

Commercial and subsistence catches of beluga whales  
(*Delphinapterus leucas*) from Cumberland Sound,  
Nunavut, 1840-2016

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COMMERCIAL AND SUBSISTENCE CATCHES OF BELUGA WHALES  
(*Delphinapterus leucas*) FROM CUMBERLAND SOUND, NUNAVUT,  
1840-2016

by

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## ABSTRACT

Stewart, D.B. 2018. Commercial and subsistence catches of beluga whales (*Delphinapterus leucas*) from Cumberland Sound, Nunavut, 1840-2016. Can. Tech. Rep. Fish. Aquat. Sci. 3250: viii + 89 p.

A record of commercial and subsistence catches of beluga whales (*Delphinapterus leucas*) from the Cumberland Sound population in Nunavut, over the period 1840 through 2016, is presented. This work adds substantially to the catch record and improves the basis for population modelling to inform recovery planning. Commercial hunts in 1860 through 1966 removed at least 14,079 belugas from Cumberland Sound, and subsistence hunts another 2,765—mostly after 1960. Inuit were important participants in the commercial hunts and benefitted from them but very little is known of subsistence catch rates prior to 1962. The catch history has been divided into six periods based on the primary purpose for the hunt (commercial or subsistence) and method of capture (drive, net, rifle and harpoon). Two peak catch periods were identified, each lasting about 20 years. The first occurred in 1868 through 1887, when commercial ship-based Scottish and North American whalers caught at least 4,441 belugas; the second in 1924 through 1943, when whale drives organized by the Hudson's Bay Company caught at least 5,500 belugas. These “best estimates” include a lot of uncertainty and must be considered harvest minima. They have not been adjusted for animals that died as a result of hunting but were not recovered, or for subsistence catch rates prior to ca. 1962. Many gaps remain in the commercial catch record, particularly prior to ca. 1910. Annual catches suggest a pattern of long-term depletion, with partial recovery related to an hiatus in commercial hunting around World War I, followed by continued depletion. Catches stabilized following formal harvest regulation in 1980. In some years the historical commercial catches were 15x greater than the current annual subsistence catches.

### Key words:

Beluga whale, white whale, *Delphinapterus leucas*, marine mammals, subsistence harvesting, commercial whaling, catch history, fishery management, species at risk, endangered species, population recovery, Pangnirtung, Clearwater Fiord, Cumberland Sound, Baffin Island, Nunavut.



## RÉSUMÉ

Stewart, D.B. 2018. Commercial and subsistence catches of beluga whales (*Delphinapterus leucas*) from Cumberland Sound, Nunavut, 1840-2016. Can. Tech. Rep. Fish. Aquat. Sci. 3250: viii + 89 p.

Un rapport sur la récolte de bélugas (*Delphinapterus leucas*) à des fins commerciales et de subsistance dans le détroit de Cumberland sur la période s'étalant entre 1840 et 2016 est présenté. Ce travail apporte une contribution importante à nos connaissances sur les prises de cette espèce et améliore l'information de base dont nous disposons pour modéliser la population afin d'étayer la planification du rétablissement. La chasse commerciale durant la période s'étalant entre 1860 et 1966 a permis de récolter au moins 14 079 bélugas du détroit de Cumberland, et la chasse à des fins de subsistance a permis de récolter 2 765 animaux supplémentaires, principalement après 1960. Les Inuits participaient de façon importante à la chasse commerciale et en ont bénéficié, mais on en sait très peu sur les taux de prises à des fins de subsistance avant 1962. L'historique de la récolte se fonde sur six périodes différentes d'après le but premier de la chasse (commerciale ou de subsistance) et les méthodes utilisées pour la capture des animaux (battue, filet, carabine et harpon). Deux périodes durant lesquelles les prises ont atteint un pic ont été relevées, chacune d'elles durant environ 20 ans. La première période s'étalait entre 1868 et 1887, lorsque des baleiniers écossais et nord-américains ont capturé au moins 4 441 bélugas à des fins commerciales à bord de navires, et la deuxième période s'étalait entre 1924 et 1943, lorsque des battues à la baleine organisées par la Compagnie de la Baie d'Hudson ont permis de capturer au moins 5 500 bélugas. Ces « meilleures estimations possibles » présentent un haut degré d'incertitude et doivent être considérées comme rendant compte d'une récolte à minima. Elles ne sont pas rajustées pour tenir compte des animaux morts durant la chasse et non récupérés, ou pour les taux de prises à des fins de subsistance avant 1962. Les rapports sur les prises commerciales présentent bon nombre de lacunes, notamment pour la période précédant 1910. Les prises annuelles donnent à penser que le stock afficherait un profil d'épuisement à long terme, avec un rétablissement partiel associé à une pause dans la chasse commerciale aux alentours de la Première Guerre mondiale, suivi d'un épuisement continu. Les prises se sont stabilisées après l'entrée en vigueur d'une réglementation officielle de la récolte en 1980. Certaines années, les prises commerciales historiques étaient de 15 fois supérieures aux prises annuelles à des fins de subsistance enregistrées actuellement.

### Mots clés

béluga, baleine blanche, *Delphinapterus leucas*, mammifère marin, récolte à des fins de subsistance, chasse commerciale à la baleine, historique des prises, gestion des pêches, espèce en péril, espèce en voie de disparition, rétablissement de la population, Pangnirtung, fjord de Clearwater, détroit de Cumberland, île de Baffin, Nunavut

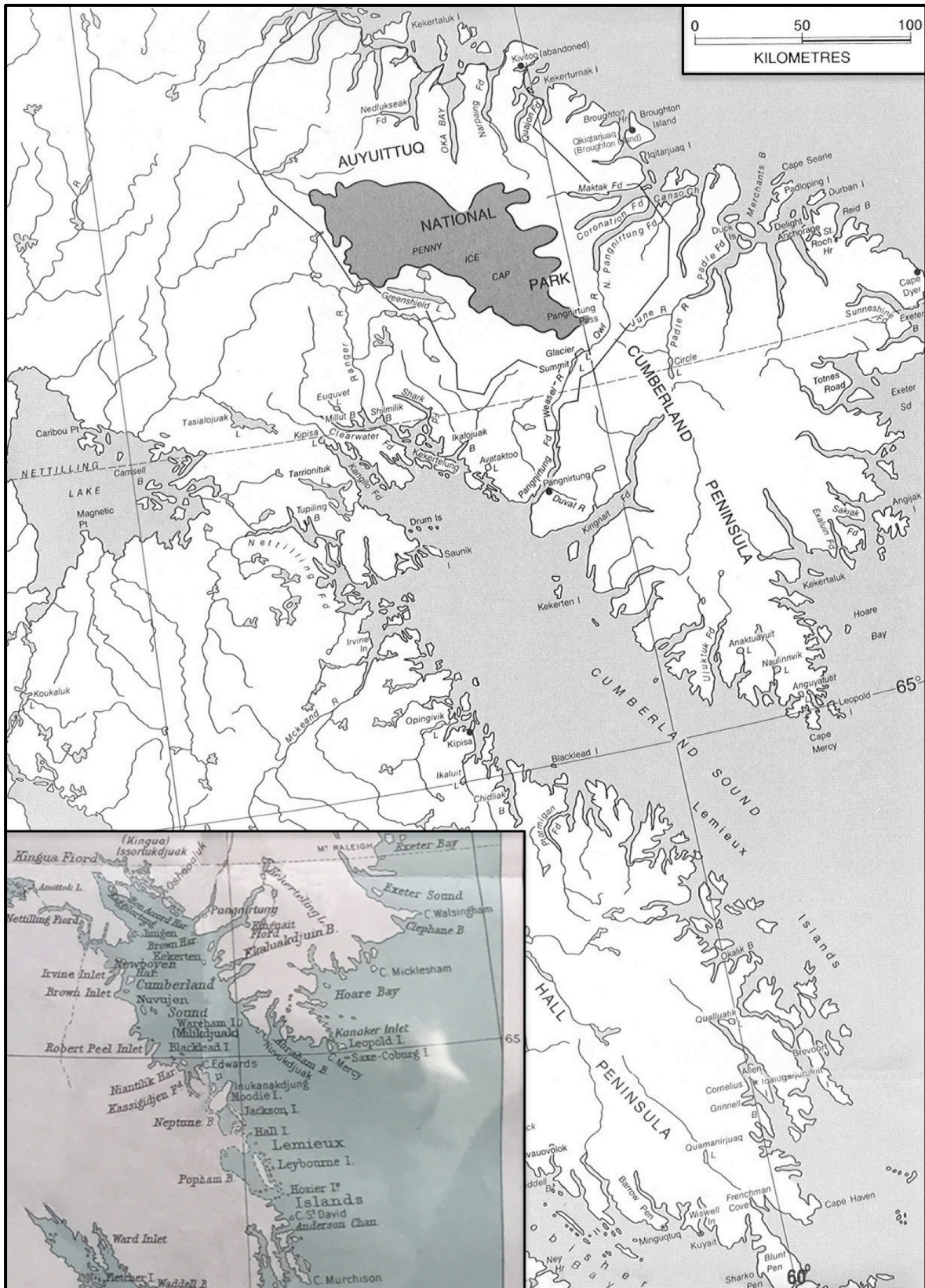
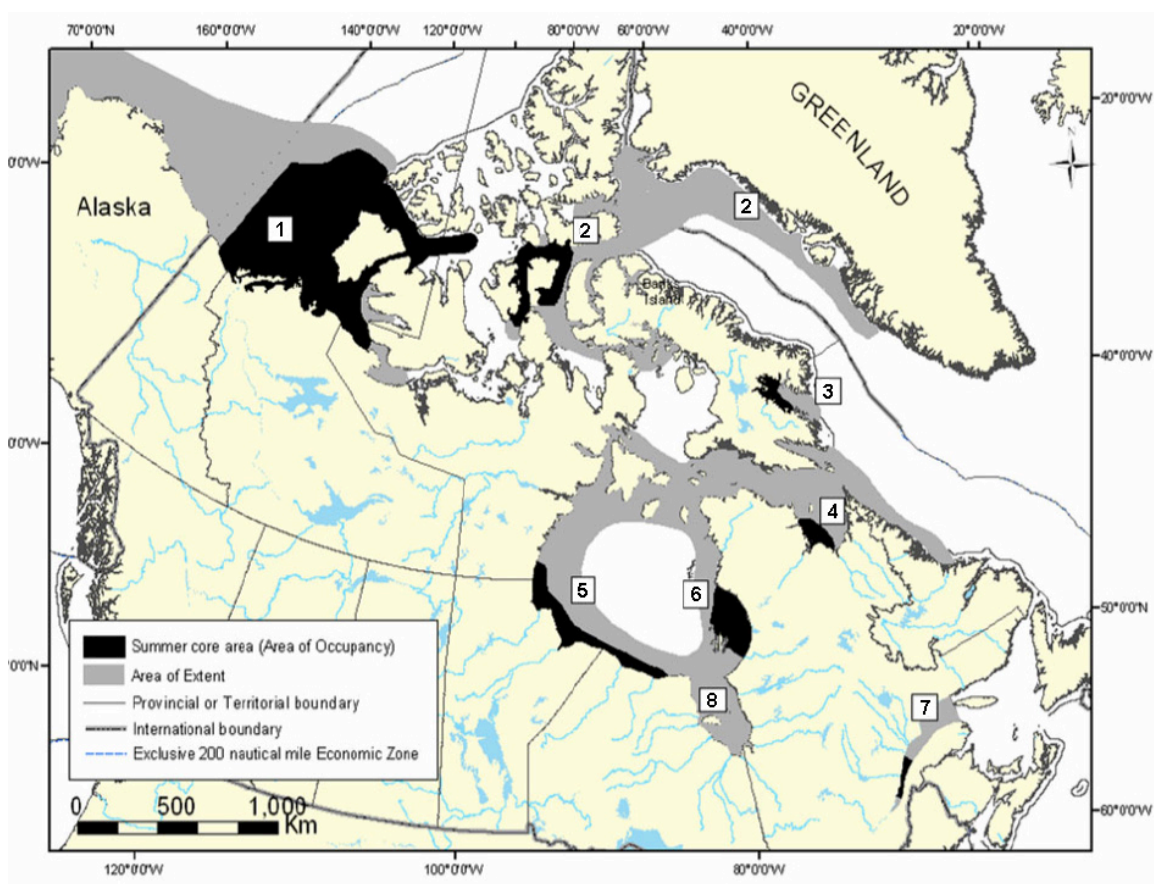


Figure 1. Map of southeastern Baffin Island (adapted from Stewart and Bernier 1988), with inset from Millward (1930) of variant place names used by commercial whalers and traders.

## 1.0 INTRODUCTION

On 13 April 2017, the beluga population in Cumberland Sound, Nunavut (Figure 1) was listed under Canada's *Species at Risk Act* as "Threatened" (P.C. 2017-395 April 13, 2017). These animals constitute a discrete and evolutionarily significant unit ("Designatable Unit" (DU)) of the species (COSEWIC 2016). Cumberland Sound (CS) belugas have a relatively sedentary life history that sets them apart and may include locally adapted traits (Figure 2). Loss of this population would likely result in the elimination of beluga use of Clearwater Fiord, which is an important summering ground, as this population would not likely be replaced through natural dispersal.



**Figure 2. Distribution of Designated Units (DU) adopted for beluga whale populations in Canada: (DU1) Eastern Beaufort Sea; (DU2) Eastern High Arctic-Baffin Bay; (DU3) Cumberland Sound; (DU4) Ungava Bay; (DU5) Western Hudson Bay; (DU6) Eastern Hudson Bay; (DU7) St. Lawrence Estuary; and (DU8) James Bay (adapted from COSEWIC 2016).**

This catch history was compiled to support a modelling estimate of the initial size of the Cumberland Sound beluga population and thereby inform population recovery planning. The temporal scope of the data record extends from 1840, when William Penny explored Cumberland Sound (Goldring 1986a:159), to 2016. Over this period many belugas were removed from the population, most from the summering grounds in



Clearwater Fiord (formerly Kingua or Kingwa Fiord) (Figure 1). These hunts were conducted by commercial whalers and traders, often with Inuit help, and by Inuit for subsistence.

The following sections describe how the beluga catch data were gathered (2.0 Methods) and organized (3.0 Catch Record), and examine aspects of the catch record that may be of value for modelling purposes (4.0 Discussion). The latter provides a Chronology of the Cumberland Sound Beluga Fishery, and discusses Sources of Uncertainty, Measures of Catch Effort, Catch Composition, and the Cumulative Catch Estimate. The data are tabulated chronologically in Appendix 1.

