MARINE CONSERVATION SOCIETY | Good Fish Guide

Assessing fishing activity inside Marine Protected Areas

First published: June 2022

Contents

Executive summary

The Good Fish Guide rates the sustainability of farmed and wild-caught seafood using publicly available methodologies. The wild-capture ratings methodology incorporates additional consideration of the impact of fishing within Marine Protected Areas (MPAs). These additional considerations are triggered when 20% or more of the catch or effort, at the scale of the rating, takes place within a designated or managed MPA. They are currently applied only to ratings where bottom-towed gear has been used in MPAs that are designated to protect seabed features.

An analysis was undertaken in June 2022 to assess whether two fisheries in particular - Norway lobster (*Nephrops norvegicus*) trawl and king scallop (*Pecten maximus*) dredge – meet these criteria. These fisheries were selected because they have relatively small units of assessment, are known to operate within MPAs, and use gears that can have a detrimental impact on protected seabed habitats. Fishing effort data from 2016-2020 was mapped and spatial analysis was carried out to identify overlaps with MPAs.

The results indicated that no Norway lobster trawling exceeded the threshold during the period of analysis. While effort was above the threshold in 2 areas (Moray Firth and North Minch, both in Scotland), the affected MPAs were not designated until 2020. Therefore, less than 20% of fishing activity in those areas during the period of analysis was inside designated MPAs. If fishing activity in those areas continues at the same level, it is likely to affect scoring in future. Effort in a 3rd area, the Noup, also in Scotland, could not be analysed to species level. This is a mixed fishery, with trawling targeting Norway lobster as well as a number of whitefish species. Over 20% of effort was within an MPA, but it is not possible to ascertain which species were being targeted during the fishing activity within the MPA.

With regard to scallop dredging, more than 20% of effort took place in designated MPAs in 1 area during the period of analysis: Dogger Bank in the North Sea, primarily affecting the Dogger Bank Special Area of Conservation. Similarly to the Norway lobster fishery, dredging effort was above the threshold in 3 other areas, but the affected MPAs were not designated until 2019 and 2020. Therefore, less than 20% of fishing activity in these areas - Inshore Bristol Channel in the southwest UK, the Irish Sea (beyond 6nm), and North East Scotland & Orkney - during the period of analysis was inside designated MPAs. Again, if fishing activity in those areas continues at the same level, it is likely to affect scoring in future.

Introduction

The Good Fish Guide rates the sustainability of farmed and wild-caught seafood using publicly available methodologies[1]. For wild capture fisheries, the methodology focuses on three criteria:

1. The status of the wild population
2. The effectiveness of management
3. The impact of the capture method

This analysis focuses on the third criterion. The impact of the capture method varies depending on where fishing is taking place, and what fishing method is employed. Assessing this is particularly important when fishing could affect Marine Protected Areas (MPAs), which have been designated to protect vulnerable habitats or species. This is most likely to happen when bottom-towed fishing gears, such as trawls or dredges, are used inside MPAs that have been designated to protect seabed habitats like sandbanks and reefs.

Consequently, the Good Fish Guide Wild Capture Ratings Methodology applies stricter scoring under the following circumstances:

> *Where available information clearly indicates a high likelihood that a fishery/fleet at the scale of the assessment is occurring in an MPA, the MPA tab […] is applied to score habitat impacts', referring to table 15, page 29 of the methodology.*

The statement "high likelihood… at the scale of the assessment" is defined as follows:

> *There is evidence (e.g. recent catch reports or VMS data) of significant bottom towed fishing activity (>=20% of the catch or effort or coverage) from the fleet[s] under the unit of assessment occurring in an MPA or MPAs designated for seabed features.*

Method

In order to assess whether 20% or more of the fishery is operating in designated or managed seabed MPAs, the following spatial analysis was undertaken:

1. Map seabed MPAs
2. Map the unit(s) of assessment, e.g. stock areas or functional units
3. Map the fishing data for the unit(s) of assessment, using the most up-to-date information that is publicly available
4. Identify the units of assessment where 20% or more of fishing activity is within MPAs designated to protect the seabed

[1] Marine Conservation Society, 2022. How our Good Fish Guide ratings work. https://www.mcsuk.org/ocean-emergency/sustainable-seafood/the-good-fish-guide/how-our-good-fish-guide-ratings-work/

5. Apply MPA scoring to those units of assessment

Two fisheries were selected as priorities for assessment: king scallop (*Pecten maximus*) dredge, and Norway lobster (*Nephrops norvegicus*) trawl. These fisheries have relatively small units of assessment, are known to take place within MPAs, and the fishing gears used can have a detrimental impact on sensitive habitats.

Data

Marine Protected Areas

The Marine Protected Areas included in this analysis are Special Areas of Conservation (SACs), Nature Conservation MPAs (NCMPAs), and Marine Conservation Zones (MCZs) within the UK EEZ which have been designated to protect benthic features (Figure 1). All benthic MPAs that had been designated by the date of this analysis were included, regardless of designation date. This is discussed in more detail below. Data was obtained from the UK's statutory nature conservation bodies: JNCC[2], Natural England[3], Natural Resources Wales[4], and NatureScot[5].

Activity has been assessed for whole MPAs. In the methodology described above, no distinction is made between managed and unmanaged portions of individual MPAs. Therefore, management measures such as, for example, closing part of an MPA to trawling, have not directly affected this analysis. However, such measures may have resulted in a reduction in fishing activity within MPAs over time, indirectly affecting results. Data on closed areas of MPAs has been obtained from the Marine Conservation Society[6].

Fishing Effort

Fishing effort data has been used rather than catch data. Depending on the habitat, just one pass of a dredge or trawl can have a significant impact, regardless of how much was caught. Effort will more accurately indicate how much activity has taken place in certain areas.

The fishing effort data used below was obtained from the International Council for the Exploration of the Sea (ICES)[7]. It is based on data from Vessel Monitoring Systems, which track vessel locations. The speed of the boat is used to identify fishing activity. Steaming (travelling between fishing grounds or ports) is therefore excluded from the dataset.

There are some caveats with this data:

---

[2] JNCC, 2022. UK Marine Protected Area Datasets for Download: Offshore Marine Protected Areas. https://jncc.gov.uk/our-work/uk-marine-protected-area-datasets-for-download/#offshore-marine-protected-areas

[3] Natural England, 2021. Marine Conservation Zones (England). https://www.data.gov.uk/dataset/80c075c3-1880-44a0-bffc-69e20f307c21/marine-conservation-zones-england

[4] Welsh Government, 2021. MPA boundaries. https://www.gov.wales/marine-protected-areas-0

[5] Marine Scotland, 2022. Nature Conservation Marine Protected Areas (MPAs) contributing to the MPA network (SNH WMS) (OSCP). https://marine.gov.scot/maps/844

[6] Marine Conservation Society, 2022. MPA Reality Check. https://mpa-reality-check.org/

[7] ICES, 2021. Data for OSPAR request on the production of spatial data layers of fishing intensity/pressure. Data Outputs. https://doi.org/10.17895/ices.data.8294.

- ICES present any data that is considered 'sensitive' (e.g. fishing hours) in a series of range categories in order to anonymise it. Our analysis uses the median of each of these range categories as a measure of fishing activity.
- The data is only from vessels over 12 metres long, and therefore this analysis does not include any activity from smaller vessels below 12m. This may result in an underestimation of fishing activity, particularly in inshore areas, where small vessels are more likely to operate.
- The data is not specific to individual species being targeted. Instead, it relates to groups such as crustaceans and molluscs. Assumptions therefore have been made about which species the vessels in question would be targeting. This is further discussed below.
- Data is at a resolution of approximately 15km^2 (0.05° x 0.05° cells). Some of these 15km cells overlap MPA borders. Fishing activity that takes place in these 'border cells' may be taking place outside an MPA but be interpreted as happening within the MPA. Maps of fishing activity within the MPAs of concern can be found in Appendix A. Future analyses will assess whether results are different when 'border cells' are excluded.

.

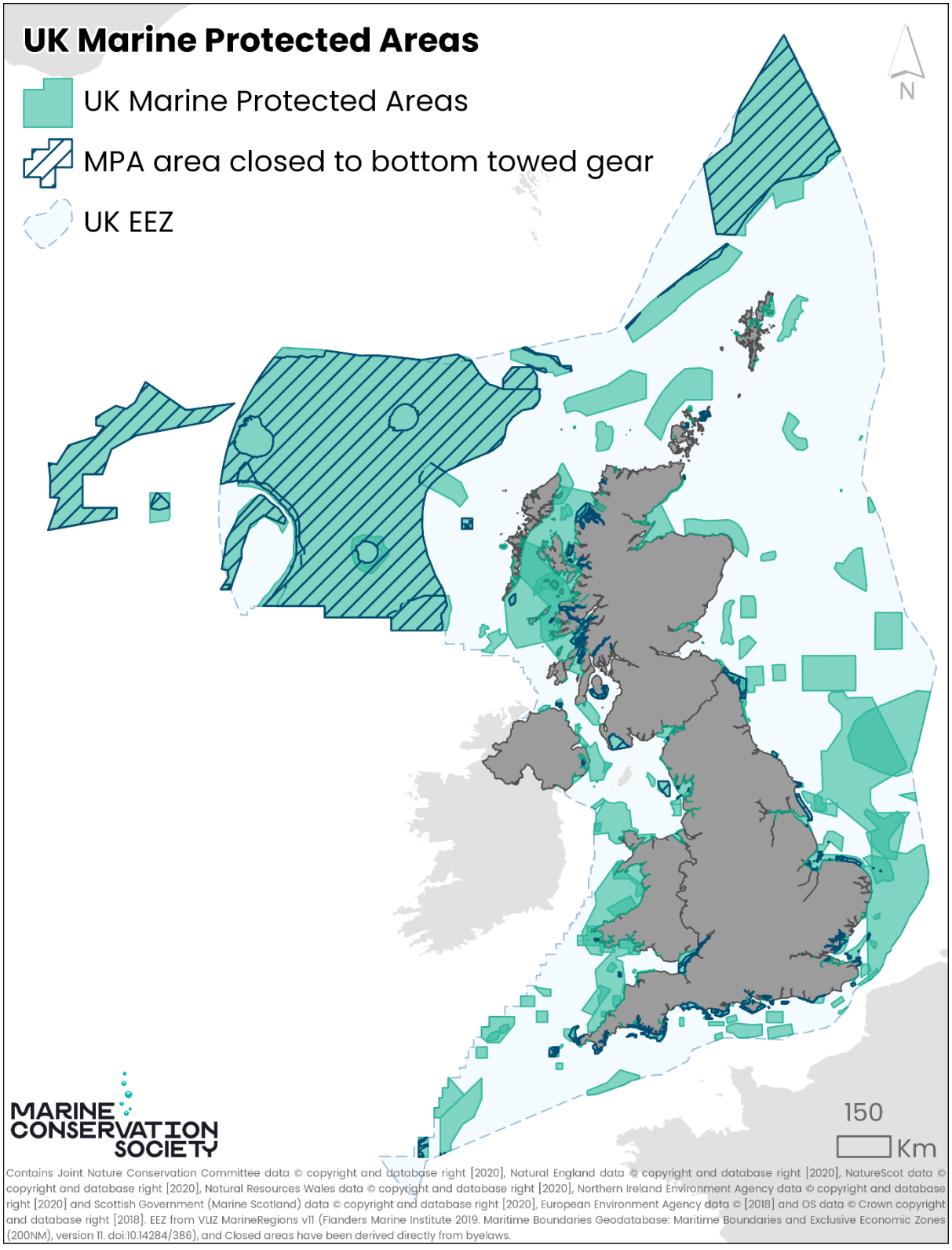


Figure 1. UK MPAs and areas where bottom-towed gear is prohibited year-round, correct as of March 2022. Excludes seasonal restrictions. Excludes measures introduced in June 2022 in Dogger Bank SAC, the Canyons MCZ, Inner Dowsing, Race Bank and North Ridge SAC, and South Dorset MCZ. Data sources: JNCC, Natural England, Natural Resources Wales, NatureScot, Marine Conservation Society.

Norway lobster trawling

Fishing for *Nephrops norvegicus*, commonly sold as Norway lobster, Dublin Bay prawn, langoustine, or scampi, is carried out by trawling and potting. This species lives in muddy habitats, which can also contain other vulnerable species such as sea pens. This analysis focuses on trawling, which can adversely affect such species.

Units of assessment

The units of assessment in this fishery are the stock areas for Norway lobster, known as Functional Units (FUs) (Figure 2).

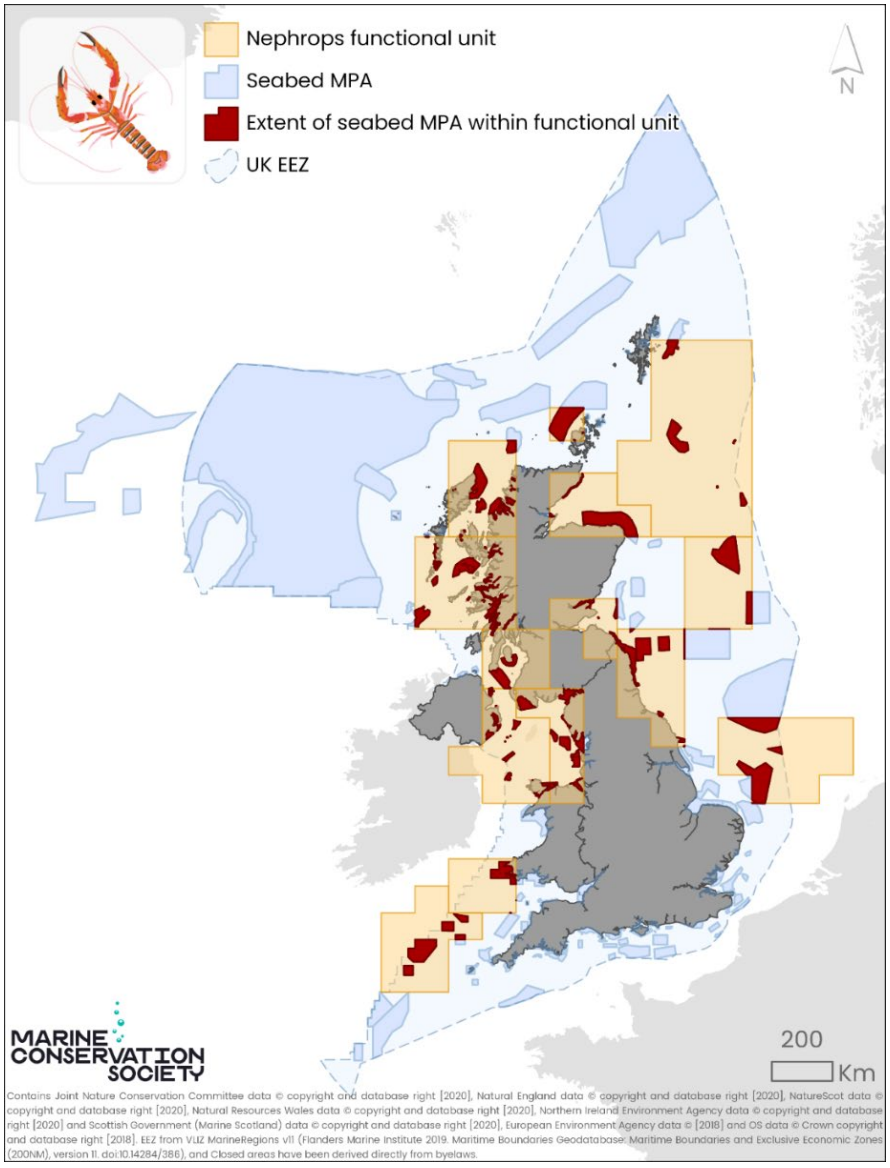


Figure 2. Norway lobster Functional Units overlapping with seabed MPAs. Data source: ICES[8]. For MPA data sources, see Data above. A full list of seabed MPAs within each Functional Unit can be found in Appendix III. Seabed MPAs within Norway lobster Functional Units

[8] ICES, 2017. *Nephrops* functional units reference layer. https://gis.ices.dk/geonetwork/srv/eng/catalog.search#/metadata/2dd802bf-b8f6-404d-8b93-b6154cbc77e2

Fishing data

Effort data was used to analyse the Norway lobster fishery. The most recent publicly available data is from 2009-2020, from ICES. The data is based on the number of hours of fishing by vessels using otter trawls to target crustaceans. This is designated by the gear code OT_CRU.

