British Arctic Whaling Dataset

1750 - 1850

Supporting Documentation

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An illustration depicting a bowhead whale with its calf

(Corey Ford/Stocktrek Images/Corbis) (Halton 2019)

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British Arctic Whaling Dataset 1750-1850

Summary

Dataset Title:	British Arctic Whaling Dataset 1750-1850
Case Study Region:	North Atlantic Ocean
Large Marine Ecosystems:	18: Canadian Eastern Arctic – West Greenland
	19: Greenland Sea 23: Baltic Sea
	60: Faeroe Plateau 63: Hudson Bay Complex
Subject:	British Arctic Whaling
Authors:	Dinah Molloy, Bernard Stonehouse, John Nicholls
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Data Provider:	Dinah Molloy and Bernard Stonehouse
	Trinity Centre for Environmental Humanities, Dublin
	Scott Polar Research Institute, Cambridge University
Data Editors:	Dinah Molloy, John Nicholls
	Trinity Centre for Environmental History, Dublin
Extent:	24,287 records
Keywords:	Whale catches; British Arctic Whaling; grounds; Bowhead whales; Harbour seals; blubber; oil; bone; voyages
Citations:	**Dataset:** Molloy, D. and Stonehouse, B. 2019. *British Arctic Whaling Dataset 1750-1850*. Dublin: TCD/OPI. http://oceanspast.org/baw
	Supporting documentation: Molloy, D., Stonehouse, B. and Nicholls, J. 2019. *British Arctic Whaling Dataset 1750-1850, Supporting Documentation*. Dublin: TCD/OPI. http://oceanspast.org/baw

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British Whaling Voyages to the Davis Strait and Greenland Sea in 1772
(Facsimile in Author's Collection)

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Objectives

The British Arctic Whaling Dataset provides a wealth of previously scattered and little understood data that describes the state of the whaling effort undertaken from British ports between 1750 and 1850. While the dataset includes periods to either side of the stated chronological limits (1613 to 1913), these extra data serve primarily as indicators and provide an added perspective; the earlier data in particular are incomplete and cover a period prior to bounties and capitalisation in the industry; the later data enter a period of mechanisation and technological changes to gear that may skew effort comparisons, but also reflect the decline and collapse of the industry. The focus is on a largely static century (1750-1850) of whaling and seal hunting in the Arctic regions in terms of methodologies, gear and motivation.

Combining catch data gleaned from a range of sources, the dataset delivers as complete a picture as may currently be provided. The taking of whales, the Bowhead species in this instance, and of harbour seals, as a means of developing wealth in the early modern period paralleled the fishing industry in terms of its industrious application of ever more efficient methods and capitalised profit reached proportions previously only surmised. With factual analysis and quantitative methodologies applied, the extent of the industry may now be more clearly understood.

Providing as full and accurate an impression as possible by accessing multiple unique sources to acquire unique data, compiling these data into strict Darwin Core (Biodiversity Information Standards TDWG 2019) compatible formats, and making them accessible, the BAW Dataset is well placed to address research questions and enable novel developments in historical understanding.

Darwin Core is the preferred metadata standard for marine animal surveys, biodiversity information studies and maritime historical data, and is supported by the Ocean Biogeographic Information System (OBIS 2019). All data have been formulated to comply with this standard.

Sources

The judicious use of sources was fundamental to the construction of the data series in this dataset. Incorporating actual on-site Arctic research, most of the material used was obtained from actual archival documents. The various archives, their role in providing relevant and applicable records, and their levels of robust and secure data delivery for the purposes of this dataset and, indeed, the British Arctic Whaling project are outlined here.

The Multiple Source Data Consolidation System (MSDCS) devised, programmed and developed by Dinah Molloy was used to generate "authenticity ratings" for each element of data used from the source materials, thereby enabling validation, quality control and awareness of the voracity of the data. An outline of the MSDCS is provided following a brief description of the sources deployed.

New Bedford Logs and Journals

Location: New Bedford Whaling Museum, Massachusetts, USA

Dataset code: Bed / BEDLOGS

Authenticity Rating: 000 009 000

Relevant data files: An inventory of Manuscript Records in Public Collections Originally compiled by Stuart C.Sherman. Revised and Edited by Judith M. Downey and Virginia M.Adams, with the Assistance of Howard Pasternack of Brown University, Garland Publishing New York 1986

Customs and Excise records

Location: National Archives, Kew, UK

Dataset code: Can / CANDE

Authenticity Rating: 009 000 000

Relevant data files: Customs and Excise manuscripts detailing annual listings of vessels setting out from the Davis Straits and Greenland were meticulously handwritten and saved in the Customs & Excise archives. This list was the principle source of information for total catch figures, bounty, tonnages and other combined tabulated data. Errors in these original lists were compounded by further copying and redrafting and the errors were thus perpetuated. Frequently, the tallies for catch and especially for shipping tonnage were

incorrect. This was often due to mistakes made in carrying over tenths. In the case of tonnage this was due to a complicated empirical formula for working out vessel displacement and arriving at a figure which had a base of 94. Consequently, dividing the total of a column of fractions of a ton by 94 gave rise to some difficulties.

