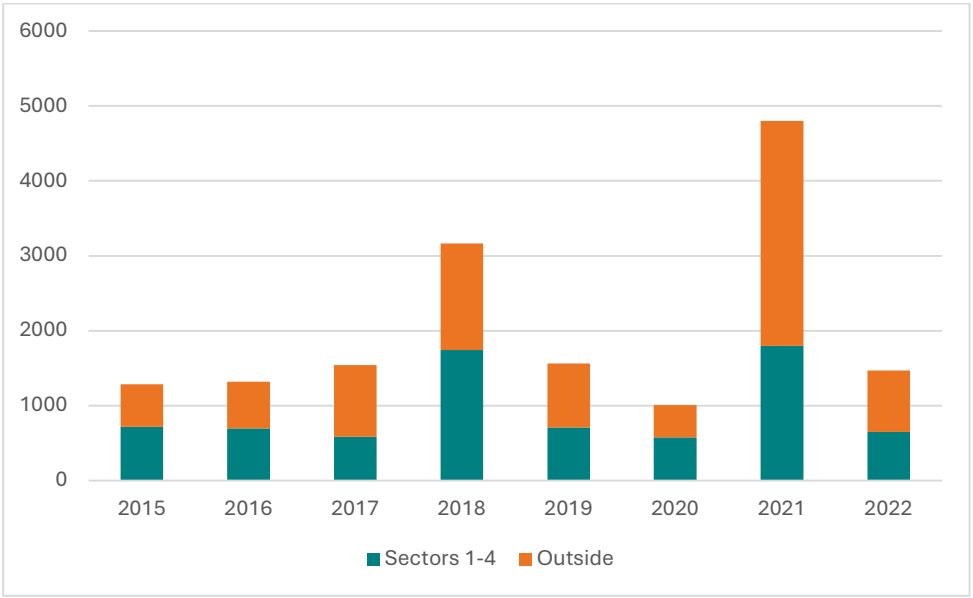



**Figure 16** Number of fishing pots lost annually by NIFCA shellfish permit holders, split into Sectors 1-4 and 'Outside' which includes Sectors 5-7 and areas outside the District

### 3.3.8 Nephrops

Fishers declare all shellfish landings on monthly permit returns forms, including *Nephrops*. In 2022 eleven fishers declared landing *Nephrops* on their returns, with six vessels landing over 100kg of *Nephrops*. Of these, three landed 900-2,000 kg of prawns, with the other three landing between 122-304 kg. A small amount of *Nephrops* can be caught as saleable bycatch in lobster and crab pots, therefore vessels landing

under 100kg are not considered to be directly targeting *Nephrop*s. From this data we can therefore infer that six vessels are actively targeting *Nephrops*.

### 3.3.9 Offshore Sightings Data

NIFCA sightings data of potting vessels from 2018-22 has been mapped against patrol tracks to give a sightings per unit effort (SPUE) map in 1 km squares for the District (Figure 17). This map shows that potting effort is localised to certain areas (around rocky habitat) and SPUE is higher in the north of the District.

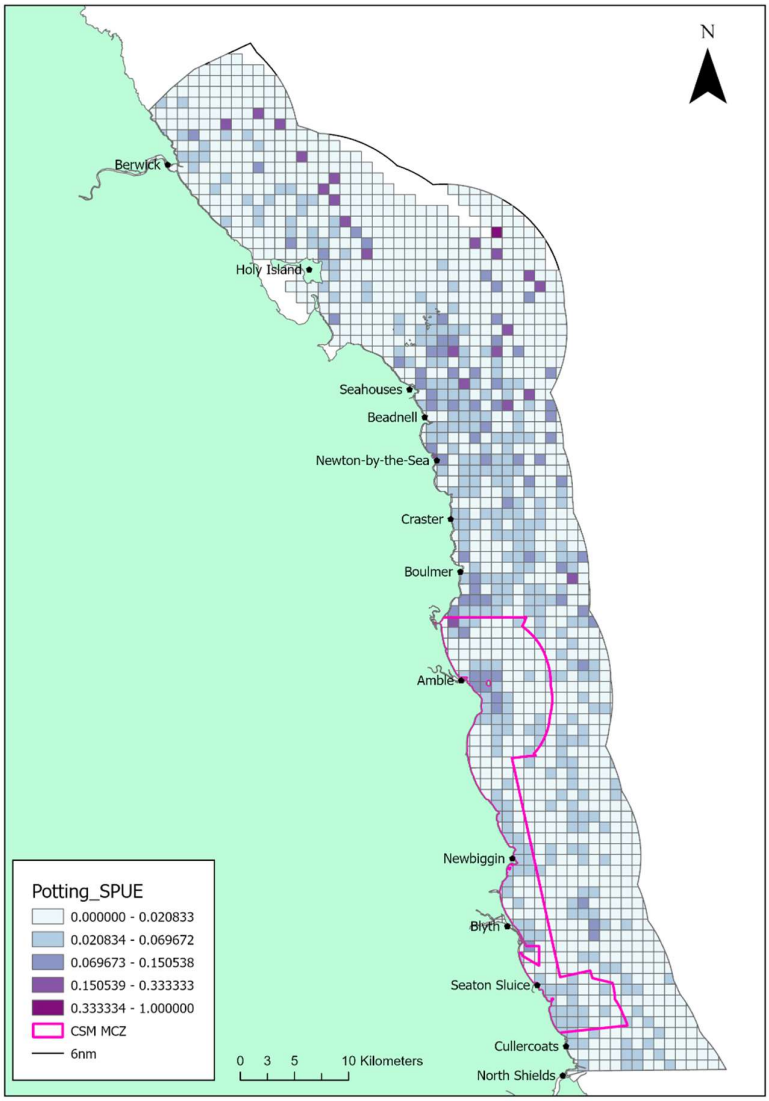



**Figure 17** Sightings per unit effort (SPUE) of potting vessels in the District 2018-22 from NIFCA patrol vessels with CSM MCZ marked in purple. Darker colours denote more activity.

By amalgamating sightings data from 2015 – 2022 the spatial extent of potting can be seen to vary across the MCZ (Figure 18). Most sightings in the MCZ occurred over moderate energy infralittoral rock and moderate energy circalittoral rock and around the edges of this rocky habitat. Far fewer sightings are recorded over sublittoral sand. Sightings over sub-littoral mud are likely to be fishers using pots to target *Nephrops*, although some fishing for brown crab occurs on sediment ground. The number of potting vessels sighted by season (2015-22) have been summed into 1km squares in Figure 19. Sightings observations do broadly reflect the seasonality of the potting fishery, with vessels moving pots inshore during the spring

ready for the summer/autumn lobster season,and reduced activity in the winter months. However, these figures need to be viewed with caution as they are not weighted for patrol vessel activity, which varies seasonally and is likely reduced in winter and spring due to poorer weather.

