



Department  
for Environment  
Food & Rural Affairs

# Proposed fisheries management plan for Southern North Sea and Channel skates and rays

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# Abbreviations

Cefas: Centre for Environment, Fisheries and Aquaculture Science

Cm: centimetres

Defra: Department for Environment, Food and Rural Affairs

EU: European Union

FAO: Food and Agriculture Organisation

FMP: fisheries management plan

GES: good environmental status

ICES: International Council for the Exploration of the Sea

IFCAs: Inshore Fisheries and Conservation Authorities

JFS: Joint Fisheries Statement

MaxCRS: maximum conservation reference size

MCRS: minimum conservation reference size

(also known as minimum landing size)

MMO: Marine Management Organisation

MPAs: Marine Protected Areas

MSY: maximum sustainable yield

Nm: nautical miles

REM: remote electronic monitoring

SNCBs: Statutory Nature Conservation Bodies

SoS: Secretary of State

T: tonnes

TAC: total allowable catches

TCA: Trade and Cooperation Agreement between the EU and the UK

The Act: Fisheries Act 2020

£t<sup>-1</sup>: price per tonne

# Executive summary

English waters have some of the best wild sea fish stocks in the world. Sustainable management of fisheries requires appropriate management of harvesting to protect our diverse stocks. Meeting our responsibilities will support vibrant, profitable and sustainable fishing industries alongside a healthy and productive marine environment. Fisheries management plans (FMPs) provide a tool for managing fishing activity to create more sustainable fisheries. They are a requirement of:

- the [Fisheries Act 2020](#) ('the Act')
- the UK [Joint Fisheries Statement](#) (JFS) in 2022
- the [Environmental Improvement Plan 2023](#) (EIP) for England

The Southern North Sea and Channel skate and ray FMP has been prepared for the purpose of meeting the requirements set out in the Act. This draft FMP was developed by the Marine Management Organisation (MMO) on behalf of the Department for Environment, Food and Rural Affairs (Defra).

This 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 and government agencies. On strategic issues across all FMPs, Defra sought contributions from environmental non-governmental organisations that were considered in the preparation of this FMP.

## 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 tackle 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 and Channel skates and rays?

Skates and rays (Rajiformes) are medium- to large-bodied demersal elasmobranchs, cartilaginous fishes grouped in the same sub-class as sharks. All species of skate and ray within scope of this FMP are morphologically similar (that is, they are similar

in size, shape and structure), with the key identification features generally related to differences in colouration, body shape, skin texture and dentition.

Compared to most bony fish, skates and rays are long-lived, slow-growing and late to mature at between 5 and 10 years of age, with the smaller bodied species maturing at an earlier age. Skates and rays are taken as a bycatch in most bottom-trawl fisheries, some of which may target skates and rays in certain areas at certain times of year. They are also a target species or bycatch in gill-net, tangle-net and long-line fisheries.

Skates and rays are a popular target species for boat-based recreational fishers, although catches from shore-angling also occur. Anglers who target skates and rays will usually practise catch-and-release, and so levels of mortality from recreational fisheries are uncertain.

In 2021, landings of the Southern North Sea and Channel skates and rays FMP species (hereafter referred to as 'FMP species') by UK and EU vessels fishing in UK waters in the Southern North Sea (International Council for the Exploration of the Sea (ICES) areas 4b and 4c) and the English Channel (ICES areas 7d and 7e) 2,404 tonnes (t) valued at £3,948,895.

This FMP establishes a roadmap to achieve long-term sustainable management of FMP fisheries in English waters in ICES areas 4b, 4c, 7d and 7e, in line with the Act objectives.

This first iteration of this FMP covers the following species of rays:

- blonde ray (*Raja brachyura*)
- cuckoo ray (*Leucoraja naevus*)
- small-eyed ray (*Raja microocellata*)
- spotted ray (*Raja montagui*)
- starry ray (*Amblyraja radiata*)
- thornback ray (*Raja clavata*)
- undulate ray (*Raja undulata*)

Future iterations of this FMP may expand the species list to include other skate and ray species found in English waters.

This 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 skate and ray fisheries in the Southern North Sea and English Channel.

There is sufficient available scientific evidence to assess the maximum sustainable yield (MSY) reference points in English waters of the Southern North Sea and English Channel for 8 skate and ray stocks within scope of this FMP. MSY reference

points can be determined for stocks classified as ICES data categories 1 or 2, and MSY proxies can be established for stocks at ICES data category 3.

At the point of publication, MSY has been established for 5 assessed stocks:

- blonde ray (*Raja brachyura*) in divisions 4b, 4c and 7d
- cuckoo ray (*Leucoraja naevus*) in subareas 6 and 7, and in divisions 8a, 8b and 8d
- spotted ray (*Raja montagui*) in Subarea 4 and in divisions 3a and 7d
- thornback ray (*Raja clavata*) in Subarea 4 and in divisions 3a and 7d
- undulate ray (*Raja undulata*) in divisions 7d to 7e

MSY proxies are available for 3 stocks:

- cuckoo ray (*Leucoraja naevus*) in Subarea 4 and in division 3a
- spotted ray (*Raja montagui*) in divisions 7a and 7e to 7h
- starry ray (*Amblyraja radiata*) in subareas 2 and 4, and in division 3a

Three stocks are not currently assessed by ICES with the MSY approach within the Southern North Sea and English Channel:

- blonde ray (*Raja brachyura*) in division 7e
- small-eyed ray (*Raja microocellata*) in divisions 7d and 7e
- thornback ray (*Raja clavata*) in division 7e

Currently there is one stock within scope of this FMP assessed by ICES for which sustainability concerns have been identified: although the main area of starry ray distribution is outside the FMP area, the assessment for starry ray in the Southern North Sea has identified fishing pressure exceeds the FMSY proxy, and the stock size falls below the index trigger, and so zero catches have been advised up to 2027. The sustainability status of the 3 stocks not currently assessed by ICES are unknown due to insufficient data.

The overarching aim of this FMP is to deliver sustainable management of FMP species exploitation to a position informed by thorough stock assessments, consistent data collection and research programmes. The management measures and actions detailed in this FMP describe the key stages on that journey.

This FMP also sets out the shared commitment that recreational and commercial fishers and government have for fisheries catching FMP species in the ICES areas 4b, 4c, 7d and 7e.

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

## Vision and goals of the FMP

This FMP's vision is that skate and ray fisheries in the Southern North Sea and English Channel 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 sustainable fisheries, social and economic factors and evidence, and will contribute towards the Act objectives. The FMP goals are as follows.

Under the sustainable fisheries theme:

1. deliver effective management of skate and ray fisheries in the Southern North Sea and English Channel
2. deliver effective management to contribute to restoring, increasing or maintaining skate and ray stocks, and where possible identify, minimise and mitigate pressures on skate and ray stocks
3. contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

Under the social and economic theme:

4. better understand and optimise economic and social benefits
5. develop partnership working to build capacity for industry to be able to input into matters affecting skate and ray fisheries management

Under the evidence theme:

6. better understand wider skate and ray species evidence gaps
7. develop the skates and rays evidence base

## Establishing a skate and ray management group

This 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 skates and rays management group, whose role will be to collaboratively address management needs and concerns. The proposed group may include representatives of:

- the commercial fishing sector
- the recreational fishing sector
- processors and markets
- the regulatory authorities



- fisheries scientists
- policy makers
- other interested stakeholders

## Recommended management measures

During this first iteration, 7 areas for priority management intervention have been proposed for consideration. 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 them where necessary. The priority areas are as follows:

1. minimum conservation reference sizes (MCRS)
2. maximum conservation reference sizes (MaxCRS)
3. voluntary guidelines
4. establish sentinel fishery for small-eyed ray in 7e
5. alternative approaches to the current group total allowable catches (TAC)
6. seasonal and spatial closures
7. sector support measures

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 and English Channel fisheries are distinct, given the physical characteristics of these regions that support differing habitats and fish assemblages. Therefore, management interventions will need to take spatial-temporal variability into consideration. Additionally, the stocks within scope of this FMP are shared with the EU, and relevant joint commitments have been made through the Specialised Committee on Fisheries (SCF). Therefore, the UK will seek to develop measures jointly where appropriate, in recognition of the importance and value of consistent management across shared stocks.

### 1. Minimum conservation reference sizes

This FMP will consider implementation of an MCRS as a method for protecting stock health and promoting population growth, through affording protection to juvenile skates and rays.

Currently 2 IFCAs (Kent and Essex IFCA and Southern IFCA) within the FMP's spatial jurisdiction have active, non-species-specific MCRS regulations for skates and rays. The MCRS for Kent and Essex IFCA is 40cm for whole rays, 19cm for a wing; and for Southern IFCA this is 40cm for whole rays and 20cm for a wing. However, there is no national MCRS beyond the 6nm boundary (except for undulate ray). Outside of the FMP area, there are different MCRS for skates and rays around the UK, including the waters of Guernsey (36cm), North-Western IFCA (45cm) and

parts of Wales (45cm). There is also a voluntary code agreed by the North Devon Fishermen's Association (45cm).

This FMP proposes to gather further evidence to understand the potential effectiveness of MCRS as a method for protecting stock health and promoting population growth, through affording protection to juvenile skates and rays in English waters of ICES divisions 4b, 4c, 7d and 7e.

In the short term, this will include initiating demographic modelling to better understand the potential benefits of minimum and maximum sizes. It will focus on exploring the efficacy of MCRSs on skates and rays by reducing uncertainties around selection patterns, quota availability and discard survivability.

Given each of the FMP species exhibits a differing maturity size, a universal MCRS is less effective than more species-specific measures, therefore the evidence gathered in the short term should help to determine the most appropriate approach to introducing a MCRS in the medium to long term, with options including, but not limited to, a universal MCRS, a species-specific MCRS, brigading MCRS for smaller-bodied and larger-bodied species.

## **2. Maximum conservation reference size**

Maximum sizes offer protection to larger, more fecund individuals which are important as brood stock. There is a biological rationale in protecting the largest individuals (in general, larger females are more fecund and produce larger eggs, and these may be laid over a more protracted spawning season), though empirical evidence to demonstrate this is lacking, as fecundity-at-length data is unavailable. This FMP will look to build on existing evidence on skates and rays' maturation and fecundity at length and width to inform the potential use of MaxCRS as a future management tool. Evidence gathering of MaxCRS for prioritised FMP species is proposed for the short term, and implementation of MaxCRS for FMP species in English waters of ICES areas 4b, 4c, 7d and 7e will be considered in the medium to long term, if appropriate. These measures will aim to collect the necessary evidence to support an economic impact assessment of measures set against different maturity sizes.

A MaxCRS should be measured across the widest diameter of the fish's wings (wing tip to wing tip). A winged maximum size measured from wing tip to wing tip is not appropriate where wings have been separated from the central body of the ray. This FMP will consider alternative methods for processing skates and rays. For instance, removing the wings and retaining the part of the central body joining the wings, or processing in the form of a 'butterfly' cut would enable a maximum size to be determined and may be preferable for fishers over landing whole rays.

Evidence should be gathered on the correlation between wings' diameter and total maximum length to support the development of these measures.

### 3. Voluntary guidelines

This FMP proposes in the short term to introduce handling guidelines<sup>1</sup> for recreational and commercial fishers to ensure skates and rays not intended to be retained can be released in the best possible condition. Guidelines will also serve as an educational tool to help with compliance for managing the stock.

In the medium term, using these guidelines to help in species identification, training workshops and data recording, will support the development of future measures under this FMP.

### 4. Establish sentinel fishery for small-eyed ray in 7e

This FMP considers the merits of establishing a sentinel fishery (to collect fisheries-based data) for small-eyed ray in ICES Area 7e, in order to facilitate a sustainable local fishery. In the [negotiations between the UK and the EU for the 2024](#) fishing year, a joint ambition was agreed to lift the non-retention regulation in favour of a scientific fishery for small-eyed ray in 7e, with the aim to improve the availability of data and therefore the quality of the 7de assessment. [Limited quota](#) to land small-eyed ray in 7e has been made available for the sentinel fishery in 2024. This measure is being explored in the short term, with a medium-term intention to consider seeking to reopen the 7e small-eyed ray fishery, if appropriate, based on the outcome of monitoring the sentinel fishery.

### 5. Alternative approaches to the current group total allowable catch (TAC)

Total allowable catch (TAC), as a management tool, works by setting a limit to catches from a given area in a fixed timeframe. Most skate and ray species within this FMP are currently managed under a combined (multi-species) TAC, except for undulate ray in 7d and 7e. The scientific advice notes that the current group TAC management of skates and rays prevents effective control of single-stock exploitation rates.

There are concerns that the current group TAC management provides limited protection for vulnerable stocks and under-exploitation of healthy stocks. The [indicative roadmap for skates and rays](#), developed with the EU in the SCF, sets out key steps and considerations to address these concerns. It recommends exploring potential alternatives to the group TACs for those species.

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<sup>1</sup> Noting the relevant footnotes in the [Written Record of fisheries consultations between the United Kingdom and the European Union for 2024 \(publishing.service.gov.uk\)](#)

This FMP has identified some priority areas that could be considered as part of that work. This includes exploring the possible introduction of single-species or single-stock TACs as recommended in the ICES advice, noting the species' differing conservation statuses and biological traits. More evidence is required to better understand the impact of this, including the possible choke risks.

Importantly, these are jointly managed stocks with the EU as set out in the Trade and Cooperation Agreement (TCA), and TACs for skates and rays are agreed annually in bilateral negotiations between the UK and the EU. As such any alternative to the current group TAC management will require bilateral work with the EU.

