



Department
for Environment
Food & Rural Affairs

Proposed fisheries management plan for Southern North Sea demersal non-quota species

Date: October 2024

Version: public consultation

© Crown copyright 2024

This information is licensed under the Open Government Licence v3.0. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at:

FMPconsultations@defra.gov.uk

Contents

Executive summary	1
Foreword	8
Introduction	10
Scope and status of the Southern North Sea demersal NQS fisheries	10
FMP vision	24
FMP goals	26
Sustainable fisheries goals.....	27
Social and economic goals.....	33
Evidence goals.....	35
Harvest strategy	37
Management strategy	38
Management measures	39
Environmental considerations	48
Implementation, monitoring and review.....	60
References.....	62

Abbreviations and definitions

Cefas: Centre for Environment, Fisheries and Aquaculture Science

Defra: Department for Environment, Food and Rural Affairs

EEZ: Exclusive Economic Zone

eNGO: environmental non-governmental organisation

EU: European Union

EU Vessels: vessels registered to the 27 countries within European Union.

Flyseining: also known as Scottish seining or flyshooting. A fishing method involving long weighted ropes to herd fish into the mouth of the trawl before hauling the net to the vessel as it maintains its position under power.

FTE: full-time equivalent. A standardised measure of employment calculated based on average vessel crew and effort assuming 1 FTE is representing 2,000 hours of work per year.

FMP: fisheries management plan(s)

FMP species: species that are within the scope of the Southern North Sea demersal NQS FMP.

GES: good environmental status

HCR: harvest control rules

ICES: International Council for the Exploration of the Sea

IFCAs: Inshore Fisheries and Conservation Authorities

JFS: Joint Fisheries Statement

kW: Kilowatts

MCRS: minimum conservation reference size. Previously known as minimum landing size (MLS)

MMO: Marine Management Organisation

MPAs: marine protected areas

MSY: maximum sustainable yield

nm: nautical miles

NQS: non-quota species

REM: remote electronic monitoring

SNCBs: statutory nature conservation bodies

TCA: UK and EU Trade and Cooperation Agreement

The Act: Fisheries Act 2020

UK Vessels: vessels that are registered to countries within the United Kingdom

Executive summary

The United Kingdom has some of the best wild seafood resources in the world. Our fish stocks are a public asset which generate food and create jobs, and recreational opportunities in a sector with a strong sense of identity and pride for their communities. These fish stocks also form a vital part of our marine ecosystems.

Many of our fish stocks are under pressure for example from fishing and climate change. Fishing can also have impacts on our marine environment, such as through the accidental bycatch or the effect of fishing gears on the seabed. It is therefore important to consider both the positive and negative effects of fishing as part of our overall management of fish stocks and the marine environment.

Fisheries management plans (FMPs) provide a tool for managing fishing activity towards more sustainable fisheries. They are a requirement of:

- the Fisheries Act 2020 ('The Act')
- the UK Joint Fisheries Statement in 2022
- the Environmental Improvement Plan 2023 for England

The Southern North Sea demersal non-quota species (NQS) FMP (hereafter referred to as 'the FMP' or 'this FMP') has been prepared for the purpose of meeting the requirements set out in the Fisheries Act. This FMP was developed by the Marine Management Organisation (MMO) on behalf of the Department for Environment Food and Rural Affairs (Defra).

The FMP was developed in collaboration with a working group made up of fisheries stakeholders, including commercial and recreational fishers. The MMO also engaged with coastal communities, supply-chain businesses, scientists, statutory nature conservation bodies (SNCBs) and government agencies. Defra sought contributions on strategic issues across all FMPs from environmental non-governmental organisations that were considered in the preparation of the FMP.

Defra launched a public consultation on the draft FMP in May 2024, in accordance with the requirement set out in Schedule 1 Part 3 of The Act.

What is an FMP?

An FMP is an evidence-based action plan that charts a course to sustainable fisheries. They are long-term plans that must be reviewed and, if necessary, revised at least every 6 years. An FMP sets out a vision and goals for the target fishery (or fisheries), together with the policies and management interventions necessary to achieve these goals.

Defra intends to use FMPs to address environmental, social, and economic issues associated with our fisheries, significantly enhancing our ecosystem-based approach to fisheries management. FMPs will be regularly reviewed and updated to ensure they respond to new evidence and practical experience to remain effective.

Why an FMP for Southern North Sea demersal NQS?

Demersal fish are species living close to the seafloor. NQS are species that do not have quota allocated to them setting out how much can be landed, and by whom.

The NQS in scope have ecological importance within the Southern North Sea ecosystem, for example cuttlefish as a prey species, but are generally data limited and with little management in place to protect stocks from overexploitation.

Commercially, in 2021 landings of Southern North Sea demersal NQS by UK and European Union (EU) vessels fishing in UK waters in International Council for the Exploration of the Sea (ICES) areas 4b and 4c totalled 2,094 tonnes (t) valued at £5.6 million. Despite this volume of catch, demersal NQS are data limited with many lacking comprehensive data collection programmes or formal stock assessments. Nationally, recreational sea fishing is a high participation activity delivering economic and social benefits though recreational catch data, for example for 2021 in respect of the FMP species, is limited.

The Southern North Sea demersal NQS FMP establishes a road map to achieve long-term sustainable management of the FMP species in English waters in ICES areas 4b and 4c, in line with the Act objectives.

The FMP covers:

- bony fish (john dory, red mullet, grey gurnard, red gurnard and tub gurnard)
- elasmobranchs (lesser spotted dogfish and starry smoothhound)

- cephalopods (common cuttlefish, common octopus, curled octopus, veined squid, long-finned squid, European common squid and common squid)

The FMP used the available evidence to assess the status of the stocks, identify existing management measures, and set out policies and actions to manage the fisheries in the Southern North Sea.

There is insufficient available scientific evidence to assess the FMP species' maximum sustainable yield (MSY) reference points in English waters of the Southern North Sea. At the point of publication, MSY proxies are only established for the red mullet north stock. Grey gurnard, red gurnard, lesser spotted dogfish and smoothhound are ICES data category 3 within the Southern North Sea. The remaining species have not been assessed by ICES.

The overarching aim of the FMP is to deliver sustainable management of FMP species to a position driven by robust stock assessments, supported by consistent data collection and research programmes. The management measures and actions linked to delivering the goals detailed in this FMP describe the key stages of that journey.

The FMP also sets out the shared commitment that recreational and commercial fishers and Government have for fisheries catching FMP species in ICES areas 4b and 4c.

A core principle driving the implementation of the FMP goals is its iterative development to reflect that as the evidence base improves, management interventions should be more responsive and adaptive.

Vision and goals of the FMP

The FMP vision is that demersal NQS fisheries in English waters of the Southern North Sea will be managed to achieve environmental, social, and economic sustainability, for the benefit of coastal communities and wider society.

The FMP goals are based around key themes of evidence, social and economics, and sustainable fisheries contributing towards delivering the Fisheries Act objectives. The FMP goals are as follows:

Under the sustainable fisheries theme:

1. Deliver effective management of demersal NQS fishing in English waters of the Southern North Sea.

2. Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS species.
3. Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries.

Under social and economic theme:

1. Better understand and optimise economic and social benefits.
2. Build capacity for the industry to be able to input into matters affecting NQS fisheries management.

Under the evidence theme:

1. Better understand wider NQS evidence gaps.
2. Develop the NQS evidence base.

Establishing a Southern North Sea fisheries NQS management group

The FMP sets out a goal for building capacity across the fishing sectors to input into FMP delivery. To support this goal, the FMP proposes creating a NQS management group, which will act as a means for addressing management concerns and needs in a participatory manner. The proposed group could include representatives of:

- the commercial fishing sector
- the recreational fishing sector
- processors and markets
- the regulatory authorities
- fisheries scientists
- policy makers
- other interested stakeholders

This group may also choose to work collaboratively with the newly formed Channel demersal NQS management group to ensure alignment of management for NQS.

Recommended management measures

During this first iteration, 4 proposed areas for priority management intervention have been identified. These have been developed through evidence gathering and engagement with stakeholders, who recognised that change is required to improve the sustainability of the stocks and fisheries. Further work and consultation will need to be undertaken to determine the applicability of each of these measures and refine where necessary. The priority areas are:

1. restriction of future flyseining effort
2. emerging cephalopod fisheries
3. minimum conservation reference sizes (MCRS)
4. education, adoption of voluntary guidelines and codes of conduct

All proposed measures will aim to increase or maintain stock levels for the species managed under this FMP.

The FMP recognises that Southern North Sea fisheries are distinct, given the physical characteristics that support differing habitats and fish assemblages. Therefore, management interventions will need to take spatial and temporal variability into consideration.

1. Restriction of future flyseining effort

The increase in flyseine fishing or demersal seining capability, and the emergence of newer and larger vessels in the Southern North Sea (ICES areas 4b and 4c), has the potential to cause significant harm to the stocks within the scope of the FMP.

Following on from [Defra's consultation on this issue in 2022](#), and the [Channel demersal NQS FMP](#) published on 14 December 2023, the FMP proposes to introduce a standard net mesh size of 100mm for all flyseine vessels operating in English waters of the Southern North Sea. In addition, it is proposed to limit engine power to 221 kilowatts (kW) for flyseine vessels within Southern North Sea English territorial waters.

Robust data collection is necessary to meet the requirements of the FMP. Remote electronic monitoring (REM) has been identified as a potential method for data collection that can assist in the monitoring and evaluation of the measures introduced by the FMP. The FMP supports an initial focus on an early adopter scheme for flyseining vessels alongside a holistic monitoring programme, subject to the outcomes of [the consultation on REM held in summer 2023](#).

2. Emerging cephalopod fisheries

Stakeholders have reported increasing abundance of squid, cuttlefish, and octopus within the FMP area. Anecdotally, the increase in sightings of these species on the grounds have been highlighted as potentially emerging fisheries allowing the inshore fleet to diversify by providing additional fishing opportunities.

To assess the potential of future cephalopod fisheries, the FMP proposes to put in place additional monitoring and a research plan to gather evidence on these emergent fisheries, of the viability of different gears, and the impacts on other species from their population growth. The evidence gathered through this research will be used to introduce management where appropriate to ensure sustainable harvesting of cephalopod stocks.

3. Minimum conservation reference sizes

The FMP proposes to consider the introduction of a minimum conservation reference size (MCRS) for flyseine species, such as red mullet and gurnards, in the medium-long term to compliment the proposed mesh size restrictions. The FMP also proposes to consider the introduction of a MCRS for smoothhound in the medium-long term.

4. Education, adoption of voluntary guidelines and development of codes of conduct

Through partnership working, the FMP will develop voluntary guidelines, education, and codes of conduct for recreational fishers, to improve the sustainability and benefits of the stocks for all sea users. Monitoring will be put in place to record the uptake and efficacy of voluntary measures and explore how additional evidence gathering on removals from the stock could be integrated into future stock assessments.

Education programmes and identification guides will also be developed for the commercial sector to improve accurate species identification, data collection and inform management.

Wider issues and environmental impacts

In addition to the objectives in The Act, all FMPs are subject to legal obligations for environmental protection arising from The Conservation of Habitats and Species

Regulations 2017, Marine and Coastal Access Act 2009, Marine Strategy Regulations 2010, the Environmental Principles Policy Statement for the Environment Act 2021, the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA regulations) and the biodiversity duty of the Environment Act 2021.

The Southern North Sea demersal NQS FMP will contribute to the commitments to improve our marine ecosystem set out in the Environmental Improvement Plan 2023 and the UK Marine Strategy.

Implementation, monitoring and review

The actions and measures contained within the FMP will undergo an implementation phase, where appropriate mechanisms will be required to deliver them. Such mechanisms could include voluntary measures, licence conditions, national and regional byelaws, and statutory instruments.

The FMP must be reviewed when appropriate, and at least every 6 years. This formal review will assess how the FMP has performed in terms of delivering against the objectives of the Act.

Conclusion

The Southern North Sea demersal NQS FMP has been prepared for the purpose of meeting the requirements set out in the Fisheries Act. This statement and the contents of the FMP meet the obligation set out in section 6 of the Act.

This FMP collates existing information for demersal NQS in the Southern North Sea including existing management measures, science and evidence, and highlights where gaps exist. The FMP sets out the policies and proposed steps to build the evidence base while maintaining or increasing stock levels. To protect the stocks that are potentially not being fished sustainably at present, the FMP proposes some precautionary management measures in the short-term while more evidence is gathered. Impact assessments will be carried out in parallel to the development of management measures to predict the impacts on the fishery.

Foreword

This Southern North Sea demersal NQS FMP has been prepared for the purpose of meeting the requirements set out in the Fisheries Act. The FMP was developed by the Marine Management Organisation (MMO) on behalf of Defra. It has been produced collaboratively with fisheries managers, SNCBs, and representatives from the UK fishing sector through a working group. Defra will gather further views through a public consultation in the summer of 2024.