Otter trawlers targeting crustaceans are catching a number of species, including Norway lobster, other lobsters and crabs, crawfish, shrimps, and prawns. An assessment was carried out to understand how representative the OT_CRU dataset is of the Norway lobster fishery. Owing to the aggregation of data it is not possible to specify effort to species in the ICES dataset. Therefore, MMO landings data[9], which provides both species and gear type, was used (Figure 3). Data for UK vessels within the UK EEZ indicates that 99% of landings (by weight) by otter trawls targeting crustaceans are Norway lobster (Table 1).

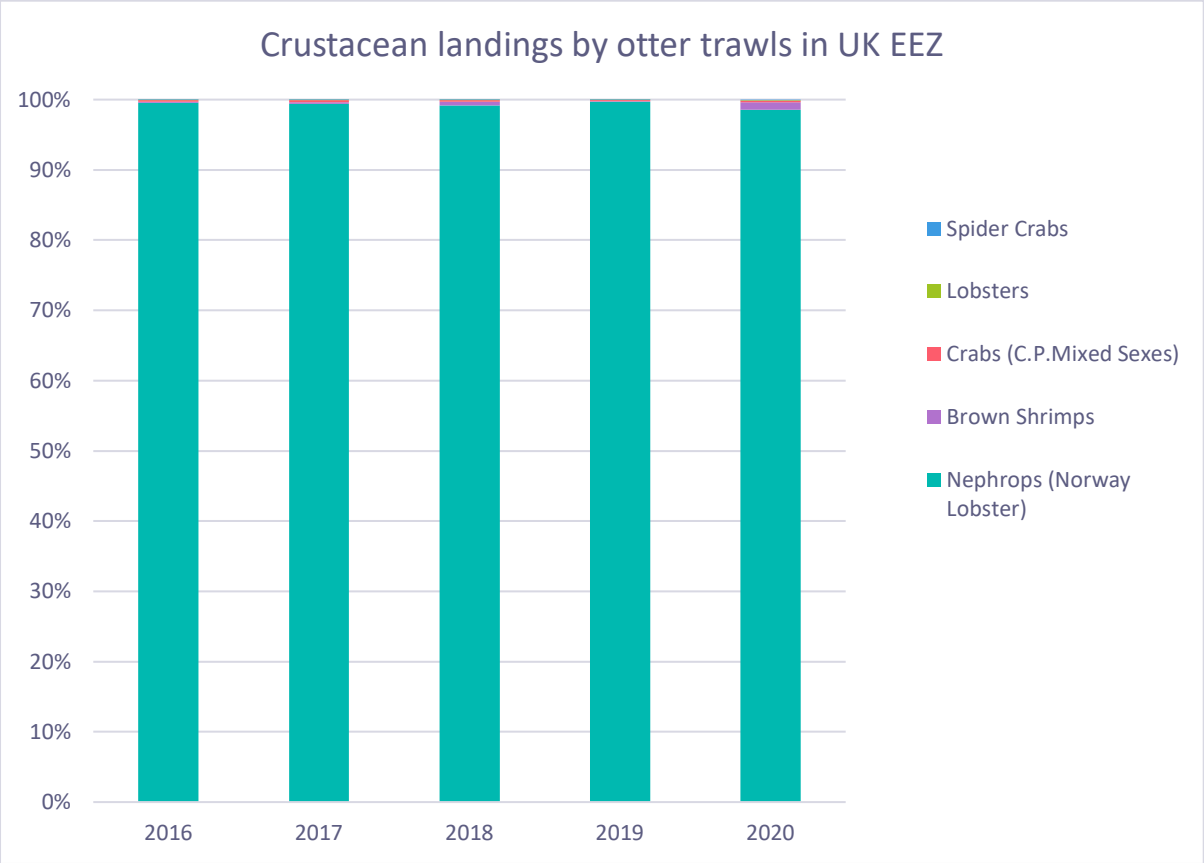


Figure 3. Landings by UK fleets in the UK EEZ, where gear type is 'otter trawl' and the species landed are crustaceans. Data source: MMO.

[9] MMO, 2021. UK sea fisheries annual statistics report 2021: UK fleet landings by rectangle stock and estimated EEZ 2016-2020. https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2021

Species	Total landings 2016-2020 (tonnes)	Proportion of total
Norway lobster	7,7385.47	99.29%
Brown shrimp	282.02	0.36%
Crabs (*Cancer pagurus* mixed sexes)	185.08	0.24%
Lobsters	39.51	0.05%
Spider crab	23.05	0.03%
Northern prawn	6.92	0.01%
Common prawn	5.45	0.01%
Velvet swimming crab	4.45	0.01%
Pink shrimp	4.02	0.01%
Squat lobster	1.14	0.00%
Crawfish	0.93	0.00%
Mixed Crabs	0.25	0.00%
Green Crab	0.07	0.00%
Grand Total	**7,7938.36**	

Table 1. Crustacean species landed by UK fleets in the UK EEZ, where gear type is 'otter trawl'. Data source: MMO.

While landings are not a direct indicator of fishing effort, they indicate that the majority of crustacean trawling is targeting Norway lobster. We therefore consider the ICES OT_CRU dataset to be a reasonable indicator of the Norway lobster fishery.

The total number of fishing hours in each FU was obtained through spatial analysis. The number of fishing hours inside MPAs in each FU was extracted, and calculated as a proportion of the total. FUs where 20% or more of the effort was inside MPAs have been highlighted in Figure 4.

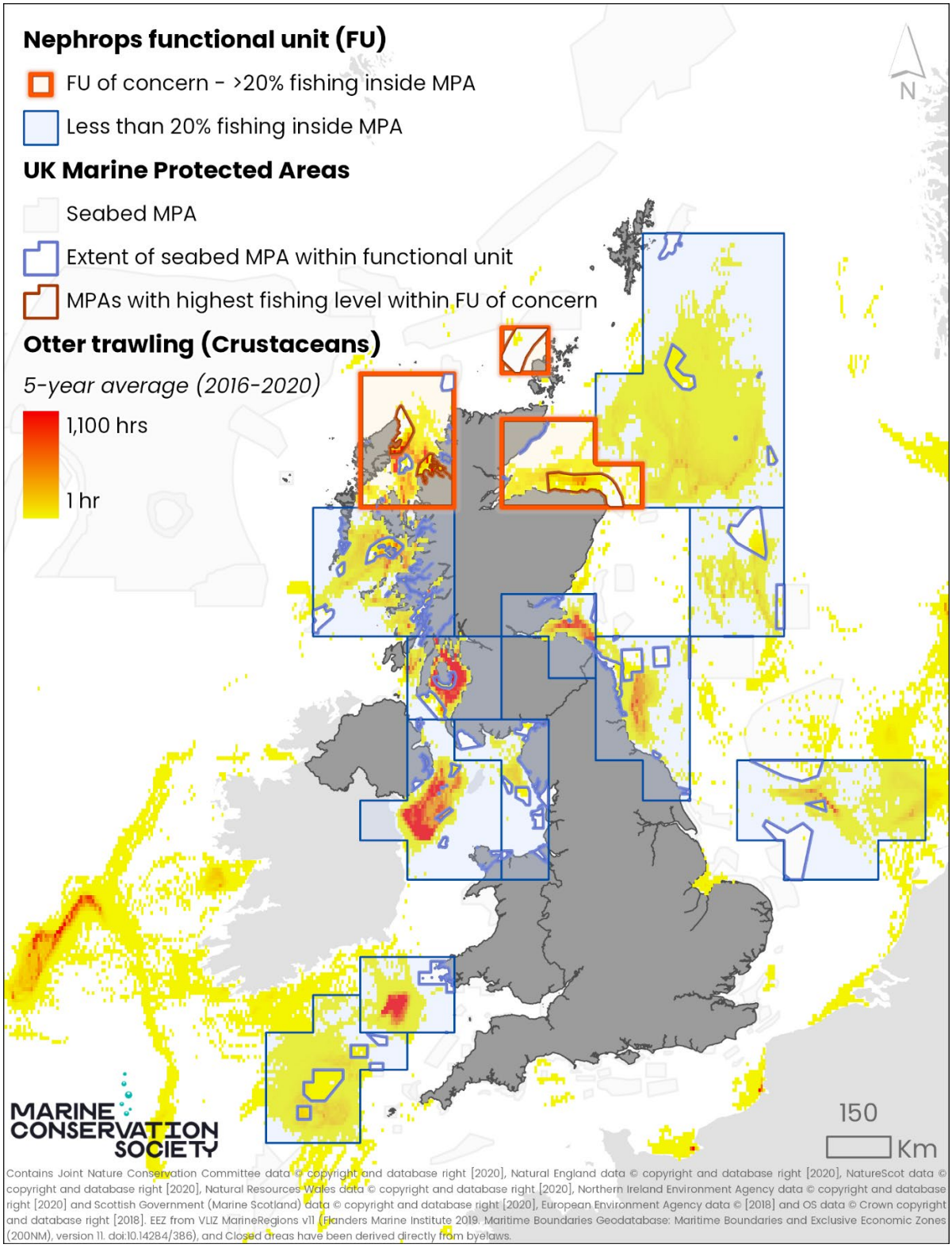


Figure 4. Otter trawling effort targeting crustaceans in relation to Norway lobster functional units and seabed MPAs. Effort is average fishing hours 2016-2020. Data source: ICES.

Fishing activity within MPAs

Over the five years from 2016 to 2020, total fishing effort within seabed MPAs exceeded 20% of the total in three Functional Units: Noup, Moray Firth, and North Minch (Table 2). However, the Noup FU only experienced targeted crustacean trawling in 2016. The main affected seabed MPAs in Moray Firth and North Minch were not designated until 2020. This is further discussed below.

Functional Unit	*Annual fishing hours within whole FU*						*Annual fishing hours within seabed MPAs in each FU*						Proportion of total effort in MPAs
	2016	*2017*	*2018*	*2019*	*2020*	*5-Year TOTAL*	*2016*	*2017*	*2018*	*2019*	*2020*	*5-Year TOTAL*	
Noup (FU 10)	30	-	-	-	-	**30**	30	-	-	-	-	**30**	**100%**
Moray Firth (FU 9)	14,706	12,096	22,705	13,738	9,041	**72,286**	5,221	5,194	15,129	7,280	5,684	**38,507**	**53%**
North Minch (FU 11)	78,786	59,975	52,847	50,029	19,068	**260,704**	18,905	18,247	13,866	15,737	3,697	**70,452**	**27%**
South Minch (FU 12)	84,083	57,813	40,979	32,232	20,876	**235,982**	11,885	7,665	6,279	4,306	2,294	**32,429**	**14%**
Celtic Sea – Labadie (20-21)	44,939	33,755	31,317	45,066	2,966	**158,044**	4,490	3,666	3,070	6,299	203	**17,727**	**11%**
Firth of Clyde & Sound of Jura (FU 13)	123,869	117,986	96,617	104,978	70,361	**513,811**	13,064	12,427	10,215	9,798	8,796	**54,299**	**11%**
Devil's Hole (FU 34)	17,349	9,282	5,072	14,156	9,699	**55,559**	2,666	1,551	222	62	518	**5,020**	**9%**
Irish Sea East (FU 14)	3,923	3,990	5,031	3,810	2,789	**19,543**	97	317	263	159	37	**873**	**4%**
Irish Sea West (FU 15)	187,843	129,291	144,797	184,296	101,332	**747,559**	4,743	2,562	2,447	6,294	3,307	**19,354**	**3%**
Farn Deeps (FU 6)	31,672	22,883	20,831	74,527	23,056	**172,968**	346	391	260	1,048	256	**2,301**	**1%**
Fladen Ground (FU 7)	19,646	48,913	42,873	91,140	45,666	**248,238**	0	72	124	948	796	**1,941**	**1%**
Firth of Forth (FU 8)	14,010	43,294	37,446	43,848	21,308	**159,907**	151	242	228	291	222	**1,134**	**1%**
Botney Cut – Silver Pit (FU 5)	43,452	30,675	18,544	37,187	8,285	**138,142**	216	156	129	218	77	**796**	**1%**
Celtic Sea – the Smalls (FU 22)	71,751	83,843	50,466	51,296	37,634	**294,990**	-	-	-	-	-	**-**	**0%**

Table 2. Annual hours of fishing effort by otter trawlers targeting crustaceans within each Norway lobster Functional Unit between 2016 and 2020. The blue section on the left is the total hours for the whole FU, while the purple section on the right indicates hours of fishing with seabed MPAs.

In the Moray Firth and North Minch FUs, fishing effort from 2009-2015 follows a similar patter as for more recent years (Table 3). In the Noup, targeted crustacean trawling effort was higher before 2017, and has since declined. For other FUs, fishing effort in MPAs was below 20% of the total for the whole time series.

