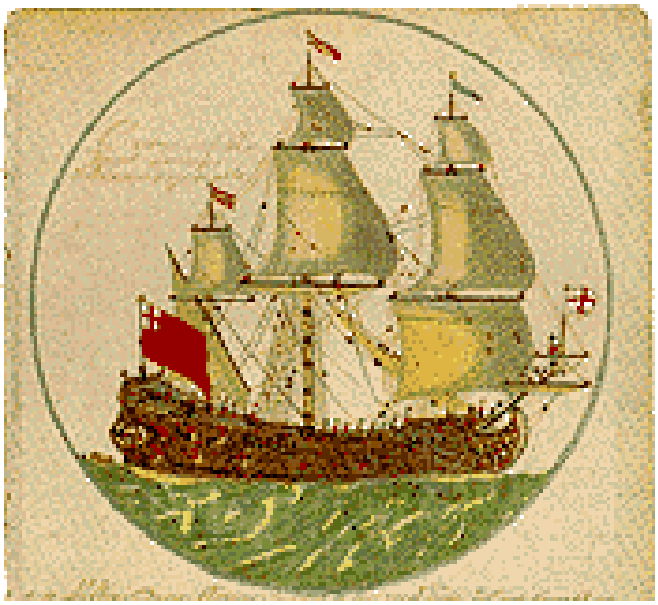
HMAP Dataset 5
Newfoundland, 1698-1833

Supporting Documentation



A sketch by Edward Barlow of the sack ship *Real Friendship* in 1668.
Barlow was a mariner aboard her on a voyage from London to Tenerife. The following year, while loading fish in Newfoundland, the vessel caught fire and was lost.
From Edward Barlow, *Barlow's Journal of His Life at Sea in King's Ships, East & West Indiamen & Other Merchantmen from 1659 to 1703*. Transcribed by Basil Lubbock (London, Hurst & Blackett, Ltd, 1934) I, 143.

source: http://www.heritage.nf.ca/exploration/17fishery.html

Summary

Dataset Title:	Newfoundland, 1698-1833
HMAP Case Study:	Newfoundland and Grand Banks
Large Marine Ecosystem:	9: Newfoundland-Labrador Shelf
Subject:	Catches, vessels and fishermen in Newfoundland, 1698-1833
Data Provider:	Michael Haines c/o Richard Gorski Maritime Historical Studies Centre University of Hull Hull HU1 1HA UK e-mail: r.c.gorski@hull.ac.uk
Data Editor:	Michaela Barnard, MHSC, University of Hull m.g.barnard@hull.ac.uk
Extent:	2,738 records
Keywords:	cod catches; History of Marine Animal Populations; fishing effort; Newfoundland settlement

Citation:

(a) The dataset: please cite as follows: M. Haines, ed. 'Newfoundland, 1698-1833' in M.G Barnard & J.H Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

(b) Supporting documentation: please cite as follows: M. Haines, 'HMAP Dataset 5: Newfoundland, 1698-1833, Supporting Documentation', in M.G Barnard & J.H Nicholls (comp.) *HMAP Data Pages* (www.hull.ac.uk/hmap)

Acknowledgements:

The assistance of Peter Pope and Jeannie Howse in identifying the fishing 'regions' of Newfoundland is gratefully acknowledged. Thanks are also due to the HMAP Data Pages team at Hull for their guidance in compiling the datafiles and constructing the database.

Contents

1. Newfoundland and Grand Banks Case Study: Objectives

This HMAP case study is designed to enhance knowledge and understanding of the interaction of human societies and the marine environment through analysis of the relationship between levels of cod catches and fishing effort in the 'Newfoundland fishery' from the late 1660s to the early nineteenth century. It seeks to attain this goal by:

- extending the chronological range of previous analyses by assessing rates of catch-per-unit-effort in the second half of the seventeenth century, before the English Colonial Office commenced collecting annual census statistics in 1698 (see dataset 6);

- broadening the spatial scope of previous investigations by disaggregating the historical data pertaining to the British Newfoundland fishery, 1698-1833, into regional divisions, and analysing them to identify the factors that explained the spatial development of the fishery over time.