The FMP establishes a road map to achieve long-term sustainable management of demersal NQS in the Southern North Sea in English waters of ICES areas 4b and 4c. The FMP applies to demersal NQS fished by all methods, and by all sized vessels from all nations operating in UK waters of ICES areas 4b and 4c.

The species in scope of the FMP are bony fish (john dory, red mullet, grey gurnard, red gurnard and tub gurnard), elasmobranchs (lesser spotted dogfish, starry smoothhound) and cephalopods (common cuttlefish, common octopus, curled octopus, veined squid and long-finned squid, European common squid and common squid).

This FMP includes both commercial and recreational fisheries under the umbrella definition of 'fisheries' set out in The Act. Therefore, any reference to either the fishing sector or industry includes recreational and commercial fishing, unless addressing matters specific to a certain gear or type of fishing.

This FMP collates existing information for Southern North Sea demersal NQS, including current management measures, science and evidence, and highlights where gaps exist. To protect the stocks that are potentially not being fished sustainably at present, the FMP proposes precautionary management measures in the short term while more evidence is gathered.

In terms of navigating this FMP the key sections are as follows:

- Introduction – how the Southern North Sea demersal NQS FMP meets the requirements of The Act and wider legislation and policy initiatives
- Scope and status of the Southern North Sea demersal NQS fisheries – the species in scope of the FMP, the FMP location, and a description and outline of the status of the fishery
- FMP vision and goals – sets out the overarching vision of the FMP and FMP goals, which are based around the key themes of evidence, social and economic factors, and sustainable fisheries, and will make contributions towards all of the objectives within The Act

- Management strategy – the harvest management strategy for Southern North Sea demersal NQS fisheries, including 4 priority areas identified as requiring management intervention
- Environmental considerations – how wider environmental considerations will be addressed
- Implementation, monitoring and review of the FMP – the approach that will be followed to implement the FMP, how Defra will measure performance in terms of delivering the FMP and how the state of the fishery has improved because of the activities undertaken

The Southern North Sea demersal NQS FMP is designed to be a standalone document providing all the necessary information for readers to understand how the fisheries will be managed over the coming years. The plan summarises relevant information rather than providing all the underlying detail. Defra will continue to collate and make available relevant information that underpins the implementation of the FMP over subsequent years.

For reference, an FMP engagement report is published as an accompanying document to the FMP. The report highlights the methods used to identify and engage with stakeholders and provides a summary of the feedback collected during a series of engagement events held to inform the development of the draft plan for public consultation. The information is available on [Citizen Space](#), Defra's online consultation tool.

This has been prepared to comply with requirements in the Joint Fisheries Statement (JFS), section 6 of The Act and the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA regulations).

Introduction

The UK Government has responsibilities under international law and is committed to managing our fisheries in a sustainable way. Meeting our responsibilities will support vibrant, profitable, and sustainable fishing sector supported by a healthy and productive marine environment. The UK Government White Paper 2018 on [Sustainable Fisheries for Future Generations](#) states the objective of ‘a more competitive, profitable and sustainable fishing industry across the whole of the UK and setting a gold standard for sustainable fishing around the world’. The subsequent [Fisheries Act 2020](#) sets out the legal framework governing fisheries in the UK and provides for UK Fisheries Policy Authorities to prepare and publish FMPs, setting out policies designed to restore stocks and maintain them at sustainable levels.

The JFS published in November 2022 sets out further details of the policies the UK fisheries authorities will follow to achieve or contribute to achieving the 8 objectives within the Fisheries Act. It includes a list of FMPs, setting out the lead authority for each FMP, the stocks covered and timescales for publication.

In addition to meeting the requirements of the Act, the FMP also supports the implementation of wider commitments on protecting the marine environment, restoring biodiversity, and addressing climate change. In particular, the [Environmental Improvement Plan 2023](#) restated the commitment to deliver FMPs. Each FMP also supports commitments under the [UK Marine Policy Statement](#), the [UK Marine Strategy](#), the [marine wildlife bycatch mitigation initiative](#) and the [Climate Change Act 2008](#).

Scope and status of the Southern North Sea demersal NQS fisheries

Species in scope

The following species are in scope of the Southern North Sea NQS FMP.

Bony fish

- john dory (*Zeus faber*)

- red mullet, striped red mullet, surmullet (*Mullus surmuletus*) – jointly referred to as red mullet
- grey gurnard (*Eutrigla gurnardus*)
- red gurnard (*Chelidonichthys cuculus*)
- tub gurnard (*Chelidonichthys lucerna*)

Elasmobranchs

- lesser spotted dogfish, lesser spotted catshark (*Scyliorhinus canicula*) – jointly referred to as lesser spotted dogfish
- starry smoothhound (*Mustelus asterias*)¹ – referred to as smoothhound

Cephalopods

- common cuttlefish (*Sepia officinalis*)
- common octopus (*Octopus vulgaris*)
- curled octopus (*Eledone cirrhosa*)
- common squid, European squid (*Loligo vulgaris*)
- European common squid (*Alloteuthis subulata*)
- veined squid, long-finned squid (*Loligo forbesii*)

These species are considered to be data poor. Many are subject to limited data collection regimes (landings data only), and only 5 are assessed by ICES within the Southern North Sea.

An overview of the stock status, biology and key evidence gaps relating to these species has been included in the FMP. Additional evidence has been included within the supporting evidence statement which will be published alongside the FMP by the end of 2024.

At present, it is considered that the stock boundaries for all species sit partly or wholly within the scope of this FMP.

¹ Starry smoothhound is considered to be the only species of smoothhound found in the FMP area, although is often misidentified as common smoothhound. For the purpose of this FMP, data for the 2 smoothhound species will be evaluated and addressed as smoothhound.

Stock status: stocks with ICES assessment

Five of the species in the scope of the FMP have been assessed by ICES and are all considered data category 3 in the Southern North Sea. Category 3 includes stocks for which the data and knowledge are insufficient to conduct a full analytical assessment of their state and exploitation. For red mullet, a proxy for MSY exists and provides an indication of a sustainable harvest level. More evidence gathering is required to improve data for these species within the Southern North Sea.

Red mullet, striped red mullet, surmullet (jointly referred to as red mullet)

- data category 3 – see [ICES advice: Red mullet in subarea 4 and divisions 7d and 3a \(North Stock\)](#) – the stock is unassessed
- MSY proxy is in place for the north stock
- a precautionary buffer has been advised for catches - the north stock is truncated and showed significant exploitation of age zero-one fish

Grey gurnard

- data category 3 stock – see ICES advice: [ICES advice: Grey gurnard in subarea 4 and divisions 7d and 3a](#)
- MSY proxy not in place
- ICES advises a precautionary approach is applied to the stock

Red gurnard

- data category 3 stock - see [ICES advice: Red gurnard in subareas 3–8 \(Northeast Atlantic\)](#)
- MSY proxy not in place
- ICES advises a precautionary approach is applied to the stock
- discarding is understood to be high – however, using survey trend data, the assessment provides a biomass index which shows an increasing trend up to the mid-2000s, and since then has fluctuated without trend - no ICES advice provided due to lack of reliable catch data

Lesser spotted dogfish

- data category 3 stock - see [ICES advice: ICES subarea 6 and divisions 7a-c and 7e-j and ICES Subarea 4 and in divisions 3a and 7d](#)
- MSY proxy not in place
- ICES advises that the precautionary approach is applied - discarding is variable between fishing fleets and has not been fully quantified - discards are generally thought to be several times higher than landed quantities - discard survivability thought to be high

Smoothhound

- data category 3 stock– see: [ICES advice: Smooth-hound \(Mustelus spp.\) in subareas 1–10, 12, and 14 \(Northeast Atlantic and adjacent waters\)](#)
- MSY proxy not in place
- ICES advises that when the precautionary approach is applied - subject to a precautionary buffer, this leads to a reduction in catch advice by 4%.

Stock status: stocks lacking ICES assessment

There is insufficient evidence to determine MSY or any proxy for a sustainable harvest, for the following species:

- john dory
- tub gurnard
- common cuttlefish
- common octopus
- curled octopus
- veined squid, long-finned squid
- European common squid
- common squid, European squid

The FMP lays out a suite of goals and measures aimed at improving data collection and understanding for species in the FMP. These steps aim to facilitate future stock assessments for the species currently lacking ICES assessments. For data limited stocks the FMP proposes a precautionary approach to management with the intent to improve or maintain stock status.

Location

This FMP covers English waters of the Southern North Sea running from Northumberland to Kent. Specifically, the FMP area is defined by English waters in ICES divisions 4b and 4c (Figure 1).

The MMO has the responsibility for managing fisheries and carrying out assurance activities in English waters from 0 to 200 nautical miles (nm) offshore or the Exclusive Economic Zone (EEZ) and leads on managing fishing activities between 6 to 200nm offshore. Within the Southern North Sea demersal NQS FMP, 4 Inshore Fisheries and Conservation Authorities (IFCAs) (see Figure 1) deliver additional fisheries conservation and management within the inshore 0 to 6nm zone.

Marine planning

Marine planning is a devolved function in the UK. In English waters the MMO has delegated powers to prepare, implement, monitor and report on [marine plans](#), and the Secretary of State for the Environment, Food and Rural Affairs is the marine planning authority. English waters are divided into regional marine planning areas, this FMP overlaps with the North East, East and South East marine plans.

Due to the extensive spatial remit of the Southern North Sea demersal NQS FMP, there are numerous other commercial and recreational activities within these plan areas. These include offshore windfarm development (particularly off the east coast), marine aggregate extraction, major shipping routes and ports. Recreational activities include angling, yachting, diving and other marine past-times.

Marine Protected Areas (MPAs)

Within the geographic area covered by this FMP, there are currently 55 protected area designations including [Marine Conservation Zones](#) (MCZs), [Special Protection Areas](#) (SPAs), [Special Areas of Conservation](#) (SACs) and [Highly Protected Marine Areas](#) (HPMAs).

Inside the boundaries of English MPAs the MMO and IFCAs assess human activities that could interact with the designated features of MPAs and introduce management where required. This evaluates the best available evidence on the impact of fishing gear in the MPAs taking into account the current condition of the sites. The Fisheries Act 2020 introduced new powers for MMO to make byelaws to

manage fishing for the conservation of marine flora, fauna and habitats within MPAs.

This work is at various stages of assessment with some byelaws already in place. The upcoming stages of the review are due to go out to consultation, and where necessary, management put into place by the end of 2024. Find out more about [management of fisheries activity within MPAs](#). Therefore, appropriate management should either be in place or introduced soon to ensure any fishing within MPAs is compatible with MPA conservation objectives.

The Marine and Coastal Access Act and Habitats Regulations give MMO powers to:

- manage a range of activities, including fishing, to further the conservation objectives of any MCZ and European Marine Sites in England inshore of 12nm
- manage fishing for the conservation of marine flora, fauna and habitats anywhere in England's seas

The Fisheries Act amended Marine and Coastal Access Act to give the MMO the power to manage fishing outside of MPAs.

Commercial UK and EU vessels operating in the Southern North Sea have access to the shared stocks in the scope of this FMP under the UK and EU Trade and Cooperation Agreement (TCA).