Functional Unit	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Botney Gut – Silver Pit	○	○	○	○	○	○	○	○	○	○	○	○
Celtic Sea – Labadie	○	○	○	○	○	○	○	○	○	○	○	○
Celtic Sea – the Smalls	x	x	x	x	x	x	x	x	x	x	x	x
Devil's Hole	○	○	○	○	○	○	○	○	○	○	○	○
Farn Deeps	○	○	○	○	○	○	○	○	○	○	○	○
Firth of Clyde + Sound of Jura	○	○	○	○	○	○	○	○	○	○	○	○
Firth of Forth	○	○	○	○	○	○	○	○	○	○	○	○
Fladen Ground	○	○	○	○	○	○	○	○	○	○	○	○
Irish Sea East	○	○	○	○	○	○	○	○	○	○	○	○
Irish Sea West	○	○	○	○	○	○	○	○	○	○	○	○
Moray Firth	◑	◑	◑	◑	◑	◑	◑	◔	◑	◕	◑	◕
North Minch	◔	◔	◔	◔	◔	◔	○	◔	◔	◔	◔	○
Noup	◕	◑	◕	◑	◑	○	○	●	○	○	○	○
South Minch	○	○	○	○	○	○	○	○	○	○	○	○

Key	x	○	◔	◑	◕	●
	0%	>0-20%	20-40%	40-60%	60-80%	>80%

Table 3. Annual hours of fishing effort by otter trawlers targeting crustaceans within seabed MPAs as a proportion of total effort in each Norway lobster Functional Unit between 2009 and 2020.

When the proportion of effort within MPAs is averaged across the five years from 2016-2020, the Moray Firth FU has the highest effort at 52%, followed by North Minch at 26%. Effort in the Noup is equal to the 20% threshold (Figure 5).

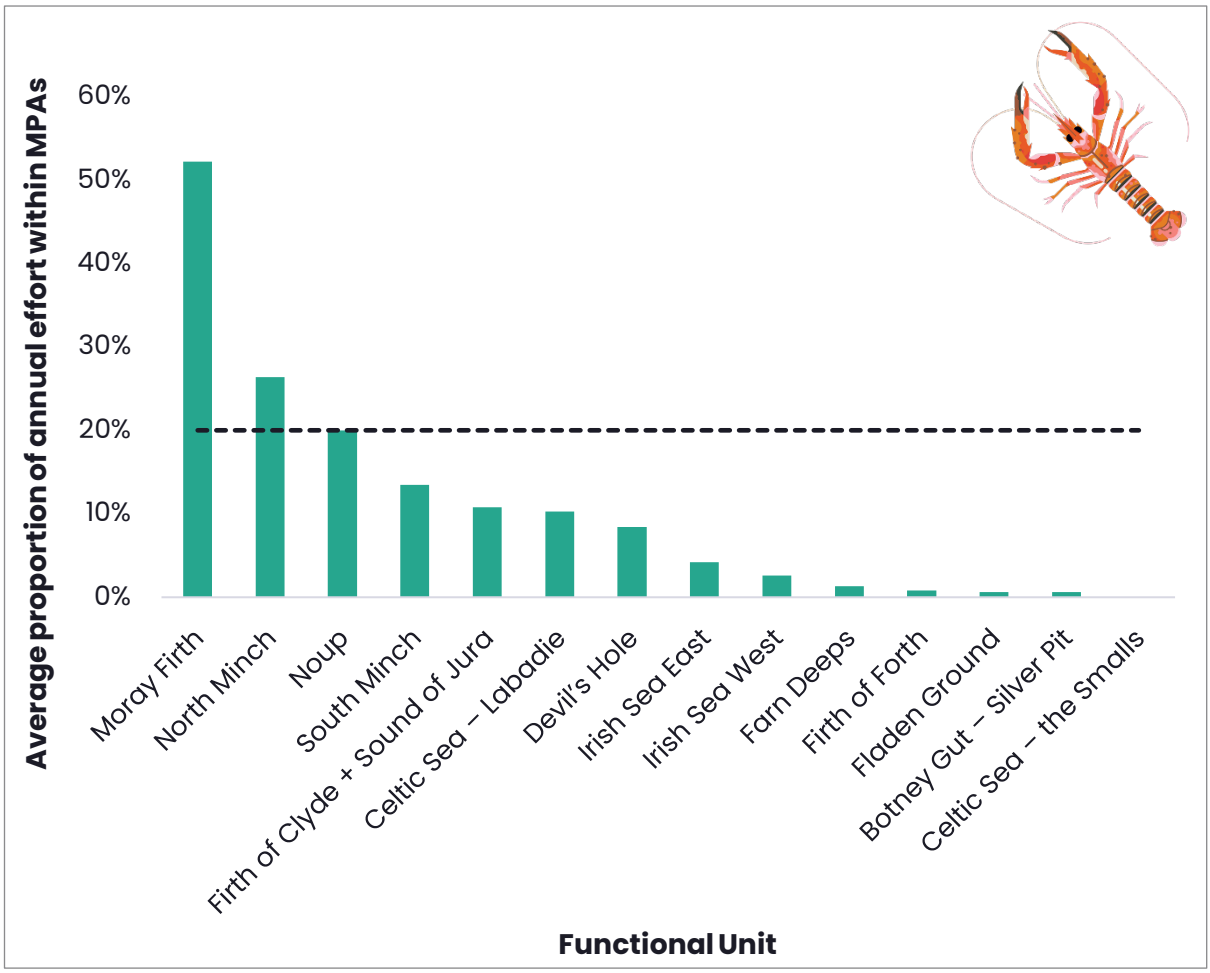


Figure 5. Average annual proportion of crustacean trawling effort (2016-2020) in each Norway lobster functional unit that took place within seabed MPAs. The dashed line indicates the 20% threshold.

Conclusions and discussion

The above analyses indicate that during 2016-2020, 20% or more of Norway lobster trawling effort took place within MPAs in three Functional Units: Moray Firth, North Minch, and the Noup (Figure 6). However, there are caveats in all three cases.

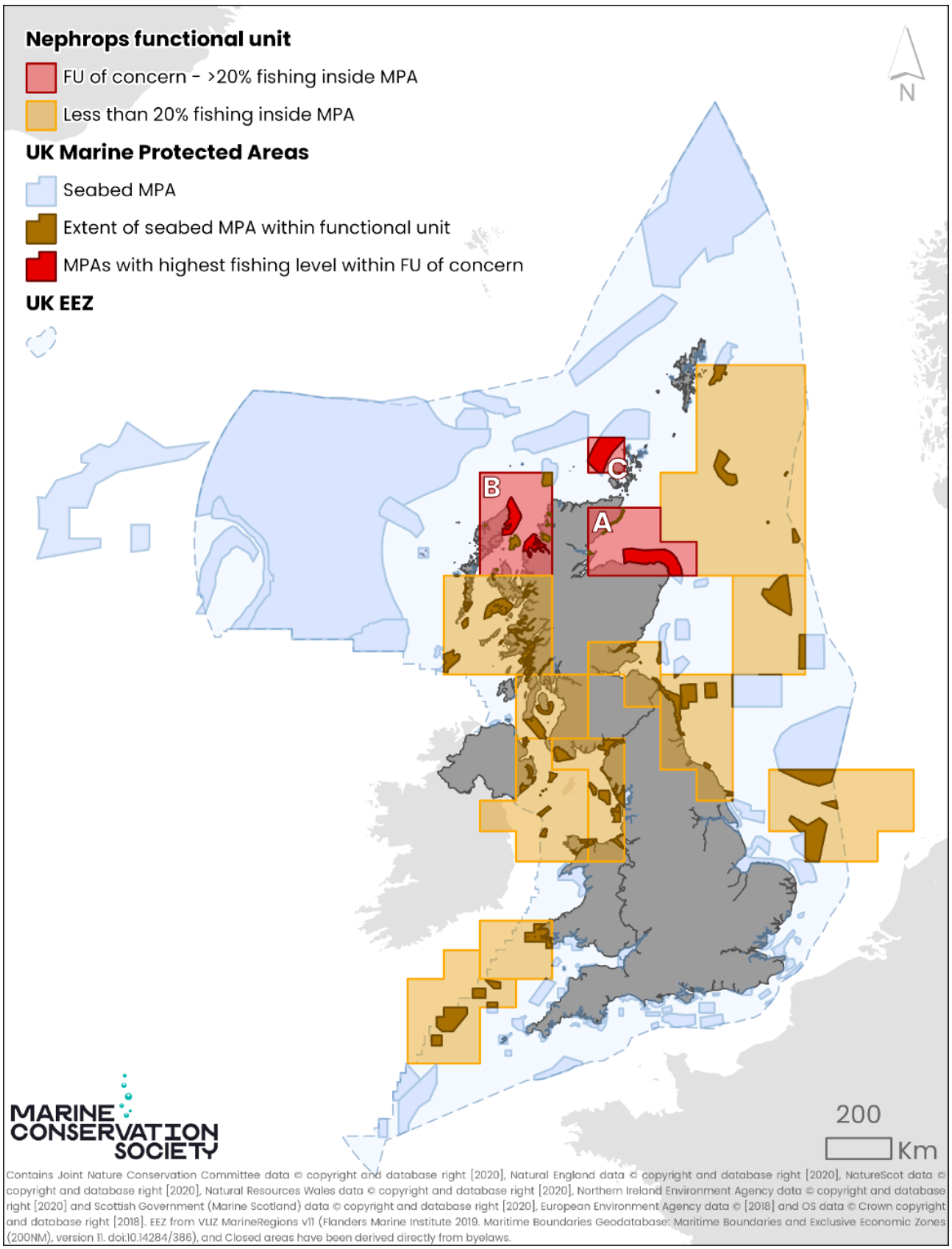


Figure 6. Overlap of Norway lobster functional units and seabed MPAs A. Moray Firth (FU 9), B. North Minch (FU 11), C. Noup (FU 10)

Moray Firth (FU 9)

There are four benthic MPAs in this functional unit:

- East Caithness Cliffs NCMPA
- Noss Head NCMPA
- Southern Trench NCMPA
- Dornoch Firth and Morrich More SAC

Between 2016 and 2020, there were 72,286 hours of otter trawling targeting crustaceans. Of this, 38,507 hours were within the **Southern Trench Nature Conservation MPA**, and the remainder outside of MPAs. Over 50% of trawling effort took place in the Southern Trench MPA.

The **Southern Trench NCMPA** was not designated until December 2020. Therefore, fishing activity in this area during the period of analysis was not inside a designated MPA. **MPA scoring will not therefore be applied to the Moray Firth Functional Unit.** However, if fishing activity continues at this level, it is likely to affect scoring in future.

North Minch (FU 11)

There are nine benthic MPAs in this functional unit:

- Wester Ross NCMPA
- North-east Lewis NCMPA
- Shiant East Bank NCMPA
- Loch Roag Lagoons SAC
- Inverpolly SAC
- Loch Laxford SAC
- Ardvar and Loch a' Mhuilinn Woodlands SAC
- Solan Bank Reef SAC
- Ascrib, Isay and Dunvegan SAC (which also extends into the South Minch FU)

Between 2016 and 2020, there were 260,704 hours of otter trawling targeting crustaceans. Of this, 41,869 hours were within the **North-east Lewis NCMPA** (16% of total effort) and 26,618 hours were within **Wester Ross NCMPA** (10%). A smaller amount of effort took place within Shiant East Bank (1,623 hours), Ascrib, Isay and Dunvegan (446 hours) and Inverpolly (0.78 hours, 0.7% of the total).

The **North-east Lewis NCMPA** was also not designated until December 2020. Therefore, less than 20% of fishing activity in this area during the period of analysis was inside a designated MPA. **MPA scoring will not therefore be applied to the North Minch Functional Unit.** However, if fishing activity continues at this level, it is likely to affect scoring in future.

Noup (FU 10)

There are three benthic MPAs in this functional unit:

- Wyre and Rousay Sounds NCMPA
- North-west Orkney NCMPA
- Loch of Stenness SAC

Between 2016 and 2020, there were 30 hours of otter trawling targeting crustaceans. All of it took place within the **North-West Orkney NCMPA** in 2016. Figure 7 confirms that all trawling activity was clearly from inside the MPA, and not along the outside boundary.

The data indicates that no otter trawling targeting crustaceans has taken place in the Noup FU since then. However, advice from ICES is that, "In recent years most Norway lobster landings from Noup were made by TR1 vessels targeting whitefish."[10] 'TR1 vessels' are otter trawls that use nets with larger mesh sizes than crustacean trawls, 100mm or more.

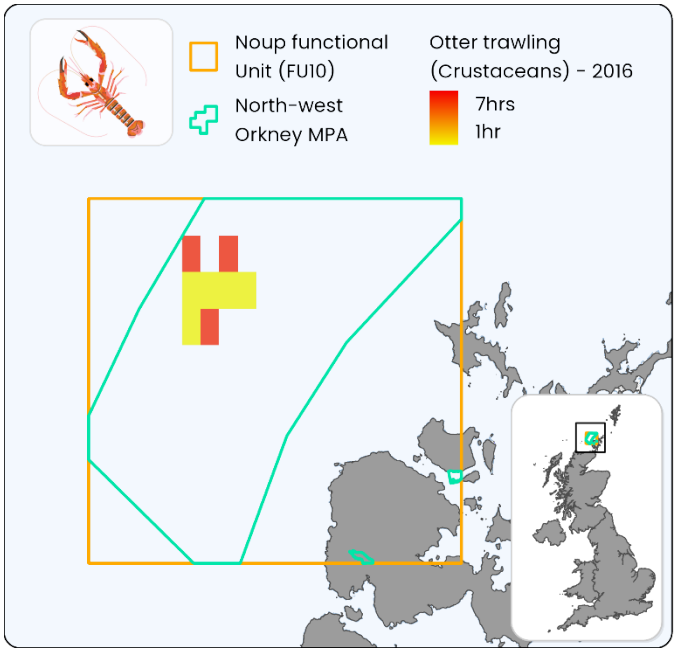


Figure 7. Map showing the overlap between Noup functional unit, North-West Orkney MPA and otter trawling acitvity for 2016.

Therefore, analysis of TR1 effort within the Noup Functional Unit was carried out. The proportion of fishing taking place within MPAs in Noup exceeded 40% in each year (Table 4).

