



The Impact of Trawling on Seabed Habitats

Stable communities of long-lived species attached to the bottom are more vulnerable to trawling impacts than short-lived species in dynamic environments.

WHAT IS THE CONCERN?

Bottom trawl nets are designed to sweep the seafloor for bottom-dwelling fish such as cod, sole and some rockfish species. The most common type of trawl is the **otter trawl** in which wooden or metal "doors" keep the net open and the bottom of the opening is weighted to keep it on the seabed.

There is growing recognition that bottom trawling and other methods of bottom fishing can disturb important structural habitats, including complex areas of coral and sponge found in warm and cold water environments. The location of these habitats in British Columbia is not well documented in the deeper areas fished by many trawlers, making it difficult to assess the impacts. More subtle changes in the composition of animals that live in sand and muddy bottoms have also been documented. Most trawl fishing in BC occurs on soft, muddy bottoms, and the challenge is to find a sustainable balance between fishing impacts and continued fishing.

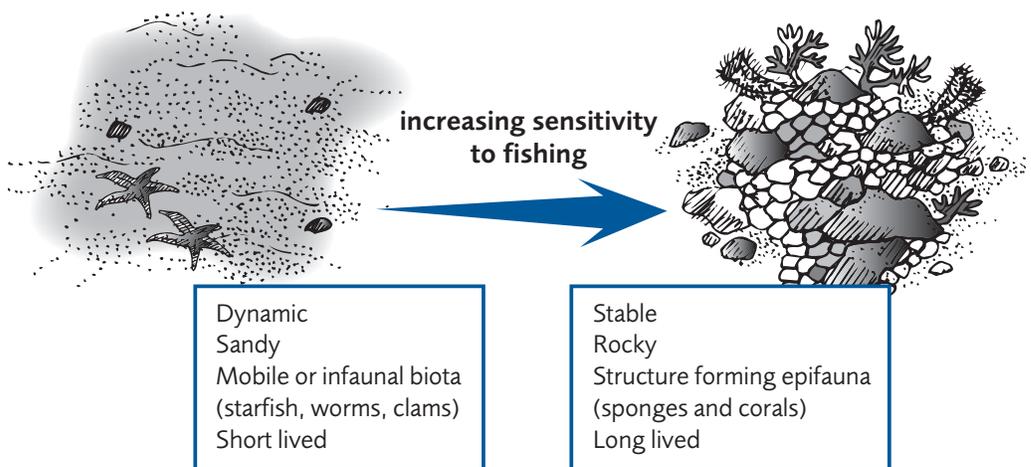
WHY IS IT IMPORTANT?

High relief, complex bottoms provide important habitat for many species of marine organisms. Changing this habitat may negatively affect the distribution and abundance of the fish that depend on it. Many things in addition to fishing gear have the potential to disturb the bottom community, including natural variation and climate change. Assessing the role of each of these is difficult, but

research indicates that the impact of bottom trawling depends greatly on the characteristics of the seabed and the type of fishing gear used.

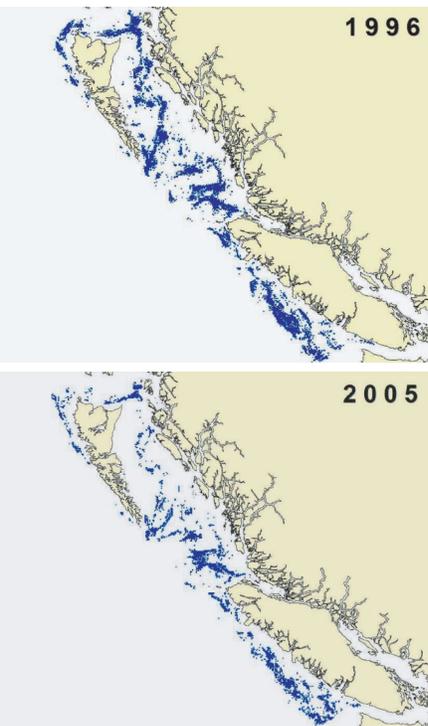
The trawl fishing effort off the British Columbia coast covers a small percent of bottom area, perhaps as little as 10% at depths less than 1700 metres. Of this area only a small part is trawled intensively. It has been estimated that 50% of all trawl fishing in BC takes place in about 6% of the total trawled area. By comparison, in more intensively trawled areas on the Atlantic coast or Gulf of Mexico,

Different Habitats, Different Concerns





Sponge and coral reef structures are important rearing habitat for many fish species



Individual quota management has led to a more efficient fishery, reducing the area of seabed fished.

the entire fishing grounds are repeatedly swept by trawl nets each year.

Although much of the seabed in BC is not trawled, concerns remain that sensitive and valued habitats can be disturbed by trawling or other activities.

WHAT ARE WE DOING ABOUT IT?

In 1997 the BC groundfish trawl fishery moved to an [individual transferable quota](#) (ITQ) program, a form of fisheries management that allocates a set quantity of harvestable stock to license holders and allows them to transfer some or all of their quota to other license holders. Individual quotas have been shown

to increase the efficiency of the fishery by reducing fishing effort (the time nets are on the bottom). In British Columbia the number of trawl tows has decreased by 27% and total fishing effort by 36% since 1996. In other words, the area trawled is smaller than it was a decade ago, while both the number of tows and time spent on the seabed have decreased.

Four areas of reef-building glass sponges were identified in 1991 in Hecate Strait and Queen Charlotte Sound. These areas were surveyed and mapped in 1999 and recognized as examples of rare living glass sponge reefs. They are considered to be important rearing areas for juvenile fish. In 2000, the shrimp and groundfish trawl fleets initiated a voluntary fishing closure in these reef areas, and formal closure was implemented in 2002. The closed areas have been amended in 2006 to provide greater protection for these unique structures.

WHAT MORE CAN BE DONE?

Over the past decade the information on trawl areas in west coast fishing grounds has improved greatly through technology like global positioning systems and data collected by fisheries observers on every trawl vessel. Still, our knowledge of seabed habitats is limited; the lack of good seabed habitat maps is recognized as a major impediment to identifying areas that may be most sensitive to impacts from bottom trawling or other fishing gear.

In recent years, more accurate seabed mapping has become possible with the evolution of side scan and multibeam sonar coupled with remote underwater vehicle (ROV) video technology. The collection and interpretation of this information remains expensive, but gathering this data is essential in order to identify seabed habitats that would be sensitive to increased fishing pressure.

FURTHER READING

Effects of Trawling and Dredging on Seafloor Habitat. 2004. Committee on Ecosystem Effects of Fishing. U.S. National Research Council. National Academy Press. Washington, DC.

Does fish-trawling harm the seabed? – finding out the facts. Fisheries and Oceans Canada http://www.dfo-mpo.gc.ca/science/Story/trawling_e.htm

Benthic Habitats and the Effects of Fishing. 2005. Proceedings of Symposium on Effects of Fishing Activities on Benthic Habitats. American Fisheries Society Symposium #41.