



Department  
for Environment  
Food & Rural Affairs

# Proposed fisheries management plan for cockle in English waters

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# Contents

Executive summary .....	6
Introduction .....	13
Context.....	13
Scope of the draft cockle FMP and status of cockle fishery .....	15
Management measures in the main cockle fishery areas.....	21
Goals and actions for cockle fisheries in English waters .....	32
Vision .....	33
Goals.....	33
Actions to achieve the goals.....	33
Management strategy.....	40
Managing and addressing environmental risks .....	42
Implementation, monitoring and review .....	44

## Abbreviations

AIFCA: Association of Inshore Fisheries and Conservation Authorities

Cefas: Centre for Environment, Fisheries and Aquaculture Science

Cockle FMP EG: Cockle Fisheries Management Plan Evidence Group

CPUE: catch per unit effort

Defra: Department for Environment, Food and Rural Affairs

EA: Environment Agency

FMP: fisheries management plan(s)

FSA: Foods Standards Agency

GES: good environmental status

HCR: harvest control rules

ICES: International Council for the Exploration of the Sea

IFCAs: Inshore Fisheries and Conservation Authorities

MCRS: minimum conservation reference size – also known as minimum landing size (MLS)

MMO: Marine Management Organisation

MPAs: Marine Protected Areas

MSY: maximum sustainable yield

NE: Natural England

Nm: nautical miles

NRW: Natural Resources Wales

NQS: non-quota species

SAGB: Shellfish Association of Great Britain

SNCBs: Statutory Nature Conservation Bodies

TCA: UK/EU Trade and Cooperation Agreement

The Act: Fisheries Act 2020

UKMS: UK Marine Strategy

# Executive summary

## Context

Our sea fish and shellfish stocks are an important natural resource. We aim to work with the fishing sector and wider stakeholders to ensure these stocks are harvested sustainably and supported by a healthy marine environment so that they continue to provide benefits into the future. Fisheries contribute to UK food security to ensure the health of the nation and provide socio-economic benefits such as employment and export opportunities.

Fisheries Management Plans (FMPs) are a requirement of the [Fisheries Act 2020](#) ([‘the Act’](#)) and the UK Joint Fisheries Statement (JFS). The draft cockle FMP has been prepared for the purpose of meeting the requirements set out in section 6 of the Act.

The delivery of FMPs is also one of the commitments in the Environmental Improvement Plan 2023 for England. FMPs will assess the status of relevant stocks, and set out policies to restore stocks to, or maintain them at, sustainable levels.

The draft cockle FMP vision is that cockle fisheries in English waters are managed to achieve economic, social and environmental sustainability for the benefit of coastal communities and wider society.

The draft cockle FMP has been prepared in partnership with the Association of Inshore Fisheries Conservation Authorities (AIFCA) in collaboration with the draft cockle FMP Evidence Group (cockle FMP EG) which comprises scientists and managers from the Kent and Essex IFCA (KEIFCA), North Western IFCA (NWIFCA), Southern IFCA (SIFCA) and Eastern IFCA (EIFCA).

Feedback from extensive engagement with stakeholders recognised that existing good management practices should be shared across England. A strong message that emerged was the need for management to be adaptable, flexible and responsive to local stock availability, evidence and industry needs.

Inshore Fisheries Conservation Authorities (IFCAs) have an existing legislative framework at the scale relevant to their cockle fisheries. Therefore, the draft cockle FMP is not proposing management measures within this iteration. The FMP proposes goals and actions that aim to link local cockle management within a national framework facilitating the capacity to address wider policy considerations relevant to all cockle fisheries in English waters. Some of the issues specific to cockle fisheries that we have identified during the drafting of the FMP include issues with national and local data, which have an effect on our capacity to develop socio-economic approaches and to detect emerging inshore and offshore cockle fisheries.

We also need to improve the evidence base to further develop an ecosystem-based approach and better understand private fisheries and their effect on stocks. We propose to test these goals and actions at consultation.

Consultation questions will focus on a framework for emerging fisheries, for example, fisheries that can appear both inshore and offshore. We will ask for evidence on the management and composition of private cockle beds, and we will assess the need for a national cockle forum.

## 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.

The Department of Environment, Food and Rural Affairs (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 cockle?

Cockles have been prioritised for an FMP due to the stock's vulnerability to over-exploitation, the economic value of the fishery (currently estimated at an annual value of £10.3 million), and the environmental benefits that cockle stocks bring to habitat health and wider biodiversity.

Cockle fisheries contribute culturally, socially and economically to coastal communities through employment and recreational fishing interests. Cockle stocks protect marine ecosystems through water filtration. Cockles protect sediments, create habitats, support nationally and internationally important wild bird populations and biodiversity within food webs.

## Current management framework

Cockle fisheries occur predominantly in inshore waters. Within the 0 to 6 nautical mile (nm) zone, cockle fishing is regulated by the IFCAs. There is no national minimum conservation reference size (MCRS) for cockles and different IFCAs have introduced their own MCRSs in response to the specific management needs of local cockle stocks.

Cockles are non-quota stocks, which means that fishing of these stocks is not currently subject to catch limits in offshore waters. However, IFCAs use a range of input controls (measures that restrict the number and size of fishing vessels, the amount of time fishing vessels are allowed to fish, or the product of capacity and usage) and output controls (direct limits on the volume of fish coming out of a fishery). These include catch limits which have been developed in collaboration with the industry over decades and at scales relevant to their fisheries.

The current management framework is varied and, depending on the area and nature of the fishery (aquaculture or wild), it is implemented by byelaws and Several, Regulating (and Hybrid) Orders (SROs). Most of the cockle fisheries occur within Marine Protected Areas (MPAs), Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). Alongside the day-to-day management of the fishery, the IFCAs also have a statutory duty to protect designated MPA, SPA or SAC features such as migrating and overwintering birds. Given that these fisheries primarily occur within MPAs, stock status, fishing opportunities and consideration of wider environmental factors are intrinsically linked in the IFCAs' adaptive management approaches used to manage cockle fisheries. Management approaches are subject to assessment and consultation with Statutory Nature Conservation Bodies (SNCBs) to ensure the IFCAs meet both their stock management requirements and wider environmental obligations.

Stakeholders have noted that a 'one-national-size-fits-all' approach to management is not appropriate for a fishery characterised by local stocks predominantly in inshore waters and harvested with various dredge gears and hand gathering.

Local management is undertaken by the IFCAs within which there are commercially viable cockle fisheries to ensure the long-term sustainability of these important fisheries. In the section 'Goals and actions for cockle fisheries in English waters' the FMP sets out cockle-specific goals and actions that address the need for a national framework to provide clarity about the expectations the government has for the management of cockle fisheries in English waters.

## Evidence

The draft cockle FMP used the available evidence on cockle stocks and cockle fisheries in those IFCAs where commercially viable cockle beds exist. This is to assess the status of the stocks, to identify existing management approaches and set out current policies and actions used to manage the cockle fishery now and in the future.

The draft cockle FMP also presents an opportunity to take a precautionary, proactive and adaptive approach to longer-term management to further support the sustainable management of English cockle fisheries.



Evidence on the status of the main cockle stocks is gathered by the IFCA as part of their annual stock assessments. This evidence feeds into annual adaptive management which has to consider carefully interactions with the wider environment. In these areas with commercially viable cockle beds, the stocks are not data poor and are managed well. Stock abundance varies from year to year due to a variety of factors including high natural mortality, with some areas also subject to atypical mortalities, that is to say unusual mortalities whose cause has not been identified. The status of non-fished and offshore areas is not known.

Evidence for the state of stocks is available for the following IFCA with commercially viable cockle fisheries.

- [Kent and Essex IFCA](#)
- [Eastern IFCA](#)
- [North Western IFCA](#)
- [Southern IFCA](#)

Specific details for these IFCA can be found in the 'Management measures in the main cockle fishery areas' section of this document.

The draft cockle FMP has identified evidence needs associated with each action. These are detailed in the 'Goals and actions for cockle fisheries in English waters' section of this document.

## Wider issues and environmental impacts

All FMPs are subject to legal obligations for environmental protection arising from the [Habitats Regulations 2017](#), [Marine and Coastal Access Act 2009 \(MACAA\)](#), [the Marine Strategy Regulations 2010 \(UKMS\)](#), and the [Environment Act 2021](#). These requirements are in addition to the FMP contributing to the environmental objectives of the Act.

The draft cockle FMP will contribute to commitments to improve our marine ecosystem set out in the and [the UK Marine Strategy Regulations](#).

The draft cockle FMP includes goals and actions that will ensure that the environmental impacts associated with cockle fishing are captured and further understood.

### Environmental risks inside MPA boundaries

The cockle fisheries pose the following main environmental risks of cockle fishing activity inside MPA boundaries:

- abrasion or disturbance of the substrate on the surface of the seabed
- targeted or bycatch of prey of designated features

Assessment of the impact of fishing activity occurring within MPAs in English waters has or will be carried out by the IFCAs or the Marine Management Organisation (MMO). Therefore, appropriate environmental management should either be in place or introduced soon to ensure any fishing within MPAs is compatible with the MPAs' conservation objectives. Current management measures already in place are detailed on the MMO's website and relevant IFCAs' websites. Therefore, assuming that existing assessments and associated management pathways accordingly mitigate risks arising from cockle fishing activity within English MPA boundaries, no additional action is suggested for the FMP within MPA site boundaries. However, in this iteration of the draft cockle FMP we have identified certain evidence needs to further facilitate adaptive management approaches.

## **Environmental risks outside MPA boundaries**

The cockle fisheries pose the following main environmental risks of cockle fishing activity outside MPA boundaries:

- risk of bycatch of mobile species that are designated features of MPAs
- risk to the designated features of MPAs through the removal of a prey species

These risks on the designated features of MPAs arise from fishing activity outside MPA site boundaries that can affect mobile and prey species of MPAs. Both risks are currently considered low in the cockle fishery, based on available evidence.