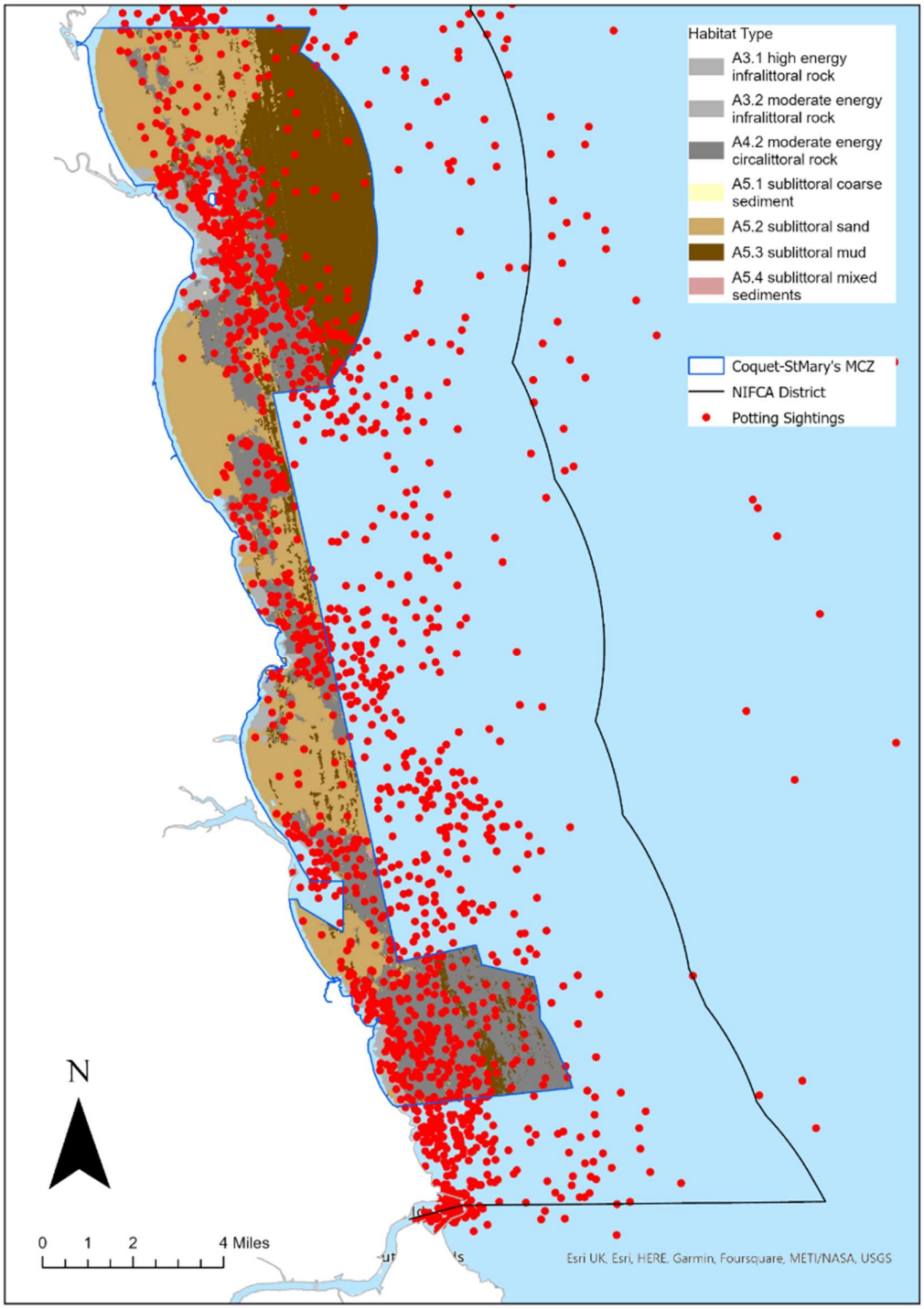



**Figure 18:** 2015-2022 potting sightings

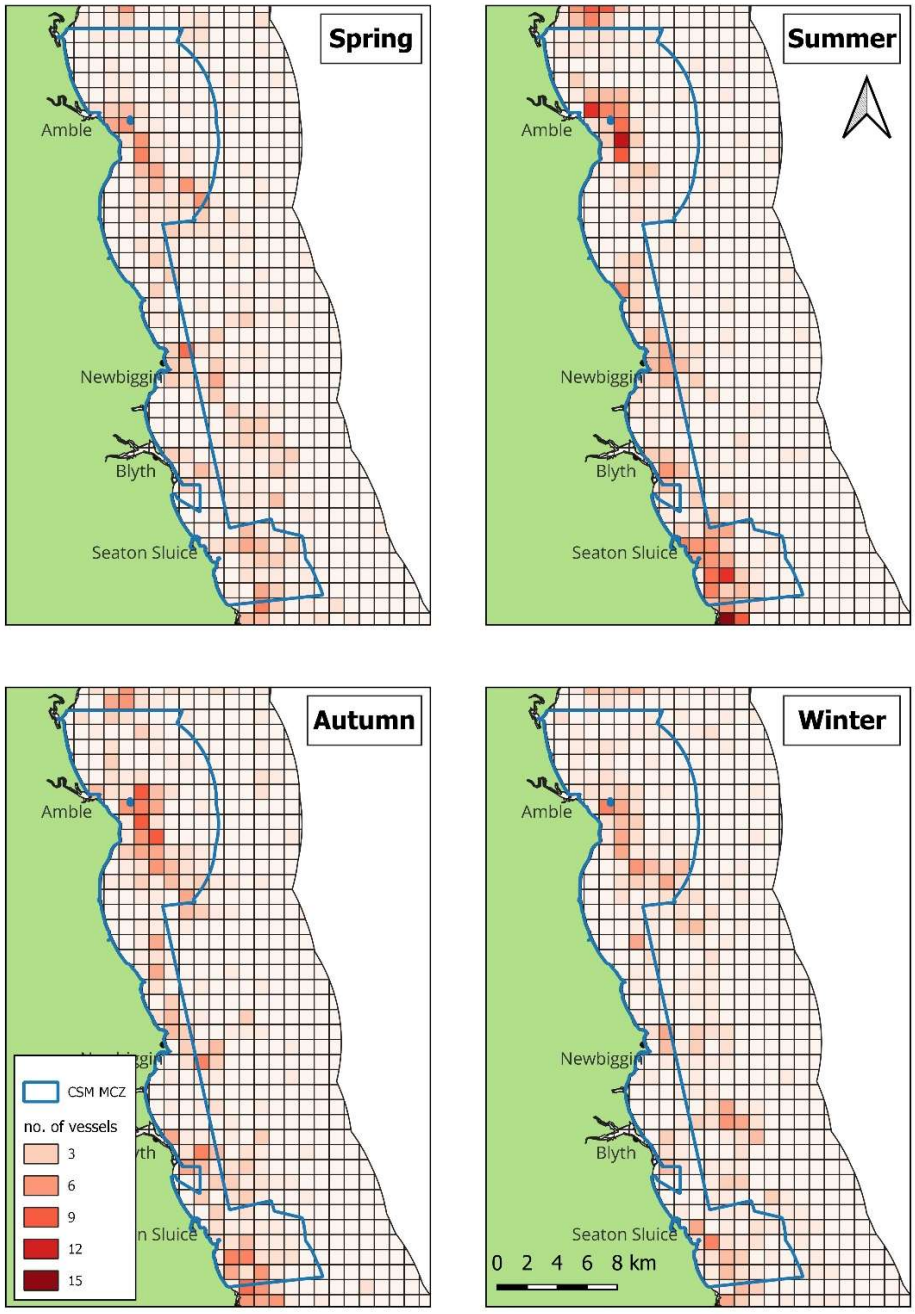



**Figure 19** Sightings of potting vessels by NIFCA patrol vessels by season 2015-22. Data are raw sightings summed into 1km squares and not weighted by patrol vessel activity. Seasons are split as follows: spring (March- May), summer (June-August), autumn (September-November) and winter (December-February).

### 3.3.10 Recreational Permit holders

Recreational potting is a popular sport for the public and the number of recreational shellfish permits registered within the District has increased from 176 in 2016 to 273 in 2023. Each recreational permit allows the owner to have 5 pots.

The spatial extent of recreational potting is not well mapped. Recreational potting occurs predominantly on infralittoral rock and potentially circalittoral rock, although some activity may occur on intertidal rocky reef, particularly during neap tides, which may cause abrasion/disturbance of the substrate.

## 3.4 Fisheries Management Measures

### 3.4.1 Regional Measures

There are a number of byelaws in place in the NIFCA District that apply to the potting fishery. Byelaws can be viewed in full on the NIFCA website (Byelaws - NIFCA). In addition to these byelaws commercial potters are limited to 800 pots per license, whilst recreational potters are limited to 5 pots.

### 3.4.2 Crustacea Conservation 2019

This byelaw prohibits fishing for, removing, taking, landing or offering for sale lobsters, edible crabs and velvet crabs based upon their physical condition (V-notched, mutilated, berried, soft-shelled or any detached parts. This byelaw also prohibits the use of edible crab as bait, subject to specific exceptions.

### 3.4.3 Minimum Sizes Byelaw

This byelaw prohibits the removal from the fishery, retention on board, transhipping, landing, transporting, storing, selling, displaying or offering for sale specified marine organisms below specified sizes by any person within the NIFCA District. Minimum landing size for lobster is 87mm, 130mm for edible crab and for *Nephrops* (85mm whole, 25mm carapace and 46mm tail).

### 3.4.4 Crustacea and Molluscs Permitting and Pot Limitation

This byelaw prohibits the taking of specified shellfish using pots without a Commercial or Recreational permit issued by NIFCA. Permit conditions are attached to the permit including the requirement for escape gaps in recreational pots.

### 3.4.5 Marking of Fishing Gear and Keep Boxes

This byelaw puts in place the requirement to mark with buoys or dahns fishing gear (pots/creels) and keep boxes.

### 3.4.6 National measures

National legislation also applies to this fishery, particularly relating to berried lobsters. Since 2017 English fishing vessels cannot fish for or land berried lobsters (*Homarus gammurus*) or crawfish (*Palinurus elephas*). Any berried lobster caught must be returned to the sea as soon as possible.