## **6. Seasonal and spatial closures**

In the medium to long term this FMP proposes to explore and, where appropriate, implement spatial and temporal closures to protect essential habitats for skate and ray species. This will be contingent on developing a robust evidence base to identify habitats important for skate and ray recruitment, and putting in place appropriate protections to encourage stock health. It will build evidence on the effectiveness of spatial-temporal management such as closed seasons and 'ray boxes' for protecting breeding and juvenile assemblages, including investigating the association between areas of 7d and undulate ray reproduction. It will also seek opportunities to align protections with Marine Protected Area (MPA) closures to maximise sustainability impact for skates and rays, while minimising impact on fishers.

## **7. Sector support measures**

As a long-term measure, this FMP proposes options for providing support to the fishing sector, including:

- exploring options for supporting initiatives that are developing the domestic market for skate and ray products – this will rely on evidence gathering and collaboration with stakeholders to determine appropriate ways of supporting skate and ray markets without compromising stock sustainability
- exploring ways to balance recreational and commercial fishers' needs in the skate and ray fisheries
- implementing strategies identified in the evidence gathered to increase the social and economic benefits of the skate and ray fisheries

While this approach is a non-statutory requirement, and the associated actions and measures go beyond the legal obligations for FMPs in section 6 of the Act, Defra welcomes these industry commitments to complement and support the delivery of the FMPs and objectives in the Act.

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

The Southern North Sea and Channel skate and ray FMP will contribute to the commitments to improve our marine ecosystem set out in the EIP, the UK Marine Strategy and Marine Plans.

## Implementation, monitoring and review

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

This FMP will 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 and Channel skate and ray FMP has been prepared in order to meet the requirements set out in the Act. This statement and the contents of the FMP meet the obligations set out in section 6 of the Act.

This FMP collates existing information on skate and ray species in the Southern North Sea and English Channel (including existing management measures, science and evidence), and it 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, this FMP proposes some precautionary management measures in the short term, while more evidence is gathered. Evidence gathering will be focused on currently data-limited stocks. Impact assessments will be carried out in parallel with the development of management measures, to predict the impacts on the fishery.

# Foreword

This Southern North Sea and Channel skates and rays FMP has been prepared for the purpose of meeting the requirements set out in the Act. The FMP was developed by the MMO on behalf of Defra. It has been produced collaboratively with fisheries managers, statutory nature conservation bodies (SNCBs), and representatives from the UK fishing sector through a working group. Defra will gather more views through a public consultation in the summer of 2024.

This FMP establishes a roadmap to achieve long-term sustainable management of skates and rays in the Southern North Sea and English Channel in English waters of ICES areas 4b, 4c, 7d and 7e. The FMP applies to skates and rays fished by all methods, and by all-sized vessels from all nations operating in these waters.

The species within scope of this FMP are: thornback ray (*Raja clavata*), blonde ray (*Raja brachyura*), undulate ray (*Raja undulata*), small-eyed ray (*Raja microocellata*), spotted ray (*Raja montagui*), cuckoo ray (*Leucoraja naevus*) and starry ray (*Amblyraja radiata*).

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 fishing 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 and Channel skates and rays (including current management measures, science and evidence), and it 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 and Channel skates and rays FMP meets the requirements of the Act and wider legislation and policy initiatives
- scope and status of the Southern North Sea and Channel skates and ray fisheries – the species within scope of this FMP, the FMP's location, and a description of the status of the fishery
- FMP vision and goals – sets out the overarching vision of the FMP and its goals, which are designed to contribute to all the Act objectives and are based around the key themes of evidence, social and economic factors, and sustainable fisheries

- management strategy – the harvest management strategy for Southern North Sea and Channel skates and ray fisheries, including 7 priority areas identified as needing 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 this FMP, how we 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 and Channel skates and rays 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 FMP 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 this FMP over subsequent years.

For reference, a record of engagement is published as an accompanying document to this FMP. The FMP engagement 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 FMP for public consultation. The information is available on [Citizen Space](#), Defra's online consultation tool.

This FMP has been prepared and published to comply with requirements in the JFS, section 6 of the Act, and 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 industries alongside a healthy and productive marine environment. The 2018 [Fisheries White Paper: Sustainable fisheries for future generations](#) states the objective of having ‘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 [Joint Fisheries Statement](#) published in November 2022 sets out further details of the policies that UK fisheries authorities will follow to achieve or contribute to achieving the 8 objectives in the 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, this FMP also supports the implementation of wider commitments to protect the marine environment, restore biodiversity, and address climate change. In particular, the [Environment 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 and English Channel skate and ray fisheries

### Species in scope

The Southern North Sea and Channel skates and rays FMP in this first iteration covers the following species of rays:

- blonde ray (*Raja brachyura*)
- cuckoo ray (*Leucoraja naevus*)
- small-eyed ray (*Raja microocellata*)
- spotted ray (*Raja montagui*)
- starry ray (*Amblyraja radiata*)
- thornback ray (*Raja clavata*)
- undulate ray (*Raja undulata*)



Future iterations of the FMP may expand the species list to include other skate and ray species found in English waters.

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

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

## Stock status

### Blonde ray

There are 2 blonde ray stocks assessed by the International Council for the Exploration of the Sea (ICES) within this FMP area. One stock occurs in the central and southern North Sea and eastern English Channel, with a separate stock in the western English Channel. While the stock areas both extend beyond the FMP area, the waters of the FMP area are important grounds for this species. The waters around the Channel Islands are also important fishing grounds for blonde ray.

### Cuckoo ray

There are 2 cuckoo ray stocks assessed by ICES within the FMP area. One of these stocks occurs in the North Sea ecoregion (North Sea, Skagerrak and eastern English Channel), with a separate stock occurring along the western seaboard (West of Scotland, Celtic Sea, western English Channel and northern Bay of Biscay). While the stock definition would imply it is present in the eastern English Channel, cuckoo ray is infrequent in both the eastern English Channel and Southern North Sea.

### Small-eyed ray

There is one small-eyed ray stock in the FMP area, occurring in the English Channel, although individuals may occasionally occur in the Southern North Sea. Given the coastal nature of this species, the waters of the FMP area likely form a proportionally large part of the stock distribution.

### Spotted ray

There are 2 spotted ray stocks assessed by ICES within the FMP area. One of these stocks occurs in the North Sea ecoregion (North Sea, Skagerrak and eastern English Channel), with a separate stock occurring in the western English Channel, Bristol Channel, Irish Sea and Celtic Sea.

## **Starry ray**

There is one starry ray stock in the FMP area, occurring in the North Sea, although the main area of starry ray distribution is outside the FMP area. The species is not known to occur in the English Channel.

## **Thornback ray**

There are 2 thornback ray stocks assessed by ICES within the FMP area. One of these stocks occurs in the North Sea, Skagerrak and eastern English Channel, with a separate stock occurring in the western English Channel. For the former stock, the southwestern parts of the North Sea, including the Wash and Outer Thames Estuary, are important grounds for this species, with a high abundance of both adults and juveniles<sup>2</sup>. Lyme Bay in the western English Channel is another area with a high local abundance of thornback ray.

## **Undulate ray**

There is one undulate ray stock in the FMP area, occurring in the English Channel. Some of the waters of the FMP area have a high relative abundance of this stock, although there are also important grounds in French waters and around the Channel Islands where undulate ray is also abundant. Individuals from the main English Channel stock may occur in the Southern North Sea occasionally, but these may be considered negligible.

## **Stocks with ICES assessment**

In total, there are 11 stocks of rays within scope of this FMP.

There is sufficient available scientific evidence to assess the maximum sustainable yield (MSY) reference points in English waters of the Southern North Sea and English Channel for 8 stocks within scope of this FMP. MSY reference points can be determined for stocks classified as ICES data categories 1 or 2, and MSY proxies can be established for data category 3 stocks. Five of the stocks in the scope of the FMP assessed to MSY by ICES are considered data category 2. Three of the stocks are considered data category 3, with MSY proxies in place.

The remaining 3 stocks in scope have not been assessed by ICES and are considered data category 5 – more evidence gathering is required to improve data for these species.

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<sup>2</sup> Ellis et al., 2008a, b; McCully et al., 2013

The following species are classified as ICES categories 1 to 3.

## **Blonde ray (*Raja brachyura*)**

- data category 2 – see [ICES advice: Blonde ray \(\*Raja brachyura\*\) in divisions 4b, 4c and 7d \(Central and southern North Sea and eastern English Channel\)](#) – the stock is assessed
- ICES advice sheet for 2024 and 2025 advises an MSY approach

## **Cuckoo ray (*Leucoraja naevus*)**

### **Stock: Cuckoo ray in Subarea 4 and division 3a**

- data category 2 – see [ICES advice: Cuckoo ray \(\*Leucoraja naevus\*\) in Subarea 4 and Division 3a \(North Sea, Skagerrak and Kattegat\)](#) – the stock is assessed
- advice sheet for 2024 and 2025 advises an MSY approach

### **Stock: Cuckoo ray in Subareas 6 and 7 and divisions 8a to 8b, and 8d**

- data category 3 – see [ICES advice: Cuckoo ray \(\*Leucoraja naevus\*\) in subareas 6 and 7, and in divisions 8a to 8b, and 8d \(West of Scotland, southern Celtic Sea, western English Channel and Bay of Biscay\)](#) – the stock is assessed – the stock is assessed
- ICES advice sheet for 2023 and 2024 advises an MSY approach

## **Spotted ray (*Raja montagui*)**

### **Stock: Spotted ray in Subarea 4 and divisions 3a and 7d**

- data category 2 – see [ICES advice: Spotted ray \(\*Raja montagui\*\) in Subarea 4 and divisions 3a and 7d \(North Sea, Skagerrak, Kattegat, and eastern English Channel\)](#) – the stock is assessed
- ICES advice sheet for 2024 and 2025 advises an MSY approach

### **Stock: Spotted ray in divisions 7a, and 7e to 7h**

- data category 3 – see [ICES advice: Spotted ray \(\*Raja montagui\*\) in divisions 7a, and 7e to 7h \(southern Celtic Sea and western English Channel\)](#) – the stock is assessed
- ICES advice sheet for 2023 and 2024 advises an MSY approach

## **Starry ray (*Amblyraja radiata*)**

**Stock: Starry ray in Subareas 2 and 4 and division 3a**

- data category 3 – see [ICES advice: Starry ray \(\*Amblyraja radiata\*\) in subareas 2 and 4, and Division 3a \(Norwegian Sea, North Sea, Skagerrak and Kattegat\)](#) – the stock is assessed
- ICES advises an MSY approach and has proposed zero catch for 2024 to 2027 (MSY proxy)

## **Thornback ray (*Raja clavata*)**

**Stock: Thornback ray in Subarea 4 and in divisions 3a and 7d**

- data category 2 – see [ICES advice: Thornback ray \(\*Raja clavata\*\) in Subarea 4 and in divisions 3a and 7d](#) – the stock is assessed
- ICES advice sheet for 2024 and 2025 advises an MSY approach

## **Undulate ray (*Raja undulata*)**

**Stock: Undulate ray in divisions 7d and 7e**

- data category 2 – see [ICES advice: Undulate ray \(\*Raja undulata\*\) in divisions 7d and 7e \(English Channel\)](#) – the stock is assessed
- ICES advice sheet for 2023 and 2024 advises an MSY approach

## **Stocks lacking ICES assessment**

The following species are considered data-limited – category 5. Therefore, based on current ICES assessments, there is insufficient evidence to determine MSY or a proxy for MSY, and a precautionary approach is taken by ICES for these species.

## Blonde ray (*Raja brachyura*)

### Stock: Blonde ray in division 7e

- data category 5 – see [ICES advice: Blonde ray \(\*Raja brachyura\*\) in Division 7e \(western English Channel\)](#) – the stock is not assessed using the MSY approach
- ICES advice sheet for 2023 and 2024 advises a precautionary approach

## Small-eyed ray (*Raja microocellata*)

### Stock: Small-eyed ray in divisions 7d and 7e

- data category 5 – see [ICES advice: Small-eyed ray \(\*Raja microocellata\*\) in divisions 7d and 7e \(English Channel\)](#) – the stock is not assessed using the MSY approach
- ICES advice sheet for 2023 and 2024 advises a precautionary approach

## Thornback ray (*Raja clavata*)

### Stock: Thornback ray in division 7e

- data category 5 – see [ICES advice: Thornback ray \(\*Raja clavata\*\) in Division 7e \(western English Channel\)](#) – the stock is not assessed using the MSY approach
- ICES advice sheet for 2023 and 2024 advises a precautionary approach

There is a variety in the quality of data for the FMP species, therefore this FMP lays out a suite of goals and measures aimed at improving data collection and understanding of fisheries and species covered by this FMP. In particular, these steps aim to facilitate future stock assessments for the species currently lacking ICES assessments. For these data-limited stocks, the FMP seeks to follow a precautionary approach to domestic fisheries management to improve or maintain stock status, whilst we work to improve evidence on these stocks as a priority to progress towards managing these against MSY.

Feedback from stakeholders has suggested some concern around the sustainability of thornback in ICES Area 4c, and of undulate ray in 7d and 7e. Specifically:

- IFCA officers and recreational anglers reported a localised reduction in undulate abundance within ICES areas 7d and 7e (English Channel) – concerns raised centred on this localised reduction and potential impacts of TAC increases since updated ICES advice, along with exploring the efficacy of existing management for protecting juvenile and breeding assemblages

- commercial and recreational fishers expressed concern about a reduction in thornbacks in ICES Area 4c (southeast England), particularly the Thames Estuary area

This FMP proposes actions to address concerns on the status of the stocks through evidence gathering and management intervention where required.

