

# Good Catch

...the essentials

Helping You Navigate Seafood Sustainability



Produced by the Good Catch project,

a collaboration of the Marine Conservation Society, the Marine Stewardship Council, Seaweb's Seafood Choices and Sustain



**Good Catch...the essentials**  
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A collaboration of the Marine Conservation Society, the Marine Stewardship Council, SeaWeb's Seafood Choices and Sustain: the alliance for better food and farming.

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[www.marinephotobank.org](http://www.marinephotobank.org)

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# Good Catch

cooking for change, serving the future

Good Catch is a collaborative project of four organisations that helps the culinary sector navigate seafood sustainability to make practical improvements in their business. It brings together the work of the Marine Conservation Society (MCS), the Marine Stewardship Council (MSC), SeaWeb's Seafood Choices and Sustain: the alliance for better food and farming.

Good Catch directs catering professionals to a range of user-friendly materials and activities on seafood sustainability, specifically designed to help restaurants and related businesses improve the sustainability of the seafood they buy, serve and promote.



## How Good Catch Can Help You

[www.goodcatch.org.uk](http://www.goodcatch.org.uk)

The Good Catch website is designed to be the first port-of-call for improving your seafood sustainability. The easy-to-access website gives practical information to get you started on your journey and directs you on to other relevant resources and organisations.

### Fish Flash

This periodic e-bulletin from Good Catch helps you stay up-to-date on seafood sustainability news, advice and progress in the culinary sector. Fish Flash also features upcoming events relating to sustainable seafood.

Stay informed – visit [www.goodcatch.org.uk](http://www.goodcatch.org.uk) to sign-up to receive Fish Flash.

### Publications

Good Catch creates clear communication resources for chefs, caterers and restaurateurs. *Good Catch... the essentials* pulls together core information on seafood sustainability issues and presents steps to take on the pathway to improvement. *Good Catch... the essentials* builds on the well-received *Good Catch Manual – a rough guide to seafood sustainability for chefs, restaurateurs and caterers*. Released in September 2008, the *Good Catch Manual* (edition one) was the first publication designed to help the UK catering sector make sustainable seafood choices.

Order Good Catch publications or download pdfs via [www.goodcatch.org.uk](http://www.goodcatch.org.uk)

### Workshops and Field Trips

These events aim to help chefs, caterers and restaurateurs better understand the issues of seafood sustainability and build good practice into their businesses. Workshops include practical sessions such as tastings and kitchen demos, held in London and various regional locations. The field trips are an opportunity to directly connect with fishermen and fish farmers, as well as fellow chefs, and be informed and inspired about sustainable fishing and farming techniques used in UK waters.

Dates of upcoming events are listed on [www.goodcatch.org.uk](http://www.goodcatch.org.uk) and in Fish Flash.

### Influencing and Promoting Best Practice

The Good Catch partner organisations aim to encourage seafood sustainability progress and increase awareness in key areas of the catering sector. An example of how this is promoted is the *Good Catch Award* – introduced to the Fish and Chip Shop of the Year Competition in 2009/10 and sponsored by the Marine Conservation Society (MCS), the Marine Stewardship Council (MSC) and SeaWeb's Seafood Choices.



“At last, gastronomy is reconnecting itself with its responsibility for the produce it uses, be it from sea, soil or air. The British chef, as much as the consumer, has a huge role to play in bringing back marine life and promoting both clean seas and healthy fish stocks and biodiversity.

Good Catch can help us on this path of responsibility and I am proud to be an active ambassador for this cause.”

**Raymond Blanc**  
Le Manoir aux  
Quat' Saisons



Good Catch offers practical information tools and events with the aim of making it easier for chefs, caterers and restaurateurs to improve the sustainability of their seafood.



## About the Organisations Involved

### Marine Conservation Society (MCS)

The Marine Conservation Society is the UK charity dedicated to caring for our seas, shores and wildlife. MCS campaigns for clean seas and beaches, sustainable fisheries, and protection for all marine life. The MCS aquaculture and fisheries programme promotes sustainable seafood consumption through its consumer awareness programme and by working directly with the seafood industry.

The MCS' web resource, [www.fishonline.org](http://www.fishonline.org), provides information on the relative environmental sustainability of seafood available in the UK, along with information on fishing and farming methods.

[www.mcsuk.org](http://www.mcsuk.org)



### Marine Stewardship Council (MSC)

The MSC is an international non-profit organisation that was set up in 1997 to promote solutions to the problem of overfishing. The MSC runs the only widely recognised environmental certification and ecolabelling programme for wild capture fisheries. It is also the only seafood ecolabel that meets the highest international ecolabelling guidelines.

The MSC operates two standards – one for well-managed sustainable fisheries and one for traceability. In order to bear the MSC label, every link in the supply chain – from ocean to plate – has to be certified for traceability so that if you buy fish with the MSC tick, you know it can be traced back to the certified sustainable fishery that caught it.

In total, around 200 fisheries are currently engaged in the MSC programme with over 60 certified and over 130 under full assessment – all of these are described on the website below. Together, the MSC certified fisheries record annual catches of close to 4 million tonnes of seafood, representing approximately 7% of the world's wild-fish catch. Fisheries in assessment add a further 5% of the world's wild capture fish. Worldwide, more than 3,600 seafood products, which can be traced back to the certified sustainable fisheries, bear the blue MSC ecolabel.

[www.msc.org](http://www.msc.org)



### Seafood Choices

Seafood Choices, an international programme of SeaWeb, provides leadership and creates opportunities for change across the seafood industry and ocean conservation community. Seafood Choices is about cooperation and identifying creative solutions to long-held challenges. By building relationships and stimulating dialogue, Seafood Choices is encouraging and challenging all sectors of the seafood industry along the path toward sustainability.

[www.seafoodchoices.org](http://www.seafoodchoices.org) and [www.seaweb.org](http://www.seaweb.org)



### Sustain



**Sustain: the alliance for better food and farming** advocates food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, promote equity and enrich society and culture. Sustain runs **Ethical Eats**, a network of restaurants and caterers interested in sustainability, and works very closely with the **Sustainable Restaurant Association** ([www.thesra.org](http://www.thesra.org)), a membership organisation which aims to help UK restaurants become more sustainable in all areas of their business.

[www.sustainweb.org](http://www.sustainweb.org)

# Introduction

Successful chefs and restaurateurs share a passion for sourcing and serving fantastic food. *Good Catch... the essentials* is designed to help you make responsible decisions as to which seafood to put on your menu. Purchasing has power; sourcing responsibly helps ensure that you and your customers can enjoy a diverse array of seafood, now and into the future. By doing so you are helping to protect the marine environment and the livelihoods of those who rely on it.

*Good Catch... the essentials* brings together key seafood sustainability information in one easy-to-use resource that will help you to understand the general principles of seafood sustainability.





“For the growing number of chefs who are recognising the importance of sourcing sustainable fish, finding reliable information can be a huge challenge. It’s great to have a resource like this available.”

**Barny Haughton**



The path to improving seafood sustainability isn’t always straightforward, but Good Catch aims to make it easier to make the right choices – for you, your business and marine environments.

**Background**

The seas and oceans cover two-thirds of our planet’s surface and can be up to seven miles deep. These immense, often unseen, bodies of water are vital to the health of our planet. They have many natural functions, including climate regulation, oxygen generation, food supply, and not least, they provide a home to some of the world’s biggest and smallest forms of life.

Seafood is key to human nutrition globally, making up over 15% of animal protein consumed. But fish are much more than just food – they have an important role in the delicate marine systems which maintain healthy environments. Furthermore they have huge financial and social significance in terms of employment, livelihoods, culture, tourism and sport.

As demand for seafood continues to grow, along with the planet’s human population, production from wild-capture fisheries and (more recently) the amount of seafood produced in farms has also grown. However we are increasingly aware of the damage that can be inflicted upon the environment by some of these practices and the need for sustainable solutions.

The recent Millennium Ecosystem Assessment reported that globally, wild-capture fisheries are being used well beyond levels that can be sustained. Many fisheries have reached maximum capacity, and some historically important ones have already collapsed. Around 10% of the fish caught worldwide are discarded as unusable or undesirable. Fish farming is also expanding rapidly – in some cases in an unregulated way and to the detriment of the coastal environment.

Because of these changes, sustainable seafood has come a long way in recent years. Once on the fringes of the seafood industry, today sustainability is now close to the heart of many fisheries, farms and seafood businesses. On top of increased expectations of corporate responsibility, demand for food from more ethical sources continues to grow as consumers take a greater interest in social and environmental issues. The financial case for sustainable sourcing is strong, according to the Co-operative’s Ethical Consumerism report ethical consumption rose by 15% between 2000 and 2007 to £35.5 billion, and research shows even in hard economic times customers stick to their ethical values.

Despite the growth in ethical purchasing, lack of knowledge remains an obstacle for people trying to source seafood responsibly. *Good Catch... the essentials* brings together information in an easy-to-use format to help seafood buyers navigate the complex issues of sustainability. Sharing this knowledge with your whole team can develop a sense of enthusiasm and pride for the seafood you serve; something customers will want to be a part of.



# Stepping Stones

## towards Seafood Sustainability

Good Catch helps chefs, restaurateurs and caterers navigate the journey of improving seafood sustainability. The steps described here, shaped by leading environmental organisations and businesses, provide a clear path to help you advance the sustainability of seafood you buy, serve and promote.

**Step 1 - Gather Information**

Assess and monitor the environmental sustainability of the seafood you currently serve.

**Step 2 - Source Sustainably**

Make sustainable seafood choices: Avoid the Worst, Promote the Best, Improve the Rest.

**Step 3 - State your Commitment**

Develop and implement a policy on seafood sustainability in your business.

**Step 4 - Communicate Clearly**

Spread the message with your customers, suppliers, employees and other key stakeholders about seafood sustainability.

**Step 5 - Influence Wider Progress**

Support positive change for fish, fisheries and marine resources; use your influence to encourage others to join your seafood sustainability journey.

*Find out more about each of these steps and the resources available to help you on the following pages.*



“Line-caught fish such as pollack and wild seabass is really special. With hook and line caught fish there is a real difference in quality – all the signs we look for of bright eyes & flared gills, rigour, fresh sea smell and pearlescent flesh. Along with that comes the knowledge that hand-lining does not negatively impact on other marine life or habitats. Buying sustainably caught British fish like this can help support healthy fishing communities, healthy seas and a healthy business.”

**Peter Weeden**  
**Paternoster Chop House**



“Fresh, local fish from small boats catching responsibly is something special on your menu. Good food need not be complicated, this fish sells itself. Working with regional Yorkshire produce in Italian cooking to me is not a contradiction but a perfect compliment.”

**Giorgio Alessio**  
Lanterna Ristorante

### Get Quizzical

Ask your fish supplier questions. Find out the what, when, where and how of catching and farming your seafood. Anything they can't answer they should be able to find out – once they know it's important to you, it will be important to them.

## Step 1 Gather Information

To begin improving your seafood sustainability, you first have to understand where you are starting from. Better knowledge of where and how your seafood is produced will allow you to identify any information gaps, assess how sustainable (or not) your fish dishes are, and take action to improve sustainability over time.

### Specific information to collect and monitor over time includes:

- Common and scientific names of the fish you serve.
- The stock from which the seafood was caught or the farm in which it was cultivated.
- Fishing method or aquaculture production method used.

This information will help you understand the sustainability of your fish and work out the sustainability ratings of your fish according to leading conservation organisations (e.g. the Marine Conservation Society).

Further information not necessarily key to sustainability, but that can help you understand your supply, could include:

- Who produced, processed and supplied the seafood.
- The volume of different products and species you purchase.
- The profitability of different seafood you serve.

Talking to your supplier is important in gathering together this information, however knowing the right questions to ask, and what the answers mean for seafood sustainability, can be tricky. The following pages give you an overview of different sustainability issues and production methods, plus suggested questions to talk through with your supplier and a useful 'Seafood Audit Template' for recording your information.



## Environmental Impacts

The environmental impacts associated with catching and farming fish commercially affect the health of our oceans, fisheries, communities and economies around the world. The fishing and aquaculture industries are incredibly diverse, and the environmental issues highlighted here are not a problem in every fishery or fish farm – but all do occur as a result of some seafood produced for the UK market.

Look at [www.fishonline.org](http://www.fishonline.org) to find out more about the environmental issues of specific seafood species.





## Commercial Capture Fisheries

### Overfishing

Improved technology, increasing demand and poor management mean that fish populations can come under very heavy fishing pressure and become depleted, or even collapse completely. The fish vulnerable to overfishing include certain stocks of popular species such as cod and tuna and long-lived, slow-to-mature species such as sharks and deep-sea fish.

### Habitat damage

Fishing gear that is heavy or large can harm the environment while catching fish. Some fishing methods, such as dredging and bottom trawling, impact the sea-floor habitat. In areas with sensitive, bottom-living species, such as deep-sea corals, fishing gear can cause long-term damage.

### Bycatch of vulnerable species

Wildlife such as albatrosses, sharks, dolphins, turtles and porpoises can be caught and injured or killed by fishing methods, putting pressure on the survival of these already vulnerable populations.

### Discards

Many marine animals that are caught unintentionally by fisheries lack economic value – they may be too small to sell legally or are unpopular commercial species. These animals are sorted from the profitable catch and discarded back into the water, often dead or injured. While the populations of these bycatch species may not be threatened, the number of individual animals unintentionally killed can be large in some fisheries and this impacts on the marine food web. Discarding can also occur when fishermen have filled their catch allowance (quota) for a particular species.

“By using sustainably sourced, seasonal fish, we help to ensure fish will have a brighter future and continue to be on the menu.”

Tom Aikens



## The interconnected ocean

The environmental issues outlined here can have indirect impacts as well as the direct consequences summarised in this section. The environmental impacts of producing our seafood can be wide-ranging and often unpredictable, affecting ocean life through food availability, competition between species and predator-prey interactions.



## Ghost fishing

Fishing gear lost in the water or left behind by fishermen can kill considerable numbers of marine species. Modern synthetic material does not biodegrade and gear lost, discarded or unchecked by fishermen can continue to catch fish, sharks and other animals indefinitely. Though now banned, drift netting on the high seas continues illegally and ghost fishing from these nets is a conservation concern.



## Pirate Fishing

Have you heard of illegal, unreported and unregulated (IUU) fishing? If so, have you taken any steps to ensure that the fish you serve has been legally caught?

Illegal, Unreported and Unregulated (IUU) or ‘pirate’ fishing commonly refers to fishing operations that purposefully break the law in order to maximise fish catches for minimum costs. IUU can refer to a range of activities, including the use of illegal fishing gear, targeting species protected by law or fishing in prohibited areas. The main driver for pirate fishing activities is the enormous profit to be made in the seafood markets of Europe, North America and Asia. As a result IUU is a shady business that costs us globally between US \$10–25 billion each year, and exploits loopholes in international law such as the use of ‘Flags of Convenience’.

Pirate fishing vessels particularly target poorer developing countries with limited ability to control their waters, stealing a crucial source of food and income. These vessels typically have poor fishing practices and the environmental issues of overfishing, habitat damage, bycatch and discards described here are particularly big problems in these illegal fisheries.

While there have recently been steps in the right direction to address IUU, including the development of a European Regulation to prevent, deter and eliminate IUU fishing and an international Port State Treaty, there are still issues to be addressed.

The ongoing campaign to eradicate IUU fishing is being led by groups such as the Environmental Justice Foundation (EJF), visit [www.ejfoundation.org](http://www.ejfoundation.org) to find out more and get involved.





## Commercial Fish Farming

### Fish-feed

Farming carnivorous species, including salmon and prawns, requires large inputs of fish-feed composed largely of fishmeal and fish oil made from wild-caught fish. This demand for fish-feed places pressure on the wild fish used to make it. Vegetable protein, such as soy, can also be used in fish-feed. In some parts of the world soy, and other land based protein crops, are produced in an environmentally damaging way.

### Pollution

Waste from fish-feed and faeces can pollute the water and seabed around intensive fish farms leading to poor water and sediment quality. Chemicals and pesticides (used in some fish farming to control parasites and disease) can also contaminate the area and impact surrounding marine life.

### Parasites and disease spread

Farmed fish infected with diseases or parasites can spread these to their wild counterparts, affecting the health of wild populations near fish farms. One notorious example is sea-lice parasites from high-density farmed salmon harming juvenile wild salmon in the surrounding water systems.