House of Lords records

Location:	House of Lords, Westminster, UK
Dataset code:	Hol / HOL
Authenticity Rating:	000 900 000
Relevant data files:	These records are either originals or contemporary copies of reports from HM Customs and Excise. These data were collected by Dr Bernard Stonehouse (deceased 2014). As there are Customs and Excise documents in the National Archive in Kew, the documents in the House of Lords may be considered to be copies and are thus placed one rating below CANDE records. Examples of perpetuated errors in the transcription process abound. By way of example, on close examination between two listings for the same year of 1772 slight differences may be observed. See *Figure 3: Customs and Excise Document* and *Figure 4: House of Lords Document*. At the end of the second page "London November 1772" appears on the CANDE document while "London Nov 1772" appears on the HOL document. Importantly, there is a computational error in the addition of the tons of blubber on the CANDE document. The error is repeated exactly on the HOL document indicating that one is simply a direct manual copy of the other. The documents both record 3,801 tons of blubber while the actual sum derived should be 3,857 tons.

Figure 3: Customs and Excise Document held in the National Archives, Kew, listing British Whaling Voyages to the Davis Strait and Greenland Sea in 1772 (Facsimile in Author's Collection)

Figure 4 Transcribed copy of Customs & Excise list of voyages in 1772 held in the House of Lords

Coltish files and Manuscripts of whaling statistics 1772-1842

Location: Hull Central Reference Library, Albion Street, Hull, UK

Dataset code: Hul / HUL

Authenticity Rating: 000 000 900

Relevant data files: Extracted from a manuscript of whaling statistics between 1772-1842, the original unpublished typescript ascribed to William Coltish was transcribed in May/June 1978 by A. G. Credland, and type scripted by Barbara Petrie, Anne Lamb and Dorothy Soulsby. The manuscript bears the label of Fewster, a local collector and historian. Although it is not signed, nor is there any other direct indication as to who compiled it, circumstantial evidence points to William Coltish as the author. Coltish was ship's husband for Messrs. Eggintons, whale-ship owners of Hull. Of him was said: "Unfortunately Mr Coltish of Hull, who was accustomed to collect an annual statement of the produce, died in 1844, and no one has undertaken in his stead the same good work" (Leslie, Jameson et al. 1830, p 479).

The manuscript terminates in 1842, just 2 years before his death on 26 November 1844 which is recorded in the Eastern Counties Herald (28 November 1844). The main bulk of the work (Ibid. pp 9-159) is: "An account of the success of the ships at the Greenland and Davis Straits fisheries 1772-1842 inclusive". It covers Hull vessels for the whole period, but from 1813 the ships of "the whole of the ports" appear, including: Aberdeen, Banff, Berwick, Bo'ness, Burntisland, Dundee, Greenock, Kirkcaldy, Kirkwall, Leith, Liverpool, London, Lynn, Montrose, Newcastle, Peterhead and Whitby.

Tabulated data are recorded by ports and years, including vessel names and catches. Masters names are included in 1810 and from 1812. There is no indication of original sources, catch details may indicate customs returns.

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Voyage data from Lloyds lists

Location:	Lloyds List, London, UK
Dataset code:	Lloy / LLOYDS
Authenticity Rating:	000 000 900
Relevant data files:	Incorporates voyage data collected from Lloyds lists by A.G.E Jones. It should be noted that data entered into the original Lloyds lists did not necessarily reflect the eventual details of a voyage as the information was gathered from pre-voyage insurance forms; Masters may have changed before the ships set sail. While the list is derived from Jones, pre-1764 additions are from other sources by Bernard Stonehouse.

Original scripts

Location:	various locations
Dataset code:	Scr / SCRIPTS
Authenticity Rating:	090 000 000
Relevant data files:	Original scripts comprise muster rolls and original research documents of the time based on original logs. During the research for voyage lists various original documents came to light which demonstrated the existence of particular voyages. An example of a script is a paper on the Meteorological Observations during a Greenland Voyage by the vessel Resolution in the year 1810 by William Scoresby Jr. Published in the Memoirs of the Wernerian Natural History Society, Volume 2 in 1818, the script provides valuable corroborating and unique information.

Bernard Stonehouse

Location:	Scott Polar Research Institute (SPRI), Cambridge, UK
Dataset code:	Sto / STONE
Authenticity Rating:	000 090 000
Relevant data files:	Pertinent and relevant data collated by Bernard Stonehouse both from various sources and as original scientific research. Most data were obtained via microfiche archived documents and materials.