## **Risks to UK Marine Strategy descriptors**

The risk from cockle fishing activities to achieving good environmental status (GES) has been identified as low.

Where cockle fisheries are considered to have an adverse impact on the marine environment, the draft cockle FMP sets out commitments to taking action to avoid, remedy or mitigate such an impact.

## **Implementation and monitoring**

The proposed actions contained within the draft cockle FMP need to be tested through the consultation process. Once agreed, they will undergo an implementation phase where appropriate mechanisms will be needed to deliver them.

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

## Conclusion

The draft cockle FMP has collated existing management measures and available science and evidence that assess the status of cockle stocks around England to determine an appropriate sustainable level of exploitation. The draft FMP highlights where knowledge and evidence gaps exist to be able to further support sustainable cockle fisheries.

The draft cockle FMP is not proposing management measures within this iteration. IFCAs have an existing legislative framework at the scale relevant to their cockle fisheries. The FMP will test at consultation certain policies and actions to link local management with wider policy considerations that are relevant to all cockle fisheries in English waters. It will also highlight evidence gaps that managers need to address in order to deliver sustainable fisheries.

Responsibility for delivery of the goals set out in the draft FMP will sit across working industry groups, fisheries authorities and governments and is further detailed in the [Joint Fisheries Statement \(JFS\)](#) published in November 2022.

## Structure of the cockle FMP

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

- The ‘Scope of the draft cockle FMP and status of the cockle fishery’ section describes the harvest strategy IFCAs use to assess the stocks and provides a summary of the various commercially viable cockle fisheries
- The ‘Regulatory mechanisms in cockle management’ section explains the types of legislation available to the IFCAs for the purposes of managing cockle fisheries
- The ‘Management goals for the cockle fisheries in English waters’ section sets out the cockle goals and how these correspond to the 8 overarching fisheries objectives in the Act
- The ‘Meeting environmental considerations’ section details how environmental considerations will be addressed
- The ‘Implementing, monitoring and reviewing the FMP’ section – details how we will measure and monitor the effectiveness of the FMP through specific indicators

The draft cockle FMP is designed to be a stand-alone document providing all the necessary information for readers to understand how the English cockle stocks and their associated fisheries will be managed over the coming years. The draft plan summarises relevant information rather than providing all the underlying detail. Defra will continue to collate and make available supporting information that underpins the implementation of the FMP over subsequent years.

For reference, together with the draft cockle FMP, there are 3 documents published for the public consultation in 2024. The information remains available on [Citizen Space](#), Defra’s online consultation tool. These are:

- FMP engagement report by the AIFCA – this supporting information presents a summary of the stakeholder feedback collected during engagement events, meetings and online discussions during 2023 and early 2024, to inform the development of the draft plan
- environmental considerations – this is the environmental report which details the government’s environmental obligations covering FMPs
- SNCB executive summary – this presents a summary of the advice Defra received from Natural England (NE) and the Joint Nature Conservation Committee (JNCC) to support the drafting of the cockle FMP and its environmental report

## Introduction

The draft cockle FMP will manage the cockle fisheries to ensure the long-term sustainability of the cockle stocks. It also aims to deliver social and economic benefits to coastal communities from a productive and profitable fishery, while maintaining public confidence in the management of this important resource.

The draft cockle FMP applies to English waters only.

## Context

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

Fisheries management is carried out by the UK Fisheries Policy Authorities, made up of the Department for Environment, Food and Rural Affairs (Defra), the Welsh Government, the Marine Directorate of the Scottish Government, and the Department of Agriculture, Environment and Rural Affairs (DAERA)

As the cockle FMP only applies to the management of cockle fisheries in English waters, the devolved fisheries administrations have no formal responsibility for the delivery of this plan. However, devolved administrations with identified transboundary considerations specific to cockle fisheries have been consulted in the development of the draft cockle FMP.

The Marine Management Organisation (MMO) in England has designated authority to manage fisheries and carry out enforcement activities in English waters. MMO has the power to make byelaws within 0 nautical miles (nm) to 200nm and leads on management of fishing activities between 6nm to 200nm.

Ten IFCAs have the power, in English waters, to deliver fisheries management within the inshore 0nm to 6nm zone. MMO has the power to make byelaws to manage fishing activity within an IFCA district and quality assures all IFCA byelaws prior to submission to the Secretary of State.

The [Association of Inshore Fisheries and Conservation Authorities \(AIFCA\)](#) aims to represent and support the 10 IFCAs. While it holds no statutory functions relevant to fisheries management, the AIFCA has led on the development of the cockle FMP in collaboration with the IFCAs and wider stakeholders.

The 2018 [Fisheries White Paper: Sustainable fisheries for future generations](#) set a clear ambition for sustainable stewardship and management of UK fisheries that committed to deliver “a more competitive, profitable and sustainable fishing industry

across the whole of the UK, setting a gold standard for sustainable fishing around the world”.

The JFS, published in November 2022, sets out further details of the policies the UK fisheries authorities will follow to achieve or contribute to achieving the 8 fisheries 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, the cockle FMP also supports the implementation of wider commitments to protecting the marine environment, restoring biodiversity, and addressing climate change. In particular, the [Environmental Improvement Plan 2023](#) for England restated the commitment to deliver FMPs, setting out for the first time how we will increase sustainability on a stock or fisheries basis. Each FMP also supports commitments under the UK Marine Policy Statement, the UKMS, the marine wildlife bycatch mitigation initiative, and the Climate Change Act 2008.

A detailed description of the requirements of the Act and wider environmental obligations and commitments, and how these are met in this plan, are set out in the environmental report supporting document published on Defra’s Citizen Space.

The issue of increasing spatial pressures and the challenges this can pose to fisheries need to be considered, including any social, economic and environmental implications resulting from possible displacement. The government has established a [marine spatial prioritisation programme](#) to help support a more strategic approach to managing future pressures in English seas. The programme will engage with stakeholders and evaluate existing and emerging evidence to understand future demands and determine the best way of managing them. Outputs from the programme will inform the implementation phase and subsequent reviews of the FMP, as well as our future approach to marine planning.

The draft cockle FMP was developed by the AIFCA in collaboration with the cockle FMP EG on behalf of Defra. The cockle FMP EG brought together scientists and managers from the regions with significant fisheries to aid the drafting of objectives which were then consulted on with industry and wider stakeholders. The AIFCA undertook extensive stakeholder engagement and developed a dedicated website to support further engagement with the wider sector and interested bodies.

As part of the draft FMP development process, the AIFCA delivered a series of informal stakeholder engagement events during 2023 and early 2024. Feedback from these events was used by the AIFCA and the draft cockle FMP EG to inform the content presented in the draft plan for the purposes of the public consultation. Further details on roles and responsibilities and the process used to develop the draft plan are set out in the FMP engagement report available through Citizen Space.

# Scope of the draft cockle FMP and status of cockle fishery

## Species

The draft cockle FMP applies to the common cockle (*Cerastoderma edule*). Cockles are edible marine bivalve molluscs growing up to 50 millimetres (mm) in length with an average lifespan of 5 to 10 years.

Cockles are filter feeders that bury themselves in the top few centimetres of sediments. As such, they are easily dislodged by storms and can be washed away during winter gales. The cockle fishery therefore has a short-lived nature which does not always provide a consistent supply to meet market demands.

Cockles provide an important food source for a range of wildlife species such as the oystercatcher, the shore crab and flatfish.

The above species information comes from [The Wildlife Trust's cockles page](#), and the [Marine Life Information Network's cockles page](#).

## Scope of the FMP

The draft cockle FMP applies to all cockle fishing activity in English waters. This includes activity from other UK, EU, and other coastal state vessels in English waters. Any measures adopted in accordance with the plan must be consistent with the requirements of the [Trade and Cooperation Agreement between the EU and the UK \(the TCA\)](#). This includes in particular Article 496<sup>1</sup>, and any relevant decisions made via the Specialised Committee for Fisheries (SCF), such as the adoption of any multi-year strategies (MYSTs) for shared non-quota stocks.

Cockle fishing typically occurs within the 6 nautical mile zone from the coast, also referred to in the FMP as inshore waters. Management of inshore waters falls under the jurisdiction of the IFCAs. There are 10 IFCAs in England. Although autonomous, all IFCAs have a shared 'vision' to "lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry".

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<sup>1</sup> Article 496 of the TCA requires that fisheries management interventions are evidenced-based, are proportionate and are non-discriminatory to either party.

The IFCAs have shared powers and duties which are found in the [Marine and Coastal Access Act 2009 \(MACAA\)](#) and are represented and supported by the AIFCA.

More information on the role of the AIFCA can be found on the [Association of Inshore Fisheries and Conservation Authorities website](#).

## Overview of the fishery

Cockles are widely distributed around the UK. In English waters fishing grounds are typically located within the 6nm zone from the coast. The most commercially viable cockle fisheries are found within MPAs. There is no data on recreational cockle catches, but activity is known to exist. Examples of approaches to the recreational gathering of intertidal species, not just cockles, include bag limits and voluntary codes of conduct.

There is some anecdotal information of cockle fishing activities in offshore waters. However, we currently do not have sufficient information to understand how limited or extensive these offshore fishing activities are. The draft cockle FMP will explore this further through the consultation process.

Fleet characteristics are diverse, reflecting the regional differences in harvesting techniques and management frameworks. Vessel sizes range from vessels under 8 metre (m) vessels to larger vessels in the range of 12m to 17.99m. Fishing is almost exclusively done with variations of dredging gears such as suction (hydraulic) dredging, pump scoop, prop washing, box dredges, or by hand-gathering techniques. Due to the local variation in vessel sizes and gathering techniques, confidence in cockle information held in national data sets is considered low. The disparity between national and regional records of landings is identified as an evidence need in this FMP.

