SINTEF

HAVFORSKNINGSINSTITUTTET
INSTITUTE OF MARINE RESEARCH

# Spreading Ground Gear

The well-known Rock-hopper ground gear for bottom trawls does one thing really good, and that is lifting the trawl over obstructions and preventing damage to the net. However, underwater observations have revealed that a lot of fish escape under it and it counteracts the spreading of the net.

## The new gear gives an active spreading to the trawl wings

**Background**
It has for a long time been obvious that the way a rock-hopper ground gear is made, it is reducing the spread of the net, because each rubber disk, especially along the wings, sits at an angle to the towing direction, and the dynamic forces will pull the gear inwards.

Recently it was discovered that a vast amount of fish are escaping under the fishing line in a cod trawl, - between the large discs of a rock-hopper gear.

In a joint project between SINTEF and Institute of Marine Research in Bergen, the aim was therefore to develop a gear, which not only was very effective on the bottom, but also one exerting a spreading force on the wings, and stopping fish from escaping. The work is part of a large project called "New Generation Cod Trawl" where a lot of features in the traditional cod trawls are being reconsidered from different viewpoints: efficiency, fuel-saving, environment, maintenance, construction costs, etc.

**Results**
Several different ground gears were devised and tested in the SINTEF Flume Tank at the North Sea Centre. They were either tested alone or on a model trawl.

The gear presented here has a number of interesting features. It gives 15 – 20% more spread to the wings of a bottom trawl, and it is reasonably easy to construct and adjust. It was selected for further testing in a scale 1:2. Full scale trials in 2003 and 2004 have proved that the gear is working well on many different bottom types.

**The Project**
The large project 'New Generation Cod Trawl' is a joint project between SINTEF and Institute of Marine Research in Bergen. The funding is provided by the Norwegian 'Fisheries and Aquaculture Research Fund'. It is coordinated by IMR, and there are several subprojects.

**Contact**
SINTEF Fisheries and Aquaculture
The North Sea Centre, P.O. Box 104
DK-9850 Hirtshals, Denmark
+45 9894 4300; fax: +45 9894 2226
fish@sintef.dk