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Voyage Log Books

Location: various locations

Dataset code: Voy / VOYLOGS

Authenticity Rating: 900 000 000

Relevant data files: A composite series of voyages taken from actual logs and which have been observed by one of the BAWD researchers. Log books may be originals, or on film or facsimiles. These records represent the top level of reliability. It is worth noting that some voyages are recorded in more than one log and may have different information. A ship's surgeon or other officer may have recorded his alternate version of events. Where possible, the Master's version has been used. An example of this is a voyage by the Margaret out on Hull in 1815. There are two manuscripts each with different dates. It is not clear who the different writers were or indeed, if they were different. The log with the longest duration was used with the other corroborating pertinent information.

Clarkson Manuscripts Whitby

Location: Whitby Museum archives, Whitby, UK

Dataset code: Whi / WHITBY

Authenticity Rating: 000 009 000

Relevant data files: These data are based on the 'Clarkson Manuscripts', held in Whitby Museum archives, property of Whitby Literary and Philosophical Society. The preamble says 'We are enabled by the kindness of Mr T. Clarkson of Hilda's Terrace to give our readers an exact account of the vessels employed in Whale Fishing from its commencement in 1753 to 1837 when it ended: the information is from a manuscript book kept by his fore-elders.' Accession No. 3478, File 41, 639.28. Part is in script, part typed: there is no date. It is unclear exactly who Mr Clarkson was, but his manuscript appears as part of the 'Gaskin Papers', and his work may have been included in one of the Whitby published histories.

Multiple Source Data Consolidation System

Successful analysis of events of the past is dependent on the quality of records made at the time and their current availability. Over time records become fragmented or lost. Events may have been recorded by different observers or institutions. Where a full single group of data is not extant it becomes necessary to refer to different data sets to garner the full picture of events. This can be difficult and confusing if the number of data elements is large. This system addresses the problem by merging data from different sources to produce a back-filled, integrated dataset of unique records by using grading indices These indices are used to evaluate the authenticity and reliability of the merged data.

The process of Authenticating records consists of:

- Sourcing
- Validating
- Merging

Source Index: (SI)

Each source is graded according to its provenance and perceived reliability. For example, a primary source would be given a high ranking while data found in general news media would be of a lower rank. This provides a Source Index (SI). The value of the SI is positional:

Primary Source manuscript	900 000 000
Transcribed data	000 900 000
Newspaper reports	000 000 009

Validation Index: (VI)

Data are validated according to whatever criteria is considered appropriate for the classification of the data. The value of the SI is purely numeric.

Criteria for VI

Original data are clear and unambiguous	9
Original data are clear but ambiguous	7
Original data are clear but different from in a higher SI	5
Original data are unclear	3
No original data from within this SI found to date.	0

Authentication Index: (AI)

The Authentication Index is generated from a Source Index (SI) and a Validation Index (VI). The value of the AI is both numeric and positional.

Derived merged record	900 700 009
1. Primary source	900 000 000
2. Transcribed source (with clear but ambiguous data)	000 700 000
3. Newspaper source	000 000 009

An AI is applied to all relevant fields, and to the record as a whole. Because the AI is numeric the values can be used easily to extract subsets according to a required validity. Because the AI is also positional the sources and any uncertainty can be easily seen.

Example of Merging System using British Arctic Whaling Voyages

Sources	SI
Original Logbooks	900 000 000
Muster rolls and manuscripts	090 000 000
Customs and Excise Records	009 000 000
House of Lords Records	000 900 000
Records gathered by B.Stonehouse	000 090 000
Whitby Port Records from 'Clarkson MS', held in Whitby Museum	000 009 000
Hull port records based on AE Credland document	000 000 900
Bedford Book of logs and journals originally compiled by Stuart C.Sherman	000 000 090
Lloyds Insurance lists A.G.E.Jones	000 000 009

Validation: VI

Source	Vessel	Depart	V1	Return	V2	Whales	V3	Year	Record AI
Hull	Lively	Whitby	000 090 000	Lost	000 090 000	4	000 070 000	1826	000 070 000
Lloyds	Lively	Whitby	000 000 009					1826	000 000 009

If the ship was lost and there is no port cited in the *Return* field how then is it known how many whales were caught and how much blubber was extracted? There may be a story here of the ship and its cargo being rescued in the ice and returned to port on another ship. However, it is ambiguous and only scores 7 or 000 070 000 when the SI is taken it account. The AI is taken as the lowest VI found in the record indicating that there is some query either to be resolved or to note.

AI: Merged record

The merged record holds information from all the source file where the voyage is found.

Source	Vessel	Depart	V1	Return	V2	Whales	V3	Year	Merged AI
Hull-Llo	Lively	Whitby	000 090 009	Lost	000 090 000	4	000 070 000	1826	000 070 009

The merged Validation fields are simply a summation of the relevant source records. The AI is given as the lowest value in each source. The higher the AI value the greater the reliability of the data.