Recognising the evolution of cockle management, as well as changes in harvesting methods and market drivers over time, a reference period of 2016 to 2022 is presented within this FMP. Landings data reported within this FMP consist of data provided by the IFCAs. Landings values are based on an estimate of £900 per tonne, however it is understood that this value can vary greatly.

The most significant commercial cockle fisheries in English waters are found in the following IFCA districts:

- Kent and Essex IFCA
- Eastern IFCA
- North Western IFCA
- Southern IFCA



These IFCA collect cockle specific fishing activity data as a condition of permit or order licensing schemes. Their combined average annual landings between 2016 and 2022 were 11,468 tonnes with an estimated value of £10.3 million. Regional descriptions of landings trends are discussed in the 'Management measures in the main cockle fishery areas' section of this document. There is currently a modest domestic market for cockles. Export markets are significant but exact data for cockles such as export value is aggregated with data from other species.

The remaining 6 IFCA report no significant fishery in Northumberland, North Eastern, Sussex, Devon and Severn, Cornwall, and Isles of Scilly IFCA. However, due to the widespread distribution of cockles around the English coast some of these IFCA have regulations in place relevant to the draft cockle FMP.

## Regulatory mechanisms in cockle management

There are no consistent national management approaches for cockles in England. Different IFCA implement different assessment methods for the stocks and use different management approaches depending on the needs of the stocks and their immediate marine environment. Such bespoke, local approaches have created a varied legislative landscape. A summary of the various IFCA regulatory mechanisms used in the management of the cockle fishery to date is provided below. Further details can be found at relevant IFCA webpages accessible through the [AIFCA website](#).

### Several, Regulating (and Hybrid) Orders

There is special legislation derived from [Chapter 83 of the amended Sea Fisheries \(Shellfish\) Act 1967](#) to encourage the establishment and management of private and natural shellfisheries in UK seas or tidal waters through what are known as Several, Regulating (and Hybrid) Orders (SROs). Under this legislation, SROs may grant exclusive fishing or management rights over one or more named species of shellfish within a designated area of UK coastal waters and over a specified period. SROs can be made for up to 60 years; however 10 to 20 years is more common for the former, with 20 to 30 years for the latter.

Prior to the introduction of the MACAA, SROs were sometimes established to facilitate the management of inshore shellfish fisheries, including cockles, by the Sea Fisheries Committees and other regulatory authorities with appropriate jurisdiction. The establishment of the IFCA under the MACAA including their byelaw making powers have reduced the necessity of using this regulatory mechanism, with more flexible byelaws often being implemented instead. Cockles, while listed as a species subject to management under an SRO, may not be actively fished or their status assessed within an SRO area.

## **IFCA byelaws**

IFCAs were created under the MACCA with the responsibility to ensure the inshore exploitation of sea fisheries resources is undertaken sustainably while balancing socio-economic benefits with the need to protect the marine environment. The IFCAs have duties and powers to introduce byelaws under MACAA (s.155) for the management of fishing activities in their district.

In addition to the powers in MACAA 2009 relating to Marine Conservation Zones (MCZs), as detailed in Part 6, section 153 (1 and 2) and section 154 (1) of MACAA, IFCAs are also a competent authority for the management of fishing activities within the inshore 0nm to 6nm zone with regard to other relevant MPA legislation. As such, IFCAs must take the necessary steps to ensure that the conservation objectives of MPAs are furthered. This is of particular relevance to the cockle FMP as cockle fisheries typically occur within MPA boundaries.

A diverse and often complex range of approaches has been used by IFCAs to manage fishing activities both outside and within MPAs. Management measures may focus on an individual or group of species, a particular gear type or harvesting method, or a specific area due to the sensitivity of the habitats present in English inshore waters.

While some byelaws are in place for the direct management of cockle stocks, others may contribute indirectly to their sustainability or provide mechanisms for managers to implement adaptive approaches based on the best available evidence. Common examples of byelaws introduced to manage bivalve fisheries or their potential impacts include:

- regulation or protection of shellfish beds
- introduction or re-deposit of shellfish
- regulation of or area closures for specific gears or gathering activities used to harvest cockles in other regions (particularly dredges and hand-gathering tools)
- vessel size and engine power restrictions
- catch reporting requirements

Voluntary agreements including codes of practice or conduct are non-regulatory options also available to the fishing sector. Such approaches incentivise best practice and stimulate innovation ensuring businesses take actions that meet environmental objectives and bring commercial gains.

## Harvest and assessment methodology

There are no geographically defined stock unit areas for cockles. While there is some anecdotal evidence of cockle beds occurring outside the 6nm zone boundary, all current fisheries target inshore stocks. These stocks are found within IFCA jurisdictions and predominantly within MPAs.

We are not seeking to establish maximum sustainable yield (MSY) for cockle stocks. Assessing cockle stocks through MSY is not considered suitable due to the very high natural mortality, extremely variable recruitment, and the spatial characteristics of cockle populations. The IFCA's with cockle fisheries have developed MSY

y approaches, such as the rule of thirds (which aims to allow one-third of the biomass for harvesting, one-third as food for birds and other marine species, while retaining one-third to restock the cockle population) or catch per unit effort (CPUE), to ensure stock sustainability. The approaches take into account interactions with co-located bivalve fisheries and ensure management is consistent with environmental obligations – particularly in relation to migratory, overwintering birds which rely on cockles for food. For these main fisheries using MSY proxies, sufficient evidence is available to assess stock status.

Evidence on the status of the main cockle stocks is gathered by the IFCA's as part of their annual stock assessments. This evidence feeds into annual adaptive management which carefully considers interactions with the wider environment. In these areas with commercially viable cockle beds, the stocks are not data poor and are managed well. The health of the stocks varies from year to year because of natural variability in the stock populations and in some areas, atypical mortality. In addition, the status of non-fished and offshore areas with cockle beds is not known.

Assessing stock sustainability through MSY typically relies on assessment of current stock status and projections of future stock trends under various fishing pressures, based on certain underlying assumptions of species ecology. Standard yield per recruit analysis and short-term forward projections are not considered suitable for cockles due to natural mortality levels that can be as high or higher than fishing mortality, extremely variable recruitment, and the spatial characteristics of cockle populations<sup>2</sup>.

Because of the issues with standard assessment methodology mentioned above, management has evolved regionally in response to local stock dynamics, wider ecological requirements, and the needs of local industry. As noted above, all of the major fisheries operate within MPAs. In applying the ecosystem approach and to ensure that management is consistent with the requirements of environmental

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<sup>2</sup> Dare, P.J., Bell, M.C., Walker, P. and Bannister, R.C.A., 2004. '[Historical and current status of cockle and mussel stocks in the Wash](#)'. Cefas Lowestoft.

legislation, the IFCAs undertake assessments of the wider ecological needs and impacts of these fisheries. These assessments are reviewed, and site-specific advice is provided by NE. A factor which strongly influences the sustainable management of the major cockle fisheries are impacts on designated bird species which prey on cockles as a food source. Models of how much biomass of cockles is required by birds as food are available for some, but not all, fishery areas and in the absence of this evidence a precautionary approach must be taken.

The need to provide sufficient biomass to meet bird prey requirements has influenced UK research and management for cockle fisheries over decades. A well-established sustainability proxy for intertidal stocks which takes these wider ecological needs into consideration is the one-third rule. The rule aims to allow one third of the biomass for harvesting, one-third as food for birds and other marine species, while retaining one third to restock the cockle population. The theoretical basis for this figure, whereby harvests at this level would not be expected to increase overall cockle mortality beyond background levels, was developed based on evidence from the Burry Inlet hand-raking fishery in Wales<sup>3</sup>, and further developed for cockle fisheries in England. By constraining fishing pressure and ensuring that in each year at least two-thirds of the stock is not harvested, management ensures that the productivity of the stock is maintained. As the stocks have different needs from area to area, this rule does not have to be applied to all cockle fisheries. However, if used it should be regarded as the upper limit (proxy F-lim) for sustainable exploitation and not a target<sup>4</sup>.

To manage the cockle stocks successfully, IFCAs undertake annual surveys of individual beds within management areas to determine stock biomass and recruitment levels on which to base decisions. The distribution and density of cockles inform estimates of population size which can then be compared with previous years data to inform and assess the management strategy. Details of the harvest strategies used by the IFCAs within the 'Management measures in the main cockle fishery areas' section of this document.

The high natural variability in cockle populations can result in beds that last for a very short period of time. Through consultation, industry stakeholders have stressed the need for management to be flexible, adaptable and responsive to local conditions and developing fishing opportunities. These needs must be balanced to ensure both the productivity of the stocks and the wider ecological considerations.

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<sup>3</sup> Bell, M.C., Bannister, R.C.A., Walker, P, Atkinson, P.W. and Clark, N.A., 2001. Fisheries and bird predation as components of cockle mortality in the Burry Inlet, south Wales. ICES CM 2001/J:02

<sup>4</sup> Bannister, R.C.A. and Bell, M.C., 2023. Thames cockle dredge fishery: Scientific peer review of the stock assessment. SAGB commissioned report.

Management for many of the fisheries has developed over decades in consultation with industry through the IFCA framework, with additional harvest control rules applied to further support sustainable harvesting. There is no agreed assessment framework for cockle fisheries in England, although a number of regional industry groups seek Marine Stewardship Council (MSC) certification at a cost for market reasons. The MSC certification process assesses fisheries on 3 principles: sustainability of the stocks, ecosystem impacts and management effectiveness. See details of the [MSC fisheries standards](#).

The Marine Conservation Society (MCS) also produces a Good Fish Guide which rates fishery sustainability based on stock status, management and capture method. See details of [how the Marine Conservation Society ratings system works](#).

