HMAP Dataset 20
Limfjord Catch Data, 1890-1925

Supporting Documentation

Summary

Dataset Title:	Limfjord Catch Data, 1890-1925
Large Marine Ecosystem:	22: North Sea
Subject:	Five-yearly Catch Data (eel, plaice, cod, herring), Limfjord
Data Provider:	Anne Lif Lund Jacobsen University of Tasmania Hobart Australia email: allund@utas.edu.au
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Extent:	6190 records
Keywords:	catch statistics, eel, plaice, cod herring; Limfjord; HMAP

Citation:

(a) The dataset: please cite as follows: Anne Lif Lund Jacobsen (Anne Husum Marboe ed.), 'Limfjord Catch Data 1890-1925', in D.J. Starkey & J.H. Nicholls (comp.) HMAP *Data Pages* (www.hull.ac.uk/hmap)

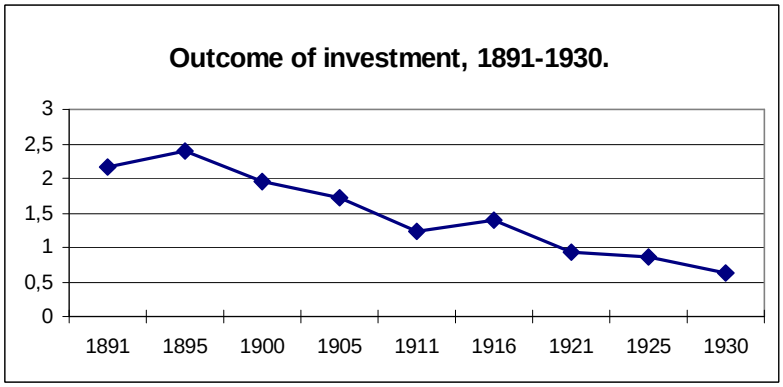
(b) Supporting documentation: please cite as follows: Anne Lif Lund Jacobsen (Anne Husum Marboe ed.), 'Limfjord catch data, 1890-1925, Supporting Documentation', in D.J. Starkey & J.H. Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

2. Research Context & Objectives

The research investigates why the Danish government passed legislation in 1923 and 1925 which permitted the use of motor-driven winches for pulling seines on board in the Limfjord. To address this question, catches of the four main commercial species in the fjord - eel, plaice, cod, and herring – are analysed for the 1890-1925 period, for which a welter of statistical data are available. The subject is approached from the perspective of marine environmental history; that is, the interaction of nature and human endeavour is the main focus of the research.

Throughout the period, the level of fishing in the Limfjord increased. This was due to an increasing number of fulltime fishermen, the amount of fishing gear, and the introduction of motor-driven fishing boats. The type of gear used in the Limfjord was the so-called 'standing gears' - pound nets, gillnets, traps and hooks. Even though the Danish seine was invented in the Limfjord, by a local fisherman in 1848, the use of all types of seine was limited. The fishermen still preferred to invest in standing gears. With regard to the operation of fishing gear, motorisation was a crucial factor. It allowed the fishermen to transport more gear, faster and more directly than was possible in the smaller wind- and oar-propelled vessels, which were more vulnerable in bad weather conditions.

