

Overview of fisheries management

Summary

Sustainable fisheries management is key to maintaining healthy fish stocks in the long-term. Wild stocks are often shared between States (as they migrate across national boundaries), so management operates in a political as well as a scientific framework. This requires international agreement on management measures such as Total Allowable Catch (TAC) for each fish stock, divided into quotas for relevant States.

For stocks that cross national boundaries or into the high seas, the framework within which States collaborate in their management is the United Nations Convention on the Law of the Sea; UNCLOS (1982) and the [United Nations Fish Stocks Agreement](#); UNFSA (1995) which has been signed by 80 states. Under these agreements States should seek to reach agreement on management of these stocks to maintain their right to fish for them under international law.

Management methods vary between fisheries. Catches from Northeast Atlantic pelagic fisheries (targeting fish species living in the 'pelagic zone' off the seabed in the water column), which comprise shoaling species such as mackerel, herring, sprat and blue whiting, are largely made up of one species, so can be managed by overall catch. Demersal fisheries catches (comprising species that live close to the seabed) are often composed of several species (mixed species fisheries), so the catch of each species needs to be balanced to ensure all of them are managed sustainably.

Background

[United Nations Food and Agriculture Organisation \(FAO\)](#) data shows that globally 30% of assessed stocks are overfished. While we can't control fish stocks, we can regulate how humans exploit them. This process is called 'fisheries management'. Better, forward-looking fisheries management is needed to sustain stocks into the future and reduce the number of stocks that are overfished.

There is a consensus that stocks should be managed to produce 'Maximum Sustainable Yield (MSY)'. This means catching the maximum quantity that can safely be removed from the stock while maintaining its capacity to produce sustainable yields (catches) in the long term.

Fish are a common resource, shared or competed for between different individuals and States. Ideally, scientific data should be used to ensure that, between these players, the overall target of fishing at MSY or other agreed target is achieved. However, although commercial, political and/or technical realities may mean that this is not always possible, there is scope for fisheries' managers to improve sustainability, provided the measures agreed are practical and robust enough to be implemented in the fisheries.

Responsible sourcing

The Seafish [Risk Assessment for Sourcing Seafood \(RASS\)](#) tool enables seafood buyers to make informed sourcing decisions and develop responsible sourcing strategies. For each stock, the tool scores risks to the following: stock status, management, bycatch and habitat against [RASS scoring guidelines](#).

Responsible fishing

The FAO '[Code of Conduct for Responsible Fishing](#)' is a set of guidelines for responsible fishing at all levels, and, with other documents, forms the basis of seafood Certification for Eco-labels. See the Seafish Guide to Responsible and Sustainable Sourcing and the information sheet on Global Sustainable Seafood Initiative for more information. The [Responsible Fishing Vessel Standard \(RFVS\)](#) is a voluntary vessel-based programme certifying high standards of crew welfare and responsible catching practices on board fishing vessels.

Management regimes

Local

Within territorial waters (12 miles from the State's coastline), management regimes vary widely. In the UK, this responsibility is divided between the devolved local and national administrations;

- In English waters the Inshore Fisheries and Conservation Authorities (IFCAs); these local authority bodies have statutory duties to manage some fisheries out to 6 miles
- In Scottish waters Inshore Fisheries Groups advise the Scottish Government
- In Northern Irish waters the Inshore Fisheries Partnership Group advises the Northern Ireland Government
- In Welsh waters the Marine Fisheries Advisory Group advises the Welsh Government

National

States have sovereign rights to fisheries within their Exclusive Economic Zone (EEZ), which extends 200 miles from their coastline, and to which they can also grant other States access and reciprocal rights to territorial waters exist between some nations.

Where EEZs would otherwise overlap (e.g. between UK and France), a 'median line' (a line down the middle of the sea area) between the States concerned is used as the EEZ boundary. Leaving the EU would imply that the UK would become an independent Coastal State with corresponding rights to manage fisheries and responsibilities to seek agreement with the EU and other parties on transboundary and straddling stocks (see below).

International

Fish that migrate between States' EEZs are transboundary stocks and those which move between EEZs and the high seas are straddling stocks. Under (United Nations Convention on Law of the Sea (UNCLOS) and [United Nations Fish Stocks Agreement \(UNFSA\)](#) States should seek to reach agreement on transboundary and straddling

stock management to maintain the right to fish for these stocks under international law.

The main European fisheries are managed under the [Common Fisheries Policy](#), where EU Member States pool their EEZs. On leaving the EU the UK has become an independent Coastal State enabling it to manage fisheries in its own waters. Many of the major stocks are now shared between the UK, EU and Norway in the case of North Sea stocks. Under the agreements cited above parties should seek agreement on management. The basis of this co-operation is laid out in the [UK-EU trade and co-operation agreement](#) Article 404.

Waters beyond EEZs are termed 'high seas' and belong to no one State. [Regional Fisheries Management Organisations \(RFMOs\)](#) are the appropriate organisations for fisheries management on the high seas.

Management cycles

Fisheries management rotates between rounds of scientific assessment and political agreement:

Scientific assessment – makes an assessment of a stock's status compared to MSY or other agreed framework and provides advice on how to fish sustainably (e.g. guidelines for TAC and/or other management measures such as the control of fishing effort and the use of selective gear).

Political agreement – representatives from the State(s) concerned agree on future management measures, taking into account the results of the scientific assessment.

In some areas, such as the European Union, there is a consultation process involving regional stakeholder bodies such as the European [Advisory Councils](#) which advise on fisheries management. For many European stocks, the cycle takes place annually with scientific advice given by the [International Council for Exploration of the Seas \(ICES\)](#). Timescales of the management cycle vary in other parts of the world.

