

An underwater photograph of a rocky reef. The scene is filled with diverse marine life, including large green kelp, orange sponges, and various corals. In the lower right foreground, a large lobster is visible, its long antennae extending across the frame. The water is clear and blue-green, suggesting a healthy marine environment.

Management of Inshore Marine Protected Areas by the IFCAs 2011 to 2018

www.association-ifca.org.uk

Association of

The IFCA logo features a stylized white fish silhouette swimming to the left, positioned above the letters 'IFCA' in a bold, white, sans-serif font. The entire logo is set against a dark teal background.

IFCA

Association of Inshore Fisheries
and Conservation Authorities



Foreword by Defra



The Government's ambition, as set out in our 25 Year Environment Plan, is to ensure we have clean, healthy, safe, productive and biodiverse oceans and seas. Inshore Fisheries and Conservation Authorities (IFCAs), established by the Marine and Coastal Access Act 2009, play a crucial role in delivering this ambition.

Defra was pleased to support a one year project by the Association of IFCAs which brings together their important work to date in assessing and managing fishing activities within Marine Protected Areas (MPAs). This booklet is the culmination of that work.

A great deal has already been achieved in applying successful management with results often being achieved through a collaborative approach with all the regulators and conservation bodies acting together. Accordingly, this

report provides an excellent example of effective management and the working partnerships that operate across the Defra group on a daily basis.

We wish to continue implementing measures so that sea users can interact with the marine environment in a sustainable way whilst protecting important and diverse marine habitats and species. As the UK leaves the European Union there is opportunity to ensure measures continue to be implemented through fast, effective decision-making processes which protect the marine environment and allow sea users to work together.

The IFCA model provides bespoke local solutions that show wide success across the inshore region. The project itself is an outstanding example of the hard work, dedication and effort each IFCA has put into actively managing their district in protecting the marine ecosystem, delivering a valued service, all in collaboration and partnership with a wide variety of stakeholders. We support the continuation of the project and commend IFCA's management of the UK's blue belt, all of which underpins our vision to pass onto the next generation a natural environment protected and enhanced for the future.

Thérèse Coffey MP

Parliament Under Secretary of State for the Environment

About the Inshore Fisheries and Conservation Authorities (IFCAs)

What are IFCAs?

- IFCAs were created in 2011 as statutory regulators by the Marine and Coastal Access Act 2009. They are responsible for the sustainable management of inshore sea fisheries resources out to six nautical miles from coastal baselines around the coast of England.
- Each Authority is run by a committee, made up of Member representatives from the constituent local authorities adjacent to the sea area of the district, along with people from across the different sectors that use or are knowledgeable about the inshore marine area, such as commercial and recreational fishers, environmental groups and marine researchers.
- The Marine Management Organisation, Environment Agency and Natural England also each have a statutory seat within each IFCA.
- Members decide and comment on the strategy and direction of their IFCA.
- The IFCA model allows Authorities to be tailored to specific regional demands, utilising local expertise to develop local solutions.

**Total
area of IFCA
districts
28,850km²**

**10 regional IFCAs
manage the seas
to 6 nautical miles
around the coast
of England**

The IFCA Vision

“IFCAs will 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”

- The IFCA vision aims to achieve the intentions of the Marine and Coastal Access Act (2009) (MaCAA), and wider UK and EU marine legislation and national strategies.
- Five Success Criteria (SCs) and multiple High Level Objectives (HLOs) have been developed by a number of national working groups to help deliver the IFCA Vision.



IFCAs conduct regular patrols throughout their districts to ensure compliance with legislation.

About the Inshore Fisheries and Conservation Authorities (IFCAs)

Success Criteria

1. IFCAs are recognised and heard, balancing the economic needs of the fishery whilst working in partnership and engaging with stakeholders
2. IFCAs implement a fair, effective and proportionate enforcement regime
3. IFCAs use evidence based and appropriate measures to manage the sustainable exploitation of sea fisheries resources and deliver marine environmental protection within their districts
4. IFCAs have appropriate governance in place and staff are trained and professional
5. IFCAs make the best use of evidence to deliver their objectives

The Association of IFCAs

The Association of IFCAs (AIFCA) acts in a representation, co-ordination and communication role for the IFCAs; it has no statutory or regulatory function. The AIFCA provides a national platform for two-way communication between the IFCAs with their local and regional issues and Central Government.

Management of Marine Protected Areas (MPAs)

IFCAs are a competent authority for the management of fishing activities within the inshore (0-6nm) area and, as such, must take the necessary steps to ensure that the conservation objectives of MPAs are furthered. Sections 153 and 154 of the Marine and Coastal Access Act, 2009, outline the responsibilities of IFCAs in managing fishing activities and MPAs. Each IFCa has the ability to introduce byelaws for the management of fishing activities in their district.



IFCAs conduct research with a range of partners to support the delivery of evidence based management for sustainable fisheries and a healthy marine environment.

Marine Protected Areas

IFCAs are at the forefront of delivering the UK Government's commitment to protect the marine environment and the ecosystems it supports.

What is a Marine Protected Area?

MPA is an 'umbrella term' for an area of the sea that is designated to protect marine habitats and species. They are one of the tools used to protect the marine environment and promote the sustainable use of marine resources.

Fishing activities should be appropriately managed within MPAs to ensure that conservation objectives are met. Where fishing activities are compatible with the conservation objectives of MPAs they may be allowed to continue subject to monitoring.



Common cuttlefish (*Sepia officinalis*).

Benefits of Marine Protected Areas

MPAs are essential for healthy, functioning and resilient ecosystems – they help us to deliver the Government's vision of clean, healthy, productive and biologically diverse seas and oceans.

MPAs enable us to:

- Protect and restore the ecosystems in our seas and around our coasts
- Ensure the species and habitats found there can thrive and are not threatened or damaged
- Maintain a diverse range of marine life that can be resistant to changes brought about by physical disturbance, pollution and climate change
- Provide opportunities for education and scientific study
- Act as reference sites for long-term research
- Generate opportunities for tourism and benefits for fisheries and local economies

Types of Marine Protected Area

There are a range of MPA types within England established under different legislation and international conventions. Each type of MPA has its own set of conservation objectives to fulfil and together they create a 'blue belt' of marine protection around the English Coast.

The UK has committed to establishing an ecologically coherent network of MPAs under several agreements including the Oslo and Paris Convention (OSPAR), World Summit on Sustainable Development and Convention on Biological Diversity. By linking different types of MPAs together into a coherent network, all of which protect different habitats and species, we can achieve greater benefits than individual MPAs can achieve alone.

OSPAR NETWORK

283 MPAs in the UK currently contribute towards the OSPAR network of MPAs across the North-East Atlantic. In England the network consists of Special Areas of Conservation with a marine component, Special Protection Areas with a marine component and Marine Conservation Zones.

NATURA 2000 NETWORK

The Natura 2000 network stretches across 28 EU countries and comprises of Special Areas of Conservation and Special Protection Areas. The network aims to ensure long-term survival of Europe's most valuable and threatened species and habitats.

The Revised Approach

What is the Revised Approach?

In 2012 the Government introduced a Revised Approach to the management of commercially licensed fisheries in EMSs to comply with obligations under the EU Habitats and Birds Directives. This ensured all existing and potential commercial fishing activities are subject to an assessment of their impact on the features of EMSs and are appropriately managed to achieve the conservation objectives of the site.

Working with our delivery partners, Natural England and the Marine Management Organisation, IFCA's have assessed every type of commercial fishing activity within inshore EMSs to ensure that fisheries do not damage, disturb or have an adverse effect on the wildlife or habitats for which the sites are legally protected. Assessments have been undertaken following a risk-prioritised, phased basis using a specially designed matrix. The matrix categorises fishing activity as Red, Amber, Green or Blue depending on the level of risk the activity presents to the designated features of a site.



Circalittoral rocky reef community in Lyme Bay and Torbay SAC.

RED RISK

High risk activity where it is clear the conservation objectives for a feature (or sub-feature) will not be achieved because of its sensitivity to the type of fishing activity. Irrespective of feature condition, level of pressure, or background environmental conditions in all EMSs where that feature occurs – suitable management measures will be identified and introduced as a priority to protect those features from that fishing activity or activities.

AMBER RISK

Medium risk activity where there is doubt as to whether conservation objectives for a feature (or sub-feature) will be achieved because of its sensitivity to a type of fishing, in all EMSs where that feature occurs, the effect of that activity or activities on such features will need to be assessed in detail at a site-specific level. Appropriate management action should then be taken based on that assessment.

GREEN RISK

Low risk activity where it is clear that the achievement of the conservation objectives for a feature is highly unlikely to be affected by a type of fishing activity or activities, in all EMSs where that feature occurs, further action is not likely to be required, unless there is the potential for in combination effects.

BLUE RISK

For activities where there can be no feasible interaction between the fishing gear types and features of the EMSs. For example, a mid-water trawl is a blue risk activity for seagrass beds as it takes place in the water column, not on the seabed.

The Revised Approach

Habitat Regulations Assessment

Once risks are identified, within EMSs, Habitat Regulations Assessments (HRAs) are undertaken for all Amber activities and Green (when appropriate). The assessment is used to consider the impacts of the fishing activity on the EMSs features by screening for any Likely Significant Effects. If significant effects cannot be ruled out, a detailed and evidence-led assessment is completed to clearly outline whether the activity will have an adverse effect on the integrity of the site. If it cannot be proved that there will not be an adverse effect on site integrity appropriate management is required to mitigate the effect. Management measures could include closures to relevant parts of a site, seasonal closures or effort restrictions.

Management of Marine Conservation Zones (MCZs)

The Revised Approach was developed for EMSs but under section 154 of the Marine and Coastal Access Act 2009 IFCA's must seek to ensure that the conservation objectives of MCZs are furthered, with policy advice to introduce necessary management within two years of site designation.