Functional Unit	Annual fishing hours within whole FU					Annual fishing hours within seabed MPAs in each FU					% in MPAs
	2017	2018	2019	2020	TOTAL	2017	2018	2019	2020	TOTAL	
Noup (FU 10)	22,299	30,879	25,282	12,565	**91,025**	9,810	15,216	11,347	6,128	**42,500**	**47%**

Table 4. Proportion of TR1 otter trawling in the Noup functional unit that took place within seabed MPAs annually. Percentage is based on total effort over the 5 year period.[11]

However, as these vessels are also landing whitefish, it is not possible to pinpoint the level of effort involved in Norway lobster fishing in this area. The Noup FU covers ICES rectangle 47E6. MMO landings data from this area indicate that the majority of otter trawl catches are cod, haddock, and monkfish. Norway lobster accounts for 0.9% of total catch from 2016-2020[12]. Therefore, we do not consider TR1 data to be representative of the Norway lobster fishery, and cannot use it to decide on MPA scoring. **MPA scoring will not therefore be applied to the Noup Functional Unit.**

[10] ICES, 2020. Norway lobster (Nephrops norvegicus) in Division 4.a, Functional Unit 10 (northern North Sea, Noup). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, nep.fu.10. https://doi.org/10.17895/ices.advice.5807

[11] ICES, 2021. Data for OSPAR request on the production of spatial data layers of fishing intensity/pressure. Data Outputs. https://doi.org/10.17895/ices.data.8294.

[12] MMO, 2021. UK sea fisheries annual statistics report 2021: UK fleet landings by rectangle stock and estimated EEZ 2016-2020. https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2021

Scallop dredging

Fishing for king scallops is carried out by dredging and hand diving. This analysis focuses on dredging, which is responsible for most scallop catches (over 90% in most areas). Depending on the habitat, dredges can cause extensive damage to the seabed.

Units of assessment

The units of assessment in this fishery are Scallop Assessment Areas (SAAs), used to define stock boundaries for stock assessments (Figure 8). These are defined by the various scientific bodies throughout the UK that carry out scallop stock assessments.

Shapefiles, which are required for spatial analysis, were not publicly available for English scallop assessment areas. Therefore, we have digitised them. A map of our digitisation can be found in Appendix II. Digitised English scallop assessment areas

A full list of seabed MPAs within each Assessment Area can be found in Appendix IV. Seabed MPAs within Scallop Assessment Areas

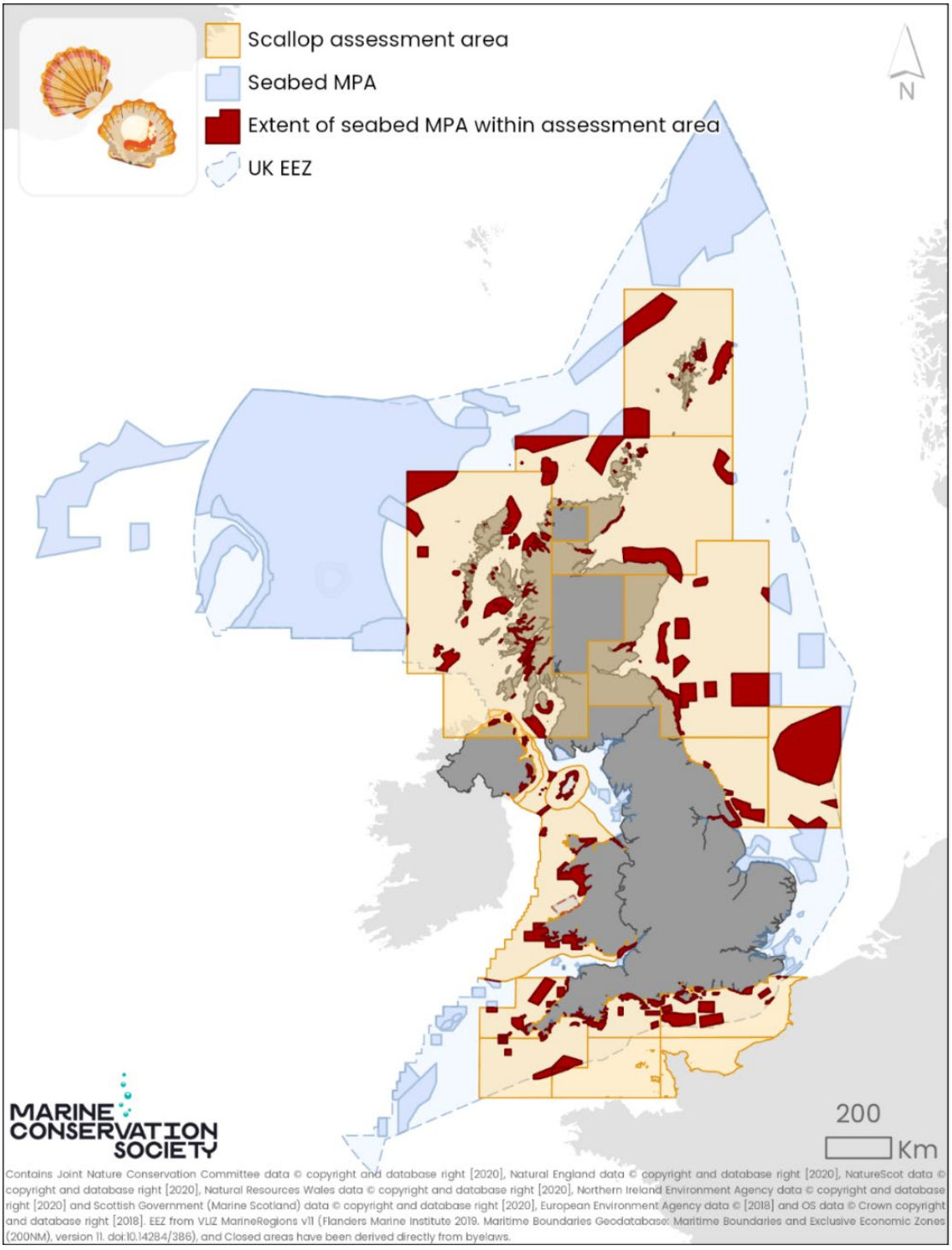


Figure 8. Scallop assessment areas overlapping with seabed MPAs. DATA SOURCE: Marine Scotland[13], Cefas[14], Welsh Government[15], Emodnet[16]. For MPA data sources, see Figure. 1.

[13] King scallop assessment areas in Scotland (2019) https://marine.gov.scot/maps/1916

[14] Assessment of king scallop stock status for selected waters around the English coast 2020/2021 (2021) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062533/SCE_assessment_report_2021_main_v3_accessibility_checked.pdf

[15] Welsh Marine Plan area (2020): https://lle.gov.wales/catalogue/item/WelshNationalMarinePlanArea/?lang=en

[16] Maritime boundaries (2014): https://www.emodnet-humanactivities.eu/search-results.php?dataname=Maritime+Boundaries

Fishing data

Effort data was used to analyse the scallop fishery. The most recent publicly available data is from 2009-2020, from ICES. The data is based on the number of hours of fishing by vessels dredges to target molluscs. This is designated by the gear code DRB_MOL.

Dredgers targeting molluscs may catch other species, including queen scallops, mussels, clams, oysters, whelks and cephalopods. An assessment was carried out to understand how representative the DRB_MOL dataset is of the king scallop fishery. Owing to the aggregation of data it is not possible to specify effort to species in the ICES dataset. Therefore, MMO landings data, which provides both species and gear type, was used (Figure 9)[17]. Data for UK vessels within the UK EEZ indicates that 83% of total landings (by weight) from 2016-2020 by dredgers targeting molluscs were king scallops. Queen scallops accounted for 15% of the total (Table 5).

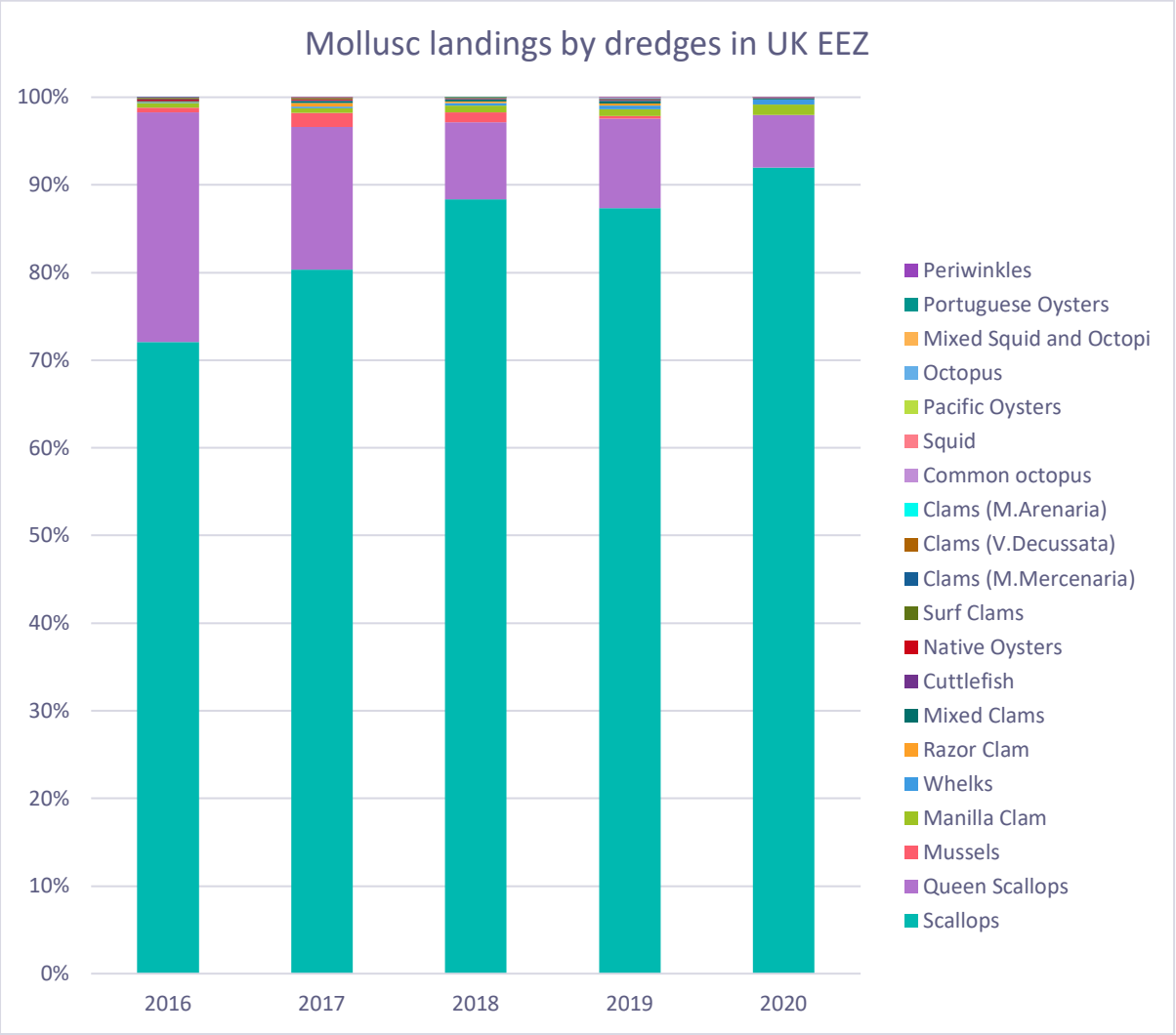


Figure 9. Landings by UK fleets in the UK EEZ, where gear type is 'otter trawl' and the species landed are crustaceans. Data source: MMO

[17] MMO, 2021. UK sea fisheries annual statistics report 2021: UK fleet landings by rectangle stock and estimated EEZ 2016-2020. https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2021

Species	Total landings 2016-2020 (tonnes)	Proportion of total
Scallops	100,847.28	82.51%
Queen Scallops	18,375.21	15.03%
Mussels	916.88	0.75%
Manilla Clam	895.13	0.73%
Whelks	310.88	0.25%
Razor Clam	238.36	0.20%
Mixed Clams	210.21	0.17%
Cuttlefish	105.95	0.09%
Native Oysters	86.99	0.07%
Surf Clams	63.21	0.05%
Grand Total	122,231.58	

Table 5. Mollusc species landed by UK fleets in the UK EEZ, where gear type is 'dredge'. Data source: MMO.

While landings are not a direct indicator of fishing effort, they indicate that the majority of mollusc dredging is targeting king scallops. We therefore consider the ICES DRB_MOL dataset to be a reasonable indicator of the king scallop fishery.

ICES present any data that is considered 'sensitive', such as fishing hours, in a series of range categories in order to anonymise it. Our analysis uses the median of each of these range categories as a measure of fishing activity. The total number of fishing hours in each scallop assessment area (SAA) was obtained through spatial analysis. The number of fishing hours inside MPAs in each SAA was extracted, and calculated as a proportion of the total. SAAs where 20% or more of the effort was inside MPAs have been highlighted in Figure 10.

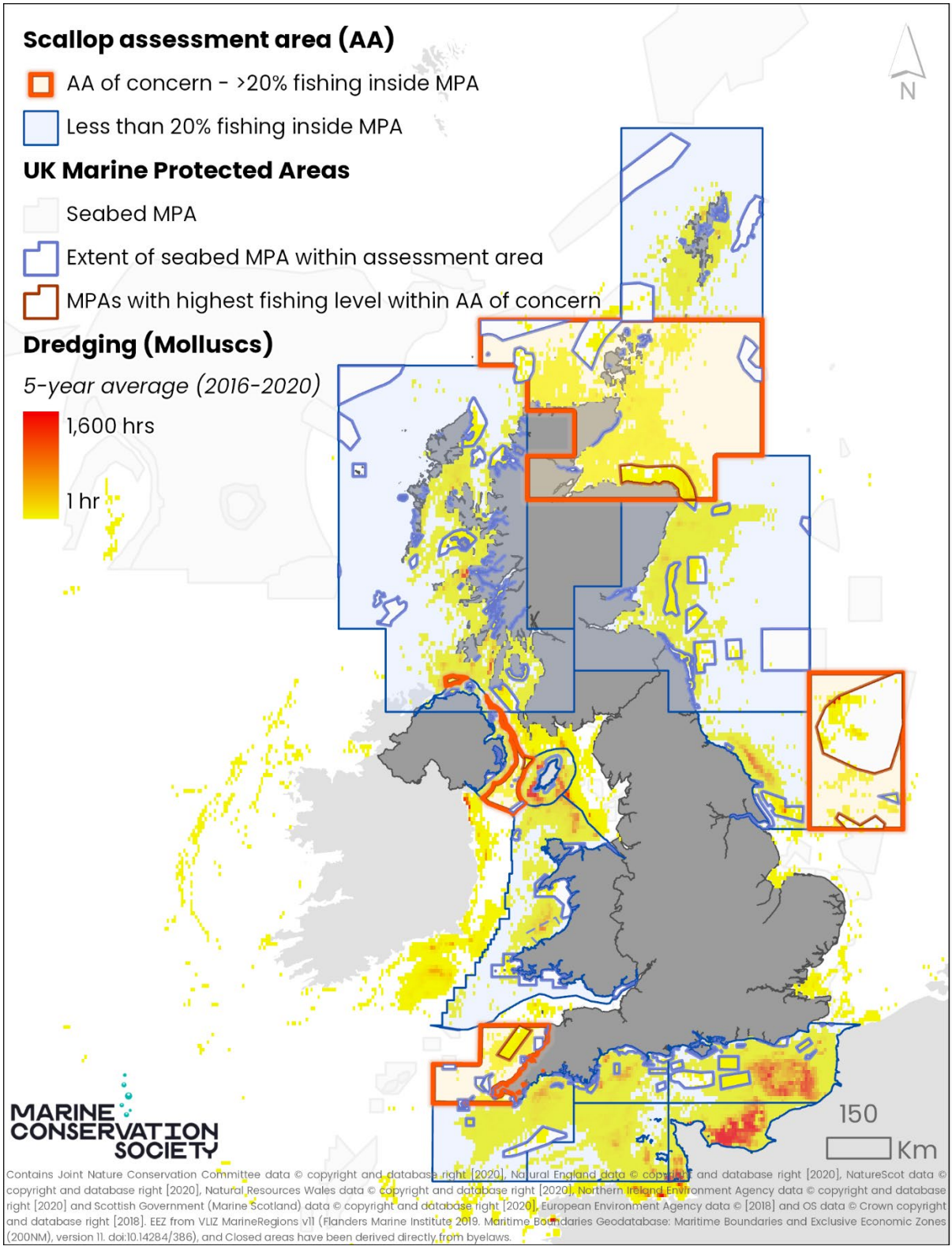


Figure 10. Dredging effort targeting molluscs in relation to scallop assessment areas and seabed MPAs. Data source: ICES.