2. Primary Source Appraisal

This sub-project analyses the impact of Britain's fishing effort on stocks of cod around Newfoundland from 1698 to 1833.[1] These years mark a period during which quantitative returns were compiled annually for the British government, a time when its fishing operations were characterized by a shift in emphasis from a primarily migratory to an increasingly residential fishery and there was a marked transfer of resources from inshore to more distant, offshore waters. The returns, which form part of the Colonial Office (CO) holdings of The National Archives in Kew, London,[2] provide the information that is presented in dataset 5. In 1969, Dr Shannon Ryan of Memorial University, St John's, Newfoundland, compiled aggregate totals from the CO records and these have underpinned much subsequent research.[3] HMAP, however, is utilizing different aspects of the source material, namely data pertaining to the island's various coastal districts, in order to build an accurate record of the impact fishing activity by British subjects had on cod stocks in Newfoundland's inshore waters.

"Returns of fisheries" were submitted from numerous outposts in Newfoundland to the senior representative of the British government on the island, usually a naval officer resident at St. John's, for forwarding to London. Thus, they differed significantly from the returns detailed by Peter Pope (dataset 6), in being the work of someone with greater local knowledge of the area rather than a visiting sea captain. They record fishing resources employed, and production quantities attained, by Britain for 102 of the 136 years from 1698 to 1833, thereby comprising an unparalleled record of the fishery at Newfoundland, or anywhere else, at this time. The physical form of the returns is usually a single sheet of handwritten, tabulated figures bound into the parent volume that unfolds to about four feet by three. They appear chronologically (and sometimes haphazardly) among other papers.[4]

Data are presented from many places throughout the island, several often being grouped together. Initially, forty-nine location categories are listed in 1698, although during the War of the Spanish Succession this fell to twenty-four by 1703 then only eight in 1709 and 1710. However, after the Peace of Utrecht something of a resurgence took place. Forty locations were represented in 1715, the sole year for which figures are available between 1710 and 1720, but thereafter things settled down as the fisheries experienced a slump. From 1720 to 1731, figures are available for all but two years and were tendered by the same eleven location categories, though in most years two or three were unrecorded. Things then continued quite consistently for three decades with the number of location categories fluctuating between eleven and seventeen, nestling, for the most part, well within the traditional British shore. With the Seven Years War, however, the number sank from seventeen in 1760 to five in 1762, the next year for which returns are available. However, with the Treaty of Paris the number jumped to thirty-one in the following year, a rise that was

[1]For Newfoundland fishermen, the term "cod" was synonymous with "fish." W.A. Black, "The Labrador Floater Codfishery," *Annals of the Association of American Geographers*, L (1960), 267.

[2]Great Britain, The National Archives (TNA), CO 194. All the annual returns are contained in CO 194 with the sole exception of those for 1784 which are located in the Board of Trade (BT) papers, BT 6/90. Duplicate returns for three other years are also held in BT 6.

[3]See Jeffrey A. Hutchings and Ransom A. Myers, "The Biological Collapse of Atlantic Cod off Newfoundland and Labrador: An Exploration of Historical Changes in Exploitation, Harvesting Technology, and Management," in R. Aranson and L. Felt (eds.) *The North Atlantic Fisheries: Successes, Failures and Challenges* (Charlottetown, Prince Edward Island, 1995).

[4]Full details of TNA classmark, piece and page numbers are presented in the "notes" field of the dataset.

due to returns being submitted for the first time from former French strongholds in the west and south of the island, as well as places on the north coast around White Bay. In the subsequent decade this number stabilized until seventeen to nineteen categories were reported annually from 1770 to 1776. Thereafter the number declined to the end of the century, with returns once again focusing on the traditionally British areas, reflecting the turbulent political situation. The nineteenth century began with only ten core locations being represented in the returns of 1801, though the following year saw thirty-one locations from all around the coast contributing. This number fell to nineteen in the following decade, but had picked up to forty-one in 1813, and this number remained constant in the ensuing decade. However, the number fell in the mid-1820s, a decline that became drastic in 1831 with only nine locations in the east of Newfoundland tendering returns. Simultaneously, a fall in the quality of returns took place for the simple reason that much information, notably production statistics, was no longer requested.

