



MSC Fisheries Assessment: Barents Sea cod fishery

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The Barents Sea ecoregion is Europe's last relatively undisturbed marine ecosystem. Its' cold, but shallow waters teem with life, including huge stocks of cod, herring and capelin, as well as whales, polar bears, walrus and seals. Along its coasts, some of the world's largest seabird colonies gather in the spring and summer, and world-class salmon rivers run into the seas. The sea floor is home to rich benthic communities, including the world's largest known cold-water coral reef. Fish stocks in the Barents supply about half of all fish eaten in Europe. Shared by Russia and Norway, the biodiversity and biological productivity of the Barents region are of great importance for the economies of both countries. The changes in global climate and economic patterns draw international activities into the region, increasing pressure from existing resource exploitation, pollution and industrial activity and threatening to undermine biological diversity and production in the ecoregion.

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The Barents Sea ecoregion now stands at the critical crossroads which most other regions passed decades ago. While economic development will continue to drive the demands on the region's limited resources, we can still choose to move forward in a sustainable way. Certification of commercial fisheries is an important tool to ensure sustainability but only if all the key issues are addressed.

The cod population in the Barents Sea (North East Arctic Cod, ICES area I and II) is in good condition and the stock is classified by ICES as having full reproductive capacity and being harvested sustainably (ICES, ACFM 2008). WWF is of the opinion that North East Arctic Cod is a good candidate for MSC-evaluation, but we do have some concerns that need to be addressed for the potential certification of the fishery. The key issues are outlined below with some recommendations:

- **Trawling and coral reefs** – Cod is a groundfish, and a significant part of the fishery is done by bottom trawling. The Norwegian fishery uses sorting grids to avoid juvenile fish, and there is a coral regulation that bans bottom trawling in areas with known coral reefs. However, the question still remains if the present regulations are sufficient to protect vulnerable bottom habitats or if additional measures such as trawling free zones should be adopted.

Deep sea cold water coral communities serve as breeding, spawning and nursery areas for many fish species, and provide habitat for a variety of species. Research has also revealed that in sandy and muddy bottoms, biological communities exist that are just as unique and complex as their coral counterparts. Much is still unknown about the deep ocean, but we now know that extreme care must be taken if serious and irreparable damage to these slow growing and sensitive habitats is to be avoided. Bottom trawling can do irreversible damage not only to benthic ecosystems and habitats located along parts of continental shelves and associated deep canyons as well as seamounts and ocean ridge systems, but also to populations of the fish species targeted as well as to non-harvest species. Deep sea corals and other species tend to be long-lived and slow-growing, with some having been dated at 5,000–8,000 years old. A single pass of heavy trawling equipment can destroy such benthic structures, such as was found to be occurring in Norwegian waters prior to the trawling ban introduced in 2003. Coral regrowth can take hundreds of years. Even for soft bottom communities, the severe disruption can, in some cases, make it extremely difficult for recovery to their

previous habitat complexity and species composition.

WWF believes that before the fishery can be certified there should be clear documentation that the fishery does not have negative impacts on the associated bottom habitats.

- **Illegal, unregulated and unreported fishing (IUU)** – According to ICES, although the TAC regulations are in place, there is non-compliance, resulting in a significant amount of unreported landings. The main mechanism used in avoiding quota control seems to be transshipping of fish from the Barents Sea. There is an estimated significant reduction in IUU catches in 2007. Official estimates from Norwegian authorities state that the illegal fishery is reduced by more than 50 percent from 2005-2007, with an estimated illegal catch of 40 000 tons in 2007. This still consists around 8 % of the total catch, and the estimates might be lower than the reality.

Total Allowable Catch –The agreed management plan by the joint Russian-Norwegian Fisheries commission implies landings of 473 000 tons in 2009 (the harvest control rule implies a maximum 10% change in TAC from 2008). This projection includes all landings and therefore the TAC must account for all unreported landings. The agreed management plan has been found to be consistent with the precautionary approach and is therefore the basis for the advice for landings of 473 000 tons in 2009. However, the commission set the TAC for 2009 at 525 000 tons, increasing the TAC by 20 % and thereby not following the adopted management rule, which is an important

measure to ensure the long-term ecological and economical sustainability of the stock.

WWF recommends that the MSC evaluation require to use the management plan as the basis for future TAC's, and that the estimated IUU catch must be accounted for.