Fishing activity within MPAs

Assessment area	Annual fishing hours within whole AA						Annual fishing hours within seabed MPAs in each AA						% of total effort in MPAs
	2016	2017	2018	2019	2020	5-Year TOTAL	2016	2017	2018	2019	2020	5-Year TOTAL	
Dogger Bank - 27.4.b.D	5	264	28	5	12,268	12,571	-	1	10	-	8,225	8,236	66%
Inshore Bristol Channel - 27.7.f.I	4,351	5,068	1,867	2,590	2,383	16,259	2,004	1,751	425	1,506	1,366	7,051	43%
Irish Sea (beyond 6nm)	1,653	731	761	255	217	3,618	465	104	465	81	45	1,159	32%
Scotland (North-East & Orkney)	29,045	18,023	16,193	8,410	17,384	89,055	8,665	3,360	2,456	1,291	8,200	23,972	27%
Scotland (East Coast)	34,519	30,320	18,745	17,106	9,805	110,495	6,642	5,920	2,770	3,496	1,490	20,317	18%
Scotland (North West + West of Kintyre + Clyde)	59,940	42,533	41,342	35,187	25,242	204,243	6,329	4,840	5,790	3,466	3,058	23,482	11%
Central North Sea (South) - 27.4.b.S	14,472	44,142	40,414	42,073	5,368	146,470	674	3,172	8,097	910	241	13,094	9%
Lyme Bay - 27.7.e.L	18,090	17,671	26,460	22,619	24,149	108,989	1,490	972	1,202	1,209	944	5,817	5%
Northern Ireland Inshore (0-6nm)	5,797	7,180	3,765	3,505	2,882	23,129	271	300	360	132	151	1,213	5%
Shetland	7,641	9,016	10,650	4,507	5,556	37,370	238	212	289	286	316	1,342	4%
Isle of Man	82,822	73,279	62,816	55,138	26,982	301,036	2,661	1,283	1,767	1,422	656	7,790	3%
Inshore Cornwall - 27.7.e.I	36,626	23,398	25,087	16,008	7,928	109,048	536	465	1,121	207	198	2,527	2%
Eastern English Channel (North) - 27.7.d.N	168,604	184,546	234,289	181,117	79,495	848,051	906	704	546	549	120	2,825	0.3%
Welsh waters	64,508	26,616	25,638	19,992	27,833	164,586	109	67	104	52	55	386	0.2%
Eastern English Channel (South) -27.7.d.S	246,142	284,687	237,074	239,743	247,859	1,255,506	-	-	-	-	-	-	-
Western English Channel (Offshore) - 27.7.e.O	23,621	10,655	15,072	12,979	19,428	81,755	-	-	-	-	-	-	-

Table 6. Annual hours of fishing effort by dredgers targeting molluscs within each Scallop Assessment Area between 2016 and 2020. The blue section on the left is the total hours for the whole AA, while the purple section on the right indicates hours of fishing with seabed MPAs.

Over the five years from 2016 to 2020, total fishing effort within seabed MPAs exceeded 20% of the total in four Assessment Areas: Dogger Bank, Inshore Bristol Channel, Irish Sea (beyond 6nm), and Scotland (North-East & Orkney) (Table 6. *Annual hours of fishing effort by dredgers targeting molluscs within each Scallop Assessment Area between 2016 and 2020. The blue section on the left is the total hours for the whole AA, while the purple section on the right indicates hours of fishing with seabed MPAs.*). The Dogger Bank assessment area experienced most of this effort in 2020.

Assessment area	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Central North Sea (South) - 27.4.b.S	○	◔	○	○	○	○	○	○	○	◔	○	○
Dogger Bank - 27.4.b.D	○	○	○	○	○	○	○	○	○	◔	○	◕
Eastern English Channel (North) - 27.7.d.N	○	○	○	○	○	○	○	○	○	○	○	○
Eastern English Channel (South) -27.7.d.S	○	○	○	○	○	○	○	○	○	○	○	○
Western English Channel (Offshore) - 27.7.e.O	○	○	○	○	○	○	○	○	○	○	○	○
Inshore Bristol Channel - 27.7.f.I	◑	◕	●	◔	◕	◔	○	◑	◔	◔	◑	◑
Lyme Bay - 27.7.e.L	○	○	○	○	○	○	○	○	○	○	○	○
Inshore Cornwall - 27.7.e.I	○	○	○	○	○	○	○	○	○	○	○	○
Scotland (East Coast)	○	○	○	◔	◔	○	◔	○	○	○	◔	○
Scotland (North-East & Orkney)	◔	◔	◔	○	◔	○	◔	◔	○	○	○	◑
Scotland (North West + West of Kintyre + Clyde)	○	○	○	○	○	○	○	○	○	○	○	○
Shetland	○	○	○	○	○	○	○	○	○	○	○	○
Welsh waters	○	○	○	○	○	○	○	○	○	○	○	○
Isle of Man	○	○	○	○	○	○	○	○	○	○	○	○
Northern Ireland Inshore (0-6nm)	○	○	○	○	○	○	○	○	○	○	○	○
Irish Sea (beyond 6nm)	○	○	○	○	○	○	○	◔	○	◕	◔	◔

Key	x	○	◔	◑	◕	●
	0%	>0-20%	20-40%	40-60%	60-80%	>80%

Table 7. Annual hours of fishing effort by dredgers targeting molluscs within seabed MPAs as a proportion of total effort in each Scallop Assessment Area between 2009 and 2020.

In the Inshore Bristol Channel and Scotland (North-East & Orkney) Assessment Areas, fishing effort from 2009-2015 follows a similar patter as for more recent years (Table 7). In the Dogger Bank and Irish Sea (beyond 6nm), targeted mollusc dredging effort was lower in previous years, and has since increased. For most other AAs, fishing effort in MPAs was below 20% of the total for the whole time series. Effort in the Central North Sea (South) exceeded 20% in 2 years, and in Scotland (East Coast) in 4 years, but in both cases total effort remained below 20%.

When the proportion of effort within MPAs is averaged across the five years from 2016-2020, Inshore Bristol Channel has the highest effort at 44%, followed by Irish Sea (beyond 6nm) at 31%, Scotland (North-East & Orkney) at 25% and Dogger Bank at 21%.

Figure 11. Average annual proportion of mollusc dredging effort (2016-2020) in each scallop assessment area that took place within seabed MPAs. The dashed line indicates the 20% threshold where MPA scoring will be applied.

Conclusions and discussion

The above analyses indicate that during 2016-2020, 20% or more of king scallop dredging effort took place within MPAs in four Assessment Areas: Dogger Bank, Inshore Bristol Channel, Irish Sea (beyond 6nm), and Scotland (North-East & Orkney) (Figure 12). However, there are caveats in three cases.

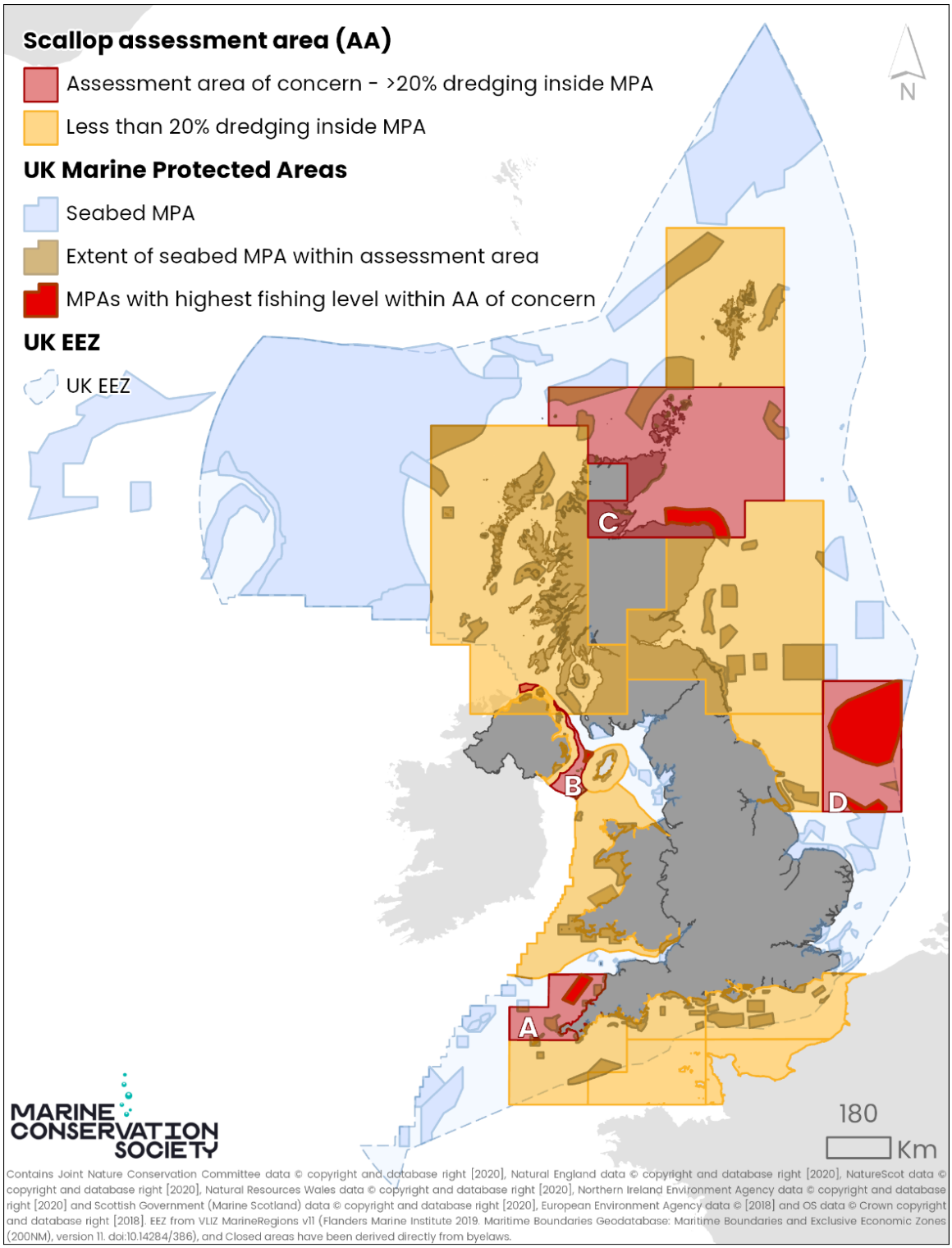


Figure 12 Overlap of scallop assessment areas and seabed MPAs A. Inshore Bristol Channel, B. Irish Sea (beyond 6nm), C. Scotland (North-East & Orkney) and D. Dogger Bank.

Inshore Bristol Channel - 27.7.f.I

There are twenty-one benthic MPAs in this assessment area. Six of them also extend into the Inshore Cornwall assessment area.

Inshore Bristol Channel and Inshore Cornwall:

- Fal and Helford SAC
- Lizard Point SAC
- Helford Estuary MCZ
- Isles of Scilly Complex SAC
- Isles of Scilly Sites - Lower Ridge to Innisvouls MCZ
- Upper Fowey and Pont Pill MCZ

Inshore Bristol Channel only:

- South-West Approaches to Bristol Channel MCZ
- Cape Bank MCZ
- Lands End and Cape Bank SAC
- Padstow Bay and Surrounds MCZ
- Runnel Stone (Land's End) MCZ
- Isles of Scilly Sites - Bristows to the Stones MCZ
- Mounts Bay MCZ
- Camel Estuary MCZ
- East of Haig Fras MCZ
- Hartland Point to Tintagel MCZ
- Isles of Scilly Sites - Hanjague to Deep Ledge MCZ
- Isles of Scilly Sites - Higher Town MCZ
- Isles of Scilly Sites - Men a Vaur to White Island MCZ
- Isles of Scilly Sites - Tean MCZ
- Newquay and the Gannel MCZ

Between 2016 and 2020, there were 16,259 hours of dredging targeting molluscs. Of this, 7,025 hours were within the **South-West Approaches to Bristol Channel Marine Conservation Zone**. A small amount of dredging, totalling 30 hours, took place in Lizard Point, Cape Bank, Lands End and Cape Bank, Padstow Bay and Surrounds, Runnel Stone (Land's End), Isles of Scilly Sites - Bristows to the Stones, and Mounts Bay. The remainder was outside of MPAs.

Over 40% of dredging effort took place in the South-West Approaches to Bristol Channel MPA. However, this MPA was not designated until May 2019. Therefore, less than 20% of fishing activity in this area during the period of analysis was inside a designated MPA. **MPA scoring will not therefore be applied to the Inshore Bristol Channel assessment area.** However, if fishing activity continues at this level, it is likely to affect scoring in future.

Irish Sea (beyond 6nm)

There are three benthic MPAs in this assessment area:

- South Rigg
- Queenie Corner
- Pisces Reef Complex

Between 2016 and 2020, there were 3,618 hours of dredging targeting molluscs. Of this, 1,156 hours were within the **South Rigg Marine Conservation Zone** and a small amount (3 hours) was in Queenie Corner. The remainder was outside of MPAs.

30% of dredging effort took place in the South Rigg MPA. However, this MPA was not designated until May 2019. Therefore, less than 20% of fishing activity in this area during the

period of analysis was inside a designated MPA. **MPA scoring will not therefore be applied to the Irish Sea (beyond 6nm) assessment area.** However, if fishing activity continues at this level, it is likely to affect scoring in future.