IFCA's have followed a similar approach by assessing the impacts of individual fishing interactions with site features in MCZs to help determine the need for management.

The Marine Management Organisation helped coordinate the delivery of the Revised Approach. This included chairing meetings with fisheries regulators (including IFCA's and the Environment Agency), representing the project at stakeholder events and collating progress reports for stakeholders and quarterly project board meetings.

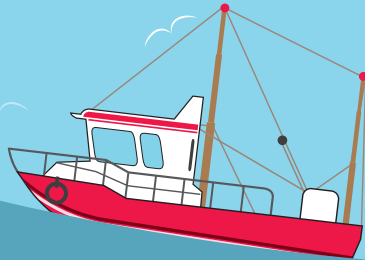
Natural England is the Government's statutory conservation advisor within 0-12nm and therefore works with and provides advice to IFCA's and the MMO on conservation issues. Throughout the Revised Approach Natural England has provided newly developed conservation advice packages to help inform fisheries assessments.



Tompot blenny (*Parablennius gattorugine*).



Candy striped flatworm (*Prostheceraeus vittatus*) feeding on light bulb sea squirts (*Clavelina lepadiformis*) within the Solway Firth.



23 NEW IFCA BYELAWS

INTRODUCED BY IFCAS BETWEEN 2013 AND 2018 TO DIRECTLY PROTECT MPA FEATURES

20 ADDITIONAL IFCA BYELAWS CONTRIBUTE TO THE PROTECTION OF MPAS

30 FURTHER MANAGEMENT MEASURES CONTRIBUTE TO MPA PROTECTION

- NATIONAL MEASURES
- REGULATING ORDERS/SEVERAL ORDER
- VOLUNTARY MANAGEMENT

ADDITIONAL IFCA BYELAWS PROVIDE MPA BENEFITS THROUGH THE MANAGEMENT OF INSHORE FISHING EFFORT.

16,062km²
of sea area within IFCA districts is covered by MPA designation

>13,500
interactions between commercial fishing and EMS features assessed by IFCA's

56%
Total coverage of IFCA districts by at least one MPA designation

1,125
Habitat Regulations Assessments completed by IFCA's

NUMBER OF INDIVIDUAL TYPES OF MPA WITHIN IFCA DISTRICTS

38 Marine Conservation Zones

39 Special Areas of Conservation

45 Special Protection Areas



Natural England

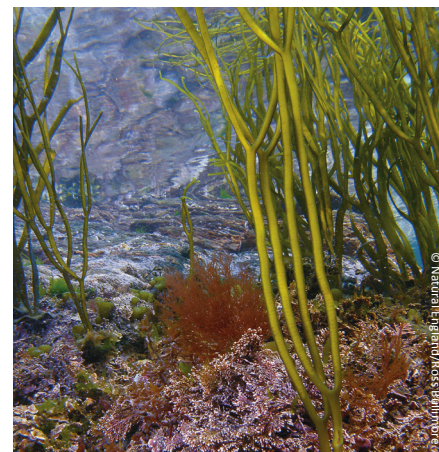
Natural England is a non-departmental public body that advises Government on the natural environment, providing expert advice, grounded in science, on how best to safeguard England's natural wealth for the benefit of everyone. Natural England's remit is to ensure sustainable stewardship of the land and sea so that people and nature can thrive. It is their responsibility to see that England's rich natural environment can adapt and survive intact for future generations to enjoy.

The IFCA's are a key partner of long standing for Natural England in their work on fisheries and specifically relating to MPAs. Each IFCA has a Natural England member of staff as a formal representative, but close working also involves secondments, office sharing and the development of joint initiatives and projects which have achieved significant external funding success. National fisheries staff also work closely with the Association of IFCA's, Chief Officers Group and IFCA's' Technical Advisory Group.

From 2013, to the present day and into the future, Natural England's joint fisheries work with the IFCA's and MMO continues with them providing guidance, evidence and statutory advice on assessment outcomes. This has been challenging work, and there is still much to do, including ensuring that management of fishing activities remains fit for purpose into the future, both with respect to MPAs and wider seas.

Evidence is key to both achieving a real understanding of the effects of fisheries on the marine environment and building truly sustainable fisheries thus conserving the marine environment for future generations. In working closely and collaboratively as agencies, Natural England can make the most of the resources they have and the skills of their staff to underpin the decision-making process in fisheries management with robust and effective evidence. Together, Natural England and the IFCA's share a significant portfolio of collaborative successes in evidence building and look to build upon these successes into the future.

NATURAL
ENGLAND



Tidepool community at Renny Rocks within the Plymouth Sound and Estuaries SAC.



Natural England Northumbria Marine Lead Adviser Dr. Catherine Scott (middle) with part of the Northumberland IFCA team.

Natural England

A day in the life of a Natural England IFCA representative

Given the local nature of both Natural England Area Teams and the IFCAS, the organisations' structures map together really well. In Natural England's Northumbria Team, Marine Lead Adviser Dr. Catherine Scott is the representative on Northumberland IFCA (NIFCA).

Working in partnership with NIFCA is not simply about attending committee meetings, Catherine also often chairs the NIFCA Technical & Scientific Group, inputs to other IFCA functions and works with NIFCA on joint projects.



The Northumberland IFCA Environment Team working with Natural England in the field.

Catherine also has regular day workshops with officers where all topics of ongoing work; issues, evidence, ways of working and project ideas are discussed. A balanced, evidence-based approach underpins all aspects of joint work which relies upon scientific, grounded research and monitoring, both with academic partners and in-house.

Natural England's Northumbria Team, NIFCA and Dr Clare Fitzsimmons of Newcastle University have had a joint research group since 2009. Together, they have developed and successfully funded projects and studentships designed to address identified evidence gaps, match organisational objectives, and benefit all partners. Recently, this has included:

Two successful Ph.D. studies, which were commissioned research as part of the Revised Approach to Commercial Fishing

- Potting Intensity, studying potting impacts on protected habitats, and
- Intertidal Collection within a local MPA.

In 2018, the research group with input from North Eastern IFCA received £220K funding from the European Maritime & Fisheries Fund to look at subtidal rock and mud monitoring protocols along the North East coast. The project aims to inform collaborative and cost effective monitoring and management in the context of anthropogenic and natural variability.

NIFCA in-house research is focussed on surveys such as: lobster pot escape gap and stock assessments,

mussel bed and fish surveys and also a North East Beached Bird survey. Local Natural England staff also work alongside IFCA Officers on some of this work.

Mike Hardy, NIFCA Chief Executive said: "Our partnership working with Natural England and Catherine Scott in particular is vital to the delivery of the NIFCA remit and I am very grateful, together with our Officers and Members, for her contribution to our work, supporting fulfilment in the NIFCA district of the national IFCA Vision."



Joint survey work between Natural England and Northumberland IFCA.

Marine Management Organisation and Marine Protected Areas



Marine
Management
Organisation

Since vesting in 2010 the Marine Management Organisation (MMO) has played a central role in MPA management in English waters.

As well as protecting English MPAs from the potential impacts of marine development through the marine licensing system, they are the principle regulator for fishing in English waters outside of 6 nautical miles offshore.



Fishing vessel in the Atlantic Ocean.

The MMO works through voluntary and statutory measures, with local, national and international stakeholders to minimise harmful impacts from activities in MPAs.

In particular, the MMO:

- coordinated the delivery of Defra's revised approach
- manage fishing and other activities in English MPAs
- work with other Member States to manage fishing in offshore MPAs
- quality assure IFCA byelaws
- are implementing an inshore Vessel Monitoring System (I-VMS)

Managing fishing in MPAs in English territorial waters

The MMO is the lead regulator for fishing in MPAs between 6 and 12 nautical miles offshore. During the first stage of delivery of Defra's revised approach, the MMO identified four MPAs where management of fishing was required.

This resulted in the MMO implementing four byelaws to protect biogenic and rocky reefs off the South West and East of England from all bottom-towed fishing.

This includes protecting the Cape Bank reef, over 200 km² of complex rocky outcrops which is home to high levels of biodiversity including sponges, corals, anemones, bryozoans and crustaceans.

The MMO has subsequently assessed the impacts of hundreds of lower risk ('amber' and 'green') interactions between fishing and features in 9 MPAs between 6 and 12 nm offshore.

These assessments have resulted in a further MMO byelaw to prohibit bottom-towed fishing over high biodiversity areas of sandbank in the Thames Estuary. In addition the MMO has public consulted on a proposed byelaw to prohibit bottom-towed fishing in over 360km² of muddy habitats in the Irish Sea.

The MMO continue to review and update assessments, adjusting management accordingly, as new information becomes available.

Marine Management Organisation and Marine Protected Areas

Voluntary agreements & codes of conduct

The MMO always considers non-statutory measures as a solution, before introducing legislation. This means looking at whether a voluntary agreement can attain the required level of environmental protection.

For example, in 2011 the MMO facilitated the development of a voluntary agreement with the local fishing industry to cease the shooting of grey seals in the Isles of Scilly.

MMO have also contributed to environmental codes of conduct for sailing and canoeing to help sea-users reduce their impact on the marine wildlife.

Managing fishing in offshore MPAs

Outside of UK territorial waters, the EU is responsible for managing fishing in MPAs, in line with the Common Fisheries Policy. To initiate management

measures, the UK must submit a 'joint recommendation', agreed with other relevant Member States to the European Commission for consideration.

The MMO have worked with Defra and the Joint Nature Conservation Committee (JNCC) to develop, and negotiate with other Member States, joint recommendations for 19 offshore sites. This includes what would be several of the largest areas closed to bottom-towed fishing in English waters.