## 2.0 METHODS

Data on beluga catches in Cumberland Sound over the period from 1840 to 2016 were gathered from published and unpublished sources. Previous compilations of historical beluga catches from the area by Mitchell and Reeves (1981), Reeves and Mitchell (1987), and Stewart (2004), while not exhaustive, provided a sound starting point upon which to build. Pertinent material was identified from searches of bibliographic databases maintained by Fisheries and Oceans Canada (WAVES database now <http://science-libraries.canada.ca/eng/fisheries-oceans/>) and the Arctic Institute of North America (ASTIS), from Internet searches using Google, and from documents in the author's personal library. Logbooks and journals (aka 'logs') of whaling voyages to Cumberland Sound were identified in public collections using summaries by Sherman *et al.* (1986) and Brown *et al.* (2008). Institutions housing these volumes were contacted to learn whether they would make their material available on interlibrary loan.

Microform copies of whaling logbooks and journals were obtained from the Dartmouth College Library Special Collections (Stefansson Collection), Hull Local Studies Library, Hull Museums, and the New Bedford Whaling Museum Research Library, which also houses works formerly held by the Kendall Whaling Museum. Summaries included at the start or end of a logbook were considered an authoritative source of catch data (Reeves and Mitchell 1987). Where no list was provided, catches reported in the daily entries were considered a minimum estimate of the total catch made on the voyage.

The firsthand accounts of these whaling voyages were supplemented with data from annual catch summaries published in the Dundee Year Books (Dundee Advertiser for the years 1879–1916), Southwell's annual "Notes on the Seal and Whale Fisheries" (1802–1908), and accounts by J.E. Bernier (1910), Lubbock (1968), and Ross and McIver (1982). Material dating back to the mid-1700s was searched for catch data, however only reference material from years that contributed data is cited in the text and references.

Several unpublished summaries also provided important data. For example, John Ingram's "Whaling and Sealing Notes", held by the Dundee Central Local Studies Library in Dundee, Scotland, provides a detailed summary of annual catches by the

Dundee whale fishery from 1770 through 1922, including data transcribed from the Dundee Year Books. The “Southwell Papers”, held by the T.H. Manning Polar Archives of the Scott Polar Research Institute in Cambridge, UK provides a compilation of annual summaries (1859-1908) of marine mammal catches by British whalers from the Davis Strait and Greenland fisheries.

Contemporary newspaper articles were accessed using electronic searches of the British Newspaper Archive (<http://www.britishnewspaperarchive.co.uk/>; Appendix 2). This archive has newspapers from the Scots and English whaling ports dating back to the 1700s. In Canada, the digital newspaper archive at Memorial University of Newfoundland (e.g., <http://collections.mun.ca/cdm/search/collection/telegram18>) holds issues of the St. John’s Telegram from 1879 to 1926. These were also searched, as St. John’s was an important port for British and Canadian whalers operating in the eastern Canadian Arctic.

These newspaper articles provided contemporary reports of vessel activities, catch reports, and customs declarations containing information on catch locations and methods, catches, and other nuances of the beluga fishery. This information often was not reported in published summaries, and was sometimes lacking in logbooks, particularly in the 1800s when efforts were focussed on the lucrative bowhead whale (*Balaena mysticetus*) fishery. Keyword searches were conducted using the terms “white whale” and “Cumberland Gulf”, as these were the terms used at the time to identify belugas and Cumberland Sound, respectively. When anomalies suggested more information might be available for a particular vessel or year, directed searches were conducted using the names of vessels active in the region at the time, ships masters or traders, trading companies, trading stations, and/or geographical locations. The terms “custom house”, “customhouse”, “customshouse”, and “goods entered” were used in conjunction with this information, or with a range of dates when the vessel might have docked, to locate data on the produce returned to Britain or Canada. These reports were useful for corroborating catch data reported by other sources, and sometimes reported a broader range of species and/or products, for example beluga skins, blubber, and/or oil; narwhal (*Monodon monoceros*) or Atlantic walrus (*Odobenus rosmarus rosmarus*) skins, blubber, oil, and/or ivory; and, bowhead whale (*Balaena mysticetus*) oil, blubber, and/or baleen. The products reported to customs also provided clues as to whether the whaler or trader caught the animal or whether the products were obtained in trade from Inuit.

The terms used to identify species and products changed over time. Walruses were sometimes referred to as “seahorses”, narwhals as “unicorns”, and bowheads as “black whales”. To further confuse matters some summaries lumped belugas and narwhals together under the heading “white whales”. In early literature skins were often referred to as “hides”; narwhal tusks as “horns”; walrus tusks as “tusks” or sometimes “teeth”, although smaller teeth were also collected on occasion; and baleen as “bone” or “whalebone”.

Searches were also conducted at the Hudson’s Bay Company Archives (HBCA) in Winnipeg, MB to learn about land-based beluga whaling activities in the Canadian

eastern Arctic. The Hudson's Bay Company (HBC) Post Journals and Accounts statements from Pangnirtung provide the best available records of the trade and catch of belugas in the region for the period 1920 to 1960. Unfortunately, the record is not continuous. The files read are listed in the References section under "Hudson's Bay Company Archives (HBCA)"; details of where the data were located within the files are included with the citations in text.

Royal Canadian Mounted Police (RCMP) Patrol Reports (1925 – 1945) and Game Reports (1957 – 1970) are also important sources of beluga catch data from Cumberland Sound. The original reports are now accessible only through Access To Information requests, so they were reviewed and transcribed in Ottawa by RCMP Historian Margaret Evans. These reports are archived by the Government of Canada and are listed in the Reference section of this report under "National Archives of Canada (NAC)." Data from these reports have also been provided or summarized by Anders (ed.) (1967:186), Brodie (1970:113), Usher (1975), Kemper (1980:489), Smith and Taylor (1977), Mitchell and Reeves (1981), and Strong (1989 and pers. comm.).

The logs and other archival materials were examined to assess whether the whalers, traders, and others reporters were: (1) seeing belugas; (2) actively hunting them; (3) successful in these hunts; (4) reporting their catches in the annual summaries, and/or (5) obtaining beluga products through trade with Inuit, and in what quantity.

More recent data on beluga catches from Cumberland Sound have been gathered by Fisheries and Oceans Canada (DFO) with the assistance of local territorial government personnel and local Inuit hunters. Data reported by DFO from 1971 through 1984 are contemporary estimates by individuals involved in wildlife research or beluga management projects (*e.g.*, Brodie 1967, 1970; McLaren-Marex 1978; G. Robins cited in Kemper 1980; Brodie *et al.* 1981; Orr and Richard 1985; Strong 1989). Data reported by DFO in 1985 through 2016 are from quota monitoring. The annual catch estimates from 1999 through 1996 were compiled in a series of DFO reports (DFO 1991, 1992a, 1992b, 1993, 1994, 1995, 1996, 1997, 1999). These summaries include data from hunts monitored by Fishery Officers or GNWT Renewable Resource Officers (RRO), or from the local Hunters and Trappers Association (HTA). Data from 1997 to 2016 were compiled by DFO (A. Currie, I. Itorcheak, and P. Hall, pers. comm.; Hall *et al.* 2015). Two harvest studies provide beluga data for comparison with the DFO catch reports, the Baffin Region Inuit Association (BRIA) in 1980 through 1984 (Donaldson 1983, 1988, Pattimore 1985, J. Pattimore, pers. comm. 1986), and the Nunavut Wildlife Harvest Study (NWHS) from June 1996 through May 2000 (Priest and Usher 2004).

### **3.0 CATCH RECORD**

Appendix 1 provides a chronological summary of beluga catch data, beginning in 1840 and continuing through 2016. It includes information on commercial and non-commercial (*i.e.*, subsistence, scientific) catches, and on hunter affiliations. The data tabulation in Appendix 1 consists of 12 columns, each of which has been numbered to facilitate description of their contents.

### 3.1 HARVESTING YEAR (COLUMN 1)

The harvest year was taken as the calendar year, not the Government of Canada fiscal year (April 1 to March 31), HBC “outfit” (June 1 to May 30), or RCMP reporting period (July 1 to June 30). Because of the disparate reporting periods, small errors may have been introduced by the inclusion of whales caught between January 1 and June 30, with those from July 1 to December 31 of the previous calendar year. This was unavoidable as, unlike the HBC, the Government of Canada and RCMP seldom indicated the timing of individual catches.

This source of error should be quite small as beluga drives were conducted in July, August and early September and few belugas are typically killed between January 1 and June 30. This assumption is supported by data collected by BRIA harvest study (J. Pattimore, unpubl. data), which suggests that less than 1% (3 of an estimated total of 349) of the belugas caught by Pangnirtung hunters over the five-year period 1980 to 1984 were taken between 1 January and 30 June. Whales are occasionally entrapped by ice (savssat) in Cumberland Sound (Kilabuk 1998; P. Hall, DFO Winnipeg, pers. comm.). This can increase error when the animals are caught during the first half of the year and the catch date is not reported. Reports of belugas harvested from ice entrapments in Cumberland Sound have identified the catch period, enabling the animals to be included with the correct calendar year (1877, 1957, 2001, 2006).

### 3.2 COMMERCIAL CATCH (COLUMNS 2 TO 4)

Commercial catch data (*i.e.*, number of belugas killed and landed) were obtained from direct counts and contemporary count estimates. Catches were also estimated from oil yields and hide yields. Most commercial catches were originally documented, in the form of catch records, diaries, or product sales records. Fortunately, a significant portion of the commercial catch record has been archived. The primary source for each record is listed in Column 11, and comments on the rationale for its inclusion are provided in Column 12. In years where subsistence and commercial catches could not be separated, the data are reported under columns 2-4 because Inuit hunters were either associated with, or traded portions of their catch to, the identified whalers or traders.

In years where there are conflicting estimates of the commercial catch, this uncertainty is addressed to the extent possible by including “minimum”, “best”, and “maximum” catch estimates.

- The “minimum” estimate (Column 2) includes only beluga catches that were clearly taken from Cumberland Sound. All uncertain values were removed. If there were discrepancies in the catch reported for a given year, the lowest number was used. The number reported in Column 2 is often the minimum estimate of the commercial and overall catches, because subsistence catches prior to the mid 1950’s are often unknown.

- The “best” estimate (Column 3) was determined by using ancillary information to judge the likelihood that belugas were taken from Cumberland Sound and in the case of reporting discrepancies, to determine which number was likely the most accurate.
- The “maximum” estimate (Column 4) includes the highest credible number of belugas that might have been caught in the Sound, in a given year by a particular commercial fishing operation (*i.e.*, vessel, trading company) or overall. The “best” estimate was used in summaries of the annual catches.

### 3.3 NON-COMMERCIAL CATCH (COLUMNS 5 TO 7)

Because historical subsistence catches were taken by individuals for personal use, catch records (*i.e.*, number of belugas killed and landed) were rarely kept. The only contemporary (pre-1960) estimates of the subsistence catch are the observations recorded in the Annual Game Reports and Patrol Reports prepared by RCMP officers stationed at Pangnirtung. In the 1960's, Anders (ed.) (1967) and Brodie (1967, 1970) estimated that between 40 and 60 animals might be caught annually for subsistence. Since the late 1960's most belugas, with the exception of some caught between 1976 and 1979 for the sale of *maktaaq* (*maqtaq*, muktuk), have been killed for subsistence. Concerns for the status of the CS beluga population prompted DFO, with the assistance of other agencies, such as the Government of the Northwest Territories Department of Renewable Resources (GNWT RR) and the Pangnirtung Hunters and Trappers Association (HTA), to monitor the subsistence catches more closely. This monitoring has generated a subsistence catch record that extends from ca. 1970 to the present.

Lack of subsistence catch data presents the dilemma of whether it is best to include an estimate for modeling purposes or to leave these catches as a source of uncertainty. Brodie (1970) followed the first course in his thesis back-calculation of the population size, adding 40 whales to the annual catch estimates to account for subsistence kills. However, in a subsequent modeling exercise Brodie *et al.* (1981) left the subsistence kill as a source of uncertainty. The present paper follows the latter course, so only reported subsistence catches are included in Columns 5 to 7. To estimate them now would simply trade one source of uncertainty for another. In years where there are conflicting estimates of the subsistence catches, the uncertainty is addressed to the extent possible by including “minimum” (Column 5), “best” (Column 6), and “maximum” (Column 7) catch estimates that were determined using the same approach outlined in Section 3.2 (Commercial Catches).

### 3.4 CONFIDENCE (COLUMN 8)

Column 8 is the author's subjective assessment of the confidence that should be placed in the catch data. Three levels of confidence have been used to rate the commercial (C) and non-commercial (S) data. In years when records of both hunt types are available they are rated separately (*e.g.*, C = good; S = fair).



- **“Good”** indicates confidence that the data accurately reflect the commercial and/or subsistence catch. These data were typically reported by people directly involved in the capture or processing, sometimes with independent confirmation.
- **“Fair”** indicates some uncertainty in the catch data, either that it is based on an on-site estimate rather than an accurate count, or that the catch was estimated from oil or hide yield.
- **“Uncertain”** denotes seemingly “rough estimates” for which the original source could not be examined, or cases where conflicting catch numbers were found for a given year.

Where there are conflicting data the range of uncertainty has been captured for modeling purposes by including the data in the Minimum, Best, and Maximum columns discussed above.

Qualifiers have also been included to indicate whether these landed catch estimates should be considered approximate (**about**), low (**minimum**), or high (**maximum**). DFO sometimes placed upper confidence limits on the data from 1989 through 1992 (DFO 1991, 1992a, 1992b, 1993). These numbers were not derived statistically. They are best guess estimates of the maximum error, so “+10%” indicates that the maximum catch was unlikely to exceed the reported catch by more than 10%. These qualifiers and confidence limits only describe uncertainty in the landed catch estimate(s) from the sources discussed for a particular year. They do not capture uncertainty related to hunting loss rates. As such, the catch estimate in each year, regardless of the qualifier or confidence limit, must be considered as a minimum removal due to unreported hunt losses and, prior to 1977, lack of subsistence catch data and incomplete commercial catch records. If loss rates are factored in to estimate total removal these qualifiers should still hold unless uncertainty in the landed catch rate is somehow reduced.

### 3.5 LOCATION (COLUMN 9)

Most of the belugas caught in Cumberland Sound were taken by driving them into the shallows of Clearwater Fiord, where they were stranded at low tide and killed. Drives were also conducted at Ushualuk (variously spelled) and in Pangnirtung Fiord, and whales were shot or netted elsewhere. Catches from other locations are noted wherever possible so they can be removed from the annual totals for modelling purposes if need be.