## 3.5 [Pressure 1] Abrasion/disturbance of seabed surface substrate

Potting activity has the potential to cause abrasion/disturbance to features on the seabed during deployment and hauling, but also during the ‘soak’ period, as pots are moved around by tides and swell.

NIFCA’s potting sightings data from 2015-2022 (Figure 16) show potting to be mainly targeted on infralittoral and circalittoral rocky ground in the MCZ, with a small proportion of sightings on subtidal mud and subtidal sand. Studies looking at the impact of potting have focused on subtidal rocky habitats, with little information about the impact on sediment habitats. Whilst subtidal coarse sediment, sand, mud and mixed sediment are exposed to the pressures caused by potting in CSM MCZ, this is at a much lower level than subtidal rocky habitats.

The impact of potting gear on rocky seabed habitats has generally been assumed to be low, with a number of studies in the south of England supporting this. Eno et al. (2001) concluded that species on reef habitats in Lundy Bay ‘appeared relatively unaffected by potting’ during a 4-week experiment, with pink sea fans showing more resilience than expected, but damage observed to Ross corals. A 4-year study around Lundy Island (Coleman, Hoskin, Carlshausen, & Davis, 2013) did not find detectable effects of potting, with no significant difference between fished and unfished areas in how species assemblages changed over time. However, both of these studies have limitations, including the duration of experiments and ability to detect small-scale changes, which are detailed in Stephenson et al. (2017).

More recent studies in the south-west have suggested potentially greater abrasion impacts of potting. Gall et al. (2020) found that during the course of experimental potting 'significantly more species were not damaged within the total possible contact area than were damaged or removed, but, 25–30% of taxa were damaged or removed.' However, this study also found, through deployed cameras, that the actual contact area of pots on the seabed was significantly less than the total possible contact area. A collaborative project looked at the response of both sessile and mobile fauna to differing levels of potting activity (control/ low/ medium/ high) in Lyme Bay over 3 years. The abundance of sessile species decreased significantly in the 'high' potting activity treatment group, but only after 3 years, with decreases in Ross coral and Neptune's heart sea squirt considered responsible for this. No effect was detected in mobile species (Rees, Sheehan, & Attrill, 2018).

Whilst these studies are useful, the habitats considered are not representative of habitats found on the Northumberland coast. For example, species assemblages are different. On rocky subtidal habitat in the north-east there are fewer fragile and erect species (such as pink sea fans, Ross coral and Neptune's heart sea squirts) than in the south-west.