- **Bycatch** – The Barents Sea cod fishery is associated with bycatch of redfish, a species which is listed on the Norwegian red list as endangered. The stocks of redfish are at historically low levels, the last few year-classes have been small, and a further decrease in the stocks is expected. Redfish has had low and failing recruitment for decades, and the situation is not expected to change for a long time. The trawl fleet is currently allowed to take up to 15 percent redfish as bycatch. Redfish has late sexual maturity (around 14 years), grows slowly, and has a minimum population doubling time of 4.5 - 14 years, which makes it extremely vulnerable to overfishing. ICES recommended stronger regulations and has asked for a complete stop in all directed fisheries, increased conservation measures and stronger bycatch regulations for trawls. WWF believes that mandatory measures must be included to reduce redfish bycatch, and that bycatch limits for redfish must be set at an absolute minimum until a clear increase in the spawning stock and fish larvae recruitment can be confirmed.

In some areas at certain times of year, the Barents Sea fishery also has incidental catch of Norwegian coastal cod. The coastal cod is listed as endangered on the Norwegian red list of endangered species and its population is strongly reduced. ICES classifies the stock as not being harvested sustainably. The population has declined continuously since 1994 and the spawning stock is close to the lowest ever observed. ICES has recommended zero

catch of coastal cod since 2004. There is a management plan for the rebuilding of the coastal cod stock, and it is under continuous evaluation. So far we have not seen the necessary reductions of bycatch and little has been done to map and, if possible, reduce the catch of coastal cod by recreational fishers. New measures such as area closures have reduced the problem, but not sufficiently.

WWF believes that measures must be taken to ensure bycatch (including target stock juvenile bycatch) does not threaten the populations of coastal cod and redfish and allows for recovery of the stocks. Such measures could be temporal and permanent area closures, protection of important spawning grounds, and reduced fishing effort in periods of high bycatch.

- **Discards** – According to ICES, discarding of cod, haddock, and saithe is thought to be significant in some periods although discarding is illegal in Norway and Russia. Data on discarding are scarce, but attempts to obtain better quantification continue. There have been several estimations of discards in the Norwegian cod fishery.

In May 2004, the Norwegian “Discard commission” published a report on how to deal with discards in Norwegian waters. The report gives some important recommendations, which WWF supports, such as:

- *Keeping the ban on discard of commercial fish species*
- *Expanding the current system of closing areas with undersized fish*
- *Increasing the use of inspectors at sea*

- *More efficient control of fish vessels at sea*
- *More efficient control when landing fish*

- **Skewed age structure** - Historically, the Northeast Arctic cod has matured late, with a mean age at first spawning of about 10 years. However, the pattern of exploitation has changed drastically and the Northeast Arctic cod has undergone a change from a harvesting pattern that should favor late maturation to a pattern favoring early maturation. This hypothesis is in agreement with observations that show a clear trend towards earlier maturation of the Northeast Arctic cod, with a decrease of about three years in the mean age at first spawning from the 1940s until today. Eggs and larvae of first-time spawners are less viable than those of other mature fish and the overall spawning period is reduced when the spawning stock consists of fewer age groups because younger cod spawn for a shorter period than older cod. Literature warns that such fisheries-induced evolution can lead to lower yields and reduced stock stability.
- **Integrating Climate Change impacts into Ecosystem-based Management** – Air temperatures in the Arctic region have on average increased by about 5°C over the last 100 years. Arctic sea ice extent has decreased by 14% since the 1970s. Global climate change will continue to result in changes to the Arctic Ocean's temperature, acidity and sea ice coverage, with consequences on fish populations that are not yet well understood. Nonetheless, we know from observations of current patterns in the Arctic and other parts of the world that climate impacts can happen more quickly and at a greater scale than anticipated by models or scenarios.

WWF believes that cod fisheries management needs to be adaptive and flexible in order to allow rapid adjustments as new information on the impacts of climate change becomes available. Failure to do so could mean that current management may prove to be inadequate as changes in seasonality, food availability, and migration result in changes in cod stocks that could not been foreseen under non-climate change scenarios.

- **Expertise of the assessment team** - WWF remains concerned at the limited biological expertise in the assessment panel. Given the importance and significance of the Barents Sea ecosystem, it is difficult to comprehend why this expertise has been overlooked in the current assessment panel. While we recognize the competency of the panel, we believe the assessment team should include at least one scientist with significant biological expertise. WWF has previously offered names of possible suitable candidates who have considerable cod specific and fisheries expertise and has also provided names of possible independent peer reviewers. Bjarte Bogstad (Institute of Marine Research), Niels Daan (Wageningen Institute for Marine Resources and Ecosystem Studies), Andy Rosenberg (University of New Hampshire), Gudrun Marteinsdottir, (University of Iceland), and Gunnar Stefansson (University of Iceland).

WWF urge that one of these experts be consulted in the evaluation of the suitability of this fishery for MSC-certification.

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This briefing provides an overview of the issues and major areas of concern to WWF, further information and references are available if required.



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- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.