### Escapees impacting wild fish populations

Farmed fish, such as Atlantic salmon, can sometimes escape and interbreed with wild fish populations. The farmed fish are not genetically adapted to the surrounding environment; as a result any hybrid offspring have reduced chances of survival. Escapees can also compete with wild fish for food and resources, adding pressure to the wild populations.

### Habitat damage

Sensitive natural habitats are sometimes converted into fish farms and this can have dramatic environmental implications. For example, historically, significant damage to delicate coastal habitats such as mangrove forests was well documented when establishing tropical prawn farms. This damage resulted in loss of beneficial ecosystem functions including natural coastal flood-defences, nursery habitats for young fish and water filtration.



# Fishing Methods

The methods and fishing gear used to catch fish are a determining factor of sustainability as they can impact upon marine life and habitats. Over the past 50 years fishing technology has advanced greatly, increasing the capacity for boats to locate and catch fish. In this time there have also been advances to reduce the environmental impact of fishing, yet there is room for further improvement and research and development is ongoing.

Fishing methods vary in different locations and cultures and the precise impacts of each method are dependant on the robustness of the management and techniques used on individual boats. The main commercial capture methods are described here to help you broadly understand the ways in which fish are caught and their environmental impacts.

See page 11 for an overall summary of the potential environmental impacts of catching and farming fish.





Purse seine

## Purse seines

### Method

Purse seines are large, vertically floating nets (made of monofilament or plastic) which boats use to surround shoals of fish they have identified on a fish finding sonar. Each net can be up to one mile long. Once fish are in the net, the base is drawn together, creating a 'purse'. This method catches large volumes of fish. It is also used for catching live tuna for on-growing in pens (called 'ranching').

### Examples of target species

Tuna (both for direct capture and ranching), herring, mackerel.

### Environmental summary

**Habitat damage** – purse seines do not come into contact with the seabed so are not associated with damage to marine habitat.

**Bycatch of vulnerable species** – depending on the fishery, purses seines may catch vulnerable species; purse seining targeting tuna has been particularly associated with notable bycatch of mammals and sharks.

**Discards** – purse seining can be associated with bycatch of non-target fish and other marine life and the accidental catch and discarding of juvenile commercial fish species.

### Mitigation

In some fisheries, observers on board tuna purse seiners check that there is minimal dolphin catch in the nets during fishing.

## Demersal trawling

### Method

#### Otter (single), twin-rig and pair trawlers:

In demersal trawl fisheries, a funnel-shaped net is towed behind either one (single trawl) or two (pair-trawl) boats. Once the net has been towed it is drawn out of the water to collect the captured fish. Twin-rig trawls follow the same principle but tow two nets. These demersal trawling methods fish along or just above the seafloor catching bottom dwelling fish.

#### Beam trawlers:

Beam trawls target fish on the seabed. They tow a net from either side of the boat. The mouth of the net is weighted and kept open by a metal beam that can be up to 12m long. Metal 'tickler chains' are attached to the gear to disturb fish from under the surface of the seabed and into the trawl.

#### Seine netting:

Seine netters use a net that is vertical in the water, with very long ropes attached leading back to the vessel. These drag on the ground, setting up a sand or mud cloud, which herds fish into the net.

### Examples of target species

Otter and pair-trawls – cod, haddock, whiting and flatfish.

Twin-rig trawl – langoustine and prawns.

Beam trawl – flatfish, such as plaice and sole.

Seine netting – cod, haddock, whiting.

### Environmental summary

**Habitat damage** – damage and disturbance to the seabed and bottom living marine animals occurs as the fishing gear comes into contact with the ocean floor. Sensitive habitats, such as corals, are more susceptible to long-term damage than areas of sand and mud, which tend to be less severely impacted. The heavy gear dragged by beam trawlers is particularly notable in habitat damage.



Demersal twin-rig trawl



Beam trawl

**Bycatch of vulnerable species** – demersal trawls may unintentionally catch vulnerable species such as skates which, like trawl target species, are demersal.

**Discards** – bottom living fish often congregate in mixed species groups so trawling for a particular species can be associated with bycatch of non-target fish and other marine life. The accidental catch and discarding of juvenile commercial fish species can impact on these populations. In general trawls are associated with higher levels of bycatch compared to other fishing methods.

### Mitigation

Efforts to reduce environmental damage include larger mesh sizes which in theory allow juvenile or non-targeted fish to escape. Redesigned nets help to reduce bycatch and the use of lighter materials in net construction have helped lessen the damage to the seabed and reduce fuel consumption. The use of rubber discs on the front edge of nets can reduce seabed damage and fish bycatch. These efforts have been successful to varying degrees.

In beam trawls new techniques being trialled include an electronic pulse in place of 'tickler chains', in order to disturb fish into the net while mitigating damage to the seabed. Plus initiatives, such as Project 50% in the south west, are working to reduce wasteful discards by improving fishing gear.

Seine netting is operated slowly and for a short time, meaning faster swimming species like coley and pollack can escape.

## Pelagic/mid-water trawling

### Method

Fish that live in the upper water column of the ocean are targeted by pelagic/mid-water trawls. The funnel-shaped trawl nets are hauled by either one or two boats (pair trawls). Pelagic boats generally fish for a single species (unlike the demersal trawls). On very large vessels, fish such as herring and mackerel are pumped onboard the vessel through a large pipe placed in the end of the net. Smaller vessels bring nets onboard. Once captured, the fish is either kept chilled on board or processed and deep-frozen at sea.

### Examples of target species

Hoki, herring and mackerel.

### Environmental summary

**Habitat damage** – pelagic trawls don't come into contact with the seabed so are not associated with damage to marine habitat.

**Bycatch of vulnerable species** – pelagic trawls may unintentionally catch vulnerable species. An example is pair trawls that target seabass in the English Channel. This fishery has been under scrutiny for catching dolphins as they trawl.

**Discards** – pelagic trawling for a particular species can be associated with capture of non-target fish and other marine life and the accidental catch and discarding of juvenile commercial fish species can impact on these populations. However, bycatch levels are typically lower than in demersal trawls.

### Mitigation

In the UK an industry-science partnership programme is investigating technical measures to reduce bycatch of juvenile mackerel and improve fuel efficiency in pelagic trawls. Certain waters in the UK have been closed to pair-trawling to prevent dolphin bycatch, but is still permitted in other areas of the Channel.



Pelagic/mid-water pair trawl



Pelagic/mid-water trawl



Dredge

## Dredging

### Method

Dredging on the seabed for shellfish uses metal-framed baskets instead of nets. These baskets are criss-crossed with steel rings and a set of metal teeth is attached to a raking bar held beneath the basket. A heavy netting cover is laced to the frame to form a pouch in which the catch is retained. Up to 14 frames may be fixed to a tow bar, with two bars towed from the back or sides of a vessel. The metal teeth rake out shellfish from the sand and gravel and the shellfish are collected into the pouch.

### Examples of target species

Scallops, oysters and clams.

### Environmental summary

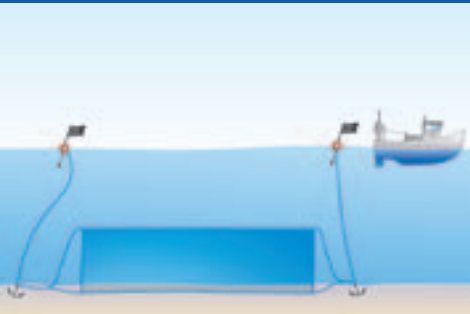
**Habitat damage** – damage and disturbance to the seabed, as well as bottom living marine animals, occurs as the fishing gear is towed along the ocean floor. The heavy metal gear of dredgers has come under scrutiny for habitat damage. The damage is related to the size and weight of the dredge.

**Bycatch of vulnerable species** – dredging has the potential to unintentionally catch vulnerable species.

**Discards** – dredging can be associated with bycatch of non-target fish and other marine life. The accidental catch and discarding of juvenile commercial fish species can impact on these populations.

### Mitigation

New toothless dredges can reduce the impact of dredging on seabed habitat and are being used in some UK fisheries.



## Drift, gill and set nets (passive)

### Method

Passive nets are not actively towed by boats; they are either placed to drift on the prevailing currents (drift netting), hung from buoys which keep them suspended between the surface and the seabed (gill nets), or staked to the seabed (set nets). These nets hang like vertical walls in the water and capture fish by the gills as they try to swim through the mesh of the net.

### Examples of target species

Drift netting – tuna, squid and shark.

Gill netting – demersal species such as monkfish, Dover sole, mullet.

Set netting – migrating wild salmon and sea trout.

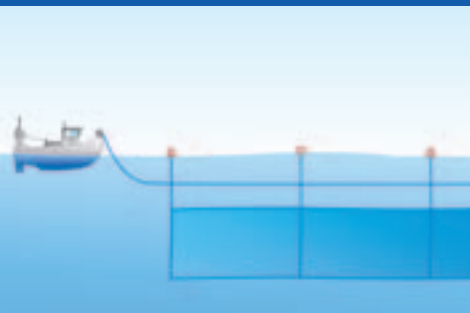
### Environmental summary

**Habitat damage** – passive nets are not towed along the seabed so are not associated with damage to marine habitat.

**Bycatch of vulnerable species** – passive nets may unintentionally catch vulnerable species and have been particularly associated with catching dolphins, porpoises, sharks and other large marine life.

**Discards** – passive nets can be associated with capture of non-target fish and other marine life, but are not commonly associated with the accidental catch and discarding of juvenile commercial species as these smaller fish can pass through the holes in the nets.

**Ghost fishing** – a phenomenon in which lost or unchecked nets continue to carry on fishing after they have been abandoned. This is particularly associated with passive net fishing.



Passive nets

### Mitigation

Efforts to reduce the instances of ghost fishing include restrictions on the use of 'monofilament' (or unbiodegradable plastic) and national regulations to ensure that all netting is accounted for and not abandoned at sea. Restrictions on net size and the banning of drift netting in international waters and in some national waters has reduced the damage to marine life from these nets, yet illegal drift nets are still an issue and pose a ghost fishing threat.

## Longlining

### Method

Longlines can be used to capture fish in surface waters (pelagic) as well as bottom living species (demersal). Longlining sets a length of line and from this come branch lines carrying baited hooks. Large longlines used offshore can be tens of kilometers long and carry thousands of hooks. Smaller inshore vessels use shorter, lighter lines with roughly less than a thousand hooks.

### Examples of target species

Tuna and swordfish (pelagic) and halibut and cod (demersal).

### Environmental summary

**Habitat damage** – longlines do not drag along the seabed so are not associated with damage to marine habitat.

**Bycatch of vulnerable species** – longlines can unintentionally catch vulnerable species and high seas fisheries have been particularly associated with catching endangered seabirds, sharks and sea turtles.

**Discards** – longlines can be associated with capture of non-target fish and other marine life.

### Mitigation

Seabird bycatch on longline hooks can be reduced by the use of weighted lines, coloured bird-scaring streamers and fishing at night. Hook shape adaptations (such as a circle shape instead of J shaped) have helped to reduce shark and seaturtle bycatch in some fisheries.

## Pole and line, trolling and handline (hook and lines)

### Method

Pole and line fishing uses hand held or mechanically operated poles with baited hooks attached. This method targets naturally schooling fish which are attracted to the surface through use of lights or the scattering of bait. Trolling, a technique used to catch large game fish in upper waters, involves the boat slowly drawing a line of baited hooks or lures through the water. Handlining is a selective method and involves manually fishing with hooked lines. It is used in both the upper water layers as well as closer to the seabed. Hook and line methods tend to be used by relatively small inshore vessels.

### Examples of target species

Tuna, mackerel, seabass.

### Environmental summary

**Habitat damage** – these hook and line fishing methods do not come into contact with the seabed so are not associated with damage to marine habitat.



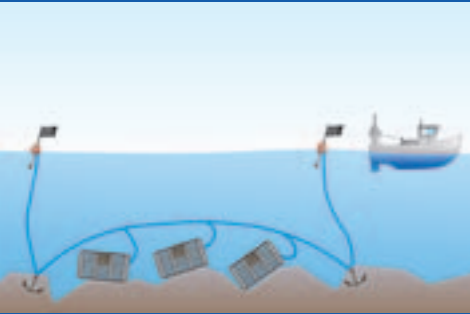
Longline (pelagic)



Longline (demersal)



Hook and line (handline)



Pots and creels

**Bycatch of vulnerable species** – small scale fishing with hooks and lines are not particularly associated with unintentional capture of vulnerable species.

**Discards** – hook and line fishing can be associated with capture of non-target fish and other marine life but this is not ordinarily a significant problem.

#### Mitigation

Pole and line, trolling and handlining from small vessels are some of the most selective forms of fishing gear.

## Pots and creels

#### Method

Pots and creels are traps, baited with fresh or salted fish, which are laid on the seabed and primarily used to catch shellfish. Pots and creels are a selective method of fishing. Small individuals can escape the traps and the shellfish are brought aboard live so any unwanted catch can be returned to the sea unharmed. Large vessels on long fishing trips will keep their shellfish in live holding tanks onboard, while small vessels tend to land their catch daily.

#### Examples of target species

Crab, lobster, whelk, langoustines and octopus.

#### Environmental summary

**Habitat damage** – pots and creels sit on the seabed so can be associated with disturbance to marine habitat but are not typically damaging.

**Bycatch of vulnerable species** – pots and creels are not particularly associated with unintentional capture of vulnerable species.

**Discards** – pots and creels can be associated with capture of non-target fish, juvenile commercial species and other marine life but this is not ordinarily a significant problem.

**Ghost fishing** – when made of unbiodegradable plastic and wire, lost or unchecked pots and creels can continue catching animals in the water for a long time.

#### Mitigation

Escape panels can be incorporated into the traps to allow small fish and shellfish to avoid capture.



# Farming Methods

## Aquaculture, Mariculture and Cultivation

The methods used to farm fish are a determining factor of sustainability as they can impact marine life and habitats. Farmed fish production has increased in recent decades and now accounts for almost 50 percent of global seafood supply. The sustainability issues raised by the farming of fish are multiple and complex but responsible businesses continue to work with partners to address these challenges. Fish farming methods vary in different locations and cultures and the precise impacts of each method are dependant on the robustness of the management and techniques used on individual farms. The main commercial methods are described here, to help you broadly understand the ways in which fish are farmed and their environmental impacts.

See page 11 for an overall summary of the potential environmental impacts of catching and farming fish.



## Finfish

### Open systems

#### Cages, pens or ranching

##### Method

In the various forms of open farming systems the fish are in some way contained within a natural body of water. In marine open water systems, farmed fish are contained within sets of circular or square floating net cages (pens) that are anchored to the seabed. Cage-based marine farms are generally located in areas that are sheltered from rough weather, but which have a high through-flow of water to keep the sites flushed and maintain water quality in the fish pens. In freshwater systems the fish can be contained by fences in the water or cages attached to the river or lake bottom, or to the shore. In all cases, the number of fish held will be regulated and dependent on the stage of development and local conditions.

##### Examples of species raised

Marine - salmon, cod, halibut, seabass and seabream. Plus ranching of tuna. Freshwater - trout, pangasius (and the juvenile stages of salmon).

##### Environmental summary

**Fish-feed** - carnivorous species such as salmon, cod and seabass rely on wild capture fish as a primary ingredient of their feed, which may have negative impacts if those wild fisheries are not responsibly managed. Use of vegetable proteins for fish-feed can cause land-based environmental impacts.

**Pollution** - open systems can pollute adjacent waters and underlying seabed through waste discharge and chemical contamination.

**Parasites and disease spread** - cage or pen farming, being open within a water body, can be associated with the spread of parasites and disease to wild stocks. Salmon farms are under particular scrutiny for spreading sea-lice parasites to wild salmon populations.

**Weakening of wild fish populations** - in open water systems there is a risk that farmed fish may sometimes escape. The escapees could impact on wild populations through interbreeding or competition for food and resources.

Ranching systems that rely on catching juvenile wild fish for ongrowing in cages can contribute to overfishing of these wild populations (notably an issue with tuna ranches).

**Habitat damage** - cage or pen systems are not typically associated with habitat damage during their construction, however habitat degradation can occur through impacts on the underlying seabed caused by waste outputs. Additionally wildlife species (such as seabirds and seals) can be impacted if they become entangled in nets or attack fish cages.