Scotland (North-East & Orkney)

There are fifteen benthic MPAs in this assessment area, three of which also extend into other assessment areas:

Transboundary MPAs:

- Southern Trench NCMPA (also in East Coast AA)
- Solan Bank Reef SAC (North West, West of Kintyre and Clyde AAs)
- North-west Orkney NCMPA (Shetland AA)

North East + Orkney only:

- East Caithness Cliffs NCMPA
- Papa Westray NCMPA
- West Shetland Shelf NCMPA
- Noss Head NCMPA
- Faray and Holm of Faray SAC
- Durness SAC
- Central Fladen NCMPA
- Dornoch Firth and Morrich More SAC
- Loch of Stenness SAC
- North Rona SAC
- Sanday SAC
- Wyre and Rousay Sounds NCMPA

Between 2016 and 2020, there were 89,055 hours of dredging targeting molluscs. Of this, 23, 139 hours were within the **Southern Trench Nature Conservation MPA**. 833 hours of dredging took place in other MPAs (East Caithness Cliffs, Papa Westray, West Shetland Shelf, Noss Head, Faray and Holm of Faray, Durness, Solan Bank Reef and North-west Orkney). The remainder was outside of MPAs.

24% of effort took place within the Southern Trench MPA. However, this MPA was not designated until December 2020. Therefore, less than 20% of fishing activity in this area during the period of analysis was inside a designated MPA. **MPA scoring will not therefore be applied to the Scotland (North-East & Orkney) assessment area.** However, if fishing activity continues at this level, it is likely to affect scoring in future.

Dogger Bank - 27.4.b.D

There are three benthic MPAs in this assessment area:

- Dogger Bank SAC
- North Norfolk Sandbanks and Saturn Reef SAC
- Markham's Triangle MCZ

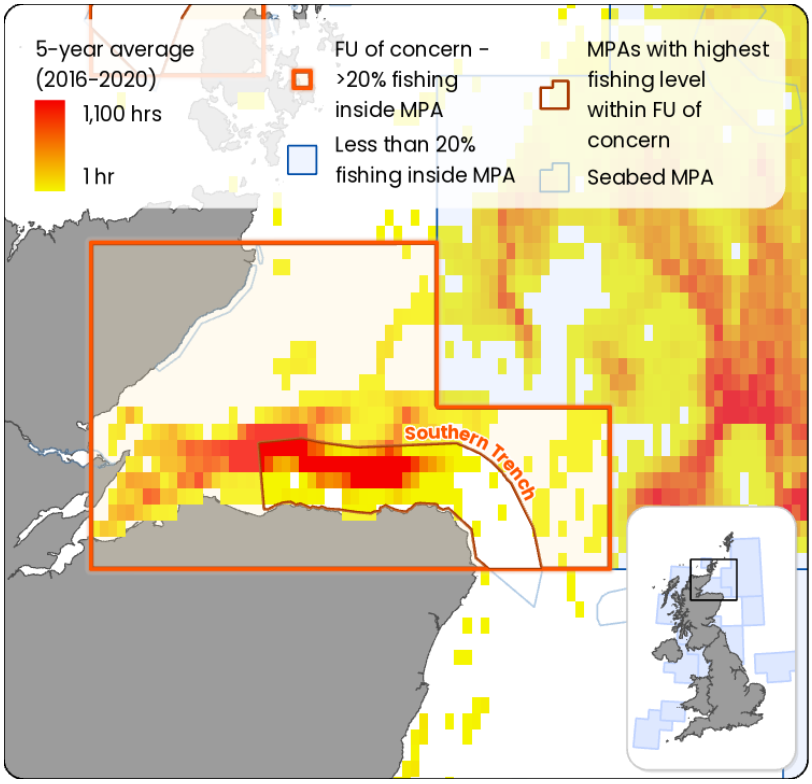
Between 2016 and 2020, there were 12,571 hours of dredging targeting molluscs. Of this, 8,148 hours were within the **Dogger Bank Special Area of Conservation**. A small amount of dredging, totalling 88 hours, took place in the North Norfolk Sandbanks and Saturn Reef and Markham's Triangle. The remainder was outside of MPAs.

65% of dredging effort took place in the Dogger Bank MPA, which was designated in September 2017. As more than 20% of fishing activity in this area during the period of analysis was inside a designated MPA, **MPA scoring will be applied to the Dogger Bank assessment area.**

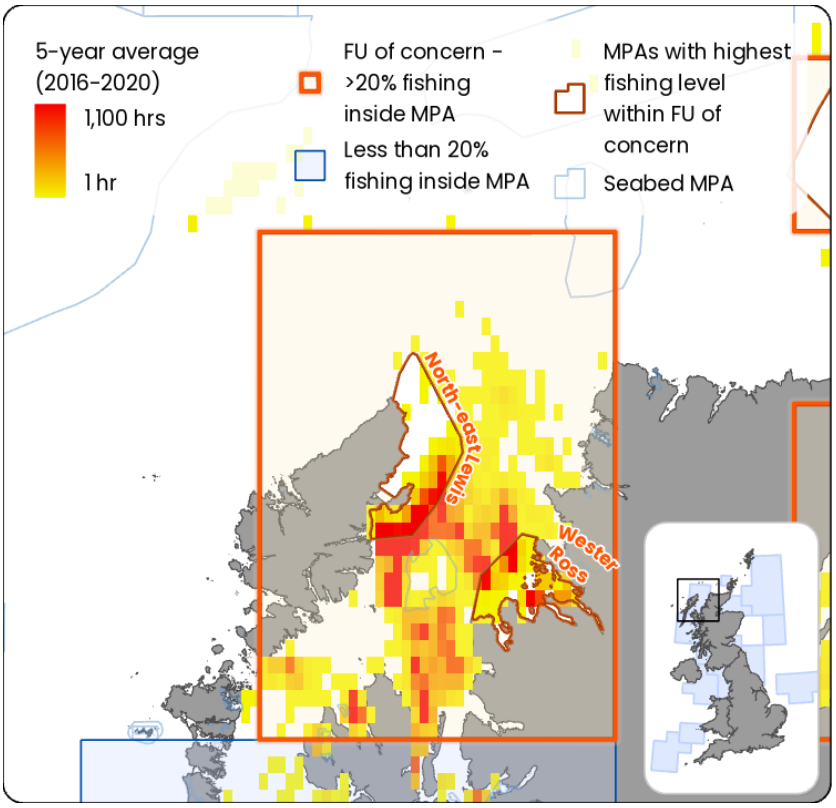
Appendix I. Marine Protected Areas of concern

Otter trawling for Norway lobster

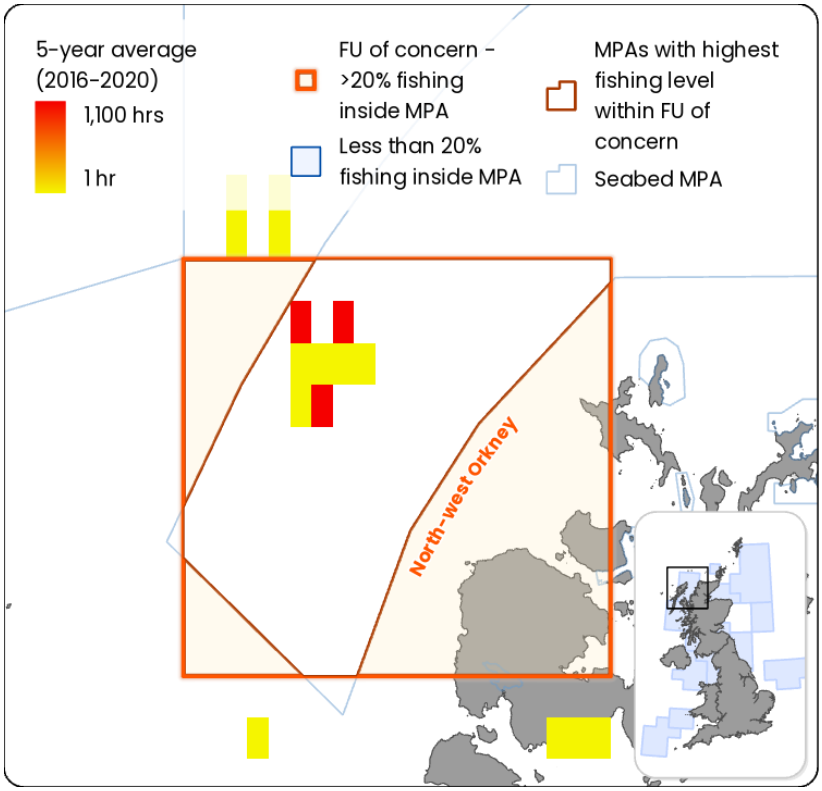
Moray Firth (FU 9)



North Minch (FU 11)

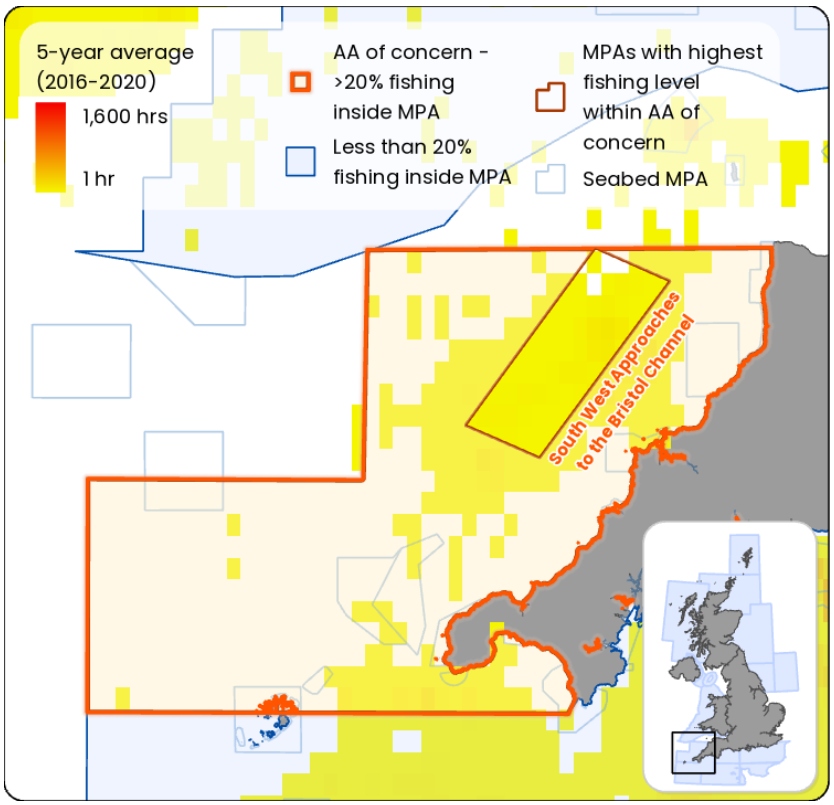


Noup (FU 10)