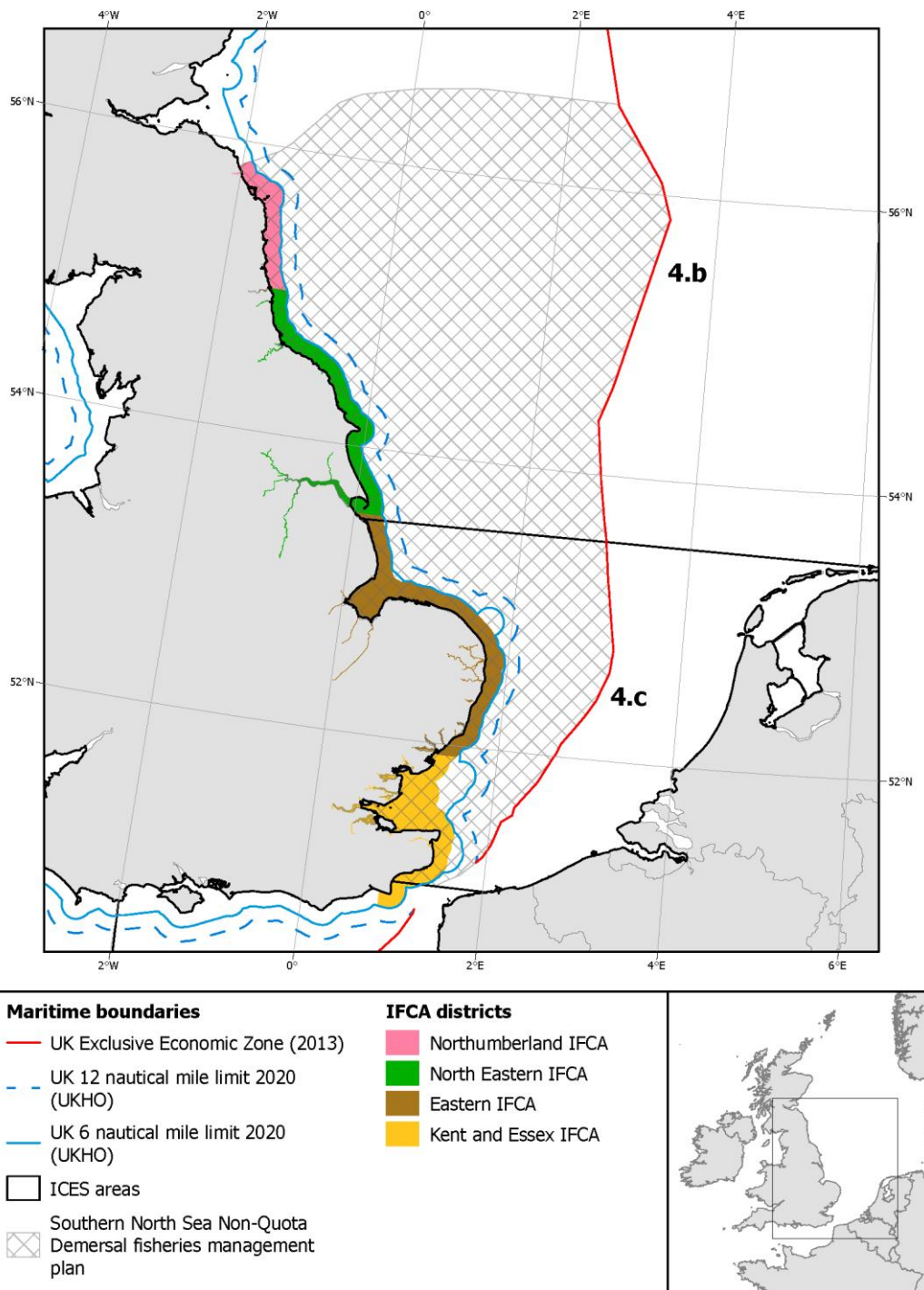


Figure 1: Jurisdictional boundaries of the Southern North Sea NQS FMP (Collins Bartholomew, ICES, AIFCA, MMO and UKHO copyright and database right 2024)

Figure 1 shows the jurisdictional boundaries of the FMP, specifically ICES areas 4b and 4c within the North Sea. The area encompasses the waters along the Eastern coast of

England, as far as the EEZ limit. The jurisdictional area is overlaid against the relevant IFCA districts in the same area.

Description of the fisheries

The species within scope are caught across a range of seasonal and gear-specific fishery subsets and otherwise more generally caught in mixed fisheries with other quota stocks. For some species, such as squid and red mullet, a directed fishery has developed in the Southern North Sea area, with vessels from the UK and the EU utilising trawlers of various types to target catch. For the most part, FMP species are caught in association with quota species and other NQS, constituting an important part of fishers' earnings across different target fisheries (when targeting quota stocks).

The below information on landings weight and value have been extracted from commercial fisheries landings data for the years 2016 to 2021 to enable comparisons to be made between available data for both UK and EU vessels. This information has been presented to give an overview of the commercial importance of the FMP species.

The UK Southern North Sea fleet operates alongside EU vessels, apart from within the UK 6nm limit which is exclusively for UK vessels. The fleet is dominated by larger towed gear vessels, and the highest catches are primarily driven by demersal seine landing tub gurnard.

The total UK and EU combined landings (period 2016 to 2021) for the species within this FMP amounts to 15,029 tonnes (t), the value being approximately £41.34 million.

By weight of landings, UK vessels primarily employed demersal seine (54%), demersal trawl (35%) and beam trawls (5%). Longlines (1%), drift and fixed nets (1%) and pots and traps (1%) also made contributions. Other gears represented less than 1% of landings (Figure 2). The EU fleet has a similar contribution of landings by gear group primarily employing demersal seine 35%, beam trawls (31%) and demersal trawls (30%) with drift and fixed nets and pelagic trawls each equating to 2% of the landing. Other gears represented less than 1% of landings (Figure 2).

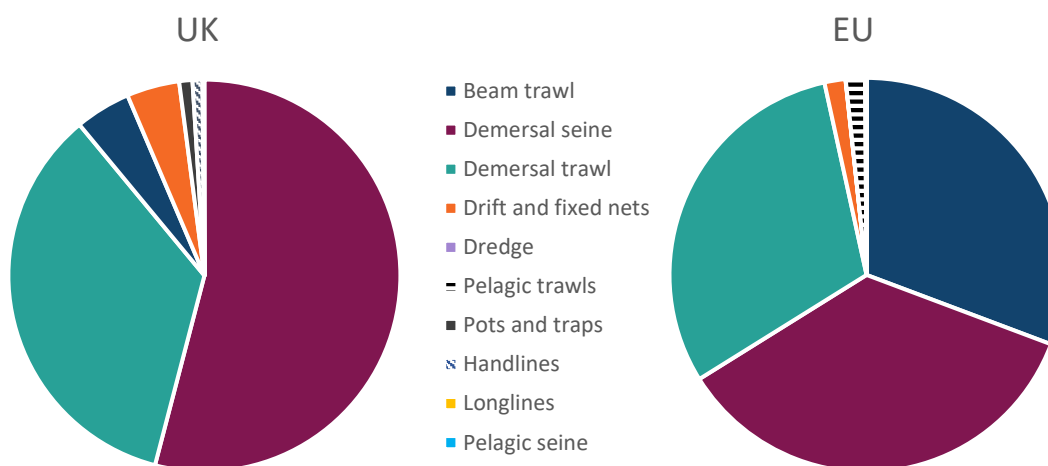


Figure 2. Proportion of landings weight by gear type (2016 to 2021) for UK (left) and EU (right) vessels

Some species within this FMP, such as smoothhound are also key for recreational anglers, but all species may be caught by recreational fishers. Angling for cephalopods is an emerging key recreational fishery. The value of recreational fishing within the Southern North Sea regions could be better defined, but existing research has indicated that it is of high economic and social value to the angling communities.

Commercial fishing occurs across the Southern North Sea with the greatest quantities of landings coming from ICES area 4c. It should be noted that there is significant spatial and temporal variation in the fisheries and can be shown to be highly dependent on a small selection of stocks. For example, lesser spotted dogfish, red gurnard and grey gurnard are caught all year-round, while squid, tub gurnard and red mullet catches peak in autumn and winter. These temporal fishing patterns should be understood in conjunction with stocks and breeding patterns.

Status of the fisheries

There are several fisheries issues this FMP seeks to address through a management framework, from high discard rates to effort from specific gear types to environmental concerns around seabed integrity and bycatch of sensitive species.

This FMP will work in conjunction with other NQS and quota focused FMPs, such as the Southern North Sea and Eastern Channel mixed flatfish FMP, to start to bring together a coherent unit of fisheries management approaches.

Commercial fisheries

Landings of Southern North Sea FMP species have an average value of £1.1 million to UK vessels per year. 71% of this catch is landed by English vessels, 28% by Scottish vessels and 1% by Northern Irish vessels. The value of the Southern North Sea demersal NQS fisheries averages £5.8 million a year for EU vessels. By weight of landings, UK vessels make up 24% and EU vessels make up 76% of the total per annum.

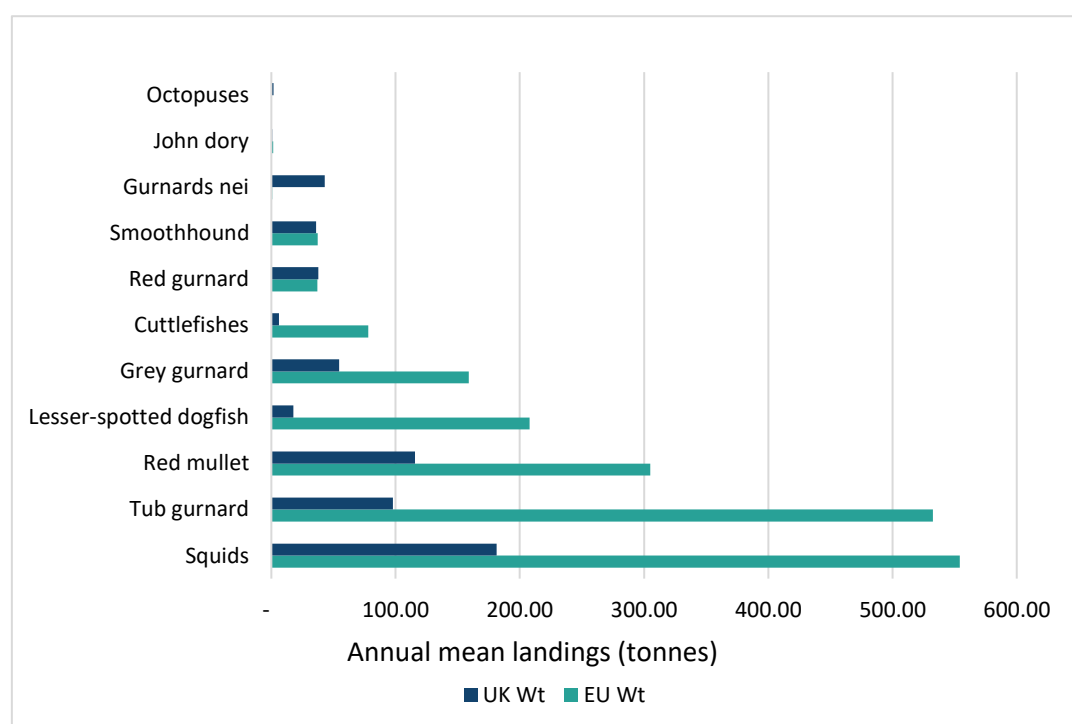


Figure 3. Annual average landings ranked by weight (tonnes) of UK landings compared to the EU27 (annual average of 2016 to 2021)

An average of 2,505 tonnes (t) of FMP species were landed annually from the FMP area (see Figure 3), 29% of which was squid, 25% was tub gurnard and 17% red mullet. Lesser spotted dogfish and grey gurnards make up 9% each of the total landings annually. Cuttlefish, red gurnard, smoothhound and gurnards nei (not allocated at species level) comprise between 2% and 3% of the average annual landings. John dory and octopus (not allocated at species level) make up less than

1% of the average landed catch annually, with less than 5 tonnes of these species landed across both UK and EU vessels.

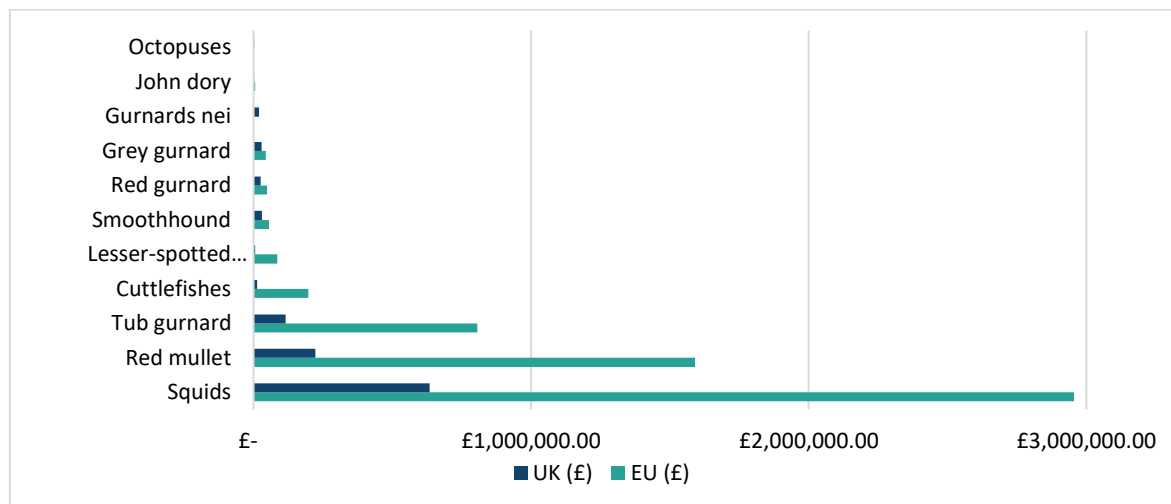


Figure 4. Annual average landings ranked by value (£GBP) of UK landings compared to the EU27 (annual average of 2016 to 2021)

Annual average landings data show squid to be the most economically important demersal species in the scope of the FMP for both UK and EU vessels by both weight (735t) and value (£3.6 million). EU vessels make up 75% of landings of squid by weight (554t) and 82% by value (£2.9 million) compared to UK vessels (181t, £634,000). The order of importance by weight and value differs for the remaining species.

Red mullet emerges as the second most important species group by value (£1.8 million) and third by weight (420t). EU vessels make up 73% of landings by weight (UK: 115t, EU 305t) and 88% by value (UK: £ 223,000, EU: £1.6 million).

Tub gurnard landings show that it has the second largest landings by weight (630t) and is the third most economically important of the FMP species (£922,000). This is driven by EU vessels making up 84% of the total landings by weight (UK: 98t, EU: 532t) and 87% by value (UK: £115,000, EU: £806,000)

Cuttlefish are the fourth most economically important of the FMP species (£210,000) and sixth by weight (84t). Lesser spotted dogfish emerge as the fourth largest landings by weight (225t) and fifth by value (£91,000). The remaining FMP species make up less than 3% of the total catch by weight and 1% by value.