##### Mitigation

Within the UK and Europe, regulations and Codes of Practice governing fish farming reduce risks but are often not considered adequate by environmentalists. Globally, there are an increasing number of certification schemes either in situ or in development, addressing issues of sustainability. However, there is a recognised need to continue to improve the environmental issues surrounding feedstuffs, escapes and waste contaminants in particular.

Considerable work is being done to find alternative feed stuffs (e.g. from seaweed) and the use of polyculture - farming different species together in the same system - is being explored to maximise efficiencies and minimise environmental impacts (for example farming seaweed, mussels and salmon alongside each other). Certified fish farms tend to be subject to more rigorous standards, including improved sustainability of fish-feed and reduced use of chemicals.

### Closed systems

#### Tanks, raceways and ponds

##### Method

Fish are raised in tanks, raceways or earth ponds often sited on land. Closed systems are not directly open to surrounding water bodies. These farms require high volumes of either fresh water or seawater input (depending on the species). Some farms work on a flow-through system where the water is used once, while others use recirculation systems which filter, clean, purify and reoxygenate the water on a continuous basis.

##### Examples of species raised

Trout, sturgeon (for caviar), tilapia and eel.

##### Environmental summary

**Fish-feed** - carnivorous species such as trout or eel rely on wild capture fish as a primary ingredient of their feed, which may have negative impacts if those wild fisheries are not responsibly managed. Use of vegetable proteins for fish-feed can cause land-based environmental impacts.

**Pollution** - unlike open farming systems the waste from closed systems can be contained, treated and disposed of. An adequate waste and chemical disposal system is an environmental consideration.

**Parasites and disease spread** - closed systems are not associated with transferring parasites or diseases to wild fish populations.

**Weakening of wild fish populations** - closed system farms do not impact on wild populations as fish generally can not escape into the natural environment.

Farms that rely on catching juvenile wild fish for ongrowing, such as eel farms, can be associated with overfishing of these wild populations.

**Habitat damage** - siting and construction of closed systems can be associated with habitat damage on land (though will generally be sited on land previously altered by human use).

##### Mitigation

Regulations aim to control the use of wild-caught juvenile fish and ensure proper waste-water disposal.

Closed systems are contained, so compared to open systems there is less exterior contamination from waste, disease and escapee fish.

Farms certified as organic fish farms are subject to more rigorous standards, including improved sustainability of fish-feed and reduced use of chemicals.

## Crustaceans

### Pond farming systems for prawns

##### Method

Commercial prawn farming is carried out in tropical countries, which are predominantly developing countries in South America, Asia, and Africa. Farms are generally salt or brackish water ponds located in coastal areas that are kept sufficiently oxygenated by management and the use of water exchange, or assisted by powered paddle aerators. Farms are stocked with prawns hatched in captivity or wild individuals captured for ongrowing.

##### Examples of species raised

Warmwater (tiger and king) prawns.

##### Environmental summary

**Fish-feed** - prawns are carnivorous and rely on wild-caught fish as a key ingredient of their feed, which may have negative impacts if those wild fisheries are not responsibly managed. Use of vegetable proteins for fish-feed can cause land-based environmental impacts.



**Pollution** – open systems can pollute adjacent waters and underlying seabed through waste discharge and chemical contamination. Prawns raised in closed systems pose less threat to open waterways, but appropriate management needs to be in place to handle waste water from ponds.

**Parasites and disease spread** – some prawn farming has been associated with high levels of disease and parasites and critiqued for the amount of chemicals used in trying to control these.

**Weakening of wild fish populations** – prawn farms that rely on catching young wild prawns for on-growing in their ponds can be associated with overfishing of these wild populations.

**Habitat damage** – Appropriate siting of prawn ponds is of major importance. Historically, in establishing prawn farms, significant damage to delicate coastal habitats such as mangrove forests (and the subsequent ecosystem impacts and loss of benefits provided to local people by these habitats) has been well documented.

#### Mitigation

Countries producing prawns for international markets now have regulations in place which protect mangrove habitats, offer varying levels of environmental protection more widely and may include tree planting programmes where historic mangrove damage has occurred. However, standards and their enforcement can vary considerably. Much international work is being undertaken to strengthen standards and provide adequate assurance through certification. Fish farms certified to independent standards such as Global Aquaculture Alliance (GAA), GlobalGap or organic (or the soon to be launched Aquaculture Stewardship Council) tend to have more sustainable practices, including improved sustainability of fish-feed and reduced use of chemicals.

### Molluscs

#### Method

Extensive systems are used to raise molluscs that feed on tiny plankton naturally present in the water. These shellfish need no additional feed and in some cases can benefit the environment as they clean the water through their filter feeding. Some species such as clams and oysters are placed as juveniles on selected areas of the seabed and left to grow. When they reach commercial size, they are harvested with a dredge. Mussels are often grown attached to ropes suspended in the water or wound around posts, while oysters are also grown in mesh bags laid on trestles on the shoreline. As 'enhanced fisheries' some mollusc cultivation is eligible for MSC certification and some rope-grown mussels have already been certified.

#### Examples of species raised

Mussels, clams and oysters.

#### Environmental summary

**Fish-feed** – molluscs filter-feed from the surrounding water, requiring no added food, so there are none of the environmental problems associated with farming fish that eat processed fish-feed.

**Pollution** – mollusc farms do not discharge waste or chemical pollution into adjacent waters, but they can slow water flow if the cultivation areas are not properly selected. This can cause an increased build-up of sediment and detritus around the farm.

**Parasites and disease spread** – the transfer of juveniles between different areas can spread infections between populations.

**Weakening of wild fish populations** – mollusc farming is not generally associated with harming wild populations through interbreeding, competition or overfishing.

**Habitat damage** – mollusc farms are not typically associated with habitat damage during their establishment. However local habitat degradation can occur due to the issues outlined above and use of a dredge to remove the molluscs causes seabed disturbance.

#### Mitigation

National regulations control transfer of stock between different growing areas to reduce the risk of disease spread. The Shellfish Association of Great Britain's Industry Development Strategy is seeking to further develop the industry in a sustainable manner.

# Questions and Considerations

Investigating where your seafood is from and how it is produced is key to sourcing responsibly. These suggested questions and considerations can help you learn about and understand the provenance of your seafood; use them to help you gather the information in your audit (see template pages 28-29). Talking with your supplier about these issues will ensure they understand that sustainable seafood is important to you. Your supplier may not be able to answer all your questions, but by asking them and raising awareness you are helping to develop a more responsible industry. These are also the type of questions that informed customers may ask you.

Anything your supplier can't answer they should be able to find out. Once they know it's important to you, it will be important to them.





“Any seafood restaurant has to be protective towards fish stocks. Wherever possible, we go for hand-line or diver caught produce and we never buy under-sized fish. We favour local fishermen who only go out for the day. For us this helps to ensure sustainability – and ultimately, that’s what it’s all about.”

**Rob Shenton**  
Riddle and Finns



## General Seafood Questions

### What exactly is the species?

This sounds obvious but be sure that you know exactly what you are buying; the species of fish is key to its sustainability. One species may be known by several different common names. Also, different species may be marketed under one generic name – as with ‘tuna’ which covers several species of different sustainability ranging from critically endangered bluefin tuna to the more plentiful skipjack tuna. Checking the scientific name of your fish is the best way to be sure of getting the right seafood.

### Can my supplier verify the source and journey of this fish?

Traceability throughout the supply chain is very important, and you should consider only buying fish when you are sure about its origin. Industry and the authorities are working to overcome the problem of illegal, unregulated and unreported fishing (IUU – or ‘pirate fishing’), but some fish caught illegally still makes its way onto the international market.

MSC-certified fish requires Chain of Custody certification which allows fish to be traceable back to its source, giving you assurance on how and where it was produced.

See page 13 for more information about the issues of pirate/IUU fishing

### How was the fish produced – wild-caught or farmed?

Different methods of capturing or farming seafood each have their own impacts. Responsible sourcing considers the impact upon the specific target species, associated marine life and the surrounding environment, so you need to know how it was caught or farmed before you buy.

Check out pages 11-24 to find out about general seafood sustainability issues and capture and farming methods.

**The following sets of questions will help you once you know whether your seafood is wild or farmed:**

## Wild-Caught Seafood Questions

### Is the fish certified to the Marine Stewardship Council's (MSC) standard for well-managed and sustainable fishing?



Working with stakeholders and fisheries scientists, the MSC has set an internationally recognised environmental standard for sustainable and well-managed fisheries. Buying MSC certified seafood gives you independent assurance on the sustainability of your product.

The MSC also has a Chain of Custody standard for traceability in the supply chain. If you are sourcing MSC certified fish then your business can be certified against this standard to allow you to use the MSC’s distinctive ecolabel on your menu – demonstrating to your customers that you have full traceability for that sustainable fish.

*Note –MSC certification only applies to wild fisheries, not farmed.*

Check out pages 34-36 to find out more about MSC certified fisheries, and how to apply for Chain of Custody certification to enable you to use the MSC ecolabel on your menu.

**Seafood without MSC certification can also be a responsible choice, but it is wise to consider the following issues:**

### How was the fish caught?

Capture method can make a big difference to sustainability (and it is worth noting that quality can also be linked to capture method in some cases). Some methods have low impact, such as hand-diving and pole and line fishing, whereas others can be notably more damaging to the environment.

See pages 15-20 to learn more about the specific capture methods used in seafood production.

### Where was the fish caught?

The sustainability of individual fisheries varies not just between species, but also between different locations and their associated different management regimes.

### Is the species threatened or endangered?

Due to a range of factors (including overfishing, low reproduction, pollution, climate change and habitat damage) wild fish populations are increasingly under threat. Recently there have been declines in populations of many popular species. Vulnerable species should not be a feature of menus and responsible suppliers may well refuse to provide such species.

### Is it the right time of the year to buy this fish?

Avoiding buying fish during their spawning season allows species to breed and replenish their populations. Seasonality can also affect the availability, quality and price of seafood. Buying frozen seafood can allow you freedom to serve species regardless of the seasons if you wish. (Modern freezing techniques maintain consistent product quality and may even provide a better quality than unfrozen fish in some cases).

## Farmed Seafood Questions

### How is the fish farmed?

The farming method can affect seafood’s sustainability. Some methods are low impact, such as growing mussels on suspended ropes, whereas others, like certain types of prawn or salmon farming, can be notably more damaging to the environment.

See pages 21-24 to learn more about the specific farming methods.

### What does the fish eat?

The diet of a farmed species influences its sustainability. Carnivorous farmed species, including salmon, cod and prawns, require animal-derived protein-rich feed. Capturing wild fish to create this feed can add pressure to populations of wild marine fish. Herbivorous species, such as pangasius and tilapia, do not impact on wild fish populations in this way as they mainly eat plant-based feeds. Filter feeders, such as oysters, need no feed inputs and can have a positive effect on the marine environment if their filtering improves water quality.

### Is the farmed fish certified to any sustainability standard?

Fish farms certified to independent standards such as Global Aquaculture Alliance (GAA), GlobalGap or organic (or the soon to be launched Aquaculture Stewardship Council) tend to be more sustainable. For example organic standards typically recommend a lower stocking density of fish in pens, limit the use of artificial colourings, fertilisers and pesticides, and insist on the use of fishery by-products for feed. These factors collectively help to reduce (though not entirely eliminate) the environmental impacts of organic fish farming compared to conventional fish farming. (‘Organic’ refers to the method used to cultivate a product, including inputs, and so can only apply to farmed seafood, not wild-caught seafood).

See pages 37-40 for a summary of ecolabels.



See [www.fishonline.org](http://www.fishonline.org) for more information on sustainability issues associated with different types of seafood and advice from the Marine Conservation Society including seasonality guidance.

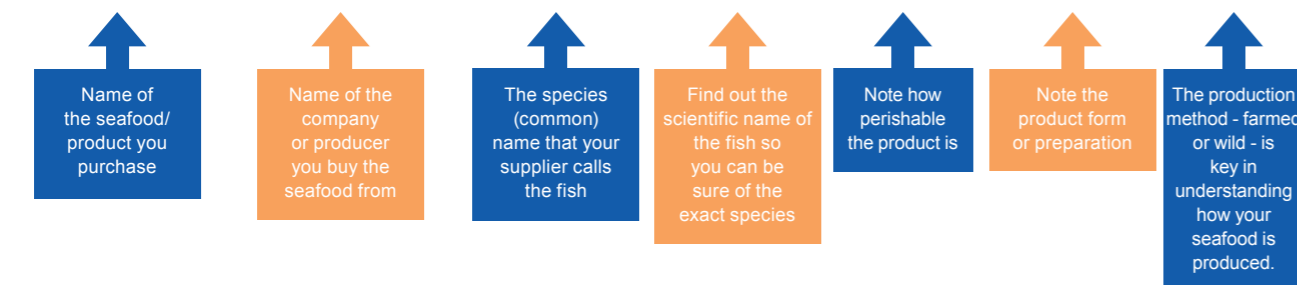
# Seafood Audit Template

## Step 1

This audit template is designed to help you gather together the information you need to better understand the seafood you currently source and serve - the first step to take if you want to improve your seafood sustainability. This table format is not set in stone so you can adapt it to suit your particular needs. Go online to [www.goodcatch.org.uk](http://www.goodcatch.org.uk) to download a blank template.

Product description	Supplier or brand	Species name (common)	Species name (full scientific)	Storage category (e.g. fresh/frozen/ambient)	Product form (e.g. whole/filleted/value-added/smoked/live)	Is it wild-caught or farmed?
Fish fingers	Ocean Value	Alaska pollock	Theragra chalcogramma	Frozen	Breaded	Wild
Canned tuna	Ocean Value	Skipjack tuna	Katsuwonus pelamis	Canned	Chunks	Wild
Whole mackerel	Jones' Fine Fish	Mackerel	Scomber scombrus	Fresh	Whole	Wild
Whole gurnard	Jones' Fine Fish	Red gurnard	Aspitrigla cuculus	Fresh	Whole	Wild
Cod loin	London Seafood Co.	Pacific cod	Gadus macrocephalus	Frozen	Filleted	Wild
Scampi tails	London Seafood Co.	Langoustine	Nephrops norvegicus	Frozen	Breaded	Wild
Salmon supreme	London Seafood Co.	Salmon	Salmo salar	Fresh	Portions	Farmed
Mussels	London Seafood Co.	Blue mussels	Mytilus edulis	Fresh	Live	Farmed
Peeled tiger prawns	London Seafood Co.	Tiger prawns	Panaeus monodon	Frozen	Peeled and de-veined	Wild

Examples



## Step 2

Once you've gathered together your information in a format like this you can start to know how to improve your sourcing, following the principle of 'Avoid the Worst, Promote the Best, Improve the Rest' (see page 30). If you find there are information gaps when completing this audit work with your supplier to fill in the blanks.

Where is it caught or farmed?	How is the fish caught (or farmed)?	MCS rating (1, Green - 5, Red)	Is it eco-labelled? (e.g. MSC, organic, line-caught tagged)	Country of origin	Name of vessel/farm	Traceability from supplier? (e.g. evidence of site visits, audit certificates)	Notes and justifications
Gulf of Alaska	Unknown	2	MSC	USA	Unknown	MSC certification	
Unknown	Unknown	Unknown	No	Thailand	Unknown	None	
Cornwall	Line-caught	3	No	UK	Lady of the Waves	Verbally told: supplier has record of direct boat visit and direct sourcing relationship	
Cornwall	Demersal otter-trawl	2	No	UK	Cornish Sunrise	Verbally told: supplier has record of direct boat visit and direct sourcing relationship	
Alaska	Long-line	1	MSC	USA	Unknown	MSC certification	
NE Atlantic, North Sea	Demersal otter-trawl	3	No	UK	Unknown	None	
Scotland	Net-pens	4	No	UK	Thistle Loch Salmon Farmers	Feed certificate from farm available	
Scotland	Rope-grown	1	No	UK	Unknown	None	
Asia	Demersal otter-trawl	5	No	Unknown	Unknown	None	



## Mix Up The Menu

Think about serving less familiar seafood species; these non-traditional choices can be great value for money. Revitalise your offerings and give commonly exploited species a rest. Cooking new seafood creatively can inspire further demand for alternative species from your customers.



“Gurnard is such a stunning fish, succulent and meaty with sweet undertones. This underused species is a fantastic alternative to the traditional restaurant white fish. By using it you can help to take the pressure off over-fished species – plus create an interesting talking point and delicious dish.