## Location

This FMP covers English waters of the Southern North Sea and English Channel running from Northumberland to Cornwall. Specifically, the FMP area is defined by English waters in ICES divisions 4b and 4c (Southern North Sea) and 7d and 7e (English Channel) (Figure 1).

The Marine Management Organisation (MMO) is responsible for managing fisheries and carrying out assurance activities in English waters out to 200nm and leads on managing fishing activities between 6nm and 200nm. Within the Southern North Sea and Channel skate and ray FMP, 8 IFCA's deliver additional fisheries conservation and management within the inshore 0nm to 6nm zone (Figure 1).

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

## 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 (SoS) for Environment, Food and Rural Affairs is the marine planning authority. English waters are divided into regional marine planning areas, and this FMP overlaps with the North East, East, South East, South and South West marine plans.

The marine plans provide a policy framework and a clear, evidence-based approach to inform decision making by marine users and regulators on where, when or how activities might take place within the marine area, balancing environmental, economic and social factors.

Due to the extensive spatial remit of the Southern North Sea and English Channel skates and rays FMP, there are many other commercial and recreational activities within these FMP areas. Commercial activities include offshore windfarm development (particularly off the east coast), marine aggregate extraction, major shipping routes and ports. Recreational activities include angling, yachting and diving.

## Marine Protected Areas (MPAs)

Within the geographic area covered by this FMP, there are 111 protected area designations including: 59 [Marine Conservation Zones](#) (MCZs), 26 [Special Protection Areas](#) (SPAs), 24 [Special Areas of Conservation](#) (SACs) and 2 [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.

In parallel with the FMP development, the MMO are carrying out an evaluation of fishing activities in all the MPAs at least 6nm offshore. This evaluates the best available evidence on the impact of fishing gear in the MPAs considering the current condition of the sites.

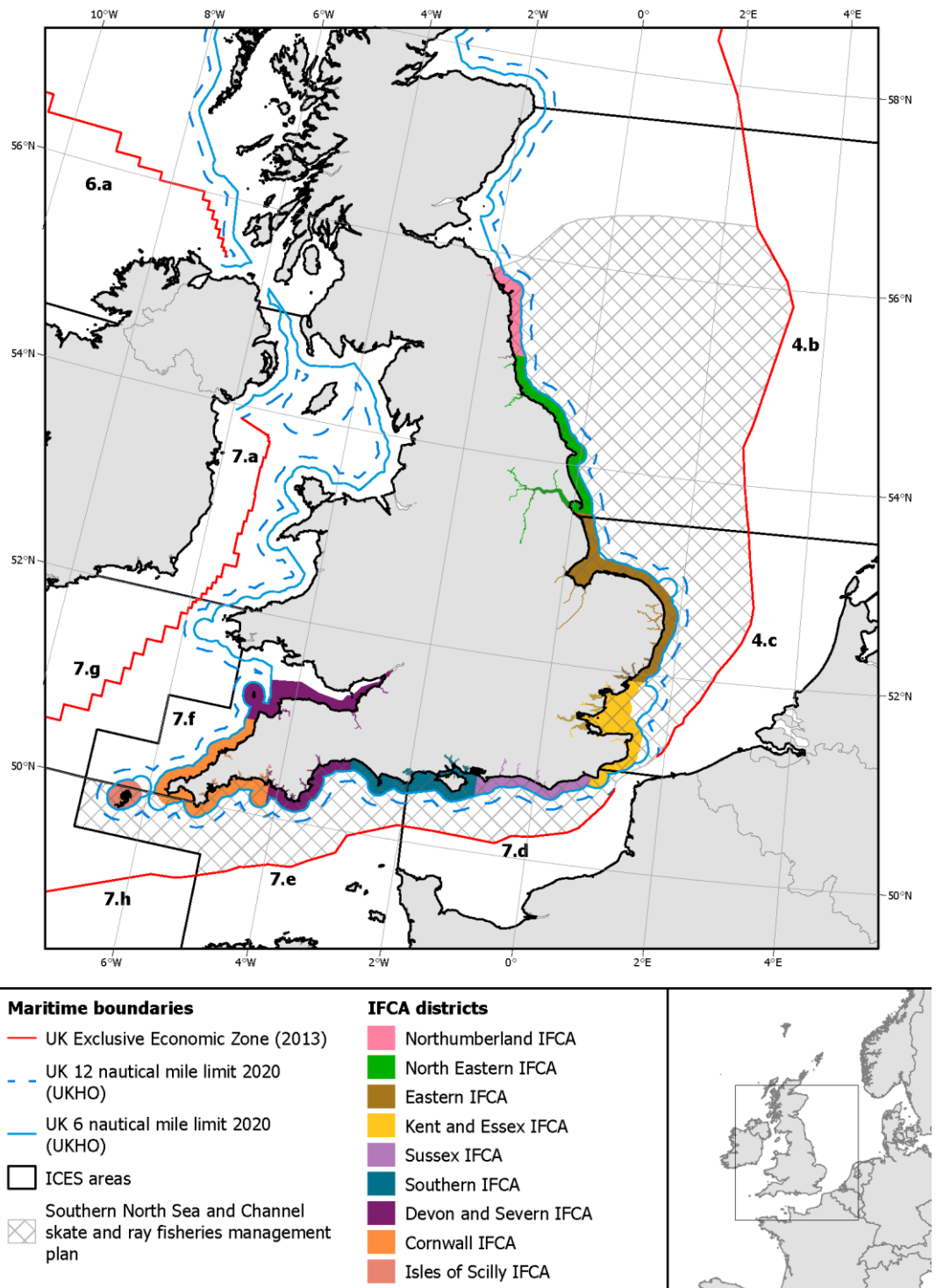
The MaCAA and Habitats Regulations give the MMO powers to:

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

The Fisheries Act amended MaCAA to give us the power to manage fishing outside of 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 will be put into place by the end of 2024. Further information on the management of fisheries activity occurring within MPAs can be found at [Managing fishing in Marine Protected Areas](#).

Therefore, appropriate management should either be in place or introduced soon to ensure any fishing within MPAs is compatible with MPA conservation objectives.



**Figure 1. Jurisdictional boundaries and IFCA districts in the FMP scope. (Collins Bartholomew, ICES and MMO copyright and database right 2024)**

Figure 1 shows the geographic extent of the Southern North Sea and Channel Skates and Rays FMP area. The map shows the southwest tip of Cornwall and ICES



subdivisions 7e and 7d, and the southern North Sea coastline and ICES subdivisions 4c and 4b. The following IFCA districts are marked along the coastline: Cornwall, Devon and Severn, Eastern, Isles of Scilly, Kent and Essex, North Eastern, Northumberland, Southern, Sussex. Other territorial sea boundaries and the UK exclusive economic zone line are also marked.

## 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. 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 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 total UK and EU combined landings (over a reference period from 2016 to 2021) for the species within this FMP amounts to 13,380 tonnes (t), the value being approximately £21.8 million. By weight of catches, the UK and EU landings were relatively even, at 6,883t (51%) and 6,496t (49%) respectively. EU vessels' landings were worth significantly more, equating to £12.9 million (59%), with UK vessels' landings totalling £8.9 million (41%). Annual averages from 2016 to 2021 show that UK vessels landed 1,147t and £1.5 million, and EU vessels landed 1,083t and £2.1 million. This highlights that although there is relative parity in weight of catch, the EU catch is of greater value. This may be due to increased commercial value for the species within EU markets.

Bottom trawls (73.7%) and drift and fixed nets (20.2%) account for the highest landings of FMP species. Broken down by weight, demersal trawl landed 6,665t (49.8%), beam trawl landed 3,189t (23.8%), and drift and fixed nets landed 2,708t (20.2%). The remaining gears together landed 871t (6.1%), with demersal seine landing 3.6%, longlines landing 1.2%, and a combination of dredge, pots and traps, handlines and pelagic trawls landing the remaining 1.4%.

For the UK fleet, the predominant methods are demersal trawls landing 2,917t (42.4%), drift and fixed nets landing 2,292t (33.3%) and beam trawls landing 1,305t (19%).

For the EU fleet the predominant methods are demersal trawls, which landed 3,748t (57.7%), and beam trawls, which landed 1,884t (29.0%). the EU fleet comprises significantly fewer drift and fixed nets than the UK fleet at 415t (6.4%). Demersal seines landed 357t (5.5%).

As skate and ray species are caught as mixed-fishery bycatch by recreational anglers, and through targeted seasonal fisheries by a range of gears and vessels,

the range of fishing activities that interact with the species is broad. Furthermore, as the ray species assemblage and the availability of other fishing opportunities differs regionally, there is variation in the composition of skate and ray landings by species across the Southern North Sea and English Channel.

## Distribution of landings by ICES area

Commercial fishing occurs across the Southern North Sea and English Channel, with the greatest quantities of landings coming from ICES Area 7e. The combined catch weight for the focal species across all ICES areas from 2016 to 2021 within this FMP totals 13,380t. Averaged across the years, annual landings of skates and rays were 2,230t and £3.6 million for UK and EU vessels combined.

Distributed across the 4 ICES areas, the average weight and value of landings by ICES area for the UK and the EU are given in Table 1.

**Table 1. Annual average landing weight (t) and value (£'000) for UK and EU vessels from 2016 to 2021.**

Table note: accompanying each data point in the table is the proportion (in brackets) which that data point represents, out of the combined UK and EU total.

ICES area	UK weight (t)	UK value (£'000)	EU weight (t)	EU value (£'000)
<b>4b</b>	14.43 (1%)	15.34 (<1%)	30.38 (1%)	56.40 (2%)
<b>4c</b>	230.02 (10%)	277.98 (8%)	193.32 (9%)	406.19 (11%)
<b>7d</b>	258.34 (12%)	303.26 (8%)	407.82 (18%)	803.28 (22%)
<b>7e</b>	644.41 (29%)	887.26 (24%)	451.23 (20%)	877.63 (24%)
<b>Total</b>	1,147.20 (51%)	1,483.84 (41%)	1,082.74 (49%)	2,143.50 (59%)

Port landings data is not available for EU vessels. Port data has been provided for UK vessel landings from each ICES area below. Figures are given as summed totals from 2016 to 2021.

The Northeast (4b) landed 87t (1.3% of UK landings) of skates and rays during this reference period. Ports with the most landings were: Harlingen, Netherlands with (23t, 27% of 4b catch), North Shields (19t, 22%), Hartlepool (14t, 16%) and Scarborough (13t, 16%). All other ports landed less than 5t.

The East (4c) landed 1380t (20% of UK landings) of skates and rays during this reference period. Ports with the most landings were: Ramsgate (246t, 18%), Folkstone (153t, 11%), West Mersea (135t, 10%) and Lowestoft (127t, 9%). All other ports landed less than 100t.

The Southeast (7d) landed 1550t (22.5% of UK landings) of skates and rays during this reference period. Ports with the most landings were: Shoreham-by-Sea (326t, 21%), Rye (240t, 15%), Newhaven (166t, 11%), and Eastbourne (133t, 9%). All other ports landed less than 100t.

The Southwest (7e) accounts for 3,867t (56.2% of UK landings) of skates and rays during this reference period. Ports with the most landings were: Brixham (1,536t, 40%), Newlyn (738t, 19%), Lyme Regis (313t, 8%) and Plymouth (302t, 8%). Consequently, the western Channel fishery for skates and rays is incredibly important for the skates and rays FMP.

Annual species landings by weight and value averaged across 2016 to 2021 for each ICES area are given in Table 2 and Table 3 below.

**Table 2. Average annual landed weight (t) of FMP species by ICES area from 2016 to 2021.**

Table note: 'not elsewhere included' is abbreviated to 'nei'.

<b>ICES area</b>	<b>4b</b>	<b>4c</b>	<b>7d</b>	<b>7e</b>	<b>Total</b>
<b>Blonde ray</b>	12.21	57.1	78.99	360.25	508.56
<b>Cuckoo ray</b>	0.79	0.06	0.81	213.1	214.74
<b>Raja rays nei</b>	0.97	0.44	1.72	3.49	6.62
<b>Rays and skates nei</b>	0.01	0.06	0.89	3.09	4.05
<b>Rays, stingrays, mantas nei</b>	0.11	0.93	3.66	0.01	4.7
<b>Small-eyed ray</b>	None	0.06	12.86	10.13	23.04
<b>Spotted ray</b>	9.3	50.06	25.33	126.37	211.07
<b>Starry ray</b>	<0.01	<0.01	0.06	0.19	0.26
<b>Thornback ray</b>	21.41	314.58	524.73	333.9	1,194.63
<b>Undulate ray</b>	None	0.05	17.12	45.11	62.29
<b>Cross-species average</b>	44.81	423.34	666.17	1,095.64	2,229.95

**Table 3. Average annual landed value (£'000) of FMP species by ICES area from 2016 to 2021.**

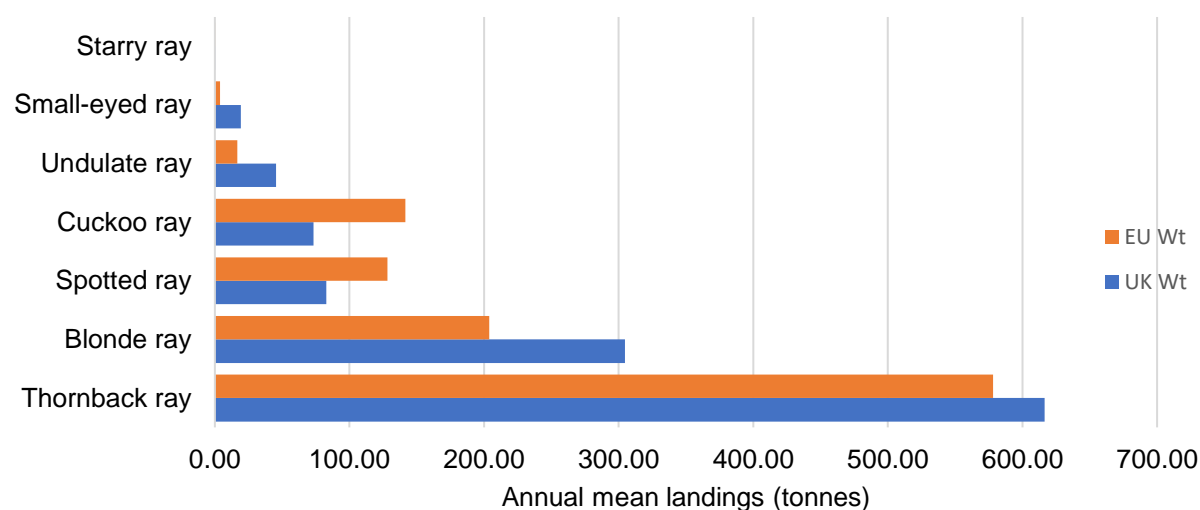
Table note: 'not included elsewhere' is abbreviated to 'nei'.

