



HMAP Data File (in process) 3: North Sea, Swedish & Danish Catch
Data, 1840-1914

HMAP Data File (in process) 3 North Sea, Swedish & Danish Catch Data, 1840-1914

Supporting Documentation





HMAP Data File (in process) 3: North Sea, Swedish & Danish Catch Data, 1840-1914

Summary

Data File title:	North Sea, Swedish & Danish Catch Data, 1840-1914
HMAP Case Study:	North Sea
Large Marine Ecosystem:	22: North Sea
Subject:	Catch & effort data, cod & ling fisheries, northeastern North Sea & Skaggeak, 1840-1914
Data Provider:	René T. Poulsen University of Southern Denmark Esbjerg Denmark Email: rtp@sam.sdu.dk
Data Editor:	Michaela Barnard, MHSC, University of Hull, UK m.g.barnard@hull.ac.uk
Keywords:	fisheries statistics; History of Marine Animal Populations; abundance estimates; North Sea ecosystem

Citation:

(a) The dataset: please cite as follows: R.T. Poulsen, ed., 'North Sea, Swedish & Danish Catch Data, 1840-1914' in M.G Barnard & J.H Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

(b) Supporting documentation: please cite as follows: R.T. Poulsen, 'HMAP Data File: North Sea, Swedish & Danish Catch Data, 1840-1914, Supporting Documentation', in M.G Barnard & J.H Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

Acknowledgements:

The research was funded by the A.P. Sloan Foundation, Forskeruddannelsesrådet, HMAP, the Centre for Maritime & Regional Studies (University of Southern Denmark), the CONWOY research programme and the Danish Research Council. I am grateful to Toke Jensen for assisting in the data entry work, and to the HMAP Data Pages team at Hull for editing the data.



HMAP Data File (in process) 3: North Sea, Swedish & Danish Catch Data, 1840-1914

Contents

	<i>Page</i>
1. Research Issues	1
2. Primary Sources and Datasets	2
3. Outputs	4



1. Research Issues

The datasets presented in this section of the Data Pages were generated in the course of an HMAP-sponsored doctoral research project undertaken under the supervision of Poul Holm at the University of Southern Denmark. The investigation focused on the interaction of human fishing activity and fish stocks in particular temporal and spatial contexts. A case study approach was adopted, with the research focusing on longline fisheries for cod and ling in the northeastern North Sea and the Skagerrak during the late nineteenth and early twentieth centuries. Two central research issues were addressed:

1. *the abundance of ling and cod stocks in the northeastern North Sea in the late nineteenth and early twentieth centuries*

The study demonstrated that analysing the extraction of selected marine resources from a particular spatial domain before stock assessments were first calculated (in 1963) offers insights into long-term ecological change and ecosystem shifts. In this instance, abundance estimates for the two species were calculated for the period 1872-1886 and compared to modern stock assessments. This comparative analysis revealed major declines in the abundances of the two stocks, especially ling. Moreover, relating historical length compositions for cod and ling to those of the modern era demonstrated that the average size of cod and ling has changed significantly since the 1870s.

2. *the factors which conditioned change in the Swedish longline fisheries of the late nineteenth and early twentieth centuries*

In focusing on the response of fishermen to changes in the abundance, distribution and diversity of fish stocks in particular historical contexts, the study elucidated the extent to which human behaviour and welfare is influenced by environmental factors.



2. Primary Sources and Datasets

This data file comprises nine datasets constructed from a range of historical sources pertaining to the Swedish longline fisheries, 1859-1914. All of the datasets are relational and have been assembled using MS Access. They contain the original Swedish and Danish names and concepts, with English translations added in a separate column. With regard to the species caught, a column is devoted to their Latin names. Where categories consist of several species, e.g. 'skates and rays', no Latin name has been specified. Although technical terms concerning vessels and gear are difficult to translate, approximate definitions are offered in columns labelled 'type of vessel in English' and 'type of gear in English'. Catches are rendered in original units of measurements, such as 'vålor' (i.e. 10 fish), with the means of conversion into modern units presented in a distinct column.

The nine datasets are:

1. Danish Skagerrak fisheries, 1888-1914

The dataset is based on official Danish fisheries statistics, published as '*Fiskeri-Beretning*', covering the period from 1888 onwards. In spatial terms, the information relates to the fishing communities on the Skagerrak coastline, from Skagen in the north to Harboøre and Lemvig in the south. From 1881 to 1890, only catches made by Skagen fishermen were reported, with catches landed in the coastal communities along the Skagerrak coast returned from 1891.

2. Demersal fishery, Agger, Denmark, 1872-1881

Catches of demersal and pelagic fish landed by fishermen in a Danish North Sea community, Agger, are collated in this dataset. Each boat reported catches, the records being published annually from 1872 to 1881 in the journal '*Nordisk Tidsskrift for Fiskeri*' and its predecessor '*Tidsskrift for Fiskeri*'. Catch rates (CPUE) defined as number of fish caught per man per year can be calculated from this dataset.

3. ICES *Bulletins Statistique*, 1903-1922

The dataset comprises the North Sea catches of the fishing fleets of Norway, Sweden, Denmark, Germany, the Netherlands, Belgium, England and Scotland from 1903 to 1922. It is based on statistics published annually in *Bulletins Statistique* by the International Council for the Exploration of the Sea (ICES). ICES assembled the datasets from official national fisheries statistics. For some countries, notably Sweden and Belgium, the dataset is incomplete. Sweden only reported from 1914 onwards, while no record of Belgian catches is available for 1903, 1913-1919 and 1921-1922. In 1903, the only German catches reported were those effected by the fishing fleets of Geestemünde and Bremerhaven.