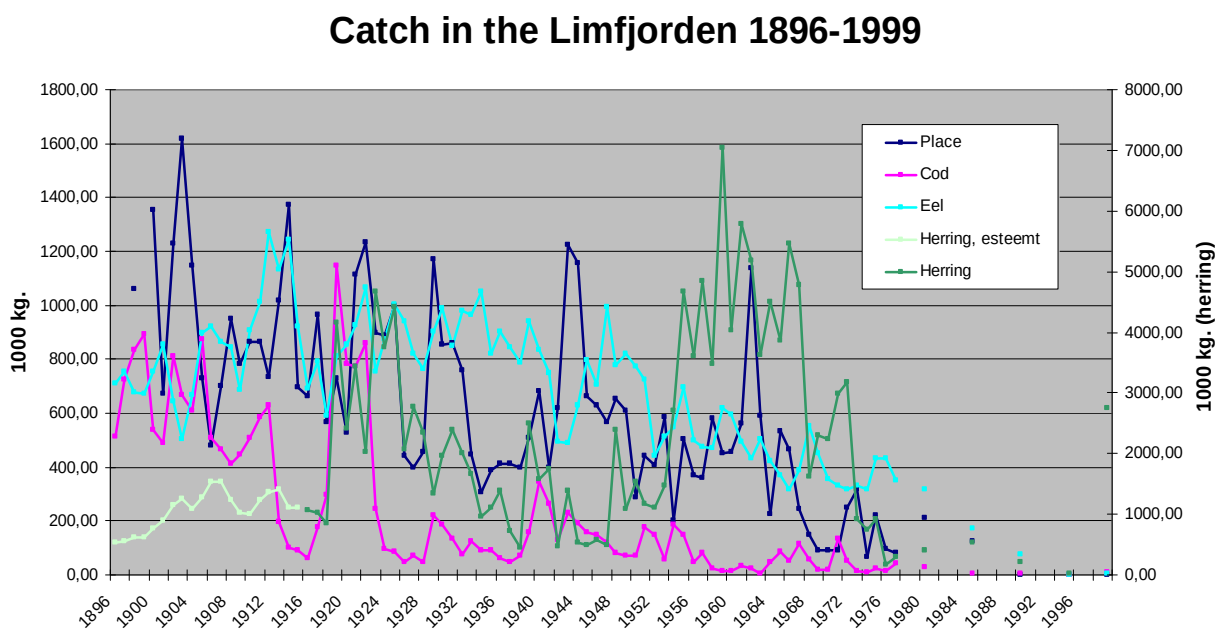
In economic terms, the growth in investment was not matched by an adequate increase in catches. By 1895, the maximum economical output had been reached. After World War I, the situation got even worse, as the price of fish fell dramatically. Subsequently, around 1921, the value of the catches equalled the level of investment, as the chart below indicates.



Perceiving bleak prospects for their business, the fishermen and their main trade association, the 'Centralforeningen', desperately attempted to cut costs without losing productivity. To increase the amount of standing gear was not a feasible solution, due to the fact that every suitable place in the fjord was already in use. An alternative solution was to improve the efficiency of the seine fishery, by allowing the seine to be pulled aboard by an engine. The technique was cheap and effective compared to fishing with standing gear, and it was possible to reach the deepest parts of the Limfjord, where the standing gear could not be used.

Traditionally, the majority of the fishermen were opposed to seine fishing, because it disturbed fishing with standing gear, and the government had made such technology illegal in 1907. But because of the economic crisis, in 1922 the fishermen agreed to the government's request to ease the legislation for a period of four months each winter. Originally the government, whose policy was to encourage small-scale fishing activity, had prohibited the use of the motor-driven winch, it was believed, would favour large-scale operators. By 1922, this socio-economic principle of fisheries management had become outdated, as the commercialisation of the fishing trade was well established. Facing an economic crisis in the industry, the government passed the required legislation. However, the state of the Limfjord fishing industry had not improved, and therefore the 'Centralforening' requested that the seine fishery, with motor-driven winches, should be permitted throughout the year. The state fisheries agency, the 'Fiskerikontrollen', supported this legislation, as it found it difficult to keep the fishermen from fishing illegally anyway. The biological advice was more critical and warned that the legislation might damage the fish population. But, as there were no other alternatives, the government was forced to pass the law.

The fishermen continued to increase their fishing efficiency, even though the catches did not increase proportionally, in order not to lose catches to more capable fishermen. This led to a situation in which an economic Tragedy of the Commons' occurred, with catches of all four species fluctuating around a declining trend throughout the twentieth century, as the graph below demonstrates.



3. Primary Source Materials

The principal sources employed in the creation of this dataset were the 'Fiskeriberetningen for Limfjorden, 1890-1925' (the Danish National Fishing Report for the Limfjord fisheries), the 'Rigsdagstidende, 1888-1925' (the Danish Parliament Tiding), and the archives of the Danish Government Fisheries Control, 1887-1925.
The Limfjord fisheries had a long tradition for regulation, instituted in the early modern era by the King and later Parliament. In 1857, a new state control was instituted, while the first general legislation on Danish fisheries was introduced on 5 April 1888. The control of the Limfjord fisheries remained a deep concern of the new inspector for the Danish fisheries, and two of his assistants were based in the area, and provided with boats to facilitate their monitoring work. Much of the statistical material which underpins this dataset was collected by the inspector's Limfjord assistants.

The Danish Annual Fishing Report was published by the Danish Ministry of Agriculture (later the Ministry of Fisheries) on an annual basis from 1889 and until 1977. The report contains information on fish landed on a commercial basis in all Danish ports during the period. The information was recorded port by port until the mid-1920s, when the structure of the reports changed, and only landings in the larger fishing districts were recorded. The reports contain legislation, fisheries statistics, sales for the entire country and a report from 'Den biologiske station', the Danish Biological Station. A network of local informants provided the background material for the Fishing Reports. In the first years of publication, the method of estimation depended on individual informants, but the collection of information was systematised in the early twentieth century as the informants were asked to use printed report forms. In the Limfjord, however, local informants were not deployed, the data being assembled on a parish level (until 1922) by the inspector's assistants.