The annual average landings by weight and value are substantially higher in ICES area 4c, with 79% of the total landings weight and 85% of the total landings value. The majority of landings by weight of the focal FMP species are by EU vessels

(76%), for which port of landing data are unavailable. In relation to port landings by UK vessels only, Boulogne receives the highest economic value from the fishery, with the largest weight of the total landing (709t) and highest value (£1.9 million). Of the top 10 ports receiving catch of the FMP species from both UK and EU vessels by weight, there are 3 English ports – North Shields is fourth (3%), Hartlepool is sixth (1%) and Scarborough is eighth (1%).

There is a significant difference between the price per tonne of EU and UK landings. Table 1 shows that the price per tonne for squid is the largest of the FMP species, fetching on average £5,333 per year for EU vessels and £3,497 for UK vessels. The greatest difference in price per tonne is for red mullet. EU vessels receive £5,217 per tonne for red mullet while UK vessels receive £1,933 per tonne, a difference of £3,284. For all FMP species, UK vessels receive a lower price per tonne than EU vessels.

Table 1. The average price £ per tonne difference between UK and EU landings (2016 to 2021).

Species	EU average price per tonne	UK average price per tonne	Difference in average price per tonne
Squid	5,333	3,497	-1,836
Red mullet	5,217	1,933	-3,284
John dory	4,379	3,221	-1,158
Cuttlefish	2,526	2,163	-363
Tub gurnard	1,514	1,179	-335
Smoothhound	1,494	838	-656
Red gurnard	1,306	669	-637
Octopus	908	1,216	308
Lesser-spotted dogfish	411	329	-82
Grey gurnard	279	528	248
Gurnards nei	235	474	239

FMP economy

Figure 5 shows the number of UK vessels involved in the Southern North Sea demersal NQS fisheries and their economic dependence on the FMP species. In this chart, economic dependence reflects the value of revenue from landings of species covered by the FMP as a proportion of total fishing income. The vast majority of FMP species landed comprise less than 5% of most vessels' income. In 2022, 241 vessels landed FMP species, 95% (229) of these had an economic

dependence less than 20%. Vessels with less than 20% economic dependence on FMP species average 18% of landings. There were 12 vessels where FMP species comprised greater than 20% of annual income numbered in 2022, averaging 82% of annual landings. The vessels most reliant on FMP species are predominately over 18m in length. The number of UK vessels involved in the fishery has decreased from 335 in 2016 to 241 in 2022.

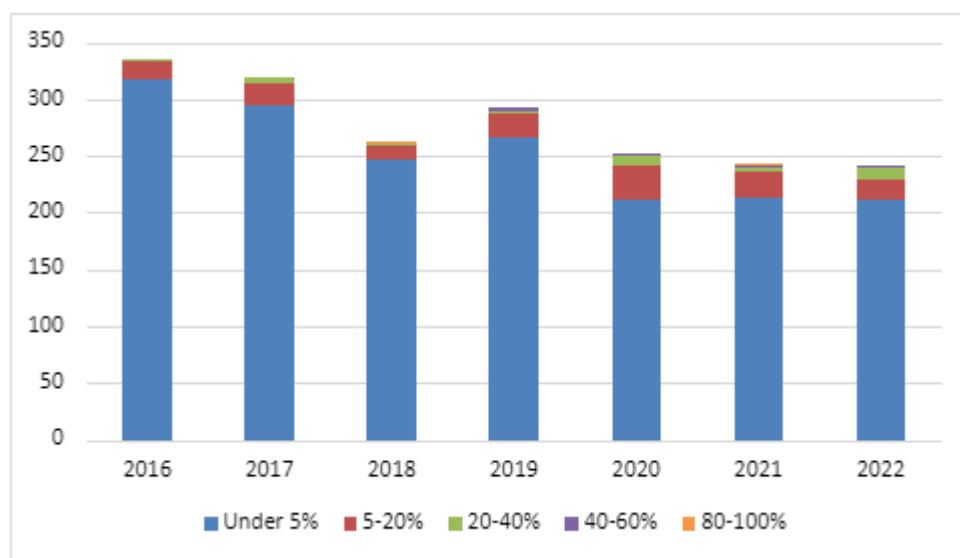


Figure 5. Number of UK vessels involved in the Southern North Sea demersal NQS fisheries by level of economic dependence

Recreational fisheries

Nationally, recreational sea fishing is a high participation activity delivering economic and social benefits. Recreational catch data in respect of the FMP species is limited. It is estimated that around 772,000 UK adults participated in sea angling each year between 2016 and 2019 across the UK at a value of £1.6 to £1.9 billion (data available in [Sea angling in the UK report 2016 and 2017](#) and [Sea angling in the UK report 2018 and 2019](#)). There are also both personal and societal benefits derived from sea angling.

Detailed information on the economic and social value of recreational fishing within the spatial scope of this FMP could be better defined, but existing research has indicated that it is of high economic and social value and may form a key component of coastal community income. Further evidence gathering is required through the implementation of the FMP.

Whilst lesser-spotted dogfish are generally not targeted, their abundance and ease to catch means they are the third most common species caught by UK sea anglers, although 95% of catch is returned to the sea. Anecdotal evidence highlights that smoothhound is an important species for sea anglers in the East of England and feedback relating to cephalopods suggests that recreational fisheries for these species (except octopus) are emerging, although the extent is currently unknown.

Existing management of Southern North Sea NQS

Of the 13 species covered under the scope of this FMP, 5 were assessed by ICES in 2023. Two of these, grey gurnard and red mullet, have concerns around sustainability and high discard rates (lesser spotted dogfish on discards too). Red mullet is of particular concern given landings of, and market for, juveniles. The remaining species have not been assessed by ICES and therefore no information is available on whether these are fished to MSY.

During engagement sessions, stakeholders highlighted concerns around the catches of some FMP species by larger, offshore vessels, such as squid, gurnards and red mullet. Cephalopod stocks are not assessed by ICES, however research is being undertaken by Centre for Environment, Fisheries and Aquaculture Science (Cefas) and the Working Group on Cephalopod Fisheries and Life History (WGCEPH) to provide more data to assess the stocks.

None of the FMP species have a MCRS. However, there is a 750g weight limit for octopus (Regulation (EU) 2019/1241 Annex V part A, as retained). In ICES areas 4b and 4c, the FMP species are subject to a minimum towed gear mesh size of 80mm cod end and 90mm square mesh panel. There are no other technical conservation measures directed at the other FMP species.

There are no constraints on the amount of NQS that can be landed, with the exception of the TCA, which places a general cap on the tonnage of NQS that the UK and the EU can take from each other's waters.

There are byelaws within IFCA districts that are relevant to the FMP species and the gear types associated with their capture. No byelaws are specifically in place to provide management to FMP species, instead technical measures are used to govern all fishing. These are as follows:

Kent and Essex IFCA:

- Vessel Length and Engine Power Byelaw

- Bottom Towed Fishing Gear (Prohibited Areas) Byelaw 2017
- River Medway Nursery Area (Prohibition of Fishing) Byelaw
- Essex Estuaries Bottom Trawling (Prohibited Areas) Byelaw 2016

Eastern IFCA:

- Marine Protected Areas Byelaw 2018
- Inshore Trawling Restriction Byelaw
- Fixed Gear, Authorisation of Placing Byelaw
- Trawling Prohibition Exceptions (Inherited Byelaw)

North Eastern IFCA:

- Trawling: Prohibition: Exceptions Byelaw III 2003
- Method and Area of Fishing (Fixed Netting) Byelaw XVIII 2016
- Flamborough Head No Take Zone Byelaw XXVII
- Flamborough Head Fishing Byelaw XXVI
- Humber Estuary Fishing Byelaw XXIX
- Seine Net, Draw Net or 'Snurrevaad': Prohibition of. Byelaw IV

Northumberland IFCA:

- Trawling Byelaw
- Prohibition of the Use of Mobile Fishing Gear Within the English Section of the Berwickshire and North Northumberland Coast Special Area of Conservation (SAC)

FMP vision

The FMP vision is that demersal NQS fisheries in the Southern North Sea area will be managed to achieve environmental, social, and economic sustainability, for the benefit of coastal communities and wider society.

The FMP vision will be delivered using the following principles.

Align with legislation and government policy

Align with current and planned legislation and Government policy such as, but not limited to:

- the fisheries objectives in the Act and the JFS
- UK environmental targets for the marine environment such as the Environment Improvement Plan and UK Marine Strategy (UKMS)
- the UK and EU TCA, including management of shared stocks through multi-year strategies

The Southern North Sea demersal NQS FMP will also align with other FMPs where stocks are shared, where the FMP's species are caught in other fisheries, or where there are interactions with gear used to target FMP species.

Adopt an evidence-based approach

Adopt an evidence-based approach, with management measures implemented using the best available evidence. The FMP will also identify evidence gaps and detail how these will be addressed. The FMP will be reviewed and revised if appropriate in light of new or changing evidence.

Seek to apply a precautionary approach where needed

Seek to apply the precautionary approach to fisheries management, ensuring exploitation of marine stocks restores and maintains populations of harvested species above biomass levels capable of producing MSY. The precautionary approach will be followed where insufficient evidence is available to assess MSY for FMP managed species. Management may be applied on a risk-based approach and will be proportionate to the risk.

Adopt a holistic approach

Adopt a holistic approach, considering unintended consequences and work towards adopting an ecosystem-based management approach. This includes, but is not limited to, understanding the impact of fishing on the wider marine

ecosystem, environment, and its contribution to climate change, as well as the impact of climate change and environmental events on fishing and fish stocks, including how to support the industry through changes.

Deliver the FMP and iterate over time

Deliver the FMP collaboratively, transparently, objectively and in an iterative approach over time.

FMP goals

To support delivery of this FMP, the MMO developed specific goals based around the key themes of:

- sustainable fisheries goals
- social and economic goals
- evidence goals

Each of these goals will make contributions towards the 8 objectives within the Fisheries Act.

The following section outlines the goals and actions that are being proposed for this first iteration of the FMP. These are given from the point of FMP publication moving into the implementation phase of FMP delivery. Actions in support of these goals may be developed further.

In terms of delivering the FMP goals, short term is considered to be approximately within 2 years of publication of the FMP, medium to long term is 2 years or more after publication. Each FMP goal is detailed, providing actions, timeframes and an approach. The actions for the goals are specific to helping achieve those goals. The approach outlines how the actions will be achieved and the timeframe that it should be delivered in.

Any fisheries management intervention will result in a range of social, economic, and biological impacts. When implementing a new management measure, there is a statutory requirement to estimate the anticipated wider national benefits (for example, improved stock status of target species), as well as the likely impacts on stakeholders and how negative impacts can be mitigated. Broader impacts on local communities, and economic, social, and human rights impacts, will be analysed in

associated impact assessments, which will be required as part of the development of measures.

Sustainable fisheries goals

Goal 1: Deliver effective management of demersal NQS in English waters of the Southern North Sea

NQS in the Southern North Sea are data limited with only 5 currently assessed by ICES.

It is important to ensure stocks are managed sustainably. Therefore, it will be necessary to pursue the establishment of MSY or other sustainability assessment for these stocks and seek to manage catches below MSY or suitable acceptable proxy for all stocks in scope of the FMP.

This goal has been developed to pursue the establishment of MSY for FMP species and stock sustainability. It will positively contribute to achieving good environmental status (GES) for UKMS descriptor D3 (commercially exploited fish and shellfish) in English waters.

Action 1.

Consider how to define the precautionary approach in the Southern North Sea NQS mixed fisheries. This will include how it will be initiated, implemented, and assessed in line with data collection and management needs.

Timeframe: short term.

Approach: The Southern North Sea FMP will follow the methods paper being produced for the Channel demersal NQS FMP where appropriate, in scoping how to define the precautionary approach, how it is applied, mechanisms and triggers for initiation, research and data collection needed, and possible actions for implementation. This will ensure that the approach for the application of precautionary management is consistent between FMPs.

Additional detail on the application of the precautionary approach can be found in the '**Error! Reference source not found.**' section of this plan.

Action 2

For all stocks that are data limited and consequently unable to be assessed for stock status against MSY, seek to improve datasets to allow for assessment and allow for adoption of the precautionary approach to fisheries management.

Timeframe: short term.

Approach:

- consider early precautionary management for stocks of concern, and consider initiating additional data collection to support assessment of the stocks
- gather sufficient data for stocks of concern to support the implementation of MSY, or an equivalent proxy.
- contribute data and evidence to ICES assessments of these stocks
- incorporate effort data into fishing records – logbooks, under 10 metre vessels catch recording – to create a better data set and assess effort on stocks

Action 3

The Harvest Standard Specification (HSS) guidance will be followed and will progress toward sustainability of the stocks managed under this FMP.