Stephenson et al. (2017) carried out work in Northumberland, specifically on habitats commonly targeted by the pot fishery. This study looked at the physical (abrasion) impact of potting on two habitats;

*'FaAlCr'* Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock

'*Lhyp.Pk*' Laminaria hyperborea park with foliose red seaweeds on moderately 146 exposed lower infralittoral rock

Experimental potting (3 pot hauls over a month) in small areas recreated a very high fishing intensity (30,000 pot hauls per month/km$^2$). The highest estimated fishing density in the NIFCA District at the time (2012-13) was 7,950 pot hauls per month/km$^2$. This study found little evidence of a decline in species abundance or a shift in community composition as a result of experimental fishing pressure in any of the habitats. Additionally, erect species such as feather hydroids were encountered frequently in both the infralittoral and circalittoral habitats. Whilst this was a short-term study, the authors do suggest that due to the relatively quick recovery of the chosen habitats and the fishing intensity in the NIFCA District, longer term impacts from abrasion are considered unlikely (Stephenson, Mill, Scott, Polunin, & Fitzsimmons, 2017).

A study took place between 2018 and 2020 to assess the impacts of potting on benthic communities in inshore waters of the northeast coast of England and to compare the responses of various monitoring techniques to potting disturbance (Tinlin-MacKenzie, 2020). The study mapped potting pressure using NIFCA sightings data to generate four pressure categories: none, low, moderate, and high. Drop-down camera surveys were carried out in each of the pressure categories and analysed for species abundance, richness, and diversity. Significant impacts of potting pressure were observed on the abundance, richness, diversity, and composition of communities, but patterns were highly inconsistent across depths and habitats. The high degree of habitat heterogeneity and natural variability, coupled with potential lasting effects of historic fishing pressure, made it difficult to identify overall trends associated with potting. It is unlikely that current pot fishing within the area is altering the benthic communities of rock habitats beyond their natural limits, effecting site condition, or breaching the conservation objectives inside MPAs, as highly fished areas sustained rich and diverse communities (Tinlin-Mackenzie, 2020).

Both local studies (Stephenson 2017; Tinlin-Mackenzie, 2020), due to the location in Northumberland and choice of habitats, are the most relevant when considering the effects of potting in the NIFCA district. Extrapolating from this work, noting that only a few reef biotopes were surveyed, NIFCA consider with moderate confidence that at current levels, the abrasion impact from active potting on subtidal reef sub-features is not likely to hinder the conservation objectives of the MCZ for rocky subtidal habitats, which are also subject to a high degree of natural non-anthropogenic disturbance.

*Nephrops* pots are generally lighter than lobster and crab pots, reducing their physical impact on the sea floor, but the impact of potting on subtidal mud is not well studied. There is some mixed evidence on the impact of pots in the *Nephrops* fishery on the three UK species of sea pens (Kinnear 1996 and Atkinson

2006) summarised in Adey (2007). Kinnear (1996) observational study reports sea pens bending from the pressure wave created by pots before impact, reducing the potential effect. In addition, smothered or uprooted sea pens were observed reinserting and re-righting themselves. One UK species of sea pen (*F. quadrangularis*) is unable to retreat into the sediment when disturbed. Atkinson found densities of this sea pen to be significantly greater in a no-fishing zone than in an area fished by pots.

Adey (2007) work with these three species presents mixed results, complicated by environmental differences between areas in addition to fishing pressures. Damaged sea pens were observed in the pot fishing areas and also recorded as bycatch. However, Adey suggests that overall pots do not adversely impact the density of the three UK species of sea pens (Adey, 2007).

There are a lack of studies and uncertainty about the impact of potting on muddy subtidal habitats, infauna and erect subtidal fauna from abrasion/disturbance.

Due to the lightweight nature of prawn gear and the low level of activity in the district (up to 6 vessels targeting prawns) NIFCA conclude with low-moderate confidence that potting for prawns is unlikely to have a significant impact on the protected subtidal mud feature in the site through abrasion/disturbance.

Potting occurs at a low level on subtidal sand, subtidal coarse sediment and subtidal mixed sediments for brown crab. The effects of potting on these habitats are not well studied. However, CSM MCZ is coastal which means that these subtidal habitats are exposed to significant wave action, in addition, they do not support the erect surface fauna found on subtidal rock and in subtidal muddy habitats (such as sea fans and sea pens). NIFCA therefore considers that surface abrasion from potting gear, at current activity levels, is unlikely to have a significant effect on the protected subtidal sediment habitats in the MCZ (moderate confidence).

### 3.6 [Pressures 2] Removal of target species

European lobster and brown crab are the main target species of the potting fishery in the north-east and these species could be considered part of the ‘component communities’ of intertidal and subtidal rocky habitats. Restrictions (mentioned above) are in place on the size and condition of the species that can be landed, requiring undersized individuals or berried females to be returned to the sea as soon as possible.

The potting fishery is the NIFCA District is also monitored by a number of methods:

- Landings from shellfish permit return data
- On-board catch sampling by NIFCA Officers
- Shore-side sampling by NIFCA Officers
- Shellfish permit return data

Shellfish permit returns data, showing lobster and crab landings in the District, does not indicate any issues with the size of the population. Figures 12 and 13, from this data, show that the LPUE for crab and lobster across the District from 2015-2022 is stable. If the stock was being over-exploited, we would expect to see a declining LPUE.

On-board catch sampling and shore-side sampling

Biometric data from lobster and crabs are collected by NIFCA officers sampling on fishing vessels at sea, sampling individual fleets at sea and shore-based sampling of catch. Figure 20 shows the distribution of at sea sampling conducted.