## Management measures in the main cockle fishery areas

In this section we present detailed but important information on the management and status of the 4 main commercial cockle fisheries in English inshore waters. This is to allow us to understand the diversity of management approaches used in these IFCAs to achieve sustainable fisheries.

# Kent and Essex IFCA

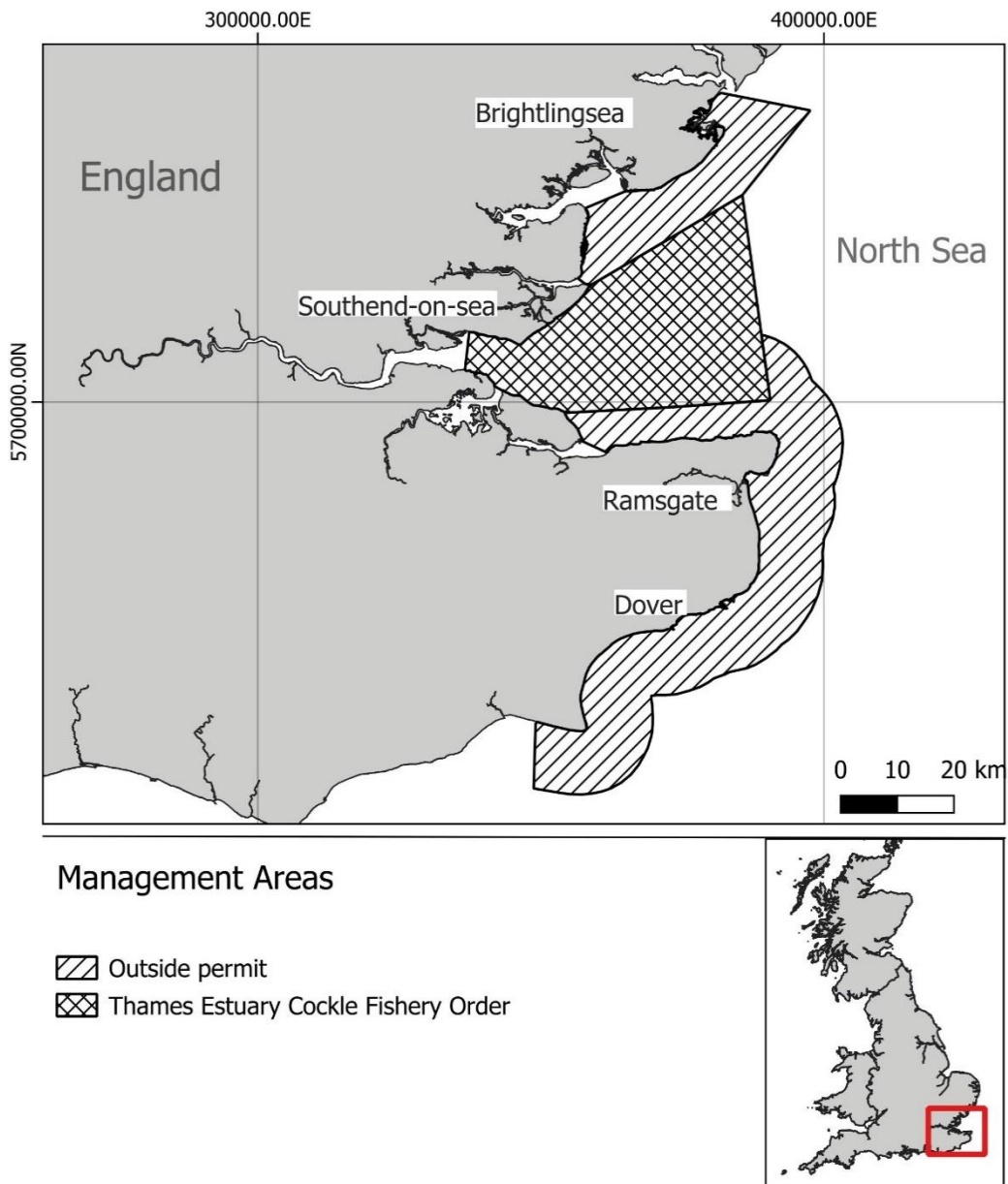


Figure 1: area of cockle management in the Kent and Essex IFCA district (contains OS data © Crown copyright and database right 2024. Office for National Statistics licensed under the Open Government Licence)

Figure 1 is a map of the south-east coast of England. The ports of Brightlingsea, Southend-on-Sea, Ramsgate and Dover are marked. The map shows the two main cockle management areas in the Kent and Essex IFCA district: the Thames Estuary Cockle Fishery Order, spanning the main extent of the Thames Estuary, and the permit management scheme covering the remainder of the district.

The main cockle fishery in the KEIFCA district is managed under a regulating order, the Thames Estuary Cockle Fishery Order 1994 (TECFO), which will expire in 2024. A replacement regulation is in the final stages of development to ensure fishery continuity. Outside of the TECFO area, cockle harvesting is managed in the district through the Cockle Fishery Flexible Permit Byelaw.

Harvesting methods have evolved over decades and suction dredges are the primary capture method today. An MCRS of 16mm is enforced either explicitly, as in the permit byelaw, or through gear restrictions in the TECFO fishery. A maximum vessel size of 14m length and 5m width applies to both regulations. Fourteen licences are issued annually for the TECFO fishery, among vessels with lengths ranging from over 10m up to the limit of 14m, however most vessels are within the 12m to 14m range. The number of vessels in the permit fishery varies by year depending on the number of applicants with permits issued under the conditions contained within the flexible byelaw. The length of vessels typically used in the permit fishery are primarily in the 12m to 14m range with a smaller number in the 10m to 12m range, although a small number of permits have been issued to under 10m vessels in the past.

Average annual landings for the TECFO were 5,944 tonnes with an estimated value of £5.3 million. Landings for the smaller permit fishery were less than 300 tonnes between 2017 and 2019, with no landings in 2016, or between 2020 and 2022 due to the fishery being closed to protect stocks.

An annual total allowable catch (TAC) is determined based on the rule of thirds. Reference points have been determined for the stock with harvest control rules applied when catch rates fall below 1 tonne of cockles per hour (equivalent to a density of 45 cockles per m<sup>2</sup>). The overall abundance and spatial distribution of the stock, annual recruitment and fishery removals are carefully monitored. While stock size has fluctuated over time, the largest fluctuations are understood to be associated with variations in recruitment. The fishery is subject to an annual MPA assessment.

### **Supporting evidence**

[Kent and Essex IFCA's online repository of annual stock reports.](#)

The TECFO fishery is currently certified by the MSC. See details of [Kent and Essex IFCA's MSC certification](#). The MCS currently rates cockles from the TECFO fishery as a good choice. See details of Kent and Essex IFCA's MCS rating [here](#).

## Eastern IFCA

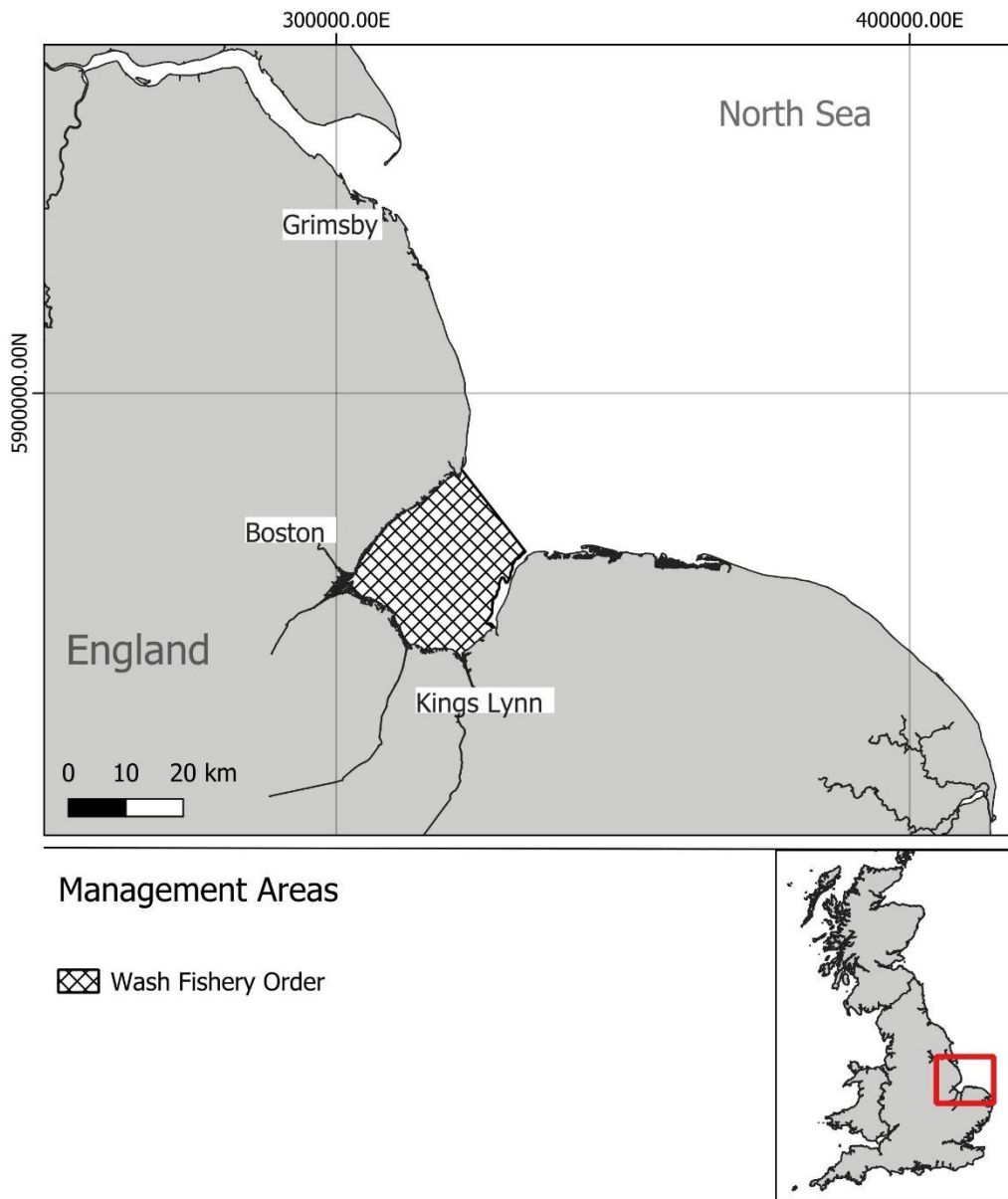


Figure 2: area of cockle management in the Eastern IFCA district (contains OS data © Crown copyright and database right 2024. Office for National Statistics licensed under the Open Government Licence)

Figure 2 is a map of the east coast of England. The ports of Grimsby, Boston, and King's Lynn are marked. The map shows the area of the Wash Fishery Order within the Eastern IFCA district.