Online Source Materials and Transcripts

A variety of available transcripts, documents, images and materials are available electronically for download and perusal. These materials are typically extracts, or complete facsimiles, of the Sources that have been copied photographically, or transcribed. The quality of these exemplars varies greatly from pristine to poor, but every effort has been made to provide useable artefacts. To this end, a tabulated, online datastore has been developed by Paula Nicholls. Visit the BAW website to learn more about these valuable resources.

http://oceanspast.org/baw

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Data Fields

Darwin Core Field Name	Description
ID	Sequential unique numerical identifier which forms the "key" field for future data indexing. Example: 1, 2, 3, etc.
eventDate	The date and time at which an occurrence was recorded, using the ISO 8601 standard. Example: 1792-10-10
stDate	The start date of the voyage, typically a year or full date. Example: 1802-12-01T16:30
enDate	The end date of the voyage, typically a year or full date. Example: 1805-03-27T00:30
arrivedDate	The date during the voyage at which the vessel arrived at the fishing ground, typically a year or full date. Example: 1779-09-24
basisOfRecord	Specifies the nature of the observed or researched specimens or data. Human Observation (HO) applies to researched archive data.
institutionCode	Represents the Institution that owns the data. TCD represents Trinity College Dublin and SPRI represents Scott Polar Institute Cambridge University. Example: TCD-SPRI
collectionCode	Identifies the collection within the institute. BAWD represents British Arctic Whaling Database. Example: BAWD
catalogNumber	Identifier within the collection, a unique reference based on the country (E for England, S for Scotland), eventDate, portOfDeparture, vesselName and A, B, C, etc. to denote any different vessel departing at the same time from the same port and having the same name. Example E1785WHILONSDALE_A
occurrenceID	Globally unique identifier based on institutionCode, collectionCode, catalogNumber and ID fields. Example: TCD-SPRI-BAWD-E1778WHIHERCULES_A-19742
bibliographicCitation	Citation at record level for the data. Example: Molloy, D. and Stonehouse, B. 2019. British Arctic Whaling Database. TCD: Dublin

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recordedBy	Name of researcher who recorded the data. Example: Dinah Molloy, or Bernard Stonehouse
dateCreated	Date when the record was created. Example: 2004-11-09
editedBy	Name of the editor(s) of the data thereby creating the dataset. Example: Dinah Molloy and John Nicholls
modified	Most recent date the data was modified; ISO 8601 metric date/time standards apply. Example: 2019-10-10
associatedReferences	Source(s) of original data as per accompanying table "Associated References". Example: Hol-Hul-Lloy
occurrenceStatus	Enables distinction between Presence and Absence records, showing whether specific information about the animal is present or not. Example: present
commonName	Literal common name applied to the animal involved. "Whale", "Bowhead Whale" and "Right Whale" were used synonymously, as were "Seal" and "Harbour Seal". Example: Bowhead Whale
scientificName	Scientific name of the animal based on the commonName and provided the lowest possible taxonomic rank. Compiled from the World Registry of Marine Species (WoRMS). Example: Balaena mysticetus
scientificNameID	The WoRMS LSID based on the scientificName derived from the www.marinespecies.org database. Example: urn:lsid:marinespecies.org:taxname:137086
scientificNameAuthorship	Naming authority found in conjunction with the scientificName. Example: Linnaeus, 1758
kingdom	With taxonRank may assist in identification of the species in avoiding homonyms. Example: Animalia
taxonRank	With kingdom may assist in identification of the species in avoiding homonyms. Example: species
identifiedBy	Person/people who made the taxonomic identification. Example: crew of vessel
dateIdentified	Date when animal was identified. Example: 1755
IdentificationRemarks	Information added that may assist in identifying the animal. Example: Bowhead adult whale, or Bowhead juvenile whale

organismQuantity	The literal count of animals in the record, NOT the mass or weight. Example: 25
lifeStage	Developmental stage of the animal taken. Juvenile whales are assumed to weigh 25% of the weight of an adult whale. Example: adult, or juvenile
decimalLatitude	Latitude Coordinate provided in decimal degrees on the WGS84 (EPSG.4326) geodetic datum. A nearest estimate is provided when the coordinateUncertaintyInMeters field is filled. Example: 74.25027165
decimalLongitude	Longitude Coordinate provided in decimal degrees on the WGS84 (EPSG.4326) geodetic datum. A nearest estimate is provided when the coordinateUncertaintyInMeters field is filled. Example: -8.30316422
decimalLatitude2	Secondary latitude Coordinate provided in decimal degrees on the WGS84 (EPSG.4326) geodetic datum. A nearest estimate is provided when the coordinateUncertaintyInMeters field is filled. Example: 61.5192
decimalLongitude2	Secondary longitude Coordinate provided in decimal degrees on the WGS84 (EPSG.4326) geodetic datum. A nearest estimate is provided when the coordinateUncertaintyInMeters field is filled. Example: -9.5769
coordinateUncertaintyInMeters	The smallest radius around the given decimalLatitude and decimalLongitude provided in meters. Example: 500000
locality	Local name given for the location (fishing ground). Example: Greenland Sea
locality2	Secondary local name given for the location (fishing ground). Example: Davis Strait
locationAccordingTo	Marine Regions Gazeteer IHO location identification obtained from www.marineregions.org. Example: www.marineregions.org/gazetteer.php?p=details&id=22161
locationAccordingTo2	Secondary Marine Regions Gazeteer IHO location identification obtained from www.marineregions.org.