Although every assistant had good local knowledge, and his reports were reviewed by the inspector, the data relied heavily on the information gathered by the assistant from local fishermen, together with his personal judgement and reporting ability. As a consequence, the data need to be carefully validated and corrected for errors and inconsistencies. For instance, from 1892, the reported value of the fisheries was based on the total (gross) income of the fishermen, whereas in previous years it had been derived from their net income. A further source of potential error is the lack of information on the value of caught fish recorded in the fisherman's daily diary. In 1892, for example, such figures suggest that an unfeasibly low figure of 7% of the total catch was destined for domestic consumption. Moreover, no account is taken of illegal fishing activity.

The statistics were assembled according to three administrative districts - A, B and C. District A consisted of parishes from Agger through Nissum Bredning and further on the west side of Mors to Feggesund. District B consisted of parishes from Sallingsund to Løgstør Bredning, including Risgaard and Louns Bredning. District C embraced parishes from Aggersund to Hals.

List of sources

Unpublished material, Danish National Public Records:

Rigsarkivet (RA)
RA 2102. Fiskeridirektoratet, Statistikjournaler, 1923-1948, Lb.nr. 37.
RA 2102. Fiskeridirektoratet, Statistikjournaler, 1923-1948, Lb.nr. 38.

Journal with register 1910-23
Kopibøger, okt. 1887-dec. 89, 1 bind.

Fiskeridirektoratet:
Kopibog, August 1906-1907
Kopibog, March 1908-August 1908
Kopibog, September 1909-December 1909
Kopibog, January 1910- May 1910
Kopibog, April 1910- August 1910
Kopibog, August 1912 –March 1913
Kopibog, January 1913- September 1917
Kopibog, January 1915- May 1915
Kopibog, May 1915- September 1915
Kopibog, October 1915- December 1915
Kopibog for statistik 1923-25 (9 volumes)

Published sources:

Fiskeri-Beretning for finantsaaret 1889-1908. Printed in Copenhagen (yearly volume, 19 in total)
Fiskeri-Beretning for aaret 1909-1930. Printed in Copenhagen (yearly volume, 22 in total)

Rigsdagstidende, Tillæg A, 1903-04
Rigsdagstidende Tillæg BI, 1906-07
Lovtidende A, 1923
Rigsdagstidende Folketinget II, 1922-23
Rigsdagstidende Landstinget, 1922-23
Rigsdagstidende Tillæg AII, 1922-23
Rigsdagstidende Tillæg B, 1922-23
Rigsdagstidende Tillæg C, 1922-23
Rigsdagstidende Tillæg AII, 1923-24
Rigsdagstidende Tillæg B, 1923-24
Rigsdagstidende Landstinget, 1924-25
Rigsdagstidende Folketinget, 1924-25
Rigsdagstidende Tillæg AII, 1924-25
Rigsdagstidende Tillæg B, 1924-25
Rigsdagstidende Tillæg C, 1924-25

4. Metadata: Explanation of Data Fields

The entries below are outlined as per the field headings of HMAP Dataset 59. An explanation is offered for each field in general terms, and also in dataset specific terms.

ID
ID is the unique, consecutive serial numbers for the complete HMAP database.

DATASET
DATASET is the HMAP project unique Dataset reference.

InstitutionCode
InstitutionCode is the name given to the overall project of which this Dataset forms a part (HMAP).

CASE_STUDY
CASE_STUDY is the location identifying description of the Dataset. In this instance: ***Norwegian, North & Baltic Seas***

PERIOD
The Historical Period covered

ID_NUMBERS
This field contains the range of record numbers shown in the ID field.

SOURCE
Source refers to the source of records employed in the research.

GENERAL DESCRIPTION
This is a brief description of the Dataset.

publication_date
This is the date when the Dataset was published.

BasisOfRecord
BasisOfRecord is the abbreviation applied that indicates whether the record is based on observations (O), living organisms (L), specimens (S), germplasm/seeds (G), photos (P), or from literature with original basis unknown (D); the HMAP value is generally 'O'.

Citation
Citation is the field where the formal attribution is shown for users of the HMAP Datasets to cite; it credits the researchers and editors of a Dataset together with its database compilers. This citation must be quoted whenever records are referenced or employed for any purpose.
Please quote the relevant citation when using extracts or details from this Dataset:

- Anne Lif Lund Jacobsen (Anne Husum Marboe ed.), 'Limfjord Catch Data 1890-1925', in D.J. Starkey & J.H. Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

DateLastModified
This is the date when the data were last modified.

