

The Seafish Guide To **Sustainability**



This is one of a series of guides in which Seafish explores topical issues affecting the UK seafood industry. It offers a science-based explanation of what the term 'sustainability' really means to the fishing industry. **The main focus is on wild-caught fish.**

A Definition

The United Nations defined 'sustainable development' in the Brundtland Report as *'development which meets the needs of the present without compromising the ability of future generations to meet their own needs.'*

A sustainable fishery is one in which fish stocks are being harvested in such a way that ecosystem productivity and the marine environment are sustained at the same time. It is one where target fish populations are judged to be at healthy levels (this can be the case even if they are 'recovering' from having been depleted in the past) and will be viable for the foreseeable future.

It is important also to distinguish between 'responsible' and 'sustainable' fishing. Responsible is the set of behaviours and practices that can help to achieve sustainability. Individual vessels can fish responsibly, but sustainable fishing will only be achieved when all effort on a particular stock conforms to the right criteria.

Sustainably-managed fisheries should therefore have a long-term continuous future – as productive marine environments; as a source of food; and as a means to provide livelihoods for those who depend on fishing. This means that ultimately it is fishermen who are at the forefront of fisheries management. True sustainability demands co-operation and co-ordination between the fishing industry, conservationists and the fisheries scientists who are crucial to our understanding of the complex issues which influence the marine environment.

When talking about sustainability it is important to distinguish between a species (fish with shared characteristics); a stock which is part of a fish population and is likely to have a particular migration pattern and specific spawning grounds; and a fishery, which will include a combination of fish and fishermen in a region,

the latter fishing for similar or the same species with similar or the same gear types.

See also the Seafish Guide to Responsible Sourcing for further information.

Myth And Reality

Despite there being a huge amount of very detailed information available there remains a media tendency to present a very generalised picture of the state of the world's fisheries. Selective interpretation of available information can tend to distort the picture.

'Shades of respectability'

One way of looking at the overall picture is to consider the 'shades of respectability, spectrum'¹ shown below. This illustrates the range of states of sustainability for a fishery – from illegal, unreported and unregulated (IUU) (or pirate) fishing to the left, through to fully sustainable on the right. In the middle we have fisheries which operate within the law, but may not necessarily take into account all the relevant sustainability criteria relating to responsible fishing.

To be defined as truly 'sustainable' all aspects of a fishery must have been assessed and (ideally) certified by a recognised body to confirm that it is operating in a way which will sustain the fishery and the surrounding environment for the long-term. This will include assessing the supply chain 'from sea to plate' and ensuring fully documented traceability.

Shades of Respectability



Who Assesses The World's Fish Stocks?

An assessment of sustainability will take into account the status of individual fish stocks, the wider impacts of the fishery on the ecosystem and even global sustainability issues. The two most authoritative international sources of information on the state of fish stocks are:

Food and Agriculture Organisation (FAO) of the United Nations²

The FAO is the source most quoted on a world scale. It publishes a review every two years called 'The State of World Fisheries and Aquaculture'³. This classifies assessed data-rich fish stocks in three categories:

- Fully exploited – catches are at or close to maximum sustainable limits, with no scope for further expansion.
- Under exploited – potential for more fish to be caught from the stock.
- Over exploited, depleted or recovering – stocks where action is required to improve the stock's chances of recovery.

The FAO's Code of Conduct for Responsible Fisheries⁴ defines the founding principles on which fisheries assessments are made (see page 5). It consists of a collection of principles, goals and elements for action by fisheries authorities with the overriding objective to ensure the long-term sustainable use of fisheries resources.

Key Facts

World fisheries and aquaculture production is predicted to reach about

172 million tonnes
in 2021

International Council for the Exploration of the Sea (ICES)

ICES⁵ is responsible for providing scientific advice for fisheries management in the North Atlantic, one of the world's most significant fishing zones. Its advice is both species-specific and regional ecosystem-based.