Our chefs love gurnard and we have found it enormously popular with the customers. It is incredibly versatile – try Portuguese fish stew or the whole fish or fillet marinated in chermoula dressing served with cous cous... yum!”

**Geetie Singh**  
Duke of Cambridge  
Organic Pub

# Step 2

## Source Sustainably

Businesses in the culinary sector can advance seafood sustainability by making improvements to buying practices. As culinary professionals you have to balance many factors, including price, quality, availability and sustainability, when choosing what to source. Good Catch does not seek to dictate to caterers what seafood you should or should not serve but aims to provide you with information that will help you make the best choices for you, your business and our oceans.

When deciding what seafood to source, the principle of ‘Avoid the Worst, Promote the Best and Improve the Rest’ has proved useful to several leading businesses and organisations:

### Avoid the Worst

Avoid selling seafood that has serious ongoing environmental impacts. Establish a timeline to reduce and eliminate unsustainable species from your menu.

- To help you identify which seafood options are generally best avoided visit the Marine Conservation Society (MCS) website [www.fishonline.org](http://www.fishonline.org) to see which fisheries and farm-systems are rated as **5** – ‘Fish to Avoid’ by MCS.

### Promote the Best

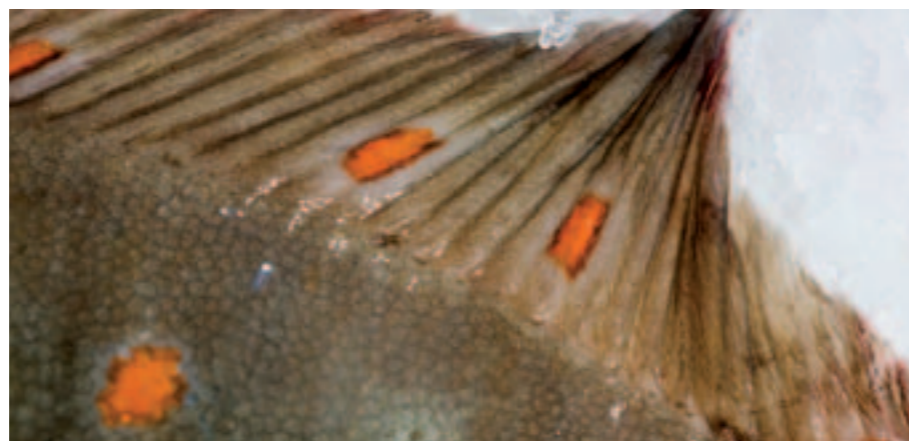
Choose demonstrably sustainable seafood that addresses local, regional, and global environmental issues. Make the most of these sustainable options on your menu and look to increase the proportion of these best choices that you source.

- To help you identify the best seafood choices, look for credible sustainability certification schemes such as the Marine Stewardship Council (MSC).
- Where seafood is not certified sustainable, ensure your seafood is ‘demonstrably sustainable’ by asking for clear evidence of production methods and traceability from your supplier.
- Visit [www.fishonline.org](http://www.fishonline.org) to see which fish stocks and farming methods MCS rate as best choices: **1** **2** – ‘Fish to Eat’.

### Improve the Rest

Use your influence in the supply chain to try and improve the numerous seafood options that currently have some sustainability challenges (e.g. rated as **3** or **4** by MCS).

- If purchasing less sustainable seafood, source from suppliers and producers that are willing to work proactively to improve the sustainability performance of fisheries or farms – and can show you evidence that they are doing this.
- Phase out those fisheries, producers, and suppliers that refuse to improve their environmental performance or refuse to show you evidence of their products’ sustainability and traceability.



## Marine Conservation Society (MCS) Ratings

Trying to work out the sustainability of any particular seafood can be a complex issue. The Marine Conservation Society (MCS) has assessed and rated over 150 species of fish and shellfish according to their biology, stock status, fisheries management and impact of the particular fishing or farming method used. This information can help point you in the right direction when choosing your seafood, however, sustainability varies over time and from place to place, with differences right down to the individual boat or farm, so knowing as much as possible about your seafood supply is important. As well as looking at MCS’ guidance talk with your supplier to check the details of your specific supply.

Use the ‘Advanced Search’ facility on [www.fishonline.org](http://www.fishonline.org) to find the MCS ratings. (To search you will need to know the species’ scientific name, where it is caught or farmed and how it is caught or farmed). The fishonline website also includes a guide to when fish spawn (seasonality chart) to help consumers avoid buying fish during their breeding seasons.

The MCS relative sustainability ratings are given for each geographic area and capture/farming method from which a species comes. The geographic areas relate to FAO and ICES classifications – see pages 60 to 62 for maps of these areas.

**Rating 1 & 2** (Fish to Eat) is awarded to the most sustainable sources of seafood for which stocks are healthy, the fishery is well managed and the fishing or farming practices used cause minimal damage to other fish species, marine life and habitats.

1

2

**Ratings 3 & 4** reflect increasing levels of concern regarding the status of the fish stock, or the environmental impact of the fishing or farming methods used.

3

4

**Rating 5** (Fish to Avoid) is given to fish that should be avoided because they are impacted by a combination of some, or all of the following factors: overfished; vulnerable to exploitation; poorly managed and/or fished or farmed using methods that cause damage to marine life and habitats.

5

*(The 2008 Good Catch Manual included MCS species advice, seasonality guidance and ratings for around 50 species. As a fish’s sustainability status can change over time it is advisable to check MCS’ online advice to be sure you are up-to-date.)*



## Go Low

Buying fish that eat low on the food chain can be more sustainable than larger, predatory fish which need more food and time to grow and are susceptible to overfishing. Also a bonus, some of these species are small, oily fish that are a good source of healthy omega 3 oils.

## Seasonal Specials

When buying fresh, wild seafood celebrate it at its peak by ordering with the seasons and highlighting this on your menu. Avoiding buying fish during their spawning season allows species to breed and replenish their populations (not an issue if you are using farmed or frozen fish).

## Tick The Box

Check out ‘the fish with the tick’ at [www.msc.org](http://www.msc.org) and start serving seafood that is certified as sustainable.

## Flex It

Be as flexible as possible to adapt to availability of sustainable seafood. Seafood ‘specials’ can draw attention to a specific sustainable option, or describing dishes as ‘fish’ or ‘seafood’ on your written menu and using front of house staff to communicate the fish provenance means you don’t pin yourself down to a particular species.

# Sourcing Sustainable Seafood

As you take steps to 'Gather Information' and look to 'Source Sustainably' you will get a good idea of the type of seafood you want to buy and feature on your menu, but sometimes actually sourcing it can be a challenge.

Talk with your supplier so they can understand your sustainability aims and work with you to get the right seafood for your business. In addition, the following initiatives can help you in sourcing sustainable seafood.



## Marine Stewardship Council certified suppliers

[www.msc.org](http://www.msc.org)

To source MSC certified fish, you need to contact a certified supplier. The MSC website includes a searchable list of certified suppliers at [www.msc.org/where-to-buy/find-a-supplier](http://www.msc.org/where-to-buy/find-a-supplier). Here you can find contact information and details of the MSC products each supplier has on offer.

MSC-certified foodservice suppliers offer MSC seafood to various businesses – independent restaurants, chains, hotels, hospitals, fish and chip shops and schools. The number of fisheries MSC certified, and in assessment to be certified, has quadrupled in the last five years; therefore the availability of MSC products is growing rapidly. You can now get MSC fish fresh, frozen and canned, from the UK and around the world. Once you have a supplier who you can source MSC fish from, you then need to get your business certified for Chain of Custody if you wish to use the MSC ecolabel – see page 34-35 for more information. The distinctive logo allows you to prove your best practice in seafood sourcing to your customers.

## Pisces – Responsible Fish Restaurants (RFR)

[www.pisces-rfr.org](http://www.pisces-rfr.org)

Pisces-RFR is a restaurant-led initiative that helps chefs source sustainable, more local, fish by connecting them directly with UK fishermen and fisheries using sustainable practices. Pisces-RFR provides an additional dimension to other initiatives, by actively engaging in the following practical steps from sea to plate:

- Sourcing local, seasonal, fish by category rather than (pressured) species.
- Seeking out, evaluating and documenting fishers who are reducing environmental damage.
- Improving the quality of fish, providing an additional incentive to chefs.

Having successfully trialled the scheme with a London and Brighton based restaurant group Pisces-RFR is now working to involve other restaurants, actively getting responsibly sourced fish from inshore UK fisheries onto restaurant plates. Fisheries covered range from East Anglia and Sussex to Cornwall.

Many of the photographs in this publication are by Malcolm MacGarvin, Pisces-RFR: [malcolm@pisces-rfr.org](mailto:malcolm@pisces-rfr.org)

See inside cover for the full list of photo credits.

## Seafish Supplier Directory

[www.seafish.org/land/suppliersdb.asp?p=fca](http://www.seafish.org/land/suppliersdb.asp?p=fca)

The UK Seafish Industry Authority (Seafish) maintains a directory of UK seafood suppliers. The businesses listed do not necessarily all sell sustainable seafood, but the ability to search by the type of seafood you are looking for means you can track down suppliers of various sustainable species.

Remember the 'Advanced Search' on [www.fishonline.org](http://www.fishonline.org) is a handy tool if you want to check the sustainability advice from MCS for different fish species.



"By using carefully sourced fish and shellfish, like the much underestimated herring, I can bring my dishes to life with the quality of the fresh ingredients. Blending British produce with Indian recipes celebrates both cultures and cuisine."

**Cyrus Todiwala**  
Café Spice Namaste



# Marine Stewardship Council

## Chain of Custody

Marine Stewardship Council (MSC) Chain of Custody is a process to ensure that products using the MSC ecolabel have come from an MSC certified fishery. If you wish to use the MSC logo in your business (on menus or websites for example) you will need to be certified to do so. The MSC Chain of Custody certification, and the blue ecolabel it allows you to use, are your independent assurance of seafood sustainability and can help you gain recognition for responsible sourcing and communicate this to your customers.



## Sourcing MSC certified fish

The first step is to find a certified supply of fish. Speak with your current supplier about them getting MSC certification so they can supply you with MSC seafood, or opt for a supplier who already has their MSC Chain of Custody certificate – for example: M&J Seafood and Direct Seafoods in London.

See the MSC website for up-to-date listings of certified suppliers:  
[www.msc.org/where-to-buy/find-a-supplier](http://www.msc.org/where-to-buy/find-a-supplier).

## What is Chain of Custody?

Chain of Custody, as the name suggests, works as a chain. Every link from the fishers to your customers is audited and certified to ensure the traceability of the fish. As the final link in the chain, your restaurant will need to be certified for Chain of Custody in order to display the MSC logo on your menus.

## How do I get my restaurant certified?

Getting certified involves an audit of your business by an accredited certifier or auditor. You can find a list of accredited auditors on the MSC website. There are a number of different ways to get MSC certified – find the one that best suits your business.

### Conventional assessment

[www.msc.org/get-certified/restaurants/ecolabel/get-certified/audit/conventional](http://www.msc.org/get-certified/restaurants/ecolabel/get-certified/audit/conventional)

In a conventional assessment a certifier will visit your restaurant to carry out the audit. This route to certification is open to all restaurants and is the most common way to get certified at present. We recommend asking two or three auditors from the list to quote for auditing your restaurant.

The cost is mainly composed of the time the auditor spends (ask for their day rate) and their travel expenses, but consider their responsiveness, availability and other factors important to you. Costs may also depend on the number of restaurants being certified. Working together to schedule audits with several other local businesses can reduce costs by increasing the efficiency of the auditor's time and sharing expenses like travel and accommodation.

### Online assessment

[www.msc.org/get-certified/restaurants/ecolabel/get-certified/audit/online](http://www.msc.org/get-certified/restaurants/ecolabel/get-certified/audit/online)

The MSC is developing an online assessment process for independent restaurants. Between January and June 2010 this is being trialled by a small number of UK restaurants. If your restaurant is eligible, the online route may save you time and money.

### Group assessment

If you are part of a group (e.g. a contract caterer with a number of sites or a restaurant chain) you can certify the whole group in one assessment. This can lead to substantial savings in the cost of Chain of Custody certification because not every site is audited. Again, we recommend asking two or three auditors from the list to quote for auditing your restaurants.





## How long is the certificate valid?

- The certificate lasts for 3 years.
- The auditor will carry out a surveillance audit (a 'check-up' audit), once per year for the certificate to remain valid.

## Preparing for your audit

Once you have appointed an auditor you will need to prepare your systems and your staff for the auditor's visit. The better prepared you are, the quicker and therefore the cheaper certification will be. The MSC has produced information packs and staff training materials you can adapt to suit your needs and a series of case studies to help you prepare for your audit based on the experience of others, these are available on the MSC website. The DVD *MSC on the Menu*, provides practical advice for restaurants interested in MSC certification and can be used for staff training.

Like any audit, the focus is on demonstrating how you ensure the rules of Chain of Custody are met. These need not be onerous and many kitchens find they have to make very few changes to the way they work in order to get certified. The auditors will be checking that you have systems in place to ensure you:

- 1) Keep MSC fish separate from non-MSC fish.
- 2) Clearly identify the MSC fish.
- 3) Keep track of deliveries, wastage and sales of MSC fish.
- 4) Make sure the MSC logo can only be applied to MSC fish.

Some of these steps can be very simple – such as 'Clear, MSC-labelled gastros for MSC fish, metal gastros for non-MSC fish'. Others take a little more work but at their heart, are really about good housekeeping and good record-keeping.

You – and your auditor – need to know how much MSC fish is bought, sold and wasted. This is part of what MSC calls the mass balance. In short, the amount of fish you buy must balance with the amount of fish you sell or waste. Tracking wastage is not part of everyone's systems but keeping good records of what you buy and what you waste is very important for Chain of Custody. You do not have to record every gram – in fact a group of London restaurants found that keeping a log of how many portions they sold (and an average weight per portion) worked well for keeping track.

The final part of the audit is about how you train your staff – both kitchen and front-of- house. As with the rest of the audit, there are training materials on the MSC website including a presentation that you can tailor to suit how your business, and your Chain of Custody, work. These will help you explain how Chain of Custody works, why MSC Chain of Custody is important and what it will mean for staff in their day-to-day duties.

## And the logo?

Once you have been certified for Chain of Custody you will be eligible to sign a logo licence agreement with the MSC. As a charity, MSC relies on grant funding and a small royalty fee on the use of the logo. That fee is re-invested in ensuring that the traceability standard remains one of the best in the world – protecting your investment in your Chain of Custody certificate.

Throughout the process, MSC staff are available to provide advice and support. If you would like more information visit [www.msc.org](http://www.msc.org), email [info@msc.org](mailto:info@msc.org) or call 0207 811 3300.