### 3.6 HUNTER AFFILIATION (COLUMN 10)

The main group(s) behind the whale hunt(s) in a particular year is (are) listed in this column. Inuit who caught belugas for subsistence conducted the earliest and most recent hunts. They also played key roles in the intervening commercial hunts. Ship-based whalers from Scotland, Newfoundland, and the United States conducted the early commercial hunts. They were succeeded by land-based independent whaling stations and traders, who in turn were replaced by commercial hunts conducted by the Hudson’s

Bay Company. In the mid-1960s some belugas were netted by local hunters as part of a Federal economic development program that was attempting to revitalize the small whaling industry, and by a DFO study of beluga life history (Brodie 1967, 1970). Scientists collected biological data from these whales, which were then utilized by the local people.

### **3.7 DATA SOURCE (COLUMN 11)**

The primary source material is cited in this column, and full references to both published and unpublished source material are provided in the References section. Where additional material was found it is cited and discussed in the comments (column 12). Much of the unpublished material was obtained from the Hudson's Bay Company Archives (HBCA) or the National Archives of Canada (NAC). For reference material cited in text the page number of the data has often been included (e.g., Ross 1985:156ff). The "ff" signifies that the pertinent material starts on page 156 and continues on the page or pages that follow.

### **3.8 COMMENTS (COLUMN 12)**

This section summarizes any key changes to the whaling operation in a given year. Catch data presented by the various sources are described and assessed. General comments on hunt success and information on catch per unit of hunting effort, catch composition, timing of the hunts, loss rates, and oil or hide yields are also presented.

## **4.0 DISCUSSION**

### **4.1 CHRONOLOGY OF THE CUMBERLAND SOUND BELUGA FISHERY**

The cumulative catch history of Cumberland Sound belugas can be broken into six periods based on the primary purpose of the hunt (commercial or subsistence) and the primary hunting method (drive, net, rifle and harpoon) employed:

Pre-1860:	Inuit subsistence
1860-1880:	Ship-based whaling
1881-1920:	Transition from ship-based to land-based whaling
1921-1945:	Drives organized by the HBC
1946-1960:	Drives organized by Inuit
1961-2016:	Inuit subsistence

Each of these periods is discussed below and within each period key features of the hunts are summarized to inform modelling. This information is useful for clarifying how

and when sources of uncertainty might affect data interpolation and thereby improve modelling assumptions and the accuracy of modelling estimates. For example, there are many gaps in the catch record between 1860 and 1948. In some of these years no commercial hunt was conducted, so they are not suitable for interpolation; in other years the gap may indicate missing data. Temporal changes in the primary drivers of the hunts (e.g., commercial cf. subsistence), technology (e.g., sail cf. steam power), and methodology (e.g., drives cf. open water hunts) can also change the uncertainty related to loss rates, product yields, and reporting over time. These changes are complex and should be considered before modelling estimates are attempted.

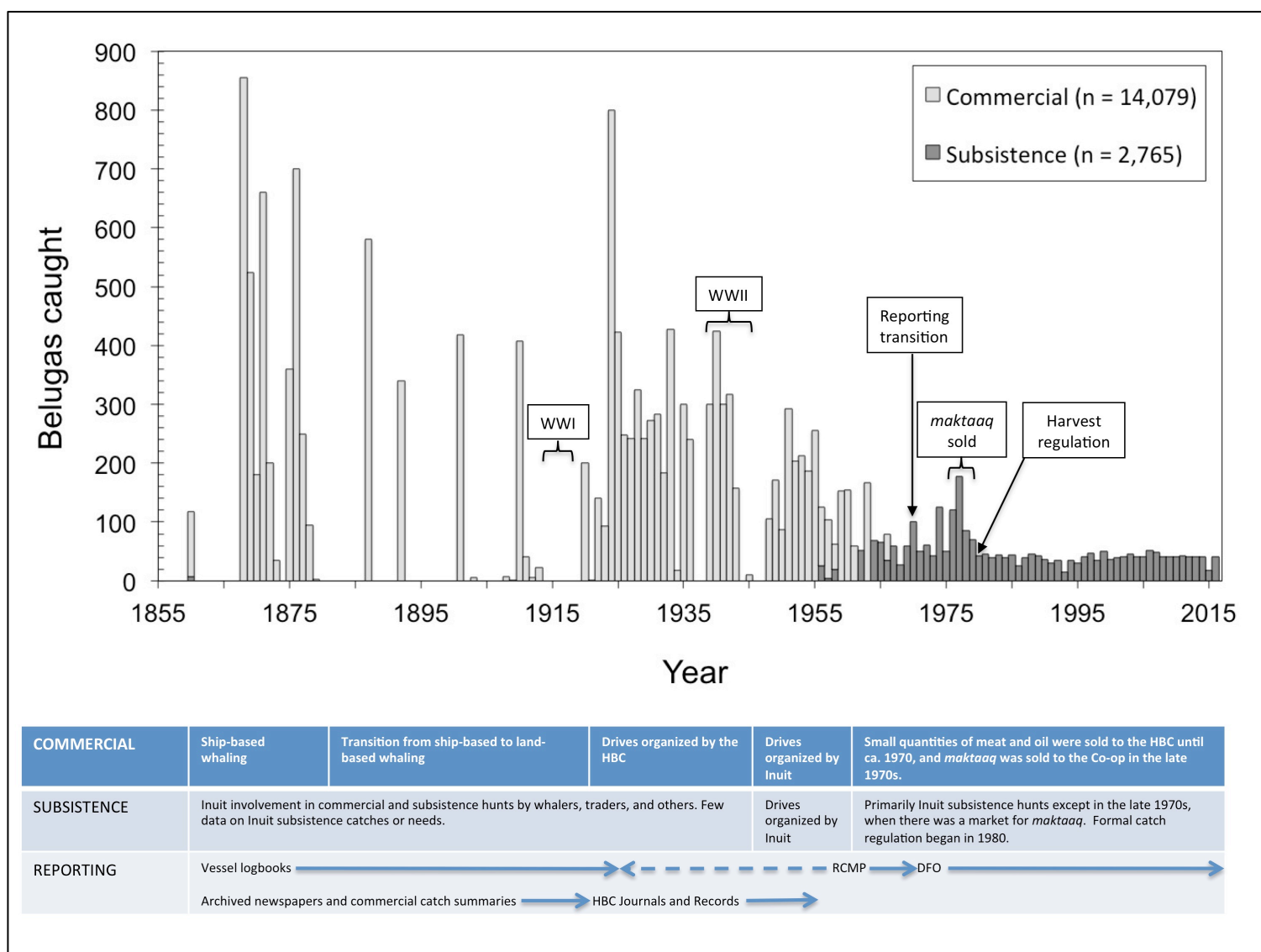
#### **4.1.1 Pre-1860: Inuit subsistence**

Prior to 1860, beluga whaling in Cumberland Sound was mostly, perhaps completely, conducted by Inuit for subsistence (Figure 3; Appendix 1). While John Davis explored Cumberland Sound in 1586, it was off the beaten track for ships travelling to and from Hudson Bay or the rich whaling grounds of Baffin Bay and Lancaster Sound. Europeans did not report visiting Cumberland Sound again until 1840, when William Penny explored it with three other British whalers (Ross 1997: xxix). Each vessel caught a bowhead but this was considered a poor return for the effort. In the decade that followed, commercial whalers who arrived in the spring and returned home in the fall hunted bowheads in the Sound with varying success. This approach changed when a dozen men from the American whaler *McLellan* spent the winter of 1851-1852 at Nimigen Island so they could begin hunting earlier in the spring (Blake 1874:89ff; Ross 1997: xxxiii). When they were picked up the following September, the crew were in good health and had caught 17 bowhead whales.

The year-round presence of American whalers in Cumberland Sound caused British concern that the Americans had territorial aspirations in the region. This led William Penny to overwinter the *Lady Franklin* and the *Sophia* in the Sound at Nuvujen Island in 1853-1854 (Ross 1997: xxxiii). Their spring whaling exceeded all expectations and together the two vessels caught 37 bowhead whales (Leeds Intelligencer September 30, 1854; Sanger 2007). Penny's success attracted whalers from Aberdeen and Peterhead to follow the American example and join Penny overwintering in the Sound. Year-round shore stations were soon established at Blacklead Island and Kekerten (Figure 1) that operated into the 1900s. In the literature of this period, no mention was found of beluga hunting by whalers in Cumberland Sound or of Inuit beluga catches.

#### **4.1.2 1860-1880: Ship-based whaling**

The earliest beluga hunt in Cumberland Sound for which a record has been located occurred on August 12, 1860 (Dundee Courier October 5, 1861). Five boats from the Peterhead whaler *Alert* drove the whales onto a shoal and managed to keep them there until they were stranded by the receding tide. The record indicates that 111 belugas were caught and the blubber was kept, but there was no mention of the skins. Intensive whaling for bowhead in Cumberland Sound continued until 1880 (Goldring 1986a:160). During the latter part of this period, whalers who had not killed enough bowhead to



**Figure 3. Timeline of key events related to commercial and subsistence whaling from the Cumberland Sound beluga whale population, 1855-2016. WW = World War. Solid blue lines and their labels indicate the primary sources of catch reports during a particular period; dashed lines indicate less consistent sources.**

make a profit sometimes hunted smaller species (“scraps”), such as beluga whales, to pay for their voyage. Inuit were employed to assist with whaling, and to hunt for provisions and trade goods in the off-season. Inuit settlements became more concentrated near the whaling stations, and their seasonal patterns of resource use became more focused on commercial hunting activities. They also obtained greater access to innovations such as firearms and whaleboats, and became increasingly reliant on the use of firearms (Wakeham 1898; Munn 1922; Goldring 1986a).

The small, quick belugas were difficult to catch in open water using sailboats (Brown 1868). Until whalers learned how to drive them and had the manoeuvrability of boats driven by engines, their return from chasing them was often low. Days spent wading in the frigid water also damaged the health of the whaling crews (e.g., Peterhead Sentinel and Buchan Journal December 10, 1869). The belugas did not yield valuable whalebone and yielded only small quantities of oil. Their hides had little value until a new tanning process was developed in Quebec in the early 1850's (Reeves and Mitchell 1981:45). By 1860, beluga hides from the St. Lawrence were being used in Canada to manufacture leather goods (Bury Free Press May 12, 1860; Sherborne Mercury May 18, 1860). The skin of a single beluga provided as much leather as 12 to 15 calves. In Britain, little use was made of beluga leather until the 1870s (Edinburgh Evening News November 1, 1873; Globe May 18, 1880) but by 1880 the HBC was importing 500 to 1,000 hides [or possibly half-hides] annually into Britain (Northampton Mercury September 25, 1880). Only the inner skin was used but it could be split into four thin layers for the manufacture of fine gloves and ladies shoes (Norwich Bulletin May 12, 1916). The leather was fine, durable, and impervious to water (Edinburgh Evening News November 1, 1873; People's Journal for Dundee August 2, 1890; Illustrated Sports and Dramatic News November 25, 1911). Laces, shoes, boots, and gloves made from beluga leather commanded a high price. It was also used to make machinery belts, mailbags, and fancy carriage covers (Reeves and Mitchell 1981:45).

The next mention of beluga hunting was in 1868, when the Scottish sailing barque *Perseverance* departed Peterhead provisioned to spend the next winter in Cumberland Sound (Aberdeen Journal October 14, 1868). Delayed enroute by ice, the ship arrived too late for the spring bowhead whaling, so Captain Davidson decided to spend a month searching for belugas before setting up winter quarters. The whales were found in Clearwater Fiord (Kingawah or Kingua). Two drives were conducted with the help of Inuit. The first, on August 3rd, caught 290 belugas and the second on August 5th caught 348 belugas, which together were expected to yield about 100 tons (tuns?) of oil. The success of these hunts enabled the *Perseverance* to return to Scotland and avoid overwintering. This method of driving and capturing large numbers of belugas was described as "more or less of a new industry" (Lubbock 1968:394; see also Brown 1868).

The advent of steam power in the Arctic whaling fleet in the mid-1800's greatly improved the ability of whaling ships to manoeuvre in ice (Hyde *et al.* 1874:140; Sanderson 1958:279ff). It should also have improved their ability to trap belugas. The first steam whaler sailed out of Dundee in 1838 (Hyde *et al.* 1874:140) but it was nearly 20 years

before one visited Cumberland Sound. Even then it was not a whaler but the small auxiliary steam tender *Isabel*, which accompanied the sail-driven Hull whalers in 1857 to assist with manoeuvring through ice and under calm conditions (Ross 1997:37). The first steam whaler to visit Cumberland Sound was the *Polynia* from Dundee in 1869 (Western Morning News September 9, 1869; Southwell Papers SPRI MS 635/1/1;BJ).

The Aberdeen whalers operated in Cumberland Sound from 1853 until 1870, often overwintering so they could hunt bowhead at the ice edge in the spring (Sanger 2007:177ff). Five sailing vessels were involved in this fishery, *Lady Franklin*, *Sophia*, *Alibi*, *Arctic*, and *Kate*. Their initially high hunt success declined substantially within a decade. After wintering in Cumberland Sound in 1869-70 the *Kate* returned to Aberdeen empty, leaving the fishery to the Americans and to the steam whalers from Peterhead. No reports were found of the Aberdeen vessels hunting belugas in Cumberland Sound.

Depletion of the bowhead population and other factors that affected the economics of the whaling operations, such as the use of petroleum for fuel, meant that by the 1870s fewer whaling vessels were visiting Cumberland Sound (Goldring 1986a:151). Those that did often hunted belugas as well. In the early 1870s, large nets were used in attempts to increase the reliability and efficiency of the beluga drives:

*“...the firm of Messrs. C. A. Williams & Co., New London, Conn., ... made two attempts to capture the white whale with nets at the mouths of the large rivers in Cumberland Inlet. The nets were made of manila lobster twine capable of lifting 200 pounds. This net had a 9-inch mesh and was 500 fathoms long, 3 fathoms deep in the bunt, and tapered to 2 fathoms at the ends. It was hung on manila whale-line with weights and corks, and cost \$1,000. It was used by bark Concordia, in 1871, at Kingann, Cumberland Inlet. It was set from a platform built across two whale-boats and towed from shore to shore by five boats of the same type. At one setting five hundred white whales or “white grampuses,” as they are also called by whalemens, were entrapped and killed with guns and lances in less than an hour. This catch stowed down 750 barrels of oil. Thirty-seven men were employed at each ebb-tide, and 1,000 barrels of oil were taken during the season. A second net was made of the same material and with a mesh of the same size; it was 1,000 fathoms long; the bunt was 300 fathoms long, and fished 4 feet deep; the next 300 fathoms on either side fished 3 feet, and the remaining 400 fathoms at each end fished from 2 feet to 1 foot. It was also strung with whale line, and had adjustable cast-iron sinkers weighing from 8 to 24 pounds each. This net was used in 1872 at the locality above mentioned by the steamer Tigress, of St. John's, Newfoundland, chartered by Williams, Haven & Co. This steamer was accompanied by the schooner Helen F., owned by that firm. The net was set from a seine-boat, made at St. John's, at a cost of \$500, with a carrying capacity of 25 tons and a deck 24 feet wide. This craft was towed into position by six whale-boats. At the first setting the net was cut into three pieces by the sharp rocks and for the time being rendered useless. The men endeavored to keep the whales in deep water until ebb tide, when they could have an*

*opportunity of mending the net. It appears, however, that the cunning dolphins did not like this mode of imprisonment; the entire school made a violent rush, and carried away 150 fathoms of the bunt, and almost swamped the whale-boats. The net was again rigged and a second attempt was made; but operations were delayed by the boats running afoul of the rocks, and the whales escaped. It is estimated that about 2,000 dolphins were in the net each time, but only about two hundred were captured. Neither of the above experiments was regarded with much favor by the projectors of the scheme, and they have since practically abandoned nets.”(Brown 1887: 247-248)*

This estimate of “about 2,000 porpoises” (aka belugas) provides population models with a crude minimum estimate of the Cumberland Sound beluga population in 1872.