<b>ICES area</b>	<b>4b</b>	<b>4c</b>	<b>7d</b>	<b>7e</b>	<b>Total</b>
<b>Blonde ray</b>	22.62	124.42	167.20	667.57	981.81
<b>Cuckoo ray</b>	0.50	0.10	1.37	294.02	295.98
<b>Raja rays nei</b>	0.81	0.55	2.27	2.44	6.06
<b>Rays and skates nei</b>	0.03	0.11	1.28	4.17	5.59
<b>Rays, stingrays, mantas nei</b>	0.21	1.86	7.35	0.02	9.34
<b>Small-eyed ray</b>	None	0.12	15.38	15.73	31.24
<b>Spotted ray</b>	14.37	96.27	39.61	199.74	349.99
<b>Starry ray</b>	<0.01	<0.01	0.07	0.24	0.32
<b>Thornback ray</b>	33.20	460.68	852.43	514.06	1,860.35
<b>Undulate ray</b>	None	0.08	19.70	66.90	86.67
<b>Cross-species average</b>	71.74	684.18	1,106.55	1,764.89	3,627.35

## Status of the fisheries

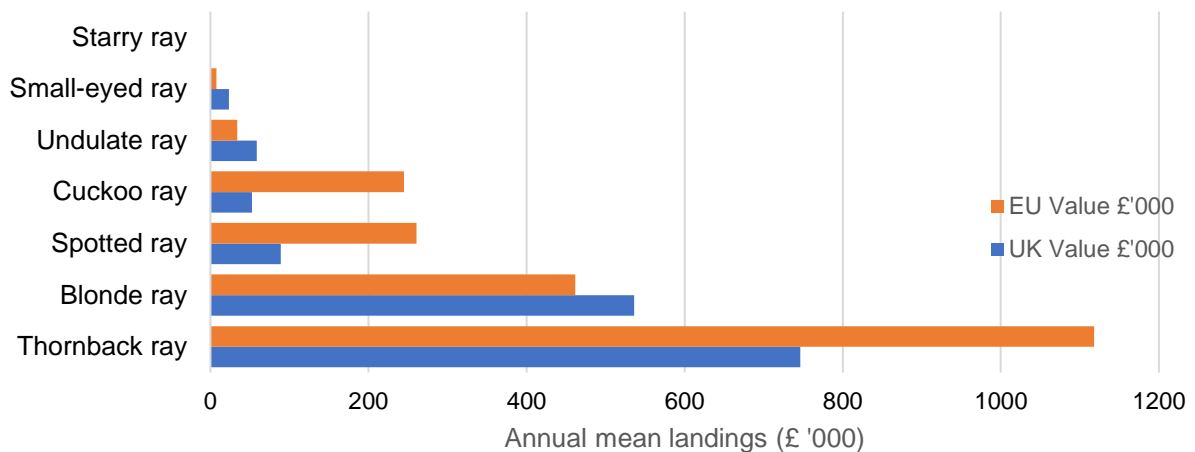
### Commercial fisheries

The Southern North Sea and Channel skates and rays FMP fisheries average £1.5 million to UK vessels per annum. 98% of this is landed by English vessels. The remaining 2% by Scottish, Northern Irish and Crown Dependency registered vessels.



**Figure 2. Annual average landings by ranked by weight (t) of UK landings (blue) compared to the EU27 (orange) (annual average of 2016 to 2021).**

An average of 2,230 tonnes (t) of focal species were landed annually from the FMP area (see Figure 2), 54% of which was thornback ray (total accounting for 1,195 tonnes (t); £1.9 million), 27% was blonde ray (total accounting for 509t; £997,000), 10% spotted ray (total accounting for 211t; £349,000) and 8% cuckoo ray (total accounting for 215t; £297,000). Together these comprise 96% of the average annual landings by weight and value. Undulate ray, small-eyed ray, starry ray and aggregated skate and ray species groupings (that is 'rays and skates not elsewhere included (nei)') make up the remaining 4% of the average landed catch annually by weight and value.



**Figure 3. Annual average landings ranked by value (GBP £'000) of UK landings (blue) compared to the EU27 (orange) (annual average of 2016 to 2021).**

Figure 3 fisheries landings data shows thornback rays to be the most important species within scope of the FMP, by weight and value for both the UK and EU fleets. Blonde rays, spotted rays, cuckoo rays and undulate rays emerge as the second, third, fourth and fifth most important species by weight and value, respectively. Notably, catch composition and landing value does vary between UK and EU fleets. See Table 4 below for more detail.

Small-eyed rays average 20t and £33,700, mostly from UK vessels. Starry ray landings (less than £1,000) is virtually negligible.

**Table 4. The weight (t) and value of UK and EU landings of the top 5 species.**

Species	UK weight (t)	UK value (£'000)	EU weight (t)	EU value (£'000)
<b>Thornback ray</b>	616.40	746.18	578	1,118.08
<b>Blonde ray</b>	304.69	535.98	204	461.36
<b>Spotted ray</b>	82.89	89.12	128	260.84
<b>Cuckoo ray</b>	73.31	52.34	141	244.90
<b>Undulate ray</b>	45.55	58.47	17	33.73

Table 5 shows the price per tonne and difference in average annual landings value for the 5 most commercially important skate and ray species. It is notable that EU vessels consistently command a higher price per tonne for skates and rays than UK vessels, suggesting a stronger EU market for these species.

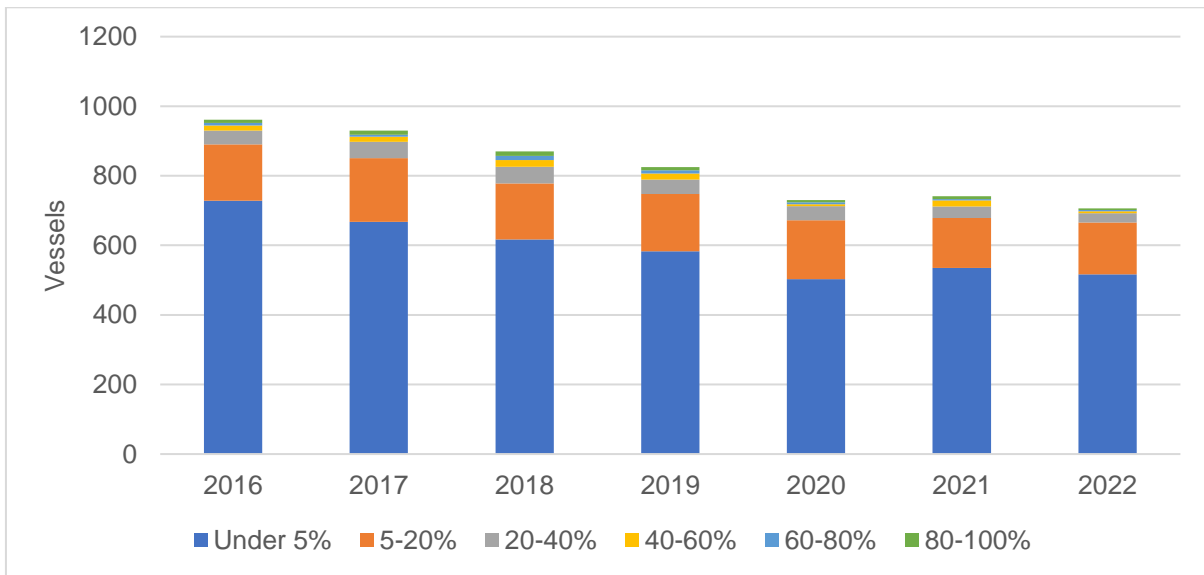
**Table 5. The price per tonne difference between UK and EU landings.**

<b>Species</b>	<b>UK price per tonne (£)</b>	<b>EU price per tonne (£)</b>	<b>Difference in price per tonne (£)</b>
<b>Thornback ray</b>	1,210.55	1,933.65	-723.10
<b>Blonde ray</b>	1,759.12	2,263.01	-503.89
<b>Spotted ray</b>	1,075.14	2,035.02	-959.88
<b>Cuckoo ray</b>	714.06	1,731.47	-1,017.42
<b>Undulate ray</b>	1,283.65	2,015.72	-732.07

## **FMP Economy**

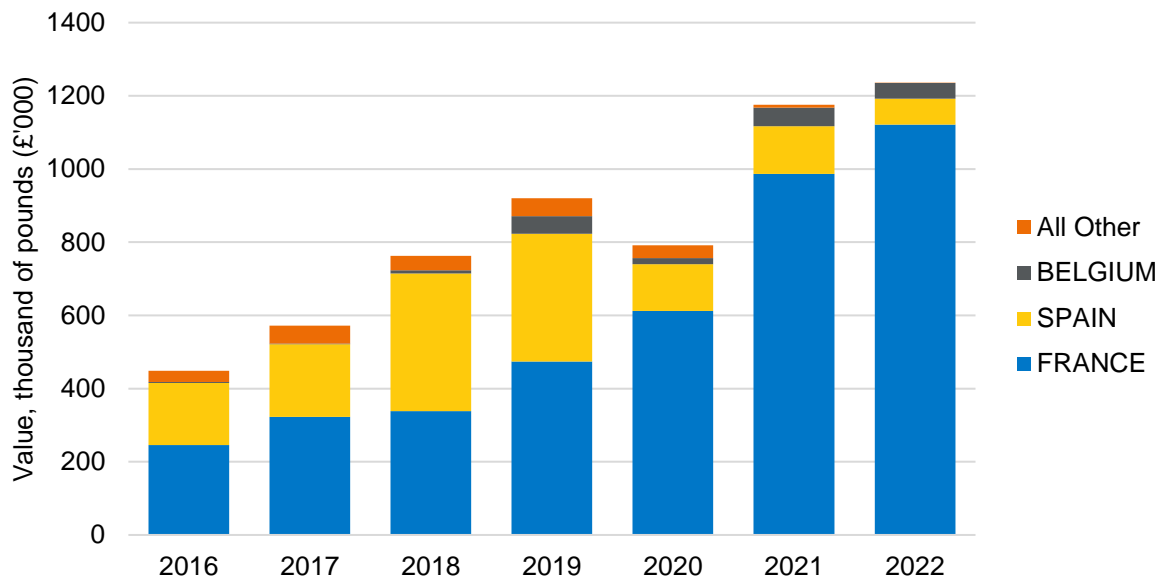
Figure 4 shows what proportion of vessels' income is earned through FMP species, and how that proportion has changed over the years. In most cases, FMP species landed make up less than 5% of a vessel's income. In 2022, 706 vessels landed skates and rays, 94% (666) of these vessels had an economic dependence on FMP species of less than 20%. Vessels with less than 20% economic dependence on FMP species average 84% of landings. There were 20 vessels for which skates and rays represented more than 20% of annual income in 2022, averaging 16% of annual landings. The vessels most reliant on skates and rays are predominately under 10 metres (m) in length. The size of the fleet landing FMP species has reduced by as much as 23% since 2016.





**Figure 4. Number of vessels involved in the Southern North Sea and Channel skate and ray fishery by level of economic dependence.**

During 2022, skates and rays were a net export. The UK exported 179t or £741,000 more skate and ray products than it imported. Figure 5 shows that in 2022, £1.24 million worth of FMP products were exported. Most of these (around £1.12 million worth) were exported to France.



**Figure 5. Annual UK export value of skate and ray products by destination country.**

## 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. According to the Centre for Environment, Fisheries and Aquaculture Science (Cefas)' [report on sea angling in the UK 2016 and 2017](#), and [Cefas' report on sea angling in the UK 2018 and 2019](#), around 772,000 UK adults participated in sea angling each year between 2016 and 2019, at a value of £1.6 to £1.9 billion per year. A thriving support industry has grown alongside this activity, including fishing tackle and bait shops in key recreational angling locations.

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 indicates 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.

Skates and rays are important for recreational match fishing, due to their relatively large size. Notable recreational species that are within scope of this FMP include blonde, undulate and thornback ray.

## Existing management of skates and rays

Exploitation of skates and rays is regulated through the current system of total allowable catches (TAC). Currently, there are combined TACs for skates and rays in

the North Sea, the eastern English Channel and the Celtic Sea. There is some ability to transfer a proportion of these TACs to adjacent TAC areas. There has been a separate stock-specific TAC in place for undulate ray in the English Channel since 2019, and various sub-TACs for this stock in place since March 2015.

