Rebuilding the stock of Northeast Arctic Greenland halibut (*Reinhardtius hippoglossoides*)

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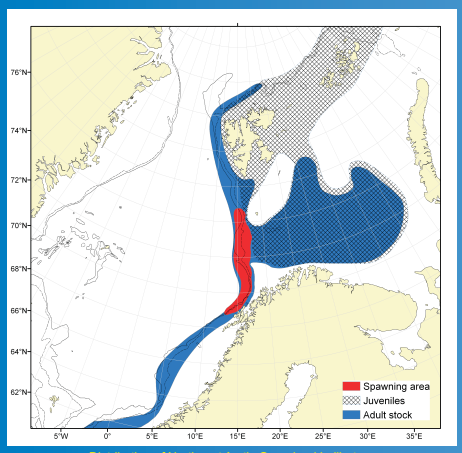
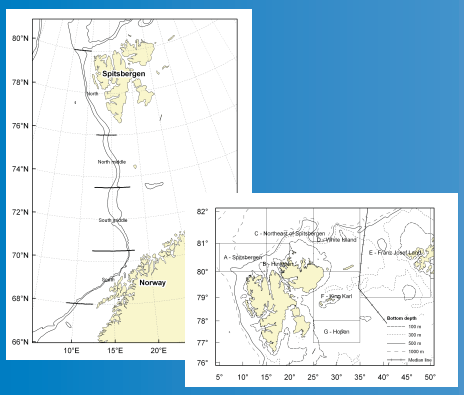


Distribution of Northeast Arctic Greenland halibut.

Greenland halibut. Running female (upper left), 1-group (left middle), juveniles (left lower) and catch of juvenile Greenland halibut from juvenile survey (right).



The stratas used in the swept area analyses. The geographic areas were depth stratified. The most important areas for the adults are at the slope in strata north and south middle. The areas D, E and F are the most important nursery grounds for NE Arctic Greenland halibut.

INTRODUCTION

The Northeast Arctic (NEA) Greenland halibut (*Reinhardtius hippoglossoides*) is distributed in the eastern part of the Norwegian Sea along the continental slope of Norway north of 61°N.

The distribution area extends into the Arctic area north and east of Spitsbergen to Franz Josef Land and into the deeper parts of the Barents Sea.

Highest concentrations of adults are found at the continental slope between Lofoten at the northern coast of Norway and Svalbard at depths from 500 to 1000 m. Spawning locations are distributed along the continental slope in this area.

During the 1980ies a dramatic change in stock situation for the NEA Greenland halibut was observed:

- The fishing pressure and fishing mortality was high.
- Stock size decllined in the late 1980-ies.
- Year class indices derived from regular 0-group and juvenile surveys dropped.
- Spawning stock size reached historical low levels.

The importance of Greenland halibut as a commercial fish species increased during these years, and a decrease in the commercial catch per unit of effort (CPUE) was observed until 1992 when the stock was considered collapsed.

Strong regulations were introduced in 1992:

- no directed fishery north of 71°30 N.
- only vessels less than 28 m could target Greenland halibut and catch a total of 2 500 tons during a limited time period each year.
- strict by-catch regulations.

RESULTS

In recent years a rapid increase in juvenile abundance of Greenland halibut in the Barents Sea has been observed.

At the same time spawning stock biomass has increased.

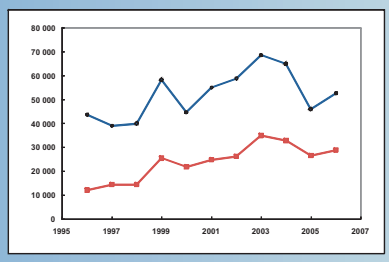
The number of females at the slope area has been rather stable in the period after 1996, but the swept area index of females larger than 60 cm has tripled in the same period.

Females larger than 60 cm are the main contributors to the egg production of the stock and this portion of the stock is now reaching a level of 30 000 tons. This is seen after years of strong regulations, introduced in 1992.

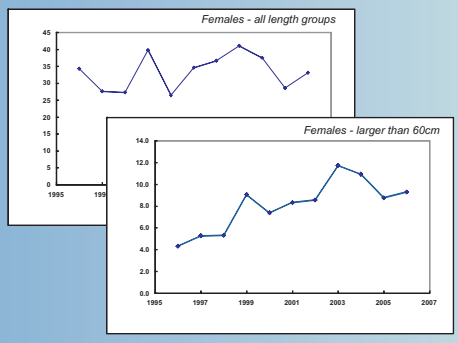
In 1996 a survey programme started to map juveniles in previously not surveyed waters north and east of Svalbard.

Nursery grounds were discovered.

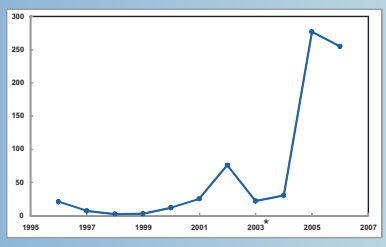
After rather stable indices in the first years after 1996, the recruitment indices have increased with a tenfold from 2001 to 2006.



Biomass of Greenland halibut females from the main adult area at the slope. Total biomass of females (blue) and biomass of females larger than 60 cm (red), based on swept area estimates. Biomass in tonnes.



Swept area estimates of females from the main adult area at the slope. Total females upper panel and females larger than 60 cm lower panel. Numbers in millions.



Swept area estimate of 1-group fish (10-15 cm) north and east of Spitsbergen. Numbers in millions.

*)Limited survey coverage due to ice.

SUMMARY

Discovering Greenland halibut nursery grounds was vital in the process of rebuilding the Greenland halibut stock in the Northeast Arctic.

The rapid increase in juvenile abundance and spawning stock biomass is seen after years of strong regulations, introduced in 1992.

It is evident that rebuilding Greenland halibut takes time and that at least 12-15 years with management restrictions are needed to recover from the low levels observed in the Barents Sea in the 1980-ies.