

Research and Development on Selectivity and Improvement of Fishing Gear

The growing conservation awareness of Canadian fishers and the fishing industry has resulted in substantial industry support for cooperative efforts to improve conservationist harvesting technologies.

Today, commercial fishermen and industry organizations work with various centres of expertise including the Department of Fisheries and Oceans (DFO) and provincial fisheries training institutes to achieve Canada's conservation objectives for fishing gear. These objectives include:

- maximizing selectivity for target species and target fish sizes;
- maximizing the survival of fish escapements;
- reducing the impact on the marine environment;
- minimizing contact with marine mammals and seabirds;
- minimizing fishing by unattended nets;
- minimizing fish wastage;
- maximizing the quality of the catch; and
- reducing fuel consumption.



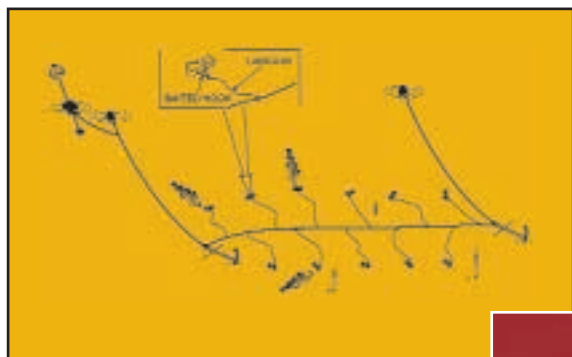
Salmon grids in purse seine



Gear technology management

The development and use of conservation harvesting technology, including improvements in the selectivity features of fishing gear, has contributed significantly to conservation. Selective fishing gear (nets, hooks, and so on) has been designed to catch only selected fish species or sizes, to allow marine mammals and birds to escape, or to protect the seabed and marine environment.

Many of these improvements are the result of hundreds of conservation harvesting technology projects undertaken through partnerships between the fishing industry and DFO. These initiatives have focused on:



- mesh size — in trawls, seines, gillnets and fish traps;
- hook size — in longlines;
- square mesh — in trawls and Scottish seines;
- rigid grids — in trawls and purse seines;
- trawl and Scottish seine designs — to improve species selectivity;
- escape panels — in shellfish traps and trawls;
- electronic devices — to reduce mammal entanglements and lost gillnets; and
- live capture gear — to allow the live release of non-targeted species.

Conservationist harvesting technologies

Some of the results of this research are increased mesh sizes and different mesh shapes in trawls, seines, gillnets and traps that reduce the catch of small fish. The new designs also reduce the catch of salmon in cod traps, small crab in crab pots, and small lobster in lobster traps. In addition, the use of deflection panels for non-target species deflects cod during the directed haddock fishery and American plaice during the directed yellowtail fishery.

Separator grids, built into nets, deflect non-target species and juvenile fish such as turbot and redfish during the directed shrimp fishery, and small shrimp during the directed shrimp fishery. In the gillnet fishery, tags on gillnets monitor deployment and loss of gear and electronic devices reduce contact by marine mammals such as porpoises.



Developing and introducing more effective conservation harvesting technology is just one part of the management approach used to improve the sustainability of harvesting operations. Together with improved fishing practices, it is

strengthening the conservation of fisheries resources for future generations and improving the economic viability of the industry for all participants.

left: Long line gear set on bottom

centre: Hook gang baiting system