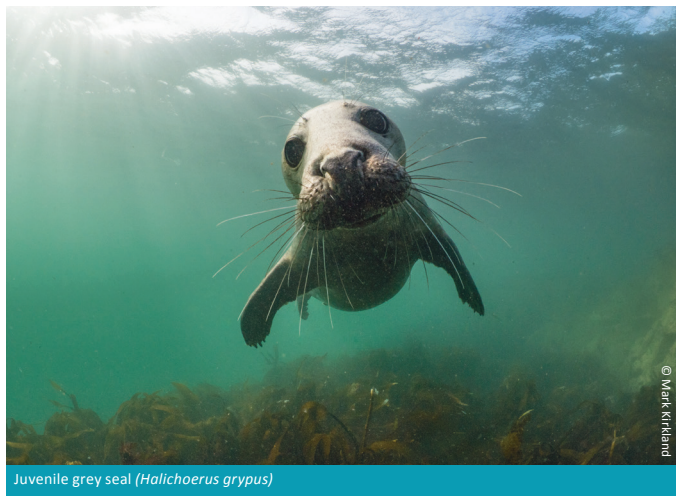
Quality assurance of IFCA byelaws

The MMO is responsible for quality-assuring every IFCA byelaw before it can come into force. Since IFCAs vested in 2011, the MMO has quality assured 64 byelaws, and provided policy and legal advice to IFCAs to support development of byelaws.

Inshore Vessel Monitoring Systems (I-VMS)

Since 2011 MMO has led the development of a low cost VMS suitable for under 12 metre vessels. 'I-VMS' will allow better monitoring and more effective enforcement of the inshore fleet and can be used to allow more precise management of fishing in MPAs.

Working with IFCAs the MMO have tested and type-approved three devices. They are managing a project to use European Union funding to install I-VMS devices on all British under 12 metre vessels operating in England.



Juvenile grey seal (*Halichoerus grypus*)

MMO byelaws

The Land's End and Cape Bank European Marine Site (Specified Areas) Bottom Towed Gear Byelaw

The Start Point to Plymouth Sound and Eddystone European Marine Site (Specified Areas) Bottom Towed Gear Byelaw

The Haisborough, Hammond and Winterton European Marine Site (Specified Areas) Bottom Towed Fishing Gear Byelaw

The Inner Dowsing, Race Bank and North Ridge European Marine Site (Specified Areas) Bottom Towed Fishing Gear Byelaw

The Margate and Long Sands European Marine Site (Specified Areas) Bottom Towed Fishing Gear Byelaw 2017

Northumberland IFCA

Northumberland IFCA's district comprises a mosaic of diverse marine habitats which in turn supports a large variety of marine organisms, resulting in over two-thirds of the district being designated as some form of MPA to protect this magnificent marine environment.

The effects of potting on rocky reef

Potting for Crustacea is the main fishery within the Northumberland IFCA district. Much of the activity is carried out over protected reef features in both the Berwickshire and North Northumberland Coast SAC (BNNC SAC) and Coquet to St Mary's MCZ. In completing the fishery assessments there was a knowledge gap in the effect of the level of potting in Northumberland on these reef features. A PhD was funded which partnered Northumberland IFCA, Natural England and Newcastle University to assess the impacts of the static pot fishery on reef

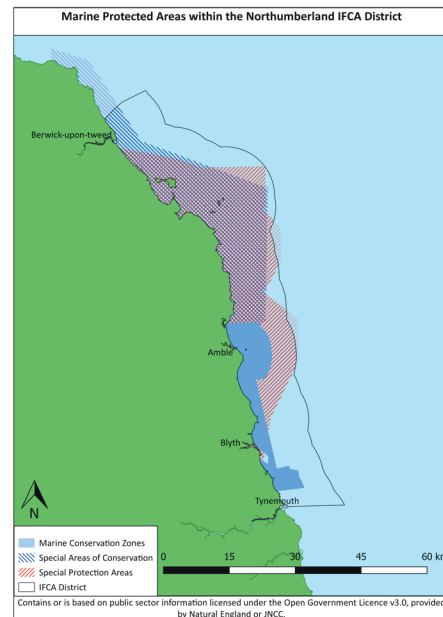
features. Direct impacts were investigated through in-situ experimental fishing using a BACI (before-after control-impact) design. A high experimental fishing intensity, with high levels of sampling and replication, provided robust evidence that potting activity, at its current levels, is unlikely to have direct physical impact on reef associated species including seaweed (*Laminaria* spp.) and faunal algal crusts. This research fed directly into Northumberland IFCA's HRAs demonstrating evidence based management of this commercially important fishery.



Velvet swimming crab (*Necora puber*) pictured at the Farne Islands. One of the species targeted within the multi-species potting fishery in Northumberland.



Brown crab (*Cancer pagurus*) one of the species targeted within the multi-species potting fishery in Northumberland.



District Area	1,441 km ²
MPA Coverage	67%
European Marine Sites	7
Marine Conservation Zones	2
MPA Related Management Measures	8

Indicators of Good Environmental Status on subtidal habitats

Northumberland IFCA is working with Newcastle University, Natural England, North Eastern IFCA and Benthic Solutions on a Marine Strategy Framework Directive (MSFD) project funded by the European Maritime and Fisheries Fund (EMFF). The project aims to research, develop and validate possible



Grab samples carried out on Northumberland IFCA vessel St Aidan using a Van Veen grab in mud habitat to test indicators, including species diversity and total organic carbon.

Good Environmental Status (GES) indicators for habitats or species where substantial knowledge gaps have been identified, particularly subtidal rock, biogenic reef and mud features of protected areas within the Northumberland IFCA district. The project involves extensive data collection and experimentation to test new GES indicators alongside the investigation and critical comparison of monitoring methods. The study is taking place off the coast of North-East England, spanning from the Farne Islands in Northumberland to Flamborough in Yorkshire and will run for 2 years until June 2020.

Aln Estuary Fish Survey

Northumberland IFCA conduct bi-annual fish surveys within the Aln Estuary MCZ to monitor the population dynamics of the juvenile fish species and inform assessment of the condition of the site.

The survey employs two methods: seine and fyke nets. The seine net is deployed and pulled ashore by hand (top right) with the catch retained for in situ species identification and total body length measurements (bottom right). Once recorded the fish are returned to sea. These surveys are carried out collaboratively with Northumberland IFCA Committee Members, Natural England, Environment Agency, The Wildlife Trust and students from Newcastle University. This is a great opportunity to involve interested parties in Northumberland IFCA work within MPAs both sharing and receiving knowledge to improve future studies and management.



Sampling at Aln Estuary MCZ, pulling ashore the seine net.



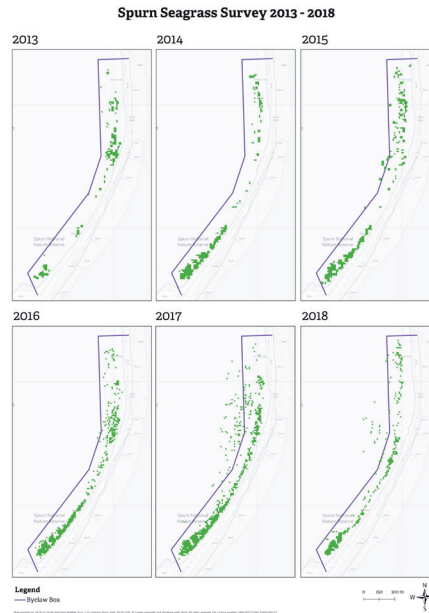
Species recorded on surveys. Starting from the top: European eel (*Anguilla anguilla*), juvenile unidentified goby species, juvenile flounder (*Platichthys flesus*).

North Eastern IFCA

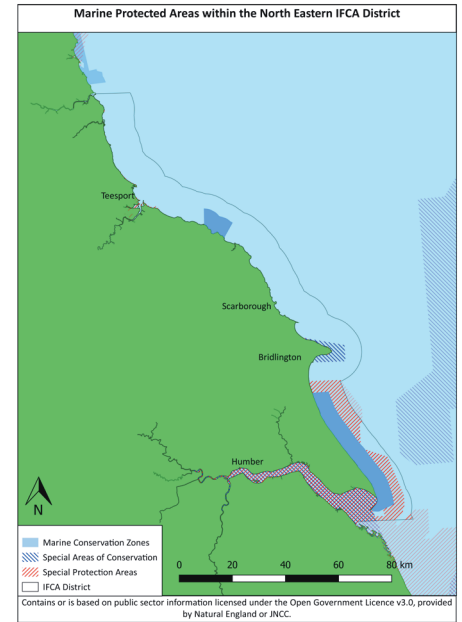
The North Eastern IFCA district encompasses a diverse range of habitat types, from the shallow cobble reefs of the Holderness, the tide swept chalk reefs of Flamborough Head to the offshore muddy habitats of the Farnes. Some areas are designated for particular species such as the sea birds which nest on the vertical chalk cliffs at Bempton, and the long-lived ocean quahog which can be found in Runswick Bay.

Eelgrass mapping in the Humber SAC

The North Eastern IFCA Humber Estuary Fishing Byelaw (XXIX) was introduced in 2014 to protect beds of eelgrass (*Zostera* spp.) in the Humber SAC from potentially damaging fishing activities, prohibiting



Maps showing coverage of *Zostera* spp. within the area designated within Byelaw XXIX for the period 2013-2018. Image reproduced with kind permission of the Yorkshire Wildlife Trust.



District Area	2,883 km ²
MPA Coverage	36%
European Marine Sites	8
Marine Conservation Zones	2
MPA Related Management Measures	5

all fishing activities except by rod and line. Through close working with the Yorkshire Wildlife Trust, North Eastern IFCA has annually surveyed the eelgrass beds. Data gathered demonstrates an increase in overall coverage of eelgrass since the management was introduced.

