

Introduction

As part of a series of guides covering topics affecting the UK fishing industry, Seafish looks at bottom trawling. Bottom trawling involves towing a roughly cone-shaped net across the sea bed catching fish in its path. Trawls may be used on very fine sandy ground or be rigged to ride over very hard, rocky areas of seabed.

There are other Seafish guides on related topics including sustainability, responsible sourcing and the Responsible Fishing Scheme.

History

The first reference to bottom trawling is from a petition to Edward III in 1376 complaining of the “subtly contrived instrument called the wondychroun”. This fishing method used a wooden beam to hold the mouth of the net open. At that time, sailing boats could only tow relatively small trawls. Through the 20th century mechanical propulsion, hydraulics,

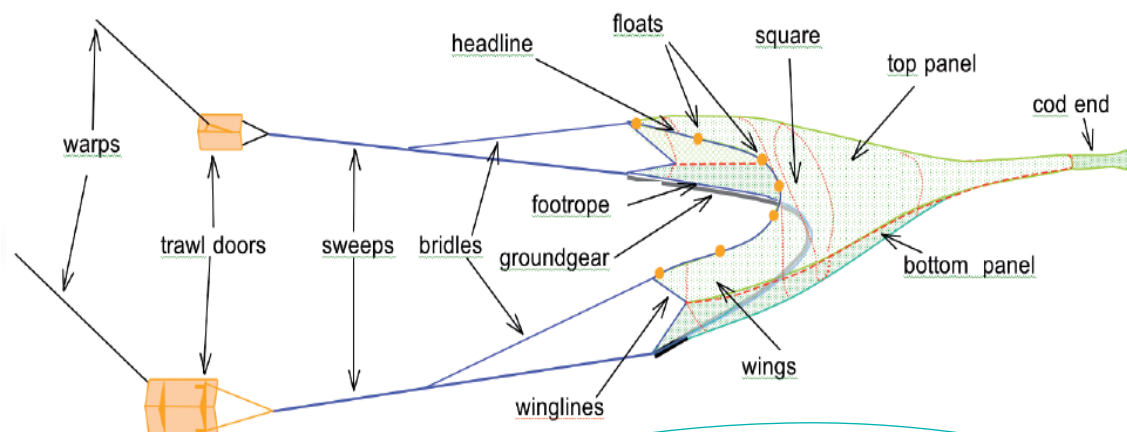
position fixing, acoustics – and government policy on subsidising food production – enabled increasingly large vessels and trawls to be made, and fishing effort to increase to very high levels.

A typical trawl is shown in the figure below, the warps lead to the fishing boat.

KEY POINTS

- Bottom trawling was invented in the Middle Ages.
- Nearly all suitable areas of the continental shelf have been exploited by bottom trawling.
- Trawlers work the same areas year after year. Designs of trawls can vary widely, as can the ways in which they are used.
- The seabed is modified by trawling, the degree of change varies with local conditions and the type of trawling. Some skim just over the seabed, with minimal contact, others are designed to disturb animals that are buried in the first inch or so of the seabed.
- No species have become extinct as a result of bottom trawling.
- Bottom trawling is a very efficient method of catching fish.
- The fishing industry is changing but the process of change takes time: ‘bans’ cause chaos.

Bottom trawling showing warps and net



The importance of bottom trawling

"The majority of UK seabed is composed of various sediments resilient to trawl disturbance and subject to modification by natural physical processes. As we improve fishing technology, there is ample opportunity for recovery to occur."

Professor Michel Kaiser, Professor of Marine Conservation Ecology, Bangor University

Trawlers have explored virtually all the area of the continental shelf – that is those areas surrounding north west Europe until the seabed descends to the abyssal depths. The best – that is the most profitable – trawling grounds have been fished for many years to differing degrees of intensity. A lot of grounds are fished many times each year and then year after year. Fishermen have their favourite tows and will frequently follow them time and time again because they are still catching

good quantities of fish. The seabed may have been impacted substantially, but target species of fish are still found on these fishing grounds. It is important to remember that, whilst the seabed is the home of many species like cod and haddock, they do not necessarily depend on it for their survival. Their food web starts with the primary productivity of plankton and the generally small fish that feed on it. These, in turn, are the prey for many of our commercial species.