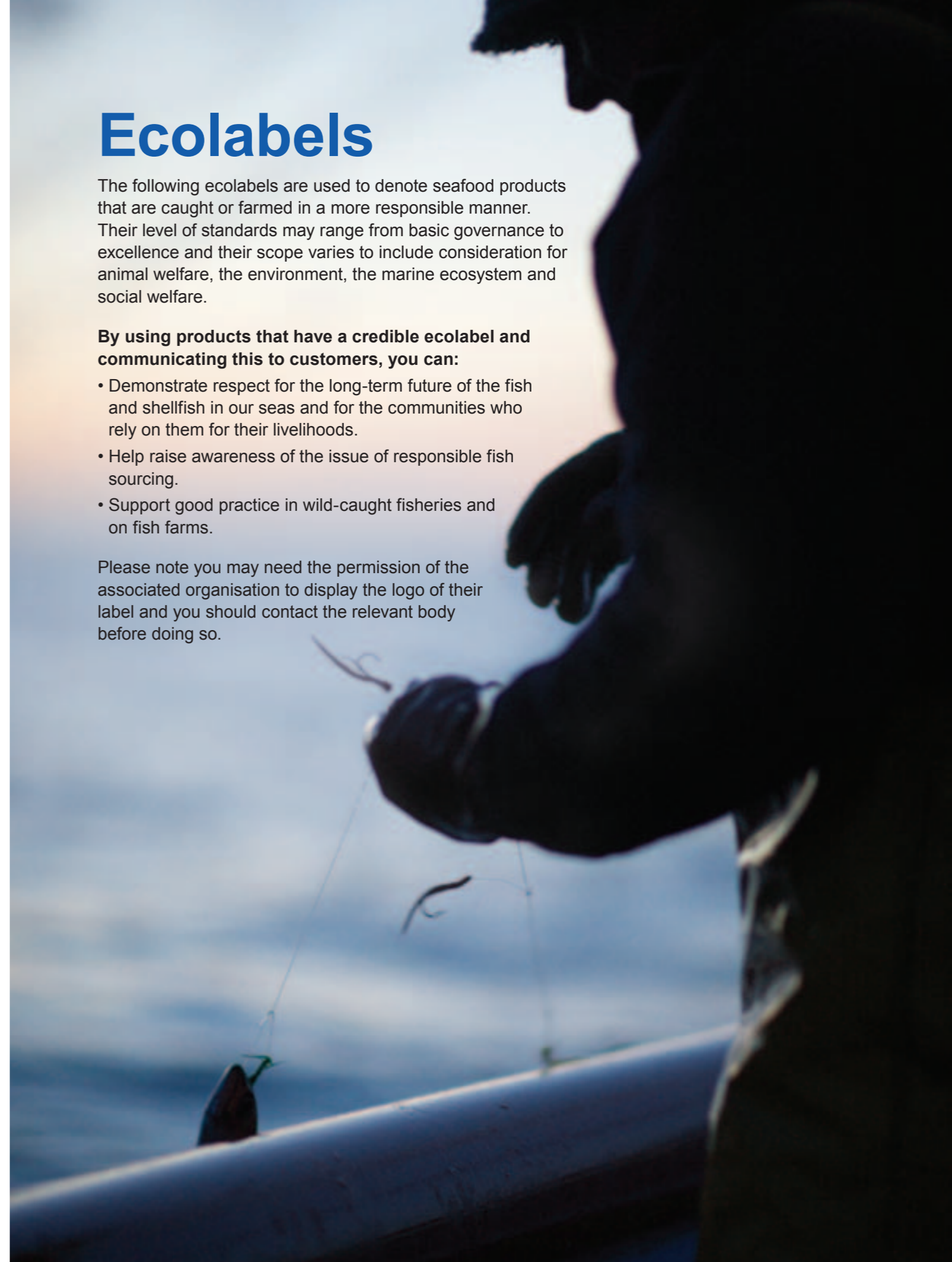
# Ecolabels

The following ecolabels are used to denote seafood products that are caught or farmed in a more responsible manner. Their level of standards may range from basic governance to excellence and their scope varies to include consideration for animal welfare, the environment, the marine ecosystem and social welfare.

## By using products that have a credible ecolabel and communicating this to customers, you can:

- Demonstrate respect for the long-term future of the fish and shellfish in our seas and for the communities who rely on them for their livelihoods.
- Help raise awareness of the issue of responsible fish sourcing.
- Support good practice in wild-caught fisheries and on fish farms.

Please note you may need the permission of the associated organisation to display the logo of their label and you should contact the relevant body before doing so.





## Wild-Caught Species

There are several ecolabels for wild fisheries which are present in the UK market. The coverage of these labels differs from international to regional and may focus on sustainable fishing as a whole or a particular aspect of sustainability.

### Marine Stewardship Council (MSC)

[www.msc.org](http://www.msc.org)

The MSC has developed standards both for sustainable fishing and seafood traceability. Both standards are based on independent third-party assessments by independently accredited certifiers. They meet the world's toughest best practice criteria and are helping to transform global seafood markets. Together, they offer fisheries a credible way to be recognised and rewarded for good management practices and provide a traceability assurance to buyers. Because of these standards and the methodologies that support them, you can be sure that seafood carrying the MSC label comes from a certified sustainable fishery and every company in the supply chain has passed a detailed traceability audit.

The MSC meets best practice guidelines for ecolabelling and certification to ensure it offers the world's leading certification program for sustainable wild-capture sea-food. MSC follows international, professional benchmarks to promote robust processes and uphold core values of independence, transparency, impartiality and stakeholder consultation and is consistent with all of the following international norms:

- The Code of Conduct for Responsible Fishing (UN FAO)
- The Code of Good Practice for Setting Social and Environmental Standards (ISEAL)
- Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (UN FAO)
- World Trade Organisation Technical Barriers to Trade Agreement

If you wish to use the MSC logo in your business (for example on menus or website) you will need to be certified to do so. See pages 34-36 for a summary of the MSC Chain of Custody process.

### Friend of the Sea

[www.friendofthesea.org](http://www.friendofthesea.org)

Friend of the Sea is a certification scheme for both wild and farmed fish which claims to provide a certification scheme consistent with recommendations and agreements created by the UN Convention on the Law of the Sea, the FAO Code of Conduct for Responsible Fisheries and other relevant instruments put forth by the World Trade Organisation.

### Earth Island Institute

[www.earthisland.org](http://www.earthisland.org)

Earth Island Institute (EII) is at the forefront of campaigns for Dolphin Friendly Tuna and has developed standards that more than 90 percent of the world's tuna companies adhere to. Its extensive monitoring service ensures that tuna is caught by methods that do not harm dolphins (though it does not account for other marine species being caught and this can be a notable issue in dolphin safe fisheries). EII's website has a list of verified dolphin safe fishing and processing companies, along with importers, brokers and retailers.

### Naturland

[www.naturland.de](http://www.naturland.de)

This German organisation is currently developing standards for the certification of sustainable capture fisheries through a series of pilot projects. It is particularly concerned with fisheries in third world countries considering the impacts of fishing techniques on ecosystem health and social elements such as labour legislation within fishery countries. The first Naturland certified wild fish is from Bukoba, Tanzania.



### South West Handline Fishermen's Association

[www.linecaught.org.uk](http://www.linecaught.org.uk)

This association of fishermen from South West England has promoted the consumption of fish caught by handline throughout the UK for the past 20 years. Hook and line fishing is associated with minimal environmental impact and is considered to produce a higher quality fish as they are caught live, tagged to ensure authenticity, and stored quickly. Species include bass, pollack and mackerel. (The mackerel fishery has been certified to the MSC's environmental standard for sustainable fishing).

## Farmed Species

There is considerable global work underway to develop standards and to harmonise existing international certification schemes for farmed fish. Feed source is a significant issue (because of the dependency on wild capture fisheries and vegetable proteins), along with environmental impacts such as the use of chemicals, escapees, fish welfare, and social responsibility.

### Aquaculture Stewardship Council (ASC)

[www.ascworldwide.org](http://www.ascworldwide.org)

The ASC aims to offer a credible consumer label that assures compliance with standards for sustainable aquaculture. Eight multi-stakeholder groups – collectively called the Aquaculture Dialogues – are creating these global standards designed to minimise the key negative environmental and social impacts related to 12 aquaculture species: salmon, shrimp, tilapia, trout, pangasius, seriola, cobia, abalone, mussels, clams, oysters and scallops.

WWF are co-founders of the Aquaculture Stewardship Council (ASC) – the body who will manage the standards for responsible aquaculture being created through the Aquaculture Dialogues. The ASC is expected to be in operation by 2011. It will be responsible for working with independent, third party entities to certify farms that are in compliance with the standards. In the meantime GLOBALGAP's accredited certification bodies will audit farms that adopt the Aquaculture Dialogue standards. Farms that are in compliance with the standards will receive a certificate of interim compliance from GLOBALGAP.

### Global Aquaculture Alliance

[www.gaalliance.org](http://www.gaalliance.org)

The Global Aquaculture Alliance is an international, nonprofit trade association whose aim is to advance environmentally and socially responsible aquaculture. It promotes 'Best Practice' aquaculture practice standards and facilitates certification of sustainable aquaculture in accordance with its own standards. Currently certifying species including prawn, tilapia and channel catfish, plus processing plants. Further standards are under development.

### GLOBALGAP (Previously Eurogap)

[www.globalgap.org](http://www.globalgap.org)

Private sector body that sets voluntary standards for the certification of good governance in agricultural and aquaculture products around the globe. It encourages equal partnerships between producers and retailers who wish to establish efficient certification standards and procedures. Standards for species currently available include prawn, salmon, trout pangasius and tilapia.

### Friend of the Sea

See previous page (wild-caught species).



Logo launching early 2011



**GLOBALG.A.P.**  
The Global Partnership for Good Agricultural Practice

## Organic

Organic aquaculture standards are based on a number of principles including protection of the environment, respect for animal welfare, appropriate treatment of disease, avoidance of genetic manipulation and use of certain feed. Organic standards typically recommend a lower stocking density of fish in pens, limits the use of artificial colourings, fertilisers and pesticides and insist on use of fishery by-products for fish-feed. These factors collectively help to reduce (though not entirely eliminate) the environmental impacts of organic fish farming in comparison to conventional fish farming.

**In the UK, two private certification bodies have organic aquaculture standards:**

### Soil Association

[www.soilassociation.org](http://www.soilassociation.org)

The Soil Association developed organic farmed seafood guidelines in 2006 that go above and beyond UK organic requirements. The standards address key issues including: fish-feed sustainability, stocking density, pigment issues and toxicity issues arising from site maintenance. Certifiable species include salmon, mussels, oysters and scallops.

### Organic Food Federation

[www.orgfoodfed.com](http://www.orgfoodfed.com)

The Organic Food Federation (OFF) is an independent certification body established in 1986. OFF certify in all areas of organic food production and processing and have standards that cover finfish and mollusc farms.

**Other EU organic certifiers with aquaculture produce in the UK are:**

### Naturland

[www.naturland.de](http://www.naturland.de)

The Naturland standards for organic farmed seafood have been undergoing development over the past decade and are now deployed in 20 countries. They cover trout, salmon, shrimp, tilapia, and pangasius. The standards consider site selection, ecosystem protection, chemical use, use of GMOs, processing and fish-feed sourcing.

### Agriculture Biologique (AB)

[www.agencebio.com](http://www.agencebio.com)

The French national logo for organic products is 'Agriculture Biologique'. Organic AB products are certified by one of the inspection bodies accredited according to EN 45011. AB certified farmed fish includes organic trout, salmon, seabream and seabass, plus tiger prawns from Madagascar.

**Further labels exist in the UK market. These are not ecolabels for sustainability but do have an environmental aspect:**

### Welfare RSPCA Freedom Food

[www.freedomfood.co.uk](http://www.freedomfood.co.uk)

The RSPCA has developed welfare-based standards for farmed salmon based upon the Farm Animal Welfare Council's Five Freedoms. The Fish Welfare Production Standards have been developed to ensure that higher standards of welfare are met at all stages of the animals' life and cover issues including water quality, stocking density, handling, health and slaughter.

### Quality Tartan Quality Mark

[www.scottishsalmon.co.uk](http://www.scottishsalmon.co.uk)

Salmon produced under the Scottish Salmon Producer Organisation's (SSPO) Product Certification Schemes can display a Tartan Quality Mark in the UK. Salmon carrying the Tartan Quality Mark can be traced back to source through a unique number printed on the gill tag. SSPO members are required to sign up to a Code of Good Practice for Scottish Finfish Aquaculture and compliance is independently audited on an annual basis.

## Step 3 State your Commitment

Creating a publicly available policy on seafood sustainability can be useful for your business as well as for external people looking at your practices. Within your own team a policy can help staff understand and support the principles guiding your seafood sourcing. Externally there is increasing scrutiny of seafood sustainability from interested customers, media and campaign groups. A transparent policy document shows your commitment to action and gives a clear picture of your responsible seafood practices, so helping to uphold the reputation of your business.

### Create a sustainable seafood policy that is right for your business.

#### A comprehensive policy will:

- Establish a business-wide vision and approach to seafood sustainability.
- Outline specific activities you take to address the key steps: Gather Information, Source Sustainably, State your Commitment, Communicate Clearly, and Influence Wider Progress.
- Identify clear goals and targets to be achieved over set timelines for each step.

Make your sustainable seafood policy publicly available; review it annually and summarise goals achieved and planned actions.

The Marine Conservation Society (MCS) have created a guidance document on implementing a sustainable seafood policy and several leading businesses and organisations already have policies in place. Go to [www.goodcatch.org.uk](http://www.goodcatch.org.uk) to find examples of policies that can help you in creating your own.



"The bluefin tuna, or hon maguro, is the bedrock of a Japanese sushi restaurant, so when we decided to take it off our menu in 1999, over concerns of declining stocks, some people wrote us off for not being authentic. Humiliating as that was, times have moved on fast. Consumers are far more aware of the need to buy locally and in season, so in the main they are happy to see we have substituted bluefin with yellowfin, or even more locally caught albacore when it's in season."

**Caroline Bennett**  
**Moshi Moshi**

### Go Public

Having a seafood purchasing policy can help guide the decisions you and your team make as to which seafood you buy. A policy can also act as a public statement of your commitment to sustainable sourcing.



## Spread The Word

Spreading the sustainability message with customers can build support for your business and for sustainable seafood in general. Front of house staff are key communicators; websites, menus, flyers and special events may also be useful.

## Team Talk

Communicate the provenance of your produce with your whole team; get everyone interested and invigorated and sharing this with the customer. Making progress on seafood sustainability is something to celebrate.

# Step 4 Communicate Clearly

Engaging customers and key stakeholders along the seafood supply chain can increase understanding of seafood sustainability – as well as the progress you are making as a responsible business. If you've made sustainable sourcing choices, communicating this can make customers more likely to support your business, build your reputation and encourage others to take similar steps.

**As well as having a publicly available policy (see Step 3) aim to:**

- Make information on the source of your seafood (e.g. exact species name plus where and how it was produced) easily available to customers and others.
- Train management and employees about seafood sustainability and your responsible sourcing choices.

How you do this will depend on what works well for your own business. Talk with colleagues about great ways to communicate your seafood sustainability. Consider options such as adding seafood sustainability information to your website and making it part of staff inductions; including details about the source of your seafood and capture methods on menus; plus using posters, leaflets and other marketing materials to pass on your message.

Visit [www.goodcatch.org.uk](http://www.goodcatch.org.uk) for upcoming events that can help you market your sustainability message and more ideas for communicating with your customers and staff.



# Getting Noticed

Getting recognition for improvements and achievements in seafood sustainability is important for your business. For example, externally, it can help drive customers to your business and share your progress with peers while internally, recognition can help build staff morale and set further goals. Here is some information on schemes from several organisations that can give recognition to your efforts and provide useful communication tools.





The MSC ecolabel provides reassurance both to the chef and staff and to their customers, that the fish they are buying can be traced back to certified well-managed and sustainable fisheries.



## Marine Stewardship Council – Chain of Custody Certification

[www.msc.org](http://www.msc.org)

The MSC manages a seafood certification and ecolabelling programme designed to recognise and reward sustainable fisheries. Businesses supporting these fisheries can prove it to their customers by using the distinctive blue MSC ecolabel on their menu. This shows the customer that the fish is proven sustainable and that high traceability standards are in place all through the supply chain.

Go to pages 34-36 to learn more about getting certified to use the MSC logo.

## Fish2Fork - restaurant rating scheme

[www.fish2fork.com](http://www.fish2fork.com)

Billed as 'the restaurant guide for people who love to eat fish – sustainably' Fish2Fork launched in the UK in October 2009. Fish2Fork rates restaurants that serve fish based on not only the quality of their food but also the effect they are having on the seas, casting a spotlight on the sustainability of fish that restaurants serve and promote. The rating system used by Fish2Fork aims to inform consumers by giving recognition to those restaurants taking leadership on seafood and applying pressure to those whose seafood offerings come at the cost of healthy seas and marine life.

Restaurants can be listed on Fish2Fork by filling in a questionnaire online which scores restaurants on a number of issues relating to their sourcing of seafood.

*(Note – Fish2Fork does not endorse or certify companies listed in the directory, but rather seeks to highlight businesses offering better environmental choices in seafood based on the information the businesses themselves have provided. This information is reviewed annually.)*

## The Sustainable Restaurant Association

[www.thesra.org](http://www.thesra.org)

Launched in March 2010, the Sustainable Restaurant Association (SRA) offers chefs and restaurateurs guidance on all things sustainable, from local sourcing to responsible marketing. Signing up as an SRA member gives you access to a range of information and advice. If you commit to carrying out a number of actions from the SRA Charter you can be eligible for marketing materials, including a 'We're at the Table' SRA window sticker. Restaurants that want to go a step further can go through a full sustainability audit to be rated bronze, silver or gold for their efforts – with these ratings listed in major eating out guides such as *Harden's* and *toptable*.