Timeframe: medium to long term.

Approach: Gather sufficient data to support the implementation of MSY for priority stocks following the HSS.

Action 4

Deliver a mixed and multi-species management approach in the Southern North Sea demersal NQS fishery.

Timeframe: medium to long term.

Approach:

- approach to mixed species management in the Southern North Sea identified and tested
- approach to mixed species management applied and assessed

Action 5

Seek to ensure stocks are managed sustainably. Pursue the establishment of MSY or other sustainability assessment for these stocks. Seek to manage catches below MSY or suitable acceptable proxy for a mixed fishery for all stocks in scope of the FMP.

Timeframe: medium to long term.

Approach: Seek to manage catches so fishing remains below MSY or MSY proxy by using evidence and assessments developed by short term and other medium-long term actions outlined above.

Relevant Fisheries Act 2020 objectives

- sustainability objective
- precautionary objective
- scientific objective

Goal 2: Deliver effective management to contribute to increasing or maintaining demersal NQS stocks: where possible identify and mitigate pressures on demersal NQS

This goal has been developed to deliver effective management of FMP species and to mitigate pressures on demersal NQS. It will positively contribute to achieving GES for UKMS descriptor D3 (commercially exploited fish and shellfish) in English waters.

Action 1

Scope how to define key interactions between all Southern North Sea fisheries and NQS.

Timeframe: short term.

Approach: Consider research into quota fisheries to model interactions from catching and fisher behaviours on Southern North Sea demersal NQS.

Action 2

Better understand and define the targeting behaviour of the fleet.

Timeframe: short term.

Approach: Consider research to identify and capture fisher targeting patterns.

Action 3

Manage key interactions to minimise adverse impacts on demersal NQS FMP species.

Timeframe: medium to long term.

Approach: Identify and understand key interactions so that they are understood and managed effectively to minimise unintended consequences.

Action 4

Identify and afford appropriate protections for fish habitats that are important to key life stages of FMP species.

Timeframe: medium to long term.

Approach: Consider research to identify essential fish habitats for demersal NQS, and introduce protections where required.

Action 5

Better understand the impact of climate change on FMP species and map sensitivities to climate change.

Timeframe: medium to long term.

Approach:

- undertake research into the impact of climate change on FMP species
- adapt the fishery management strategy to align with identified species sensitivities

Action 6

Identify where climate change mitigation and adaptation measures can be implemented to reduce impacts on the fishery.

Timeframe: medium to long term.

Approach:

- consider research to identify opportunities to implement climate change mitigation and adaptation measures
- climate adaptation and mitigation are aligned with work being delivered externally or nationally
- monitor the effectiveness of the climate adaptive fisheries management measures implemented

Action 7

Better understand the impacts of non-fishing marine activities (for example capital dredging, undersea cables) on demersal NQS.

Timeframe: medium to long term.

Approach:

- develop effective engagement channels with non-fishing marine sectors to understand the impact of those marine uses on NQS stocks – this could be through the proposed Southern North Sea NQS management group.
- gather evidence to identify and mitigate, where possible, key non-fishing pressures.

Relevant Fisheries Act 2020 objectives

- sustainability objective
- ecosystem objective
- scientific objective
- climate change objective

Goal 3: Contribute to improving biological and environmental sustainability by

understanding and reducing the wider impacts of demersal NQS fisheries

This goal has been developed to improve biological and environmental sustainability within the FMP remit. It will positively contribute to achieving GES for UKMS descriptor D1 (biological diversity), D3 (commercially exploited fish and shellfish), D4 (food webs) and D6 (sea-floor integrity) in English waters.

Action 1

Investigate key issues in current unwanted and protected species bycatch within the fisheries.

Timeframe: short term.

Approach: Consider research to identify and reduce bycatch of unwanted and protected species.

Action 2

Better understand the impact of fishing gear interactions with the marine environment in the Southern North Sea demersal NQS fishery.

Timeframe: medium to long term

Approach: Consider research to map and define the demersal gear and benthos interactions.

Action 3

Establish data collection requirements to monitor and track key Southern North Sea demersal NQS fishing impacts on bycatch of unwanted and protected species.

Timeframe: medium to long term.

Approach: Consider a data collection programme tracking bycatch and target species.

Relevant Fisheries Act 2020 objectives

- sustainability objective
- bycatch objective

- ecosystem objective
- scientific objective

Social and economic goals

Goal 4: Better understand and optimise social and economic benefits

Action 1

Identify who is reliant on NQS fisheries and who is impacted by them.

Timeframe: short term.

Approach: Identify groups within the Southern North Sea that are reliant upon demersal NQS fisheries and carry out research to understand who is benefitting and how.

Action 2

Identify social and economic data on current direct and indirect benefits derived from Southern North Sea demersal NQS fisheries on coastal communities.

Timeframe: short term.

Approach: Understand the direct social and economic benefits of the Southern North Sea demersal NQS fishery for the groups identified. Target management appropriately so that these benefits are maintained and optimised.

Action 3

Identify social and economic indicators used to monitor social and economic impacts and how this information will be gathered. The approach will also set out implications or alternatives if monitoring social impacts has not been achieved.

Timeframe: short term.

Approach: Establish a full set of monitoring indicators that can be used to assess the effectiveness of the FMP's social and economic goals.

Action 4

Where data are not currently available, seek to identify new ways to collect social and economic data.

Timeframe: medium to long term.

Approach: Identify evidence gaps and start work to close them.

Action 5

Seek to understand if there are opportunities to optimise direct and indirect benefits from FMP species.

Timeframe: medium to long term.

Approach: Map and understand benefits from FMP species and put in place mechanisms to optimise these benefits.

Relevant Fisheries Act 2020 objectives

- scientific objective
- national benefit objective

Goal 5: Develop partnership working to build capacity for the industry to be able to input into matters affecting NQS fisheries management.

This goal has been developed to ensure that stakeholders in the FMP area have an appropriate forum to contribute to the management of demersal NQS. It will positively contribute to achieving GES for UKMS descriptor D1 (biological diversity) D3 (commercially exploited fish and shellfish), D4 (food webs), D6 (sea-floor integrity) and D10 (litter) in English waters.

Action 1

Consider the establishment of a Southern North Sea demersal NQS management group to allow for continued engagement in ongoing management of NQS fisheries.

Timeframe: short term.

Approach: Government will formally establish a Southern North Sea NQS management group, which will be recognised as the key group for matters related to the review and revision of the FMP. The FMP proposes that the group will comprise of industry, recreational fishers, wider supply-chain businesses, the regulatory authority, fisheries scientists, policy makers, and other interested stakeholders. The remit of this group in its proposed state will be to act as a forum for engagement and give the group the initiative to set the direction of FMP development. The group will, where appropriate, work jointly with the proposed Channel demersal NQS FMP management group to ensure a consistent approach to managing demersal NQS.

Relevant Fisheries Act 2020 objectives

- national benefit objective
- equal access objective

Evidence goals

Goal 6: Better understand the wider NQS evidence gaps

Action 1

Building on the supporting evidence statement, this document will be regularly developed and updated to establish what evidence is required to meet the wider goals of the FMP, as well as any further policy or legislative objectives.

Timeframe: short term.

Approach:

- identify what evidence is currently available through a robust and systematic process. Understand the data channels that currently source this evidence
- develop an evidence strategy to focus on evidence gaps – an evidence strategy will cover all fisheries, environmental, ecological, and social and economic data requirements

Relevant Fisheries Act 2020 objective

The scientific objective.

Goal 7: Develop the NQS evidence base

Action 1

Identify how current data channels can be adapted or improved to meet evidence gaps.

Timeframe: short term.

Approach: Identify and evaluate data channels for integration into the development of the FMP evidence base.

Action 2

Where necessary, establish new data collection channels to close evidence gaps. Investigate opportunities to gather non-traditional or novel sources of data to complement this, including using new technologies.

Timeframe: medium to long term.

Approach: Evidence gaps that cannot be filled by existing data will be addressed by new evidence and data, where available. Where possible, this will be collected using new technologies or through novel, non-traditional methods. Species prioritisation may mean expedited delivery.

Action 3

Explore methods to consolidate new data with existing data in a singular platform.

Timeframe: medium to long term.

Approach: The approach to managing data will be consistent with data protection regulation. It will aim to be transparent and accessible for use by agreed partners and stakeholders.

Relevant Fisheries Act 2020 objective

The scientific objective.

Harvest strategy

The FMP harvest strategy is for fisheries to be managed sustainably. Red mullet grey gurnard, red gurnard, lesser-spotted dogfish, and smoothhound have ICES assessments available in the Southern North Sea area. Currently none of the remaining 8 species in the scope of the FMP are assessed by ICES.

The species within this FMP are data limited, and several are under ICES advice for precautionary management. Under the FMP these stocks need to be better understood to evaluate each stock's status and implement sustainable management if required.

Sustainability concerns have anecdotally been raised by stakeholders engaged in the development of the FMP. These concerns centred around increased flyseining activity and associated catches and discards. Landings data suggests that red mullet are of particular concern given the market for juveniles.

The lack of data for species in scope means the Southern North Sea demersal NQS FMP needs to take a precautionary approach to fishery management. These species need to be better understood to evaluate each stock's status and implement sustainable management if required. The precautionary approach will be applied in line with obligations set out in the Fisheries Act objectives, where indications of less sustainable fishing practices for the species under this FMP exist. Management is considered where these species would benefit from intervention in the short and medium to long term, while additional evidence is collected, and the effectiveness of these management interventions is monitored.

Harvest control rules

At the time of publishing this first iteration of the FMP, there is insufficient data to support a stock assessment approach to introducing harvest control rules (HCRs). Instead, the proposed approach will follow precautionary management, where

there are concerns for the sustainability of a stock, while monitoring and data gathering take place to enable stock assessments to be performed in the future.

These FMP species are mobile, transboundary fish, distributed or migratory across UK and EU waters. Therefore, stock assessment units will need to take into consideration UK and EU catches across the shared Southern North Sea area.

Where data for FMP species supports an assessment at MSY in the future, HCRs will be devised based around suitable and precautionary reference points assessing fishing impact on stock health.

Maximum sustainable yield

The FMP proposes actions under the sustainable fisheries goal theme to help reach harvest below maximum sustainable yield (MSY). This is initially focused on stocks of particular concern, such as red mullet and gurnards. Cephalopods species such as squid are relatively short-lived and difficult to assess under typical ICES assessment processes.

Therefore, management will consider suitable proxies which may be used for the assessment of the stock to ensure that harvest is sustainable. Commitments for the long term will look to close the data gaps on all Southern North Sea demersal NQS, to conduct an MSY assessment, and that all species will be fished at or beneath this level.

Management strategy

The FMP management strategy, including the harvest strategy, focuses on 4 key topics:

- flyseining
- cephalopod fisheries
- minimum conservation reference sizes
- education, adoption of voluntary guidelines and codes of conduct

Management measures are being recommended in this FMP for stocks where concerns have been raised by fisheries stakeholders. All proposed measures will contribute to restoring the stock to, or maintaining it at, sustainable levels, or specify policies of the relevant authority or authorities for maintaining or increasing levels of the stock.

The efficacy of technical measures for conserving FMP species will be evaluated. This will enable consideration of options for the future introduction of management during the implementation cycle of the first iteration of the Southern North Sea demersal NQS FMP.

Mixed and multi-species management approaches

Mixed fishery and multi-species management approaches have been developed to address the linked nature of certain fish or shellfish stocks that occupy the same habitats or ecosystems and often caught together. This allows implementation of measures effective for a cohort of species rather than a single stock. As this FMP covers an inherently complex and poorly understood collection of species that are caught alongside quota and other NQS, the FMP has the long-term ambition of developing sufficient evidence so that mixed and multiple species management can be applied effectively. There are strong links to other FMPs, most clearly the Southern North Sea and Channel flatfish FMP and Channel demersal NQS FMP, and we acknowledge the need to manage these plans together as a coherent whole over time.

The steps needed to implement a mixed-fishery approach for these fisheries need to consider 3 separate but linked processes:

- data collection
- method development
- decision making

Management measures

The management measures proposed in the FMP are summarised below, along with the indicators that will be used to monitor their progress.

All proposed measures will aim to increase or maintain stock levels for the species managed under this FMP while facilitating evidence gathering to assess the effectiveness of the measures. As the FMP species are data limited, a precautionary approach is being taken to their management. These species need to be better understood to evaluate each stock's status and implement sustainable management where required. Management measures are being recommended in this FMP for species where concerns have been raised by fisheries stakeholders.

1. Restriction of future flyseining effort

Flyseining (also known as flyshooting or Scottish seining) is a fishing method involving long weighted ropes to herd fish into the mouth of the trawl, before hauling the net to the vessel as it maintains its position under power. Some flyseine vessels in the Southern North Sea are purpose-built seine netting vessels or converted beam trawlers, with higher engine powers and capacity when compared to traditional Scottish flyseine vessels.

These measures align with those published in the Channel demersal NQS FMP to ensure a consistent approach across English waters.