In addition to TACs, there are other restrictions in place. Those most relevant to this FMP are detailed below.

### **North Sea**

The [Secretary of State determination of fishing opportunities for British fishing boats](#) (2023) requires a 'bycatch quota' for larger vessels, which stipulates that skates and rays should not comprise "more than 25% by live weight of the catch retained on board per fishing trip" for those vessels greater than 15m in length overall.

This TAC does not apply to small-eyed ray in UK and EU waters. Small-eyed ray caught in the North Sea should be released promptly.

### **Western Channel and Celtic Sea**

The TAC does not apply to small-eyed ray, except in divisions 7f to 7g (where a sub-TAC is in place), and so small-eyed ray in the western English Channel should be released promptly. In the [negotiations between the UK and the EU for 2024](#), a joint ambition was agreed to lift the non-retention regulation in favour of a sentinel fishery for small-eyed ray in 7e. In the [Secretary of State determination of fishing opportunities for British fishing boats](#), a limited quota to land small-eyed ray in 7e has been made available for the sentinel fishery in 2024.

### **Skerries Bank, Devon**

The mixed recreational and commercial fishery at Skerries Bank in Devon has been identified by members of the Southern North Sea and Channel skates and rays FMP working group as a good example of the commercial and recreational fishing sector working together. The fishery is controlled via a voluntary code of conduct which includes various provisions designed to balance the 3 main user groups. The zone also includes various netting restrictions which are controlled via an IFCA Permit Byelaw.

### **Starry ray**

Starry ray in UK and EU waters of divisions 2a, 3a, 7d and Subarea 4 has a species-level prohibitions, under which UK and EU fishing vessels "shall not fish for, retain on board, tranship or land" this species.

### **Undulate ray**

There is a separate stock-specific TAC in place for undulate ray in the English Channel. Undulate ray may be retained in divisions 7d and 7e, subject to the following domestic fishing vessel licence conditions: closed period during May to August inclusive. During open periods undulate ray may only be retained on board

or landed whole or gutted. There is also a minimum and maximum landing size of 78 cm and 97 cm respectively, measured from the tip of the snout to the tip of the tail. A 200kg per trip landing restriction applies to UK vessels.

### **Small-eyed ray**

In ICES Subarea 4, the North Sea skates and rays TAC does not apply to small-eyed ray and therefore the species cannot be fished for. This is implemented in the annex of domestic fishing vessel licences.

In ICES division 7e, from 2024 onwards a small TAC is available for landing only by fishing vessels registered on the forthcoming sentinel fishery monitoring programmes.

### **Minimum conservation reference sizes (MCRS)**

Except for undulate ray, there are no national MCRSs for the other skates and rays included in the scope of this FMP. The current FMP area includes the inshore waters of 8 IFCAs, of which 2 have minimum sizes for skates and rays.

Kent and Essex IFCA byelaws stipulate an MCRS of 40cm (distance between the wing tips) for whole skates and rays, or 19cm for detached wings (measured from the wing tip and across the wing to the cut edge).

Southern IFCA byelaws stipulate an MCRS of 40cm (distance between the wing tips) for whole skates and rays, or 20cm for detached wings.

There is no MCRS for skates and rays in other IFCA districts within the FMP area (Cornwall IFCA, Devon and Severn IFCA, Sussex IFCA, Eastern IFCA, Northeastern IFCA and Northumberland IFCA).

## **FMP vision**

The FMP vision is that skate and ray fisheries in the Southern North Sea and English Channel 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
- the TCA between the UK and the EU including management of shared stocks through multi-year strategies

The Southern North Sea and Channel skates and rays 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 scientific 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**

Following the Act, the FMP will seek to apply a precautionary approach to fisheries management, ensuring exploitation of marine stocks restores and maintains populations of harvested species above biomass levels capable of producing maximum sustainable yield. 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 approach for fisheries management. 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 way over time.

# FMP goals

To support the delivery of this FMP the MMO, with the help of stakeholders, developed specific goals which will make contributions towards the 8 objectives within The Act.

The FMP goals have been grouped into 3 distinct themes:

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

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 and subsequently falling into the implementation phase of FMP delivery. Actions to support these 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 skate and ray fisheries in the Southern North Sea and English Channel**

This goal has been proposed to pursue the implementation of MSY for FMP species and promote stock sustainability. It will positively contribute to achieving good

environmental status (GES) for UK Marine Strategy descriptor D3 (commercially exploited fish and shellfish) in English waters.

## **Action 1**

Consider how to define the precautionary approach in mixed fisheries that catch skates and rays. How it will be initiated, implemented, and assessed – in line with data collection and management needs.

Timeframe: short term

Approach: the Southern North Sea and Channel skates and rays FMP will produce a methods paper, defining the precautionary approach, how it is applied, mechanisms and triggers for initiation, research and data collection needed, and possible actions for implementation. This should be done in collaboration with other FMPs to ensure that the approach for the application of precautionary management is consistent between FMPs and applied in line with the requirements of the Act objectives.

Additional detail on the application of the precautionary approach can be found in the 'Harvest Strategy' section of this plan.

Relevant Fisheries Act objectives:

- sustainability objective
- precautionary objective
- scientific evidence objective

## **Action 2**

For the 3 stocks that are considered to be data limited by ICES, and consequentially, unable to be assessed for stock status against MSY, seek to improve datasets to allow for assessment and adopt a precautionary approach to domestic fisheries management until such time that these assessments are made. Once assessments are in place, seek to manage catches at or below MSY or a suitable proxy for all stocks within scope of this FMP.

Timeframe: short and medium term

Short-term approach:

- explore and prioritise management and evidence gathering to contribute to the assessment against MSY for thornback ray in 7e, blonde ray in 7e and small-eyed ray in 7d and 7e

- consider the implementation of effort data into fishing records – logbooks, under 10m vessels catch recording – to create a better data set and assess effort on stocks

Medium-term approach:

- seek to ensure gathered data supports the implementation of MSY or a suitable proxy for all skate and ray stocks
- seek to manage catches so fishing effort remains below MSY or MSY proxy

Relevant Fisheries Act objectives:

- sustainability objective
- precautionary objective
- scientific evidence objective

### **Action 3**

The Harvest Standard Specification guidance will be considered to contribute to progressing towards the long-term sustainability of the fisheries managed under this FMP.

Timeframe: medium to long term

Approach: gather sufficient data to support the implementation of MSY for priority stocks following the best available scientific advice, including the best practices laid out in the Harvest Standard Specification.

Relevant Fisheries Act objectives:

- sustainability objective
- precautionary objective
- scientific evidence objective

## **Goal 2: Deliver effective management to contribute to restoring, increasing or maintaining skate and ray stocks; where possible identify, minimise and mitigate pressures on skate and ray stocks**

This goal has been developed to deliver effective fisheries management to identify, minimise and mitigate fishing pressures exerted on skates and rays. It will positively contribute to achieving GES for UK Marine Strategy descriptor D3 (commercially exploited fish and shellfish) in English waters.



## Action 1

Look to define key interactions of fisheries landing skates and rays in targeted or bycatch fisheries and better understand the pressures exerted on these stocks, including consideration of the targeting behaviour of the fleet and recreational fishery.

Timeframe: short term

Approach:

- consider research into fisheries catching skates and rays, to model interactions and pressures exerted on skate and ray stocks from fishers catching and targeting skates and rays.
- consider research to identify and capture fisher targeting patterns for skates and rays.
- consider a demographic modelling study to determine the benefits and impacts of proposed management measures, such as MCRS and MaxCRS for skate and ray stocks.

Relevant Fisheries Act objectives:

- sustainability objective
- scientific evidence objective
- bycatch objective

## Action 2

Following the outcome of Action 1, seek to manage key interactions to minimise adverse impacts and consider the integration of mixed and multi-species management approaches for the relevant skate and ray fisheries, where appropriate.

Timeframe: medium to long term

Approach:

- seek to understand the key interactions of the wider fishery and fishers targeting skates and rays
- seek to effectively manage these interactions to minimise adverse impacts on skates and rays stocks
- approaches to mixed fishery and mixed species management will be considered and assessed for implementation into management of skate and ray fisheries.

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- bycatch objective
- precautionary objective

### **Action 3**

Identify and consider appropriate protections for fish habitats that are important to key life stages of skates and rays.

Timeframe: medium to long term

Approach:

- consider research to identify areas and habitats that are considered essential for skates and rays, and consider introducing management measures where required
- explore opportunities for alignment with existing or new spatial management to minimise impact on the fisheries
- consider spatial and temporal closures to protect breeding and juvenile aggregations of skates and rays stocks
- build evidence on the effectiveness of spatial-temporal management such as closed seasons and 'ray boxes' for protecting breeding and juvenile assemblages, including investigating the association between areas of 7d and undulate ray reproduction – as an identified stakeholder evidence priority

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective

### **Action 4**

Consider the impact and species sensitivities to climate change. Identify where climate change mitigation and adaptation measures can be implemented where appropriate to reduce impacts on the fisheries.

Timeframe: medium to long term

Approach:

- consider research to evaluate the potential impact of climate change on skate and ray species and identify opportunities to implement climate change mitigation and adaptation measures
- adapt the fishery management strategy where appropriate to align with species sensitivities

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- national benefit objective
- climate objective

## Action 5

Better understand the impact of anthropogenic non-fishing pressures on skate and ray stocks.

Timeframe: medium to long term

Approach: consider research into broader anthropogenic impacts on skate and ray stocks.

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- national benefit objective

## Goal 3: Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

This goal has been developed to improve biological and environmental sustainability within the FMP remit. It will positively contribute to achieving GES for UK Marine Strategy descriptor D1 (biological diversity), D3 (commercially exploited fish and shellfish), D4 (food webs), D6 (sea-floor integrity) and D10 (marine litter) in English waters.

## **Action 1**

Investigate key issues in current unwanted and protected species bycatch within the fishery where skates and rays are being targeted.

Timeframe: short term

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

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- bycatch objective

## **Action 2**

Better understand the impact of fishing gear interactions with the marine environment in the skate and ray fishery.

Timeframe: medium to long term

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

Relevant Fisheries Act objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- bycatch objective

## **Action 3**

Establish data collection requirements to monitor and track key skate and ray 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 objectives:

- sustainability objective
- ecosystem objective
- scientific evidence objective
- bycatch objective

## Social and economic goals

### Goal 4: Better understand and optimise social and economic benefits

This goal has been developed to improve the evidence base for social, cultural and economic values of skates and rays. Fulfilling this goal will indirectly feed into the achievement of GES in English waters by improving the socioeconomic evidence base, and it looks to optimise fishery management where possible for the long-term sustainability of the fishery.

#### Action 1

Building on the existing evidence base, undertake research on the reliance on skate and ray fisheries, and identify social and economic data on the current direct and indirect benefits derived from skate and ray fisheries on coastal communities.

Timeframe: short term

Approach:

- consider evidence gathering to identify groups (commercial and recreational fishers, coastal communities, local supply chains) that are reliant on skate and ray fisheries
- carry out research to understand who is benefitting from these species and how these are integrated into social, economic, and cultural values
- understand the direct social and economic benefits of the skate and ray fishery for the groups identified
- target management appropriately so that these benefits are maintained and where appropriate, optimised

Relevant Fisheries Act objectives:

- sustainability objective
- scientific evidence objective
- national benefit objective
- equal access objective

## **Action 2**

Using evidence produced from action one, 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.

Relevant Fisheries Act objectives:

- sustainability objective
- scientific evidence objective
- national benefit objective
- equal access objective

## **Action 3**

Where data is not currently available, seek to identify new ways to collect social and economic data against the monitoring indicators identified in action 2.

Timeframe: medium to long term

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

Relevant Fisheries Act objectives:

- sustainability objective
- scientific evidence objective
- national benefit objective
- equal access objective

## **Action 4**

Seek to understand if there are opportunities to optimise direct and indirect benefits from skate and ray fisheries.

Timeframe: medium to long term

Approach: map and understand benefits from skate and ray fisheries and put in place mechanisms to optimise these benefits.

Relevant Fisheries Act objectives:

- sustainability objective
- scientific evidence objective
- national benefit objective
- equal access objective

## **Goal 5: Develop partnership working to build capacity for industry to be able to input into matters affecting skate and ray 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 skates and rays. Through effective engagement and management, it will positively contribute to achieving GES for UK Marine Strategy 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 skates and rays management group or another similar forum, which may develop over time to allow for continued engagement in ongoing management of skate and ray fisheries.

Timeframe: short term

Approach: the relevant authority will consider establishing a skates and rays 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 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.

Relevant Fisheries Act objectives:

- sustainability objective
- national benefit objective

# Evidence goals

## Goal 6: Better understand the wider skate and ray species evidence gaps

This goal has been developed to improve on the evidence base for skates and rays. Fulfilling this goal will not directly contribute to achieving GES but may indirectly feed into the achievement of GES in English waters through contributing to effective management and sustainability of the fishery.

### Action 1

Building on the supporting evidence statement that will be published alongside the final FMP, 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, which will cover all fisheries, environmental, ecological, and social and economic data requirements

Relevant Fisheries Act objectives:

- scientific evidence objective

## Goal 7: Develop the skates and rays evidence base

This goal has been developed to improve on the evidence base for skates and rays. Fulfilling this goal will not directly contribute to achieving GES but may indirectly feed into the achievement of GES in English waters through contributing to effective management and sustainability of the fishery.