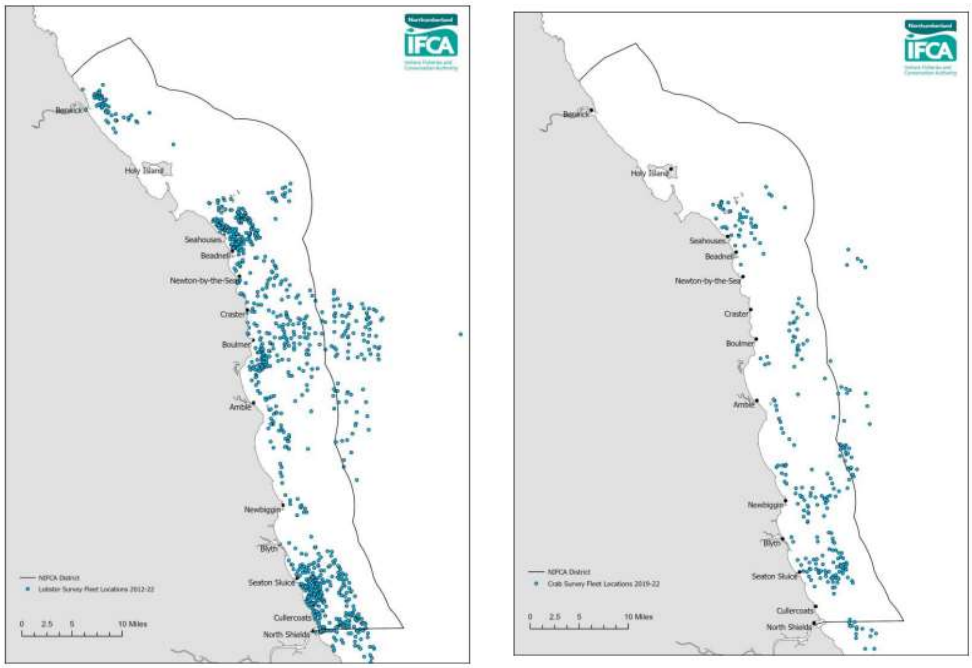



**Figure 20** Distribution of fleets sampled for lobster 2011-2022 (left) and brown crab 2019-2022 (right), with each point representing a sampled fleet of shellfish pots

Figures 21 and 22 show the length-frequency distribution for lobster and brown crab in the District, from biometric data recorded by NIFCA officers. These figures are complicated to interpret. The MLS of female lobster co-occurs with the highest frequency of lobsters. The population curve follows a relatively normal distribution but is indicative of a population which is being fished, as there is a steeper drop than build shown on the length frequency distribution curve. This sharp drop occurs between approximately 95-99mm, well above the minimum landing size of 87mm. The distribution shown in the length-frequency data is only a cause for concern if the sharp drop is moving to be at a smaller carapace length, or the steepness of the curve is increasing significantly, suggesting unsustainable exploitation. These factors are monitored annually by NIFCA. In addition, the drop off at this size may also be due to the fact that the catchability of large lobsters in pots in relatively low.

Data for male lobster suggests a population which peaks in size below the MLS, which requires monitoring. This may be a result of fishing pressure driving the population length, but the population does follow a normal distribution, not dropping sharply after the MLS. In addition, the biometric data collected by NIFCA Officers is only a small proportion of the population, so caution must be taken in drawing conclusions from this data across the whole population.

There is a lot of ‘noise’ in the data for brown crab but it shows a frequency distribution which peaks above the minimum landing size for both sexes and follows a normal distribution. This dataset covers sampling from 2018-22, including the Covid pandemic, so confidence will grow in this dataset as more years are added.

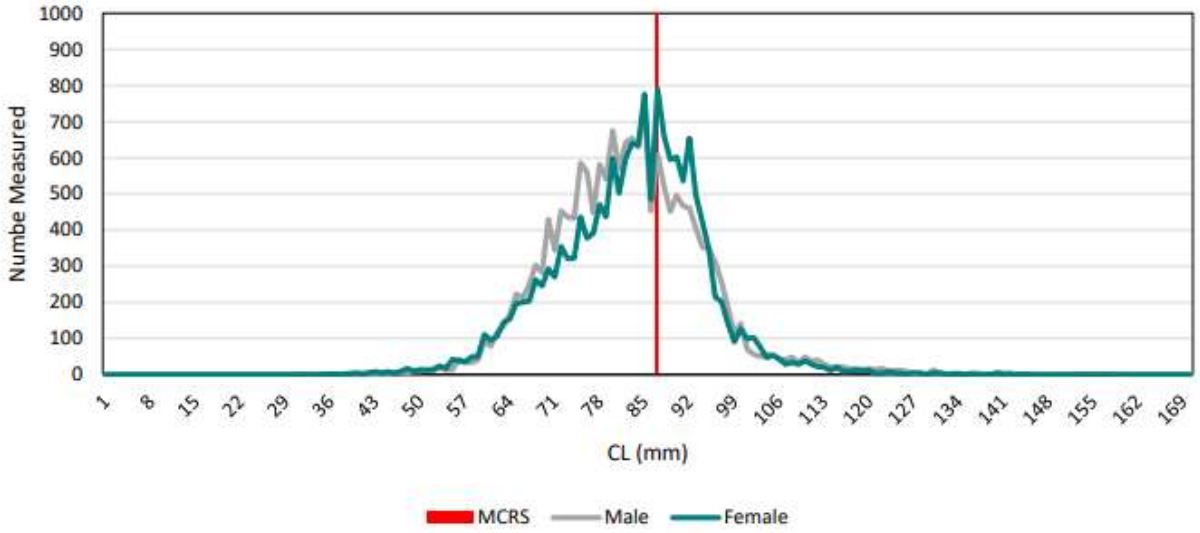



**Figure 21** Size distribution of lobster measured 2012-2022 by NIFCA Officers

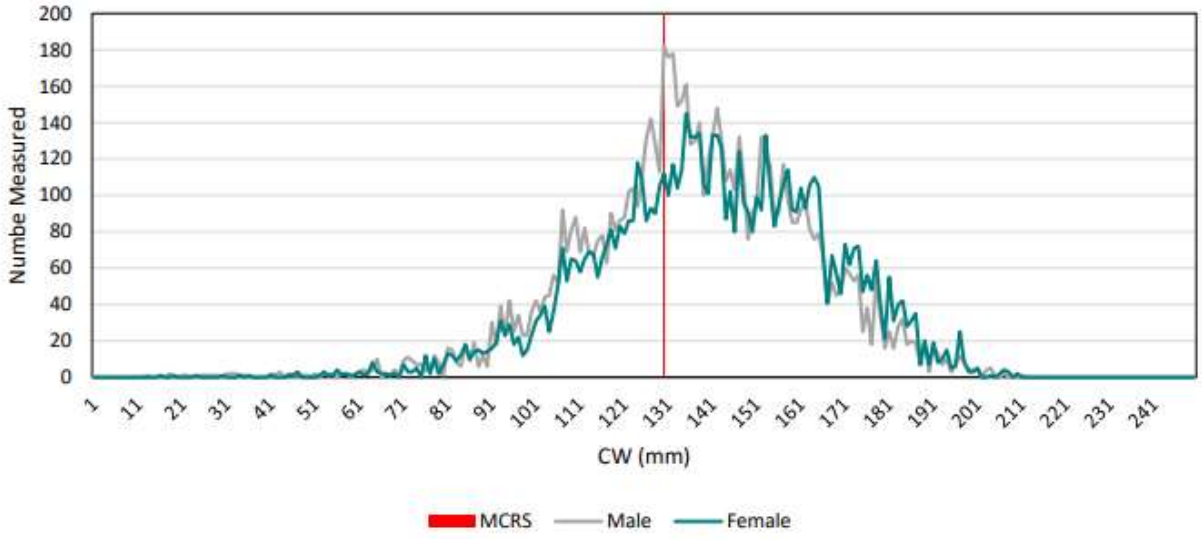



**Figure 22** Size distribution of brown crab measured (2018-22)

Therefore, with moderate confidence, NIFCA do not currently consider that the removal of target species (brown crab, lobster) from subtidal rocky habitats is likely to hinder the Conservation Objectives of these features.