Championing marine protection

Through the development of the Flamborough Head No Take Zone Byelaw (XXVII), North Eastern IFCA has introduced one of the country's first highly protected marine areas within the Flamborough Head SAC. The Flamborough Head No Take Zone (NTZ) protects intertidal and subtidal reef features including beds of the common mussel (*Mytilus edulis*). These ecosystem engineers attach themselves to the rock and each other using fine threads, which in turn creates specialist habitats for other species to grow on or in. The aim of this zone is to allow the seabed and intertidal habitat to recover and return to a natural state with no damaging human activities. North Eastern IFCA and partners regularly carry out research to monitor any changes. Surveys have traditionally been carried out on foot using a handheld GPS and sampling by quadrat. Officers are investigating the potential for using drones as a rapid assessment technique for this and other sites within the North Eastern IFCA district.



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Flamborough Head and Bempton Cliffs SPA is home to the largest mainland breeding seabird colony in the UK. Each year seabirds including puffins, gannets, fulmars, and kittiwakes return to the chalk cliffs to breed and nest, accumulating to over 400,000 individuals.

Flamborough Head No Take Zone

Flamborough Head No Take Zone is a special area between Danes Dyke and Sewerby Steps where the removal of any fish, shellfish or marine plant, by any method from the beach or sea is strictly prohibited. The Zone is positioned in an area where cooler waters from the north meet warmer waters coming up from the south, creating a nutrient-rich environment where marine creatures can thrive.

The No Take Zone helps us to protect this environment and learn more about how we can conserve our natural resources.

Crabs

Crabs are protected in the No Take Zone. It is illegal to take any crab from the beach or sea. Crabs are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Wading Birds

Wading birds are protected in the No Take Zone. It is illegal to take any wading bird from the beach or sea. Wading birds are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Lobsters

Lobsters are protected in the No Take Zone. It is illegal to take any lobster from the beach or sea. Lobsters are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Although you cannot take anything from the No Take Zone, you can enjoy exploring the intertidal and beach. Please remember to put everything back as you found it and take care not to disturb any wildlife or damage the area.

Blue Mussels

Blue mussels are protected in the No Take Zone. It is illegal to take any blue mussel from the beach or sea. Blue mussels are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Ammonites

Ammonites are protected in the No Take Zone. It is illegal to take any ammonite from the beach or sea. Ammonites are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Sand Eels

Sand eels are protected in the No Take Zone. It is illegal to take any sand eel from the beach or sea. Sand eels are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Porolithodes

Porolithodes are protected in the No Take Zone. It is illegal to take any porolithode from the beach or sea. Porolithodes are a vital part of the marine ecosystem and their removal can have a significant impact on the food chain.

Flamborough Head

The No Take Zone is situated within the Flamborough Head European Marine Site, which protects the important chalk habitat and breeding seabird colony around the headland.

For further information about this No Take Zone, or to report any incidents, contact the North Eastern Inshore Fisheries and Conservation Authority on (01482) 393515 or visit www.neifca.gov.uk



Mussel bed in the Flamborough Head No Take Zone within the Flamborough Head SAC.

Eastern IFCA

The Eastern IFCA district stretches from the Humber to Harwich and comprises mostly shallow coastal waters over soft sediment seabeds. Bivalve and crustacean shellfisheries dominate off Lincolnshire and Norfolk, whilst a mixture of finfish and shellfish fisheries characterise the Suffolk coast.



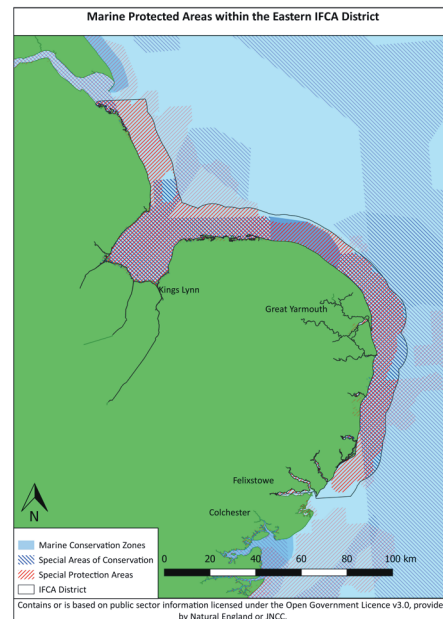
Oystercatchers (*Haematopus ostralegus*) feeding on a cockle bed in The Wash.

The Wash Fishery Order

The Wash cockle fishery is a historic multi-million-pound fishery which occurs in a highly designated marine area. Five different types of MPA can be found within the Wash including a SAC to protect harbour seals, coastal habitats and otters and a SPA for breeding birds and over-wintering waders and waterfowl. Eastern IFCA undertakes annual Habitats Regulations Assessments of fishery impacts on site features to ensure the fishery does not hinder achievement of the designated site's conservation objectives.

The fishery is licensed and managed through the Wash Fishery Order (1992) which allows for bespoke management measures that are agreed upon annually to promote a sustainable fishery. Measures include:

- spatial closures to prevent disturbance to seals
- high-density juvenile cockle beds closed to fishing
- daily quota per vessel
- overall seasonal quota – to ensure stock



District Area	3,809 km ²
MPA Coverage	96%
European Marine Sites	20
Marine Conservation Zones	1
MPA Related Management Measures	8

- sustainability and retain sufficient prey for shellfish-predating birds
- use of specified gear only – in recent years hand-raking only
- severe weather restrictions to minimise disturbance to vulnerable over-wintering birds.

Common Ground Project (Community Voice Method)

Reflecting local values in management approaches

Eastern IFCA recognises that meaningful engagement with stakeholders helps achieve appropriate and successful measures. In 2016 the authority took part in a collaborative project with the Marine Conservation Society, Community Voice Consulting and local stakeholders to capture the values that diverse stakeholders attach to the marine environment.

The project, funded by the Calouste Gulbenkian Foundation, used the Community Voice Method (CVM) which encourages stakeholder participation through filmed interviews and community workshops. Interviews were produced into a film to reflect community views on the marine environment and management of marine resources. This process along with associated workshops provided Eastern IFCA with a clear understanding of stakeholder values and views on key local marine management issues. Project videos and report are available at <http://www.eastern-ifca.gov.uk/>

“ Participation in CVM has been a genuinely rewarding process for Eastern IFCA, both at an individual and organisational level. It has brought about an increased public awareness about the IFCA remit along the East Coast, our ongoing efforts towards achieving sustainable fisheries, and our work on marine protected areas. Direct engagement with members of coastal communities has expanded our understanding about issues that really matter to people. It has reminded us of the need to communicate using appropriate language and mechanisms, in order to be effective. It has highlighted people’s desire to be involved, to have their voices heard, and to make a difference in decisions that affect our coast and seas. We have forged a strong partnership with Marine Conservation Society, and the project has helped identify the many shared values relating to our coast and seas. Ultimately, the Community Voice Method has helped us to think more holistically about fisheries management and the importance of considering biological and ecological issues alongside the social and economic considerations that are often better understood through dialogue with local people – to give us the best chance of achieving a safeguarded marine environment and thriving fishing communities. ”

Julian Gregory, CEO Eastern IFCA



The Wash Fishery Order cockle fishery.

Kent and Essex IFCA

The Kent and Essex IFCA district stretches from the River Stour in Essex down to the east end of Rye Bay in Kent. Due to the presence of drying sandbanks, the 6nm limit for Kent and Essex IFCA jurisdiction extends up to 15nm offshore in some places. The district can loosely be characterised by the soft substrates of the Essex coast and Thames Estuary, and the harder substrates of the chalky Kent coastline.

Medway Nursery Area No Take Zone, Medway Estuary MCZ



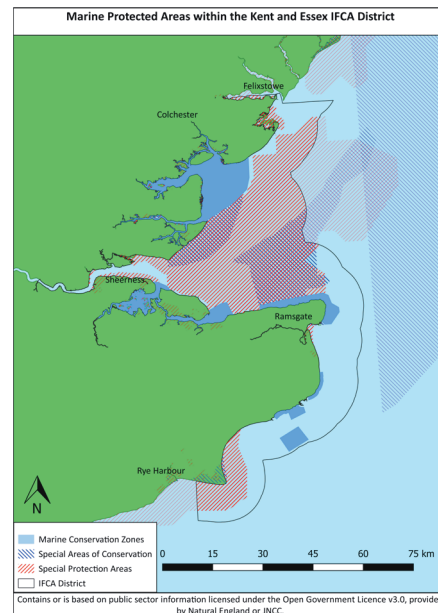
abundance of prey sources.

The River Medway Nursery Area No-Take Zone byelaw prohibits any fishing activity within the intertidal areas along the northern banks of the estuary, spanning from Hoo Marina to Elphinstone Point. This includes angling and netting from boat or shore, and bait digging.

Kent and Essex IFCA has worked with local fishermen to make a short film promoting the site and officers have continued to promote the project through community engagement events. Working with the Medway

Kent and Essex IFCA, working with the Rochester Oyster and Floating Fishery, developed The River Medway Nursery Area No-Take Zone Byelaw to create a substantial NTZ in the Medway Estuary.

The NTZ covers 12.1 square kilometres (4.6 square miles) of saltmarsh and rich mudflat environments that are vitally important to a wide variety of fish. The shallow waters have been identified as a nursery area, as they provide a refuge for fish during their juvenile stages, allowing them to shelter from predators and storms whilst supporting an



District Area	3,379 km ²
MPA Coverage	67%
European Marine Sites	14
Marine Conservation Zones	7
MPA Related Management Measures	7

Council, Kent and Essex IFCA hosted stalls with games and information at the Medway River Festival 2016 to encourage the public to find out more about how important the River Medway is to juvenile fish. Over 3,000 wooden fish were decorated by the public and partner organisations and displayed along the riverfront to create a high-impact art piece.

Thames Estuary Cockle Fishery Order, Essex Estuaries SAC

The Thames Estuary Cockle Fishery Order is a long term, high yield commercial fishery that occurs annually within the Essex Estuaries SAC. The fishery is tightly regulated, and strictly enforced to ensure that no significant effects can occur to the designated features of the SAC or overlapping SPAs.