### Action 1

Identify how current data channels can be adapted or improved to meet evidence gaps and prioritise evidence gaps based on current evidence baselines and evidence needs.



Timeframe: short term

Approach:

- identify and evaluate data channels for integration into the development of the FMP evidence base
- identify evidence gaps and prioritise an approach to close these

Relevant Fisheries Act objectives:

- scientific evidence objective

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

Timeframe: medium to long term

Approach:

- address evidence gaps that cannot be filled by existing data with new evidence and data, where available – where possible, collect this using new technologies or through novel, non-traditional methods (species prioritisation may mean expedited delivery)
- 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 objectives:

- scientific evidence objective

## Harvest strategy

The harvest strategy proposed within this FMP is for fisheries to be managed sustainably. There are currently 11 stocks within scope of this FMP. ICES assessments are available for 8 of the skate and ray stocks present in the Southern North Sea and English Channel area. Sustainability concerns have been identified for some of the stocks within scope of this FMP. Currently 3 stocks within scope of the FMP are not assessed by ICES, and ICES advises that a precautionary approach be applied. To successfully contribute to the Fisheries Objectives of the Act, and the Goals proposed for the Southern North Sea and Channel skates and

rays FMP, these stocks need to be better understood to evaluate the status of each stock and, under the precautionary approach, implement sustainable management as required.

Currently there is one stock within scope of this FMP that is assessed by ICES at MSY proxy where sustainability concerns have been identified. The ICES assessment for starry ray in the Southern North Sea has identified that fishing pressure exceeds the FMSY proxy, and the stock size falls below the index trigger. Therefore, zero catches have been advised up to 2027.

Species-specific sustainability concerns have anecdotally been raised by stakeholders engaged in the development of the FMP. These concerns centred on the state of the stocks for thornback ray in ICES Area 4c, and undulate ray in 7d and 7e.

The precautionary approach will be applied in line with the precautionary objective, where there are indications of less sustainable fishing practices attributed to fishing for skates and rays. 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

Scientific evidence has shown that several management measures could benefit stocks of skates and rays. However, while there remain gaps in the scientific evidence available, there is a continuing obligation under both international and national legislation to apply the precautionary approach where there are concerns for the sustainability of a stock.

## Maximum sustainable yield

This FMP proposes actions under the sustainable fisheries goal theme to help reach harvest at or below MSY. For the 11 identified skate and ray species, 5 are assessed against MSY, 3 are assessed by a MSY proxy, and 3 have no assessment and are based on the ICES precautionary approach.

In the short term there will be a focus on gathering data to contribute to the future assessment of the 3 ICES data category 3 stocks, and the 3 ICES data category 5 stocks. Commitments for the medium to long term will look to close the data gaps on all FMP species, to progress towards managing all stocks through MSY assessment.

# Management strategy

The FMP management strategy, including the harvest strategy, focuses on 7 key approaches listed from the short term to long term:

- minimum conservation reference sizes (MCRS)
- maximum conservation reference sizes (MaxCRS)
- voluntary guidelines
- establish sentinel fishery for small-eyed ray in 7e
- alternative approaches to the current group total allowable catches (TAC)
- spatial and seasonal closures
- sector support measures

Management measures are being recommended where concerns have been identified in the development of the FMP. These concerns were identified through assessment of the stock status, risk identification of the key environmental considerations associated with fishing for skates and rays, literature reviews of global skate and ray management, and concerns identified through engagement with stakeholders and through the FMP working group. The proposed measures will look to increase or maintain stock levels for the species managed under this FMP, where suitable. This FMP will seek to harmonise introduction of new measures with the Celtic Sea FMP currently under development, where management of western Channel stocks of skates and rays overlap.

The following concerns on general skates and rays' management were identified through engagement with fisheries stakeholders:

- fragmented existing measures such as IFCA MCRS, site closures and prohibited species need to be evaluated
- skates and rays produce fewer offspring than other fish and take longer to reach reproductive age, so these species have a longer generation time and are more vulnerable to fisheries harvest
- given the high recreational value of skates and rays, there needs to be a balance between commercial and recreational fishers – we therefore need to develop ways to ensure that balance
- skates and rays use distinct areas to breed and grow as juveniles, so we need to evaluate whether these areas should be protected during sensitive periods
- low prices and market demand may be affected by low sustainability ratings, so we need to assess how sustainability ratings and market demand can be improved for commercial skate and ray landings

The following concerns were raised by stakeholders during engagement events:

- IFCA officers and recreational anglers reported a localised reduction in undulate abundance within ICES areas 7d and 7e (English Channel)
- commercial and recreational fishers expressed concern relating to an apparent and significant reduction in thornback rays in ICES Area 4c (southeast England), particularly the Thames Estuary area

Measures proposed in the short term include considering the implementation an MCRS for species within scope of the FMP and exploring the application of MaxCRS as a management tool. Consideration of an MCRS will aim to increase stock levels through protecting juvenile skates and rays, where under current management immature individuals are at risk of removal from the fishery before having an opportunity to reproduce at least once. Evidence will be gathered to determine the effectiveness of MaxCRS for protecting skate and ray brood stocks, while promoting stock recruitment. This FMP will aim to address concerns around fragmented management in delivery of these measures.

The FMP also proposes to develop handling and education guidelines for recreational and commercial fishers in the short term. These will encourage the application of best practice to improve survivability of skates and rays when returned to the sea. In addition, education, workshops and guidance will aim to improve the quality of evidence gathered, improve engagement across the stakeholder base and increase compliance with the measures, benefiting the species.

Following current policy direction, the FMP considers establishing a sentinel fishery for small-eyed ray in 7e. The sentinel fishery will follow a precautionary approach to gather data, with the aim of improving the availability of data and therefore the quality of future stock assessments, to determine how to sustainably manage this stock.

For all species, this FMP recommends the introduction of greater monitoring and data collection in the short term, to help inform the evidence base and the introduction of future management. In particular, it recommends gathering evidence to support the introduction of alternatives to the current group TACs in the short to medium term, with the aim to overcome the challenges of managing skates and rays through a combined TAC.

Skates and rays have been shown to use distinct areas for crucial life stages. Consideration of seasonal and spatial closures in the medium to long term will aim to gather evidence on essential habitats, determine the most appropriate forms of protection that may be afforded and understand the impact this may have on fishers. Where possible, opportunities for policy alignment on spatial management will be considered to minimise the impact on fishers.

In the long term, measures to support the commercial and recreational sector for skates and rays are considered. These will explore ways to support initiatives that

add market value to skate and ray products, balance recreational and commercial fishing interests and implement strategies to optimise the social and economic benefits of the fishery.

To determine the most effective approach, data will be gathered on the fishery and the state of the stock. Alongside this, the efficacy of technical measures for conserving the stock will be tested. This will enable the consideration of options for the future introduction of management during the implementation cycle of the first iteration of the Southern North Sea and Channel skates and rays 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 and ecosystems and are often caught together. This allows implementation of measures effective for a cohort of species rather than a single stock. As this FMP covers species that are caught alongside other quota and non-quota species, the FMP has the long-term ambition of developing sufficient evidence so that mixed and multiple species management can be applied effectively.

The steps needed to implement a mixed fishery approach for these fisheries need to consider 3 separate but linked processes: data collection, method development and decision making.

### **Data collection**

Collection of data on catches, typically broken down by size or age, is a routine part of the stock assessment process. The form of data required is determined by the stock assessment approach in use or under development. To facilitate the development of mixed fishery approaches, data collection will need to ensure that catch data is also broken down by vessel, gear, and, as much as possible, location of capture.

### **Method development**

When applying or developing assessment approaches for the relevant fish stocks, consideration should also be given to how these approaches might be used in a mixed fishery context. For instance, some ICES data-limited approaches are used to advise on a percentage change to recent catch levels based on one or more stock or catch indicators. There may be scope for evaluating the impacts of such advice on other stocks caught in the same mixed fishery context using a similar approach to Fcube (Ulrich et al., 2011). Alternatively, it might be worth exploring the application of similar data-limited assessment approaches to multiple stocks simultaneously, to

look at the possibility of providing advice at a fishery level rather than at a stock level. These ideas are preliminary but reflect the need to look at assessments in a wider context and not just at stock level.

## Decision making

In principle, if not in practice, where annual TACs are the main management measure for a given stock, decision making should be straightforward as it should just involve agreement on a single number. This is not the case if mixed fishery considerations are accounted for in setting management measures, due to the need to recognise the trade-offs between the different stocks and to identify and agree on appropriate measures. This increase in complexity of the decision-making process is a consequence of adopting a mixed fisheries approach and it needs to be recognised when governance approaches are developed and implemented for the relevant fisheries.

## Management measures

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

### 1. Consider the implementation of minimum conservation reference sizes

#### Short-term measures

Gather further evidence to understand the potential effectiveness of MCRS as a method for protecting stock health and promoting population growth, through affording protection to juvenile skates and rays in English waters of ICES divisions 4b, 4c, 7d and 7e.

The evidence gathered should help to determine the most appropriate approach to introducing a MCRS, with options including, but not limited to, a universal MCRS, a species-specific MCRS, brigading MCRS for smaller-bodied and larger-bodied species.

As part of the evidence gathering, the trade-offs between a MCRS and/or a MaxCRS should also be explored.

**Purpose:** Currently 2 IFCA's (Kent and Essex IFCA and Southern IFCA) within the FMP's spatial jurisdiction have active, non-species-specific MCRS regulations for skates and rays. The MCRS for Kent and Essex IFCA is 40cm for whole rays, 19cm for a wing; and for Southern IFCA this is 40cm for whole rays and 20cm for a wing.

However, there is no national MCRS beyond the 6nm boundary (except for undulate ray). Outside of the FMP area, there are different MCRS for skates and rays around the UK, including the waters of Guernsey (36cm), North-Western IFCA (45cm) and parts of Wales (45cm). There is also a voluntary code agreed by the North Devon Fishermen's Association (45cm).

Evidence will need to be gathered to explore appropriate catch sizes and determine if the MCRS proves to be socio-economically beneficial. Larger skates and rays are landed for a higher per-unit value, so an increase in the number of larger individuals is likely to generate increased economic benefit for fishers and attract recreational sport fishing for trophy landings.

A brigaded smaller measure may need to be considered for cuckoo ray and spotted ray, as both these species mature at a smaller size, and a larger MCRS that may be beneficial to larger-bodied skates and rays would notably reduce fishing opportunities for these smaller species.

**Indicators:** A demographic modelling exercise and economic impact assessment is undertaken to help determine appropriateness of MCRS and/or MaxCRS as tools to regulate skate and ray landings within English waters of ICES divisions 4b, 4c, 7d and 7e.

**Evidence:** Skates and rays are slow-growing species with varying sizes at maturity<sup>3</sup>. The current lack of an MCRS in most areas leaves juveniles at an increased risk of being removed before being able to spawn at least once. As discard survival rates within skates and rays are perceived to be high, and the species are exempt from the Landing Obligation, MCRS measures may be a favourable tool to protect juvenile populations<sup>4</sup>, although this is dependent on the survival rates of smaller individuals.

In the short term, a demographic modelling exercise and economic impact assessment should be undertaken to better understand the potential benefits of minimum and maximum sizes. The focus should be on exploring the efficacy of a MCRS (and/or MaxCRS) on skates and rays considering uncertainties on selection patterns, quota availability, life-history, and discard survivability.

The Lyme Bay Reserve Ray Project<sup>5</sup> and anecdotal evidence gathered from stakeholder engagement suggests that fishers were discarding small-legal sized individuals due to poor market prices – potentially limiting the financial impact of this

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<sup>3</sup> McCully et al., 2012, Phillips et al., 2020, Thys et al., 2023

<sup>4</sup> Catchpole et al., 2007; Ellis et al., 2008a, b; Enever et al., 2009, 2010; Ellis et al., 2018; Van Bogaert et al., 2020

<sup>5</sup> Whitely, 2019

measure. An economic impact assessment of the measure will need to be carried out to determine the extent of any foregone fishers earnings against the range of size restrictions explored.

**Dependencies:** Additional life-history data are required to understand the potential benefits of size restrictions, and further analyses to consider social and economic impacts of any proposed approaches. Such information can inform whether size restrictions are appropriate and enforceable measures. This should include evidence to develop robust options for minimum sizes if the measures are deemed to be useful. Once this evidence is gathered, stakeholders should be formally consulted to determine, if appropriate, a favourable approach for implementation in the medium- to longer-term.

**Stakeholder opinion:** During engagement, stakeholders from various groups were generally in favour of implementing a universal MCRS to provide protection to juvenile skates and rays – in particular, the results from the online survey undertaken during FMP development showed that 66% of responders considered a national MCRS could be a highly effective tool for improving the sustainability of skate and ray fisheries, while 26% considered it would be moderately effective. Further details can be found in the Engagement Report.

## Medium- to long-term measures

The evidence gathered on MCRS in the short-term will help to inform the potential approach to implementing a MCRS for skates and rays in English waters of ICES divisions 4b, 4c, 7d and 7e. A MCRS should be measured across the widest diameter of the fish's wings (wing tip to wing tip).

**Purpose:** Given each of the FMP species exhibit different life-history parameters, including the size-at-maturity and fecundity at size, a universal MCRS may be less effective than grouped or species-specific approaches. The evidence gathered in the short-term will help to inform the most suitable approach.

**Evidence:** Skates and rays are slow-growing species with varying sizes at maturity<sup>6</sup>. The current lack of a MCRS in most areas leaves juveniles at risk of being removed before being able to spawn at least once. As discard survival rates within skates and rays are perceived to be high, and the species are exempt from the Landing Obligation, MCRS measures are favourable tools to protect juvenile populations<sup>7</sup>.

