



Onion-eyed Grenadier



Blue antimora



Black dogfish

By-catch in the Greenland halibut longline fishery in East Greenland

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Introduction and methods

The fishery for Greenland halibut (*Reinhardtius hippoglossoides*) in East Greenland is of high commercial importance for several countries. This fishery is generally considered a 'clean' fishery i.e. very little by-catch. There is however, no evidence to back this up.

Five long line surveys were carried out in East Greenland over several years (Fig. 1). These were done using chartered commercial long-liners and the survey was carried out in a similar manner to that of the commercial fleet. The by-catch from these surveys were identified to species level and the numbers were noted. The stations were separated into three different depth bands <500, 500 to 1000 and >1000 m (depth band 1,2 and 3 respectively).

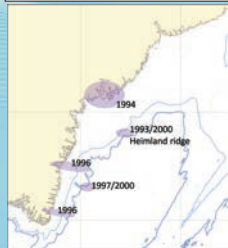


Fig 1. Map of East Greenland showing the survey areas for each year

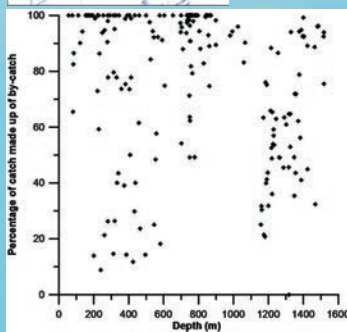


Fig.2 The percentage of the catch which was by-catch versus depth

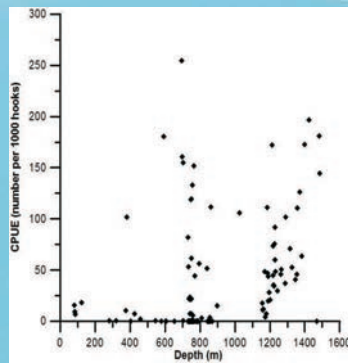


Fig. 3 The CPUE of onion eyed Grenadier.

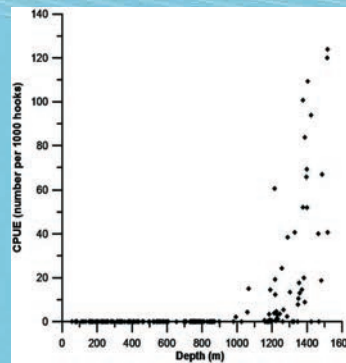


Fig. 4 The CPUE of blue antimora versus depth

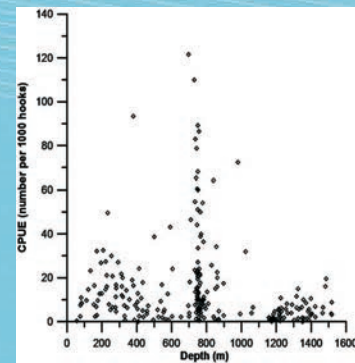


Fig. 5 The CPUE by catch, excluding onion-eyed grenadier (*Macrourus berglax*), blue antimora (*Antimora rostrata*) and the black dogfish (*Centroscyllium fabricii*).

Results

A total of 38 different species were caught and identified. The number of species caught at each station varied between 1 and 14 with an average of 3, 4 and 5 for depth bands 1, 2 and 3 respectively. The by-catch made up an average of 75,92 and 52 % of the total catch in numbers in depth band 1,2 and 3 respectively (Fig. 2). The three most common species were the Onion-eyed grenadier (*Macrourus berglax*), Blue antimora (*Antimora rostrata*) and the Black dogfish (*Centroscyllium fabricii*). Many species of deep water sharks and rays were also caught.

The Onion-eyed grenadier made up an average of 73% of the by-catch in the deepest depth band. Blue antimora and black dogfish made up 11 and 4 % of the by-catch respectively at the deepest depth band. These three species combined made up 12 and 22 % of the by-catch at depth bands 1 and 2.

The CPUE (number per 1000 hooks) of Onion eyed Grenadier and Blue antimora was related to depth (Figs. 3 and 4). Black dogfish occurred sporadically at all depths. Excluding the three most common species, the by-catch was highest between 700 and 800 m (Fig. 5), all of the stations at this depth were at Heilmann ridge

Discussion

The by-catch of Greenland halibut primarily consisted of three species with a large percentage of this being made up of onion-eyed grenadier. The catch of Greenland halibut using longlines is highest between 1000 and 1500 m which is also the main depth range for the Onion-eyed grenadier and Blue antimora. The higher catches of Greenland halibut at greater depths is the reason for a lower percentage of by-catch in deeper waters. There was a large amount of by-catch caught between 700-800 m, all of the stations at this depth were located at Heilmann Ridge. Catches of Onion eyed grenadier was mostly concentrated in depths greater than 1000 m, however, there were some high catches between 700 and 800 m at Hatton Bank.

The main by-catch species are increasingly being utilised by the industry rather than be thrown back. However very little is known about these species or what level of mortality from the fishery they can withstand. Many species of sharks and rays were also caught and these populations are believed to be very vulnerable to an increased rate of mortality. Even though the level of by-catch is low, a combination of an extensive fishery and a low resilience to increased mortality could be detrimental for these species. Therefore increased knowledge on these species and the amount caught is thus essential.