# Step 5

## Influence Wider Progress

By improving your own seafood sourcing you are already leading by example, but you can also encourage wider progress by influencing seafood practices, management and policy.

**There are many ways to encourage advances in sustainability, and what works for you will depend on your own strengths and connections. Options to drive further progress include:**

- Using your voice to be a spokesperson for sustainable seafood choices, such as in the media, amongst fellow chefs and with chef associations you are part of.
- Supporting campaigns asking for fisheries and aquaculture management to be more environmentally responsible.
- Encouraging suppliers and producers to improve and document environmental performance, and make this sustainability information fully available.
- Cultivating responsibility in the next generation of chefs by working with trainees and catering colleges.
- Contacting your government representative to support policy and rule making for a healthy seafood supply and oceans.



## Delve Deeper

The Good Catch project is just a starting point to understanding seafood sustainability – delve into other resources if you want to find out more. Stay informed on sustainable seafood activities and news by signing up to the 'Fish-Flash' e-bulletin from [www.goodcatch.org.uk](http://www.goodcatch.org.uk).

# Additional Aspects of Seafood Sustainability

*“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”*  
**The Brundtland Commission Report, 1987**

Sustainability (encompassing social, environmental and economic considerations) aims to provide the most positive outcome for people and the planet for now and into the future. Good Catch and this publication focus on the environmental sustainability of seafood but recognise this is connected with the social and economic aspects.

Outlined below are some issues which may play a role in your seafood sourcing decisions, but that are largely beyond the scope of Good Catch activity. The Sustainable Restaurant Association is a good stepping stone for finding out more about these broader sustainability issues – see: [www.thesra.org](http://www.thesra.org)

## Consumer health

Fish are considered by many nutritionists to be part of a healthy diet; providing a low-fat source of protein and essential omega 3 fatty acids. Some concerns do exist however about the presence of toxins (e.g. mercury) in some seafood as marine pollutants can build up in the flesh of fish and then be consumed by people. In the UK, the Food Standards Agency [www.eatwell.gov.uk](http://www.eatwell.gov.uk) provides advice on recommended consumption levels of fish that considers both the health benefits and toxicity risks.

## Climate change

Climate change and ocean acidification (a process related to carbon emissions which causes seawater to become more acidic) have strong implications for marine life and the people who rely on it. Changes in water temperatures and acidity can affect species distribution and survival. The exact impacts are not yet fully understood but their effects are already being felt in some fisheries.

Catching, farming, processing and transporting seafood requires energy use and can contribute to the emission of climate change gases. The overall sustainability of seafood is connected to this total energy used in production (often termed ‘carbon footprint’). Distance transported by road, rail, shipping or air (‘food miles’) is an aspect of this.

The Food Climate Research Network [www.fcrn.org.uk](http://www.fcrn.org.uk) is a comprehensive source of information on the links between food and climate change for those that want to investigate further. Many seafood companies are taking their climate responsibilities seriously now and are advancing research in this area. The Global Salmon Life-Cycle Assessment (LCA) [www.ecotrust.org/lca/](http://www.ecotrust.org/lca/) is one example of such progress. Focussing on salmon fillets, this research assesses the environmental impact of different production and distribution methods of producing salmon. View the website to learn more, and look out for further research to emerge on seafood-climate issues.

## Local

Buying food that has been produced locally is a consideration for many people. The reasons behind local purchasing are varied but can include supporting the local economy, improving community spirit, maximising freshness and reducing food miles (as related to climate change). Buying fish that is landed locally, on small day-boats, can be more sustainable for marine life as these smaller boats have less capacity to overfish populations. However, the environmental impact of capture fisheries is dependent on several factors; the fishing method used by local boats and the vulnerability of the fish populations they capture is still important in determining their sustainability. The National Farmers’ Retail & Markets Association [www.farma.org.uk](http://www.farma.org.uk), London Food Link’s Local Food Finder [www.localfoodfinder.org](http://www.localfoodfinder.org) and regional fish producers’ organisations may be useful in finding out more about local seafood sourcing in your area. Also the Pisces-RFR initiative, described on page 33 – ‘Sourcing’, connects restaurants directly with UK fishermen, helping chefs source more locally.

## Human rights and social justice

Fish is traded globally and there are instances when the practices of some capture fisheries and fish farms have infringed upon local people’s human rights. Large-scale tropical prawn farms and boats overfishing off the African coast (some illegally), for example, have both been associated with social injustice through fishery and environmental degradation and, in certain instances, outright abuse. Organisations such as the Environmental Justice Foundation [www.ejfoundation.org](http://www.ejfoundation.org) can provide further information, and also campaign on these issues.

## Animal welfare

Fish are animals, and research shows that they are likely to experience suffering such as stress and pain. The welfare of both wild and farmed fish can vary depending on the conditions in which the fish are caught or farmed and the way in which they are killed. The RSPCA Freedom Food scheme currently has welfare standards for farmed salmon [www.rspca.org.uk](http://www.rspca.org.uk) and Compassion in World Farming [www.ciwf.org](http://www.ciwf.org) includes farmed fish welfare in their work.



“At Due South, we want to support local fishermen while ensuring that all the fish eaten in our restaurant comes from sustainably managed sources. As a result, we only use fish from healthy stocks off the Sussex coastline. If we are going to continue enjoying seafood we’ve got to strike a delicate balance; ecologically sound fishing practices are vital for all concerned.”

**Michael Bremner**  
Due South



# Beyond Seafood

Good Catch focuses on the environmental aspects of seafood, but if you are concerned about responsible seafood sourcing then you are likely to be interested in running a responsible business in general. The following pages give some useful recommendations and contacts to help you improve the overall sustainability of your business.



## Practice Sustain's 7 principles of sustainable food

1. Use local, seasonally available ingredients as standard to minimise energy used in food production, transport and storage.
2. Specify food from the farming systems that minimise harm to the environment such as organic certified produce.
3. Limit foods of animal origin (meat, dairy products and eggs) on the menu and ensure that all meat, dairy products and eggs that are used are produced to high environmental and animal welfare standards. To reduce the impact of livestock farming on climate change, promote meals rich in vegetables, fruit, pulses, wholegrains and nuts.
4. Exclude fish species identified as most 'at risk' by the Marine Conservation Society (MCS) and choose fish only from sustainable sources, such as those certified by the Marine Stewardship Council (MSC).
5. Choose Fairtrade-certified products for foods and drinks imported from poorer countries, to ensure a fair deal for disadvantaged producers.
6. Avoid bottled water and instead serve tap water in reusable jugs or bottles to minimise transport and packaging waste.
7. Promote health and well-being by cooking with generous portions of vegetables, fruit, and starchy staples like wholegrains, reducing the use of salt, fats and oils and cutting out artificial additives.

For more detail and advice on putting these principles into practice:  
[www.sustainweb.org/sustainablefood](http://www.sustainweb.org/sustainablefood)

If you are in London or the surrounding counties, check out London Food Link's Local Food Finder for a list of suppliers offering local and sustainable products:  
[www.localfoodfinder.org](http://www.localfoodfinder.org)



## Rethink your purchasing

- Buy in bulk to reduce packaging waste, transport costs and pollution
- Give preference to goods that are re-usable or made from recycled materials, compostable (if you have the facilities to compost them) or recyclable.
- Purchase more environmentally friendly products such as cleaning products with fewer chemicals.
- Ask your suppliers to reduce packaging waste – for example by delivering products in reusable crates.



“Carlos Petrini, founder of the Slow Food movement, said ‘Anyone who thinks of themselves as a food lover but does not have any environmental awareness is naïve. Whereas an ecologist who does not enjoy the pleasures of food, certainly has a sadder life.’ This message has really stayed with me as I run my business on a day-to-day basis. Carlos captures the essence of the chef and restaurateur’s collective responsibility as custodians of our planet’s resources.”

**Caroline Bennett**  
**Moshi Moshi**



## Reduce energy and water use

- Switch to a 100% green electricity tariff to reduce the environmental impact of your energy use and support development of renewables – see [www.greenelectricity.org/business.php](http://www.greenelectricity.org/business.php) to get a quote.
- Replace conventional light bulbs with energy-efficient varieties that will both last longer and reduce costs in the long run.
- Install motion sensors and implement a 'switch off' policy so as to reduce excess energy use.
- Reduce heating and cooling costs by installing a well-thought out ventilation system. Take advantage of natural light and air-flow through windows and consider using a heat exchanger in the ventilation system to recover heat generated in the kitchen.
- Turn off fridges used for chilling at the end of the day. Also ensure they are properly sealed and maintained and running at an appropriate temperature.
- Try to keep fridges outside of the kitchen and away from radiators as this will increase efficiency.
- Consider switching to more energy-efficient kitchen appliances as a way to increase energy efficiency and reduce energy costs. Although new appliances may cost more, the cost will be negated by lower bills. Most dishwashers, fridges, freezers, and washing machines are now given an energy-efficiency rating ranging from A+ to G. Keep in mind that A- appliances use half the energy of G rated ones. Take a look at [www.energylabels.org.uk](http://www.energylabels.org.uk) to see which energy labels to look out for.
- Ensure your boiler is adequately insulated and annually serviced. An old, inefficient boiler can cost up to 30% more than one that is new or well-maintained. For more information about this visit the Energy Saving Trust website at: [www.energysavingtrust.org.uk](http://www.energysavingtrust.org.uk)
- Discuss the possibility of using electric ovens and hobs in the kitchen instead of gas ones. This will cost more, but is better for the environment providing you are on a 100% green tariff.
- Encourage good behaviour in the kitchen. Ask chefs to turn off hobs and ovens when not in use and cook with the lids on. Cooking with pressure cookers and microwaves, when appropriate, can reduce cooking time and energy use. A regular cleaning routine will also help keep appliances efficient. Finally, ask staff not to leave water running unnecessarily.
- Install spray taps, dual flush toilets and save-a-flushes and repair leaks to better control the use of water. Also, consider fitting urinals with units that don't require water. Check out [www.waterwise.org.uk](http://www.waterwise.org.uk) for more tips on how to save water.



## Reuse and recycle as much as possible

- Separate and recycle packaging and waste. Contact your local council to find out what recycling facilities are available to you. Also, see London Remade's website for information regarding waste reduction and recycling in businesses: <http://londonremade.com>
- Use plastic containers to store dry ingredients to minimise costs and excess packaging.
- One business' waste can be another's treasure. The UK throws away approximately 6.7 million tonnes of food every year! Better uses for that food include donating excess food to a homeless shelter, composting food waste or giving cooking oil waste to companies who turn it into biodiesel. Visit the Composting Association website for more information: [www.compost.org.uk](http://www.compost.org.uk)

## Sustainability schemes and support

### The Sustainable Restaurant Association (SRA) – [www.thesra.org](http://www.thesra.org)

- Membership organisation which aims to help restaurant businesses around the UK become more sustainable.
- Works closely alongside various organisations with expertise in different areas of sustainability, such as Sustain (sustainable food), Carbon Descent (conservation of energy and water) and LRS Consultancy (responsible waste management).
- Member restaurants receive a Welcome Pack containing clear, practical information on 14 aspects of sustainability; access to the members' area of the SRA website; discounts on goods, services, and entry to events; and a personal account manager to support them on their journey towards becoming a more sustainable business.
- Restaurants that want to move up to the next level can undergo a full sustainability audit, and be rated Champion (gold), Merit (silver) or Commended (bronze), depending on how they score across each topic area and in total.

### Ethical Eats network – [www.ethicaleats.org](http://www.ethicaleats.org)

- Established by London Food Link to enable London restaurants and caterers to share experiences, promote best practice and identify practical steps they can take to make their businesses more sustainable.
- Runs workshops several times a year on themes such as sustainable fish, food waste and local sourcing. Also organises occasional visits to local producers.
- To join Ethical Eats, contact London Food Link on [londonfoodlink@sustainweb.org](mailto:londonfoodlink@sustainweb.org) or 020 7837 1228.

### Green Tourism Business Scheme – [www.green-business.co.uk/index.asp](http://www.green-business.co.uk/index.asp)

- UK sustainable tourism certification scheme, launched by the London Development Agency, that recognises all types of tourism businesses with a Bronze, Silver, or Gold award based on their achievements.
- Ability to meet criteria includes both compliance with environmental legislation and voluntary environmental practices.

### Green Mark – [www.green-mark.co.uk](http://www.green-mark.co.uk)

- An award scheme that recognises small and medium sized businesses for their on-going environmental commitment.
- The scheme sets standards and requirements for each of the 3 levels of good environmental practice, the third of which is an ISO 14001 pre certification level.

### Contact your local council's sustainability or environment team to see if they offer any support to businesses wanting to implement sustainable practices.

- In North London for example, the London Borough of Camden's 'Better Climate for Camden' ([www.betterclimateforcamden.org](http://www.betterclimateforcamden.org)) scheme helps local businesses to identify how they can reduce their impact on climate change through measures such as saving energy, green procurement, staff awareness schemes, reducing waste and using greener modes of transport.



# Delve Deeper

The information summarised in this publication helps you to understand seafood sustainability and to make responsible decisions about the seafood you buy, serve and promote. The sources listed below were referred to in creating this publication; they are well worth exploring if you want to delve a bit deeper!



## Information Sources

### BTA (British Trout Association)

[www.britishtROUT.co.uk](http://www.britishtROUT.co.uk)

The BTA represents around 80 percent of trout production in the UK, with over 100 members made up of trout farmers, feed suppliers and aquaculture academics. It plays a role in the continuing development of the industry by initiating research, undertaking generic marketing activities and taking care of the regulatory and political needs of industry.

### Chefs Collaborative – Seafood Solutions

<http://chefsCOLLABORATIVE.org>

Chefs Collaborative works in America with chefs and the greater food community to celebrate local foods and foster a more sustainable food supply. The Seafood Solutions programme and guide educates chefs about the sustainability of the seafood they purchase and serve.

### Conservation Alliance for Seafood Solutions

[www.SOLUTIONSforSEAFOOD.org](http://www.SOLUTIONSforSEAFOOD.org)

More than a dozen North American organisations have partnered to form the Conservation Alliance for Seafood Solutions. These environmental organisations bring conservation expertise to seafood buyers and suppliers so businesses, and the ocean and freshwater resources they depend on, can flourish. The Alliance has also created 'The Common Vision', which provides guidance to businesses on actions they can take to advance seafood sustainability and helped shape the Stepping Stones outlined in this publication.

### Environmental Justice Foundation (EJF)

[www.EJFOUNDATION.org](http://www.EJFOUNDATION.org)

EJF works internationally to tackle the root cause of environmental problems and to empower the people who suffer most from environmental abuses to find peaceful ways of preventing them. EJF's Pirate Fishing Campaign investigates and exposes illegal fishing operations, and pushes for action to end illegal fishing globally.

### European Commission website

[http://ec.europa.eu/fisheries/index\\_en.htm](http://ec.europa.eu/fisheries/index_en.htm)

Contains comprehensive facts and figures about the fishing industry, markets, governance and maritime policy in EU countries.

### Federation of European Aquaculture Producers (FEAP)

[www.FEAP.org](http://www.FEAP.org)

FEAP is an international organisation comprising members of the national aquaculture associations of European countries. Its website offers information about farmed species of seafood.

### FishBase

[www.FISHBASE.org](http://www.FISHBASE.org)

FishBase is an information system with key information on 25,000 fishes of the world. It was developed at the WorldFish Center in collaboration with the FAO, EU and research institutions. Information is available online and on a CD-Rom.

### Fisheries Research Services (FRS)

[www.MARLAB.ac.uk](http://www.MARLAB.ac.uk)

FRS is an agency of the Scottish Government Marine Directorate that provides expert scientific and technical advice to Government on marine and freshwater fisheries, aquaculture and the protection of the aquatic environment. Its website has information on Scottish fish species.



"Mackerel is one of the unsung heroes of British waters. It is delicious when very fresh and I also love it smoked (it makes great pâtés and is my favourite filling for a baked potato). Serve fresh mackerel raw in a ceviche, roast it in a hot oven with Indian spices or pan-fry it with a wedge of lemon and some horseradish cream. The flesh is rich, like tuna's, but unlike canned tuna it is full of omega-rich oil making it incredibly healthy. The meat takes flavour really well so it is a great fish to complement Mexican chillies. Thoroughly good and thoroughly good for you – the perfect food!"