Given the numerous, often obscure, place names listed, their correct identification is essential.[5] In many cases this is not aided by the fact that the returns do not give any geographical parameters for particular data beyond the relevant place name. Allied to this, a frequent obstacle to straightforward interpretation of statistics is inconsistent categorization of places. The most prominent example concerns St. John's, Quidi Vidi, Petty Harbour and Torbay. Though almost ever-present in the returns, permutations of these four places, at the hub of British fishing and commerce, changed frequently, with only St. John's a constant factor. They were often categorized individually in a particular year, but then could all be grouped together in the next, with one or more often omitted thereafter. Petty Harbour, for instance, was often coupled with Bay Bulls about twelve miles to the south rather than nearby St. John's. To minimize such disruptions it was originally considered best to divide the entire coastline into ten regions, thereby attenuating the need for precise accuracy of the landward location. However, this presented difficulties with graphic, Geographical Information System, (GIS) representation of the data, so perseverance with precise co-ordinates and specific locations has continued. Nevertheless, it being useful to record the region into which a particular location falls, the information has been incorporated into the HMAP dataset. Temporal parameters of tendered data must also be defined. For most of the period this is straightforward. Until 1812 returns refer to the calendar year, containing the entire fishing season which was largely contained in the summer months. Thenceforward, however, returns for a particular year ended 10 October, while, for some reason, from 1821 the cut-off date was moved to the 30 June, at the height of the season.

The returns themselves detail the fish produce of particular places and the resources deployed there. They do not record where the fish were actually caught but this is not as crucial a deficiency as might at first appear. The British fisheries were largely practised inshore from boats that did not stray far from the home port, unlike French operations that were conducted over offshore banks to a much greater extent.[6] This element was further attenuated from 1789 when "bankers," fishing ships operating over the Newfoundland banks, and their produce, were distinguished in the returns – just the number of vessels had been recorded since 1769.

In order to assess the state of fish stocks it is necessary to determine a value for Catch Per Unit of Effort (CPUE). For this a catch figure must be taken and a unit of effort decided upon. These CO 194 returns provide satisfactory values for both. The catch figure is simple to identify, consisting of the fish, or cod, "made." This is assumed to be near-synonymous with

[5]Peter Pope and Jeannie Howse have provided invaluable assistance here. Indeed, as remarked above, similar problems were encountered and a common geo-referencing system has been formulated.

[6]Major exceptions were the ports around Conception Bay in the late eighteenth century, from where, it was noted, fishing vessels operated on the "North Shore" (further west along the northern coast) and off the coast of Labrador. Estimates were given of the vessels so employed and the fish caught.

the quantity caught. Aggregate quantities are given for fishing ships, bye-boats and inhabitants' boats at each location and recorded in English quintals (112 lbs), long disused units, which have been converted to metric tonnes for HMAP purposes. The second component required for CPUE is a unit of effort and this is harder to settle upon. The returns include several possible categories. Fishing vessels were divided into three classifications: fishing ships, detailing the number of boats carried by each and distinguishing American and Irish fishing ships; bye-boats, manned by migrant workers who returned to Britain at the end of the season leaving the boats behind to be worked the following year; and inhabitants' boats. It was implicit that all operated close to shore - boats not being used in offshore operations. For fishing ships, the number of vessels, aggregate tonnages and crew numbers were recorded, while the number of bye-boats was given together with the number of masters and men crewing them. It must be noted, however, that in many cases crewing figures for ships and bye-boats invoke some suspicion as the numbers of men are in direct ratio with the numbers of craft given; a similar occurrence to that encountered by Peter Pope with 1662 French sources. This was not the case with inhabitants' or planters' boats that were owned by residents of the island, because only the number of vessels was given. Also recorded up to 1826 were the number of sack ships - vessels that were essentially used to carry supplies to, and fish from, the island - but as these were not directly involved in fish catching they have not been processed for current purposes. Theoretically, the most useful measure for CPUE would have been tonnage, but these data was only available for fishing ships, not the smaller craft. Numbers of men might have provided a useful index, but these were not available for inhabitants' boats. A new series of figures available from 1789 recorded numbers of men employed in the fisheries. Crew numbers continued to be given as before, but three new categories were added that detailed the number of men employed "in ships," "in boats" and "ashore." Though ever-present from that year on they could not make good the deficiency of previous years. It was therefore decided that the numbers of boats should be taken as the unit of effort, their numbers being consistently recorded. A unit of effort based on the boats also has the advantage that whereas ships, and men, were often used for non-fishery purposes so the time spent fishing could vary, the boats were built and used entirely for catching cod.