Successful drives were conducted in most years from 1868 through 1878 (see Appendix 1), and some of the annual catches were very large. The combined catch in 1868 by the American whaler *Isabella* (35) and Peterhead whalers *Perseverance* (640) and *Kate* (180) was about 855 belugas, at least 640 of which were from Clearwater Fiord. In 1871 the bark *Concordia* of New London, Connecticut caught about 600 belugas, and in 1876 the Peterhead steam whaler *Jan Mayen* caught 700. By the late 1870s, the value of beluga skins for tanning into fine, durable leather had been recognized in Britain (Globe May 18, 1880; Northampton Mercury September 25, 1880), making the whales more attractive prey for the remaining whalers and local traders.

#### **4.1.3 1881-1920: Transition from ship-based to land-based whaling**

After 1880 only station schooners or tiny supply vessels overwintered in Cumberland Sound, whaling vessels rarely visited (Goldring 1986a:151ff). The Americans withdrew from Cumberland Sound in 1892. From 1880 to 1920 the annual routine of spring and autumn bowhead whale hunts continued, but on average only one whale was caught each year. Bowhead and beluga whales (see Reeves and Mitchell 1981) were still hunted opportunistically but contact with local Inuit was maintained by the trade in ringed seal (*Pusa hispida*) oil and hides, an increasing market for walrus products ca. 1900, and growing international interest after 1900 in the pelts of white foxes (*Alopex lagopus*) and polar bears (*Ursus maritimus*). In 1883, most of the value of the belugas was in their skins, which were worth about one shilling and sixpence (1/6) per lb., and when dressed were sold as “porpoise hide” (Lubbock 1937:414). Alternative uses for beluga products were also being considered. For example, in 1890 Wm. Smith and Sons, Arctic Tannery in Dundee was advertising beluga whale “manure” for sale (Dundee Advertiser November 25, 1890)--presumably referring to the use of hide scrapings for fertilizer. As whaling collapsed, the number of trading stations increased (Goldring 1986a) and the Inuit population shifted away from camps near the floe edge.

During this period records were found of only a single large beluga drive per decade (Appendix 1). These drives were conducted by Dundee steam whalers, including the *Active* in 1887 (580 belugas), *Aurora* in 1892 (340), *Nova Zembla* in 1901 (418), and *Scotia* in 1910 (361). A drive was also conducted at Clearwater Fiord in 1920, probably

by the *Albert* for the Sabellum Trading Co. Steam-powered launches, a new innovation ca. 1882, were to be introduced to the Davis Strait fishery in 1883 (Dundee Evening Telegraph November 24, 1882). They were expected to increase the efficiency of bottlenose and beluga hunts by reducing effort and improving access but may have had limited impact on the beluga drives in Cumberland Sound until the 1920s. The trading stations during this period reported small beluga catches, and there were a few unsuccessful attempts by trade vessels to drive belugas in the decade before World War I.

The catch data found do not support Stevenson's (1997:368) suggestion that the 1892 catch probably represents an average or slightly above average catch for the early 1890s. Reeves and Mitchell (1987) suggested that the belugas caught by the *Scotia* in 1910 might have come from Prince Regent Sound, where the vessel hunted early in the season, but contemporary newspaper articles suggest these whales were taken later in the season in Cumberland Sound (The Scotsman October 5, 1910; Dundee Courier October 6, 1910; Buchan Observer and East Aberdeenshire Advertiser October 4 and 11, 1910). Reeves and Mitchell (1981: 47) reported that from 1915 to 1923 the Kinnes's supply ship *Easonian* frequently conducted drives before returning to Britain with its load of merchandise. If drives were conducted between 1915 and 1920, they did not involve the *Easonian*, which was first sent into the Canadian Arctic in 1921 (Dundee Courier November 14, 1921).

#### **4.1.4 1921-1945: Drives organized by the HBC**

The HBC established a trading post at Pangnirtung in 1921 (HBC Post Histories). By that time whaling or trading stations had occupied the eastern half of Blacklead Island, Kekerten Island, and Bon Accord continuously since 1870 (HBCA A.95/62, Fo. 26; White 1977). At the start of this period they were owned by Crawford Noble, Esq. of Fountainhill Road, Aberdeen. In 1910, his trustees sold the properties to Robert Kinnes of East Whale Lane, Dundee. Kinnes formed a private company named the Cumberland Gulf Trading Company, which transferred these properties to the Cumberland Gulf Trading Company Ltd. after it was registered in December 1920. When the company vessel *Easonian* burnt at Kekerten in 1922 the company was wound up and its assets purchased by the HBC, leaving the HBC with a virtual monopoly on local trade until 1965 (Harper 1974; Reeves and Mitchell 1981:47).

In 1923, Capt. J.G. Taylor, of the motor ketch *Albert* and a former active partner in the Cumberland Gulf Trading Company (HBCA A.102/561/57), wrote the Deputy Governor of the HBC to advocate increasing oil production from Cumberland Sound (HBCA A.95/62, Fo. 9-12, J.G. Taylor letter to the Governor of the HBC 23 June 1923). That year the HBC built an outpost at Clearwater Fiord (= Kingua Fiord; HBCA B.455/a/4, Fos. 8-14 12-22 Sept.) and began to establish a rendering plant at Pangnirtung (Kemper 1980). A trading post was established at Blacklead Island in 1924 and operated until ca. 1934 (HBCA Post Histories). The HBC began installing machinery for processing blubber at Pangnirtung in the fall of 1926 but it was not ready for use until the spring of 1927 (HBCA A.97/6). A detailed description of the drives and rendering operation in



1927 was prepared by G. Milling (HBCA A97/6, Fo. 44-67). The new rendering equipment did not operate at full efficiency during its first year of operation.

From 1922 to 1943, most belugas reported caught in Cumberland Sound were taken at Clearwater Fiord in beluga drives organized by the HBC (Appendix 1). These hunting expeditions were the “highlight” of the Pangnirtung year (HBCA Search File: White Whales - S.J. Stewart Whaling at Pangnirtung 1940; Stevenson 1997:96). Local Inuit looked forward to them as both enjoyable and exciting, and as an opportunity to earn money to replace aging whaleboats and to outfit themselves for the fall caribou (*Rangifer tarandus*) hunt. During this period at least one beluga drive was conducted annually except in 1937 and 1938. The HBC described this gap as a “lapse of 3 years” in the whaling operations (HBCA RG3/26B/23), presumably referring to the number of calendar years between the 1936 and 1939 whaling seasons. This gap occurred because the HBC had been unable to sell the hides it secured in 1936 (RCMP report cited in Reeves and Mitchell 1987:24).

The whale drives usually took place on a spring tide between 13 July and 18 August (NAC RG18, File G-567-66 Fielder, L.F., 25 July 1925, pp. 25-27). Small boats and loud noises were used to drive the whales into the shallows where they were stranded behind a reef by the falling tide (Wilson 1945). The number of whales driven at one time could be very large. Kemper (1980:488) cited a report of 2,000 animals being driven ashore in the early years, 1923-25, but only the largest 800 were killed and processed for oil. This hunt likely occurred in 1924, and provides population models with a crude minimum estimate of the Cumberland Sound beluga population at that time. The practice of releasing whales to avoid wastage was repeated in 1930, when the HBC stranded 500 by driving in July but killed only what they could process (*i.e.*, 272 belugas; HBCA B.455/a/10, Fos. 7-15). Despite the consistently large annual catches, many drives were unsuccessful. As belugas became familiar with the driving technique, particularly later in the season, they would escape the herders by passing under the boats (NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175), or breaking through the cordon (HBCA RG3/74B/10).

In 1925, the skin and blubber were kept but the meat was allowed to drift away with the tides (NAC RG18, File G-567-66 Fielder, L.F., 25 July 1925, pp. 25-27). Processing of the cork (*maktaaq*) into high protein cattle feed for sale at 20£ /ton was proposed in 1926 (HBCA A.97/2, Fo. 21, letter by Mr. Townsend dated 12 April 1926) but no evidence was found of its implementation. In other years the meat was often kept for dog food. For example, meat from an 18-24 July 1936 drive that caught 204 belugas was cached on a nearby island to be divided among the Inuit, with the HBC taking the rest (NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175). In 1944, the skin, blubber, and meat were kept (NAC RG18, File G-567-66, Hamilton, R.E., 19 August 1941, pp. 266). The meat was divided between the HBC and RCMP, and some was given to the medical officer and Anglican Hospital.

Not all belugas were caught in Clearwater Fiord. In 1922 the *Easonian* caught 75 belugas at Bon Accord [Harbour?], probably by driving or using nets (Clark 1986:156).

Smaller numbers of belugas were caught in drives at the head of Pangnirtung Fiord in 1926, at Pangnirtung in 1927, “above” Oshualuk in 1927 and 1929, and in a fiord near Clearwater Fiord, possibly at Shark Fiord, in 1932 (see Appendix 1). Seal nets were used to catch belugas near Pangnirtung in 1923, 1932, and 1933 (HBCA B.455/a/4, Fos. 8-14) and belugas were netted at Bon Accord Harbour in 1934, in part because Inuit considered shooting whales a “waste of ammunition” (NAC RG18, File G-567-66, Corey, L.E., 4 May 1935, pp. 149).

In 1941, 13,000 lbs of beluga hides without cork were shipped from Pangnirtung to John Dawbarn and Son’s at The Tannery in Market Harborough, Leicestershire, England (HBCA RG7/1/715, J.W. Anderson letter 13 January 1947). This firm was interested in obtaining about 500 half hides, which Anderson described as the approximate pre-war production from the eastern Arctic. The HBC apparently sold produce from the 1941 catch at a loss. Anderson’s letter suggests that this was the HBC’s last overseas export of beluga hides from the Arctic but HBC records show that large quantities of beluga hides were shipped from Pangnirtung in 1942 and 1943 (HBCA RG2/22/16), possibly to domestic markets. The HBC attempted drives in 1944 and 1945 but with little success (HBCA RG3/74B/25).

#### **4.1.5 1946-1960: Drives organized by Inuit**

In 1946 through 1960, most beluga hunting was conducted by Inuit, either for subsistence or for sale to the HBC. Inuit camp leaders organized the drives, which became a fixture in the annual routine of many Inuit for the next three decades (Stevenson 1997:96). In 1946, no beluga oil was available (HBCA RG7/1/715, in lit. 22 October 1946). The equipment used at Pangnirtung for processing whales had deteriorated during the war (HBCA RG7/1/715 J.W. Anderson letter dated 13 Jan. 1947), and the HBC hide shed was demolished and rebuilt as a warehouse (HBCA RG7/7A/248). The post manager was advised not to undertake a drive as it was “quite an expensive operation costing upwards of \$5,000.00”—but to obtain a few barrels of hides for tanning by John Dawbarn and Sons (HBCA RG7/1/715 J.W. Anderson letter dated 5 March 1947).

During the 1950s local Inuit continued to conduct small annual drives and sold oil to the HBC. These oil sales were used to estimate the beluga catches from 1951 through 1955 (Sergeant 1962: Table 1). In addition to those caught for product sales, Brodie (1970) suggested that local Inuit caught about 40 belugas in total annually for subsistence. An anomalous catch occurred when belugas were entrapped by ice in the fall of 1956 near Blacklead Island, and 100 of these animals were caught by local hunters in the spring of 1957 (RCMP Game reports for 1956-1957 cited by Mitchell and Reeves 1981:673; Kilabuk 1998:56).

#### **4.1.6 1961-2016: Inuit subsistence**

Since 1960 the commercial demand for products from Cumberland Sound belugas has been low, and these whales have been hunted primarily by Inuit for subsistence. The

whales were hunted mostly using rifles, although some were netted and some small drives were likely conducted prior to 1985. Since the late 1960s, this period has been characterized by increasing concern for conservation of the beluga population, and a transition to formal regulation of the hunt by the community and Government of Canada. A moratorium on commercial whaling has been in effect in Canada since the end of the 1972 whaling season (Dickson and Sanger 1999).

From 1959 to 1970 Inuit continued to trade small quantities of beluga oil to the HBC but kept the meat for their own use, primarily to feed sled dogs (NAC RG18, File TA-500-20-10-14, 1959-1970). By 1965 the price offered for whale skin did not entice the Inuit to hunt extensively for commercial sale (NAC RG18, File TA-500-20-10-14, Grabowski, J.S., 1 July 1965 – 30 June 1966, pp. 49-50). Anders (1967:42) estimated that in 1960 local Inuit caught fewer than 60 belugas in total for subsistence.

During the summer of 1966, a Federal economic development program attempted to revitalize the small whaling industry in Cumberland Sound by training local Inuit to capture belugas using large nylon nets (Brodie 1967). That year, 58 belugas were netted and 11 more were killed during hunts by Inuit; scientific data were collected from all of these animals (35 male: 34 female), including 11 recently born calves (6 male: 5 female). Larger netted animals were skinned and about 90 sides (*i.e.*, 45 whales) were sold to the HBC. Oil rendered from the blubber of the larger netted whales was also sold to the HBC and the proceeds of the skin and oil sales were shared among the Inuit (Brodie 1967:9). Blubber from the subsistence hunt was not used, but the *maktaaq* was eaten and the meat was fed to the dogs.

In 1967, Brodie (1970:113) sampled 49 netted whales and six from hunts for scientific purposes at Clearwater Fiord. The scientific sample was purposely biased towards younger animals. He estimated that, overall, at least 40 adult belugas and calves were taken for subsistence by the camps in Cumberland Sound (Brodie 1970:111). These camps were being abandoned at the time as people concentrated at Pangnirtung, with consequent reduction in whale mortality. In 1967 there were no longer organized whale drives but Inuit still brought hides to the HBC for sale (Anon. 1967). The oil rendered was shipped to Montreal for making oleomargarine and fine soaps; hides were sent to England for making shoelaces and belts. The RCMP estimated that 28 whales were taken for human and dog food (NAC RG18, File TA-500-20-10-14, Fox, M.T., 1 July 1967 – 30 June 1968, p. 64-65).