Cockle fisheries in the EIFCA district are found within the Wash and were managed under a hybrid order, the Wash Fishery Order 1992 (WFO), which expired in January 2023. Transitional arrangements are in place through a legacy byelaw which enables



continuation of fishing associated with existing active licences and lay holders. The legacy byelaw will continue to be in place while regulations to replace the WFO are developed. The transitional arrangements include a temporary closure of a restricted area under Byelaw 8: Temporary Closure of Shellfish Fisheries. A replacement regulation is in the final stages of development to ensure fishery continuity.

There are a limited number of lays leased (leases for the purposes of private shellfish cultivation). These are allocated on the basis that there is no natural settlement of shellfish in these areas to prevent impact on the public fishery. The WFO manages fishing for mussels as well as cockles. Mussels are not included in the scope of this FMP. A WFO licence is required to fish for cockles in the Wash, and licences are issued to individuals with an entitlement. There are currently 61 entitlements.

Harvesting methods in the Wash have also evolved over time. The fishery is predominantly a hand-gathered fishery. However, fishermen now use a technique known as 'prop-washing' to facilitate harvesting. This technique uses a vessel's propeller to manoeuvre it in circles clearing the sand underneath it and pushing cockles into heaps to be harvested by hand at low water. This method has developed as an alternative to historic methods due to seabed disturbance issues. Vessel sizes range from under 10m to over 14m, but each is subject to the same daily quota. Vessels over 14m can only be used subject to derogation based on historic use.

Average annual landings for the WFO between 2016 and 2022 were 4,582 tonnes with an approximate annual value of £4.1 million. A declining trend in landings since 2016 has stabilised and landings between 2019 and 2022 range from 3,661 tonnes to 3,421 tonnes.

An annual TAC is determined based on the rule of thirds with minimum threshold values applied relating to total cockle stock and spawning stock biomass. Minimum shellfish biomass thresholds are also applied to support the overwintering bird populations. The overall abundance and spatial distribution of the stock, annual recruitment and fishery removals are carefully monitored. The fishery is subject to an annual MPA assessment.

Natural mortalities among the Wash cockle stocks are frequently high. Overcrowding in high-density patches can cause high levels of localised mortality known as 'ridging out'. Since 2008 the cockles in the Wash have also suffered high levels of 'atypical mortality', a phenomenon that causes widespread die-offs among cockles that have attained spawning size. Frequently, the combination of ridging out and atypical mortality results in natural mortalities that greatly exceed the mortality associated with fishing activities. Further evidence into the potential causes of the atypical mortality observed within the Wash is currently underway.

## Supporting evidence

The Wash cockle fishery was most recently considered at the 52<sup>nd</sup> EIFCA meeting in June 2023. You can view [supporting documents from the 52nd Eastern IFCA meeting](#) including the most recent stock survey report, as well as [stock assessments published by Eastern IFCA](#).

The MCS currently rates cockles from the TECFO fishery as an OK choice. See details of [Eastern IFCA's MCS rating](#).

## North Western IFCA

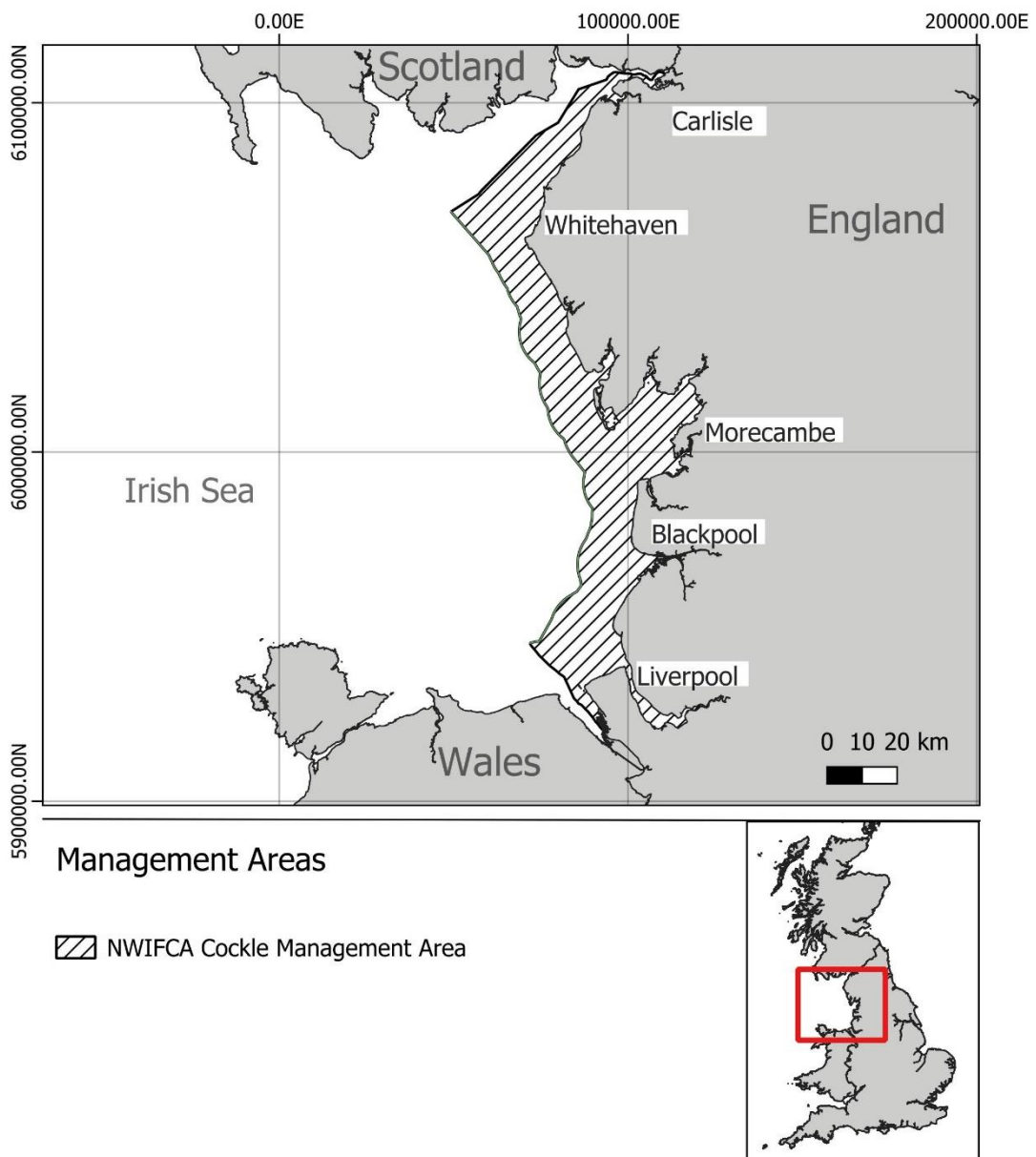


Figure 3: area of cockle management in the North Western IFCA district (contains OS data © Crown copyright and database right 2024. Office for National Statistics licensed under the Open Government Licence)

Figure 3 is a map of the north-west coast of England. The ports of Whitehaven, Carlisle, Morecambe, Blackpool and Liverpool are marked. The map shows the cockle management area in the North Western IFCA district.

The cockle fishery in the NWIFCA district is entirely a hand-gathered fishery that does not use vessels. Cockles and mussels are managed through a flexible permit byelaw, Byelaw 3 Cockle and Mussel Hand Fishing Permit 2019. Mussels are not included in the scope of this FMP. Under this byelaw, a maximum of 150 permits are issued annually. An MCRS is enforced through the use of a square gauge having an opening measuring 20mm.

Landings data are collected by NWIFCA for Morecambe Bay, Wirral, Ribble and Solway Firth fisheries. Annual fishery independent stock assessment surveys are undertaken at a higher resolution, at individual bed level, to inform management decisions. Morecambe Bay is the largest fishery area by landings, although all fishery areas report zero landing years between 2016 and 2022 due to fishery closures.

The fishery in Morecambe Bay was closed during 2016 and 2017. Between 2018 and 2022 landings have been highly variable ranging from 1,727 tonnes to 112 tonnes. Over the same reference period, landings for the Wirral only occurred in 2 years, 866 tonnes in 2018 and 174 tonnes in 2020. Likewise, in the Ribble, landings of 124 tonnes were reported in 2019 and 373 tonnes in 2022. No cockles were taken from the Solway Firth fishery between 2016 and 2022.

The overall abundance and spatial distribution of the stock, annual recruitment and fishery removals are carefully monitored. Decisions to open cockle beds are determined by the NWIFCA Technical Science and Byelaw Committee including input from local industry members. A flexible byelaw has been in place since September 2022 to manage cockle harvesting and includes gear restrictions and a general closed season over the summer spawning period. The byelaw also allows the IFCA to use spatial and temporal restrictions and to implement total catches limits.