By undertaking annual stock assessments Kent and Essex IFCA has significant data on the cockle stocks within the Thames Estuary, stretching back over 20 years. As a result of this data and the experience of surveys and industry catches over this time period, Kent and Essex IFCA manages a profitable and sustainable fishery each year.

Surveys are conducted in the spring and autumn of each year. The spring survey provides data to enable the calculation of a total allowable catch (TAC) for that year's fishery, while the autumn survey provides an insight into recruitment. Survivability of spat can be calculated from the following spring survey.

Once a TAC has been calculated, Kent and Essex IFCA will assign a number of fishing trips per boat over the course of the season. Within this number of trips, the Authority can specify certain areas which must, or must not be fished, and can impose trip limits in each week. Each boat in the fleet carries a Vessel Monitoring System unit with a ping rate increased above the 2hr standard, this allows accurate mapping of where the boats have fished and as a result, calculation of the impact (in square metres) of the dredges on the seabed.



Cockle boats passing at Leigh.

Sussex IFCA

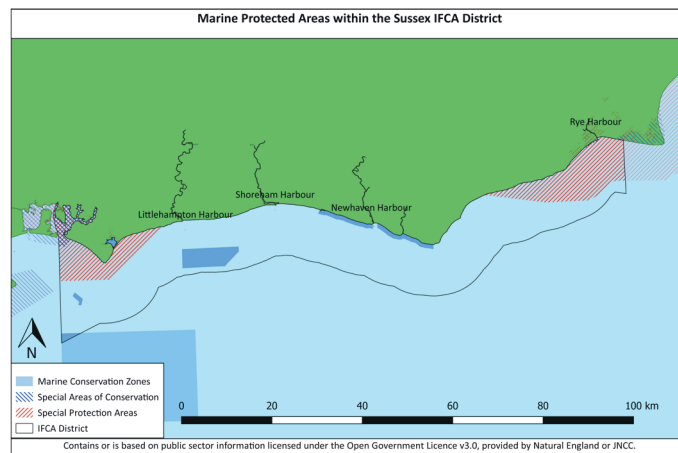
Sussex IFCA district is spectacularly rich in marine life with its diverse range of habitats, from rocky reefs to mixed sediments and the muddy substrates predominating in the area's harbours. This in turn supports a wide range of marine species and results in rich inshore fishing grounds. Key fisheries species include sole, plaice, whelk, lobster, edible crab and cuttlefish.

Protecting Marine Conservation Zone Features

Kingmere MCZ, named after the Kingmere Rocks reef system, is an important breeding area for black seabream (*Spondyliosoma cantharus*). Following the designation of the site in November 2013, Sussex IFCA has introduced management of commercial and recreational fishing that promotes compliance

Black seabream have a unique breeding behaviour in which the males use their tails to create nests in the sediment. Females lay their eggs within the nests and these are then guarded by the males until they hatch. Black seabream return to the same site each year to breed.

and support from the community, whilst meeting the conservation requirements of Kingmere MCZ. Management, through the Sussex IFCA Marine Protected Area Byelaw, came into force in December 2016. To develop and generate support for potential management measures, Sussex IFCA conducted extensive informal consultation. An innovative project which utilised a film-based technique called Community Voice Method



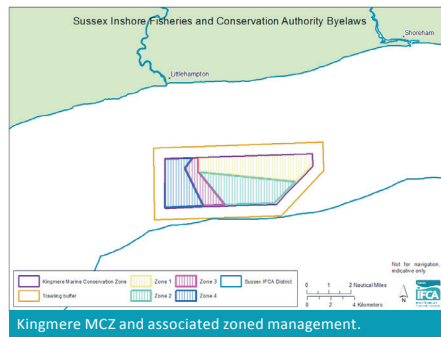
District Area	1,733 km ²
MPA Coverage	25%
European Marine Sites	6
Marine Conservation Zones	5
MPA Related Management Measures	9



Black sea bream (*Spondyliosoma cantharus*) guarding a nest.

(see page 18) to gather people's views on Sussex MCZ management formed a central part of the Authority's informal consultation.

Sussex IFCA has undertaken a range of research projects with various partner organisations and stakeholders to fulfil the aim of monitoring the features of Kingmere MCZ. In 2014 and 2015, Sussex IFCA worked with Cefas and Fugro-Emu to conduct essential site-wide sidescan sonar surveys supported by targeted video ground-truthing to inform knowledge gaps on bream nest distribution throughout the MCZ. The features mapped in these



1st April-30th June Bream Season Management

	Towed gear	Netting gear	Potting & trap gear	Lining	Angling	Dive gathering
Zone 1	x	x	x	x	x	x
Zone 2	x	x	x	x	✓4	x
Zone 3	x	x	✓0	✓0	✓4	✓0
Zone 4	x	x	✓0	✓0	✓4	✓0

Key: x Prohibited

✓4 Open but maximum of 4 bream per person bag limit

✓0 Open but retention of bream

surveys helped to develop the spatial extent of the management zones. Between 2014 and 2016, Sussex IFCA worked with local charter angling skippers to attach external identification tags to seabream. Positions and details of tagged fish released were recorded for every fish and when tagged seabream were recaptured, these details were recorded again, giving some information about seabream migration patterns and site fidelity.

Research and consultation led to the development of management where different fishing activities are restricted in different areas and different times of the year.

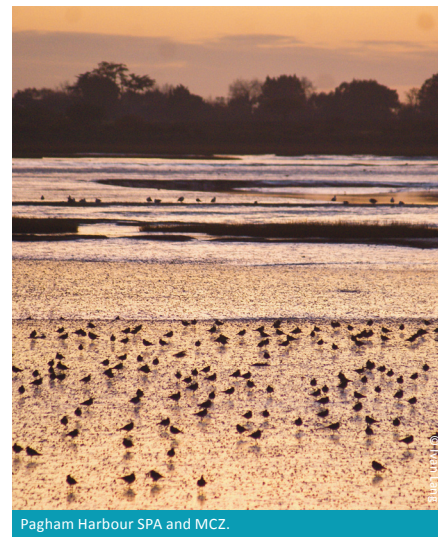
Pagham Harbour EMS and MCZ

Pagham Harbour MCZ is also designated as a SPA, Ramsar, and SSSI. This naturally occurring tidal inlet is fronted by two dynamic shingle spits and is renowned for its rich wildlife.

As an MCZ, the site provides specific protection for seagrass beds, Defolin's lagoon snail and lagoon sand shrimp. As an SPA, the site protects the habitats of internationally important populations of Annex I and migratory bird species to support their survival and reproduction. Habitat is mainly comprised of

saltmarsh and intertidal mudflats, with lagoons, shingle banks and areas of open water.

Under the Sussex IFCA Marine Protected Area Byelaw, Sussex IFCA has taken a proactive approach to protecting Sussex's only near pristine area and prohibited all commercial fishing within the MCZ site. Angling is permitted but not within the Bird Conservation Area between April and August to protect breeding seabirds, particularly terns. In addition, there are limits on the amount of intertidal species – such as crabs, shellfish, worms and seaweed – which can be removed per person per day.



1st July-31st March Management

	Towed gear	Netting gear	Potting & trap gear	Lining	Angling	Dive gathering
Zone 1	x	✓	✓	✓	✓	✓
Zone 2	x	✓	✓	✓	✓	✓
Zone 3	✓	✓	✓	✓	✓4	✓
Zone 4	x	✓	✓	✓	✓4	✓

Key: x Prohibited

✓ Open ✓4 Open but maximum of 4 bream per person bag limit

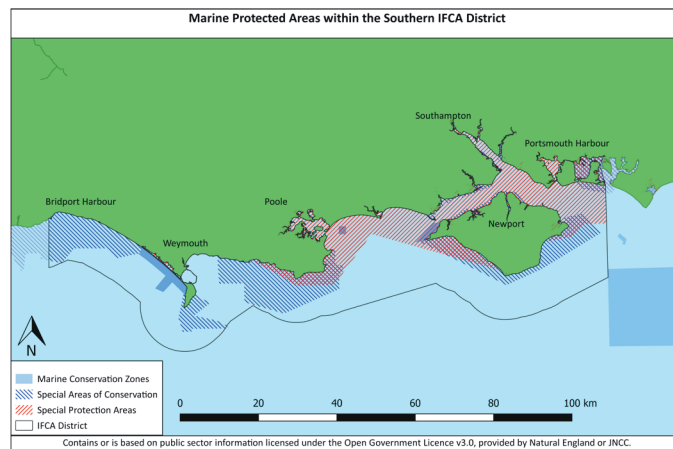
Southern IFCA

A diverse range of ecologically valuable habitats and species are found in the MPAs of the Southern IFCA district, from the geologically diverse reef habitats of Lyme Bay to the species rich estuarine mudflats of the Solent. Fishing activity in the district is dominated by small-scale day vessels, all under 12 metres in length, with the highest percentage of under 10 metre vessels in the country.



© Martin Ogilby

Juvenile black bream (*Spondyllosoma cantharus*) amongst seagrass.



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District Area	2,733 km ²
MPA Coverage	51%
European Marine Sites	12
Marine Conservation Zones	3
MPA Related Management Measures	10

Through the assessment of commercial fishing activities within MPAs, the Authority has introduced significant new management designed to enhance the conservation features of designated sites, such as the closure of sensitive reef and seagrass habitats covering over 25% of the Southern IFCA district to potentially damaging fishing activities. In some cases, management solutions may be less clear, such as the management of shellfish fisheries over soft sediment in Poole Harbour and the Solent estuaries. In these fisheries the management solutions often require careful consideration using extensive evidence to develop a solution that benefits the marine environment. Often in these situations there is an opportunity to develop solutions that provide additional benefits to the sustainability of fisheries and to enhance the social and economic value of the local area.