*Nephrops* are also targeted by pots in the Northumberland District by some fishers on subtidal mud. Adey (2007) on the west coast of Scotland, has shown that the catchability of *Nephrops* in creels is relatively low, with the number of approaches to creels by prawns far outweighing the number of entries. Creels are also shown to be generally selective for larger individuals, likely due to a number of factors; higher disturbance threshold in larger individuals, behavioural interactions between different size *Nephrops* and escape gaps (not mandatory in the NIFCA District) allowing smaller individuals to escape (Adey, 2007).

Due to the limited fishing for *Nephrops* with pots in CSM MCZ and the above evidence of low catchability and high selectivity of pots, NIFCA concludes with moderate confidence that potting for *Nephrops* will not hinder the conservation objectives of subtidal mud in CSM MCZ.

### 3.7 [Pressure 3] Removal of non-target species

Potting is generally considered to be one of the most selective types of fishing, although bycatch species will be caught in pots. Bycatch can include species which are not being targeted, or undersized/berried individuals of the target species. However, the removal of target species has been considered above and those not meeting local landing requirements will be returned to the sea. Survival rates are very high for any crab and lobster and so they will likely be returned alive.

Bycatch species in the pot fishery can include: velvet swimming crab, cod, hermit crab, whelk, starfish, urchins, squat lobster and octopus. Fishers generally haul their pots every few days, which means bycatch species are likely to survive and can then be released unharmed. Survivability of most species is generally considered to be high (Welby, 2016) (Moore, et al., 2023) although this will vary between species and if efforts are made to reduce seabird predation as animals go back, which can be a significant cause of mortality (Adey, 2007).

Some species are likely to be kept by potters as bait, or landed if they are above minimum size, despite not being the target species e.g. velvet swimming crabs and cod. Velvet crab are reported in landings data, which would allow significant increases in exploitation to be detected, and a minimum size limit is in place for commercial fishers (65 mm). Likewise cod has a minimum landing size of 35cm in the NIFCA District. NIFCA also conducts regular on board catch sampling on potting vessels in the District and through this and liaison with local fishers NIFCA would be made aware of any significant bycatch issues with other species in the fishery. Should any issues come to light then these would be investigated. At current levels NIFCA do not consider bycatch or the removal of non-target species in the lobster/brown crab/Nephrops potting fishery likely to hinder the conservation objectives for protected features in CSM MCZ (moderate confidence).

### 3.8 Knowledge gaps

There are knowledge gaps on potting in the CSM MCZ, mainly regarding the long-term impacts of potting and the effect of potting on subtidal sediment habitats.

**Table 14.** Knowledge gaps on the potting fishery

| Knowledge gaps on the potting fishery | | | |
|---|---|---|---|
| | **Knowledge gap** | **Aims** | **Long-term outcomes** |
| **IMPACTS** | Impacts of long-term potting on rocky habitats | NIFCA may be able to contribute to surveys looking at these two questions, however, to really fill the knowledge gap will take multiple studies from research organisations around the UK | To better understand the long-term impact of potting on rocky habitat. Whilst there are a few studies in the south of England that have looked at this, knowledge is still limited. It is also unknown if we are working from an already depleted baseline in terms of the fauna in subtidal habitat. |
| | Impacts of potting on subtidal sediment habitats | | To better understand the impact of potting on subtidal sediment habitats i.e. mud and coarse/mixed sediment, as the focus of studies so far has been on rocky habitats. |

### 3.8 Pressures conclusion – December 2023

NIFCA can say with moderate confidence that on areas of subtidal rocky ground, adverse impacts to the subtidal features from potting are unlikely. Stephenson et al. (2017) found little evidence of a decline in species abundance or a shift in community composition as a result of experimental potting pressure on subtidal rocky habitats in Northumberland. Potting density in this study exceed the highest densities in the CSM MCZ when extrapolated. This conclusion is not drawn with higher confidence as the long-term impacts of potting are still not well studied in the UK and confidence in the current stock assessments for crab and lobster for the area of CSM MCZ is low although NIFCA do conduct stock monitoring work

NIFCA can say with low- moderate confidence that on areas of subtidal mud, adverse impacts to the subtidal features from potting are unlikely. Potting on subtidal mud occurs at relatively low levels, however, there are a lack of studies about the impacts of potting on mud.

NIFCA concludes with moderate confidence that impacts to subtidal sediment features (coarse sediment, mixed sediments and sand) are unlikely from potting alone, due to the more resilient nature of these habitats, lack of fragile erect fauna and low activity levels.

**Table 15.** Summary of pressures assessment – February 2023

| Pressure | Interest feature | Favourable condition target | Activity | Compatible with conservation objectives? | Confidence |
|---|---|---|---|---|---|
| Abrasion and disturbance | Low, moderate and high energy intertidal rock, Intertidal underboulder communities<br><br>Moderate and high energy infralittoral rock, high energy circalittoral rock<br><br>Sublittoral coarse sediment, mixed sediments, mud and sand | Maintain the presence and spatial distribution of biological communities | Pots/creels | Y | Moderate for rocky intertidal and subtidal habitat.<br><br>Low-moderate for subtidal mud.<br><br>Moderate for subtidal coarse sediment, mixed sediment, sand. |
| | | Maintain the species composition of component communities | | Y | |
| | | Maintain the surface and structural complexity, and the stability of the reef, including the habitat supporting the intertidal underboulder communities | | Y | |
| | | Maintain the distribution of sediment composition types across the sediment features | | Y | |
| Removal of target species | Low, moderate and high energy intertidal rock, Intertidal underboulder communities<br><br>Moderate and high energy infralittoral rock, high energy circalittoral rock<br><br>Sublittoral coarse sediment, mixed sediments, mud and sand | Maintain the presence and spatial distribution of biological communities. | Pots/creels | Y | Moderate for all habitats. |
| | | Maintain the species composition of component communities. | | Y | |
| Removal of non-target species | Low, moderate and high energy intertidal rock, Intertidal underboulder communities<br><br>Moderate and high energy infralittoral rock, high energy circalittoral rock<br><br>Sublittoral coarse sediment, mixed sediments, mud and sand | Maintain the presence and spatial distribution of biological communities. | Pots/creels | Y | Moderate for all habitats. |
| | | Maintain the species composition of component communities. | | Y | |

### 3.9 Part B conclusion (fishing alone)

NIFCA conclude, with moderate confidence, that potting activity alone will not adversely impact the conservation objectives of the site, through the pressures listed above, at current levels of the activity. NIFCA conclude with low-moderate confidence on subtidal mud and moderate confidence on rocky and subtidal sediment habitats. NIFCA will maintain data collection in the potting fishery and work with fishers, statutory bodies and research organisations to improve knowledge of these pressures, increasing the confidence in this conclusion. If evidence shows it to be necessary, management will be considered. Potting activity is monitored through the NIFCA Monitoring and Control plan.