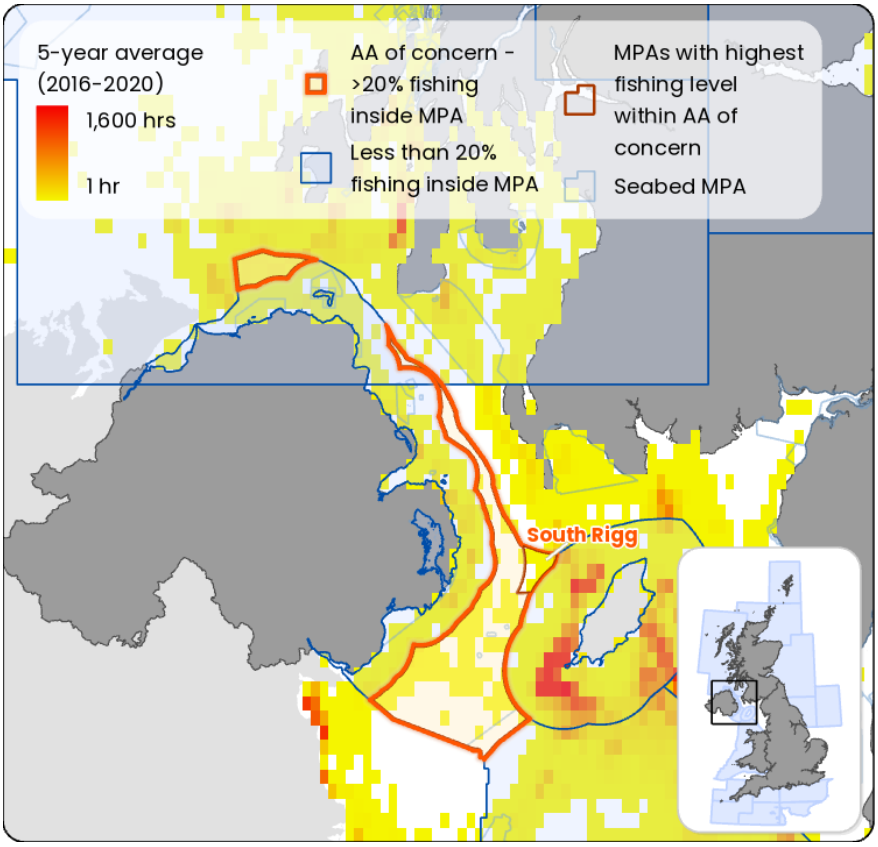


Dredging for scallops

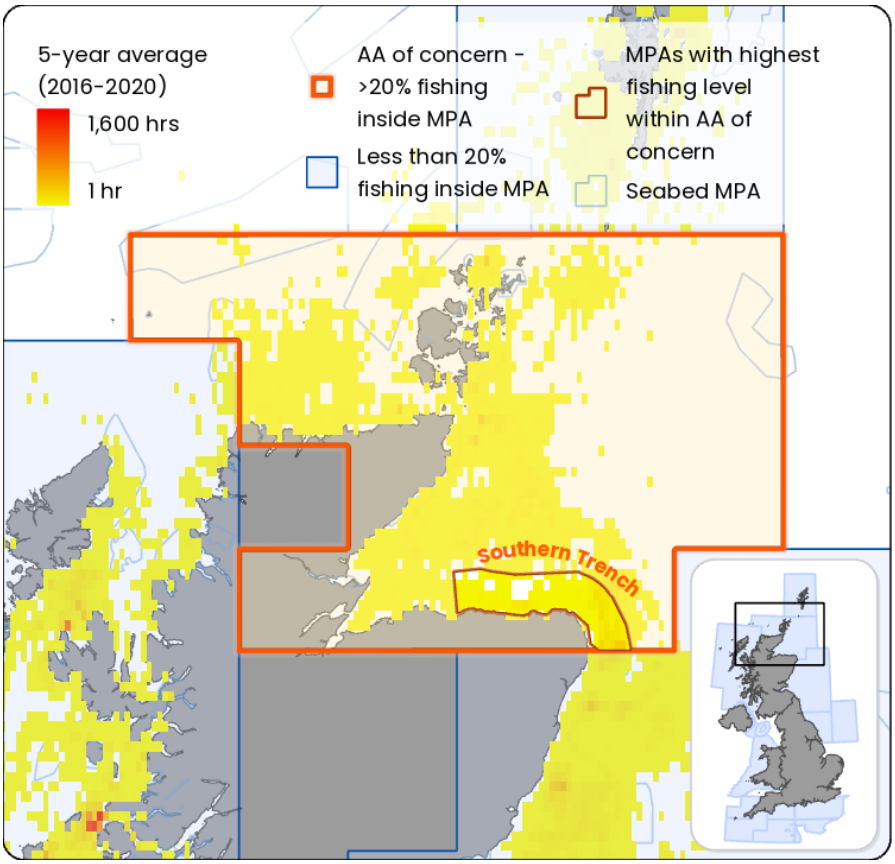
Inshore Bristol Channel - 27.7.f.I



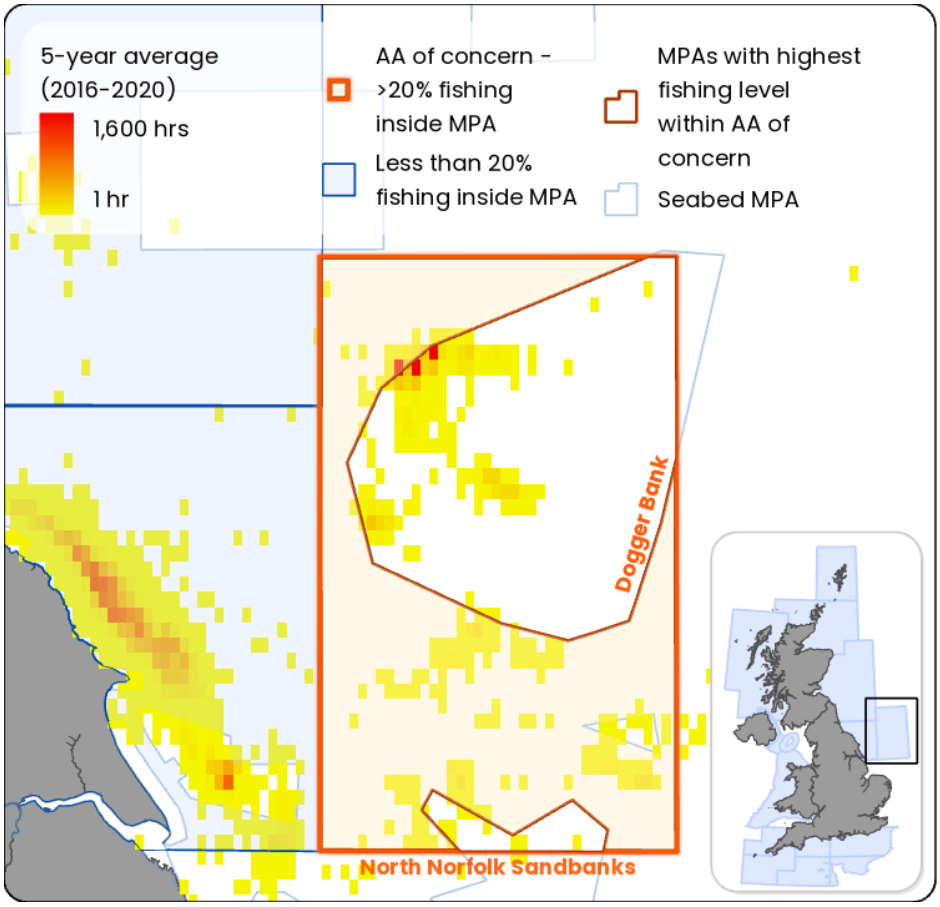
Irish Sea (beyond 6nm)



Scotland (North-East & Orkney)

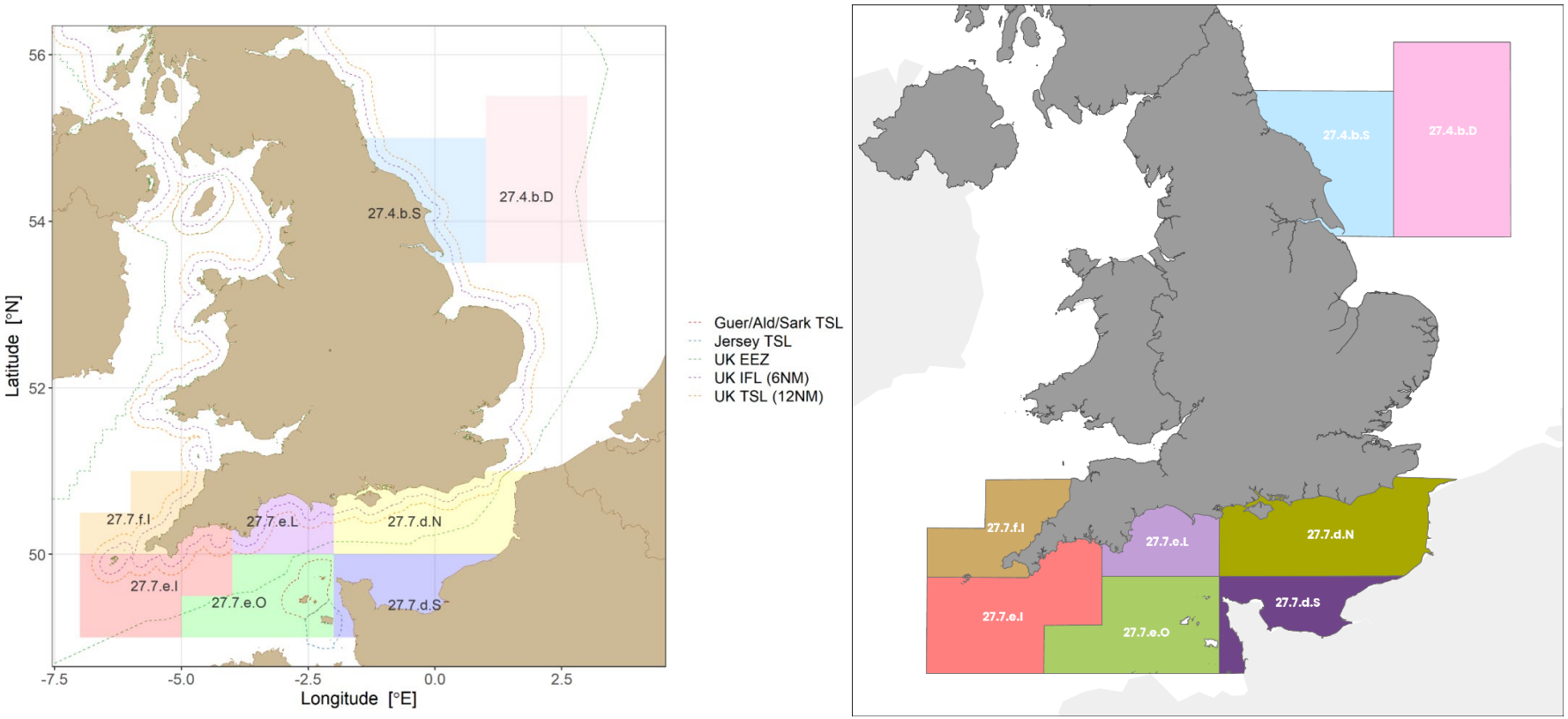


Dogger Bank - 27.4.b.D



Appendix II. Digitised English scallop assessment areas

The map on the left is the original scallop assessment area map, as published in Cefas's stock assessment[18]. On the right is MCS's digitation of the assessment areas.



[18] Lawler, A. & Nawri, N., 2021. Assessment of king scallop stock status for selected waters around the English coast 2019/2020. Cefas Project Report for Defra,+ 89 pp. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/977732/Scallop_assessment_report_2020_main_report.pdf

Appendix III. Seabed MPAs within Norway lobster Functional Units

SITE_CODE	SITE_NAME	FUNCTIONAL UNIT
UK0030352	Dogger Bank	Botney Gut – Silver Pit
UK0030358	North Norfolk Sandbanks and Saturn Reef	Botney Gut – Silver Pit
UK0030369	Haisborough, Hammond and Winterton	Botney Gut – Silver Pit
UKMCZ0084	Markham's Triangle	Botney Gut – Silver Pit
UK0030353	Haig Fras	Celtic Sea – Labadie
UKMCZ0023	East of Haig Fras	Celtic Sea – Labadie
UKMCZ0047	Greater Haig Fras	Celtic Sea – Labadie
UKMCZ0048	North-West of Jones Bank	Celtic Sea – Labadie
UKMCZ0085	North-East of Haig Fras	Celtic Sea – Labadie
UKMCZ0087	South of Celtic Deep	Celtic Sea – Labadie
32M01	Skomer	Celtic Sea – the Smalls
UK0013116	Pembrokeshire Marine/ Sir Benfro Forol	Celtic Sea – the Smalls
UK0014787	Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru	Celtic Sea – the Smalls
UKMCZ0064	North West of Lundy	Celtic Sea – the Smalls
UKMCZ0083	South-West Approaches to Bristol Channel	Celtic Sea – the Smalls
UKMCZ0046	Fulmar	Devil's Hole
UKMCZ0026	Swallow Sand	Devil's Hole | Farn Deeps
555560481	East of Gannet and Montrose Fields	Devil's Hole | Fladen Ground
UK0013036	Flamborough Head	Farn Deeps
UKMCZ0001	Aln Estuary	Farn Deeps
UKMCZ0024	North East of Farnes Deep	Farn Deeps
UKMCZ0030	Coquet to St Marys	Farn Deeps
UKMCZ0039	Runswick Bay	Farn Deeps
UKMCZ0043	Farnes East	Farn Deeps
UKMCZ0078	Holderness Offshore	Farn Deeps

SITE_CODE	SITE_NAME	FUNCTIONAL UNIT
555560478	Firth of Forth Banks Complex	Farn Deeps | Firth of Forth
UK0017072	Berwickshire and North Northumberland Coast	Farn Deeps | Firth of Forth
UK0030292	Tweed Estuary	Farn Deeps | Firth of Forth
UKMCZ0055	Berwick to St Mary's	Farn Deeps | Firth of Forth
555560474	South Arran	Firth of Clyde + Sound of Jura
555560461	Clyde Sea Sill	Firth of Clyde + Sound of Jura | Irish Sea West
UK0030384	The Maidens	Firth of Clyde + Sound of Jura | Irish Sea West
UK0030172	Isle of May	Firth of Forth
UK0030311	Firth of Tay and Eden Estuary	Firth of Forth
555560480	Central Fladen	Fladen Ground
555560486	Norwegian Boundary Sediment Plain	Fladen Ground
UK0030354	Scanner Pockmark	Fladen Ground
UK0030357	Braemar Pockmarks	Fladen Ground
UK0030385	Pobie Bank Reef	Fladen Ground
UK0013025	Solway Firth	Irish Sea East
UK0013027	Morecambe Bay	Irish Sea East
UK0013031	Drigg Coast	Irish Sea East
UK0013039	Luce Bay and Sands	Irish Sea East
UK0030131	Dee Estuary/ Aber Dyfrdwy	Irish Sea East
UK0030376	Shell Flat and Lune Deep	Irish Sea East
UKMCZ0005-01	Cumbria Coast - Zone 1	Irish Sea East
UKMCZ0005-02	Cumbria Coast - Zone 2	Irish Sea East
UKMCZ0007	Fylde	Irish Sea East
UKMCZ0028	Allonby Bay	Irish Sea East
UKMCZ0045	West of Walney	Irish Sea East
UKMCZ0069	Solway Firth	Irish Sea East
UKMCZ0074	Wyre-Lune	Irish Sea East
UKMCZ0090	West of Copeland	Irish Sea East

SITE_CODE	SITE_NAME	FUNCTIONAL UNIT
UK0030202	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay	Irish Sea East | Irish Sea West
UK0016612	Murlough	Irish Sea West
UK0016618	Strangford Lough	Irish Sea West
UK0020025	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh	Irish Sea West
UK0030114	Bae Cemlyn/ Cemlyn Bay	Irish Sea West
UK0030379	Pisces Reef Complex	Irish Sea West
UK0030381	Croker Carbonate Slabs	Irish Sea West
UKMCZ0086	Queenie Corner	Irish Sea West
UKMCZ0088	South Rigg	Irish Sea West
UKMCZNI0001	Strangford Lough	Irish Sea West
UKMCZNI0003	Outer Belfast Lough	Irish Sea West
555560462	East Caithness Cliffs	Moray Firth
555560471	Noss Head	Moray Firth
555703756	Southern Trench	Moray Firth
UK0019806	Dornoch Firth and Morrich More	Moray Firth
555560476	Wester Ross	North Minch
555703753	North-east Lewis	North Minch
555703755	Shiant East Bank	North Minch
UK0017074	Loch Roag Lagoons	North Minch
UK0030171	Inverpolly	North Minch
UK0030192	Loch Laxford	North Minch
UK0030231	Ardvar and Loch a' Mhuilinn Woodlands	North Minch
UK0030386	Solan Bank Reef	North Minch
UK0030230	Ascrib, Isay and Dunvegan	North Minch | South Minch
555560477	Wyre and Rousay Sounds	Noup
555560479	North-west Orkney	Noup
UK0014749	Loch of Stenness	Noup
555560464	Loch Creran	South Minch

SITE_CODE	SITE_NAME	FUNCTIONAL UNIT
555560465	Loch Sunart	South Minch
555560468	Lochs Duich, Long and Alsh	South Minch
555560469	Monach Isles	South Minch
555560473	Small Isles	South Minch
555638752	Loch Carron	South Minch
555715729	Red Rocks and Longay (Urgent ncMPA)	South Minch
UK0012594	Rum	South Minch
UK0012705	Sound of Barra	South Minch
UK0012713	South Uist Machair	South Minch
UK0017077	Lochs Duich, Long and Alsh Reefs	South Minch
UK0019802	Sound of Arisaig (Loch Ailort to Loch Ceann Traigh)	South Minch
UK0019803	Sunart	South Minch
UK0019839	Moine Mhor	South Minch
UK0030041	Firth of Lorn	South Minch
UK0030154	Glen Beasdale	South Minch
UK0030176	Kinloch and Kyleakin Hills	South Minch
UK0030182	Eileanan agus Sgeiran Lios mor	South Minch
UK0030190	Loch Creran	South Minch
UK0030209	Loch Moidart and Loch Shiel Woods	South Minch
UK0030219	Mull Oakwoods	South Minch
UK0030289	Treshnish Isles	South Minch
UK0030359	Stanton Banks	South Minch
UK0030364	East Mingulay	South Minch
555560466	Loch Sunart to the Sound of Jura	South Minch | Firth of Clyde + Sound of Jura
555560467	Loch Sween	South Minch | Firth of Clyde + Sound of Jura
555560475	Upper Loch Fyne and Loch Goil	South Minch | Firth of Clyde + Sound of Jura
UK0012682	Taynish and Knapdale Woods	South Minch | Firth of Clyde + Sound of Jura
UK0030287	Tayvallich Juniper and Coast	South Minch | Firth of Clyde + Sound of Jura