OCEAN_REGION
This field indicates the specific Ocean Region where the Dataset research has been carried out. If this field shows 'None', then the research reflects activities carried out in non-seaward locations (e.g. in rivers, weir fishing, etc.). In this Dataset, the ***North Atlantic Ocean*** region was researched.

LME
This field indicates the name of the Ecosystem where the record event occurred. To find out more about LMEs (which are confined to continental shelf regions) browse the Large Marine Ecosystem site (http://www.edc.uri.edu/lme/) where LME GIS data may be downloaded. In this Dataset, the ***North Sea*** region was researched.

LME_NUMBER
This field indicates the number of the LME that is shown in the previous field. In this Dataset, the LME number is 22.

REGION
This field indicates the specific region of the Dataset. In this Dataset, the Limfjord region was researched.

LATITUDE
The LATITUDE refers to a mean value of the species distribution from surveys and should be cross referenced with the LONGITUDE field for specific location determination.

LAT_PRECISION
This gives the actual precision of the calculated LATITUDE field. The available options are:

- Approx — Approximate position
- Estimated — Estimated position
- Exact — Exact position
- Ground Centre — Notional centre of the relevant fishing ground
- Unknown — Position not known

LONGITUDE
The LONGITUDE refers to a mean value of the species distribution from surveys and should be cross referenced with the LATITUDE field for specific location determination.

LON_PRECISION
This gives the actual precision of the calculated LONGITUDE field. The available options are:

- Approx — Approximate position
- Estimated — Estimated position
- Exact — Exact position
- Ground Centre — Notional centre of the relevant fishing ground
- Unknown — Position not known

YEAR
This field refers to the year of the fishing and of the sampling.

Common name
This field indicates the common name of the species under investigation which is linked to the HMAP database containing detailed information about the species that were sampled.

ScientificName
This field indicates the scientific name of the species under investigation which is linked to the HMAP database containing detailed information about the species that were sampled.

…SPECIES FIELDS…
The following fields are included to add detail to the Species data:

- Subspecies
- GENUS
- SPECIES
- FAMILY
- ORDER
- CLASS
- PHYLUM
- KINGDOM
- AUTHOR

NATION
The Nationality of the Fishing operation is indicated here.

PLACE_PARISH
The name of the parish in which the fishing is reported

DISTRICT
The name of the district in which the parish belongs

COUNTY
The name of the county the parish belongs to

CATCH_LOCATION
The name of the water (local place) of the fishery

EFFORT_number_of_gear
Where known this field shows the EFFORT_number_of_gear i.e. showing the number of gear, nets, manpower etc. used as the unit of effort.

EFFORT_UNIT_TYPE_OF_GEAR
This is the Unit of Effort employed i.e. type of gear. It is an indicator of the primary gear used in the fishery; it indicates the means by which samples were extracted. This is typically the actual method of fishing, such as "Bottom Trawl".

FISHERMEN_FULL TIME
The total number of fishermen fulltime engaged in a specific fishery during the year.

FISHERMEN_PARTTIME
The total number of fishermen part time engaged in a specific fishery during the year.

VALUE_OF_GEAR The value of gear in Danish ‘kroner’.
UNIT_ORIGIN This is the Unit of Effort employed i.e. the power of one man
Yield_in_ol_using_this_gear This is the yield in ol (80 pieces) per year using this gear. 1 Ol = 80 pieces.
Yield_number_of_fish_using_this_gear This field shows the number of specimens sampled for the yearly catch. Where this data is not available, a value of "unknown" is entered.
Yield_in_kilogram_using_this_gear This field shows the total yield in kilogram per year using this gear
Value_of_yield_using_this_gear This field shows the value of yield per year using this gear. Amounts are in the Danish ‘Kroner’ and ‘Øre’.
PRICE_UNIT This is a description of the currency: Danish Kroner and Øre.
CPUE The CPUE field (*C*atch *P*er *U*nit *E*ffort) is expressed as: YIELD_KILOGRAM / EFFORT (number of fishing units employed).
NOTES Notes to clarify specific records. The NOTES field gives detailed information specific to a particular record. The details are provided to clarify specific entries and where further explanation is required than is generally provided in this METADATA file. For complete and academically verifiable explanations, refer to the published research materials that are indicated in the REFERENCE field.

Enquiries regarding the information contained in this document and the accompanying dataset should be directed to David J Starkey (d.j.starkey@hull.ac.uk) or John H Nicholls (j.nicholls@hull.ac.uk).

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