Short-term measures

1. Introduce a 221kW restriction in ICES areas 4b and 4c in UK waters for 0 to 12nm for flyseiners.
2. Introduce a measure for all flyseiners to use 100mm mesh as standard.
3. Consider a gross tonnage limitation in ICES areas 4b and 4c for flyseiners.

Purpose: To limit large capacity flyseining pressure and reduce fishing pressure on demersal NQS stocks, including juveniles, within the Southern North Sea. These will be precautionary measures, given concerns around impacts to the stock.

Indicators:

- flyseine vessels operating with an engine size of 221kW or higher are prohibited from fishing within the territorial waters of the Southern North Sea (English waters of ICES areas 4b and 4c)
- flyseiners operating in the Southern North Sea (English waters of ICES areas 4b and 4c) are required to use a 100mm minimum mesh

Medium- to long-term measures

1. Subject to the outcome of the consultation on REM, propose introducing early adopter scheme that could become mandatory in the future.
2. Consider introducing a permitting scheme for flyseiners.
3. Consider restrictions on time spent in area.
4. Consider seasonal closure for flyseiners.
5. Consider an overall engine size limitation for flyseiners.
6. Further consider potential rope length and diameter restrictions for flyseiners.

Purpose: Medium- to long-term measures aim to support the collection of robust evidence and data on Southern North Sea demersal NQS species and fill key evidence gaps. Also, to monitor the impact of the proposed measures. Other medium-long term measures will be introduced based on the effectiveness of the short-term measures to achieve their outcomes.

Evidence: Flyseining has been identified as a priority fishery for introduction of precautionary management. Sustainability concerns have been identified for Southern North Sea demersal NQS, such as gurnards, red mullet and squid specifically associated with flyseine catch. This was confirmed through [Defra's consultation to manage flyseine vessel pressure on demersal NQS in 2022, on Citizen Space](#), and subsequent stakeholder engagement. Landings data also shows an increase in flyseine landings of the FMP species from 2018 to 2022 (figure 6).

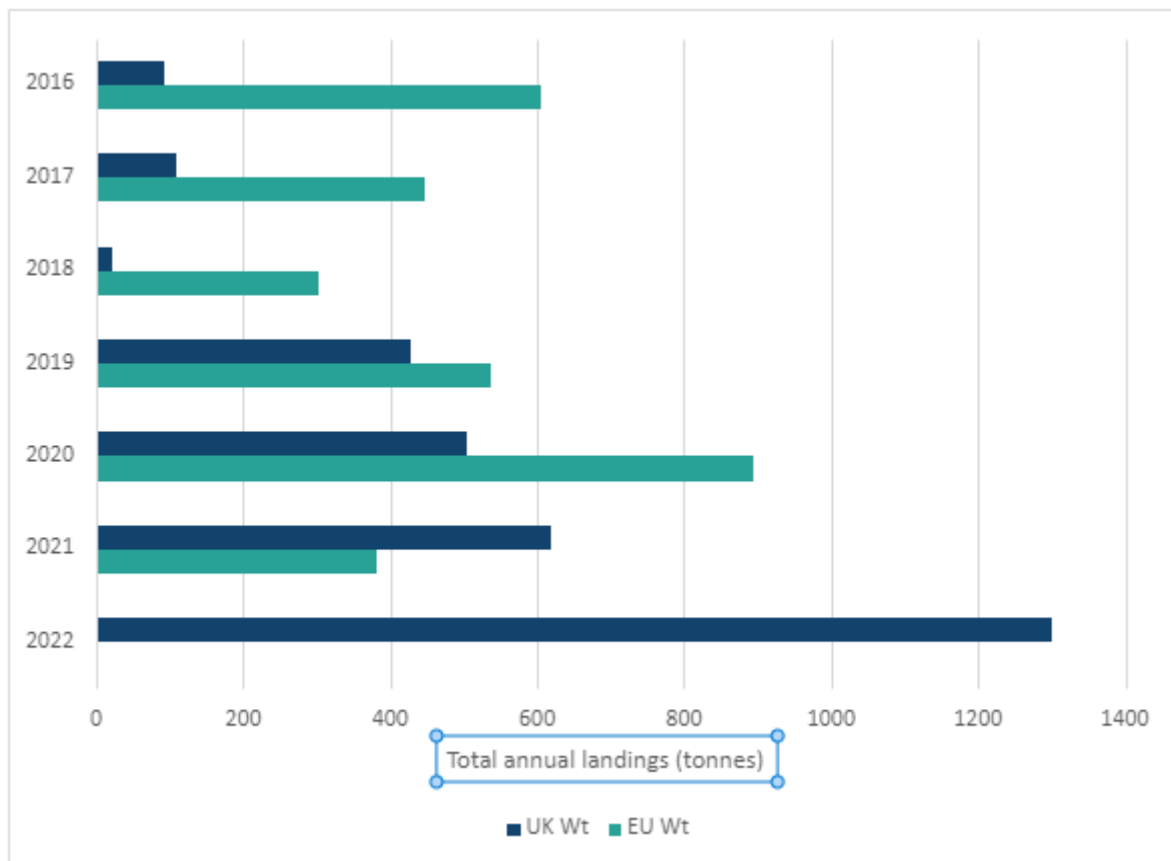


Figure 6. Total annual landings by weight (tonnes) of vessels that list flyseine as their primary gear. UK landings (2016 to 2022) compared to the EU27 (2016 to 2021). Data for EU vessels in 2022 was not available at the time of publication.

The [government response to the Defra consultation](#) was published on 17 July 2023 and showed strong support for action, with 78% in favour of introducing some form of measure to manage flyseine vessel pressure. As a result, on 24 October 2023 a statutory instrument removed the derogation for all towed gears that allowed the use of a mesh size of at least 40mm in a directed squid fishery in English waters. This means that squid can now only be fished using mesh sizes stipulated under existing technical measures. This FMP proposes further short-term measures to limit larger flyseining vessel activity in line with consultation responses and those laid out within the [Channel demersal NQS FMP](#).

Flyseine species, such as gurnards, have high discard rates^{2,3}. Therefore, work to understand the discard rates of the flyseining fleet should be carried out to fully understand the catch composition of the fishery. In addition, evidence on the effort of flyseiners in the Southern North Sea will be required to better understand the behaviour of the fleet to determine if it is appropriate to implement the proposed long-term measures.

Socio-economic evidence on the impact of short- and long-term management measures for flyseining effort should be considered to understand the impact of implementation.

Stakeholder views

Most stakeholders supported the proposals being put forward to limit flyseining effort in the Southern North Sea. However, producer organisations with flyseining vessels were opposed to the measures being put forward due to concerns about the impact on their fishing activities.

² ICES. 2022. Grey gurnard (*Eutrigla gurnardus*) in Subarea 4 and divisions 7.d and 3.a (North Sea, eastern English Channel, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, gug.27.3a47d. <https://doi.org/10.17895/ices.advice.19447934>

³ ICES. 2021. Red gurnard (*Chelidonichthys cuculus*) in subareas 3 to 8 (Northeast Atlantic). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, gur.27.3 to 8, <https://doi.org/10.17895/ices.advice.7757>

2. Emerging cephalopod fisheries

During stakeholder engagement, stakeholders noted that they have seen a change in the abundance and distribution of cephalopod species in the FMP area.

Short-term measures

Monitor catches, create research plan, and gather evidence for emerging fisheries in the Southern North Sea such as cuttlefish, octopus and squid. This would include looking into supporting other fishing practices, for example codes of conduct for cuttlefish trap handling.

Purpose: To assess future potential fisheries and impacts on other fisheries from population growth. Given the importance of squid to fishers across the FMP area, and to address concerns surrounding the potential overexploitation of the stock, the FMP recommends the introduction of greater monitoring and data collection in the short term to help inform future management. Robust evidence collection will be required to understand if anecdotal claims of population growth and distribution changes have occurred and what this could mean for future fisheries.

Indicators:

- improved monitoring and data collection for cephalopod species in the Southern North Sea.
- stock health of cephalopod species in the Southern North Sea have been assessed and understood.

Evidence: Anecdotal evidence provided by stakeholders during engagement events in 2023 highlighted that there has been a change in the abundance and distribution of cephalopod species across the Southern North Sea. This is supported by research that modelled the shifts in distribution of common cuttlefish, squid and octopus in the North Atlantic under the business-as-usual global warming scenario for the end of the century. All 3 species analysed were predicted to significantly shift north-eastwards by the year 2100⁴. This was most pronounced in the common cuttlefish. A change in cephalopod distribution in the FMP area will have implications for fisheries management.

⁴ Schickele, A., Francour, P. and Raybaud, V., 2021. European cephalopods distribution under climate-change scenarios. *Scientific reports*, 11(1), p.3930.

Cephalopod species in the Southern North Sea are often misidentified and therefore landings data are thought to be less accurate. Improved reporting of cephalopod catches is required to understand trends in landings data over time. In addition, evidence gathering is required to determine the impact of increased cephalopod stocks on other fisheries. For cuttlefish this FMP will utilise, where appropriate, the approach taken in the Channel demersal NQS FMP for the sustainable management of cuttlefish in the Channel.

Stakeholder views

Stakeholders across the Southern North Sea supported the proposal for cephalopod species, noting that industry should be involved in the data collection and monitoring work.

3. Minimum conservation reference sizes

MCRS, previously known as minimum landing size (MLS), is the minimum size at which a fish can be removed. The size is based on age at maturity and is common fisheries management measure.

Medium-long term measures

1. Propose the introduction of a MCRS for flyseine species such as red mullet and gurnards.
2. Propose the introduction of a MCRS for smoothhound
3. Consider the introduction of a maximum conservation reference size for lesser-spotted dogfish

Purpose: To protect juvenile fish and improve stock recruitment. This will be a precautionary measure, given concerns around stock health. Compatibility with gear mesh size is required for successful implementation and will be explored further.

Evidence: MCRS is most effective when introduced with technical measures such as compatible mesh sizes. Therefore, as there is a short-term measure proposed within the FMP for all flyseine vessels to use 100mm mesh as standard, introducing a MCRS for flyseine species could help improve the sustainability of the stock further. Evidence to determine the appropriate size for MCRS and compatible mesh sizes will be required to support this measure.

Misidentification of gurnards is considered to reduce the reliability of existing discard and landings estimates and discard rates are very high. Reviewing existing at-sea observer data on the regional species-composition of gurnards would provide estimates of species composition and improve reliability of species identification and improve the quality of species-specific landings data.

Smoothhound is an important species for recreational sea anglers. As many elasmobranch species are slow growing with fecundity increasing with size, a MCRS is proposed an appropriate fisheries management tool. However, this species is data limited and therefore robust data collection will be required to identify an appropriate MCRS.

For smoothhound, landings data have historically been of poor quality, as many are reported under generic landings categories. Therefore, further work is required to improve the quality of landings data, particularly for under 10m vessels and where smoothhound may be used as bait. Studies to better understand the composition of commercial catches by size and sex are required. An appropriate level of monitoring would then be required to fully understand commercial catch compositions over appropriate spatial and temporal scales, while considering the distribution and geographic boundaries of this species.

Stakeholder views

All recreational anglers and eNGOs engaged with in the development of the FMP supported the introduction of an MCRS for flyseine species and smoothhound. Most commercial fishermen also supported the proposal except producer organisations with members who have flyseining vessels.

4. Education, adoption of voluntary guidelines and development of codes of conduct

Short-term measures

1. Support the recreational sector to consider introducing voluntary guidelines and education on how recreational fishers can fish more sustainably. This could include voluntary MCRS information, guidance on methods and equipment to reduce damage to fish, as well as information on how anglers can handle and release fish to reduce post-release mortality.

2. Support the commercial sector by developing identification guides for mis-identified species such as smoothhound, squid, cuttlefish and gurnards.

Medium-long term measure

Monitor evidence uptake and efficacy of voluntary measures and explore how additional evidence gathering on removals from the stock could be integrated into future stock assessments.

Purpose: To support evidence gathering, engagement and partnership working with the recreational and commercial sector to inform future management of FMP species. To encourage the introduction of good practices to improve sustainability of the stocks.

Indicators:

- voluntary guidelines and improved education on handling and fishing methods have been introduced for recreational sea anglers
- improved education, identification guidelines and handling guidelines have been introduced for commercial fishers

Evidence: Data on recreational sea angling is limited within the Southern North Sea region yet is an important social and economic activity. Introducing voluntary guidelines and monitoring will help to fill evidence gaps and ensure that recreational sea angling is sustainable.

Cefas report that commercial catches of FMP species such as smoothhound, squid, cuttlefish and gurnards are often misidentified and therefore recordings are inaccurate. Improving the identification of these species through enhanced education with the commercial sector will help to increase accurate data collection for FMP species to inform appropriate management and future establishment of MSY.

Evidence needs: An understanding of the appropriate methods of improving education of both commercial and recreational fishers is required to ensure optimised take up of voluntary guidelines, codes of conduct and improved species identification.

