The Norwegian Coastal Reference fleet : a trust-based co-operation between fishermen and scientists for multiple objectives.

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In order to obtain better and continuous samples from the coastal fishing fleet, knowledge about fleet behaviour and technical developments influencing efficiency and effort, 18 coastal fishing vessels (the Coastal reference fleet) are contracted, have been contracted since 2005. Crew members are trained to conduct self-sampling. Biological samples (length, otoliths, genetic samples, stomachs etc) and logbook data are delivered according to contract, which secure a proper statistical coverage for a number of species in time and area. The program is mainly financed by a minor extra catch quota.

In addition to improved biological sampling, the Coastal reference fleet provides better insight for optimised sampling, it updates the scientists on technological developments, provides the scientist with continuous information about species that are hardly accessible by research vessels and do also provide observations of sea mammals, sea birds, crabs etc. Further, such trust based co-operation between fishermen and scientist seems to reduce controversies and rather build a common understanding and ownership of improved stock assessments and fisheries management.

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Background

The Reference Fleet in Norway is a small number of fishing vessels that are paid to provide the Institute of Marine Research (IMR) with extensive fishery data on a regular basis. In autumn 2005 a coastal Reference Fleet was established along the whole coast of Norway, with two vessels in each statistical area. Presently the fleet consists of 18 vessels (8-16 m long).

The fishermen are educated in how to sample their catches. Each day they register catch by species and weight, area, depth, details about the gear used, soaking time etc. Bycatches of marine mammals, European otter and birds are also registered.

Once a week, a sample of 60 fish of cod, haddock , saithe , golden redfish, anglerfish and halibut is length measured, and every second week, a sample of 20 fish is aged (otoliths taken out).

To finance this sampling, the authorities set aside a small part of the total Norwegian allowable catch , and for 2007 this was 860 t of NEA Cod north of 62 °N, 40 t of cod in the North Sea, 600 t of Greenland halibut, 600 tons of herring and 600 t mackerel.. The quota is fished by the high seas reference fleet (16 vessels) and 40% of the catch value is used by the Institute of Marine Research (IMR) to pay for the measurements and analysis of the data.

Results

Results are mainly used for assessment purposes, i.e. for estimating total catch in tons by length and/or age groups in numbers

This improves the stock assessments and fisheries management

Enables IMR to allocate commercial catch sampling resources in time and space in a sound statistical way

Leads to improved and continuous biological sampling by area and season, and thus improves sampling protocols

Collects data and information about mixed fisheries, including non-commercial species

Contributes to determine the effects of regulation, and thus may lead to more purposeful regulations

Provides continuous information about species that are rarely covered by research vessels

Provides observations of sea mammals, sea birds, crabs, etc

Updates scientists on technological development in fisheries

A platform for testing official catch and data collecting systems and procedures

Reduces controversies and fosters a joint "ownership" spirit for data and results

Makes it possible for IMR to be at the right place at the right time – for urgent sampling for special occasions
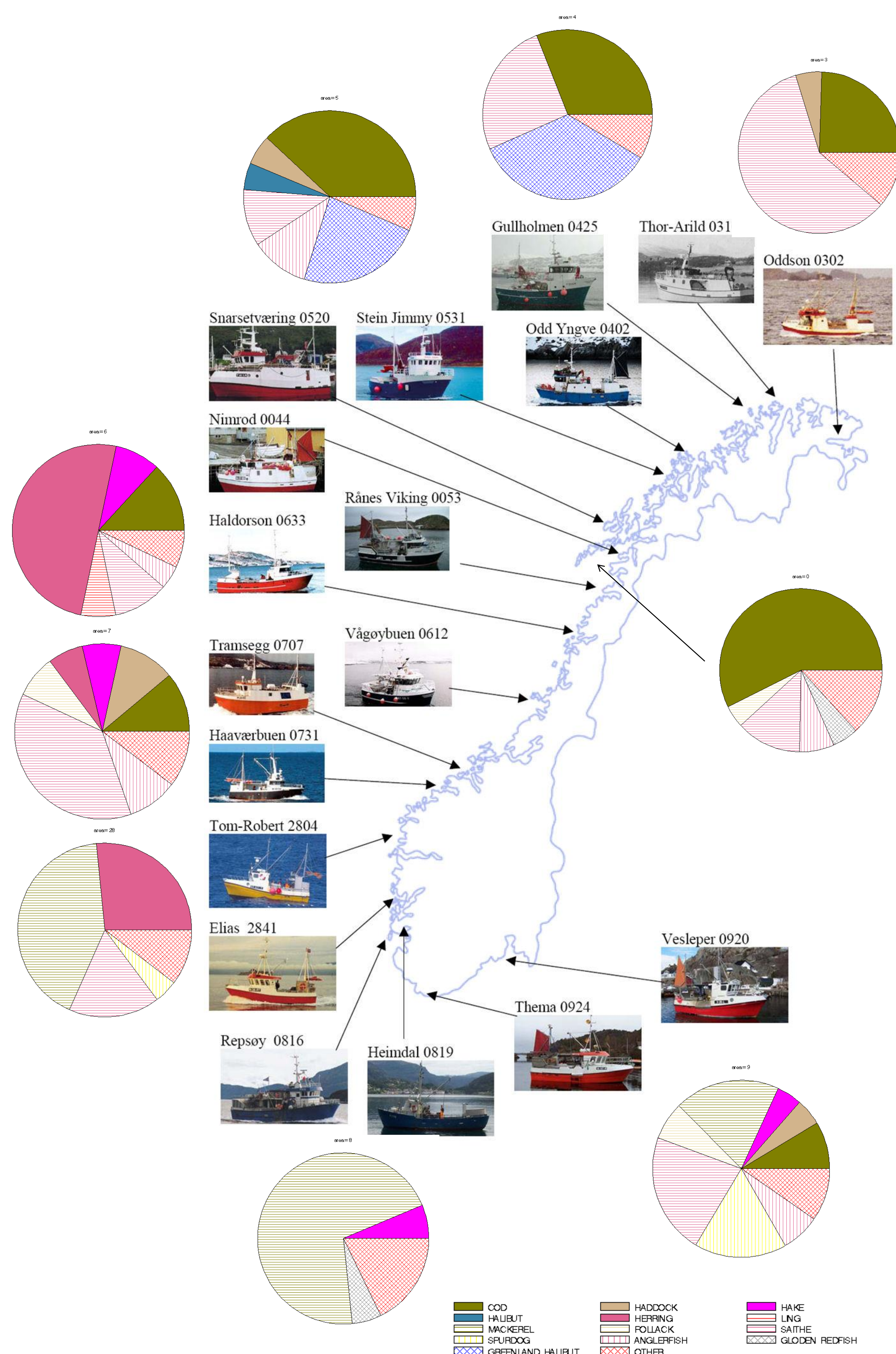

Figure 1. Catch composition by weight from 2006 of the Reference Fleet shows the large variability in catches between the statistical areas.

The vessels in area 0 has the absolute largest percentage of cod, but also in area 3,4 and 5 the cod is dominating. Mackerel is mainly caught in area 28, 8 and 9 .

Gillnets is the most important gear used, it is used in all areas. It is the only gear used by the Reference Fleet in areas 0, 4 and 7. Hooks of various kinds are used in area 3,5,8 and 28, while pots are used in area 6, 8 and 9. Purse seine is used in areas 6, 8 and 28, and traps in area 8. In addition, Danish seine is used by the Reference Fleet in area 3.

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