

Abundance and length-weight relationship of commercial demersal fish species in the Belgian North Sea

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Fishing activity in the North Sea has been significantly increased since the start of the 20th century. There is a lot of evidence about the wide-ranging impacts fishing has on marine ecosystems, especially the use of bottom trawls. These fishing methods enter the substrate, disrupting the seabed communities, and produce a significant amount of bycatch. This bycatch consists especially of benthic invertebrates and unwanted sizes of target fish species. Since the main activity of the Belgian fleet consists of beam trawling, it is of importance to examine these consequences in the Belgian North Sea. Also fish species diversity and mean body size within species decreases due to fishing activity.

In this study a dataset covering the period 2011 to 2017 is analysed. The data were collected from the Stroombank in the Belgian North Sea by using beam and otter trawl. Some of the important commercial demersal fish species, who were collected in this study, are *Pleuronectes platessa* (European plaice), *Limanda limanda* (Common dab), *Solea solea* (Common sole), *Merlangius merlangus* (Whiting) and *Chelidonichthys lucerna* (Tub gurnard).

Two effects of fishing and more specific beam trawling are examined. First, the percentage of biomass for each species with respect to the whole catch is considered. Second, we look into the abundance in function of different length classes. This gives us more information about the quantity of unwanted sizes (bycatch) that are being caught, but also the abundance of juveniles in comparison with adults. Finally, we investigate the length-mass relationship of the collected species and compare them to references from FishBase (www.fishbase.org). This gives the researcher the possibility to collect only the length of caught fish and derive the mass, since weighing is not possible when on sea.

Keywords: beam trawl; catch composition; length-weight relationship; Belgian North Sea