

# New trawl gear with reduced bottom contact



Model in tank

*The new trawl gear consists of rubber plates separated by rolling steel bobbins. In comparison to the trawl gears that are most widely used today, the new gear may reduce contact with the bottom by over 50 percent, thus dramatically reducing the impact of bottom trawling.*

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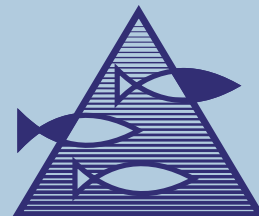
The role of the trawl gear is to keep the bottom trawl on the sea bottom, as well as protecting the trawl against wear and preventing it from getting stuck. A properly functioning gear will also prevent fish from escaping under the gear. Currently, the so-called rockhopper gear is the one most widely used for bottom trawling. It consists of heavy rubber discs mounted on a chain, separated by smaller pieces of rubber.

The new gear consists of horizontal rubber plates separated by 7 rolling steel bobbins, mounted such that the bottom edge of the bobbins is 7 cm below the bottom edge of the rubber plates. In theory, therefore, the bobbins raise the plates a few centimetres up from the sea bottom. When trawling

on flat bottoms under ideal conditions, only the bobbins will come into contact with the sea bottom. Friction between the bottom and the gear is also reduced by the rolling bobbins.

## **VIDEO OBSERVATION OF BOTTOM THAT WAS TRAWLED**

In November 2008, the research vessel G.O. Sars trawled the soft bottom of Varangerfjorden in order to compare the new gear with a standard rockhopper. A remotely operated underwater vehicle (ROV) filmed the bottom before and after each trawl. Analyses of the videos revealed that the rockhopper gear made big marks in the sea bottom, digging so deep that even the rubber pieces mounted between the rubber discs left marks. The rockhopper's physical impact on the bottom was therefore virtually 100%.



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Tracks left by the plate trawl gear



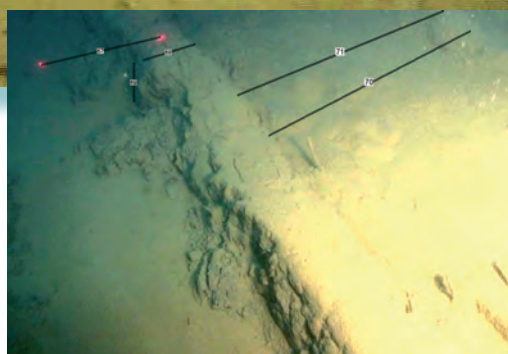
After trawling with the plate trawl gear, clear marks left by the bobbins could be observed. Additionally, it was possible to detect shallow tracks left by the plates closest to the bobbins. However, there were few or no visible tracks left by the other plates. If we assume that only the bobbins and the plates closest to them made contact with the bottom, we can say that no more than 50 percent of the gear was in direct contact with the bottom.

**MUST NOT ADVERSELY AFFECT CATCH EFFICIENCY**

For new trawl gears to be adopted, their catch efficiency must be just as good as that of the rockhopper gear. We do not, however, have sufficiently good data to determine the catch efficiency of the new gear. A test of a previous version of the gear found that it had a tendency to become unstable, which reduced its catch efficiency after repeated trawls. Some changes have therefore been made to the newest version of the gear, designed to make it self-adjusting and more stable, but this remains to be tested in full-scale experiments.

**REDUCED BOTTOM IMPACT**

When assessing the bottom impact of fishing gears, it is usual to distinguish between the physical and biological impacts. Physical



Tracks left by the rockhopper gear

impacts are marks left by the gears and transport of sediments. Biological impacts are dead or injured animals and/or biodiversity observations. We were unable to observe from our data whether there was any difference between the two types of gear in terms of biological impact. However, in terms of the biological impact caused by direct contact between the gear and animals, one can deduce that if the directly impacted surface area is 50 percent smaller, the new gear has the potential to reduce both the physical and biological bottom impact if adopted by the trawl fleet.

This project is part of the EU-financed project DEGREE (Development of fishing Gears with Reduced Effects on the Environment). The plate trawl gear has been developed in collaboration between researchers at the Institute of Marine Research, SINTEF in Denmark and the Faroe Marine Research Institute.