	Example: http://www.marineregions.org/gazetteer.php?p=details&id=2356
locationRemarks	Observations about the location. Example: Whaling grounds
locationID	Idntifier of the source of the location information, Example: MRGID from marineregions
lme	Large Marine Ecosystem identifier based on the NOAA digital download area at www.lme.noaa.gov. Example: Greenland Sea
lmeNumber	Large Marine Ecosystem Number identifier based on the NOAA digital download area at www.lme.noaa.gov. Example: 19
lme2	Secondary Large Marine Ecosystem identifier based on the NOAA digital download area at www.lme.noaa.gov. Example: Greenland Sea
lmeNumber2	Secondary Large Marine Ecosystem Number identifier based on the NOAA digital download area at www.lme.noaa.gov. Example: 19
country	Country of origin of the vessel undertaking the voyage. Example: Scotland
vesselName	Name of the vessel undertaking the voyage. Example: Aurora
burthen	The tonnage of the vessel in English long tons. Example: 278
burthenPart	A 94th part of an English long ton being the fraction of a full long ton burthen of a vessel. Example: 33
burthenMT	The metric mass in tonnes of the vessel calculated derived from the burthen and burthenPart fields. A conversion formula of (burthen*0.98421)+(burthenPart*0,98421/94) was deployed. Example: 273.961
portOfDeparture	Port from which vessel originally departed. Example: Whitby
portOfReturn	Port to which vessel returned. Example: London

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Field	Description
whales	Actual number of whales taken during the voyage. See organismQuantity and commonName fields for actual numbers of animals relevant to this record. Example: 6
smallWhales	Actual number of "small" whales or juvenile whales taken during the voyage. See organismQuantity and commonName fields for actual numbers of animals relevant to this record. Example: 2
seals	Actual number of seals taken during the voyage. See organismQuantity and commonName fields for actual numbers of animals relevant to this record. Example: 55
blubberTons	The tonnage of blubber taken during the voyage in English long tons. Example: 197
blubberPartTons	A decimal part of an English long ton being the fraction of a full long ton of blubber taken. Example: 33
blubberGallons	Gallons of remaining blubber put into barrels and counted as volume. Example: 21
blubberMT	The metric mass in tonnes of the blubber taken by the vessel and derived from the blubberTons, blubberPartTons and blubberGallons. A conversion formula of (blubberTons*0.98421)+(blubberPartTons*0.98421)+(blubberGallons*0.00378296) was deployed. Example: 57.084672105
masterOfVessel	Name of the Master or Captain of the vessel. Example: Thompson R.
keeperOfVessel	Name of the Keeper of the vessel. This was typically a different person to the Master or Captain - the Keeper represented the owner of the vessel. Example: A Turnbull
vesselType	Indication of how the vessel was rigged. Example: ketch, barque or brig
grounds	Coded indication of the actual whaling grounds of the vessel. This could be a single ground as shown in the locality field, or may include two separate grounds shown in the locality and locality2 fields. Grounds include: DS (Davis Strait), GS (Greenland Sea), HB (Hudson Bay), Balt (Baltic

	Sea), NF North Faroes, SF (South Faroes), WF (West Faroes) and NWF (North West Faroes). Where grounds are not shown in the records, the locality field indicates a generic "North Atlantic Ocean" display. Example: DS/GS
stDateGregorian	Gregorian start date of the voyage where available. Example: 18391
enDateGregorian	Gregorian end date of the voyage where available. Example: 18532
arrivedDateGregorian	Gregorian arrival date when vessel reached the whaling grounds where available. Example: 18421
oilTons	Long English tons of oil taken from the blubber. Example: 321
oilCwt	Hundredweight (long English CWT) measure of oil taken from blubber forming an additional fraction of the oilTons. Example: 4
oilGallons	Gallons of oil extracted from the blubber in addition to the oilTons and oilCwt. Example: 46
oilMT	The metric mass in tonnes of the oil from the blubber of the taken animal and derived from the oilTons, oilCwt and oilGallons. A conversion formula of (oilTons*0.98421)+(oilCwt*0.05082)+(oilGallons*0.00378296) was deployed. Example: 70.084610529
fins	Number of whale fins removed - this value is incorporated into the boneTons weight and therefore not recorded seperately and shown here as "0". Example: 0
boneTons	Long English tons of bone taken from the animal. Example: 72
boneCwt	Hundredweight (long English CWT) measure of bone taken from the animal forming an additional fraction of the boneTons. Example: 21
boneQuarter	Remainder quarter measures of boneCwt taken from the animal. Example: 3