While the IFCA has adopted a set of principles for sustainable fisheries adopted from those developed by the MSC, there is no published management strategy or plan which outlines how the cockle fishery will be managed. There are no reference points or threshold values linked to harvest control rules and cockle fisheries have

not historically been subject to a TAC. It is noted that the current 2023 to 2024 Southport (Ribble) cockle fishery is subject to a TAC based on the rule of thirds.

The fishery in Morecambe Bay is subject to an annual MPA assessment. The IFCA has worked closely with regional NE to ensure fishery assessments address wider ecological considerations. However significant evidence gaps surrounding the food requirements for bivalve-eating birds have resulted in precautionary approaches being implemented including keeping beds closed. There is also uncertainty surrounding the sources of spawning stocks within the district, with consistently low biomass levels of spat recorded compared to recruit stocks. These evidence needs require further investigation.

### **Supporting evidence**

See [North Western IFCA's most recent stock survey information](#).

### **Dee Estuary Cockle Fishery Order 2008 (Several)**

The Dee Estuary cockle fishery is a hand-gathered fishery located in the river Dee estuary between Flintshire in north-east Wales and the Wirral Peninsula in north-west England. Within the estuary there are currently 9 cockle beds namely West Kirby, Thurstaston, Mostyn, Mostyn Deep, Talacre, Caldy, No.3 Buoy, Salisbury Middle and Salisbury. These beds vary spatially according to spatfall, exploitation, sediment changes and other external factors and as such, it is possible their size and the extent of the fishery may change in the future.

The management of the cockle fishery in the Dee Estuary is carried out according to provisions laid out in the [Dee Estuary Cockle Fishery Order \(2008\)](#).

Management responsibility was originally shared between the Environment Agency Wales and the Environment Agency England (EA). On 1 April 2013, Natural Resources Wales (NRW) was formed from a merger of the [Countryside Council for Wales](#), [Environment Agency Wales](#), and the [Forestry Commission Wales](#).

Since 2013, NRW and EA have retained joint responsibility, as 2 separate grantees, for the management of the Dee cockle fishery, in accordance with the Dee Estuary Cockle Fishery Order 2008 ('the Dee Order'). NRW became the grantee in relation to that area of the cockle fishery located in Wales, with EA the grantee for that area of the cockle fishery located in England. As joint grantees under the Dee Order, NRW and EA have powers to regulate the fishery until 30 June 2028. To ensure continuity of the management and regulation across the fishery, NRW and EA have agreed NRW take the lead on the day-to-day management and regulation for the whole of the cockle fishery in the river Dee.

The part of the fishery that is in English waters is found within the jurisdictional boundaries of the North Western Inshore Fisheries Conservation Authority (NWIFCA). Natural Resources Wales, Welsh Government and NWIFCA will work together to agree a management approach for the Dee Estuary cockle fishery after the Dee Order expires in 2028.

## Southern IFCA

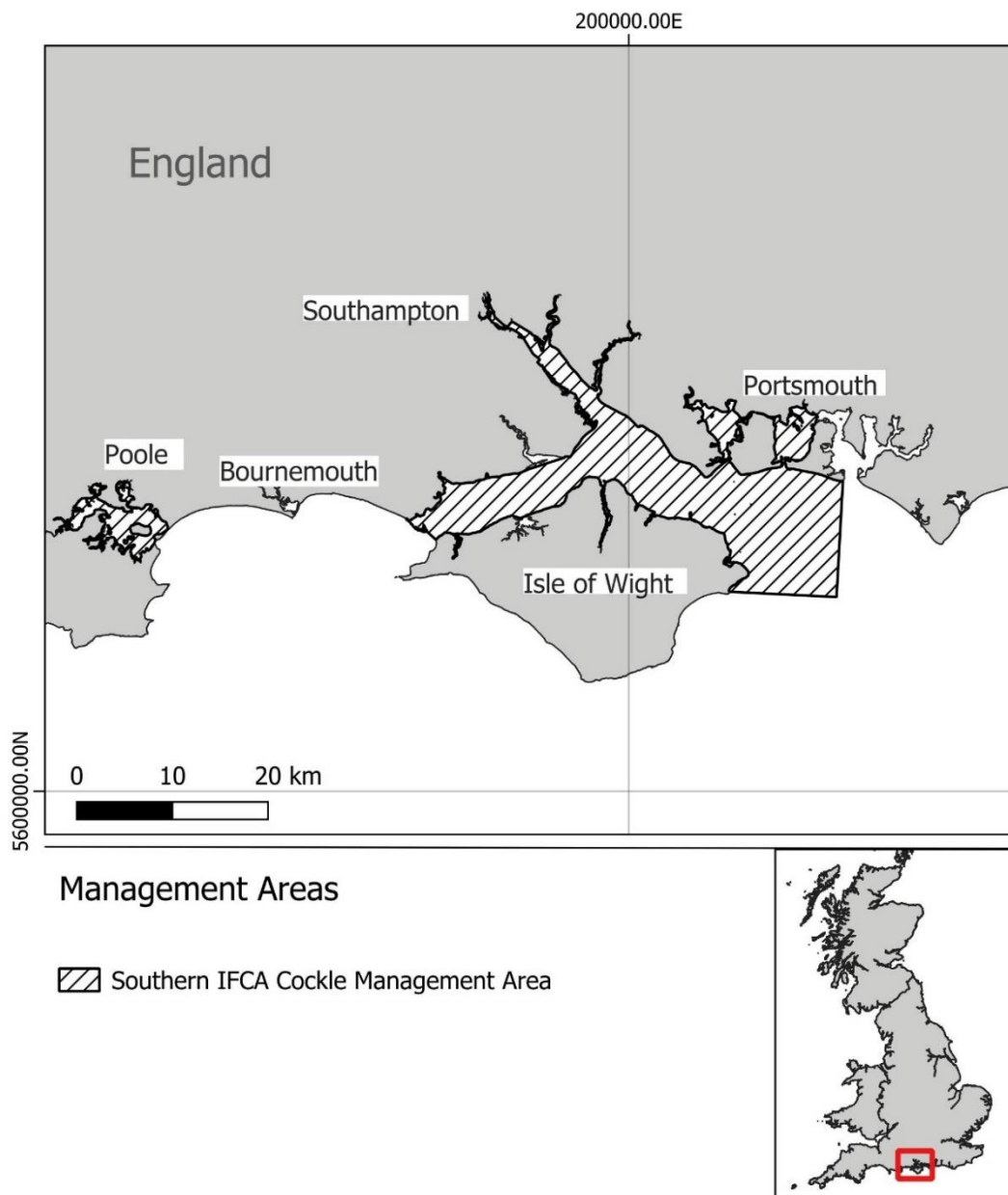


Figure 4: area of cockle management in the Southern IFCA district (contains OS data © Crown copyright and database right 2024. Office for National Statistics licensed under the Open Government Licence)

Figure 4 is a map of the central portion of the south coast of England. The ports of Poole, Bournemouth, Southampton and Portsmouth, as well as the Isle of Wight, are marked. The map shows the cockle management area in the Southern IFCA district.

The main fishing area for cockles within the SIFCA district is located within Poole Harbour. The fishery is managed under the Poole Harbour Dredge Byelaw, with 45 permits issued annually. All vessels are small, open vessels under 9m in length using pump-scoop dredges.

Average annual landings for the Poole Harbour permit fishery were 35 tonnes, ranging from 11 tonnes to 80 tonnes over the reference period 2016 to 2022 mentioned above. It should be noted that Manila clams represent a far larger proportion by weight within the Poole Harbour fishery, averaging over 300 tonnes per year. Manila clams are not included in the scope of this FMP.

The Poole Harbour fishery has been surveyed annually since 2016. Both size (length) and CPUE data is collected for cockles and Manila clams using a pump-scoop dredge consistent with normal fishing practices in the area. CPUE is calculated as weight of shellfish (kg) per metre of dredge per hour and compared to previous years. There is an ambition to develop empirical reference points based on the developing timeseries of data within this fishery.

Aquaculture is also undertaken within Poole Harbour and is managed under a several order, the Poole Harbour Fishery Order 2015 ('the Poole Order'), which will expire in 2035. Aquaculture within the harbour is currently focused on Pacific oysters and mussels. Native oysters, clam species and cockles have been farmed and cultivated in the past. The Poole Order provides flexibility in the management of potential future aquaculture of shellfish species within the harbour.

General fishing for cockles in the SIFCA district is controlled through the Fishing for Cockles Byelaw. This byelaw includes a closed season, harvesting method and gear restrictions for dredge fishing or hand working, and an MCRS through the use of a square gauge with an opening measuring 23.8mm.

Bivalve fisheries in the Solent and adjacent waters are managed through a suite of byelaws including the Solent Dredge Permit Byelaw. Target species including cockles have varied throughout the year and the fleet has adapted to new and emerging opportunities based on the available fisheries. The modern fishery primarily targets the Manila clam due to its abundance and high sale price using a box dredge. Fishery-dependent stock surveys have been undertaken since 2017 on chartered industry vessels using a box dredge consistent with normal fishing practices in the area. Analysis has focused on the Manila clam as the primary focus

of the fishery, but cockles may be targeted in the future. No cockle landings have been reported since the introduction of the permit byelaw in late 2021.

### **Supporting evidence**

See details of the [Poole Harbour clam and cockle fishery](#) including fishery monitoring and stock assessments.

The Poole Harbour clam and cockle fishery is currently certified by the Marine Stewardship Council (MSC). See details of the [Poole Harbour clam and cockle fishery's MSC certification](#).

See details of the [Solent dredge fishery](#) including fishery monitoring and stock assessments.