'Domestic' and international fisheries

Trawling, other fishing methods and many other human activities, have affected the environmental status of the entire continental shelf. They are no longer pristine but, in their 'modified' state, they still provide us with fish to eat. A quite different situation can apply in international waters. Here we can find underwater mountain ranges and peaks, some of which are quite isolated. Many are virtually unaffected by human activity and contain unique ecosystems that have yet to be studied properly. These pristine environments

certainly do deserve protection from the sorts of impacts that trawling would bring. A number have already been exploited and the UN has been trying to find an international consensus to ban bottom trawling from the seamounts and other deep water areas.

It's important to understand the distinction between trawl fisheries on the continental shelf, and those on these relatively unknown, deep water habitats.

THE SIGNIFICANCE OF BOTTOM TRAWLING

There are about 6,500 registered fishing vessels in the UK. About 1,500 of these are over 10m in length and of these up to 1,000 use towed bottom fishing gears of some kind. The rest of the fleet – vessels less than 10m – are largely multi-purpose but a large proportion will also use bottom trawls at some point in their fishing year. The whole fleet employs some 12,500 fishermen and the first sale value of the catch is around £700m. A 'multiplier' then allows us to calculate the added value of domestic catches to the whole UK economy as being £2-2.5bn. We estimate that demersal trawling accounts for 77% by volume of the seafood currently consumed in the UK. (Most data are from the Marine and Fisheries Agency and the Seafish Economics Team.)



Demersal Trawler:
Su Jean

The process of change

Bottom trawling is an integral part of the UK fishing fleet, and for fleets around the world. It is an efficient means of catching fish because it can herd fish together during capture. In contrast hooks and traps rely on fish coming to them and then snaring them in some way.

The fishing industry has shrunk over the last twenty years or so. Before that time government policies had encouraged an expansion to unsustainably high levels of fishing capacity. The fleet is continuing to adapt to changing circumstances, four of which are particularly significant:

- Fuel price rises are increasing the costs of trawl fishing and creating a strong incentive to adopt less energy-intensive fishing methods. Where towed gear is concerned energy use is a very rough indicator of environmental impact.
- The targeting of fishing effort is becoming increasingly important. This means that fishing is becoming more selective, focusing on target species and reducing discard levels.
- Other stakeholders increasingly want the marine environment to be valued for uses other than fishing. This is increasing the pressure for regions of special interest, higher biodiversity, etc, to be designated as some kind of marine conservation zone.
- Such designations will not necessarily exclude all fishing but they might well limit the use of towed gears.
- The influence of supermarket retailers in providing constructive criticism and incentives for improving practices in the fishing industry.

Change is taking place but at a pace that is not forcing huge cost burdens on fishermen. They are responding, as entrepreneurs do, to the socio-economic climate, and the industry is restructuring as a matter of course.

