



Norfish Dataset

Faroe Islands Cod Landings

1520 - 1807

Supporting Documentation

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New mapping of the Faroe Islands (Van Keulen, 1728)



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Summary

Dataset Title:	Faroe Islands Cod Landings 1520 - 1807
Norfish Case Study:	Faroe Islands Cod Landings 1520 - 1807
Large Marine Ecosystem:	60: Faroe Plateau
Subject:	Catches, effort, CPUE, Faroe Islands 1520-1807
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Data Editors:	John Nicholls, Zhen Yang Norfish Project Centre for Environmental History Trinity College Dublin
Extent:	288 records
Keywords:	Atlantic cod catches; Norfish, fishing effort; Faroe Islands; effort; CPUE
Citations:	<ol style="list-style-type: none">a. The dataset: please cite as follows Holm, P., Nicholls, J. and Yang, Z. 2019. Norfish: Faroe Islands Cod Landings 1520 - 1807. Dublin: TCDb. Supporting documentation: please cite as follows: Holm, P., Nicholls, J. and Yang, Z. 2019. Faroe Islands Cod Landings 1520 - 1807: Supporting Documentation'. Dublin: TCD



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Objectives

The Faroese data provide a hitherto vacant assessment of the state of fishing and fisheries in the late medieval and early modern period for this small but important and indicative industry. While expert opinions and assessments abound, the lacuna of actual contiguous data for the period can now be filled to an extent where factual, quantitative analysis may be carried out.

Sources and Chronology

Total landings have been calculated based on published tithes records and export figures which are deemed of high quality.

Zachariassen (1961) and Guttesen (2004) provide the bulk of the base data used to complete the tithe records with supplementary information obtained from the *Danmarks Statistik* (1918) statistical information for the Faroe Islands. Export figures were similarly obtained from the the *Danmarks Statistik* (1918) statistical information for the Faroe Islands, as well as Degn (1929) and Døssland (2014).

In calculating and extrapolating population data, the population of the Faroe Islands is based on statistical estimates provided by Guttesen (2004). Conversions of dry to wet weights of fish were based on Jonsson (1994) where a factor of 1:7.7 was adopted, based on Icelandic values which employed very similar processes and techniques.

The dataset comprises of four distinct periods in terms of data availability, provenance and collation methodologies.

1520 to 1583

This period lacks any direct records based on given data; the Capacity Trend Method was applied to the period based on the domestic Icelandic Cod Fishery 1520-1790 (Nicholls et al. 2020).

1584 to 1652

Royal Tithes paid to the Danish crown were used to determine a reliable figure for annual landings for the period 1584 to 1652. The data only provided the amounts (in terms of dry cod) paid to the King in respect of the Royal share of the tithe which amounted to 2.5% of the



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total landings. However, the local Bishop, the Clergy and the Poor were all paid as well at a rate of 2.5% each as well. This amounted to four equal parts totalling 10% of the overall catch. From this information, the overall annual figure could be calculated.

Nevertheless, it was also the case that certain levels of exemption existed for various reasons and as a result, a calculated level of about 33% of landed fish were not factored into the tithe reckoning. When added to the sum, a new, complete total value could be derived.

1653 to 1708

Due to a lack of data, the Capacity Trend Method was applied to the period based on the domestic Icelandic Cod Fishery 1520-1790 (Nicholls et al 2020). The gap in documented values for this period is due to the governorship of the Faroe Islands during this period being under private control by the Gabel family. Either no records were maintained, or these records have been lost.

1709 to 1807

The export data supplied recorded fish that had been caught and then exported from the Faroes between 1709 and 1807. The supplied values, reported in pounds, was converted to metric tonnes. In order to determine a more accurate overall figure, the export values were supplemented with domestic consumption values.

Domestic consumption was calculated from population statistics (Guttesen 2004; Degn 1929). Gross annual consumption per capita of 0.160 tonnes is assumed based on Norwegian data. The consumption figure is a conservative estimate, based on the eighteenth-century peasant diet of the coastal districts from Rogaland to Finnmark, home of about half the Norwegian population at the time. The average fish consumption is estimated to have been between 160 and 215 kg per person (Døssland et al., 2014, pp. 160-161).

