

The battle for food in the Barents Sea: Cod vs marine mammals

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Extended abstract

Cod Gadus morhua, harp seals *Pagophilus groenlandicus* and common minke whales *Balaenoptera acutorostrata* are the most conspicuous apex predators in the Barents Sea ecosystem. They mainly feed on fish and crustaceans such as krill, amphipods and shrimp. A recent study, where the competition between NEA cod, minke whales and sea birds was studied, suggests that cod and minke whales have a significant diet overlap and that the overlap increases with changes in the abundance of herring and krill. Given that cod and minke whales share both habitat and prey with the harp seals during their most intensive feeding period (summer/autumn) it is highly likely that they compete for food.

The abundance and body condition of these three stocks has developed differently during the last decade, a period with high temperatures, decreasing ice distribution, and fairly stable total prey abundance. The abundance and geographical distribution area of cod has increased considerably and the abundance of large, piscivorous cod is at a record high level. During the same period, the minke whale stock has been stable while the harp seal stock may have decreased. The condition of both harp seals and minke whales has decreased over the last decade, as seen from observations of blubber thickness. However, the individual growth and condition of cod has been stable during this time period, although some reduction in the growth and condition of large cod has been seen in the last couple of years.

There are several possible reasons for these opposite trends in stock situation and condition, such as differences in prey preferences and vertical distribution of predators, as well as differences in feeding conditions during those parts of the year when those stocks are found outside the Barents Sea. We investigate the causes for these trends based on available data on

feeding, geographical distribution and condition, taking into account that harp seal and minke whale are not only competitors with cod for food, but also predators on young cod.

Key words: Cod, harp seal, minke whale, Barents Sea, competition

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