Poole Harbour Clam & Cockle Fishery

In 2015 Southern IFCA introduced the Poole Harbour Dredge Permit byelaw to manage the clam and cockle dredge fishery in Poole Harbour. This limited permit byelaw was introduced as a result of an extensive review, incorporating significant stakeholder input, and aimed to improve the sustainability of the fishery, enhance protection for the Poole Harbour European Marine Site (EMS) and combat historic high levels of illegal activity. The improvements made to the fishery through the introduction of the new management has resulted in



MSC certified cockle and clam fishermen emptying the catch for sorting.

the fishery achieving a global first by being certified under the Marine Stewardship Council Fisheries Standard as a well-managed and sustainable fishery and, at the same time, having a number of skippers in the fishery certified under the Seafish Responsible Fishing Scheme. Southern IFCA continues to work closely with the fishers and other stakeholders engaged in the fishery, promoting sustainability alongside environmental protection to further enhance the benefits offered to both the fishing industry and the marine environment.

Solent Shellfish Fishery Management

Within areas of the Solent EMSs, Southern IFCA assessments indicated that methods of shellfish dredge fishing were likely to cause significant disturbance and deterioration of designated habitats and species either alone or in combination with other fishing activities. The Authority therefore sought to fulfil its duties through the introduction of new management (bottom right) that incorporates a network of permanent bottom towed fishing gear closure areas and three dredge management areas in order to meet the conservation objectives and to preserve the overall integrity of the sites.

The primary aim of the new management was to meet the conservation objectives of the sites through the introduction of two new byelaws; however, through extensive engagement with the local community it was possible to develop measures that would provide long-term social and economic benefits through improving the sustainability of the Solent's shellfish fisheries.

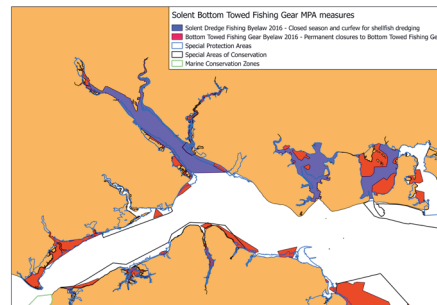


The Poole Harbour Clam and Cockle Fishery is certified under the Marine Stewardship Council Fisheries Standard (above left) and a number of skippers are also certified under the Seafish Responsible Fishing Scheme (above right).



© James West

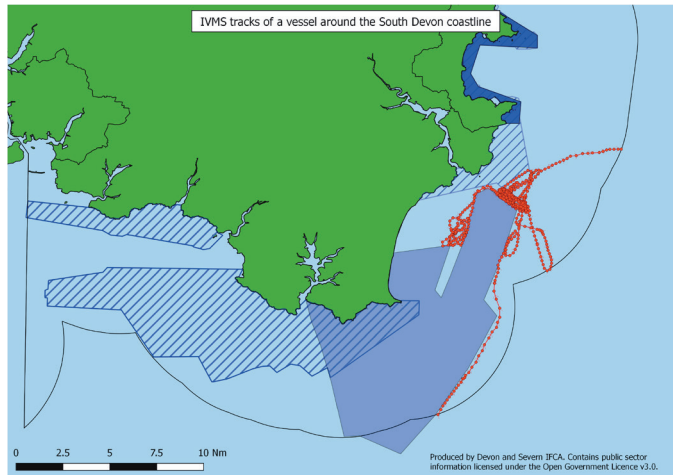
Large numbers of dark-bellied brent geese descend upon the Solent every winter to feed on the seagrass, mudflats and saltmarsh - habitats that benefit from the effective management of the Solent's shellfish fisheries.



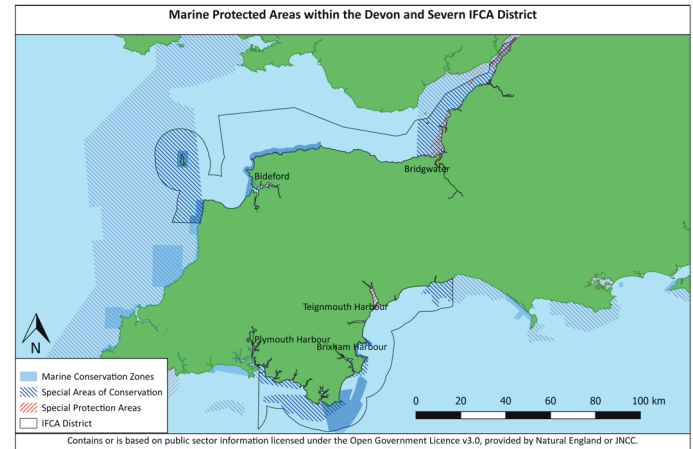
Bottom towed fishing gear MPA measures within the Solent EMS.

Devon and Severn IFCA

Devon and Severn IFCA's district has two separate coastlines, and in the north of the district extends along the median line with Wales to the tidal limit of the Severn Estuary. A diverse range of habitats and species are found in these waters with most MPAs being designated for reef features, along with other sensitive features such as seagrass, *Sabellaria* and the spiny lobster.



IVMS tracks of a fishing vessel working outside of the closing lines of two South Devon MPAs.



District Area	4,522 km ²
MPA Coverage	42%
European Marine Sites	10
Marine Conservation Zones	6
MPA Related Management Measures	11

Embracing new technology

Embracing and introducing new technology, where it is appropriate, is a key objective of Devon and Severn IFCA. The Authority has recognised the significant benefits to both regulators and fishers associated with the introduction of a reliable Inshore Vessel Monitoring system (I-VMS). Effective monitoring of all mobile fishing vessels will help safeguard MPAs that are closed to all types of demersal mobile fishing to protect designated habitats and features. In 2017, a process began to refine the Mobile Fishing Permit Conditions and introduce I-VMS to all permitted mobile fishing vessels over 6.99 metres. Working in conjunction with Common Seas (a non-profit making, Non-Government Organisation), funding was secured for the purchase of over 80 units. After a lengthy and robust consultation process, in April 2018 the D&S IFCA Byelaw & Permitting Sub-Committee agreed that Mobile Fishing

Permit Conditions should be subjected to amendment to incorporate this new technology. In August 2018, (after a period of units being fitted to vessels) revised permit conditions were circulated to all existing Mobile Fishing Permit Holders. This demonstrates the inherent flexibility of the permit byelaw model utilised by the Authority. Mobile gear vessels are now monitored daily and compliance of management to protect MPAs can be interrogated and measured.



© Tim Allsop

The Mobile Fishing Permit Byelaw contributes to the protection of the pink sea-fan (*Eunicella verrucosa*) a slow growing soft coral which is highly vulnerable to damage.

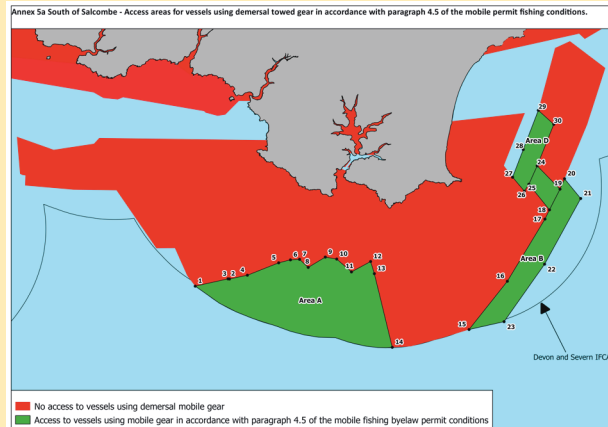
Mobile Fishing Permit Byelaw

Since 2014 Devon and Severn IFCA has introduced four Permitting Byelaws for Mobile Fishing, Potting, Diving and Netting. Each of these have permit conditions that protect features of MPA, including the spiny lobster. The Mobile Fishing Permit Byelaw was the first one to be introduced and protects sensitive features, such as reef, seagrass, and Sabellaria, from the interaction with demersal fishing gears within the district's MPAs.

The Byelaw provides the framework for Permits to be issued. The conditions of these Permits are flexible and can be adapted should changes in management be required.

To ensure that features were protected Devon and Severn IFCA undertook ground truthing of habitats to locate the features, such as reef and circalittoral rock in the Start Point to Plymouth Sound and Eddystone SAC and Skerries Bank and Surrounds MCZ.

These areas were closed to demersal gear as shown in the map below. Ongoing survey work monitors the features, for example to survey the extent and density of the seagrass bed within Torbay.



Areas closed to Demersal gear within two MPAs in Devon and Severn IFCA District

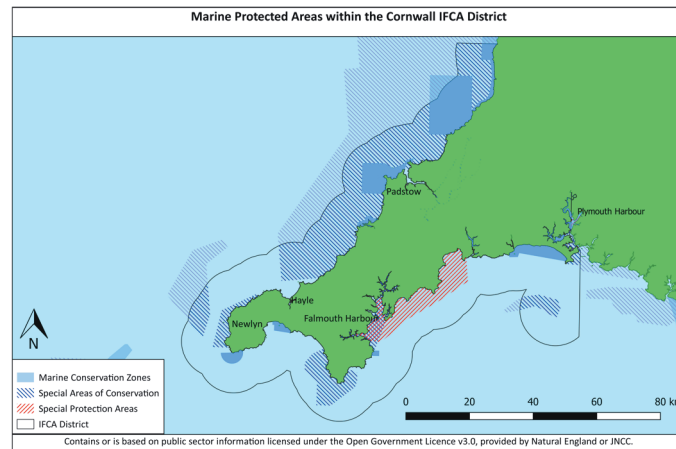
Cornwall IFCA

Cornwall IFCA's district extends from Marsland Mouth on the north coast of Cornwall around to the western end of the breakwater in Plymouth Sound on the south coast. The north coast of Cornwall is more exposed to the Atlantic swell and prevailing winds, whilst the south coast is generally more sheltered with a number of large estuaries. The district encompasses a range of habitats, from exposed to sheltered reefs, maerl beds, seagrass beds, subtidal mixed sediments and estuarine habitats.