In 1969, in response to population conservation concerns, Pangnirtung attempted to self-regulate the community catch at 40 belugas per year (Strong 1989:2). There is disagreement within the DFO literature as to how many belugas were caught in 1974 and whether the sale of *maktaaq* to the Co-op for resale to other communities began in 1974 (Kemper 1980:489) or 1976 (Brodie et al. 1981:580). There is agreement that the catch increased in 1976 through 1979 when Inuit hunted belugas for their *maktaaq*, which was sold through the Pangnirtung Cooperative to other communities. This failure to self-regulate prompted DFO to establish an annual community catch quota of 40 for the 1980-1981 hunting season by amending the Beluga and Narwhal Protection

Regulations in 1980 (Brodie *et al.* 1981:582). In 1985, the Pangnirtung Hunters and Trappers Association (HTA) banned beluga hunting in Clearwater Fiord to protect this summering ground (Richard and Pike (1993:140).

Hunters from Pangnirtung, Iqaluit, and Lake Harbour together landed more than 100 beluga whales each year from 1987 through 1989 (Planning Committee for the Co-Management of Southeast Baffin Beluga 1994:6). In recognition of DFO's increased concern about the sustainability of the southeast Baffin beluga hunt, Inuit hunters attempted to reduce struck-and-loss rates, to take only one beluga at a time when they were hunting in pairs, to take only one or two beluga from any particular group, and to continue the salvage of *maktaaq* from dead whales found by chance.

In January 1990, the Nunavut Wildlife Management Advisory Board (NWMAB), precursor to the current Nunavut Wildlife Management Board (NWMB), heard opposing arguments regarding the southeast Baffin beluga hunts from representatives of DFO and the Inuit hunters (Richard and Pike 1993:141). The NWMAB recommended that a temporary quota of five belugas be established for each of the three communities and remain in effect for two years. In June 1990, the annual catch quota for Pangnirtung was lowered to 5 belugas by an addition to the Beluga Protection Regulations. Similar restrictions were placed on the Iqaluit and Kimmirut (formerly Lake Harbour) beluga hunts. Few hunters were aware of the NWMAB and the new quotas were considered an infringement on Inuit harvesting rights, so the new quotas were widely ignored. Pangnirtung took  $36 \pm 20\%$  belugas in the 1990-1991 season (DFO 1992b: 64).

In 1991, an *ad hoc* committee comprised of a representative from each community, a DFO resource person, and a facilitator (Director of the Science Institute of the Northwest Territories) examined how to integrate scientific and local knowledge for effective management of the stock (Ikkidluak *et al.* 1991 cited in Richard and Pike 1993). Committee recommendations to the Minister of Fisheries and Oceans, designed to mend relations between DFO and the hunters, included implementation of a quota of 35 belugas for each of the three communities for the 1991-1992 season and the establishment of a formal co-management structure. The Minister accepted these recommendations and, following additional discussions, the Pangnirtung quota was set at 35 belugas by DFO Central and Arctic Variation Order (Richard and Pike 1993:140; Planning Committee for the Co-Management of Southeast Baffin Beluga 1994:47ff).

The Planning Committee for the Co-Management of Southeast Baffin Beluga was established in November 1992 and charged with developing a co-management structure and proposing a long-term plan for research and management of the SE Baffin belugas by May 1993. In 1994, the Pangnirtung HTA extended the no hunting zone to include both Clearwater and Shark fiords (Planning Committee for the Co-Management of Southeast Baffin Beluga 1994). The catch quota was raised to 41 for the 2002-2003 hunting season (DFO 2002:3) and has been maintained at that level since then (*i.e.*, through 2016-2017 season) using annual DFO Variation Orders. As a condition of this increase the community agreed to report total beluga catches (landings and information

on belugas struck and lost). Pangnirtung hunters hunt belugas mostly in summer and avoid taking calves and females with calves (DFO 2002:3).

## 4.2 SOURCES OF UNCERTAINTY

Population modelling will be affected by uncertainty related to loss rates, in catch estimates based on whale products, estimates of subsistence catches, and in catch reporting. Each is discussed in greater detail below. In some years this uncertainty can be large (Figure 4).

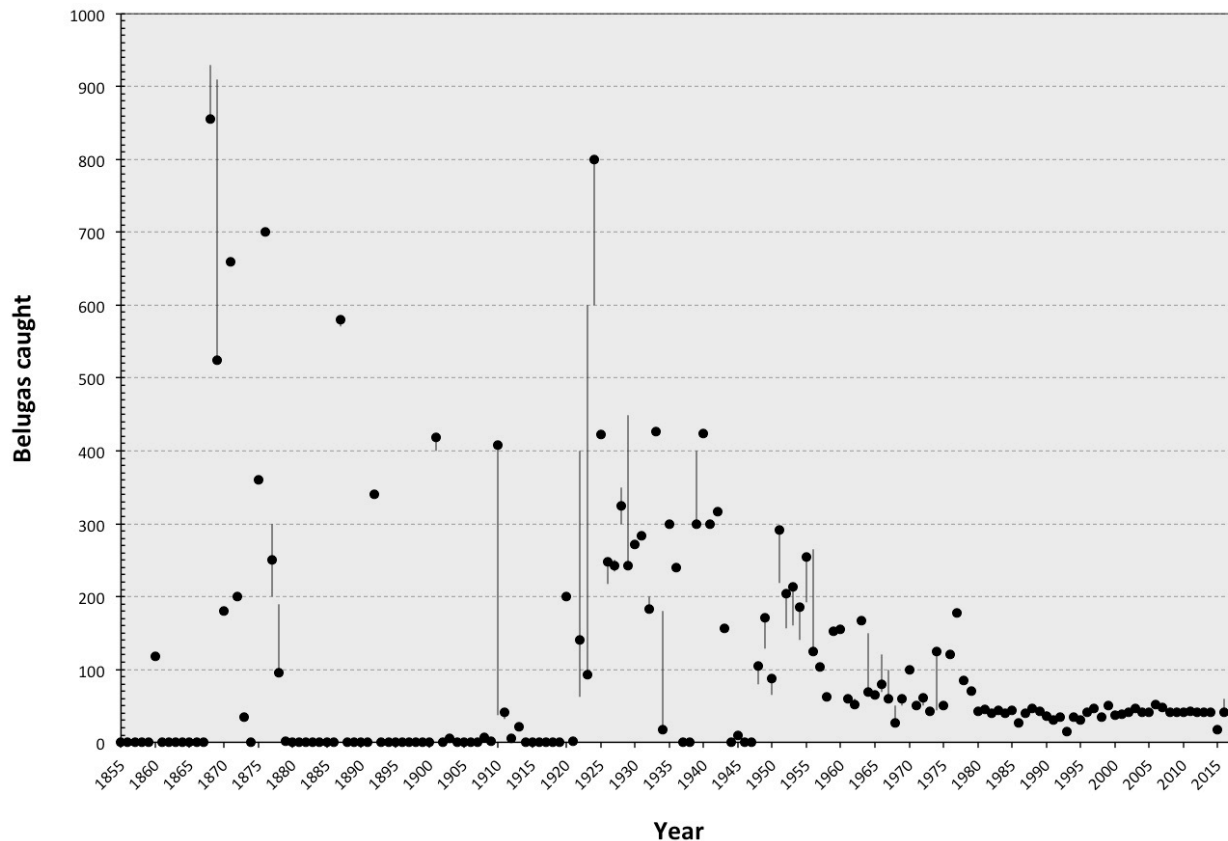


Figure 4. Best estimate of the total annual catch (•) with vertical bars showing uncertainty related to reporting and location.

### 4.2.1 Loss rates

The number of whales that were killed and not recovered or that were injured, escaped and later died (*i.e.*, struck and lost) is poorly known. It is a source of error that varies depending upon the method and timing of the hunt. Loss rates on the drives would have been low as most whales were stranded on beaches before they were killed, or killed in

shallow water where they would be stranded or could be recovered with grapples. In some years more whales were captured than could be used, so they were released (see S. 4.1.4). The mortality rate among animals that were released or escaped is unknown. Whales were sometimes shot during the drives to discourage them from breaking through the cordon of boats and leading an escape. Given the large numbers of belugas that were affected by these drives even a low loss rate could have resulted in substantial additional whale mortality. In 1924, for example, 2,000 belugas were caught in a single drive and 1,200 were later released; if a 2% mortality rate is assumed among the released animals, then 24 more belugas were removed from the population.

Loss rates during open water hunts may be higher than those during drive hunts. During open water hunts belugas are not always harpooned and may be killed in deep water, where animals that sink cannot be recovered. Wounded animals may also escape and later die but these hunts typically involved fewer whales than the drives. Orr and Richard (1985) reported that the loss rate for four hunts in Cumberland Sound in August 1984 was between 11 and 75% (8 landed, 1 killed and sunk, ~23 struck and escaped). Whales killed during a 21 July 1982 hunt floated, suggesting that loss rates may be lower early in the summer.

A correction for hunting losses cannot reasonably be applied due to the high level of uncertainty, so reported catches should be viewed as minimum estimates of removal.

#### **4.2.2 Estimates based on whale products**

In the absence of catch data, commercial products such as oil and skins form a basis from which to estimate the number of belugas killed and landed. These estimates are sensitive to assumptions about the yield of oil and skin per whale, both of which depend upon the size of the whales caught and efficiency of the processing operation. Measurements for these products are given in English units rather than metric units because of their age.

In 1926, the yield of hides and oil at Churchill was estimated for financial planning at 1,000 whales = 60 tons oil, 8 tons hide, 25 tons gelatin base (HBCA A97/2/Fo. 75-78, 7 Apr. 1926). At a weight of 9.25 lbs of oil/Imperial gallon (Doan and Douglas 1953:24) this translates to about 13 gallons of oil and 16 lbs of hide per whale. These yield estimates are roughly half those reported by other sources including whaling vessels (Table 1), the steam rendering plant installed at Churchill in 1948 (25-30 Imp. gal./whale based on annual means 1949-51; Doan and Douglas 1953:24; see also Table 1 in Sergeant 1962), the mechanical rendering plant at Pangnirtung (Table 1), and hunts in the mid-1960s (Brodie 1967, 1970). The difference suggests that the planning estimate was based on half hides not whales.

Based on their Churchill operation, the HBC estimated that installing a mechanical rendering plant in Pangnirtung would improve quality of the oil and increase oil yield by 50% (HBCA A97/2/Fo. 73-78). This new technology was in operation at Pangnirtung for the first time in the spring of 1927 (HBCA A97/6, Fo. 35-67). From 1927 through 1946

**Table 1. Oil and hide yield from Cumberland Sound belugas processed by whaling vessels or the HBC rendering plant in Pangnirtung.**

Year	Number of belugas landed	Oil (Imp. gal)		Hide (lbs)		Comments (Data source) <sup>1</sup>
		Total	Mean	Total	Mean	
Whaling vessels						
1869	483	12600	26.1			The Peterhead whalers <i>Xanthus</i> and <i>Alert</i> caught 483 belugas yielding 60 tuns of oil (Edinburgh Evening Courant November 26, 1869).
1875	360	10500	29.2			The Peterhead steam whaler <i>Jan Mayen</i> caught 360 belugas, yielding 50 tuns of oil (Southwell Papers SPRI MS 635/1/1;BJ)
1876	700	18900	27.0			The Peterhead steam whaler <i>Jan Mayen</i> caught 700 belugas and 27 seals (Southwell Papers SPRI MS 635/1/1;BJ) that yielded 90 tuns of oil (The Scotsman November 29, 1876).
Mean yield per beluga:			27.2			
HBC rendering plant in Pangnirtung						
1927	242	-	-	7200	29.8	The oil yield of 5440 gal (22.5 Imp. gal./beluga) was held in 136 barrels, each holding an average of 40 Imp. gal. of oil. (HBCA A.95/61, Fo. 150; HBCA A97/6, Fo. 35-67). This was the first year of operation for the rendering plant, which was not operating at full efficiency (HBCA A97/6, Fo. 44-67).
1930	272	10015	36.8	-	-	HBC stranded 500 belugas but killed only what they could handle (HBCA B.455/a/10, Fos. 7-15). Larger animals may have been selected.
1933	442	12343	27.9	-	-	HBCA B.455/a/13, Fos. 8-24
1936	240	7625	31.8	-	-	Oil was held in 170-45 gal barrels. Calculations assumed each barrel held 44.85 Imp. gal. of oil as per 1939 (NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175)
1939	300	7625	25.4	7298	24.3	The oil yield of 7625 gal was held in 170 barrels (HBCA RG3/26B/23 and RG3/35/4), each held an average of 44.85 Imp. gal. of oil.
1943	157	-	-	6500	41.4	HBCA RG3/74B/10 and RG2/22/16
Mean yield per beluga:			30.0		31.8	

<sup>1</sup> Conversions: After 1825, a tun of oil was defined as 210 Imperial gallons, which equals 252 US gallons ([https://en.wikipedia.org/wiki/File:English\\_wine\\_cask\\_units.jpg](https://en.wikipedia.org/wiki/File:English_wine_cask_units.jpg))

the HBC in Pangnirtung processed blubber mechanically—essentially by blending it into a cloudy liquid, pumping it into settling tanks, and then decanting the clear oil. Before 1927 and after ca. 1947 but before 1965, blubber was heated over an open fire to render the oil (Appendix 1). The relative efficiencies of these methods are unknown, but all have produced average oil yields of around 30 Imp. gal./beluga. The HBC used a rough estimate of 9 lbs = 1 gal of oil (HBCA A.95/61, Fo. 148). The mass likely varies somewhat depending upon the quality of the oil, what parts of the whale were rendered for oil, and the temperature—colder and more refined oil being heavier (Scoresby 1820:v.2:525 ff.).

Whalers often reported the oil yield of their catch in “tuns” or “tons”. The tun is a liquid measure that changed over time. After 1825, a tun of oil was defined as 210 imperial gallons, which equals 252 US gallons ([https://en.wikipedia.org/wiki/File:English\\_wine\\_cask\\_units.jpg](https://en.wikipedia.org/wiki/File:English_wine_cask_units.jpg)). The use of “tons” to describe oil yield may be incorrect, as oil yield would have been easier to estimate based on barrel capacity. Modern tonnage records (*i.e.*, since ca. 1920) may refer to ton weights rather than gallon volumes, as they were used interchangeably for wet and dry measures. Use of these measures remains a source of uncertainty.