## 4. In-combination Assessment

Potential risks of in-combination effects have been considered in Table 16 listing other fisheries, current and possible plans and projects and other activities within the site.

In summary, potting within Coquet to St Mary's MCZ is not deemed to have a likely significant effect on intertidal rock features, subtidal rock features or subtidal sediment features in combination with other plans/projects

**Table 16.** In-combination assessment of potting with other plans and projects within and around Coquet to St Mary's MCZ, occurring on intertidal and subtidal habitats.

| Fishing Activity | | | |
|---|---|---|---|
| **Activity** | **Description** | **Potential Pressure** | **Assessment** |
| Bottom trawling on subtidal rock and subtidal sediment | An exemption is required to trawl within Coquet to St Mary's MCZ using specified gear from a vessel <12m in length. Specified gear' means a single trawl fitted with a single cod-end and one pair of otter boards rigged for fine ground fishing using either: (i) grass rope with lead rings; (ii) light single chain ground gear, with a chain link diameter of less than or equal to 10 millimetres; or (iii) rubber leg ground gear with rubber discs less than 70 millimetres in diameter. i.e. light otter gear which can only be used in soft sediment areas to prevent its use on rocky reefs. | In 2023 NIFCA issued 22 exemptions to permit holders, allowing them to trawl within the MCZ. However, this is a new 2021 byelaw and some people have applied for a permit but will be highly unlikely to trawl within the MCZ, the actual number of trawlers will therefore be much smaller.<br><br>In 2022 only four vessels (out of 22 with an exemption) reported trawling in the MCZ. There is only one known permit holder who trawls inshore in the sandy bays and this vessel did not report any activity in the MCZ in 2022. | Trawling does not usually co-occur with potting activity in the MCZ. Mobile gear is targeted on subtidal muddy and sandy ground, where potting levels are very low. Potting is primarily targeted on and around rocky ground, with some activity on subtidal mud for *Nephrops.* In addition, potters avoid setting gear where mobile fishers operate, as gear loss is expensive.<br><br>NIFCA does not consider that a significant interaction is likely to occur between these two activities, increasing pressure on the protected features of the MCZ (high confidence). |
| Fixed nets on subtidal ground | Fixed nets (gill nets and trammel nets) are anchored to the seabed, with a floating headline and used to target white fish (cod) and flatfish in the NIFCA District. These nets will be set on firmer ground, likely near wrecks for cod, but on sandy ground for flatfish. Only one vessel is though to set tangle nets, this is outside of CSM MCZ. Fixed netting is managed by the Fixed Engines Byelaw which NIFCA is currently looking to update. | Fixed nets are anchored on the seabed and have the potential to cause impacts to features through both 'abrasion' and the removal of target and non-target species. This activity occurs at a very low level across the NIFCA District and in the MCZ. NIFCA are currently aware of one vessel from Amble which occasionally sets gill nets in the MCZ area. On NIFCA shellfish permit returns data only 4-5 vessels have reported setting nets in the District each year (2020-22). | Due to the very low levels of this activity NIFCA can say with high confidence that fixed netting activity 'in-combination' with potting will not increase pressures on the protected features in CSM MCZ. |
| Hand work (access from | Hand work encompasses a wide variety of fishing methods, including; | The main pressure from shore-based activities is the removal of target species. Any interaction with | NIFCA collect data on shellfish in the District through monthly permit |

| | | | |
|---|---|---|---|
| land) in the intertidal | angling, periwinkle collection, hand gathering of mussels/bait, 'cleeking' and crab tiling. These activities occur across the NIFCA district and since 2016 NIFCA officers have been collecting information on shore-based activity two hours either side of low tide, including 'no activity'. | potting will be from the additional removal of shellfish by 'cleeking' for lobsters at low tide. Shellfish can be considered component species of the intertidal and sub-tidal rocky habitats protected in the MCZ. | returns, at-sea sampling and quayside sampling. NIFCA data shows a stable LPUE for lobster across the District since 2015 (NIFCA, 2023a) (NIFCA, 2023b). In addition, with the exception of low levels of intertidal potting, shore-based activity and potting do not spatially overlap.<br><br>NIFCA can therefore say with high confidence that shore-based activity will not 'in-combination' with potting activity increase the pressure on rocky features of CSM MCZ. |
| Digging with forks in the intertidal | Digging with forks entails collecting worms from the intertidal at low tide, primarily lugworms and ragworms. This activity occurs in estuaries across the NIFCA district and since 2016 NIFCA officers have been collecting information on shore-based activity two hours either side of low tide. | Bait digging activity has a seasonal aspect and activity highest from September-January.<br><br>Digging with forks could cause pressure to intertidal sediment habitats in the MCZ through penetration of the substrate and the removal of target species. | There will be no spatial overlap between bait digging and potting, nor are these activities targeting the same species. NIFCA can therefore conclude with high confidence that potting and bait digging will not 'in-combination' increase pressures on the bird features of the SPA. |

**Projects and Plans**

| Activity | Description | Potential Pressure | Assessment |
|---|---|---|---|
| Mine water discharge | Abandoned mines are one of the biggest sources of water pollution by metals. There is a mine water treatment scheme at Lynemouth and groundwater upwellings have occurred at Hauxley/Hadston as well as water pumped from a mine, discharged through an existing outfall at Hauxley. | Sediments and invertebrate communities could be negatively impacted by mine water discharges. This could occur where mine water is not treated before release into the marine environment. In the majority of cases significant mine water outflow is identified and treated by the Coal Authority. | Appropriate licence conditions/monitoring has been incorporated to mitigate any impacts. |

**Active Marine Licences**

| Project number | Brief description | Assessment |
|---|---|---|
| MLA/2023/00158 | Hydrophone deployment for monitoring cetaceans | All marine licence applications are assessed to ensure appropriate licence conditions/monitoring are in place. These assessments must consider impacts to Marine Protected Areas, with an aim to preferably avoid, then minimise and mitigate impacts to the protected features. NIFCA are |
| MLA/2023/00017 | Deployment of cetacean acoustic monitoring equipment | |
| MLA/2023/00094 | Bore hole back-filling | |

| | | |
|---|---|---|
| MLA/2020/00458 | Construction of telecommunications pipeline | consulted on all relevant marine applications, as are Natural England. |
| MLA/2019/00109 | Maintenance of Newbiggin coastal wave buoy | |
| MLA/2019/00319 | Laying of sub-sea cable | |
| MLA/2012/00122 | Blyth windfarm (construction of 15 turbines). Work is set to continue after the installation of the initial five. | |

# Chapter 5 Conclusion

## 5.1 Assessment Result for Potting (Pots/creels)

### 5.1.1 Fishing alone

NIFCA consider that potting alone will not affect (other than insignificantly) the protected features of this site.