Eddystone Reefs Project

Evidence collection is fundamental for the delivery of well managed MPAs. The Eddystone Reef is part of the Start Point to Plymouth Sound and Eddystone SAC. In January 2014, Cornwall IFCA introduced management to prohibit bottom towed fishing gear from parts of the SAC under the Closed Areas (European Marine Sites) No 2 Byelaw. This zoned management approach provided an opportunity to monitor changes to biological communities over time in response to different management approaches. This was also an opportunity to monitor the effectiveness of the byelaw since its introduction.

This project is a collaborative partnership led by the Marine Conservation Society (MCS) with Cornwall IFCA and the University of Exeter (UOE) Environment and Sustainability Institute (ESI), funded by the Pig Shed Trust (2014-2016) and Princess Yachts (2017-2019). Since 2014, Cornwall IFCA has undertaken video and camera surveys of the seabed within three boxes (Figure 1); a treatment area closed to bottom towed fishing gear (Box 1) and two control areas where bottom



District Area	4,077 km ²
MPA Coverage	48%
European Marine Sites	9
Marine Conservation Zones	9
MPA Related Management Measures	4

towed fishing gears are not prohibited (Boxes 2 (near) and 3 (far)). All three sites have similar bathymetry and have all been, or are, subject to towed gears.

Between 2014 and 2017, a total of 1,283 still images were analysed from 71 camera tows. Surveys to monitor changes to biological communities in response to management will continue to at least 2020 to improve the robustness of any findings and allow statistical analysis to be carried out. The Association of IFCA's side-scan sonar (SSS) equipment has also been used across the site and post-processed mosaic data has aided analysis and quantified the area of reef and sediment in each of the boxes.

In 2014 the Association of IFCAs received funding from Defra to purchase critical research and monitoring equipment. The equipment is shared amongst the 10 IFCAs and includes: 1 Edgetech 4200 Sidescan Sonar System, 2 Sea Spyder shallow water camera systems and a Sonar camera. In many cases this has enabled the IFCAs to gather the detailed evidence required to underpin MPA management.

Manacles Marine Conservation Zone

The Manacles MCZ was designated in November 2013. At the point of designation there was limited evidence on the condition and distribution of features within the site, particularly maerl beds. Using the Association of IFCAs Sidescan Sonar System (SSS) and Sea Spyder drop camera system, Cornwall IFCA successfully surveyed 1.19 km² of the site. Analysis of the SSS mosaic data provided an indication of likely maerl beds. This was followed by targeted video and photographic seabed ground-truthing gathering 153 still images in May 2016. Figure 2 shows an example of the results from one of the tows during the survey.

The data informed the Manacles MCZ Post-survey Site Report and, importantly, led to the introduction of management by Cornwall IFCA through The Manacles Marine Conservation Zone (Fishing Restrictions) Byelaw 2017.

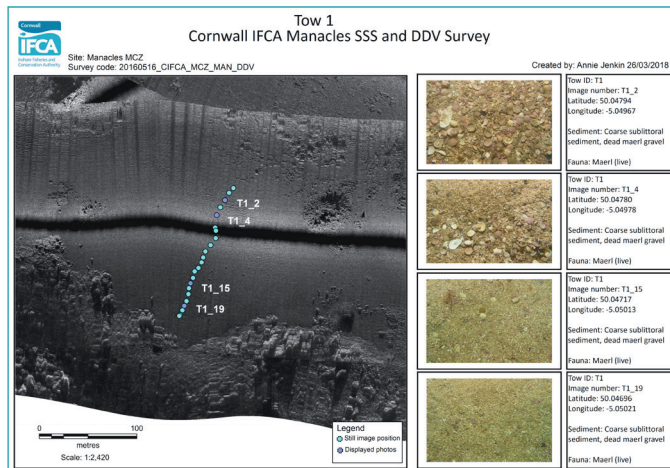
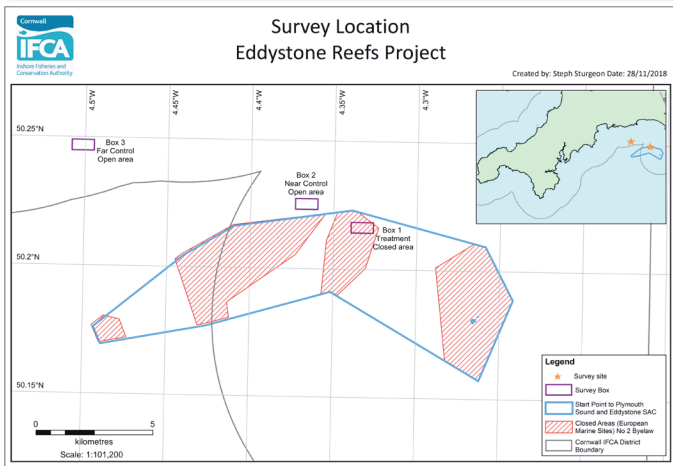
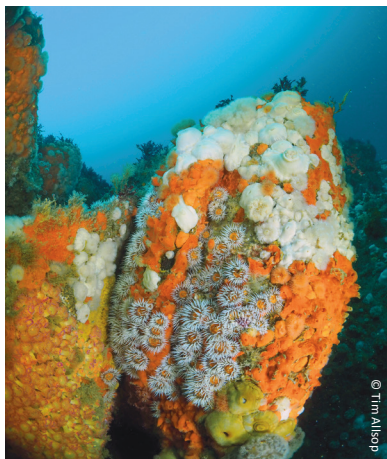


Figure 1. Location of the three survey boxes: Box 1. Treatment, Box 2. Near Control and Box 3. Far Control used in the Eddystone Reefs Project survey.

Figure 2: Station overview including habitat classification with still images from a side-scan survey and drop down video survey for Tow 1 in the Manacles MCZ.

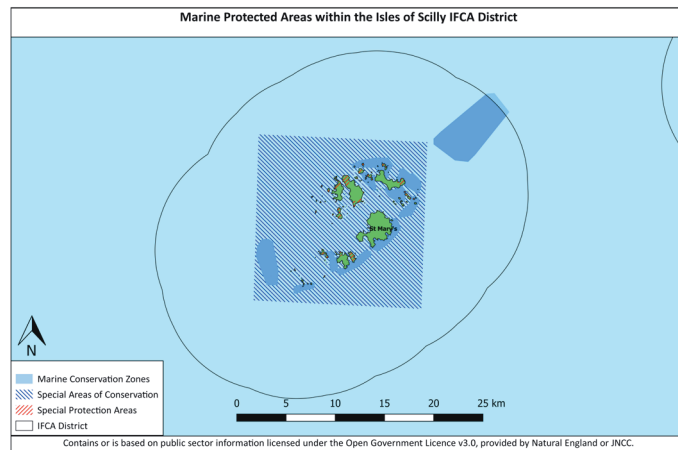
Isles of Scilly IFCA

The Isles of Scilly is an archipelago off the southern tip of Cornwall and is home to some of the most exceptional marine life, many of which are rarely found elsewhere. Habitats range from shallow sandy areas that support the most extensive and best-developed seagrass beds in England to reefs and rocky islets that surround the islands and provide habitats for many different species. The islands support more than 8,000 pairs of 13 different species of seabird, which qualify as one of only seven



Reef habitat at the Isles of Scilly.

major assemblages of breeding seabirds in England. Species include internationally important breeding populations of the smallest seabird in the world, the European storm petrel, and the lesser black-backed gull.



District Area	912 km ²
MPA Coverage	32%
European Marine Sites	2
Marine Conservation Zones	11
MPA Related Management Measures	5



Storm Petrel (*Hydrobates pelagicus*).

Voluntary measures

A network of eleven sub-sites that make up the overall Isles of Scilly MCZ was established in 2013. Ten of the eleven sites lie within the Isles of Scilly SAC and complement the SAC by offering protection to additional species and habitats such as the pink sea-fan, fragile sponge and anthozoan communities, spiny lobster and stalked jellyfish. An integral part of these sites are the voluntary measures within the MCZ boundaries which have been developed by Isles of Scilly IFCA through workshops with stakeholders. These include: no diving for shellfish or other marine species, anchoring restrictions for vessels over 10m, a three-month commercial fishing closure and two seagrass non-ground disturbance sites. Since all but one of the MCZs are entirely within the district, the restrictions and requirements of the Isles of Scilly IFCA Fishing Gear Permit byelaw also apply.



© Tim Allsop

Spiny Lobster (*Palinurus elephas*).

Modelling spiny lobster larval dispersal

In 2017, the Isles of Scilly IFCA led a research project in collaboration with Cornwall IFCA, Devon and Severn IFCA and CEFAS to model the dispersal of spiny lobster (*Palinurus elephas*) larvae. This species was caught throughout the south west until the collapse of stocks as fishing intensified through the 1980's and early 1990's. One of the only areas where spiny lobster, also known as crawfish, is still regularly caught is the Isles of Scilly.

Within the Isles of Scilly MCZs spiny lobster is a designated species, therefore it is important to understand its natural history in order to protect it. The species is known for its long larval life span, which can last between 5 and 12 months, where they are carried by the ocean currents as plankton before they settle on reefs to metamorphose into juveniles.

CEFAS used a computer model which simulated the movement of the crawfish plankton around the English Channel and Celtic Sea. The model shows how geographically distinct populations are very unlikely to be 'self-seeding' and would rely on recruitment from elsewhere. The Isles of Scilly for example would be reliant on recruitment from crawfish larvae from the northern coast of Spain and western coast of France. In turn, larvae produced around Scilly are carried to the southern coast of Ireland and west Wales. The research highlights the importance of planning networks of protected areas and managing fisheries on a regional scale that takes into account whole life-cycles.



© Tim Allsop

Stalked Jellyfish (*Calvdosia campanulata*).

