

Ecosystem approach to sustainable fisheries

- introducing speech for debate

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The ecosystem approach to management of fisheries has so far been more words than practical actions. And little is seen worldwide of any attempts to describe and quantify the interaction between species as a part of the ecosystem approach. For the industry, however, this is the essence of the ecosystem approach to management. Norway is blessed with an ecosystem in which the interactions are strong and obvious and tractable: the Barents Sea. Implementing an ecosystem approach to management in the Barents Sea in which species interactions are quantified and taken into account would provide an interesting case study worldwide.

The interaction between species in the Barents Sea is of significance to the industry and other stakeholders. A large herring stock leads to a smaller and more strongly fluctuating capelin stock. A large capelin stock leads to less cannibalism and better growth of the cod stock.

These interactions impact the economy of various parts of the fishing industry. A large herring stock is good for the pelagic industry, but bad for capelin fishers and bad for the cod stock. A large cod stock is good for the trawling industry and coastal fishermen but bad for those processing capelin for human consumption or for meal and oil to the aquaculture industry.

Herring, capelin and cod are managed largely on a single species basis without taking into account the significance of one species for the other species. We are, however, underway towards a multispecies perspective on management in that consumption of capelin by cod is accounted for in the management of capelin. This approach and the methodology underlying it can be extended to include larger parts of the ecosystem.

To me, and I presume also to the industry, an ecosystem approach to managing fish stocks must involve a thought about whether we manage these species in the best way, when we consider the interactions between them.

However, doing so – and it is quite feasible for the Barents Sea - will bring to the table conflicts of interests within the industry, and shifting the current practice in one direction will imply shifting economic benefits from one part of the industry to another. Some will lose, even if we can achieve a greater total good.

Therefore, an essential part of implementing such an approach should involve reconciling conflicting interests of stakeholders as part of a process to establish new multispecies harvesting rules. However, this is a scientific discipline in itself, and I feel Norway could benefit largely by learning from and co-operating with other countries.

All plans and dreams of a better management of the fish in the sea end up in nothing unless the plans can be followed. The largest threat in the North Sea comes from the too widespread practice of discarding fish, either in order to obtain higher prices by throwing away small fish or because of overfishing vessel quotas. Several promising year classes have been prevented from growing up and

contributing to the spawning stock due to this bad practice. For example, in 2007, almost 8 of 10 fished cod were discarded. A simple projection tells us that if these fishes had survived to maturity, the discard of cod in 2007 could have contributed with more than 80.000 tons to the spawning stock and, in addition, serving as important prey for other fishes and sea mammals. It is very difficult to manage the fish stocks using landings quotas when a fisherman can discard as much as he wants. Discarding of fish should hence not be allowed with the ecosystem approach. A ban on discards will also trigger positive creativity among the fishers in how to maximize economic yield without discarding. Real-time closure of small-fish areas and selective gears are important elements in this.

Furthermore, based on scientific survey data the total mortality of cod has been nearly twice the mortality caused by reported landings, discards and assumed natural mortality. What is causing this additional mortality? Could it be unreported and black landings of a similar relative magnitude to what was documented in the Barents Sea five years ago? Or are the discard and/or natural mortality underestimated. It is obvious that a better control at sea is needed.

Before we stop discarding, and get a better control and enforcement at sea we can forget any further achievements towards ecosystem-based fisheries management. As long as we don't know the real fish mortality caused by humans, we may easily draw wrong conclusions about species, ecosystem or environment interactions. It should be easier to quantify human causes and behavior than complex ecosystem interactions and environmental changes. So let's get that done first.

Why not extend the use of the present coastguard? IMR in Norway benefits from complete catch information and biological data collected by the Norwegian coastguard during their inspection of fishing vessels. Or could for instance a small official EU-Norway fleet of fishing vessels with observers and commercial fishing gears operate together with the commercial fleet and hence improve the data collected at sea?

When we know and have got control of all the unwanted mortality, i.e., mortality during the catching operation while the fish is still in the sea, discard mortality and unreported landings mortality, there are some key biological parameters we need to know before being able to make a real and correct ecosystem approach to fisheries management:

- we should know the growth history and maturation of all species in the ecosystem
- how we utilize the fish species' nature given growth potential
- the more species we know the SSB/R relationship, preferably under different environmental regimes, the better
- a more complete knowledge about who is eating who (including zooplankton) in the ecosystem and how this varies from year to year as the ecosystem varies
- zooplankton production, including species composition
- on top of this comes again the human/the fisher and his fixed historic fishing rights that may not fit with a variable species abundance and hence a sound ecosystem approach to sustainable fisheries.