bonelbs	Pound (long English lb) measure of bone taken from the animal forming an additional fraction of the boneTons. Example: 17
boneMT	The metric mass in tonnes of the bone taken from the animal and derived from the boneTons, boneCwt, boneQuarter and bonelbs. A conversion formula of (boneTons*0.98421)+(boneCwt*0.05082)+(boneQuarter*0.05082/4)+(bonelbs*0.000453592) was deployed. Example: 35. 45873224
v1vesselName	MSDCS (Multiple Source Data Consolidation System) validating the vesselName field. Example: 000 009 000
v2burthen	MSDCS (Multiple Source Data Consolidation System) validating the burthen field. Example: 000 909 000
v3portOfDeparture	MSDCS (Multiple Source Data Consolidation System) validating the portOfDeparture field. Example: 000 009 000
v4portOfReturn	MSDCS (Multiple Source Data Consolidation System) validating the portOfReturn field. Example: 000 009 000
V5whalesAndsmallWhales	MSDCS (Multiple Source Data Consolidation System) validating the whales and smallWhales fields. Example: 000 009 000
v6seals	MSDCS (Multiple Source Data Consolidation System) validating the seals field. Example: 000 009 000
v7blubber	MSDCS (Multiple Source Data Consolidation System) validating the blubberTons, blunnerPartTons and blubberGallons fields. Example: 000 009 000
v8eventDate	MSDCS (Multiple Source Data Consolidation System) validating the eventDate field. Example: 000 009 000
v9masterOfVessel	MSDCS (Multiple Source Data Consolidation System) validating the masterOfVessel field. Example: 000 009 000
v10keeperOfVessel	MSDCS (Multiple Source Data Consolidation System) validating the keeperOfVessel field. Example: 000 009 000
v11vesselType	MSDCS (Multiple Source Data Consolidation System) validating the vesselType field. Example: 000 009 000

v12locality	MSDCS (Multiple Source Data Consolidation System) validating the locality field. Example: 000 009 000
v13stDate	MSDCS (Multiple Source Data Consolidation System) validating the stDate field. Example: 000 009 000
v14enDate	MSDCS (Multiple Source Data Consolidation System) validating the enDate field. Example: 000 009 000
v15arrivedDate	MSDCS (Multiple Source Data Consolidation System) validating the arrivedDate field. Example: 000 009 000
v16oil	MSDCS (Multiple Source Data Consolidation System) validating the oilTons, oilCwt and oilGallons field. Example: 000 009 000
v17fins	MSDCS (Multiple Source Data Consolidation System) validating the fins field. Example: 000 009 000
v18bone	MSDCS (Multiple Source Data Consolidation System) validating the boneTons, boneCwt, boneQuarter and bonelbs fields. Example: 000 009 000
validityScore	MSDCS (Multiple Source Data Consolidation System) provding the validity score for the record. Example: 000 900 709
authenticityScore	MSDCS (Multiple Source Data Consolidation System) providing the authenticity score for the record. This is the maximised summary of all scores and describes the combined scores to indicate overall record validity and status. Example: 000 900 709
logExtant	Indicated whether an actual vessel log book was available for corroboration if required. Example: log
notes	Expansive field for any observations, comments or queries relating to the record. Example: Spelling of Liverpool as Liverpoole
trafficLight	Green, Amber or Red flags to indicate the level of validity of a record as described in the Traffic Light System explanations are shown in *Table 1* below. Example: green
trafficLightCode	Composite of codes identified in the Traffic Light System. Codes are described in *Table 2* below. Example: aev

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Traffic Light System

green	Green records contain validated, recorded data from unambiguous sources.
amber	Amber records contain equivilent of Green records with one or more missing or unknown data elements which are highlighted in the Traffic Light Codes; despite the disputed data, these records still contain much valid and useful information and are therefore not discarded.
red	Red records contain equivilent of Amber records, but with several missing or inknown values, and may contain unsubstantiated data; these records,if they are present, are of little value, but may be included for purposes of continuity, or may contain at least some useful infoarmtion despite shortcomings.

Table 1: Traffic Light System explanation of values

MSDCS Validity codes linked to the Traffic Light System

Code	Explanation	Field(s)	Rows
a	Number of adult Bowhead Whales taken is unknown	organismQuantity	3998
b	Number of Harbour Seals taken is unknown	organismQuantity	7510
c	Number of juvenile Bowhead Whales taken is unknown	organismQuantity	3699
d	Validation level of 3 or less is recorded	v1vesselName	468
e	Validation level of 3 or less is recorded	v2burthen	0
f	Validation level of 3 or less is recorded	v3portOfDeparture	24
g	Validation level of 3 or less is recorded	v4portOfReturn	6
h	Validation level of 3 or less is recorded	v5whalesAndsmallWhales	5
i	Validation level of 3 or less is recorded	v6seals	0
j	Validation level of 3 or less is recorded	v7blubber	2
k	Validation level of 3 or less is recorded	v8eventDate	18