## **Wider policy considerations**

### **Shellfish health sampling requirements**

There is a current regulatory requirement to monitor classified shellfish production areas to check for microbiological contamination, marine biotoxins, harmful algae and chemical contaminants. In England, the Food Standard Agency (FSA) is the Central Competent Authority (CCA) with overall responsibility for the implementation and delivery of the shellfish official control monitoring programmes.

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) is the contracted laboratory with responsibility for the coordination of the toxin and chemical contaminants monitoring programme and the delivery of all associated shellfish and water testing (where relevant). Local Enforcement Authorities (LEAs)<sup>5</sup>, the Competent Authorities (CAs), are responsible for collecting shellfish (and water) samples from the designated representative monitoring points in harvesting areas.

For details of the shellfish classification and microbiological monitoring programme, visit:

- [Cefas's page on shellfish classification and microbiological monitoring programme](#)
- the [FSA's page on shellfish classification and microbiological monitoring programme](#)

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<sup>5</sup> [Cefas's FSA shellfish sampling and transport protocol - Version 4 - July 22](#)

## Private fisheries

These are areas of the sea, owned by private individuals with rights to the resources within them. Such areas are more difficult for public authorities to manage.

Cockles are harvested from wild shellfisheries, where populations occur naturally. Private shellfisheries established to produce commercially valuable species such as oysters, mussels and clams also contain wild populations of cockles within their grounds. Such cockle stocks may be harvested and landed at the same time as farmed shellfish.

Such stocks contribute to the wider stock abundance within inshore waters and beyond. It is important that the government understands the health of wild cockle populations within private fisheries to inform wider management.

Information on private cockle fisheries is currently limited. There is a need to understand better how many private fisheries exist as well as their impact on stock levels and stock sustainability. We assume that private fisheries also contribute to local economies, but we do not currently have any data.

The draft cockle FMP will explore this issue further through the consultation process.

## Goals and actions for cockle fisheries in English waters

This section proposes 3 overarching goals and 5 actions for the first iteration of the FMP under an overarching vision for the English cockle fishery. Each action identifies potential activities that will help deliver it, and how it links to the objectives in the Act. The rationale shows the thinking and policy drivers behind the proposed activities.

The goals, actions and activities were drafted by the AIFCA and the cockle FMP EG and were further developed through consultation with a wide range of stakeholders. The proposed approach aims to help maintain the existing cockle fisheries at their current sustainable levels and create a framework for regulators to consider management of emerging cockle fisheries. Responsibility for delivery of these goals, once actions are agreed through the consultation process, will sit across industry groups, fisheries authorities, and government. They may need to be prioritised to support the phased approach of the FMP towards supporting the implementation of the JFS and the Act.

Each action has proposed timeframes that indicate an initial estimate of the time required to deliver the proposed activities. Timeframes for the actions are:



- short term – within 1 to 2 years of publication of the plan
- medium term – in the next 3 to 5 years
- long term – more than 5 years (to reflect the more complex work required to develop them)

## Vision

The long-term vision for cockles is to ensure fisheries in English waters are managed to achieve environmental, social and economic sustainability for the benefit of coastal communities and wider society.

## Goals

1. The FMP will contribute to stocks being environmentally sustainable in the long term and not overexploited.
2. The FMP will improve the evidence base to ensure identified fisheries are managed with adaptive management cycles using an ecosystem-based approach.
3. The FMP will deliver a framework to support the cockle industry, recognising their contribution to coastal communities and the skilled employment they provide.

## Actions to achieve the goals

### Action 1 (goals 1 and 3): to develop a framework to support the role of the FMP in realising sustainable cockle fisheries in English waters

**Likely timeframe and current feasibility:** long term

#### Rationale

The evolution of management, harvesting methods and market forces has created 4 distinct and locally specific cockle fisheries. These fisheries are not distributed over wide areas and do not cross fisheries regulator boundaries. Stock assessments have been regularly undertaken and feed into annual adaptive management measures which run under byelaw or regulating order legislation that has been approved by government. We recognise the need to link local management to a national, flexible, strategic approach that can address issues common to all cockle fisheries in English

waters. Such issues may include emerging, private or unregulated fisheries, unfished cockle beds, shellfish certification and water quality issues.

### **Stakeholder views**

During stakeholder engagement, fishermen expressed the need for cockle fisheries to continue to be managed at local level. A strong message was the need for cockle management to be adaptive and flexible to allow for the fleet to respond to changes in stock distribution, environmental conditions, and market drivers. There was also a need for transparency in management approaches and assessment of regulatory effectiveness to be communicated.

### **Potential activities**

- adaptive management cycles using an ecosystem-based approach should be fully developed for all publicly managed and commercially viable cockle beds
- in review or renewal of regulating mechanisms, fisheries authorities should demonstrate that:
  - the best available evidence has been used
  - governance structures allow for, and encourage, stakeholder participation in decision-making
  - all proposed measures are subject to public consultation

### **Evidence needs**

There is a need to:

- investigate discrepancies between national and regional data collection programmes
- understand how a national survey and assessment framework could incorporate emerging fisheries when identified

### **Relevant Fisheries Act 2020 objectives**

- sustainability objective
- ecosystem objective
- scientific evidence objective

### **UKMS descriptors relevant to this action**

- D1 – Biological diversity
- D3 – Commercially exploited fish and shellfish
- D4 – Food webs
- D6 – Sea-floor integrity

## Indicators

- agreed stock boundaries (or functional units), where appropriate
- a national survey and stock assessment framework is developed

## Action 2 (goals 1 and 2): consider developing national monitoring and reporting mechanisms to detect inshore and offshore emerging fisheries

**Likely timeframe and current feasibility:** long term

### Rationale

Commercially viable beds require stock sampling at appropriate spatial and temporal scales to ensure harvesting does not adversely affect their continued productivity. There may be unidentified beds that fall outside existing management measures and sampling regimes. The risk is that any unidentified beds may be subject to unsustainable harvest levels should commercial harvesting begin. There are data issues between national and local reporting systems that prevent us from strategically identifying emerging fisheries.

### Stakeholder views

Stakeholder feedback urged regulators to make the best use of existing reporting mechanisms, making sure we use the data we have in the most appropriate way.

### Potential activities

- Review data collection processes to ensure accurate representation of commercial cockle landings in English waters
- Assess risks of unregulated fisheries and consider a national prohibition on commercial capture of cockles outside existing management structures

### Evidence needs

There is a need to:

- identify the discrepancies between current regional and national data collection mechanisms, to ensure fisheries authorities use best available evidence in management decisions
- identify emerging cockle fisheries at appropriate spatial resolutions
- understand the number and location of private fisheries in English waters and their methods of management used for cockles

## Relevant Fisheries Act 2020 objectives

- sustainability objective
- precautionary objective
- scientific evidence objective
- equal access objective

## UKMS descriptors relevant to this action

- D1 – Biological diversity
- D3 – Commercially exploited fish and shellfish
- D4 – Food webs
- D6 – Sea-floor integrity

## Indicators

- a register of private fisheries in English waters is created
- guidelines for regulators when considering emerging commercial inshore and offshore fisheries are developed

## Action 3 (goal 2): review the data collection framework and evidence base relating to interactions between cockle fisheries and designated bird prey requirements.

**Likely timeframe and current feasibility:** long term

## Rationale

Current fisheries management must take into account impacts on designated features of MPAs. Regional English cockle fisheries have a proven track record of incorporating these considerations into management decisions. To fully develop an adaptive management approach, the data collection framework assessing annual variation of designated bird requirements should be further developed. Currently developing natural capital approaches could usefully provide enhanced integration of identified ecological requirements by providing regulators with improved data.

## Stakeholder views

Stakeholders expressed general concern about the prioritisation of the designated birds over social and economic benefits to the fleet. They have indicated the need for evidence to take into account other prey species, not just cockles, that designated birds rely on for food.

## **Potential activities**

- further develop mechanisms to provide regulators with accurate and timely estimates of bird food prey requirements
- investigate the evidence of designated birds' reliance on cockles as a primary food source
- investigate how natural capital approaches can be further integrated into cockle fisheries management decision-making processes
- investigate how current reporting mechanisms can better reflect societal benefits achieved through appropriate management of ecosystem services

## **Evidence needs**

There is a need to:

- better understand the data collection framework informing designated bird abundance estimates
- review the available evidence on designated birds' reliance on cockles as a primary food source

## **Relevant Fisheries Act 2020 objectives**

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

## **UKMS descriptors relevant to this action**

- D1 – Biological diversity
- D3 – Commercially exploited fish and shellfish
- D4 – Food webs
- D6 – Sea-floor integrity

## **Indicators**

- produce a review of the evidence base used for the bird food model supporting the main cockle fisheries
- following on from the above, make recommendations on the mechanism used to provide regulators with advice

## **Action 4 (goals 1, 2 and 3): assess the data collection framework for social and economic data used to inform management decisions.**

**Likely timeframe and current feasibility:** long term

### **Rationale**

Cockles export trade data is currently aggregated with clams and other arc shells. Disaggregated trade data is needed to better understand trends in the trade balance of cockles. Employment data for the distinct dredge fisheries for cockles are currently aggregated with other similar gear types such as scallop dredges. Disaggregated employment data will better help inform management decisions. Landings, trade and employment data for hand-gathered fisheries is not representative of the major commercial fisheries. Industry has indicated limited market opportunities resulting from the current shellfish certification process. A flexible, adaptive approach is required to support industry development.

### **Stakeholder views**

Stakeholders indicated that we need to improve our social and economic data and mechanisms to better integrate this information into decision-making processes. Such data may include information on markets, exports, employment profitability and value added.