Implementing fisheries management

Control measures

Fisheries managers base their decisions on management objectives, available information, and the practicality of enforcement. Control measures used generally fall into two categories:

Input controls – measures that regulate fishing effort. These include restrictions on vessel type, quantity, size, power and time at sea, as well as technical measures which control the design and deployment of gear (e.g. selectivity, season/area closures).

Output controls – measures that regulate quantity and composition of catch. These include Minimum Landing Sizes (now renamed Minimum Conservation Reference Sizes within the European Union and the UK), TACs and limits on the amount of fish that can be caught in a day.

Generally, large scale fisheries with good information use output controls, whereas smaller scale fisheries use simpler input controls.

Enforcement

Fisheries management can only be successful if management regulations are followed by fishers. Monitoring, Control and Surveillance (MCS) enable regulations to be enforced, by collecting information about the vessel, location and catch. Once evidence is collected, legally competent authorities are able to prosecute offenders.

Fisheries that contravene management regulations, known as Illegal, Unregulated or Unreported (IUU) fisheries, are a threat to sustainable fish stocks and fisheries. Some RFMOs keep lists of suspected offending vessels.

Since on-the-ground surveillance and enforcement is difficult for many fisheries, technology is being increasingly utilised to remotely monitor compliance. This includes satellite tracking (Vessel Monitoring Systems) and surveillance cameras (Remote Electronic Monitoring).

Management examples

European North Sea demersal fisheries

Depletion of whitefish in the 1970s and 80s required urgent management measures to assist recovery. Introducing restrictive TACs on depleted species, such as cod, (an output control) was of limited value because they were also caught as bycatch when fishing for other species. Eventually, controlling fishing effort and various measures to reduce catches were also introduced which resulted in decreased fishing mortality on a number of demersal stocks.

Now the focus is on the North Sea cod stock which remains vulnerable. This is being implemented via improved regulation and new technical measures. Within the UK EEZ there is a [new National North Sea cod avoidance plan](#) which includes spatial and technical measures and applies to all vessels (EU and UK) fishing within the UK EEZ.

Managing mixed fisheries

Two scientific approaches enable management of multi-species fisheries:

Mixed fisheries assessments – outline how a range of fishing scenarios is likely to impact the status and catches of all the species in a fishery. The assessment highlights trade-offs between species, and the likelihood of certain species becoming limiting (i.e. 'choke' species for which there is limited quota), under different scenarios. This enables managers to better understand the implications of the catch options (ie TACs) chosen.

Maximum sustainable yield ranges – allow managers to understand the implications of trade-offs between stocks ICES has introduced a new set of reference points. These are known as 'MSY ranges' which are used to produce advice on fishing mortality which have been designed to deliver no more than a 5%

reduction in long term yields compared with MSY (corresponds to 95% of MSY), consistent with the stock being inside safe biological limits. This allows some flexibility to exploit a particular stock at rates slightly higher or lower than those corresponding to MSY, while keeping the stock within safe biological limits.

This approach has been incorporated into the [Multi Annual Plans](#) for demersal stocks introduced by the European Union into Baltic, North Sea and Western Waters under the European Union Common Fisheries Policy. These plans, combined with mixed fisheries assessments, are designed to allow flexibility in setting TACs within mixed demersal fisheries, consistent with long term yields close to MSY.

With the UK exit from the EU many of these stocks have become shared stocks between the EU, UK and in some cases Norway. This means that catches are subject to negotiation between the parties, and in the case of the EU-UK stocks the [Trade and Co-operation agreement](#) provides the framework. The headline ICES advice is given for MSY, with advice corresponding to the 'MSY ranges' also given in the scenarios.

The Landing Obligation

The Landing Obligation (also known as the 'discard ban') requires vessels to land all fish that are subject to TACs in Northwest Europe, or TACs and/or minimum landing sizes in the Mediterranean, by 2019 in order to prevent wasteful discards. Fish caught below the Minimum Conservation Reference Size (MCRS; the new name for the Minimum Landing Size) are also included in the obligation, and will be used for fishmeal, further dis-incentivising fishers to target them.

The main risks of the Landing Obligation are from mixed-fisheries being 'choked' because they have run out of quota of one species, despite having quota for others. Such risks are compounded by shifts in fish stock distribution due to climate change and other factors.

The Landing Obligation has led to a renewed focus on researching and developing selective gear, and has provided impetus for improving collaboration between fishers, technologists and scientists. See examples in the [Seafish gear database](#).

Northeast Atlantic pelagic fisheries

These pelagic fisheries catches are almost entirely single-species, so the fleets suffer from fewer mixed fisheries issues compared to demersal stocks. As a result, it is possible to manage these pelagic stocks without knock-on effects on others. The five-year moratorium on catching herring in the North Sea in the 1970s is a successful example of how an output control (restricting herring catch) enabled stock recovery.

Climate change can alter the distribution and migratory behaviour of different species. The migratory range of North Atlantic mackerel has expanded over the past decade, for example. Since 2008, first Iceland then Greenland and Russia have increased their catches substantially as the mackerel stock size increased and the stock's migratory range increased in the western and northern regions of the Nordic seas.

These changes pose a challenge to management: established agreements on quota (or catch share) become less tenable when a stock's migratory pattern changes and new parties exploit the stock.

Further information

Seafish Guides;

Guide to Sustainability and Responsible Sourcing SR752; Version 3;
ISBN 978-1-911073-58-1

Guide to Fisheries Management SR741 ISBN 978-1-911073-47-5

Guide to Fish Stock assessment and ICES reference points SR742 ISBN
978-1-911073-48-2

Guide to Fishing at Maximum Sustainable Yield SR743 ISBN 978-1-911073-
49-9

Guide to Data-Limited Stock Assessment SR744 ISBN 978-1-911073-50-5

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