ICES takes an evidence-based approach. Its current advice on fish stocks and fisheries management is described in terms of Maximum Sustainable Yield (MSY)⁶ and, for data poor stocks, a precautionary approach. MSY relates to optimising yield, and the precautionary approach to avoiding stock depletion. FMSY means fishing at levels that catch the maximum proportion of a fish stock that can safely be removed on a continuous basis while, at the same time, maintaining its capacity to produce sustainable returns in the long-term. BMSY is the spawning stock biomass that results from fishing at FMSY for a period of time.

The ICES MSY approach is based on a strategy whereby catch rates are set, enabling fish stocks to reproduce so that exploitation can occur in sustainable economic, environmental and social conditions. The EU has a plan for transition to MSY from 2015 - 2020. ICES advice takes the MSY approach into account, where appropriate.

For some stocks, the MSY reference points are not defined and advice on catches is defined by the precautionary approach. Many stocks have a management plan agreed between the parties exploiting the stock, and ICES will advise on catches compatible with the plan, although not all plans are in line with the precautionary approach. Some long-term management plans operate on what are called Harvest Control Rules.

Key Facts

15,000

seafood products, which can be traced back to certified sustainable fisheries, bear the blue MSC ecolabel

Control mechanisms

The controls for individual fisheries are set up on the basis of regular monitoring and assessment of the status of individual stocks. These assessments can be conducted by both independent and Government-based scientific organisations.

A combination of different mechanisms can then be employed to manage catches. These include input and output measures:

- Input controls are restrictions on the intensity with which fishers use gear to catch fish. Most commonly these refer to restrictions on the number and size of fishing vessels (fishing capacity controls); the amount of time fishing vessels are allowed to fish (vessel usage controls) or the product of capacity and usage (fishing effort controls). Measures can include limits on the number of days boats can spend at sea, closed areas (no take zones) and closed seasons. There are selectivity measures which employ different fishing technology or 'gears' (nets and other catch mechanisms).
- Output controls are direct limits on the removals from a fishery, such as quotas applied within a Total Allowable Catch (TAC) limit applied as fishing quotas. Ideally this will involve counting target and non-target species, including discards.

Improved selectivity

This is rapidly becoming recognised as one of the most important tools for fisheries management. The application of better technology can help fishermen to be selective in two key ways:

- Targeting species – to avoid damaging threatened species or those with no commercial value.
- Targeting by size – so avoiding the capture of fish before they have been able to spawn and reproduce.

Selectivity is a particularly important factor for the reduction of **Discards** (see our separate guide).

Key Facts

Fish provides more than

4.3

 billion people with about 15% of their intake of animal protein

In 2010

128

 million tonnes of fish was consumed globally

How Sustainable Fisheries Are Assessed

The FAO Code of Conduct for Responsible Fisheries⁴ is the 'bedrock' for the assessment and certification of responsible fisheries. It is based on three key principles:

1. Stock status must be regularly assessed.
2. A management regime has to be in place that is based on sound science and has the capacity to adapt to stock fluctuations.
3. The operation of fishing is done in such a way as to ensure that the associated habitat or ecosystem is maintained.

Many fisheries around the world – fortunately an increasing number – are now well-managed and sustainable. Third party, independent auditing is the key method by which fishing enterprises can be verified to ensure traceability and to allow the 'sustainable' certification of fishery products.

Certification

Third party certification schemes are operated by many organisations. Sustainability standards are invariably based on the FAO Code of Conduct for Responsible Fisheries but must be accompanied by adequate measures to trace the fish from its source fishery through all subsequent stages of fish landing, processing, distribution and marketing.

Certification schemes, which can cover environment, social, food safety and animal welfare considerations are a process of measuring against a set standard. Whilst there are moves to benchmark certification schemes, there is no statutory requirement for equivalence between the schemes, and each scheme will cover slightly different elements. There will be some limited overlap between the schemes, but ultimately each scheme is seeking a competitive edge.

The imperative for long-term sustainability has driven an increasing emphasis on sustainability certification schemes as a confirmation of 'sustainability' and 'responsible sourcing.' There are a number of recognised schemes, some of which are confined to particular regions. These include Friend of the Sea⁷, Naturland⁸, and the Iceland Responsible Fisheries⁹ and the Alaska Seafood Marketing Institute¹⁰ (ASMI) certification programmes. There are also comparative schemes intended to accredit responsible practice in fish farming.