Datasets 4-8 cover the main fisheries from Bohuslän, Sweden during the period 1886-1912. They are based on the published fisheries statistics for Bohuslän, Sweden and the bibliographical data are:

Andersson, K.A., *Berättelse öfver Göteborgs och Bohus läns fisken 1906/07-1912/13*, Göteborg; Malm, A.H., *Berättelse öfver Göteborgs och Bohus läns hafsfisken 1886-1903/04*, Göteborg; Malm, A.H., *Berättelse öfver Göteborgs och Bohus läns fisken 1904/05-1905/06*, Göteborg.¹

¹ Datasets on herring and mackerel fisheries for the period 1859-1885 can be found in Von Yhlen, Gerhard, *Berättelse öfver Bohusläns hafsfiske 1867-75* (Göteborg); Von Yhlen, Gerhard, *Berättelse öfver Göteborgs och Bohus läns hafsfisken 1876 – 85* (Göteborg).



HMAP Data File (in process) 3: North Sea, Swedish & Danish Catch Data, 1840-1914

The Bohuslän coastline was divided into fishing districts, each with its own fisheries inspector. District 1 was furthest to the South and District 9 and 10 were furthest to the north.

4. Bohuslän winter fisheries, 1888-1912

The fishing season usually started in the autumn (October) and ended in early spring (March or April), with activity concentrated in the Kattegat and Skagerrak. Longlines were used to catch cod, haddock, whiting, ling, halibut etc. As no catch quantities were reported, the annual statistics contain only datasets on catch values, crew and tonnages. These data are entered according to the starting year; for example, '1897' refers to the season that extended from the autumn of 1897 to the winter/spring of 1898.

5. Bohuslän mackerel fisheries, 1886-1912

6. Bohuslän herring and sprat fisheries, 1885-1912

The fishery took place during the winter. In the data base, the data are entered in the starting year. For example, 1897 means the season from the autumn of 1897 to the winter/spring of 1898.

7. Bohuslän lobster and oyster fisheries, 1886-1912

8. Bohuslän longline fisheries, 1859-1886

Sources: Von Yhlen, Gerhard, *Berättelse öfver Bohusläns hafsfiske 1867-75* (Göteborg); Von Yhlen, Gerhard, *Berättelse öfver Göteborgs och Bohus läns hafsfisken 1876 – 85* (Göteborg).

9. Bohuslän longline fisheries, 1914

Source: Unpublished dataset in Riksarkivet, Stockholm, *Statistiska Central Byrån*, Byrån för Jordbruksstatistik, Fisket, Primärmaterial, Län O, H VIaa:8, 1914-15.



3. Outputs

The data files were generated by the research which underpinned a number of outputs, notably:

René Taudel Poulsen, *An Environmental History of North Sea Ling and Cod Fisheries, 1840-1914* (Fiskeri- og Søfartsmuseets, Esbjerg, 2007) 306pp. ISBN 978-87-90982-42-3

Located within the field of marine environmental history, this study examines the Bohuslän longline fisheries for ling (*Molva molva*) and cod (*Gadus morhua*) in the Skagerrak and the North Sea, 1840-1914. It yields four main findings:

Fishing fleet dynamics: the book confirms the contention that spatial expansions and technological innovations in the Swedish longline fishery were caused by declining stock abundances. Swedish fishermen did not pursue a rigorous mining strategy, but catch rates were highly important to their choice of fishing grounds. The Bohuslän longline fishermen succeeded in maintaining ling catches during the 1859-1914 period by means of spatial expansion and technological innovation.

Spatial fidelity: the work illuminates the spatial fidelity of fishermen, most of whom stayed on the same ground in the short term despite significant catch rate changes. This spatial fidelity was determined partly by local networks, which tended to develop a special attachment to particular fishing grounds. Finding the best fishing grounds was not always easy, so local knowledge of the grounds was valuable to the fishermen. The Swedish case study highlights the importance of fishermen's social context in regard to fishing strategies. When long-term locational shifts did take place, declining catch rates played a significant role.

Social organisation: the study questions maritime ethnographer Olof Hasslöf's interpretation of the social organisation of coastal communities. Hasslöf contrasts independent, cooperative and democratic fishermen with a hierarchical organisation, in which onshore capitalists control the fisheries. This work argues that the model is too simple to describe the social complexities of the coastal communities. In Bohuslän boat-fellowships, there was a high degree of inequality in terms of gear and vessel ownership. In the twentieth century, the Swedish longline fishery was dated. Despite the introduction of sailing smacks, the longline sector experienced a major decline relative to other fishing sectors in Bohuslän. Thus, Hasslöf's ideal boat-fellowships did not guarantee that the fishermen engaged in the most expansive fishing sectors. While Hasslöf idealised the Bohuslän fishing teams and boat-fellowships, he did not address the question of fishing's impact on the marine environment. This study shows that comparatively unsophisticated nineteenth-century fishing technology had a significant impact on the North Sea and Skagerrak ling stock.

Historical stock abundances: the analysis indicates that ling was highly abundant in the Skagerrak and the northeastern North Sea in the 1870s. Quantitative and anecdotal evidence demonstrates that ling was the main target species in the Swedish longline fisheries from the 1830s to 1914. The abundance estimates calculated from the data files are conservative and the actual stock size may have been higher. A decline of the stock took place on a centennial scale. In the early 21st century, ling catches in the Skagerrak are insignificant and only moderately important in the northern North Sea. Quantitative evidence shows that the average ling size declined during the nineteenth century, inferring that the simple longline technology employed by the Swedish fishermen had a significant impact on ling stocks.