The CO 194 returns also give the number of fishing stages on which cod was processed, and consideration was given to their use as a measure of fishing effort but was swiftly dismissed. These elevated pier-like structures, upon which sheds and working tables were built to facilitate processing along rocky coastlines were, like fishing boats, built solely for the fishing industry. Further, they were often built at the beginning of a season and dismantled at its end, being used by one particular ship or group of boats, thus providing a fair indication of how the fisheries were faring from year to year. However, as a measure of fishing effort they were detached from direct involvement in the catching process while along more westerly coasts with more substantial beaches, they were neither needed nor built. Thus, though useful in parts of the coast, stages are not a satisfactory index for CPUE throughout the island. Along with stages, the returns tender the number of vats where train oil was collected. These large, square chests were located at each stage, and their number usually equates with that of the stages.

Quantities of salmon, expressed in "tierces," (another antiquated measure, equalling 42 gallons) exported to "foreign markets" are also recorded in these returns. Where the foreign markets actually were is not specified, and it must be borne in mind that the figure could often include fish not necessarily caught in the area but transported thither for onward shipment. In 1820, for instance, 1,111 tierces are recorded as being sent from "St. John's, Quidi Vidi." However, according to the yearly report on the salmon fisheries that appears on the reverse side of the returns table from 1803, no salmon was "made" in the area. Indeed, none of the production figures given here tally with those for exports cited in the grid, and few locations are present in both returns. That for salmon "made" is focussed geographically more along the northern coast, many locales around White Bay are cited, together with some

in Labrador. Much fishing was carried on in freshwater "brooks" as well as at sea, though the distinction is not drawn.

After 1803 the reverse of the sheets on which the main, tabulated returns appear are also used for annual reports on the herring and seal fisheries. Herring production is given in barrels, and, for these fisheries and those for salmon details are provided of who was fishing and how the fish were caught (e.g. "inhabitants with nets"). An annual report is also given here for Newfoundland's seal fishery which records the skins and oil produced by the sealers. Again, these data have not been collated for HMAP, but given that many fishing resources were diverted to the seal fishery when cod was out of season, they have the potential shed light on the fortunes of the fisheries.

It is important to note that these figures represent *British* fishing activity. No systematic record of the performance of the French fishery is evident in CO 194, although accounts of its fortunes are available for certain years. For example, statistics relating to the French fisheries "at Newfoundland, at St.Pierre and Miquelon and on the Banks" are recorded for 1766-68, 1770-73 and 1776, while accounts of the French fishery "between Cape Norman and Cape St. John," as observed by a British naval vessel, are available for 1786-92. They must be regarded as incomplete, especially when considering that many French fishing ships set sail from ports such as St. Malo and Granville in France, fished Newfoundland waters and then returned home often without even sighting the island of Newfoundland. Geographically, British operations took place largely from fishing stations around the Avalon peninsula in the east of the island - over three-quarters of all records in the HMAP dataset compiled from these returns refer to places east of a Cape Freels/Lamaline axis. French bases were mainly located along the south and west coasts, of particular importance being the islands of St.Pierre and Miquelon from where many operations were conducted over the Grand, St.Pierre, Green and other banks.

In addition to the statistical material provided by CO 194, a wealth of qualitative information is assembled in CO1. This largely comprises correspondence and statements between Newfoundland and England concerning the operation of the fishery, whether of an official nature between government representatives, or of a more commercial slant involving fishermen and merchants. Similar papers are available in Board of Trade (BT) holdings at TNA, notably BT 6.[7]

[7]PRO, BT6/57, 90-95, are particularly apposite.

1. Regions

For the purposes of this dataset (and dataset 6), the coast around Newfoundland is divided into 10 regions into which the respective Grounds have been ordered (database REGION field) as follows:

Nfld1. St.John's Area
Petty Harbour (47° 28′N 52°43′W) to Cape St.Francis (47°49′N 52°49′W)

Nfld 2. Conception Bay
Cape St.Francis (47°49′N 52°49′W) to Grates Point (48°10′N, 52°56′W)

Nfld 3. Trinity Bay
Grates Point (48°10′N, 52°56′W) to Cape Bonavista (48°42′N, 53°05′W)

Nfld 4. Bonavista Bay
Cape Bonavista (48°42′N, 53°05′W) to Cape Freels (49°13′N, 53°33′W)

Nfld 5. North Coast
Cape Freels (49°13′N, 53°33′W) to Cape St.John (50°01′N 55°30′W)