### 5.1.2 In-combination

NIFCA consider that potting will not affect (other than insignificantly) the features of the site from the following in-combination factors:

- Pressures from potting with all other types of commercial fishing
- Pressures from potting combined with existing licenced activity within the site

## 5.2 Proposed Management

Option 1: Nothing is required.

Option 2: No additional management is foreseen. Introduce a monitoring and control plan within the site to document fishing effort.

Option 3: Reduce/limit pressures. Due to the potential impacts of bottom towed gears on the sub-tidal reef features, gear restriction management will be introduced to stop the interaction to ensure the achievement of the conservation objectives. A limit on the number of bottom towed vessels will be introduced to ensure fishing levels are maintained at current levels.

Option 4: Remove/avoid pressures (site closures). Prohibit bottom contacting towed gears in all areas of the site.

NIFCA has ascertained that potting does not pose a significant risk to the site's Conservation Objectives, therefore Option 2 is the most appropriate management action. Potting activity in the site is already monitored and analysed annually through the NIFCA Permit Returns scheme, with a potting Monitoring and Control plan already in place.

## 5.3 Review of Assessment

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 has been implemented.

NIFCA will review this assessment every year through the monitoring and control plans, into which these assessments feed, or more frequently if significant new information is received.

Such information could include:

- updated conservation advice;
- updated advice on the condition of the feature;
- significant change in activity levels.

## 5.4 Conclusion

NIFCA have, with regard to the best available evidence and through consultation with relevant advisors and the public, concluded that potting activity in CSM MCZ is compatible with the site's objectives.

| | |
|---|---|
| **Has Natural England been formally consulted on this document (and do they agree)?** | **Catherine L. Scott** |

| | |
|---|---|
| **Date of document completion/signature:** | **29/01/24** |

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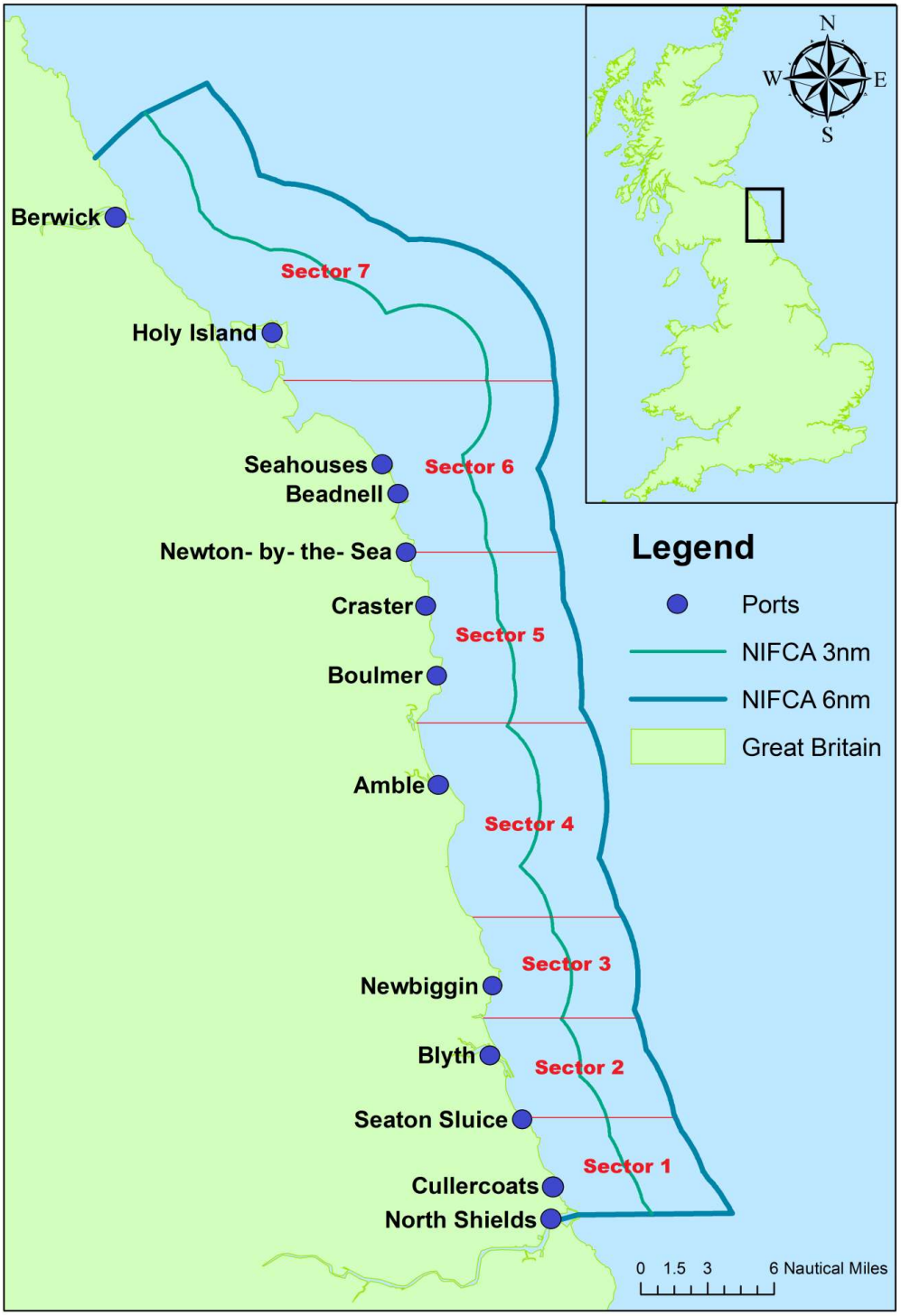
## Annex 1 – NIFCA District's Sectors



## Annex 2 – Habitat Map of Coquet to St Mary's MCZ