Once these values were found, they were added to the export values to derive an overall total catch.

As is the case for the Gaps in the records were filled using a simple extrapolation between available points.

Gaps and further analysis

Despite a clear gap in the periods between the Tithe Record and Export Record data, an overall impression of the state of the Faroese fisheries can be gleaned. While there are a few minor gaps within the two data streams, these could be extrapolated to determine clear



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annual figures. However, the large gap between the two series would require a trend analysis and corroborating information to establish a reasonable and complete single series.

Other Processes

The Capacity Trend Method was used to calculate values for years where no data was available. This process entails a trending process where a trend of annual data is applied between available points in order to determine a series that reflects general trends rather than a simple straight line. (Nicholls, Allaire, Holm 2020)

The marine species information that informs the dataset is obtained from the World Register of Marine Species (WoRMS 2020) which validates common species names, scientific names and sources.

The Metadata system underpinning the dataset is based on Darwin Core (OBIS 2017; 2020) which provides static formulations of all data fields as outlined in the Data Fields section of this document.



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Data Fields

Darwin Core Field Name	Description
occurrenceID	A globally unique "per record" identifier based upon the concatenated institutionCode, collectionCode, catlogNumber and ID fields (TCD_Norfish_FarHolNicYanCod_1)
type	Description of data series type. (Dataset)
modified	Most recent date the data was modified; ISO 8601 metric date/time standards apply. (2020-12-12)
license	Data licensing conditions that apply. (http://creativecommons.org/licenses/by/4.0/legalcode)
bibliographicCitation	Author citation for the dataset: (Holm, P., Nicholls, J. and Yang, Z. 2019. Norfish: Faroe Islands Cod Landings 1584-1807. Dublin: TCD)
references	Denotes the link where more detailed information about the dataset is held. (http://www.vliz.be/imis?module=project&proid=5064)
institutionCode	Identifies the institution which owns the data - Trinity College Dublin. (TCD)
collectionCode	Code of the project or research group. (Norfish)
datasetName	Name of the dataset (Faroe Islands Cod Landings 1520-1807)
basisOfRecord	Specifies the nature of the observed or researched specimens or data (HumanObservation)
dataGeneralizations	Source data that informs the provenance of the data (Sources: Extrapolated values trended on Norfish. Icelandic Cod Fishery 1520-1790)



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catalogNumber	Identifier of the data within the institution and project – “Far” refers to Faroes, “Hol” refers to Holm, “Nic” refers to Nicholls, “Yan” refers to Yang (FarHolINicYanCod)
occurrenceRemarks	Comments about the occurrence record (Catch is determined from either calculations of Tithes. (10% of catch), or from export and domestic consumption; where appropriate, NA values are inserted)
recordedBy	Researchers who recorded the data (Poul Holm John Nicholls Zhen Yang)
organismQuantity	Quantity of fish represented in the record shown in Kg live weight. (8285162)
organismQuantityType	organismQuantity unit of measurement (biomass in kilograms (kg))
occurrenceStatus	Stipulates the physical presence or absence of animals relating to the record. (present)
eventDate	Actual date and time at which an occurrence was recorded. ISO 8601 metric date/time standards apply. (1520)
year	Year taken from the eventDate field. (1520)
locationID	Marine Region unique identifier. (http://marineregions.org/mrgid/8540)
locality	Local name for the overall location or region. (Faroe Islands)
locationAccordingTo	MRGID location identifier based on the marineregions.org/mrgid system (MRGID)
locationRemarks	Description of location identifier. (NOAA described Large Marine Ecosystem)
decimalLatitude	Latitude shown in decimal notation based on the WGS 84 (EPSG:4326) geodetic datum standard. (46)