Nfld 6. White Bay
Cape St.John (50°01′N 55°30′W) to Cape Bauld (51°40′N 55°25′W)
Nfld 7. West Coast
Cape Bauld (51°40′N 55°25′W) to Cape Ray (47°38′N, 59°20′W)

Nfld 8. South Coast
Cape Ray (47°38′N, 59°20′W) to Lamaline (46°52′N 55°48′W)

Nfld 9. Placentia Bay and St.Mary's Bay
Lamaline (46°52′N 55°48′W) to Cape Race (46°39′N 53°04′W)

Nfld 10. Southern Shore
Cape Race (46°39′N 53°04′W) to Petty Harbour (47° 28′N 52°43′W)

2. Grounds

'Ground' denotes the location to which returns were made. English operations were conducted inshore at this time, unless specified otherwise, so it is assumed they were carried out close to the home port; e.g. St.John's is taken as the 'ground' for returns submitted therefrom.

The sole exception occurs where 'Bankers' are specified. After 1769, 'Bankers' - vessels that operated offshore on the banks surrounding Newfoundland - were distinguished in the sources. In these cases ground is listed as 'Bankers' and the **'**Home Port**'** given is that from which the return was submitted: e.g. in 1793, fifteen 'Bankers' are listed as operating from Ferryland.

Estimated co-ordinates are given in the LAT & LON fields for the notional seaward centre of GROUNDS fished, which have the same name as HOME_PORT except where bankers are specified (see above). The entry 'Ground Centre' indicates that a precise fishing point is not known, but the Lat/Lon represents the notional centre point of the ground fished.

3. Data Fields

Period
START YEAR and END YEAR are the same in the database where just one year is given in the sources. However, from 1811 start and end dates were given which straddled years. This was due to an alteration in the manner in which returns were collected and not to any change in fishing practices. From 1811 to 1820 the statistical years ran from 11 October to the following 10 October and thereafter from 1 July to 30 June

Home Port
'Home port' is the same as 'Ground' in the majority of cases. The exceptions are where the data specify operations by 'bankers'. See above.

Nation
No accurate information is available from these sources about the nationality of craft, although it is reasonable to assume that the majority were British, but whether owned by settlers or seasonal migrants is unclear. Accordingly, they are described as 'British'.

Effort/Catch/CPUE
The number of boats has been taken as the unit of applied catching power. However, boat numbers and catch volume are not necessarily directly related because we do not know how many boats were involved in making particular catches. Therefore, figures for CPUE must be used with caution.

The boats were oar-powered vessels launched either from land or from fishing ships at sea. They were wholly undecked or, at most, partly decked long boats of about 30-40 feet in length and three or four tons burthen. Bankers were chaloupes (shallops) or sloops that were driven by sails and generally stayed at sea for five or six days until fully laden, before returning to their home port.

Catch
Throughout this period baited hooks on lines were used to catch the demersal fish that were the prime quarry of fishermen at Newfoundland. The sources list only 'fish', no species being distinguished. However, it is widely documented that cod (*ipso facto*, Atlantic cod) was taken, and therefore it has been assumed that 'fish' is synonymous with cod. All catch data are given in the sources in English quintals, a contemporary, and now rather obscure measure, equal to 112lbs, for which the following formula is used to convert to metric tonnes:

((q*112)*0.45359kg)*0.0010

It has been assumed that all fish was subject to the 'dry' process. This was the customary form of processing in the inshore fishery. 'Wet' processing was mainly used by bankers, which did not land in Newfoundland, but sailed directly to and from Europe.

Notes
This field identifies the primary source of the data in the following form: TNA classmark, piece number, page number. These are given for each year and are located with the first entry for that year (*usually* St.John's and permutations thereof).

4. Outputs

David J. Starkey & Michael Haines, 'The Newfoundland Fisheries, c1500-1900: A British Perspective' in P. Holm, T.D. Smith & D.J. Starkey (eds), *The Exploited Sea: New Directions for Marine Environmental History* (St John's, 2001), pp.1-11.

Richard Gorski & David J. Starkey, 'Simple but Profound: The Spatial Development of the British Newfoundland Fishery, 1698-1833' paper presented to the HMAP Modelling Workshop, Esbjerg, 2004.

Richard Gorski, 'Testing Gordon's Bio-Economic Model: The Spatial Development of the British Newfoundland Fishery, 1698-1833' (in preparation).