The Marine Stewardship Council (MSC)¹¹ certification is the most established and best developed global scheme, recognised internationally



by its 'blue tick' logo. There are over 172 fisheries around the world presently certified within the MSC, with over 100 more currently undergoing the assessment process for the MSC standard for a sustainable fishery.

Together, fisheries already certified or in full assessment record annual catches of close to 10 million metric tonnes of seafood. This represents over 11% of the annual global harvest of wild capture fisheries. The fisheries already certified catch over 7 million metric tonnes of seafood. This is close to 8% of the total wild capture harvest¹².



The State Of World Fish Stocks

FAO provides authoritative information on the state of world fish stocks. Differences of opinion usually arise because of the way the information is used and interpreted. Undeniably, there are problems in some major fisheries around the world. These can result from poor management, overfishing, and destructive fishing practices, as well as natural occurrences, all of which need to be addressed.

The FAO provides a bi-annual report on the State of World Fisheries and Aquaculture (SOFIA) which gives a broader picture. The latest version was published in July 2012¹³. This takes into account all the relevant factors influencing global fish production – from ecological factors and climate change to the influence of the economy and fishing methods. The graph shows the change in the proportions of 530 assessed fish stocks that fall into the three FAO categories over the last 30 years or so. These are: under or moderately exploited, fully exploited, and overexploited, depleted or recovering. This does not take into account data poor stocks.

Key Facts

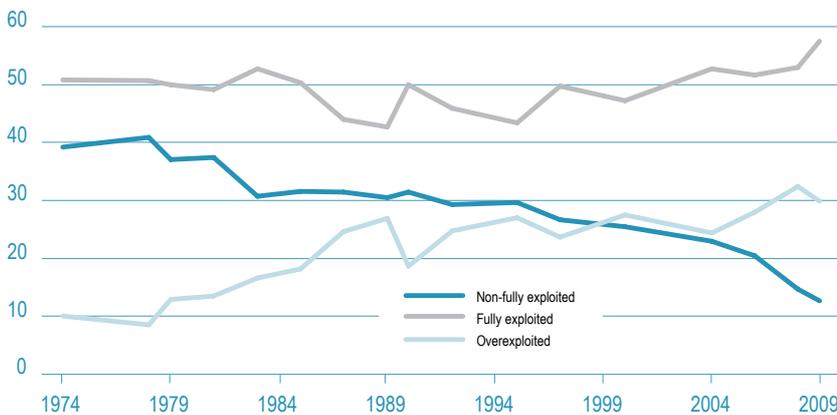
Estimates for 2012 point to fish consumption reaching another high of

18.6
kg per person

The FAO Code of Conduct for Responsible Fisheries can help achieve the goal of global, sustainable food production

Global trends in world marine stocks since 1974

Percentage of stocks assessed



Source: Food and Agriculture Organisation of the United Nations.

A stable picture?

The graph shows that whilst there are far fewer underexploited stocks than overexploited stocks, the picture is starting to stabilise. The proportion of fully exploited stocks remains fairly constant at around 50%. Overall there are indications that improved management systems and better understanding of the dynamics of marine ecosystems are starting to create greater stability in world fisheries resources, though there is still considerable work to be done, particularly in light of growing world population pressure on food resources.

Interpretation of data

As with all statistics, the data contained in the graph on page 6 is prone to different interpretation, which can dramatically affect the message it delivers. For instance, using this graph you could say:

- ‘30% of the world’s fish stocks are overexploited.’

Or

- ‘70% of the world’s fish stocks are providing maximum benefit to feed the population or have the potential to produce more fish.’