### **Potential activities**

- work with regulators to understand the connectivity between regional and national data collection programmes to address identified data gaps and discrepancies such as landings and registered buyers and sellers requirements
- explore the benefit of disaggregating socioeconomic data to better inform management decisions
- explore the use of alternative data sources to understand the potential of streamlining the shellfish certification process
- investigate alternative solutions to alleviate economic burdens on businesses associated with shellfish health sampling and export certification

### **Evidence needs**

There is a need to:

- understand the balance of trade, both imported and exported, in cockles to identify market opportunities and limitations
- understand employment numbers both within cockle fisheries but also associated businesses
- ensure that data related to hand-gathered commercial fisheries is adequately captured

### **Relevant Fisheries Act 2020 objectives**

- sustainability objective
- national benefit objective

### **UKMS descriptors relevant to this action**

No relevant UKMS descriptors associated with socio-economic actions.

### **Indicators**

- a standing item is on the national forum agenda to explore data issues
- a report is produced that investigates the economic burdens on businesses associated with shellfish health sampling and export certification
- guidelines for regulators when considering emerging commercial inshore and offshore fisheries are developed

## **Action 5 (goals 1, 2 and 3): consider establishing a national cockle FMP forum**

**Likely timeframe and current feasibility:** short term

### **Rationale**

The establishment of a national cockle forum will help share best practice and identify common issues that have an impact on all English cockle fisheries. Due to the geographic scope and inshore nature of the commercially viable and publicly managed fisheries, the regional IFCA's operate at an appropriate scale to manage the sustainable harvest of cockles while considering wider ecological and socio-economic considerations. Wider considerations that impact all cockle fisheries, such as shellfish water classification testing and fishery interactions with other bivalve fisheries, could be usefully considered within a national forum to further industry participation. The national forum could also consider possible interactions between cockle fisheries and maritime heritage assets such as underwater archaeological structures and wrecks.

## Stakeholder views

Views from stakeholders indicated the need for a more joined-up, strategic approach within government and regulators to address issues common to all cockle fisheries.

## Potential activities

- establish a national forum
- understand how the cockle fishery interacts with the management of other bivalve mollusc fisheries

## Evidence needs

There is a need to:

- understand potential alternative approaches of using existing shellfish classification data to manage the harvesting of cockles
- understand how cockle fishery management may interact with the management of other species, particularly other bivalve species

## Relevant Fisheries Act 2020 objectives

- sustainability objective
- national benefit objective

## UKMS descriptors relevant to this action

- D1 – Biological diversity
- D3 – Commercially exploited fish and shellfish
- D4 – Food webs
- D6 – Sea-floor integrity

## Indicator

- the national cockle forum is established

## Management strategy

The draft cockle FMP sets a pathway for our vision of long-term sustainable fishery management. The cockle actions and respective activities aim to support the development of a framework for those management aspects currently not addressed, for instance, emerging fisheries.



IFCAs have management strategies for cockle fisheries in English inshore waters. These strategies are based on the needs of local stocks, ensure compliance with environmental regulations and balance the needs of local fishing fleets and communities. Existing harvest strategies based on the rule of thirds or other approaches are used to ensure that fishing mortality is managed at a level that enables long-term sustainable exploitation.

Recognising the need for good management, the future fishery management strategy for cockles needs to be adaptive and build on good practice from existing models of current legislation and management approaches.

Cockle stocks are understood to vary geographically, largely due to differences in abundance. Any future management interventions of cockle fisheries in English waters should consider the specific needs of local fisheries to ensure that the effects of management decisions are appropriate. While the draft FMP provides a national-level strategic management plan, its implementation will require tailored approaches to reflect the local needs of cockle stocks and local fleets.

## **Key activities to test at consultation**

During the consultation process of the draft cockle FMP, we wish to test some of the activities set out in the 'goals and actions for cockle fisheries in English waters' section of this document. We wish to gather views from the wider sector on how best to progress. We will ask questions on the following:

- establish a national cockle forum
- understand how wild cockle fisheries in private fisheries are managed
- assess risks associated with the potential for the development of fisheries that have no current regulation

Views gathered from the draft cockle FMP consultation process will help us further develop the FMP before its publication later this year.

# Managing and addressing environmental risks

Defra commissioned advice from the SNCBs, JNCC and NE, on the wider environmental risks that need to be considered when implementing the cockle FMP and developing future management interventions for these fisheries. The advice provides information on the risks arising from the fisheries and fishing gears incorporated within the cockle FMP to the designated features of MPAs in English waters and to the UKMS descriptors.

## Risks relating to the designated features of English MPAs

### Environmental risks inside MPA boundaries

The cockle fisheries pose the following main environmental risks of cockle fishing activity inside MPA boundaries:

- abrasion or disturbance of the substrate on the surface of the seabed
- targeted or bycatch of prey of designated features

Assessment of the impact of fishing activity occurring within MPAs in English waters has or will be carried out by the IFCAs or MMO. Therefore, appropriate environmental management should either be in place or introduced soon to ensure any fishing within MPAs is compatible with the MPAs' conservation objectives. Current management measures already in place are detailed on the MMO's website and relevant IFCAs' websites. Therefore, assuming that existing assessments and associated management pathways accordingly mitigate risks arising from cockle fishing activity within English MPA boundaries, no additional action is suggested for the FMP within MPA site boundaries. However, in this iteration of the cockle FMP we have identified certain evidence needs to further facilitate adaptive management approaches.

### Environmental risks outside MPA boundaries

The cockle fisheries pose the following main environmental risks of cockle fishing activity outside MPA boundaries:

- risk of bycatch of mobile species that are designated features of MPAs
- risk to the designated features of MPAs through the removal of a prey species

These risks on the designated features of MPAs arise from fishing activity outside MPA site boundaries that can affect mobile and prey species of MPAs. Both risks are currently considered low in the cockle fishery, based on available evidence.

## **Risks to UK Marine Strategy descriptors**

The UKMS require management action to be taken to achieve or maintain GES. The Act enables regulators to deliver on this ambition through the ecosystem objective, which states that fish and aquaculture activities should be managed using an ecosystem-based approach, which is in part defined in the Act by the achievement of GES. Equally, the recently published JFS lays out the ambition across UK administrations to take action to achieve or maintain GES in all UK waters.

Previous work by NE investigated the impact of the pressures associated with fishing activities across all 11 descriptors of GES as set out in the UKMS. It highlighted that risks arising from fisheries to 5 of the 11 UKMS descriptors are of most immediate concern: D1 (Biodiversity), D3 (Commercial fish and shellfish), D4 (Foodwebs), D6 (Seafloor integrity) and D10 (Marine litter).

The main impacts arising from the cockle FMP to UKMS descriptors D1 (Biodiversity), D4 (Foodwebs), D6 (Seafloor integrity) and D10 (Marine) have been identified as low risk.

## **Climate change, mitigation and adaptation**

Changing climatic conditions have the potential to affect the fishing industry and the wider environment. The anthropogenic emissions of CO<sub>2</sub> associated with fossil fuel usage drives climate change, leading to increased sea surface temperature, ocean acidification, and fluctuations within large-scale weather and climate patterns that can impact ecological baselines. Under the Act climate objective, and net zero ambitions, the UK Government is committed to reducing CO<sub>2</sub> emissions within the fishing fleet, and to improving resilience to climate-driven impacts across the sector. By mitigating and reducing the impacts from changing climatic conditions, this will contribute to climate change, ecosystem and national benefit objectives outlined in the Act.

Climate impacts in the cockle fishery are not well understood. Further research on the impact of climate change on the cockle fisheries under this FMP is needed. However, it is not currently within scope of this iteration of the FMP to deliver mitigation strategies against climate impacts but may be within its remit to support fisheries through national transition to low-carbon fishing and related policies. The cockle FMP, however, contains actions to develop an appropriate, adaptive and resilient management framework for emerging fisheries using an ecosystem-based approach to support all publicly managed and commercially viable cockle beds.

This FMP should be reviewed and adapted as research into climate change develops and new methods to address challenges from climate change become available.

## Implementation, monitoring and review

### Implementation

The draft cockle FMP sets out a vision and goals for the cockle fishery, together with the policies and actions necessary to achieve these goals.

The FMP proposes new policies which will be tested through the consultation process, and they may need to be updated later following views from stakeholders.

Specific timings on the implementation of the proposed policies and actions will depend on the outcome of the FMP consultation, the costs and benefits of the proposals and the length of time required for implementation.

Subsequent implementation roadmaps will be subject to regular monitoring and review to ensure progress. The cockle FMP is subject to a statutory review process at least 6 years after publication, at which point it will be necessary to show evidence of what has been achieved through the implementation of those policies and actions. In line with the strategic environmental assessment developed alongside this FMP, this review process will build in monitoring for potential environmental effects, to help establish whether any changes are needed in the management of the respective fisheries.

### Monitoring indicators

This is the first version of the cockle FMP. It sets out the first steps in a long-term vision necessary for sustainable management of this fishery. FMPs 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.

The cockle FMP is subject to a statutory review process at a maximum of 6 years after publication.

Delivery of the policies and actions for the cockle FMP will be monitored and assessed against a set of indicators to ensure the overarching outcomes and actions are effective in achieving the FMP goals and the requirements of the Act.

The actions within the draft cockle FMP have their own indicators but the overall indicator that will determine the effectiveness of this plan is maintaining fishing pressure within sustainable levels.

In this first iteration of the draft plan, we are also proposing that the 'establishment of the national cockle forum' is included as an initial, short-term indicator. This indicator has been selected for its relative ease of implementation and measurement. We envisage that the forum, if established pending the outcome of the consultation, will be the medium through which various FMP actions and activities are explored further. All indicators, however, may need to be amended following the cockle FMP consultation and specific steer from stakeholders.

## **Review of the cockle FMP**

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

The findings of these reviews will inform the development of subsequent iterations of the cockle FMP. Furthermore, the FMP will be assessed in the round as part of the process to report on the contribution of FMPs to the delivery of the JFS. The Act requires fisheries policy authorities to report on the JFS every 3 years and review the JFS whenever deemed appropriate, or at least within 6 years of publication.