**Thomasina Miers  
Wahaca**



**FishOnline (Marine Conservation Society)**  
[www.fishonline.org](http://www.fishonline.org)

The extensive online MCS resource [www.fishonline.org](http://www.fishonline.org) provides detailed information and sustainability ratings for more than 150 species of fish and shellfish. The Fishonline website also includes a guide to when fish spawn (seasonality chart) to help consumers avoid buying fish during their breeding seasons, a comparison of the effects of different fishing gears on the marine ecosystem and information on farmed fish and shellfish species. The website incorporates lists of Fish to Eat and Avoid which are updated regularly online and published annually in the handy MCS Pocket Good Fish Guide. These lists are updated based on the latest scientific reports, including ICES stock status reports and other information.

**Greenpeace**  
[www.greenpeace.org.uk](http://www.greenpeace.org.uk)

Greenpeace work to defend the world's oceans and the life that depends on them by ending whaling and destructive fishing practices and working for global marine reserves. Their Seafood See Life campaign calls on chefs to support these causes.

**ICES**  
[www.ices.dk](http://www.ices.dk)

ICES is the organisation that coordinates and promotes marine research in the North Atlantic and adjacent seas, including the North Sea. It acts as a meeting point for some 1600 marine scientists from 20 countries around the North Atlantic that gather information about the marine ecosystem which is used to develop unbiased, non-political advice, which helps member countries to manage the marine environment. (MCS fishonline information for North East Atlantic fisheries is based on ICES technical assessments).

**International Union for Conservation of Nature (IUCN)**  
[www.iucn.org](http://www.iucn.org)

Every four years IUCN publishes a 'Red List' – an inventory of the current global conservation status of plant and animal species – to raise awareness of species threatened with extinction (Critically Endangered, Endangered or Vulnerable) and promote their conservation.

**M&J Seafood – Sustainable Sourcing website and booklet**  
[www.sustainableseafood.co.uk](http://www.sustainableseafood.co.uk)

M&J Seafood are a specialist UK seafood supplier. The Sustainable Sourcing website and booklet offers information on sustainability, including case studies, product recommendations, frequently asked questions and information on M&J's own sustainability commitments.

**Marine Stewardship Council (MSC)**  
[www.msc.org](http://www.msc.org)

The MSC is an independent, global, non-profit organisation whose role is to recognise well-managed fisheries via a certification and ecolabelling programme, and to encourage consumer preference for seafood products bearing the MSC label of approval. Find certified fisheries, suppliers and products on the website.

**MarLIN**  
[www.marlin.ac.uk](http://www.marlin.ac.uk)

The Marine Life Information Network for Britain and Ireland (MarLIN) provides information for marine environmental management, protection and education. Set up by the Marine Biological Association in collaboration with the major environmental protection agencies in Britain and Ireland and academic institutions, it supports good stewardship in the marine environment.

**North Atlantic Salmon Trust**  
[www.atlanticsalmontrust.org](http://www.atlanticsalmontrust.org)

This organisation works for the future of wild Atlantic salmon and sea trout by funding and sponsoring practical research programmes to tackle the issues these species currently face.

**The River Cottage Fish Book**  
Hugh Fearnley-Whittingstall and Nick Fisher

This book contains a variety of fish recipes and information about species and catching your own fish. The emphasis is on sustainability and under-appreciated species of UK fish.

**Scottish Salmon Producers' Organisation (SSPO)**  
[www.scottishsalmon.co.uk](http://www.scottishsalmon.co.uk)

SSPO is the trade association for the salmon farming industry and represents 95% of the country's production. It represents the industry on political, regulatory and technical issues, and operates an environmental code of good practice to which members must adhere. The website contains information on farming methods, environmental effects and health benefits.

**Seafish – Responsible sourcing guides**  
[www.seafish.org.uk](http://www.seafish.org.uk)

These guides contain information on sustainability issues, stock assessment, conservation measures and management worldwide, for individual stocks of the species listed below. The species covered are: Alaska pollock, cod, cold water prawns, crabs, Dover sole, haddock, hake, herring, mackerel, monkfish, mussels, nephrops, pacific salmon, plaice, saithe, scallops, sea bass, skates & rays, tuna and whiting.

**Seafish (with M&J Seafood) – The Seafood Guide**  
[www.seafish.org.uk](http://www.seafish.org.uk)

Covering a variety of seafood species available to UK chefs, The Seafood Guide includes information such as flavour and texture profile, cooking and portion guide and also features an availability calendar.

**Seafood Scotland**  
[www.seafoodscotland.org](http://www.seafoodscotland.org)

Seafood Scotland is a trade organisation, set up to market, promote and develop Scottish caught seafood in order to maximise the value return to industry. The organisation works closely with all sectors of the Scottish seafood supply chain. The Responsible Sourcing section of their website includes information on Scottish fishing methods, species, research and management.

**Sustain: the alliance for better food and farming**  
[www.sustainweb.org](http://www.sustainweb.org)

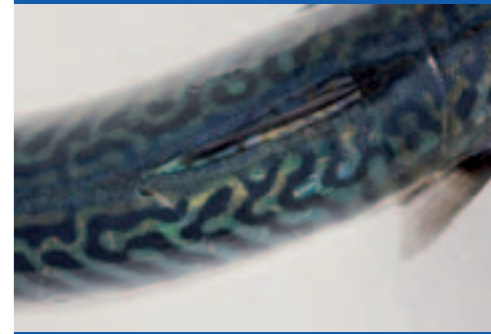
Sustain advocates food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, promote equity and enrich society and culture. The Sustain website contains information on aspects of food and sustainability, including their seven principles of sustainable food.

**UN Food and Agriculture Organization (FAO)**  
[www.fao.org](http://www.fao.org)

The FAO compiles and makes available a number of different statistical data sets related to fish and fisheries, which are available online. FAO also regularly publishes its flagship State of World Fisheries and Aquaculture (SOFIA) report, a 200 page report detailing production and consumption trends and offering analysis and constructive comment.

**WWF**  
[www.wwf.org.uk](http://www.wwf.org.uk)

As part of the global WWF marine programme, WWF UK works with key audiences in government, industry, education and civil society on marine conservation partnerships, projects and policy.



# Glossary

## Adapted from the Marine Conservation Society Fishonline glossary

### Aggregating

The behaviour of a group of individuals of a species to form a cluster (ie. in a non-random distribution).

### Algal bloom

An abundant growth of phytoplankton, typically triggered by sudden favourable environmental conditions e.g. excess nutrients. Typically seen in the spring in UK waters.

### Anadromous

Fish that are born in freshwater rivers and streams but spend most of their adult lives in the marine environment, typically returning to freshwater to spawn, or reproduce.

### Aquaculture

The general term given to the farming/cultivation of any aquatic (fresh and marine) species (plant or animal).

### Artisanal

Term used to describe small-scale, traditional fisheries.

### Beam trawl

In this type of trawl the mouth of the net is kept open by a beam which is mounted at each end on guides or skids which travel along the seabed.

### Benthic

Living on or in the seabed.

### Benthos

Those organisms attached to, living on, or in the seabed.

### Berried

Egg-bearing lobster or crab.

### Bioaccumulation

The accumulation of a substance (contaminant) within the tissues of an organism.

### Biodiversity

The variability among living organisms from all sources including, among other things, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part.

### Biomass

The total weight of living organisms or total weight of a resource or stock.

### Bivalve

Having two shells or valves which open and shut.

### Boreal

Living near the north; sub Arctic.

### Bottom trawl

A large cone-shaped net which is towed across the seabed. Also called an otter or demersal trawl.

### Broodstock

A fish which is kept for the purpose of reproduction and supply of juveniles.

### Bycatch

Non-target organisms caught in fishing gear.

### Catadromous

Fish that are born in the sea then migrate to freshwater to grow and mature.

### Catch

Total number or weight of fish and other marine life, including bycatch, taken during a fishing event (as opposed to landings which do not reflect the amount of bycatch discarded).

### Caviar

The salted roe (unfertilised eggs) of a female sturgeon. The roe from other fish species, e.g. salmon, is also considered an edible delicacy but in most countries, including the U.K, only sturgeon eggs can legally be called 'caviar.'

### Cephalopod

A type of mollusk, have a distinct head and tentacles, e.g. octopus, squid and cuttlefish.

### CITES

Convention on International Trade in Endangered Species (CITES). An international agreement which aims to ensure that trade in plants and animals does not threaten their survival.

### Cod-end

The rear end of a trawl net where the catch accumulates.

### Common Fisheries Policy (CFP)

The European Union's policy instrument for the management of fisheries and aquaculture.

### Conservation measure

Term applied to legislative methods within the framework of the CFP which regulate fishing activity.

### Continental Shelf

Sloping undersea shelf of land that extends beyond the shore of the continent.

### Copepods

Small (0.5-2mm long) crustacea that form part of the zoo-plankton community and are an important food source for many larger animals.

### Coral

A group of marine invertebrate animals that live in colonies, characterised by a calcium carbonate skeleton. Appears in a variety of shapes often forming reefs. (Separately 'coral' is also a term used for some shellfish roe or eggs).

### Crustaceans

A group of animals, found in fresh and saltwater, with two pairs of antennae and a calcium carbonate shell e.g. crab, lobster.

### Cultch

Any substrate laid on the seabed with the purpose of encouraging mollusc larvae (spat) settlement. Examples are shell waste, ropes and tiles.

### Decommission

Term used to describe the process by which fishing boats are taken out of service or 'scrapped'.

### Deep-water species

Those species living in water beyond the continental slope in depths of more than 400 metres.

### Demersal

Refers to fish, such as cod, haddock and plaice, which live primarily on or near the seabed.

### Depuration

The process of removing pathogens from shellfish by keeping them in clean water for a period of time prior to sale.

### Diadromous

Fish that move during their life cycle between fresh and marine waters e.g. salmon and eels.

### Discards

Fish and other organisms caught by fishing gear and then thrown back into the sea for legal, economic or other reasons.

### Dredging

A fishing method used along the seabed for catching bivalve molluscs such as oysters, clams and scallops.

### Drift Net

A gill net suspended vertically in the water that floats unres-trained in the open ocean.

### Ecosystem

A community of organisms and their surrounding environment interacting and interconnected with each other.

### Ecosystem approach

The ecosystem approach to fisheries management involves a consideration of all the physical, chemical and biological variables within an ecosystem, taking account of their complex interactions.

### Ectoparasite

A parasite that attaches itself to and lives off the external surface of an animal (fish).

### Elasmobranch

Fish with a cartilaginous, non-bony skeleton (sharks, skates and rays).

### Ephemeral

Being present only briefly, as in naturally occurring mussel beds.

### Eutrophication

The process whereby waters become hyper-enriched by nutrient inputs, resulting in excessive plant growth and oxygen depletion.

### Exclusive Economic Zone (EEZ)

An area in which a coastal state has sovereign rights over all the economic resources of the sea, seabed and subsoil. Established in international law by the Law of the Sea treaty.

### Extirpation

The loss of a local population (distinct from extinction – the loss of an entire species).

### Fecundity

Potential reproductive capacity of an organism or population expressed in number of eggs (fertile or not) produced during each reproductive cycle.

### Fresh

A term that can be used to describe fish that have been kept chilled on ice but not deep frozen. The term should not be used to describe previously frozen, thawed fish (FSA advice).

### Finfish

A fish with fins, as opposed to shellfish.

### Fish

Collective term (includes molluscs and crustaceans) for any aquatic animal that is captured.

### Fishery

The sum of all fishing activities on a given resource e.g., shrimp fishery, or activity of catching fish from one or more stocks e.g., North Sea cod fishery, or it may also refer to a single type or style of fishing e.g., trawl fishery.

### Fishing

Any activity that involves the catching or taking of fish.

### Fishing capacity

The quantity of fish that can be taken by a fishing unit, i.e. individual, community, vessel or fleet.

### Fishing effort

The amount of fishing gear of a specific type used over a given unit of time, e.g. hours trawled per day; the overall amount of fishing expressed in units of time e.g. number of hauls per boat per day.

### Fishmeal

A fine powder of processed fish (whole fish and bones and offal, which is cooked, dried, and ground). Often used in aquaculture fish feed.

### Food and Agriculture Organisation (FAO)

Founded in 1945 it has 183 member countries and one member organisation, the European Community. FAO is one of the largest specialised agencies in the United Nations and its programme on fisheries aims to promote their sustainable development through implementation of its Code of Conduct for Responsible Fisheries. The FAO compiles and makes available a number of different statistical data sets related to fish and fisheries, which are available online. FAO also regularly publishes its flagship State of World Fisheries and Aquaculture (SOFIA) report, a 200 page report detailing production and consumption trends and offering analysis and constructive comment.

### Food chain

Representation of the passage of energy (food) from producers to the organisms that feed on them (linear predator-prey chain).

### Food web

Network of food chains interlocking the organisms in an ecosystem.

### Fry

Juvenile fish.

### Gadiformes

The taxonomic 'Order' which includes cod, pollack, whiting, coley and haddock.

### Gadoid

A cod-like fish, see Gadiformes.

### Gear

Any tools used to catch fish, such as hook and line, trawls, traps etc.

### Genetic dilution

The process occurring when domestic farmed fish with low variation between individuals interbreed with wild fish of the same species, leading to the subsequent offspring having lower variability when compared to the pure wild strain.

**Ghost fishing**

The phenomenon whereby lost nets or traps continue to fish.

**Gill net**

A loosely set and near invisible wall of fine netting (mono or multi-filament nylon) that traps fish by the gill covers.

**Grading**

The term used to describe the process of sorting fish into similar sizes. Occurs either manually by sweep net or on a grading machine.

**Ground fish**

American term for demersal fish.

**Handlining or hook and lining**

Attracts fish by a natural or artificial bait (lures) placed on a hook fixed to the end of a line or snood, on which fish are caught. Hook-and-line units may be used singly or in large numbers.

**Hatchery**

The place where fertilised eggs are grown on to become fry before being transferred to freshwater tanks.

**High-Grading**

Discarding at sea all or a portion of a vessel's legal catch, in order to seek a higher or larger grade of fish that brings higher prices.

**Industrial fisheries**

Fisheries which do not target species for direct human consumption, i.e. the capture of fish for reduction into fishmeal and fish oil.

**International Council for the Exploration of the Sea (ICES)**

An international organisation comprising of member countries around the border of the North Atlantic. Established by international convention in 1902, ICES is the intergovernmental marine science organisation developing scientific advice to help manage fisheries.

**International Union for Conservation of Nature (IUCN)**

Every four years IUCN publishes a 'Red List' – an inventory of the current global conservation status of plant and animal species – to raise awareness of species threatened with extinction (Critically Endangered, Endangered or Vulnerable) and promote their conservation.

**Invertebrates**

Animals without a back-bone, including octopus, shrimp, oysters.

**Jig**

Lures used on a vertical line that is moved up and down (jigged) by hand or mechanically. Often used at night for fishing oceanic squids.

**Landings**

The quantity of fish and shellfish brought ashore for sale. This measurement does not include the amount of bycatch incidentally caught and discarded at sea.

**Line-caught**

A generic term used to describe pole (or rod/hook) and line; hand-line or long-line fisheries.

**Long-lining**

Uses both vertical and horizontal lines, often a number of miles long, to which short lengths of line (snoods) carrying baited hooks are attached at intervals.

**Mangrove forests**

Salt-tolerant trees primarily found in the intertidal zone of estuaries along tropical and subtropical coasts. Mangroves are important habitat for fish and protect coastlines from erosion (and contribute fuel, food and fibre to coastal communities).

**Mariculture**

The farming of a species in sea (marine) water but the term aquaculture is more commonly used.

**Maximum Sustainable Yield (MSY)**

Maximum amount of a species that can be taken by a fishery without diminishing the future take.

**Misreporting**

False or incorrect reporting of details pertaining to quantity and area of capture of protected species, i.e. those species regulated by quota.

**Mixed fishery**

Comprising more than one species, e.g. North European demersal fisheries typically comprise cod, haddock, whiting, pollack and saithe.

**Mobile gear**

Towed or encircling active fishing gears e.g. trawl, dredges or seine.

**Otter board**

(Or otter door) a paired device used to spread the trawl mouth laterally, when towed by one vessel.

**Otter trawl**

A large cone-shaped net, which is towed across the seabed. Also called a bottom trawl.

**Overcapacity**

A state of saturation or an excess of catching capability, i.e. more boats/gear/investment in a fishery than is efficient/sustainable.