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<sup>6</sup> McCully et al., 2012, Phillips et al., 2020, Thys et al., 2023

<sup>7</sup> Catchpole et al., 2007; Ellis et al., 2008; Enever et al., 2009, 2010; Ellis et al., 2018; Van Bogaert et al., 2020



The introduction of a MCRS across the FMP area may shift fishing pressure on to larger individuals in the stock, which may in turn have a detrimental effect on reproductive potential. The demographic modelling exercise will need to assess the effectiveness of each measure and gather additional evidence to determine how size-based restrictions will interact with reproductive potential of skates and rays at different sizes. Egg laying potential and fecundity of larger rays is a recognised evidence gap for the FMP, and should be addressed in order to determine which approach would be more favourable. This evidence will in turn inform the potential benefits of an MaxCRS as a management tool.

The demographic modelling exercise will need to consider the trade-offs in introducing minimum and maximum size restrictions, in order to identify the most appropriate management options for the benefit of the stock, whilst also considering discard survival and economic impacts. Other measures may need to be explored to prevent shifting of fishing effort on to larger-bodied and potentially more biologically vulnerable individuals.

**Dependencies:** The evidence gathered in the short-term data will determine the appropriate approach to consider for implementation in the medium- to long-term.

**Stakeholder opinion:** During engagement, stakeholders from various groups were generally in favour of implementing a universal MCRS to provide protection to juvenile skates and rays. Further details can be found in the Engagement Report.

## 2. Consider the implementation of a maximum conservation reference size

### Short-term measures

Gather evidence to understand the effectiveness of a MaxCRS as a method for managing landings of key FMP skate and ray species in English waters of ICES divisions 4b, 4c, 7d and 7e. A MaxCRS should be measured across the widest diameter of the fish's wings (wing tip to wing tip) for whole skates and rays.

As part of the evidence gathering, the trade-offs between increasing the MCRS versus introducing a MaxCRS should also be explored.

**Purpose:** Maximum sizes offer protection to larger, more fecund individuals, which are important for the annual reproductive output for key FMP species. There is a biological rationale in protecting the largest individuals (in general, larger females are more fecund and produce larger eggs, and these may be laid over a more protracted spawning season), though empirical evidence to demonstrate this is lacking, as fecundity-at-length data is unavailable.

This measure is intended to gather evidence which will support increasing stock levels for all FMP managed stocks. Note that an exemption to the above should be made for undulate ray: current maximum size is set at 97cm (tip of snout to tip of tail). Efforts should be made to consider which measure is most appropriate for managing the fishery.

**Indicators:** Species-specific MaxCRS will be modelled for possible future implementation of maximum size-based restrictions. The efficacy of maximum sizes as a management tool will be understood for selected FMP species. The trade-offs between increasing the MCRS versus introducing a MaxCRS will be understood.

**Evidence:** Maximum sizes and the use of harvest slot-limits have a theoretical basis in simultaneously affording a degree of protection to both immature fish and the most fecund part of the stock. They have also been shown to be effective for managing multiple use fisheries (e.g. for commercial and recreational activities), and so may promote greater general landings of fish, as well as greater catches of larger specimen (trophy) fish<sup>8</sup>. Skates and rays exhibit slow growth, late maturity, and low fecundity. Therefore, as a species group, skates and rays would particularly benefit from the protection of larger, more fecund individuals<sup>9</sup>.

**Dependencies:** A winged maximum size is not appropriate. Enforcement concerns exist on the ability to ensure wings are not cut to size. The FMP will identify alternative methods for processing skates and rays supportive of introducing a maximum size. For instance, winging and retaining the part of the central body joining the wings, or processing in the form of a 'butterfly' cut would enable a maximum size to be determined, and fishers may find this preferential over landing whole rays.

The approach would need to consider the landing of whole skates and rays and ensure that enough skates and rays survive long enough to exceed the maximum size to benefit from protections afforded through this measure.

Additional data on maturity-at-length, and fecundity-at-length are required, alongside an economic impact assessment of the impact of maximum sizes on key skate and ray species. Once this evidence is gathered, appropriate stakeholders should be formally consulted to determine a favourable approach for implementation in the medium to long term.

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<sup>8</sup> Gwinn et al., 2015; Ahrens et al., 2020

<sup>9</sup> Kasper et al., 2020

## Medium- to long-term measures

Following the evidence gathered on MaxCRS in the short term, consider (if appropriate) introducing MaxCRS for skates and rays in English waters of ICES divisions 4b, 4c, 7d and 7e. Any MaxCRS should be measured across the widest diameter of the fish's wings (wing tip to wing tip).

**Purpose:** Maximum sizes potentially offer protection to larger, more fecund individuals which are important as brood stock. This measure is intended to increase stock levels for all FMP managed stocks, underpinned by the effectiveness and appropriateness of the measure.

**Evidence:** Maximum sizes and the use of slot-limits have been shown to be effective in managing multiple use (that is commercial and recreational) fisheries, promoting greater general landings of fish, as well as greater catches of larger specimen (trophy) fish<sup>10</sup>. Skates and rays exhibit slow growth, late maturity, and low fecundity. Therefore, as a species group, skates and rays would particularly benefit from protection of larger, more fecund individuals<sup>11</sup>.

Future evidence gathering should also explore the MaxCRS in relation to potential health risks posed by the accumulation of certain contaminants in older and/or more piscivorous skates and rays, which may bioaccumulate and bio-magnify contaminants. Comparable work on two offshore skate species, including a review of other relevant studies<sup>12</sup> would suggest there is a likelihood of the largest skates exceeding safe levels of mercury, and indicate that work on this topic is required. Data to come to an evidence-based selection of maximum size on the basis of mercury concentrations are lacking.

Skates and rays are an important species for recreational fishers. Introducing protections for the largest individuals will support recreational fisher interests in trophy catches (on the condition that they are returned to the sea in good condition). This measure may therefore also support the local economy through growing recreational fishing interest.

**Dependencies:** Before this measure may be implemented, a priority study should be undertaken to gather growth data and fecundity at length data. A demographic modelling exercise and an economic impact assessment will be undertaken to understand if maximum sizes are an appropriate and enforceable measure for English skate and ray fisheries. This should include evidence to develop robust

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<sup>10</sup> Gwinn et al., 2015; Ahrens et al., 2020

<sup>11</sup> Kasper et al., 2020

<sup>12</sup> Nicolaus et al., 2017

options for maximum sizes if the measures are deemed to be useful. Once this evidence is gathered, stakeholders should be formally consulted to determine a favourable approach.

**Stakeholder opinion:** Stakeholder groups were split in their opinion of this measure. Commercial fishing groups expressed concern around the economic impacts of a maximum size and consequentially opposed the measure, while recreational fishing and eNGO groups voiced support. The skates and rays FMP working group agreed that the measure should not be implemented without prioritised evidence gathering and consultation with stakeholders. Notably, based on stakeholder engagement and working group discussion, fishers were in favour of introducing a slightly larger MCRS over introducing an MaxCRS, due to loss of earnings on larger individuals.

### 3. Voluntary guidelines

#### Short-term measures

Develop and distribute updated skate and ray handling and regulatory guidelines to commercial and recreational fishers.

**Purpose:** Handling guidelines will be produced ensuring that catches of rays which are not to be landed are released in the best possible condition, therefore improving their discard survival rate<sup>13</sup>. Stakeholder groups voiced concern that current and future regulations are or may be complex, and that clear guidelines on these would help with adherence. This measure is intended to increase stock levels for all FMP managed stocks, while supporting evidence is gathered to assess the effectiveness of this measure and improve compliance with management for these FMP species.

#### Indicators:

- handling guidelines will have been produced for all fishers
- compliance and education guidelines will have been produced for all fishers

**Evidence:** Correct handling procedures are accepted as important in improving discard survival rates within the scientific literature<sup>14</sup>.

**Dependencies:** [The Shark Trust's ID and handling guidelines](#) may be useful in developing a product under this FMP. Sussex IFCA have a finished Elasmobranch Code of Conduct, which will be published alongside the Sussex IFCA Minimum Size

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<sup>13</sup> Noting the relevant footnotes in the [Written Record of fisheries consultations between the United Kingdom and the European Union for 2024 \(publishing.service.gov.uk\)](#)

<sup>14</sup> Van Bogaert et al., 2020

Byelaw 2021, when confirmed by the SoS. This contains guidance on handling and other aspects of welfare, with a view to minimising post-release mortality.

**Stakeholder opinion:** All stakeholders engaged with supported handling and regulation guidance.

## Medium-term measures

Develop and implement identification guidelines and workshops to support species-specific measures and enhanced species-specific reporting.

**Purpose:** The ability to correctly identify the differing species of skates and rays under this FMP is essential to underpin and maintain species-specific regulations. Working with stakeholders and government bodies, clear guidelines and workshops will be developed. This measure is intended to improve species-specific evidence gathered, which will in turn contribute to improving or maintaining stock levels for all FMP managed stocks through support to effective and appropriate management.

**Dependencies:** The Shark Trust currently produces identification guides which can be used to develop this measure.

**Evidence:** Species such as blonde and spotted ray are commonly confused<sup>15</sup>.

**Stakeholder opinion:** Stakeholders agreed with the need for identification guides and workshops.

## 4. Establish sentinel fishery for small-eyed ray in 7e

### Short-term measures

Establish a sentinel fishery for small-eyed ray in ICES Area 7e.

**Purpose:** The UK currently has an allocated quota of 5 tonnes (t) for a sentinel fishery to land a limited amount of small-eyed ray in 7e for scientific purposes. The sentinel fishery will follow a precautionary approach to gather data, with the aim to improve the availability of data for future stock assessments, to determine how to sustainably manage this fishery.

**Indicators:** A sentinel fishery is in place to inform state of the stock for small-eyed ray in 7e.

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<sup>15</sup> LeBlanc et al., 2014; Simpson, 2018

**Evidence:** A recent report commissioned by [the MMO provides technical detail on the small-eyed ray fishery](#), including recommendations that support a controlled lift of the non-retention regulation to allow work to improve the monitoring and our understanding of small-eyed ray. Anecdotal evidence from both commercial and recreational fisheries has suggested an abundance of small-eyed ray in 7e. In the [UK and EU negotiations for 2024](#), a joint ambition was agreed to lift the non-retention regulation in favour of a sentinel fishery for small-eyed ray in 7e. The [SoS Determination of British Fishing Opportunities](#) published in December 2023 enables vessels participating in the sentinel fishery to land a limited amount of small-eyed ray to allow fisheries-based data collection for this stock.

**Dependencies:** None.

**Stakeholder opinion:** The commercial sector was favourable to this measure. However, recreational stakeholders voiced concern over the sustainability of opening a previously closed fishery, citing concerns over undulate ray as an example.

## Medium-term measures

Consider seeking to reopen the 7e small-eyed ray fishery, if appropriate, based on the outcome of monitoring the sentinel fishery.

**Purpose:** Consider the appropriateness for allowing a reopening of the fishery for small-eyed ray in Area 7e.

**Evidence:** Implementation of this measure will be informed by the outcomes of the sentinel fishery.

**Dependencies:** Contingent on the results of the sentinel fishery, the state of the stock in the ICES advice and the annual negotiations between the UK and the EU.

## 5. Alternative approaches to the current group total allowable catches

### Short- to medium-term measures

Evidence gathering to support the SCF skates and rays' roadmap which is looking to explore alternative approaches to the current group TAC.

**Purpose:** This measure is intended to restore or maintain stocks at sustainable levels for all FMP managed stocks, adhering to Section 6(3)(a) of the Act.

**Indicators:** Evidence will be gathered in support of following the SCF roadmap for alternative approaches to the group TAC.

**Evidence:** [ICES provides single-species advice](#) for each of the FMP species within areas 4 and 7d. Each ICES advice sheet states that a combined TAC prevents effective control of single-stock exploitation rates and could lead to overexploitation of some of these species. The [written record of fisheries consultations between the UK and the EU for 2023](#) details a joint ambition to explore alternative approaches to the current group TAC management of skate and ray TACs, and management more generally. As a short-term solution, a joint methodology was developed to interpret the species-specific ICES advice in the TAC management areas, while an [indicative roadmap](#) was developed to support the exploration of alternative approaches to the current group TAC in the medium to long term. These are detailed in [the Written Record of fisheries consultations](#) between the United Kingdom and the European Union for 2024.

**Dependencies:** The development and implementation of any alternative approach to the current group TAC management will require bilateral agreement with the EU.

**Stakeholder opinion:** All stakeholder groups accepted that species-specific TACs offer greater resolution of management in comparison to combined TACs. Some commercial stakeholders voiced concern that TACs would be reduced due to this measure and may introduce a choke point within mixed skate and ray fisheries.

## 6. Seasonal and spatial closures

### Medium- to long-term measures

- Explore and where appropriate implement spatial and temporal closures to protect breeding and juvenile aggregations of skate and ray species.
- Build evidence on the effectiveness of spatial and temporal management such as closed seasons and 'ray boxes' for protecting breeding and juvenile assemblages, including investigating the association between areas of 7d and undulate ray reproduction.
- Seek opportunities to align protections with MPA closures to maximise sustainability impact for skates and rays, while minimising impact on fishers.

**Purpose:** Aggregations of skate and ray, either for the purposes of mating or as juveniles in nursery areas are more vulnerable to fishing pressure. Spatial-temporal closures, when based on robust evidence, provide protection to these aggregations. Protections afforded to essential skate and ray habitats are intended to maintain or increase stock levels for all FMP managed species.