Stakeholder views

Most of the recreational sea anglers engaged with supported the proposal to introduce voluntary guidelines and noted that the Angling Trust already provide

this, but it could be enhanced. Some commercial fishers highlighted that voluntary guidelines are not enough, and that management should be introduced for recreational sea anglers.

Stakeholders also supported the introduction of improved identification guides and education for commercial fishers.

Environmental considerations

The FMP will contribute to policies relating to the wider marine environment. Specifically, this relates to the requirement to ensure the health of our seas for future generations, and our ambitions to restore biodiversity and to address climate change.

A range of current monitoring and evidence programmes gather data to inform on the risks of fishing activity to both MPAs, and the UK MS descriptors relevant to this FMP.

Screening advice provided by Natural England and the Joint Nature Conservation Committee identified 4 key areas of risk to the marine environment associated with Southern North Sea demersal NQS fisheries. The advice has been developed to provide this FMP with steer on the primary risks posed by different gear types to MPA features and UK MS descriptors, to identify where efforts to understand and mitigate wider environmental impacts of the fishing activities managed by this FMP may be best focussed.

However, given the comparative lack of data on the direct impacts of Southern North Sea demersal NQS fisheries a suite of new work is required. As a key goal of the FMP, this work should be undertaken jointly by the fishing industry, the wider research community, environmental non-governmental organisations, and government.

This FMP was not able to fully quantify the pressures associated with Southern North Sea demersal NQS fisheries, and instead provides a high-level risk assessment based on best available evidence.

Marine Protected Areas (MPAs)

Inside the boundaries of English MPAs, the MMO and IFCA assess human activities that could interact with the designated features of MPAs and introduce management where required. Therefore, the existing assessment and management pathways mitigate risks arising from fishing activity within English MPA boundaries, and no additional action is suggested for the FMP within MPA site boundaries. Of the pressures identified those that impact habitat are thought to primarily operate inside site boundaries. Instead, this advice focuses on risks to MPA features from fishing activities occurring outside site boundaries.

There are 2 key areas of moderate risk and 2 low risk areas.

Moderate risk of bycatch of mobile species that are designated features of MPAs

Three marine mammal species are featured in the MPAs within the UK: the harbour porpoise, grey seal and common seal. Demersal trawling is not a part of the UK bycatch monitoring programme's sampling regime. The omission of benthic trawling from the programme stems from the understanding that demersal towed gears do not pose the same significant bycatch risks to marine mammals as other gear types, such as static nets or longlines.

There is historical evidence of occasional harbour porpoise bycatch in beam and otter trawls from previous observer programmes⁵. However, the prevailing understanding suggests that such bycatch events are unlikely to cause significant impacts on broader marine mammal populations or the conservation of relevant MPAs. Isolated bycatch events outside the boundaries of harbour porpoise MPAs are unlikely to adversely influence the site condition or populations. Yet, considering the existing data gaps, a more rigorous monitoring of benthic trawler bycatch would solidify our understanding regarding potential risks to marine mammal MPAs and their features. Implementing enhanced observer coverage or remote electronic monitoring on suitable vessels could serve this purpose.

There is very little evidence available to assess the risk of demersal seines to marine mammal bycatch. Demersal seines are not included in the UK bycatch monitoring scheme and no studies investigating bycatch risk to mammals could be found. It is believed that the potential for mammal bycatch is low, but further evidence and data collection would increase confidence in this assessment. Implementing enhanced observer coverage or remote electronic monitoring on suitable vessels could help gather more data on marine mammal bycatch in demersal seine fisheries. Additionally, collaboration with fishers and other stakeholders could provide valuable insights into potential risks and mitigation measures.

While the risk to marine mammal feature condition is generally considered low, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate, taking a precautionary approach into account. Gathering additional evidence has the potential to downgrade this risk in the future.

⁵ CEFAS. (2015). English and Welsh observer programme report (unpublished report)

Moderate risk of bycatch of seabird species that are designated features of MPAs

Benthic trawling does pose a particular risk to certain species of seabird. This is highlighted by both anecdotal reporting during fish bycatch monitoring and by previous work looking at the relative risk of bird bycatch that incorporated the behavioural traits of different species⁶. This latter work highlights deep diving shags, scaups, eiders, scooters, guillemots, great northern divers and cormorants as the most sensitive to demersal towed gears. The prevailing sentiment is that benthic trawling does not present as high a bycatch risk to seabirds as other gears, such as set nets or longlines. Nevertheless, there are pronounced data gaps regarding the potential exposure of sensitive seabirds to towed demersal gears.

Given the evidence constraints, it's reasonable to assume that the likelihood of demersal trawling by this fishery leading to concerning bird bycatch levels that could significantly impact relevant seabird populations or SPAs is relatively low. Yet, enhancing the monitoring of benthic trawlers would be advantageous to bridge the data gaps and reduce uncertainties. This could be achieved by adapting and expanding existing observer programmes to record seabird bycatch or through appropriate use of remote electronic monitoring.

It is believed that the risk of seabird bycatch is likely to be similar to that of demersal trawls, particularly during hauling activities where the gear is on the surface. The potential for bycatch of deep diving seabirds during the process of fishing and sweeping the ground may be lower in demersal seines compared to demersal trawls, due to the use of ropes to achieve a swept area and a lower swept area for the net components more likely to cause entrapment. However, further work is required to better understand the risks and improve confidence in the assessment.

While the risk to seabird feature condition is generally considered low, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate, taking a precautionary approach into account. Gathering additional evidence has the potential to downgrade this risk in the future.

⁶ Bradbury, G., Trinder, M., Furness, B., Banks, A. N., Caldow, R. W. G., Hume, D. (2017). Risk assessment of seabird bycatch in UK waters. Wildfowl and Wetlands Trust, UK.

Low risk of bycatch of fish which are designated features of MPAs

Towed demersal gears used in this fishery pose a potential bycatch risk to the 2 shad species: allis shad (*Alosa alosa*) and twaite shad (*Alosa fallax*). Both species are members of the herring family and migrate from coastal waters into rivers for spawning. Several hundred kilograms of shad landings were also reported from divisions 4b and 4c, where this fishery operates⁷.

The lack of data challenges the comprehensive assessment of shad bycatch potential impacts from this Southern North Sea fishery. A simple assessment of proximity would suggest catches associated with this fishery may be from continental populations, but there is a lack of understanding about shad movements. A more detailed understanding of the spatial distribution, quantities, and origins of any shad bycatch is essential for the holistic risk to be understood. However, the quantities of shad landings from the region in ICES (2014)⁸ suggest that this fishery is likely to pose a low risk to the status of shad within UK MPAs. In addition to shad, other protected fish species might be caught by towed demersal gears. Presently, direct evidence to gauge the risk level for these species in this specific fishery is unavailable.

Low risk of depletion of important prey species to mobile MPA features

The fish species directly covered in this FMP are not themselves generally considered key prey species. However, there is the potential for some bycatch of other species that act as important prey (forage fish) for marine predators.

There have been few studies looking at bycatch of sensitive or designated fish species in demersal seines, and there is limited data available. Discard self-sampling in the Dutch seine fleet in the Southern North Sea 2014 to 2016 did not identify bycatch of any designated fish species⁹. Expert judgment suggests that there may

⁷ ICES. (2014). Report of the working group on bycatch of protected species (WGBYC) (ICES CM 2014/ACOM:28).

⁸ ICES. (2014). Report of the working group on bycatch of protected species (WGBYC) (ICES CM 2014/ACOM:28).

⁹ Verkempynck, R., van Overzee, H., Dammers, M. (2018). Discard self-sampling of Dutch bottom-trawl and seine fisheries in 2014 to 2016 (CVO Report No. 18.007). Stichting Wageningen Research, Centre for Fisheries Research (CVO). <https://doi.org/10.18174/446002>

be a theoretical impact pathway similar to that of demersal trawls, however, any direct evidence is lacking and the activity is considered low risk to fish features. Further data on bycatch rates would improve confidence in this assessment.

Key potential forage fish species at risk of bycatch include small gadoids like juvenile cod and whiting. Given that primary marine mammal and seabird predators feeding on these species tend to have varied diets, the ecosystem impacts of reducing any single gadoid forage fish species' numbers might be relatively low. Thus, the direct risk to mobile features of MPAs from reduced food availability due to gadoid bycatch in this fishery seems minimal. Nevertheless, evaluations may be necessary if significant quantities of other key forage fish groups, like clupeids or anchovies, were caught as bycatch. Overall, based on the fishery's characteristics and available evidence, the risk of impacting mobile MPA features through diminished prey availability appears low.

Based on available evidence, the fisheries associated with this FMP pose a moderate risk of bycatch to mobile MPA features like marine mammals and seabirds from fishing activity occurring outside site boundaries. However, significant data gaps persist regarding actual bycatch rates and impacts. Thus, the moderate risk rating represents a precautionary approach, highlighting the need for enhanced monitoring to improve confidence in the assessment. The risk to designated fish species and important forage fish prey appears low currently. However, continued monitoring and reporting of bycatch is important to detect any emerging issues requiring management.

Wider sea evidence: beyond MPAs

The [UK Marine Strategy](#) provides the framework for delivering clean, healthy, safe, productive, and biologically diverse oceans and seas. It consists of a 3-stage framework for achieving GES in our seas through protecting the marine environment, preventing its deterioration, and restoring it, where practical, while allowing sustainable use of marine resources.

The following GES descriptors are relevant to the FMP during its first iteration:

- D1 biological diversity
- D3 commercially exploited fish
- D4 food webs
- D6 seafloor integrity
- D10 litter

A screening exercise found 6 key issues, and a rapid assessment of risk has been undertaken against key indicators of GES. The FMP introduces policies aimed at addressing these 6 key issues and sets out goals and subgoals which contribute to improving GES. These are summarised below.

Moderate risk to D1, D4 biological diversity of cetaceans

The risk to achieving GES for the biological diversity of cetaceans is generally considered low, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate, taking a precautionary approach into account. Gathering additional evidence has the potential to downgrade this risk in the future.

Benthic trawling and seining are not perceived as high-risk for cetacean bycatch. However, occasional harbour porpoise bycatch in otter trawlers has been reported¹⁰. The 2019 report on bycatch levels¹¹ emphasised that the sampling was not specifically tailored for protected species, making the data less conclusive, but current understanding is that this is not at a level that would have impacts on population. Further evidence is required to increase confidence in this assessment.

While the primary species in the FMP are not 'forage fish', bycatch in these fisheries might serve as prey for cetaceans. For instance, cetaceans consuming juvenile cod and whiting from benthic trawl fisheries are not at high risk due to their generalist feeding habits. However, if large numbers of other forage fish like sandeel or herring are bycaught, risks might need reassessment. Further studies can shed light on the impact of prey depletion on cetacean populations and their interactions with the broader marine ecosystem.

A better understanding of the actual risk posed by the fisheries will require a closer look at the bycatch associated with this activity. Any new management should contribute to achieving GES targets for D1 and D4. The following FMP goals have been developed to address the issue of bycatch associated with the Southern North Sea demersal NQS fisheries:

¹⁰ CEFAS. (2015). English and Welsh observer programme report (unpublished report)

¹¹ Kingston, A., Northridge, S., Thomas, L. (2021). UK bycatch monitoring programme report for 2019. Sea Mammal Research Unit.

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

These goals will also positively contribute to achieving GES for UKMS descriptor 1 (biological diversity) and descriptor 4 (food webs) in English waters.

Moderate risk to D1, D4 biological diversity of seals

While the risk to achieving GES for the biological diversity of seals is generally considered low, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate, taking a precautionary approach into account. Gathering additional evidence has the potential to downgrade this risk in the future.

The status of the common seal, which is below target levels, is not thought to be due to bycatch. Seines and demersal trawls are not considered to pose a high risk of seal bycatch. No marine mammal bycatch was recorded for all beam, otter and twin otter trawls for the English and Welsh Data Collection Framework programme in 2019. However, further evidence collection would improve confidence in the assessment of risk.

While none of the species covered in the FMP could be considered ‘forage fish’, some of the bycatch associated with the target fisheries resulting in NQS landings may constitute part of a seal’s diet (such as flatfish and cephalopods). If the fish species most likely to be bycaught are gadoids such as juvenile cod and whiting, the direct risk to seals is likely to be low. This is because species that consume a lot of gadoids tend to be more generalist feeders. Only weak interactions between forage fish populations and predators occur when predators on forage fish are opportunistic generalists, feeding on whichever species happen to be abundant¹². Further work is needed to better elucidate the impact of prey reduction on seal populations and the

¹² Dickey-Collas, M., Nash, R. D. M., Brunel, T., van Damme, C. J. G., Marshall, C. T., Payne, M. R., Corten, A., Geffen, A. J., Peck, M. A., Hatfield, E. M. C., Hintzen, N. T., Enberg, K., Kell, L. T., Simmonds, E. J. (2014). Ecosystem-based management objectives for the North Sea: Riding the forage fish rollercoaster. *ICES Journal of Marine Science*, 71(1), 128– 142. <https://doi.org/10.1093/icesjms/fst075>

ecosystem interactions between fish and higher predators. A collaborative approach between Defra and its ALBs to develop ecosystem modelling approaches will support a better understanding of the potential impacts of prey reduction on seal populations.