l	Validation level of 3 or less is recorded	v9masterOfVessel	13
m	Validation level of 3 or less is recorded	v10keeperOfVessel	0
n	Validation level of 3 or less is recorded	v11vesselType	0
o	Validation level of 3 or less is recorded	v12locality	17
p	Validation level of 3 or less is recorded	v13stDate	16
q	Validation level of 3 or less is recorded	v14enDate	11
r	Validation level of 3 or less is recorded	v15arrivedDate	0
s	Validation level of 3 or less is recorded	v16oil	0
t	Validation level of 3 or less is recorded	v17fins	0
u	Validation level of 3 or less is recorded	v18bone	0
v	Validation level of 3 or less is recorded	validityScore	482
w	Validation level of 3 or less is recorded.	authenticityScore	18

Table 2: Traffic Light System explanation of codes

The first three codes (a-c) indirectly reflect on Darwin Core required fields (organismQuantity corresponds directly with the scientificName field which MUST be filled). For this dataset, when values are unknown, a value of at least *one* animal was taken, but there may have been more. Further analysis may enable calculated values to be inserted based on a trend analysis of the weights of blubber, oil and bone where these are provided. In all cases, the organismQuantity "unknown" value indicates at least one animal was taken, but the actual number is not declared. Where it was declared that zero animals were taken, the relevant record was discarded from this dataset.

The trafficLightCodes list will develop to include non-DarwinCore fields as well; the full listing will include elements that have been vetted via the MSDCS. These field values will further assist in determining the trafficLight status of each record and assist in identifying pristine as opposed to lacking records.

Outcomes and statistics

The British Arctic Whaling Dataset 1750-1850 includes 24,287 records of which 9,078 are regarded as "green", therefore containing complete and verified data. A further 15,209 records are regarded as "amber" as they are incomplete in one or more important data aspects which are identifiable via the trafficLightCode field. These amber records are nevertheless valuable in their own right and are therefore included in the dataset. There are no "red" records which would have been deemed unreliable and, if added, merely provided for possible points of general interest.

The preliminary results of the dataset indicate that whaling far outstripped the taking of seals despite the vastly superior numbers of seals that were caught and processed. Graph 1 indicates the number of seals vs number of adult whales vs number of juvenile whales taken from 1750 to 1850. Seal numbers completely overshadow those of whale caches. The number of seals peaks at 92,760 in 1774 while the biggest adult whale catch was 4249 in 1814, with juveniles peaking at 174 in 1808. Whales and juveniles are barely discernible when compared with seals.
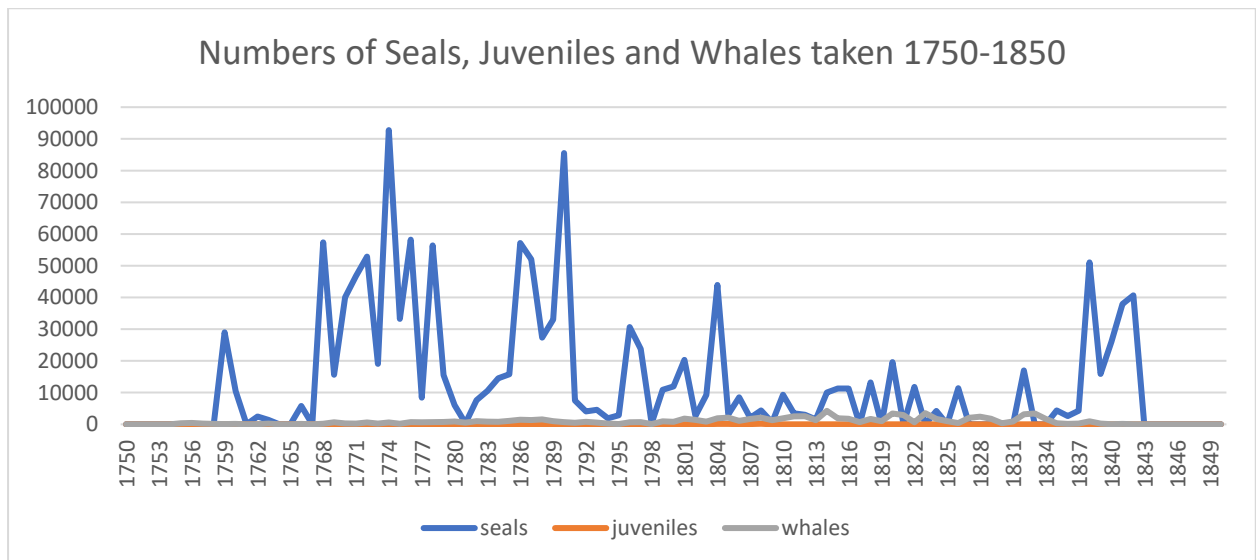