The need for seafood

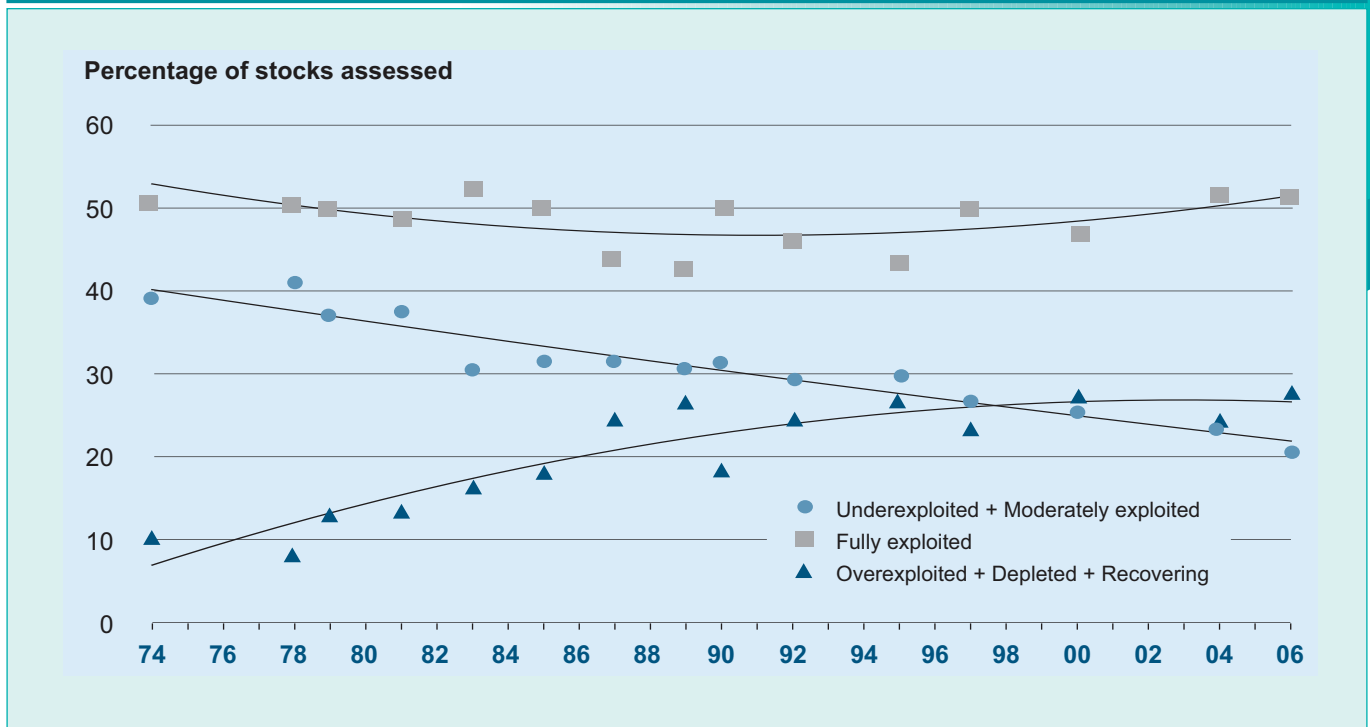
Seafood is good for us and it is an essential source of nutrition for many millions of subsistence communities around the world. We know that, in addition to our '5 a day' of fruit and vegetables we should also be eating '2 a week' of fish.

Globally, we currently produce about 100m tonnes of fish per annum (110m tonnes in 2006) for direct human consumption by a combination of catching and farming. But our world population is increasing, and per capita consumption of fish is increasing too. The United Nations projects that, by 2030, food fish production will edge up to around 130m tonnes. This should supply everyone's needs but we have to ensure that productivity remains high.

Our marine ecosystems have remained remarkably productive over the last century or so. According to the UN, the status of world marine fish stocks is fairly constant. There are problems, and over-capacity, overfishing and the inappropriate use of bottom trawls have all played their part.

These days we have a much better understanding of what we're doing, the impacts that we have and how we can use each of our many fishing methods in a responsible way. The use of bottom trawling is declining and this will continue but it will remain one of the essential means of providing food for our increasingly hungry planet.

GLOBAL TRENDS IN THE STATE OF WORLD MARINE STOCKS SINCE 1974



Source: Food and Agriculture Organisation of the United Nations. State of World Fisheries and Aquaculture report 2008.

In conclusion

Many of the negative comments about the fishing industry's practices are based on misperceptions and out of date information about how fishing works, and suggestions that nothing has changed and developed over the last ten years are a disservice to hard working fishermen. Fishing is a complex business and, because of that complexity, it is a system that has a built-in inertia: change takes time. Demands for immediate change are not helpful and, in business terms, could spell ruin for many businesses both at sea and ashore. These notes have explained where fishing is now and how it is adapting to change. There are plenty of policy levers and other forces driving change in the direction of increasing conservation and reduced impacts. An understanding of the nature of fishing and the processes that are changing it will hopefully lead opinion away from the motion that bottom trawling should be banned outright.

Seafish: who we are

Seafish, the authority on seafood, was founded in 1981 by an act of parliament and supports the seafood industry for a sustainable, profitable future. Our services range from

research and development, economic consulting, market research and training through to account management and legislative advice for the seafood industry.

Contact Seafish at:

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