A better understanding of the actual risk posed by the fisheries will require a closer look at the bycatch associated with this activity. Any management brought in should contribute to achieving GES targets for D1 and D4. The following goals have been developed to address the issue of bycatch associated with the Southern North Sea demersal NQS fisheries:

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

These goals will also positively contribute to achieving GES for UKMS descriptor 1 (biological diversity) and descriptor 4 (food webs) in English waters.

Moderate risk to D1, D4 biological diversity of seabirds

Southern North Sea NQS fisheries are not thought to be causing reduction in availability of important forage fish species. While the risk to achieving GES for the biological diversity of seabirds is generally considered low, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate, taking a precautionary approach into account. Gathering additional evidence has the potential to downgrade this risk in the future.

Demersal trawling and seining are thought to pose a potential risk to certain species of seabirds. This is highlighted by both anecdotal reporting during fish bycatch monitoring¹³, and by previous work looking at the relative risk of bird bycatch that incorporated the behavioural traits of different species¹⁴. This latter work highlights

¹³ CEFAS. (2015). English and Welsh observer programme report (Unpublished report).

¹⁴ Bradbury, G., Trinder, M., Furness, B., Banks, A. N., Caldow, R. W. G., Hume, D. (2017). Risk assessment of seabird bycatch in UK waters. Wildfowl and Wetlands Trust, UK.

deep diving shags, scaups, eiders, scooters, guillemots, great northern divers, and cormorants as the most sensitive to demersal trawls.

However, demersal trawling and seining is not included in more recent work looking at seabird bycatch¹⁵ as it is not generally considered to present a high bycatch risk to birds at scale that is likely to threaten GES descriptors. An improved monitoring regime on benthic trawlers and seiners would help fill the current data gaps and therefore reduce the uncertainties. This could potentially be done by adapting or expanding existing observer programmes, or through the appropriate use of REM.

A better understanding of the actual risk posed by the fisheries will require a closer look at the bycatch associated with this activity. Any management brought in should contribute to achieving GES targets for D1 and D4. The following goals have been developed to address the issue of bycatch associated with the Southern North Sea demersal NQS fisheries:

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

These goals will also positively contribute to achieving GES for UKMS descriptor 1 (biological diversity) and descriptor 4 (food webs) in English waters.

High risk to D1, D4 biological diversity of fish

There is likely to be a high risk to the biological diversity of fish. However, further partnership work required to better understand the status and vulnerability of the many species included in assessments for this descriptor before advice can be provided to FMPs.

A better understanding of the actual risk posed by the fisheries will require a closer look at the risk to fish biological diversity. Any management brought in should contribute to achieving GES targets for D1 and D4. The following FMP goals have

¹⁵ Northridge, S., Kingston, A., Coram, A., Gordon, J. (2020). Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Final Report to JNCC. University of St Andrews.

been developed to improve the stock status with the Southern North Sea demersal NQS fisheries:

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

These goals will also positively contribute to achieving GES for UKMS descriptor 1 (biological diversity) and descriptor 4 (food webs) in English waters.

High risk to D1, D6 seafloor integrity

Demersal trawls pose a high risk to the integrity of the seafloor. A strategic approach encompassing an extensive geographic scope is imperative to pinpoint strategies for risk reduction or elimination, and to understand trade-offs.

The impacts will need to be considered by the FMP management group following publication of the FMP. The following FMP goals have been developed to address the issue of seabed disturbance associated with the Southern North Sea demersal NQS fisheries:

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

These goals will positively contribute to achieving GES for UKMS descriptor 1 (biological diversity) and descriptor 6 (seafloor integrity) in English waters.

Moderate risk to D10 marine litter

There is a moderate risk to marine litter by all assessed gear types. More robust estimates of abandoned, lost, discarded, fishing gear (ALDFG) in the fishery are required.

Loss of gear such as trawls and nets will add to overall levels of fishing related litter within the sea and can have unintended consequences such as ghost fishing, related to D10. The FMP management group will need to consider how best to avoid or minimise loss and achieve sustainable end of life disposal. The following FMP goals have been developed to address the issue of marine litter associated with the Southern North Sea demersal NQS fisheries:

- Deliver effective management of demersal NQS in English waters of the Southern North Sea
- Deliver effective management to contribute to increasing or maintaining demersal NQS stocks, where possible identify and mitigate pressures on demersal NQS
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of demersal NQS fisheries

The goals will positively contribute to achieving GES for UKMS descriptor 10 (marine litter) in English waters.

Working with stakeholders, Defra will consider the evidence and then develop further recommendations on the potential effects of fishing activities (alongside other activities) on seafloor integrity and the state of benthic habitats, including contributing to the implementation and coordination of the Benthic Impact Working Group. This work will consider the issues at a strategic level and within the context of ongoing changes in marine spatial use and environmental protection to achieve the objective of GES under the UKMS.

Climate change mitigation and adaption

The [Climate Change Act 2008](#) establishes the target to reach net zero by 2050. The UK seafood sector will need to consider how they will reduce emissions to contribute to meeting the net zero target. This approach will also need to consider policies for improved seabed integrity, improving protecting blue carbon habitats and reducing carbon emissions.

The future climate impacts in the Southern North Sea are not very well understood. Further research on the impact of climate change on the fisheries covered under this FMP will be carried out. However, it is not currently perceived as within scope of this iteration of the FMP to directly deliver mitigation strategies against climate impacts but may be within its remit to support fisheries through national transition to low carbon fishing.

The Climate Change objective in the Fisheries Act ensures that future fisheries management policy can, where appropriate, adapt to any future impacts of climate change on the UK fishing industry to support climate adaptive fisheries management. Evidence will be collected from modelling the potential movement of fish stocks and the impacts this will have on regional fisheries. As stocks move into and out of UK waters, assessments of stock levels will be conducted to adapt allocation of fishing opportunities. Further research will be required to predict the scale of impacts to the environment and over what timeframe this will be applicable to the Southern North Sea.

Secondary and dependent species (including bycatch)

The [marine wildlife bycatch mitigation initiative](#) sets out how the UK will achieve its ambitions to minimise and, where possible, eliminate the accidental capture and entanglement of sensitive marine species in UK fisheries.

The definition of bycatch included within this section represents the risk of unwanted protected species bycatch which may be caught alongside the FMP species. Currently no specific bycatch associations were identified as part of fisheries targeting of the FMP species. This is a recognised evidence gap.

Deliberate actions have been incorporated into the goals for the sustainable fisheries which focus on identifying interactions between the FMP stocks and other fisheries, and undertaking research to identify and address key bycatch issues.

The FMP's key recommendations, given the current lack of data on bycatch associated with NQS fisheries, are to:

- collect additional evidence to understand levels of bycatch associated with static and towed gear use on birds, mammals, and fish, as well as benthic habitat integrity
- use this evidence to develop robust mitigation strategies. This information should also be used to support the national bycatch mitigation programme

Implementation, monitoring and review

Implementation

This FMP sets out the road map to achieve the long-term sustainable management of FMP species in ICES areas 4b and 4c, in line with the objectives of the Act. The 'FMP goals' section sets out the FMP goals, which have been described in terms of the key actions that should be taken and the timeframes needed to deliver them.

The 'Management strategy' section sets out the management measures to be implemented to help achieve the FMP goals. The actions and measures in this FMP will undergo a subsequent implementation phase where appropriate mechanisms will be required to deliver them. Such mechanisms could include voluntary measures, licence conditions, national and regional byelaws, and statutory instruments. This implementation phase will build on the existing evidence base, any action taken throughout the FMP's development, and the options discussed with stakeholders. These will be reviewed and taken forward by Defra and the MMO once the FMP is published.

Subsequent implementation road maps will be subject to regular monitoring and review to ensure progress. The FMP is subject to a statutory review process at a maximum of 6 years after publication. After this point it will be necessary to provide evidence for what has been achieved through the implementation of those actions and measures. This review process will also build in monitoring for potential environmental effects to help establish whether any changes are needed in the management of the FMP species.

Monitoring

This is the first version of this FMP. It sets out the first steps and longer-term vision necessary for sustainable management of this fishery. These plans will take time to develop and implement. They are intended to allow an adaptive approach and will be reviewed and improved over time as we collect more evidence and collaborate with the fishing sector and wider interests on the sustainable management of these fisheries.

Delivery of the actions and measures for this Southern North Sea demersal NQS FMP will be monitored.

For some NQS stocks there is insufficient evidence to determine MSY or a proxy for MSY. This FMP sets out the proposed steps to build the evidence base for these data limited stocks to support progress towards defining and measuring stock status and reporting on stock sustainability. An increase in the available evidence to define and measure stock status will be an indicator of the effectiveness of this plan for these stocks.

For some stocks with insufficient data to carry out a stock assessment, there are currently no specific plans set out in this FMP to increase data collection. A prioritisation exercise will be carried out to focus research efforts across all FMP stocks and plans to increase data collection will be reviewed over time.

For other NQS stocks there is sufficient evidence to determine a proxy for MSY and to assess the sustainability of the stock. An increase or maintenance of the number of stocks fished at sustainable levels will indicate the effectiveness of this plan for these stocks. This FMP sets out the proposed steps to build the evidence base to improve stock assessment calculations. An increase in the available evidence with improved stock assessments will be an indicator of the effectiveness of this plan for these stocks.

Other indicators to measure the effectiveness of the policies for restoring, or maintaining these stocks at sustainable levels are:

- flyseine vessels operating with an engine size of 221kW or higher are prohibited from fishing within the territorial waters of the Southern North Sea (English waters of ICES areas 4b and 4c)
- flyseiners operating in the Southern North Sea (English waters of ICES areas 4b and 4c) are required to use a 100mm minimum mesh
- flyseiners operating in the Southern North Sea (English waters of ICES areas 4b and 4c) will have a gross tonnage limitation applied
- there is improved monitoring and data collection for cephalopod species in the Southern North Sea
- stock health of cephalopod species in the Southern North Sea are assessed and understood
- voluntary guidelines and improved education on handling and fishing methods have been introduced for recreational sea anglers
- improved education, identification guidelines and handling guidelines have been introduced for commercial fishers

Review and revision of the FMP

Monitoring data, as outlined above, will be collected on a yearly basis where possible and reported on every 3 years. This data will be important to inform the setting of any future management measures and to assess whether the FMP is on target to achieve its goals.

As set out in the Act, this FMP will be reviewed at least every 6 years. This formal review will assess how the FMP has performed in terms of delivering against the Act's objectives. However, further reviews of the FMP could be carried out within the 6-year period if the responsible authority feels there is a need to do so, based on the evidence and monitoring of the effectiveness of the plan. The findings of this review will also inform the development of any subsequent iterations of the FMP. Furthermore, the FMP will be assessed as part of the process to report on and review the JFS.

References

Bradbury, G., Trinder, M., Furness, B., Banks, A. N., Caldow, R. W. G., Hume, D. (2017). Risk assessment of seabird bycatch in UK waters. Wildfowl and Wetlands Trust, UK.

CEFAS. (2015). English and Welsh observer programme report (Unpublished report).

Dickey-Collas, M., Nash, R. D. M., Brunel, T., van Damme, C. J. G., Marshall, C. T., Payne, M. R., Corten, A., Geffen, A. J., Peck, M. A., Hatfield, E. M. C., Hintzen, N. T., Enberg, K., Kell, L. T., Simmonds, E. J. (2014). Ecosystem-based management objectives for the North Sea: Riding the forage fish rollercoaster. *ICES Journal of Marine Science*, 71(1), 128– 142. <https://doi.org/10.1093/icesjms/fst075>

ICES. 2022. Grey gurnard (*Eutrigla gurnardus*) in Subarea 4 and divisions 7.d and 3.a (North Sea, eastern English Channel, Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, gug.27.3a47d. <https://doi.org/10.17895/ices.advice.19447934>

ICES. 2021. Red gurnard (*Chelidonichthys cuculus*) in subareas 3 to 8 (Northeast Atlantic). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, gur.27.3-8, <https://doi.org/10.17895/ices.advice.7757>

ICES. (2014). Report of the working group on bycatch of protected species (WGBYC) (ICES CM 2014/ACOM:28).

Kingston, A., Northridge, S., Thomas, L. (2021). UK bycatch monitoring programme report for 2019. Sea Mammal Research Unit

Northridge, S., Kingston, A., Coram, A., Gordon, J. (2020). Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Final Report to JNCC. University of St Andrews.

Verkempynck, R., van Overzee, H., Dammers, M. (2018). Discard self-sampling of Dutch bottom-trawl and seine fisheries in 2014 to 2016 (CVO Report No. 18.007).

Schickele, A., Francour, P. and Raybaud, V., 2021. European cephalopods distribution under climate-change scenarios. *Scientific reports*, 11(1), p.3930.

Stichting Wageningen Research, Centre for Fisheries Research (CVO).
<https://doi.org/10.18174/446002>