Or (stigmatising the term ‘exploited’ to produce a more negative impression)

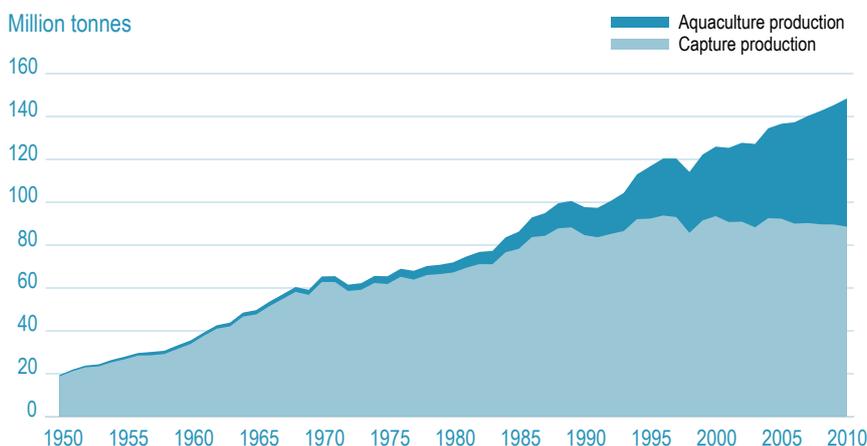
- ‘87% of the world’s fish stocks are either overexploited or fully exploited.’

This shows the care required when interpreting information on fish stocks. Understanding the whole picture is usually crucial to proper delivery of an accurate message which can effectively influence behaviours to support the long term goals of sustainability.

Global Fish Production

Global production of fish (wild and farmed) was about 148 million tonnes in 2010, of which 128 million tonnes was for human food. Overall global capture fisheries production continues to remain stable at about 90 million tonnes. The global population is increasing and, in order to maintain at least the current level of per-capita consumption of aquatic foods, the world will require an additional 23 million tonnes by 2020¹³.

World capture fisheries and aquaculture production



Source: Food and Agriculture Organisation of the United Nations.

Key Facts

To maintain at least current per-capita consumption of aquatic foods, the world will require an additional

23 million tonnes of seafood by 2020

Where To Find Out More About Fish Sustainability

There are many information sources on the status of fish stocks, including a number of web-based databases. It is important always to think about the origins of such information and the science on which it is based. The most authoritative information will derive from the FAO and ICES, but there are also other sources of reputable data such as fully peer-reviewed reports; respected scientific journals and studies and information from government organisations. Some of the most useful sources are detailed on the right.

Other Seafish Guides

There are a number of other Seafish Guides in this series, covering different aspects of responsible seafood sourcing and fisheries management.

For more details and the most up to date information consult our website at:
www.seafish.co.uk/media/sustainability

There is also a series of Responsible Sourcing Guides¹⁴ outlining the individual stock status of 38 of the main species of fish consumed in the UK (about 300 stocks).

About Seafish

Seafish was founded in 1981 by an Act of Parliament and aims to support all sectors of the seafood industry for a sustainable, profitable future. It is the only pan-industry body offering services to all parts of the industry, from the start of the supply chain at catching and aquaculture; through processing, importers, exporters and distributors of seafood right through to restaurants and retailers.

References

- ¹Tom Pickerill, when at WWF
- ²www.fao.org
- ³www.fao.org/fishery/sofia/en
- ⁴www.fao.org/docrep/005/v9878e/v9878e00.HTM
- ⁵www.ices.dk
- ⁶www.seafish.org/media/Publications/SeafishGuidanceNote_MaximumSustainableYield_201103.pdf
- ⁷www.friendofthesea.org/
- ⁸www.naturland.de/welcome.html
- ⁹www.responsiblefisheries.is/certification/
- ¹⁰<http://sustainability.alaskaseafood.org/certification>
- ¹¹www.msc.org/
- ¹²www.msc.org/business-support/key-facts-about-msc
- ¹³www.fao.org/docrep/016/i2727e/i2727e00.htm
- ¹⁴www.seafish.org/retailers/responsible-sourcing/responsible-sourcing-guides

Other sources

Regional fisheries management

- www.cefas.defra.gov.uk/
- www.defra.gov.uk
- www.marinemangement.org.uk
- www.scotland.gov.uk/Topics/marine
- www.neafc.org/
- www.nafo.int
- http://ec.europa.eu/fisheries/index_en.htm
- www.fisheries.no
- www.fisheries.is

Advice and fish databases

- www.fishsource.org
- www.fishbase.org/
- www.mcsuk.org/
- www.wwf.org.uk/
- www.msc.org
- www.fishwatch.gov



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