**Overfishing**

The rate/intensity of fishing reduces the breeding stock levels to such an extent that they will no longer support a sufficient quantity of fish for sport or commercial capture. i.e. overfishing occurs when a population of fish is caught faster than it can replenish itself through reproduction.

**Pelagic**

The upper layers of the ocean. This is where food is relatively plentiful. Pelagic fish include herring, sardine and pilchard.

**Plankton**

Tiny plants and animals that spend at least part of their time on the sea surface. Primarily distributed by oceans currents. Plankton form the basis of ocean food webs.

**Phytoplankton**

The microscopic plant component of plankton.

**Pinger**

Acoustic device designed to deter marine mammals from entanglement in fishing nets.

**Pole and line**

Hand held or mechanically operated rod with baited hook or lure.

**Pollution**

The introduction by man, directly or indirectly, of substances or energy to the marine environment with negative effects.

**Polyculture and integrated aquaculture**

The farming of two or more species (animals and/or plants) in the same aquaculture system. Waste from one species is taken up by a second species, instead of discharged into the environment.

**Pond system**

One of the earliest forms of aquaculture, ponds can be either natural or artificially constructed. Catfish, carp and tilapia are commonly cultured in ponds.

**Population**

A biological unit representing the individuals of a species living in a specific area.

**Pot**

A trap used to capture fish, especially crustaceans.

**Protected Name**

Protected designation of origin (PDO), protected geographical indication (PGI) and Protected Geographical Status (PGS) are geographical indications defined in European Union law to protect the names of regional foods, including Arbroath Smokies and Scottish Salmon.

**Purse seining**

The general name given to the method of encircling a school of pelagic fish with a large wall of net.

**Quota**

A share of the Total Allowable Catch (TAC) allocated to a country, vessel, company or individual fishermen.

**Raceway**

A straight-sided artificial channel (usually concrete) in which farmed fish are raised.

**Round fish**

Demersal fish that are rounded in transverse section, e.g. cod, haddock and whiting (as opposed to flat fish e.g. plaice or flounder).

**Safe Biological Limits**

Limits (reference points) for fishing mortality rates and spawning stock biomass beyond which, the fishery is unsustainable. Other criteria that indicate when a stock is outside safe biological limits include age structure, distribution of the stock and exploitation rates. A fishery that maintains stock size within a precautionary range (a range within which the probability of reaching any limits is very small) would be expected to be sustainable.

**Selectivity**

Ability to target and capture fish by size and species, allowing by-catch of juvenile and non-target species to escape unharmed.

**Shellfish**

As opposed to finfish. A collective term used to describe molluscs and crustacea.

**Smoltification**

The physical transformation undergone by salmonid (salmon and trout) fish to enable them to migrate from freshwater to seawater as part of their lifecycle.

**Smolts**

Juvenile fish that have undergone smoltification.

**Spat**

The stage in a mollusc's lifecycle in which it goes from being free swimming to attaching itself to a substrate.

**Spawn**

Release of eggs into the water, either fertilised or to be fertilised.

**Spawning stock**

The mature fish responsible for reproduction in a population(s).

**Spawning Stock Biomass (SSB)**

The total weight of all sexually mature fish in a population.

**Static or Fixed Gears**

Refers to fishing gears that are fixed to or on the seabed e.g. pots, traps or nets. These types of gears are passive as opposed to mobile gears, e.g. trawl nets, which are referred to as active gears.

**Stock**

Term given to a group of individuals or populations in a species occupying a well-defined spatial range independent of other stocks of the same species. Fisheries are often managed by 'stocks'.

**Stocking density**

The amount of fish in a farmed area. Usually expressed at the weight of fish per volume of water, for example 15kg/m<sup>3</sup>.

**Straddling stocks**

Fish stocks that migrate through more than one country's Exclusive Economic Zone (EEZ).

**Sweep**

The rope (usually wire) between the otter board and trawl net.

**Tangle net**

A type of bottom set gill net used to capture flatfish, crustaceans and other species.

**Target species**

The species, or assemblage of species, which are primarily sought in a fishery.

**Teleost**

Fish with a bony skeleton, as opposed to cartilaginous fish (elasmobranchs).

**Total Allowable Catch (TAC)**

Maximum tonnage of a fish species that may be caught each year within a certain area.

**Trawl**

A sock-shaped net with a wide mouth tapering to a small, pointed end (the cod end) that is towed behind a vessel at any depth.

**Trolling**

A type of hook-and-line method in which several unconnected lines, each hooked and baited, are slowly dragged behind the vessel.

**Trophic**

The different levels in a food chain.

**Turtle Excluding Device (TED)**

Turtles can be excluded from trawl nets by fitting solid grids of various kinds into the net. These 'trap doors' are designed to reduce turtle bycatch, particularly in tropical prawn fisheries.

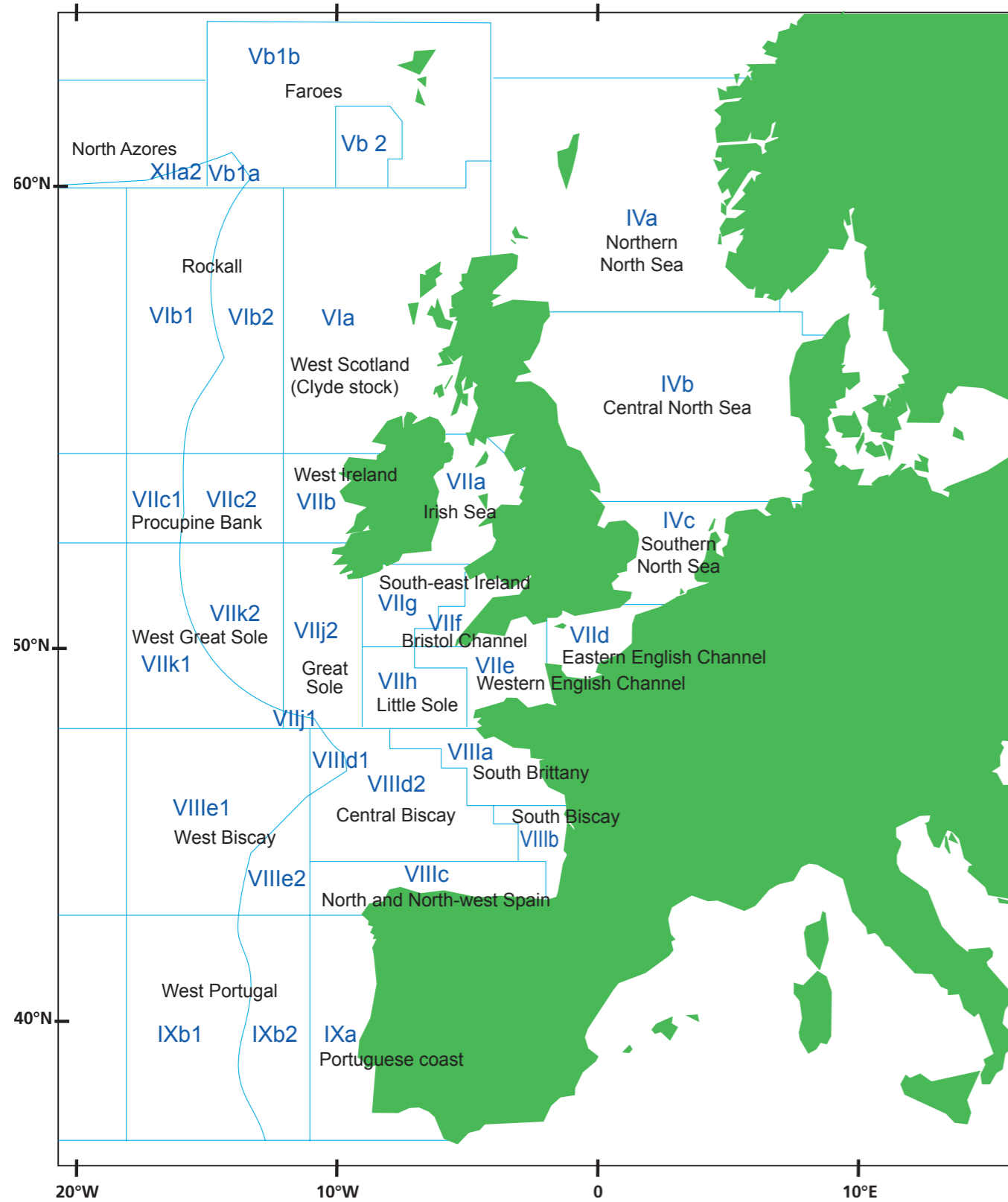
**Zooplankton**

The animal component of plankton; animals suspended or drifting in the water column including larvae of many fish and benthic invertebrates.

# Maps

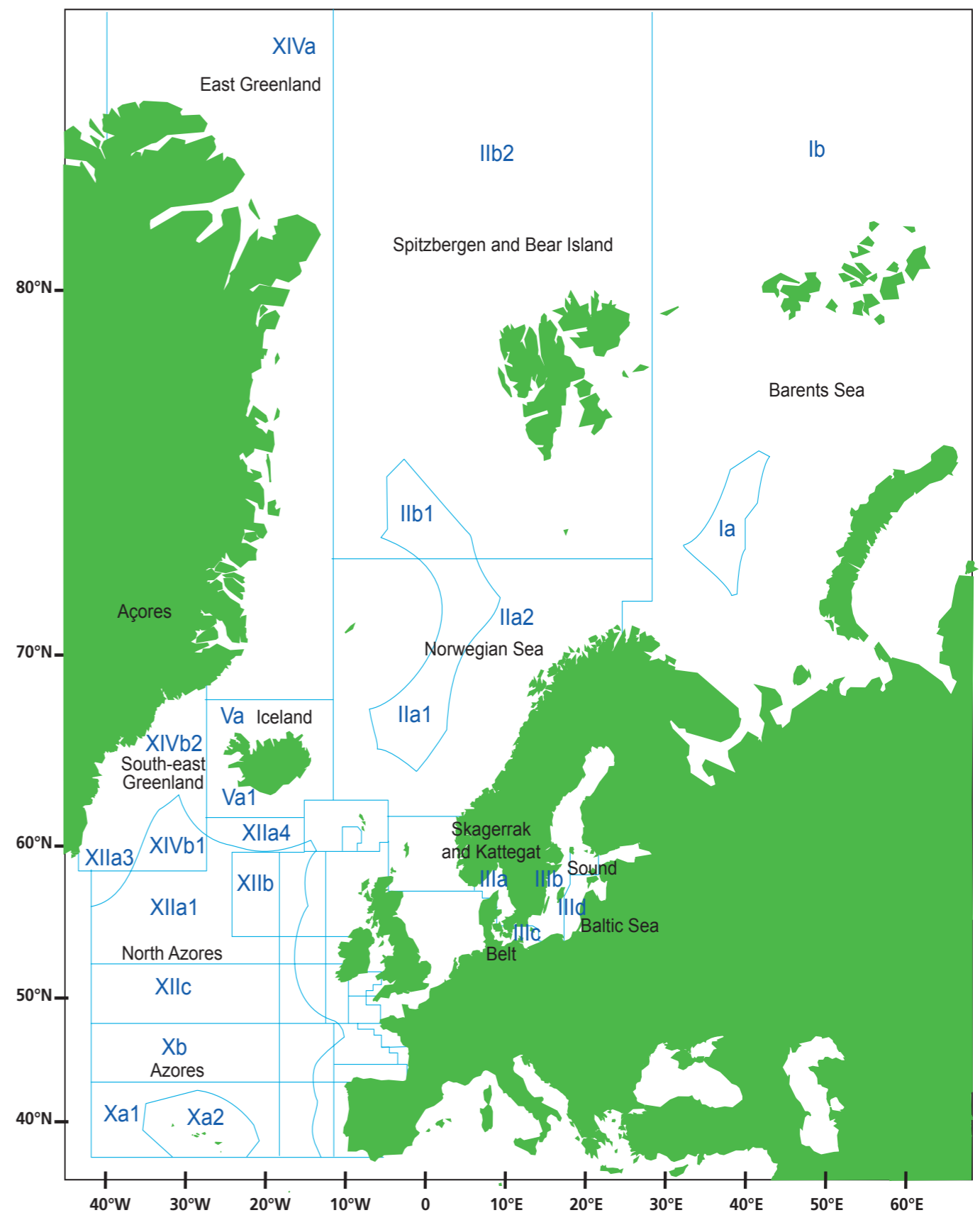
## FAO and ICES fishing areas

### ICES\* Areas



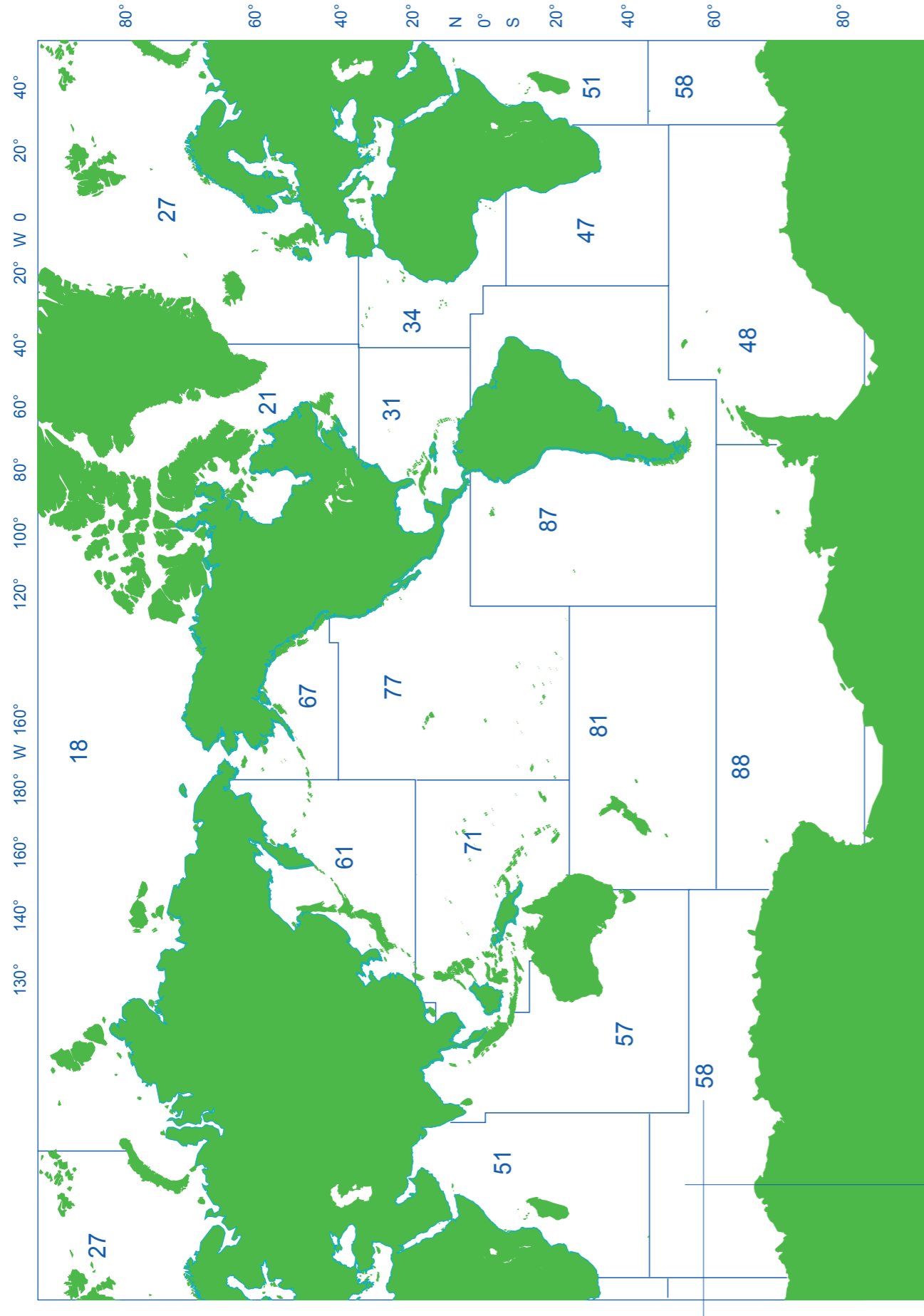
\* International Council for the Exploration of the Sea.

### ICES\* Areas



\* International Council for the Exploration of the Sea.

FAO\* Areas



\* United Nations Food and Agriculture Organisation.

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