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decimalLongitude	Latitude shown in decimal notation based on the WGS 84 (EPSG:4326) geodetic datum standard. (-20)
coordinateUncertaintyInMeters	The smallest circle (radius) in metres from the ground zero point depicted by the decimalLatitude and decimalLongitude fields. In this instance, "500644" depicts a radius of c. 500.644 Km.
georeferenceRemarks	Remarks indicating the geographic area identified – Large Marine Ecosystems are used. (60: Faroe Plateau)
scientificNameID	The WoRMS LSID associated with the scientificName, based on the Marine Species database. (urn:lsid:marinespecies.org:taxname:126435)
scientificName	Scientific name of the animal based upon the vernacularName (Gadus morhua)
kingdom	Together with taxonRank assists in determining broader animal characteristics for darwinCore search engines. (animalia)
taxonRank	Together with kingdom assists in determining broader animal characteristics for darwinCore search engines. (species)
scientificNameAuthorship	Based on the scientificNameID field and discoverable through the WoRMS database. (Linnaeus, 1758)
vernacularName	Literal common name applied to the animal involved. In this case, all values are Toskur – the Faroese common name for cod.
identificationRemarks	Comments about identification of the species. (Local Faroese name for Atlantic Cod is Toskur)
fishInVog	Original given weight of cod in "vog" where 1 vog = 17.1456 Kg = 0.0171456 MT.
fishInMark	Original given weight of cod in "mark" ; 1 mark = 0.21432 Kg = 0.00021432 MT.



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kingsTithesMT	Original given tithe value of 10% of the total landings divided into 4 equal parts to be shared by the King, Bishop, Clergy and Poor ¹ ; the King's Tithes represents 2.5% of the landings; shown in metric tonnes.
totalTithesMT	<i>kingsTitheMT</i> multiplied by four; representing the 4 beneficiaries: King, Bishop, Clergy and Poor ² , and depicting 10% of the total landings; in metric tonnes.
baselineTithesMT	<i>totalTitheMT</i> multiplied by ten; representing the full value of the landings before tithes were paid; in metric tonnes.
exemptTithesMT	Weight of fish exempt from tithes and therefore not counted in the <i>baselineTithesMT</i> ; a nominal figure of 33% is used based on census and corroborating evidence ³ ; in metric tonnes.
calculatedLandingsDryMT	Sum of <i>totalTithesMT</i> and <i>exemptTithes</i> providing a total of dry cod; in metric tonnes.
exportDryFishInPounds	Given weight of dry cod (råskær) where export records provided; in pounds
domesticConsumptionMT	Domestic consumption of wet fish based on population census records and recognised diet trends for the period.
population	Population of the Faroe Islands based on statistical estimates for 1600 and 1652 ⁴ , and 1709 ⁵ ; further values from Danish Statistical Records ⁶ .
conversion	Conversion formulae to determine <i>catchMT</i> ; for tithe related data, $catchMT = calculatedLandings * 7.7$ (dry to live fish factor); for export related data, $catchMT = dryFishInPounds * 0.000454 * 7.7$ (pounds converted to metric tonnes and dry to wet fish conversion factor);

¹ Four part division of tithe confirmed by Zachariassen 1961 and Guttesen 2004

² Ibid.

³ A nominal value of 33% is used to determine exemptions based on given tithe vs actual export values for 1747-8 and 1840-1

⁴ Guttesen 2004

⁵ Degn 1929

⁶ <https://www.dst.dk/Site/Dst/Udgivelser/GetStatMed.aspx?id=13988>



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Jonsson's dry to wet fish conversion factor of 1:7.7 derived from Icelandic fisheries is used.⁷

catchMT Derived metric tonnes value based on the calculated fields as shown in the conversion field, or as shown in the codes field.

effort Number of vessels deployed calculated from population statistics and given vessel numbers for select years; 50% of vessels regarded as being deployed for fishing.

cPUE Catch per Unit of Effort value derived from *catchMT* divided by *effort*;

trafficLight Traffic Light coding system denotes level of certainty, and/or level of accuracy that can be described for each record; see Appendix 1 for details.

codes Explanation codes that highlight the process for each record; see Appendix 2 for details.

⁷ Jonsson, 1994



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Appendix 1

Traffic Light System

Traffic Light	Explanation
green	Original values derived from sources is given.
amber	Calculated values based on two or more given values from sources.
red	Calculated or estimated values based on trends, qualitative reports or simple extrapolations. Specific method is stated per record based on the accompanying codes.

Appendix 2

Codes

Codes	Explanation
a	Extrapolated values trended on Norfish Icelandic Cod Fishery 1520-1790
b	Values based on given tithe amounts
c	Values based on given export figures