North Western IFCA

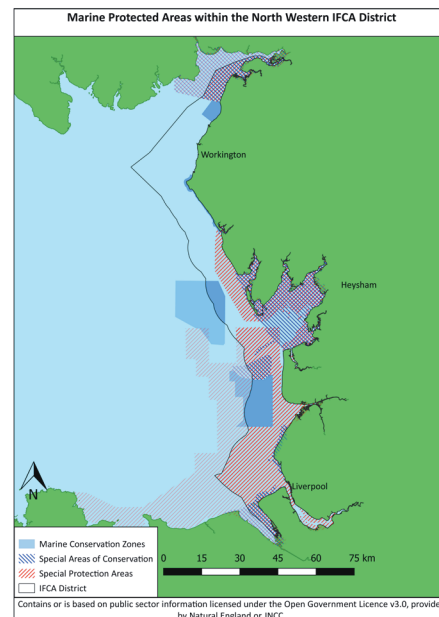
The North Western IFCA district contains a range of sensitive habitats from deep, species rich, offshore mud to rocky shores along the Cumbrian Coast with important nesting sites for seabirds. These areas are important grounds for fishing of nephrops, pelagic and demersal fish, and crustaceans including crabs, lobsters and shrimp. There are vast expanses of intertidal and sub-tidal sandbanks adjoining extensive bays and estuaries. Intertidal glacial cobble and boulder moraine skears can provide suitable habitat for substantial honeycomb worm reefs. The cockle and mussel beds of Morecambe Bay, the Ribble Estuary and other areas are economically important and are the focus of much of the management work of the Authority.

Bivalve Mollusc Working Group (BMWG)

The Authority works with a range of key partners to deliver effective fisheries management across the district, including Natural England, Marine Management Organisation, Environment Agency, Cumbria Wildlife Trust and the RSPB. Fishing industry sectors are also significant partners. The Authority aims to facilitate cross sectoral understanding and agreement through multi-sectoral meetings and its website (www.nw-ifca.gov.uk) to achieve sustainable fisheries without risk to conservation features.

The North Western IFCA district's stocks of cockles and mussels vary greatly from year to year, partly due to the highly dynamic coastal environment of northwest England, when sandbanks and channels can shift overnight. The causes of population

fluctuations are not fully understood which makes them difficult to manage. These bivalves are important food components for vast numbers of overwintering waders for which the EMSs are designated. In recent years Morecambe Bay seed mussel has become an increasingly sought after resource for aquaculture, and when available and authorised by North Western IFCA is fished by eco-dredge and hand-workers in very high quantities. Conflict between sectors over Morecambe Bay bivalves led the Authority to set up a multi-sectoral forum, the Bivalve Mollusc Working Group, with fishing industry, conservation agency and NGO membership. The forum provides an arena for dialogue, improving understanding and agreement between sectors on stock management.



District Area	3,354 km ²
MPA Coverage	67%
European Marine Sites	13
Marine Conservation Zones	4
MPA Related Management Measures	6

St Bees Head voluntary Code of Practice for netting

IFCAs must consider a range of approaches to manage fishing activity ranging from IFCA byelaws to voluntary Codes of Practice, which require 'buy in' from stakeholders.

St Bees Head in Cumbria Coast MCZ is a nature and RSPB reserve. It is important in the northwest as one of the only cliff sites available for nesting seabirds, such as guillemots, razorbills and puffins. Due to their feeding and loafing / preening behaviours these birds are vulnerable to entanglement in nets set near to the base of cliffs at certain times of year – i.e. the nesting season. North Western IFCA worked with

Natural England and the RSPB to define the zone and times in which netting would pose a risk. Meetings were then held with commercial and recreational netters to ask for their co-operation with a voluntary Code of Practice. This was instigated for the first year in 2018, and featured on BBC Countryfile. Boat and shore patrols were carried out regularly to record compliance, which was 100%. North Western IFCA provided a vessel and crew for RSPB colleagues to carry out their bird census of the breeding birds on the cliffs. This management will be carried forward into future years.



© North Western IFCA

Sunset over Morecambe Bay EMS.



© North Western IFCA

North Western IFCA uses ribs and quad bikes to reach remote mussel beds in Morecambe Bay EMS before carrying out surveys and inspections on foot.



© North Western IFCA

Glacial moraine skear in Morecambe Bay covered in seed mussel.



© David Wootton (rspb-images.com)

St. Bees Head RSPB reserve within the Cumbria Coast MCZ.

Marine Protected Area Management

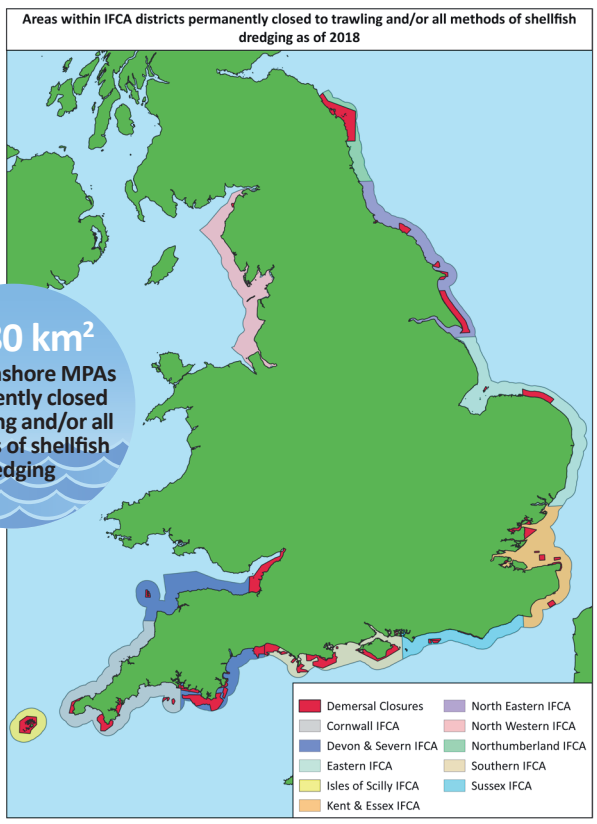
A diverse and often complex range of approaches have been used by IFCAs to manage fishing activities within MPAs.

In situations where it is clear the conservation objectives for the protected feature (or sub-feature) will not be achieved because of its sensitivity to the type of fishing activity simple spatial closures have been applied, usually through an IFCA byelaw.

The map on the right shows the areas permanently closed by IFCAs to methods of bottom towed fishing gear. Further demersal towed gear management exists, which either prohibit specific forms of dredge fishing or provides closures through permit schemes with no allocation. These include but are not limited to the management highlighted within the table below. In some cases, management is more restrictive, prohibiting all fishing as a No Take Zone (NTZ) or perhaps just allowing hand-line fishing. In situations where there is doubt as to whether conservation objectives for a feature (or sub-feature) will be achieved because of its sensitivity to a type of fishing, following an assessment of the effect of that activity, more site-specific adaptive or innovative management solutions have been reached. These may include seasonal closure of areas, fishing gear modifications, permitted access or other fishing effort limitations. In other cases, IFCAs have sought to introduce management through the use of non-statutory measures, such as Codes of Conduct or Fishery Guidance. In addition a range of complimentary non-MPA specific measures exist that support the management of fishing activities within MPAs, such as IFCA maximum vessel length byelaws. More information about site specific management solutions introduced by individual IFCAs, together with an interactive map can be found on the Association of IFCAs website (<http://www.association-ifca.org.uk/>).

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Number of inshore MPAs subject to bottom towed fishing gear closures

3,980 km²
Area of inshore MPAs permanently closed to trawling and/or all methods of shellfish dredging



Examples of IFCA demersal towed gear management

IFCA	Byelaw Name	Area Covered	Description
North Western	Restrictions on the Use of a Dredge	3,354 km ²	Permit byelaw prohibiting the use of a dredge without a permit – currently no permits are granted.
North Eastern	XXIII Method and Area of Fishing (Dredges) Byelaw	2,196 km ²	Permitted access to specified scallop dredging areas within the district. Remaining two-thirds of the district is closed to scallop dredging.
Sussex	Fishing Instruments	959 km ²	Prohibits the use of scallop dredges in the inner 3 nautical miles of the district.

The Future of the Marine Protected Area Network

It is clear from the Government's 25 Year Environment Plan that the continued development and delivery of a well-managed MPA network is a key part in achieving sustainable fisheries and good environmental status in our seas, allowing marine industries to thrive.



Kelp beds in the Isles of Scilly.

© Tim Allopp

We have made substantial progress, as is shown in this report. There is, however, still work to be done to complete the Blue Belt, both in terms of the designation of sites and improved management of our waters. Completion of the management measures for the current designated sites, assessment of the forthcoming proposed tranche three inshore MCZs and ongoing enforcement will continue to be a key focus for the IFCA and partner organisations. The 25-year Environment Plan and White Paper for sustainable fisheries for future generations (now being taken forward through the Fisheries Bill) all aspire to continue to develop our seas as an exemplar of marine conservation and fisheries management for future generations. The IFCA look forward to working with Defra, our partner organisations and stakeholders to continue to deliver locally based decision making that supports local communities to produce sustainable seas for the benefit of all. England has a rich maritime culture and heritage and the IFCA are in a position to play a central role in delivering world class inshore fisheries management and a healthy marine environment for future generations.



Studland to Portland SAC.

© Matt Doughty



Association of Inshore Fisheries
and Conservation Authorities

Get in touch

If you would like more information on any of the subjects covered by this we would like to hear from you. Contact us through the following website.

www.association-ifca.org.uk

Links to all 10 IFCAs can be found on this website as well as a website contact form.



Department
for Environment
Food & Rural Affairs



Marine
Management
Organisation

Data has been provided by individual IFCAs and other relevant authorities. Values are approximates based on best available evidence as of 2018.