Table 1 provides estimates of the average yields of oil and hide per beluga processed by whaling vessels and at the HBCs rendering plant in Pangnirtung. These estimates include data from hunts where confidence in the number of belugas caught and their oil yield is good. Data from 1878 were excluded, as the catches may not have come from drives, and there is some uncertainty related to the number of whales caught (Dundee Evening Telegraph July 24, 1878; Southwell Papers SPRI MS 635/1/1;BJ). Data from 1927 were also excluded, as the new rendering equipment did not operate at full efficiency during its first year of operation (HBCA A97/6, Fo. 44-67). It does not include years (*e.g.*, 1928 and 1940) where there was uncertainty about the number of animals caught or size of barrels used, or where narwhals were also processed. The relatively high oil yield in 1930, when only a fraction of the captured whales were killed, probably reflects selection for larger animals.

The mean oil estimates from the whaling vessels (27.2 Imp. gal./beluga) and HBC rendering plant (30.0 ± 5.0 (95%CI) Imp. gal./beluga agree well with Sergeant’s (1962) conversion rate of 30 gallons of oil yielded per whale. His yield estimate was based on the average oil yield from the beluga processing plant built in 1948 at Churchill, where oil was rendered using steam cookers and then centrifuged. In 1966, blubber from the larger whales taken by the DIAND net fishery at Clearwater Fiord (*i.e.*, 90 sides or 45 whales) was rendered over open fires to produce 1440 Imp. gal. of oil or 32 Imp. gal. of oil/whale (Brodie 1967:9).

The figure of 30 Imp. gal./whale has been used for all catch estimates based on oil yield. This is contrary to C.W. Douglas cited in Kemper (1980:489) who used a yield estimate of 32.7 Imp. gal./whale, and to Brodie (1971:1316) and Brodie *et al.* (1981:580) who used a yield of 40 Imp. gal./whale to recalculate Sergeant’s (1962) post-1947 estimates. Revising the estimate of oil yield per whale upward could not be justified on the basis of



the data available, despite adult belugas taken in Cumberland Sound hunts being somewhat larger on average than those taken at Churchill (Sergeant and Brodie 1969) and Arviat (Stewart 1994) (Table 1). This apparent size difference may reflect differences in the hunting practices between the areas. In Churchill, belugas were harpooned and netted, rather than driven (Doan and Douglas 1953), so there would likely have been a bias towards killing large animals. The drive at Clearwater Fiord typically took animals of all sizes, including young of the year, and the largest animals were most likely to break through the cordon of boats and escape (HBCA RG3/74B/10). While the whaling vessels produced a somewhat lower yield, revising the average yield estimate downward was not justified as yields varied somewhat among vessels, and these data were from just two vessels. None of the vessel catches of belugas were estimated from oil yields.

Hide counts or hide weight were also used to estimate beluga catches. At Pangnirtung, the average weight of a half-hide with blubber and *maktaaq* attached was about 250 lbs (HBCA A97/6/ Fo. 56). With blubber removed, 500 sides or half-hides (~250 whales) with cork (*maktaaq* attached) weighed about 20,000 lbs (HBCA RG7/1/715, letter from E. Ingrams). The skin from a single whale, *maktaaq* attached, would then weigh about 80 lbs and the blubber about 420 lbs. Based on years when the weights of prepared hides could be correlated with the number of whales caught, the average weight of the dried-salted hide from a Cumberland Sound beluga was about 32 lbs (*i.e.*,  $31.8 \pm 9.8$  (95%CI) (Table 1). Data from the *Scotia*, which caught 361 belugas in 1910 and returned with 180 cwts of hide (The Scotsman October 5, 1910; Dundee Courier October 6, 1910), were not included in these estimates. The substantially greater weight of hide per beluga reported suggests that the vessel may have obtained additional hides by trade, selected for large animals, or not cleaned and dried the hides as thoroughly.

Catch estimates based on hide weights or tallies of half-hides will tend to underestimate the number of small, young whales caught (Anderson 1934; Reeves and Mitchell 1987:11). The hides of adult belugas were generally split to make them more manageable to handle with *maktaaq* and blubber attached. Some small whales may not have been flayed; the skins of others may have equalled a half hide of the larger whales.

#### **4.2.3 Estimates of subsistence catches**

Few data are available on subsistence catches of belugas from Cumberland Sound before 1960. Brodie (1970:110ff) estimated that at least 40 whales were taken for subsistence in the mid-1960's. Over the period 1948 to 1964, when back-calculating to estimate earlier population size, he added 40 whales to the reported commercial catch to estimate the total annual removal. Anders (ed.)(1967:42), presumably referring to the early 1960's, wrote that local Inuit killed less than 60 whales in total annually for subsistence. Local RCMP reports estimated that Inuit took 25 whales for their own use in 1956, 20 in 1958, 27 in 1968, and 28 in 1969; the rest were traded to the HBC (see Appendix 1 for references). These estimates of subsistence catches may be high in years with successful whale drives since some Inuit, perhaps many, would have been

involved in the drives and benefited from the supply of meat, if not *maktaaq*. Seals were also available for oil, skins and meat. Factors that combine to make any general correction factor for subsistence catch difficult include: changes over time in hunting technology, whale availability, access to alternative materials and food resources, and size of the Inuit population

#### 4.2.4 Reporting

Reporting accuracy varies throughout the period of recorded catches. Some of the commercial catch totals reported by the HBC are undoubtedly accurate as they were reported in several contemporary documents, by people who were on site during the hunts or participated in the processing (e.g., 1936, 1939). Given the strong pressure to record kills, data collected since the quota was implemented in 1980 should also be accurate to within a few animals. Data from contemporary on-site estimates (e.g., 1928) and estimates based on product yield (e.g., oil 1953, hide count 1933, hide weight 1942) should be fairly accurate, although the variance associated with hide weight estimates is relatively large. All of these methods tend to underestimate removal because small, young animals were often taken and because processing losses sometimes occurred. The accuracy of estimated subsistence catches, particularly in the 1960's and 1970's, likely varies widely depending upon whether the person gathering catch data was on-site, traveled widely, visited many of the camps and was on good terms with the hunters, or was only able to collect information from a distance by phone. Some of the subsistence catch estimates are uncertain due to conflicting information that has not been reconciled (e.g., 1922, 1923).

The lack of accurate subsistence catch data is a significant source of error that is difficult to estimate or compensate for, as it will have varied from year to year depending upon hunting conditions and, quite likely, upon the success of the drive.

In some instances the catch data do not agree with previous authors, usually because additional information was located or because they made assumptions that I do not support. Searches of the British Newspaper Archives, which were not available electronically when an earlier catch history (Stewart 2004) was compiled, yielded reliable information on many large catches between 1861 and 1911. These catches often were not included in annual catch summaries and do not appear to have been documented elsewhere (e.g., Southwell, Lubbock, Reeves), although some are included in the David Bruce and Company's annual summaries or were handwritten on copies of these summaries in the Southwell Papers. The newspaper articles also provide useful details on ship movements, catch locations, and produce transport from shore whaling stations that other records, including logbooks, may not report.

Detailed searches of the British and Canadian newspaper archives, particularly Customs records, provide a more complete catch record of belugas and other "scraps" that whalers began hunting when bowhead whales became harder to catch. Other "scrap" species included the bottlenose whale (*Hyperoodon ampullatus*), narwhal, Atlantic walrus, ringed seal, bearded seal (*Erignathus barbatus*), polar bear, Arctic fox, and muskox (*Ovibos moschatus*).

The keyword searches relied upon the quality of the newspaper text and ability of the text recognition software, which varied widely. However, because catches were vital to the local economy and the arrival of whaling vessels was a big event, the vessels catches and events of their voyages were often reported in numerous newspapers. This improved the likelihood that text recognition would identify a particular catch. It is also a source of uncertainty as earlier or shorter articles often rounded catch numbers and later accounts occasionally contained transcription errors.

Additional catch data are likely to surface as advances in text recognition improve the searchability of archived newspapers, and as more papers are digitized and made available. Further examination of American whaling records might also locate additional pre-1892 data.

### **4.3 MEASURES OF CATCH EFFORT**

Data on the catch of belugas per unit of hunting effort (*i.e.*, catch effort) were collected in hope that these measurements might provide a useful index of beluga abundance. Data on the number of hunts and drives are summarized in Appendix 1 (Column 12).

Unfortunately, these numbers do not provide a useful measure of effort. There is simply too much variability inherent in both the hunts and drives. Sources of variability include wide differences or uncertainty in the competence of the hunters and drivers, in the number of boats and hunters involved, weather, and tidal conditions. There is also wide variability in the hunting methodology. Some drives were conducted using nets, while others simply scared whales inshore by making loud noises; some hunts used harpoons, others did not. Hunting technology also changed over time, particularly in terms of the types of boats and their method(s) of propulsion. Whale movements and learned avoidance behaviour in response to the repeated disturbances also affected hunt and drive success and thereby catch effort (NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175); HBCA RG3/74B/10). In their heyday the drives were cumbersome operations to mount that sometimes involved 20 boats and 50 people. It took a day to travel to the area and there was no guarantee of success.

The 19 whaling voyage journals read provide useful information on the whaler's activities over time, particularly on how they focused their hunting efforts, but represent a small subset of the whaling voyages to Cumberland Sound. The number of vessels visiting the sound annually is not a useful measure of beluga hunting effort, as the focus of the whalers' efforts changed over time and also due to the wide variability in methodology and competence outlined above.

### **4.4 CATCH COMPOSITION**

Too few data are available on the composition of the catch to provide useful information on changes in the structure of the Cumberland Sound beluga population. Data are available from catches in 1966 and 1967 (Brodie 1967, 1970), and 1982-84 (Orr and

Richard 1985). Brodie's 1966 samples were taken mostly from whale nets and provide a small, relatively unbiased sample. These data are summarized in Appendix 1 (Column 12). His 1967 sample protocol was intentionally biased towards younger animals to obtain information on sexual maturation. The 1982-84 data were obtained from hunts. Not all of the whales taken could be sampled and the hunting biases are unknown.

#### **4.5 CUMULATIVE CATCH ESTIMATE**

Commercial hunts in 1860 through 1966 removed at least 14,079 belugas from Cumberland Sound, and subsistence hunts another 2,765—mostly after 1960 (Figure 3). Inuit were important participants in the commercial hunts and benefitted from them but very little is known of subsistence catch rates prior to 1962.

The Cumberland Sound beluga population was heavily exploited by Scottish and American whalers from at least 1860 through 1910. During this period Mitchell and Reeves (1981) documented a total catch of 2,325 belugas from Cumberland Sound and Ross and McIver (1982:25) 3,040. Both studies were constrained by the accessibility of archival materials, some of which are now available in digital archives. When these materials were consulted the documented whaler catches over the period increased to at least 5,274 (minimum), probably 5,731 (best estimate), and possibly 6,343 (maximum). An increase of this magnitude suggests that population decline may have begun in the 1800s, and supports the need for further modeling to test whether the estimate of "greater than 5,000" for the Cumberland Sound Stock size in 1923 (Mitchell and Reeves 1981; Reeves and Mitchell 1987) is conservative. Annual catches suggest a pattern of long-term population decline related to unsustainable hunting, with partial recovery related to an hiatus in commercial hunting around World War I. By the late 1930s the population probably was depleted (Sergeant 1962; Brodie 1971; Mitchell and Reeves 1981; Reeves and Mitchell 1987) although annual catches of over 150 belugas continued until the early 1960s and recurred briefly in 1977. Catches stabilized following formal harvest regulation in 1980. In some years the historical commercial catches were 15x greater than the current annual subsistence catches.

Two peak catch periods were identified, each lasting about 20 years. The first occurred between 1868 and 1887, when commercial ship-based Scottish and North American whalers caught at least 4,380 (minimum), probably 4,441 (best estimate), and possibly 5,047 (maximum). The second peak occurred between 1924 and 1943, several years later than Reeves and Mitchell (1981) suggested, when whale drives organized by the Hudson Bay Company caught at least 5,235 (minimum), probably 5,500 (best estimate), and possibly 6,019 (maximum) belugas.

These estimates include a lot of uncertainty and must be considered minima. They have not been adjusted for subsistence catch rates prior to ca. 1962, or for animals that died as a result of hunting but were not recovered. Gaps remain in the commercial catch record—particularly prior to ca. 1910. Supportable estimates of early subsistence catches, separate from the commercial catches, may not be possible. Additional

commercial catch data are likely to surface as the coverage and searchability of the digital record improves, but significant uncertainty is likely to remain due to gaps in vessel reporting. Loss rates for the whale drives should have been much lower than for open water hunts in deeper water; but they may not have been insignificant, as suggested by Mitchell and Reeves (1981:671), and could not be quantified. The loss rates will have varied with the methods used to drive the belugas and prevent their escape, weather conditions that affected retrieval, and catch composition. Mortality may have occurred among injured animals that escaped being driven into shallows, and orphaned calves.