Appendix IV. Seabed MPAs within Scallop Assessment Areas

SITE_CODE	SITE_NAME	Assessment area
UK0030352	Dogger Bank	27.4.b.D
UK0030358	North Norfolk Sandbanks and Saturn Reef	27.4.b.D
UKMCZ0084	Markham's Triangle	27.4.b.D
UKMCZ0078	Holderness Offshore	27.4.b.S
UK0030170	Humber Estuary	27.4.b.S
UKMCZ0039	Runswick Bay	27.4.b.S
UK0013036	Flamborough Head	27.4.b.S
UKMCZ0035	Holderness Inshore	27.4.b.S
UK0030368	Bassurelle Sandbank	27.7.d.N
UKMCZ0049	Offshore Brighton	27.7.d.N
UKMCZ0044	Offshore Overfalls	27.7.d.N
UKMCZ0079	Inner Bank	27.7.d.N
UKMCZ0053	Beachy Head East	27.7.d.N
UK0030380	Wight-Barfleur Reef	27.7.d.N
UKMCZ0054	Bembridge	27.7.d.N
UK0030061	South Wight Maritime	27.7.d.N
UKMCZ0002	Beachy Head West	27.7.d.N
UKMCZ0009	Kingmere	27.7.d.N
UKMCZ0042	Utopia	27.7.d.N
UKMCZ0051	Albert Field	27.7.d.N
UK0030059	Solent Maritime	27.7.d.N
UKMCZ0006	Folkestone Pomerania	27.7.d.N
UKMCZ0068	Selsey Bill and the Hounds	27.7.d.N
UKMCZ0040	The Needles	27.7.d.N
UK0017073	Solent and Isle of Wight Lagoons	27.7.d.N
UKMCZ0060	Foreland	27.7.d.N

SITE_CODE	SITE_NAME	Assessment area
UKMCZ0013	Pagham Harbour	27.7.d.N
UKMCZ0014	Poole Rocks	27.7.d.N
UKMCZ0071	Southbourne Rough	27.7.d.N
UKMCZ0072	Studland Bay	27.7.d.N
UKMCZ0075	Yarmouth to Cowes	27.7.d.N
UK0030382	Studland to Portland	27.7.d.N | 27.7.e.L
UKMCZ0066	Purbeck Coast	27.7.d.N | 27.7.e.L
UKMCZ0082	South of the Isles of Scilly	27.7.e.I
UK0013111	Plymouth Sound and Estuaries	27.7.e.I
UKMCZ0021	Whitsand and Looe Bay	27.7.e.I
UKMCZ0018	The Manacles	27.7.e.I
UKMCZ0008-01	Isles of Scilly Sites - Bishop to Crim	27.7.e.I
UKMCZ0008-03	Isles of Scilly Sites - Gilstone to Gorregan	27.7.e.I
UKMCZ0008-08	Isles of Scilly Sites - Peninnis to Dry Ledge	27.7.e.I
UKMCZ0008-09	Isles of Scilly Sites - Plympton to Spanish Ledge	27.7.e.I
UKMCZ0008-10	Isles of Scilly Sites - Smith Sound Tide Swept Channel	27.7.e.I
UKMCZ0016	Tamar Estuary Sites	27.7.e.I
UK0030373	Start Point to Plymouth Sound & Eddystone	27.7.e.I | 27.7.e.L
UKMCZ0050	Western Channel	27.7.e.I | 27.7.e.O
UK0013112	Fal and Helford	27.7.e.I | 27.7.f.I
UK0030374	Lizard Point	27.7.e.I | 27.7.f.I
UKMCZ0062	Helford Estuary	27.7.e.I | 27.7.f.I
UK0013694	Isles of Scilly Complex	27.7.e.I | 27.7.f.I
UKMCZ0008-06	Isles of Scilly Sites - Lower Ridge to Innisvouls	27.7.e.I | 27.7.f.I
UKMCZ0020	Upper Fowey and Pont Pill	27.7.e.I | 27.7.f.I
UKMCZ0015	Skerries Bank and Surrounds	27.7.e.L
UKMCZ0077	East of Start Point	27.7.e.L
UK0030372	Lyme Bay and Torbay	27.7.e.L

SITE_CODE	SITE_NAME	Assessment area
UKMCZ0019	Torbay	27.7.e.L
UKMCZ0004	Chesil Beach and Stennis Ledges	27.7.e.L
UKMCZ0070	South of Portland	27.7.e.L
UK0017076	Chesil and the Fleet	27.7.e.L
UKMCZ0022	South Dorset	27.7.e.L
UKMCZ0057	Dart Estuary	27.7.e.L
UKMCZ0058	Devon Avon Estuary	27.7.e.L
UKMCZ0059	Erme Estuary	27.7.e.L
UKMCZ0091	West of Wight-Barfleur	27.7.e.L
UKMCZ0083	South-West Approaches to Bristol Channel	27.7.f.I
UKMCZ0076	Cape Bank	27.7.f.I
UK0030375	Lands End and Cape Bank	27.7.f.I
UKMCZ0012	Padstow Bay and Surrounds	27.7.f.I
UKMCZ0038	Runnel Stone (Land's End)	27.7.f.I
UKMCZ0008-02	Isles of Scilly Sites - Bristows to the Stones	27.7.f.I
UKMCZ0036	Mounts Bay	27.7.f.I
UKMCZ0056	Camel Estuary	27.7.f.I
UKMCZ0023	East of Haig Fras	27.7.f.I
UKMCZ0034	Hartland Point to Tintagel	27.7.f.I
UKMCZ0008-04	Isles of Scilly Sites - Hanjague to Deep Ledge	27.7.f.I
UKMCZ0008-05	Isles of Scilly Sites - Higher Town	27.7.f.I
UKMCZ0008-07	Isles of Scilly Sites - Men a Vaur to White Island	27.7.f.I
UKMCZ0008-11	Isles of Scilly Sites - Tean	27.7.f.I
UKMCZ0037	Newquay and the Gannel	27.7.f.I
555560478	Firth of Forth Banks Complex	East Coast
555560489	Turbot Bank	East Coast
UKMCZ0043	Farnes East	East Coast
UK0017072	Berwickshire and North Northumberland Coast	East Coast

SITE_CODE	SITE_NAME	Assessment area
UKMCZ0055	Berwick to St Mary's	East Coast
UKMCZ0024	North East of Farnes Deep	East Coast
UK0030172	Isle of May	East Coast
UKMCZ0026	Swallow Sand	East Coast
UKMCZ0030	Coquet to St Marys	East Coast
UKMCZ0001	Aln Estuary	East Coast
555560481	East of Gannet and Montrose Fields	East Coast
UK0030311	Firth of Tay and Eden Estuary	East Coast
UK0030292	Tweed Estuary	East Coast
555703756	Southern Trench	East Coast | North East + Orkney
UKMCZNI0003	Outer Belfast Lough	Inshore - 6nm
UK0016612	Murlough	Inshore - 6nm
UK0016618	Strangford Lough	Inshore - 6nm
UKMCZNI0002	Carlingford Lough	Inshore - 6nm
UKMCZ0088	South Rigg	Isle of Man | NIRL Offshore >6nm
UKMCZ0086	Queenie Corner	Isle of Man | NIRL Offshore >6nm
UK0030384	The Maidens	NIRL Inshore <6nm | North West + West of Kintyre + Clyde
UK0030383	Skerries and Causeway	NIRL Inshore <6nm | North West + West of Kintyre + Clyde
UK0030055	Rathlin Island	NIRL Inshore <6nm | North West + West of Kintyre + Clyde
UK0030365	Red Bay	NIRL Inshore <6nm | North West + West of Kintyre + Clyde
UKMCZNI0004	Rathlin	NIRL Inshore <6nm | North West + West of Kintyre + Clyde
UKMCZNI0005	Waterfoot	NIRL Inshore <6nm | North West + West of Kintyre + Clyde

SITE_CODE	SITE_NAME	Assessment area
555560462	East Caithness Cliffs	North East + Orkney
555560472	Papa Westray	North East + Orkney
555560490	West Shetland Shelf	North East + Orkney
555560471	Noss Head	North East + Orkney
UK0017096	Faray and Holm of Faray	North East + Orkney
UK0012786	Durness	North East + Orkney
555560480	Central Fladen	North East + Orkney
UK0019806	Dornoch Firth and Morrich More	North East + Orkney
UK0014749	Loch of Stenness	North East + Orkney
UK0012696	North Rona	North East + Orkney
UK0030069	Sanday	North East + Orkney
555560477	Wyre and Rousay Sounds	North East + Orkney
UK0030386	Solan Bank Reef	North East + Orkney | North West + West of Kintyre + Clyde
555560479	North-west Orkney	North East + Orkney | Shetland
555560461	Clyde Sea Sill	North West + West of Kintyre + Clyde
555560466	Loch Sunart to the Sound of Jura	North West + West of Kintyre + Clyde
555560473	Small Isles	North West + West of Kintyre + Clyde
555703753	North-east Lewis	North West + West of Kintyre + Clyde
UK0012705	Sound of Barra	North West + West of Kintyre + Clyde
555560467	Loch Sween	North West + West of Kintyre + Clyde
UK0030067	South-East Islay Skerries	North West + West of Kintyre + Clyde
UK0030230	Ascrib, Isay and Dunvegan	North West + West of Kintyre + Clyde
UK0030041	Firth of Lorn	North West + West of Kintyre + Clyde
UK0030289	Treshnish Isles	North West + West of Kintyre + Clyde
UK0012594	Rum	North West + West of Kintyre + Clyde
UK0019803	Sunart	North West + West of Kintyre + Clyde
UK0030176	Kinloch and Kyleakin Hills	North West + West of Kintyre + Clyde

SITE_CODE	SITE_NAME	Assessment area
555560474	South Arran	North West + West of Kintyre + Clyde
UK0030287	Tayvallich Juniper and Coast	North West + West of Kintyre + Clyde
555560465	Loch Sunart	North West + West of Kintyre + Clyde
555560476	Wester Ross	North West + West of Kintyre + Clyde
UK0019802	Sound of Arisaig (Loch Ailort to Loch Ceann Traigh)	North West + West of Kintyre + Clyde
UK0030192	Loch Laxford	North West + West of Kintyre + Clyde
UK0012682	Taynish and Knapdale Woods	North West + West of Kintyre + Clyde
555715729	Red Rocks and Longay (Urgent ncMPA)	North West + West of Kintyre + Clyde
UK0030364	East Mingulay	North West + West of Kintyre + Clyde
UK0017070	Loch nam Madadh	North West + West of Kintyre + Clyde
555703755	Shiant East Bank	North West + West of Kintyre + Clyde
555638752	Loch Carron	North West + West of Kintyre + Clyde
UK0019839	Moine Mhor	North West + West of Kintyre + Clyde
555560475	Upper Loch Fyne and Loch Goil	North West + West of Kintyre + Clyde
555560483	Geikie Slide and Hebridean Slope	North West + West of Kintyre + Clyde
UK0030219	Mull Oakwoods	North West + West of Kintyre + Clyde
UK0030182	Eileanan agus Sgeiran Lios mor	North West + West of Kintyre + Clyde
UK0030209	Loch Moidart and Loch Shiel Woods	North West + West of Kintyre + Clyde
UK0030231	Ardvar and Loch a' Mhuilinn Woodlands	North West + West of Kintyre + Clyde
UK0030154	Glen Beasdale	North West + West of Kintyre + Clyde
UK0030171	Inverpolly	North West + West of Kintyre + Clyde
555560464	Loch Creran	North West + West of Kintyre + Clyde
UK0017074	Loch Roag Lagoons	North West + West of Kintyre + Clyde
555560468	Lochs Duich, Long and Alsh	North West + West of Kintyre + Clyde
UK0017077	Lochs Duich, Long and Alsh Reefs	North West + West of Kintyre + Clyde
UK0012694	Monach Islands	North West + West of Kintyre + Clyde
555560469	Monach Isles	North West + West of Kintyre + Clyde
UK0017101	Obain Loch Euphoirt	North West + West of Kintyre + Clyde

SITE_CODE	SITE_NAME	Assessment area
UK0012713	South Uist Machair	North West + West of Kintyre + Clyde
UK0013695	St Kilda	North West + West of Kintyre + Clyde
UK0030359	Stanton Banks	North West + West of Kintyre + Clyde
555560488	The Barra Fan and Hebrides Terrace Seamount	North West + West of Kintyre + Clyde
555703191	West of Scotland	North West + West of Kintyre + Clyde
UK0030379	Pisces Reef Complex	Offshore - >6nm
555560463	Fetlar to Haroldswick	Shetland
555560470	Mousa to Boddam	Shetland
UK0017069	Papa Stour	Shetland
UK0012711	Mousa	Shetland
UK0012687	Yell Sound Coast	Shetland
UK0030273	Sullom Voe	Shetland
555560482	Faroe-Shetland Sponge Belt	Shetland
UK0019793	Hascosay	Shetland
UK0030385	Pobie Bank Reef	Shetland
UK0017068	The Vadills	Shetland
UK0030381	Croker Carbonate Slabs	Welsh waters
UK0013116	Pembrokeshire Marine/ Sir Benfro Forol	Welsh waters
UK0030202	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay	Welsh waters
UK0013117	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau	Welsh waters
32M01	Skomer	Welsh waters
UK0030114	Bae Cemlyn/ Cemlyn Bay	Welsh waters
UK0020020	Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd	Welsh waters
UK0030131	Dee Estuary/ Aber Dyfrdwy	Welsh waters
UK0020025	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh	Welsh waters
UK0012566	Kenfig/ Cynffig	Welsh waters

SITE_CODE	SITE_NAME	Assessment area
UK0014787	Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru	Welsh waters
UK0013030	Severn Estuary/ Môr Hafren	Welsh waters
UKMCZ0087	South of Celtic Deep	Welsh waters

If you have any questions, please contact ratings@mcsuk.org

MARINE CONSERVATION SOCIETY

mcsuk.org mcsuk mcs_uk mcs_uk