Graph 1: Number of animals taken 1750 to 1850

However, this tells a rather misleading story. Considering that the typical weight of an adult Bowhead or Right whale is around 100 tonnes, a juvenile roughly a quarter of that at around 25 tonnes, and a seal a mere 60 Kg, or 0.06 tonne, a very different picture emerges. Considering the numbers of animals taken, and applying their relative weights, highlights how seal and

juvenile fishing were very much a secondary source. Adult whales in 1814 amounted to 424,900 tonnes, producing blubber, oil (train), bone and fins for European markets, while by comparison, despite far larger numbers taken, seals, at their peak in 1774, only accounted for about 5565.5 tonnes of marketable material. Juvenile whales were relatively insignificant, contributing 4,350 tonnes at their height in 1808. Graph 2 highlights the overall disparity.
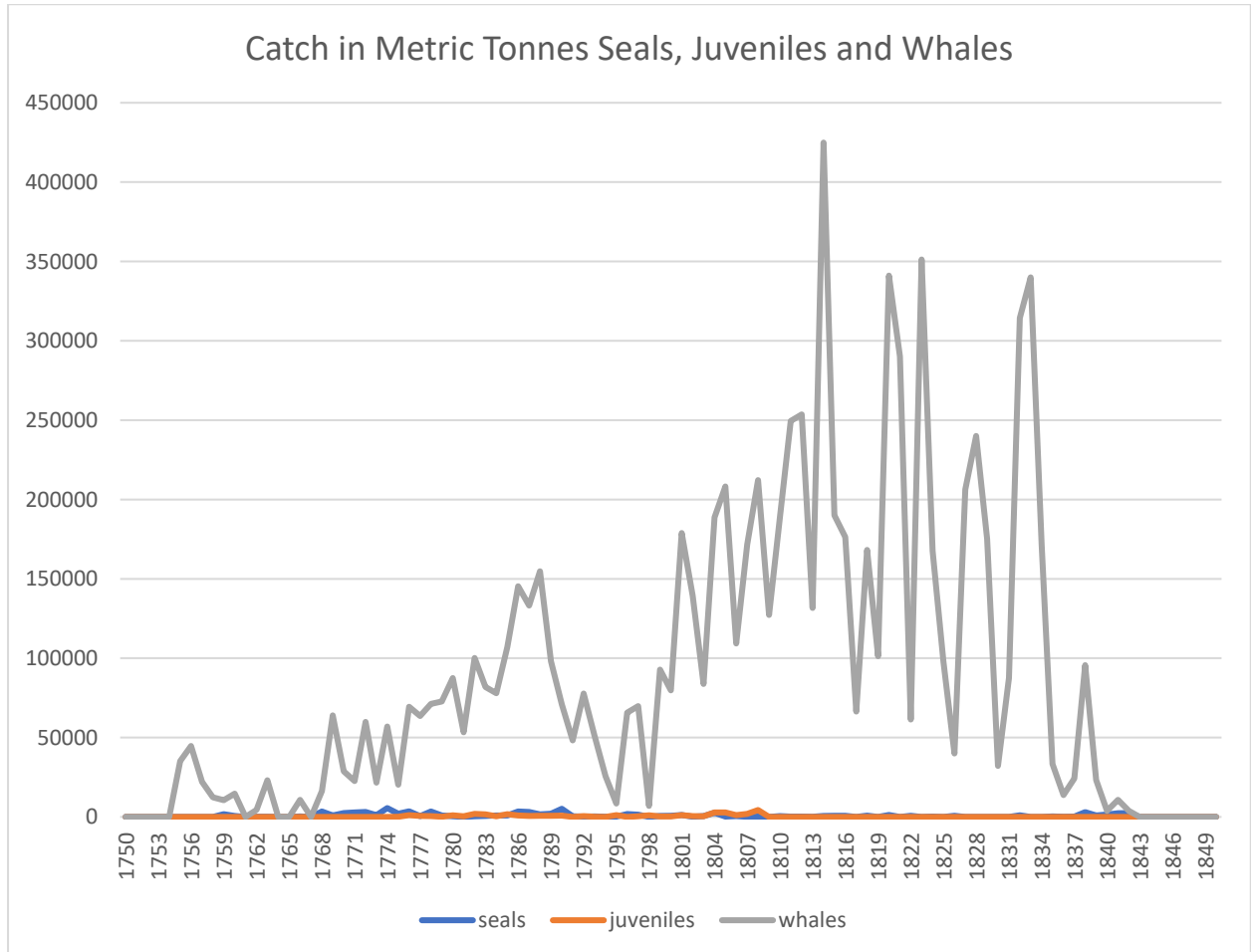
Graph 2: Catch weight of animals in metric tonnes 1750 to 1850

A further trend of note is that, in relative terms, the taking of seals was far greater in the latter half of the 18th century than in the first half of the 19th century, whereas the reverse is true of whaling which more than doubled in the first half of the 19th century.

These, and other associated findings, will be the topic of forthcoming papers engaging the subject of British Arctic Whaling.

Acknowledgements

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