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## 7.0 APPENDICES

**Appendix 1. Reported and estimated catches of belugas from Cumberland Sound, 1840-2016. \*Column numbers referred to in text are shown in brackets. See Figure 1 for contemporary place names.**

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
Pre-1860: Inuit subsistence											
1840											William Penny in Aberdeen whaler <i>Bon Accord</i> explored Cumberland Sound in 1840 (Goldring 1986a:159). Until then whalers had not apparently penetrated to the head of the Sound and Clearwater Fiord. Three other sailing vessels also visited Cumberland Sound in 1840, including the <i>Truelove and Lord Gambier</i> (Hull), and <i>Lady Jane</i> (Newcastle) (Lubbock 1968:344). The four ships did most of their whaling in Cumberland Sound but only caught one bowhead apiece.
1841											The <i>Lord Gambier</i> and <i>Lady Jane</i> hunted Cumberland Sound for bowhead whales in August and September, apparently with little success (Wareham 1842). Belugas were seen but not hunted.
1846											Bowhead whales were very abundant: “I mind in 1846, which was the first year I went to Cumberland Gulf in the old <i>Alexander</i> [Dundee], we was terrified to go out in the boats, the whales was that large and numerous. They raised quite a heavy sea with their fins and tails.” (Smith 1922:279)
1851											Crew from the American whaler <i>McLellan</i> wintered ashore at Nimigen Island in Cumberland Sound, in 1851, hoping to catch bowhead in the spring (Lubbock 1968: 355ff; Goldring 1986b:42; Ross 1997:xxxiii). They were the first whalers to winter in the Sound.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1852											The <i>McLellan</i> was wrecked in Baffin Bay in the spring of 1852 (Blake 1874:89ff; Lubbock 1968:356). Her crewmen wintering in Cumberland Sound had caught 17 bowhead by September when they were picked up by the <i>Truelove</i> , which caught another bowhead.
1853											
1854											The Aberdeen whalers <i>Lady Franklin</i> and <i>Sophia</i> spent the winter of 1853-54 in Cumberland Sound (Leeds Intelligencer September 30, 1854; Sanger 2007). Together they caught 37 bowhead whales and lost 1. No mention was found of hunting other species.
1855											
1856											The Aberdeen whalers <i>Lady Franklin</i> and <i>Sophia</i> and Peterhead whaler <i>Traveller</i> spent the winter of 1855-56 in Cumberland Sound, where they successfully hunted bowhead whales (Lancaster Gazette September 27, 1856; Sanger 2007). No mention was found of them hunting other species.
1857											In 1857 the Hull whaler <i>Emma</i> was accompanied by the auxiliary steam tender <i>Isabel</i> , which assisted the larger sailing vessels manoeuvre in ice and under calm conditions (Ross 1997:37).
1858											Whalers from Aberdeen (n=2) and Peterhead (n=3), Scotland, and New London, USA (at least 1), spent the winter of 1857-58 in Cumberland Sound, where they successfully hunted bowhead whales (Aberdeen Herald August 28, 1858; Ross 1997; Sanger 2007). No mention was found of them hunting other species.
1859											The <i>Emma</i> from Hull wintered near Niantelik in Cumberland Sound in the fall of 1859 with four other British whalers (Ross 1985:156ff).
Ship-based whaling (1860-1880)											

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1860				7	7	7	C=fair, from contemporary accounts, minimum, no data from other whalers	Niantelik Harbour area	English whalers	Ross 1985:156ff	Inuit and the crew of the <i>Emma</i> caught at least 8 belugas at the ice edge between 17-19 June (Ross 1985:171). The hunt was conducted mostly by Inuit who also shot and harpooned several narwhals. These small whale species were not systematically hunted by the whalers, who focussed their efforts on small bowhead at the ice edge, despite the fact that at the head of Cumberland Sound on July 13, they saw "wite [sic] whales and unicorns...thousands thick."
1860	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		English whalers	<i>Truelove</i> MS 1860	The barque <i>Truelove</i> hunted bowhead in Cumberland Sound before returning to Hull in the fall but did not report hunting belugas ( <i>Truelove</i> MS 1860).
1860	111	111	111				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Courier October 5, 1861	On August 12, 1860 five boats from the Peterhead whaler <i>Alert</i> , Captain Milne, drove belugas onto a shoal and managed to keep 111 there until the tide receded and they were caught (Dundee Courier October 5, 1861). The blubber was kept but there was no mention of the skins.
1861	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	<i>Black Eagle</i> MS 1861	The New England whaler <i>Black Eagle</i> hunted bowhead in Cumberland Sound and overwintered there in 1860-61 but did not report hunting belugas ( <i>Black Eagle</i> MS1861).
1861	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	<i>Antelope</i> MS 1861	The New England whaler <i>Antelope</i> hunted bowhead in Cumberland Sound and overwintered there in 1860-61 before continuing on to Hudson Bay ( <i>Antelope</i> MS 1861). The ship's log did not report hunting belugas.
1861	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	<i>Ansel Gibbs</i> MS 1861	The New England whaler <i>Ansel Gibbs</i> hunted bowhead in Cumberland Sound and overwintered there in 1860-61 ( <i>Ansel Gibbs</i> MS 1861). The partial ship's log, which ended on 3 February 1861, did not report hunting belugas.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1862	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	Daniel Webster MS 1862	The New England whaler <i>Daniel Webster</i> hunted bowhead in Cumberland Sound and overwintered there in 1860-62 but did not report hunting belugas ( <i>Daniel Webster</i> MS1862).
1863											
1864											Whalers from Aberdeen (n=3) and Peterhead (5), Scotland, and the USA (at least 1), spent the winter of 1863-64 in Cumberland Sound, where they hunted bowhead whales (Hull and Eastern Counties Herald August 18, 1864; Sanger 2007). No mention was found of them hunting other species.
1865	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	Morning Star MS 1865	The New England whaler <i>Morning Star</i> hunted bowhead in Cumberland Sound and overwintered there in 1864-65 but did not report hunting belugas ( <i>Morning Star</i> MS1865).
1866	-	-	-				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	Antelope MS 1866	The New England whaler <i>Antelope</i> hunted bowhead very successfully in Cumberland Sound and overwintered there in 1864-65, and 1865-66 ( <i>Antelope</i> MS 1866). R. Reeves (Okapi Wildlife Associates, Hudson QC, pers. comm.) read the journal and made no mention of beluga hunting. It seems likely that the whalers concentrated their efforts exclusively on bowheads as they had caught 18 by August 21, 1865.
1867	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	Andrews MS 1867	The New England whaler <i>Andrews</i> was wrecked near Harrison's Point on 15 November 1867 ( <i>Andrews</i> MS 1867). The vessel had caught 2 bowheads and struck and lost 2 others. No mention was made of hunting belugas.
1868	35	35	35				C=good, from contemporary accounts, minimum, no data from other whalers	Kekerten area	Inuit and American whalers	Isabella MS 1868	The New England whaler <i>Isabella</i> hunted bowhead in Cumberland Sound and overwintered there in 1867-68 ( <i>Isabella</i> MS 1868). Thirty-five belugas were caught near Kekerten, mostly in small numbers by Inuit, with at least 1 more struck and lost.



Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1868	638	640	645				C=good, from contemporary accounts, minimum, no data from other whalers	Clearwater Fiord	Scottish whalers	Aberdeen Journal October 14, 1868; Dundee Courier and Argus October 12, 1868; Peterhead Sentinel and Buchan Journal October 16, 1868; Evening Freeman October 16, 1868; Montrose Arbroath and Brechin Review October 16, 1868; John O'Groat Journal Wick October 22, 1868; Lubbock 1968:394; Mitchell and Reeves 1981:670	The Scottish barque <i>Perseverance</i> departed Peterhead provisioned to spend the next winter in Cumberland Sound (Aberdeen Journal October 14, 1868). Delayed enroute by ice it arrived too late for the spring bowhead whaling, so Captain Davidson decided to spend a month searching for belugas before setting up winter quarters. The whales were found in Clearwater Fiord (Kingawah). Two drives were conducted with the help of Inuit. The first, on August 3rd, caught 290 belugas and the second on August 5th caught 348 belugas, which together yielded about 100 tons of oil. The actual catch was at least 638 belugas, which is corroborated by numerous contemporary newspaper accounts of 640 belugas. There is also a handwritten annotation of 645 belugas in the Southwell Papers (MS 635/1//) --probably by Southwell. These numbers are higher than the reports of 618 in the John O'Groat Journal Wick (October 22, 1868), 600 by Lubbock (1968:394), and 540 by the Evening Freeman (October 16, 1868). The 618 and 540 totals may stem from typesetting errors. Lubbock (1968:394) described this method of driving and capturing large numbers of belugas as "more or less of a new industry" (Lubbock 1968:394). No mention was made in the various accounts of other species being hunted.
1868	180	180	250				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	London Evening Standard November 3, 1868	The Peterhead whaler <i>Kate</i> returned from Cumberland Sound with a cargo of about 100 tons of oil from 180 belugas and 7 bowheads (London Evening Standard November 3, 1868).
1869	41	41	41				C=fair, from contemporary accounts, minimum, no data from other whalers	Cumberland Sound	Scottish whalers	Western Morning News September 25, 1869; Dundee Courier and Argus October 22, 1869	The Dundee steam whaler <i>Polynia</i> , "captured" 41 belugas in July or August of 1869 (Dundee Courier and Argus October 22, 1869; Western Morning News September 25, 1869). The catch location within Cumberland Sound was not identified. This is the earliest report found of steam whaling in Cumberland Sound (Western Morning News September 9, 1869; Southwell Papers SPRI MS 635/1/1;BJ).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1869	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Edinburgh Evening Courant November 29, 1869; Peterhead Sentinel and Buchan Journal 10 December 1869	The crew of the Peterhead whaler <i>Lord Saltoun</i> refused to wade in the water during an unsuccessful beluga drive, not wanting to suffer as the crew of the <i>Perseverance</i> had from the effects of long exposure to the cold water (Edinburgh Evening Courant November 29, 1869; Peterhead Sentinel and Buchan Journal 10 December 1869). No mention was found of belugas being caught.
1869	483	483	869				C=good, from contemporary accounts, minimum, data from other whalers		Scottish whalers	Aberdeen Journal November 24 and December 1, 1869; Edinburgh Evening Courant November 29, 1869	The Peterhead whalers <i>Alert</i> and <i>Xanthus</i> together took 483 belugas in Cumberland Sound, yielding 60 tuns of oil (Aberdeen Free Press November 26, 1869; Edinburgh Evening Courant November 29, 1869). A handwritten summary, probably by Southwell, reported 869 belugas caught (Southwell Papers MS 635/1;BJ). The 869 total may represent double-counting, either of the vessel's combined catch or by mistaking half-hides for full hides, since it is nearly twice the catch reported by contemporary newspapers.
1870	180	180	180				C=fair, from contemporary accounts, minimum, no data from other whalers	Clearwater Fiord	Scottish whalers	Aberdeen Journal October 12, 1870a,b	Aberdeen whaler <i>Kate</i> wintered in Cumberland Sound in 1869-70, returning from Kingwa (Clearwater Fiord) with 180 beluga skins (Aberdeen Journal October 12, 1870a,b).
1871	660	660	660				C=fair, from contemporary accounts, minimum, no data from other whalers	Clearwater Fiord	American whalers	Brown 1887:247ff; Mitchell and Reeves 1981:682	The bark <i>Concordia</i> of New London, Connecticut, set a specially designed net to catch whales at Clearwater Fiord (Brown 1887:247ff). In less than an hour 500 were trapped and killed using guns and lances. They yielded 750 barrels of oil. A total of 1,000 barrels were made in the season suggesting a catch of about 660 belugas (Mitchell and Reeves 1981:682). Barrel size not stated.
1872	200	200	200				C=fair, from contemporary accounts, minimum, no data from other whalers	Clearwater Fiord	Newfoundland whalers	Brown 1887:247ff	The steamer <i>Tigress</i> of St. John's, Newfoundland, in company with the schooner <i>Helen F.</i> , twice entrapped about 2,000 belugas using nets at Clearwater Fiord, but only about 200 were captured (Brown 1887:247ff).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1873	35	35	35				C=fair, from contemporary accounts, minimum, no data from other whalers	a fiord	Newfoundland and American whalers	Outerbridge 1873 [1969] cited in Mitchell and Reeves 1981:670	The steamer <i>Hector</i> of Newfoundland and an American schooner attempted to capture belugas using a seine net, over a mile long, stretched across the mouth of a fiord in Cumberland Sound in late August 1873 (Mitchell and Reeves 1981:670; Reeves and Mitchell 1987:44). They apparently captured 35 whales. By 1873 steamers made up the entire Dundee whaling fleet (Sanderson 1958:279). The Peterhead whalers <i>Clara</i> and <i>Xanthus</i> had good bowhead catches in Cumberland Sound (Southwell Papers SPRI MS 635/1/1;BJ). No reports were found of them hunting belugas.
1874											The Peterhead whalers <i>Alert</i> and <i>Perseverance</i> had good bowhead catches in Cumberland Sound (Southwell Papers SPRI MS 635/1/1;BJ). No reports were found of them hunting belugas.
1875	360	360	360				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Southwell Papers SPRI MS 635/1/1;BJ; Buchan Observer and East Aberdeenshire Advertiser December 24, 1875	The Peterhead steam whaler <i>Jan Mayen</i> returned from Cumberland Sound with a catch of 360 belugas that yielded 50 tons of oil (Southwell Papers SPRI MS 635/1/1;BJ; Buchan Observer and East Aberdeenshire Advertiser December 24, 1875). The Peterhead whalers <i>Germania</i> and <i>Xanthus</i> had good bowhead catches in Cumberland Sound (Southwell Papers SPRI MS 635/1/1;BJ). No reports were found of them hunting belugas.
1876	700	700	700				C=good, from contemporary accounts, minimum, data from a participant		Scottish whalers	The Scotsman November 29, 1876; Southwell Papers SPRI MS 635/1/1;BJ; Sutherland 1996:33	The Peterhead steam whaler <i>Jan Mayen</i> caught 700 belugas and 27 seals (Southwell Papers SPRI MS 635/1/1;BJ) that yielded 90 tuns of oil (The Scotsman November 29, 1876). Whalers took the half hides with blubber and left the carcasses and meat for the Inuit (Sutherland 1996:33).
1877	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Evening Telegraph November 5, 1877	The Dundee steam whaler <i>Aurora</i> visited the Sound enroute home carrying a cargo of beluga products from Elwin Bay, but there is no mention of beluga hunting in Cumberland Sound (Dundee Evening Telegraph November 5, 1877).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1877	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers	Clearwater Fiord	Scottish whalers	<i>Perseverance</i> MS 1878	In late August 1877 the <i>Perseverance</i> and the <i>Alert</i> made several unsuccessful attempts to drive belugas at Clearwater Fiord ( <i>Perseverance</i> MS1878; see also Mitchell and Reeves 1981:262).
1877	200	250	300		a couple		C=poor, contemporary accounts do not agree, range, no data from other whalers		C=Scottish whalers; S=Inuit	Lloyd's List November 24, 1877; Southwell Papers SPRI MS 635/1/1;BJ; Arctic logbooks in the Stefansson Collection (Mitchell and Reeves 1981)	Inuit harpooned "a couple" of belugas in January from a savssat (ice entrapment) in Kingwah Fiord of Cumberland Sound (Kumlien 1879: 66-67; see also Soper 1928:75). The Peterhead steam whaler <i>Jan Mayen</i> caught 200 (Lloyd's List November 24, 1877; Shetland Times December 1, 1877) or 300 (Southwell Papers SPRI MS 635/1/1;BJ) belugas in the Cumberland Sound area in 1877. The vessel was well equipped with nets, cables, etc. for beluga fishing (Shetland Times April 28, 1877). On 24 August 1877 the <i>Perseverance</i> and the <i>Alert</i> made several unsuccessful attempts to drive belugas at Kingua (Clearwater Fiord) ( <i>Perseverance</i> MS 1878) (see also Mitchell and Reeves 1981:262).
1878	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	<i>Perseverance</i> MS 1878	The Peterhead whaler <i>Perseverance</i> wintered in Cumberland Sound in 1877-78 ( <i>Perseverance</i> MS 1878;). On May 4, 1878 belugas and narwhals were very numerous but no attempt was made to hunt them.
1878	95	95	190				C=poor, contemporary accounts do not agree, minimum, no data from other whalers		Scottish whalers	Dundee Evening Telegraph July 24, 1878	The Peterhead whaler <i>Windward</i> spent the winter of 1877-78 in Cumberland Sound and returned in on 23 July 1878 with 16 tons of oil, the produce of 95 belugas (Dundee Evening Telegraph July 24, 1878). David Bruce, Dundee, December 23, 1878 (Southwell Papers SPRI MS 635/1/1;BJ) reported the vessel produce as 190 belugas, double the number in the newspaper report of the vessel's arrival, suggesting that the higher number represents half-hides.