**Evidence:** Numerous scientific studies have reported that FMP species exhibit site fidelity during mating<sup>16</sup> or as juveniles<sup>17</sup>. Spatial-temporal measures have been shown to be effective in managing skate and ray species<sup>18</sup>. Notably, recreational fishers have raised anecdotal concerns on the inshore scarcity of undulate rays in 7d. Closing the evidence gap on undulate ray reproduction has been identified as a priority area by Sussex IFCA.

**Dependencies:** The identification of important mating and juvenile sites will require robust evidence, likely in the form of tagging programmes and DNA analyses. Anecdotal evidence from stakeholders will also be crucial to support these measures, further ensuring buy-in from all groups. Consequently, no area or seasonal closures should be implemented without robust evidence gathering. Due to ongoing concerns around spatial squeeze, this should include evidence around the efficacy of currently designated spatial-temporal closures in protecting vulnerable populations.

**Stakeholder opinion:** Stakeholders generally agreed with the need to protect vulnerable populations of skates and rays. However, commercial fishing stakeholders voiced concern around spatial squeeze and continuing limits to the areas they can fish. Stakeholders supported exploring the evidence gathering for identifying essential habitats in 7d and 7e for undulate ray reproduction.

## 7. Sector support measures

While this approach is a non-statutory requirement, and the associated actions and measures go beyond the legal obligations for FMPs in section 6 of the Act, Defra welcomes the industry commitments to support the delivery of the FMPs and the objectives in the Act.

### Long-term measures

- implement strategies as identified in evidence work to support initiatives for developing the domestic skate and ray market
- explore areas or options to balance commercial and recreational needs, with case studies such as the Skerries Angling Zone providing examples of good practice
- implement strategies as identified in evidence work to optimise the social and economic benefit of the commercial and recreational skate and ray fishery

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<sup>16</sup> Ellis *et al.*, 2011; Papadopoulo *et al.*, 2023

<sup>17</sup> Martin *et al.*, 2012

<sup>18</sup> Thorburn *et al.*, 2021



**Purpose:** Reports suggest that there is a low market interest in ray landings compared to other species. Alongside the suite of other management recommendations (which work to enhance sustainability in the fishery), work to understand what else can be done to improve markets should be undertaken. Recreational angling for skates and rays is a high-interest and high-value resource for coastal communities. Promoting this with either specific angling zones, particularly from a catch and release perspective, continues to support individuals and businesses with limited impact on stocks. This measure is intended to consider fisheries sustainability, maintaining or increasing stock levels for all FMP managed stocks, while socially and economically providing support to the fishing sector and fisheries community. Evidence will be gathered to assess the effectiveness of the support provided and impact on stock health.

**Evidence:** To be collected.

**Dependencies:** These measures are dependent on continued evidence gathering and collaboration with stakeholders to determine appropriate ways of strengthening market interest without compromising stock or environmental sustainability.

**Stakeholder opinion:** Generally favourable, although some commercial fishing stakeholders questioned whether these measures were within the remit of this FMP.

## Environmental considerations

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

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

Advice provided by Natural England and the Joint Nature Conservation Committee identified 5 key areas of risk to the marine environment associated with Southern North Sea and English Channel skate and ray fisheries. The advice has been developed to provide this FMP with a steer on the primary risks posed by different gear types to MPA features and UK Marine Strategy descriptors, to identify where efforts to understand and mitigate wider environmental impacts of the fishing activities managed by this FMP may be best focused.

However, given the comparative lack of data on the direct impacts of skate and ray fisheries, a suite of new work is required. As a key goal of the FMP, this 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 skate and ray fisheries, and instead provides a high-level risk assessment based on the best available evidence.

## Marine Protected Areas

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 3 key areas of risk, outlined below.

### **High risk of bycatch of marine mammals and seabirds in static nets**

Static nets pose a high bycatch risk to all 3 marine mammal species that are features of MPAs in English waters. They are considered the gear type responsible for the highest level of marine mammal bycatch in UK waters.

To address this issue, it is recommended that further mitigation measures be developed and implemented to reduce the bycatch risk in gillnet fisheries. This is likely to be set out by modifications to gear design, changes in fishing practices, and the establishment of spatial or temporal closures in areas of high bycatch risk. Expansion of the mandatory fitting of active acoustic deterrent devices (ADD) to the small-scale fishery for cetacean bycatch mitigation and trialling new seabird bycatch mitigation options, such as illuminating fishing nets with green light-emitting diodes (LEDs), should be considered.

Currently, mitigation is considered weak for cetaceans and seabirds of the gillnet fishery of which the Southern North Sea and Channel skates and rays' fishery is a component<sup>19</sup>.

### **High risk of seabird bycatch in longlines**

The incidental capture of non-target species, particularly seabirds, constitutes a prominently reported threat to biodiversity within longline fisheries. Seabird bycatch

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<sup>19</sup> French *et al.*, 2022.

mitigation options for longlines should be considered, such as the addition of weights to longlines and the use of streamer lines which have been demonstrated to reduce bycatch by as much as 76% and 99% respectively<sup>20</sup>. Data limitations regarding the inshore region, where bycatch rates may be elevated due to closer proximity to seabird breeding colonies, need to be addressed.

Overall, short-term improvements to achieve greater certainty in bycatch estimates would result from a more systematic approach to data collection, particularly in inshore fisheries. This approach would also generate a better understanding of the temporal and spatial patterns of bycatch estimates, and demographic information about which individuals are caught as bycatch. This information could then be used to highlight species and areas most at risk and enable possible pilot areas for more focused development of mitigation trials and monitoring to be identified with stakeholders. Additionally, a risk-based prioritisation of remote electronic monitoring (REM)<sup>21</sup> could prioritise seabirds for a set number of years to improve data collection.

## **Moderate risk of bycatch of mobile species that are designated features of MPAs in demersal trawls**

While these gears are associated with occasional bycatch of designated seabirds and marine mammals, results from the bycatch monitoring programme<sup>22</sup> suggest that risks are much lower for pelagic gears than for static nets. However, due to the episodic nature of bycatch incidences and the relatively low sampling efforts, risk will vary greatly over space and time. Strategic actions to improve the evidence base and implement appropriate mitigation is required. Demersal gears also have the potential to result in the unintentional catch of a range of fish species. Some of these may be species that are mobile features of MPAs or other protected sites. Based on the limited data available, a bycatch risk was identified for the 2 shad species from demersal towed gears used in the skate and ray fishery.

In the short term, improvements to achieve greater certainty in bycatch estimates would result from a more systematic approach to data collection, particularly large offshore pelagic fisheries. This approach would also generate better understanding of the temporal and spatial patterns of bycatch estimates, and demographic information about which individuals are caught as bycatch. This information could then be used to highlight species and areas most at risk and enable possible pilot

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<sup>20</sup> Melvin *et al.*, 2001; Løkkeborg 2008.

<sup>21</sup> French *et al.*, 2022.

<sup>22</sup> Kingston *et al.*, 2021; Northridge *et al.*, 2020; Bradbury *et al.*, 2017; Trancart *et al.*, 2014; ICES 2014.

areas for more focused development of mitigation trials and monitoring to be identified with stakeholders.

Ongoing work focusing on understanding and mitigating the impact of bycatch on the wider population is being progressed through Defra's marine wildlife bycatch mitigation initiative (BMI) and the [Clean Catch UK programme](#). This work is crucial to help mitigate bycatch risks and evidence gaps identified in this advice, however an action plan to deliver the BMI has not yet been published. Building the evidence base through self-reporting of bycatch events may help support future iterations of this assessment. However, the implementation of REM, prioritised by risk<sup>23</sup> would vastly improve our knowledge of, and ability to mitigate, designated species bycatch.

## 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.

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

A screening exercise found 5 key issues and a rapid assessment of risk has been undertaken against key descriptors of the UK Marine Strategy. The FMP introduces policies aimed at addressing these 5 key issues and sets out goals and subgoals which contribute to improving GES. These are:

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

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<sup>23</sup> French *et al.*, 2022

## **High risk to D1, D4 cetaceans from gillnets**

Based on current evidence, gillnets pose a high risk to the biological diversity of cetaceans. The SNCB advice follows a precautionary stance given the significant data gaps. As further evidence is collected and analysed, the perceived risk may change.

A better understanding of the actual risk posed by the fisheries will require closer examination of the bycatch associated with this activity. Any new management measures should contribute to achieving GES targets for D1 and D4. The following goals have been developed to address the issue of bycatch associated with skate and ray fisheries:

- Deliver effective management of skate and ray fisheries in the Southern North Sea and English Channel
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

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

## **High risk to D1, D4 seabirds from longlines**

Based on current evidence, longlines pose a high risk to the biological diversity of seabirds. The SNCBs advise a precautionary stance given the significant data gaps. As further evidence is collected and analysed, the perceived risk may change.

A better understanding of the actual risk posed by the fisheries will require closer examination of the bycatch associated with this activity. Any new management measures should contribute to achieving GES targets for D1 and D4. The following goals have been developed to address the issue of bycatch associated with skate and ray fisheries:

- Deliver effective management of skate and ray fisheries in the Southern North Sea and English Channel
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

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

## **High risk to D1, D6 seafloor integrity by beam and otter trawling**

Demersal trawls pose a high risk to the integrity of the seafloor. A strategic approach is required covering the geographic scope of the FMP to identify strategies to reduce or eliminate risk posed to the seafloor. There will be a need to understand and frame the trade-offs in limiting benthic impacts against the other Fisheries Act objectives.

The impacts will need to be considered by the FMP management group following publication of the FMP. The following goals have been developed to address the issue of seabed disturbance associated with the skate and ray fisheries:

- Deliver effective management of skate and ray fisheries in the Southern North Sea and English Channel
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

These 2 goals will positively contribute to achieving GES for UK Marine Strategy descriptor 1 (biological diversity) and descriptor 6 (seafloor integrity) in English waters.

## **Moderate risk to D1, D4 cetaceans, D1, D4 seals and D1, D4 seabirds from through bycatch from beam trawls, otter trawls and trammel nets**

Based on current evidence, the SNCB risk assessment has highlighted the following:

- trammel nets and demersal trawls pose a moderate risk to cetaceans owing to the small spatial footprint of the fishery
- there is a moderate risk to the biological diversity of seals from demersal trawls and static nets based on current evidence
- static nets and demersal trawls pose a moderate risk to seabirds owing to the small spatial footprint of the fishery

However, this assessment has the caveat that substantial data gaps exist. The SNCB advice follows a precautionary stance given the significant data gaps. As further evidence is collected and analysed, the perceived risk may change.

A better understanding of the actual risk posed by the fisheries will require closer examination of the bycatch associated with this activity. Any new management measures should contribute to achieving GES targets for D1 and D4. The following goals have been developed to address the issue of bycatch associated with skate and ray fisheries:

- Deliver effective management of skate and ray fisheries in the Southern North Sea and English Channel
- Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing

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

## **Moderate risk to D10 marine litter from beam trawls, otter trawls, trammel nets, gillnets and longlines**

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 in 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 gear loss and achieve sustainable end-of-life disposal. The goal 'Contribute to improving biological and environmental sustainability by understanding and reducing the wider impacts of skate and ray fishing' has actions on understanding the impacts of fishing gear on the marine environment. These will encompass understanding the impact of marine litter through lost gears associated with the skate and ray fisheries. The goal will positively contribute to achieving GES for UK Marine Strategy 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 UK Marine Strategy.

## **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 blue carbon and reducing carbon emissions.

The future of climate impacts in the Southern North Sea and English Channel 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 change, but may be within its remit to support fisheries through national transition to low carbon fishing.

The climate change objective in the 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 for 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 and English Channel.

## 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 deals with the risk of bycatch of unwanted and sensitive marine species which may be caught alongside the targeted FMP species. Currently there is a known evidence gap in relation to bycatch of unwanted and sensitive marine species (elasmobranchs, cetaceans, seals, seabirds) in the fisheries targeting skates and rays. Therefore, deliberate actions have been incorporated into the goals for the FMP which focus on identifying interactions between the FMP stocks and bycatch of sensitive marine species, including undertaking research to identify and address key bycatch issues.

The FMP's key recommendations, given the current lack of data on bycatch associated with skate and ray 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, and to support the national bycatch mitigation programme



# Implementation, monitoring and review

## Implementation

This FMP sets out the roadmap to achieve the long-term sustainable management of FMP species in ICES areas 4b, 4c, 7d and 7e, 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 roadmaps will be subject to regular monitoring and review to ensure progress. The Southern North Sea and Channel skates and rays 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 Southern North Sea and Channel skates and rays fisheries.

## 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 and Channel skates and rays FMP will be monitored.

For some skate and ray 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 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 FMP 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, and will be reviewed over time.

For other skate and ray stocks there is sufficient evidence to determine MSY or a proxy for MSY and to assess the sustainability of the stock. An increase to, or maintenance of the number of stocks fished at sustainable levels will indicate the effectiveness of this FMP 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 FMP for these stocks.

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

- MCRS is considered as a tool to regulate skate and ray landings within English waters of ICES areas 4b, 4c, 7d and 7e
- species-specific MaxCRS has been modelled for future implementation of maximum size-based restrictions, the efficacy of maximum sizes as a management tool is understood for key FMP species
- handling guidelines have been produced for all fishers
- compliance and education guidelines have been produced for all fishers
- a sentinel fishery is in place to inform state of the stock for small-eyed ray in 7e
- evidence has been gathered to support the SCF skates and rays' indicative roadmap for alternative approaches to the current group TAC

## Review

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 Fisheries Act 2020, 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 Fisheries Act 2020 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 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 and review the JFS.

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