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1879	2	2	2				C=fair, from contemporary accounts, minimum, no data from other whalers		American whalers	<i>Franklin</i> MS 1879	The New Bedford whaling schooner <i>Franklin</i> caught 2 belugas on June 25 <sup>th</sup> near Niantilik Island ( <i>Franklin</i> MS 1879). Bowhead whaling was poor but no other reports of beluga hunting were found (Southwell Papers SPRI MS 635/1/1;BJ). The Peterhead whaler <i>Xanthus</i> also spent the winter of 1878-79 in Cumberland Sound (Dundee Evening Telegraph August 9, 1879).
1880	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	<i>Perseverance</i> MS 1880; Dundee Advertiser September 9, 1880	The Peterhead whaler <i>Perseverance</i> wintered in Cumberland Sound in 1879-80 ( <i>Perseverance</i> MS 1880), 5 bowheads were caught but no beluga hunts were reported (see also Southwell Papers SPRI MS 635/1/1;BJ).
Transition from ship-based to land-based whaling (1881-1920)											
1881	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Advertiser October 17, 1881	In August, the Dundee steam whaler <i>Aurora</i> attempted to drive belugas in Cumberland Sound but was unsuccessful, despite many belugas having been seen (Dundee Advertiser October 17, 1881).
1882											The Peterhead whaler <i>Superior</i> returned from Cumberland Sound carrying bottlenose whale oil from the whaling stations (Southwell Papers SPRI MS 635/1/1;BJ). No reports of beluga whaling were found for the vessel.
1882	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers			The Scotsman November 22, 1882	The Peterhead whaler <i>Perseverance</i> spent 16 months in Cumberland Sound attempting unsuccessfully to catch bottlenose whales (The Scotsman November 22, 1882). No reports of beluga whaling were found for the vessel.

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1883	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Aberdeen Weekly Journal November 10, 1883	The Peterhead brig <i>Catherine</i> carried produce from Noble's Whaling Station at Kekerten and two American stations but no reports of belugas were found (Aberdeen Weekly Journal November 10, 1883). Steam launches, a new innovation ca. 1882, were to be introduced to the Davis Strait fishery in 1883 (Dundee Evening Telegraph November 24, 1882). They were expected to increase the efficiency of bottlenose and beluga hunts by reducing effort and improving access.
1884	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Courier October 2, 1884	After sealing and whaling in east Greenland Captain Jackman in the Dundee whaler <i>Resolute</i> visited Cumberland Sound to try and supplement the vessel's catch with belugas (Dundee Courier October 2, 1884). "A good number "were seen but "all efforts to capture them proved futile."
1885	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Aberdeen Free Press November 3, 1885	The Peterhead whaler <i>Germania</i> travelled to Greenland and Cumberland Sound, returning with bowhead and bottlenose whale oil (Aberdeen Free Press November 3, 1885; Southwell Papers SPRI MS 635/1/1;BJ). No reports were found of beluga whaling.
1886	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Shetland Times October 16 and November 13, 1886; Dundee Courier and Argus October 21 and 28, 1886; Peterhead Sentinel and Buchan Journal November 10, 1886	At least 4 Dundee whalers tried to enter Cumberland Sound in 1886. The <i>Arctic</i> was prevented from entering by ice early in the season and by storms and frost in September (Shetland Times November 13, 1886). The steam whaler <i>Active</i> attempted to enter the Sound to fish for whales on 7 October but was blown out and went home (Dundee Courier and Argus October 28, 1886). The Dundee whalers <i>Chieftain</i> and <i>Star</i> searched the Sound unsuccessfully for belugas (Shetland Times October 16, 1886; Dundee Courier and Argus October 21, 1886). The <i>Star</i> was wrecked in the Sound in early September, as was the Peterhead whaler <i>Catherine</i> . The supply vessel <i>Traveller</i> of Peterhead visited Noble's Station at Kekerten in September to collect oil and skins and deliver supplies (Peterhead Sentinel and Buchan Journal November 10, 1886). The <i>Eagle</i> from St. John's, Newfoundland may have visited in September. No reports were found of beluga catches.

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1887	571	580	580				C=fair, from contemporary accounts, minimum, no data from other whalers			Dundee Evening Telegraph November 14, 1887;	The Dundee steam whaler <i>Active</i> caught 571 belugas in Cumberland Sound after mid-August and before 19 October (Shetland Times November 12, 1887; Dundee Evening Telegraph November 14, 1887; Southwell Papers SPRI MS 635/1/1;BJ). Customs reported the vessel delivered 580 beluga skins (Dundee Courier November 15, 1887). These belugas were not taken in Prince Regent Inlet as Reeves and Mitchell (1987:9) suspected was possible. The Dundee whaler <i>Chieftain</i> hunted bowheads in Cumberland Sound but not belugas (Dundee Courier November 21 and 23, 1887). The Dundee whaler <i>Arctic</i> was wrecked in Cumberland Sound. The crew of the <i>Perseverance</i> , of Peterhead, spent the winter of 1887-88 in Cumberland Sound (Dundee, Perth, Forfar and Fife's People's Journal November 12, 1887).
1888	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Peterhead Sentinel and Buchan Journal September 25, 1888	The Peterhead whalers <i>Perseverance</i> and <i>Germania</i> attempted unsuccessfully to drive belugas at Clearwater Fiord (Peterhead Sentinel and Buchan Journal September 25, 1888). The whales were driven to shore but then turned and swam under the boats to escape into deep water. By 1888 bowhead catches had declined until vessels in the Scottish whaling fleet depended heavily upon catches of smaller species (Dundee Courier and Argus November 6, 1888). The only 2 vessels to make a profit had captured many belugas from the Prince Regent Inlet area to the north (Tamworth Herald November 10, 1888). Belugas returned to Dundee by the steam whaler <i>Earl of Mar and Kellie</i> were caught before it visited Cumberland Sound (People's Journal for Dundee September 29, 1888; Dundee Courier November 1, 1888).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1889	0	0	0				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Advertiser September 23, 1889; Peterhead Sentinel and General Advertiser for Buchan District September 24, 1889	The Peterhead whaler <i>Germania</i> spent the winters of 1887-88 and 1888-89 in Cumberland Sound, where it attempted unsuccessfully to catch belugas (Dundee Advertiser September 23, 1889; Peterhead Sentinel and General Advertiser for Buchan District September 24, 1889). There were "lots" of whales but the crew could not catch them. Captain Marshall was of the opinion that fishing for these whales was futile without a whale net. In 1889, the <i>Chieftain</i> , which was not powered by steam, was prevented by ice from safely entering Cumberland Sound (Dundee Courier and Argus September 2, 1889).
1890											In 1890 Wm. Smith and Sons, Arctic Tannery in Dundee was advertising beluga whale "manure" for sale (Dundee Advertiser November 25, 1890). This presumably referred to the use of hide scrapings for fertilizer.
1891											
1892	340	340	340				C=fair, from contemporary accounts, minimum, no data from other whalers	head of Cumberland Sound	Scottish whalers	Dundee Courier November 24, 1892a,b;	The Dundee steam whaler <i>Aurora</i> caught 340 belugas at the head of Cumberland Sound in later summer or early fall (Dundee Courier November 24, 1892a,b; Peterhead Sentinel and General Advertiser for Buchan District November 25, 1892; Southwell Papers SPRI MS 635/1/1;BJ; Lubbock 1968:425). Catch data found do not support Stevenson's (1997:368) suggestion, that the vessel's catch probably represents an average or slightly above average catch for the early 1890s.
1893											After about 1892, catches by Scottish whaling vessels appear to have fallen off in Cumberland Sound (Mitchell and Reeves 1981:665).
1894											
1895											The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten (Peterhead Sentinel and General Advertiser for Buchan District November 8, 1895). No reports were found of beluga catches or produce.



Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1896											The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten (Peterhead Sentinel and General Advertiser for Buchan District November 10, 1896). No reports were found of beluga catches or produce.
1897											By 1897, whalers no longer visited Cumberland Sound on a regular basis to hunt the belugas, which "were practically undisturbed" (Wakeham 1898:73). The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten Aberdeen Weekly Journal October 13, 1897). No reports were found of beluga catches or produce.
1898											The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten (Shetland Times November 5, 1898). No reports were found of beluga catches or produce.
1899											The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten (Peterhead Sentinel and General Advertiser for Buchan District November 18, 1899). No reports were found of beluga catches or produce.
1900											The Peterhead brig <i>Alert</i> carried stores to the whaling station of Messrs. Crawford, Noble, and Co. in Cumberland Sound and returned with produce from Blacklead and Kekerten (Aberdeen Weekly October 24, 1900). No reports were found of beluga catches or produce. In 1900, poor weather and ice blocked the fiords and inlets where the belugas were usually caught (Southwell 1901:90).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1901	400	418	418				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Southwell 1902: 46	The steam whaler <i>Nova Zembla</i> of Dundee was one of the last Scottish whalers to take a major catch of belugas from Cumberland Sound (Lubbock 1968:440; Mitchell and Reeves 1981). Newspapers at the time reported the vessel's catch as about 400 belugas (Aberdeen Daily Journal October 9, 1901; Shetland Times October 12, 1901). The Peterhead brig <i>Alert</i> picked up produce from the stations in Cumberland Sound but it did not include any belugas (Aberdeen People's Journal November 9, 1901; Peterhead Sentinel and Buchan Journal November 9, 1901; Dundee Courier November 26, 1901).
1902											Neither of the Peterhead vessels that supported Noble's stations in Cumberland Sound, <i>Alert</i> or <i>Kate</i> , reported beluga products (Dundee Evening Telegraph November 17, 1902; Peterhead Sentinel and General Advertiser for Buchan District November 22, 1902). The <i>Alert</i> was shipwrecked.
1903	6	6	6				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Aberdeen Daily Journal October 27, 1903	The Norwegian schooner <i>Gerda</i> , which was chartered to bring home products from the Cumberland Sound whaling stations, returned to Peterhead carrying 4 beluga skins from Noble's Station and 2 from the American station (Aberdeen Daily Journal October 27, 1903). Other summaries only reported the 4 belugas caught by the Scottish station (Dundee Courier December 25, 1903; Southwell 1904: 63; Mitchell and Reeves 1981). See also D. S. Henderson, in litt. 10 April 1980 cited in Mitchell and Reeves 1981.
1904											
1905											

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1906	0	0	6				C=fair, from contemporary accounts, minimum, no data from other whalers	Cape Haven	Scottish whalers	Fraser and Rannie 1972: 43-80	Catch data for the 1906 voyage of the Dundee motor ketch <i>Snowdrop</i> are somewhat confused by Forsyth-Grant's purchase of produce from belugas that Robert Kinnes had arranged for Inuit to hunt (Fraser and Rannie 1972:43-80). When Kinnes did not appear to pay for his goods the Inuit sold them to Forsyth-Grant. The result was a year-long legal battle that ended with a substantial settlement in favour of Kinnes. The belugas were obtained in trade in the Cape Haven area, at Signia, near the mouth of Cumberland Sound (p. 79).
1907											
1908	0	7	7				C=fair, from contemporary accounts, minimum, no data from other whalers	Blacklead Island	Scottish whalers	Southwell 1909:26	The <i>Queen Bess</i> was not whaling, rather carrying the produce of catches by shore stations at Blacklead Island and Kekerten in Cumberland Sound (Bernier 1910: 353; Fleming 1932: 112ff). The station's catches included 7 white whales, which were likely belugas but possibly narwhals as the species were often lumped together under "white whales."
1909				1	1	1	C=fair, from contemporary accounts, minimum, no data from other whalers	Blacklead Island	Inuit	Fleming 1932:136	A single beluga was killed by Inuit on 6 November 1909 at Blacklead Island and used to supply the mission and shipwrecked crew of the <i>Jantina Agatha</i> (Fleming 1932:136). The vessel <i>Thomas</i> carried supplies from Dundee to the stations at Cumberland Sound and returned in late September carrying produce from the stations, but no produce list was found (Dundee Courier September 27, 1909).
1910	1	1	1				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Courier October 6, 1910	The Dundee steam ketch <i>St. Hilda</i> assisted the <i>Scotia</i> in an unsuccessful beluga drive (Fleming 1932:161ff) and returned to Dundee carrying 1 beluga skin (Dundee Courier October 18, 1910).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1910	0	361	361				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	The Scotsman October 5, 1910; Dundee Courier October 6, 1910	In late July 1910, the Dundee steam whaler <i>Scotia</i> dropped its bowhead catch from the spring East Greenland fishery off at Iceland enroute to the fall "Davis Strait" fishery (Dundee Courier July 23, 1910; Dundee Evening Telegraph August 12, 1910). No report was found of belugas related to the Greenland fishery. On August 7th the vessel took Inuit aboard at Blacklead " to hunt white whales up the Gulf" (Fleming 1932:160-161). It returned ca. 2 weeks later. No mention was made of the hunt success but this is probably the source of the vessel's beluga catch, which was variously reported as 250 (Buchan Observer and East Aberdeenshire Advertiser October 4, 1910) or 361 white whales (The Scotsman October 5, 1910), with a yield of 180 cwts of whale hides (Dundee Courier October 6, 1910); or as 361 white "walrus" (Dundee Courier October 5, 1910). A few days later <i>Scotia</i> with the Dundee steam whaler <i>St. Hilda</i> , returned to the head of Cumberland Gulf [Sound], where they attempted unsuccessfully to drive belugas before returning to Dundee. Reeves and Mitchell (1987:10) suggested the <i>Scotia</i> 's belugas were possibly caught in Prince Regent Inlet. This seems unlikely given the time constraints and fishing effort in Cumberland Sound. The weight of beluga hides (180cwts) is high relative to the number caught, suggesting that not all of the cork (maaqtaq) was removed; that more hides (perhaps 35% more), were taken in trade; and/or that the hunters selected for large whales.
1910	36	36	36				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Evening Telegraph September 19, 1910	The <i>Thomas</i> of Dundee returned from resupplying the Blacklead Station in Cumberland Sound with produce from 36 belugas taken by the station (Dundee Evening Telegraph September 19, 1910; Dundee Courier September 20, 1910). See also D. S. Henderson, in litt., 10 April 1980 (Mitchell and Reeves 1981).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1911	26	26	26				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Evening Telegraph September 26, 1911	The steam ketch <i>St. Hilda</i> had caught 26 belugas by August when it met the <i>Thomas</i> in Cumberland Sound (Dundee Evening Telegraph September 26, 1911; Dundee Courier September 27, 1911; The Scotsman September 27, 1911). This catch was later reported as 76 belugas (Dundee Courier November 1, 1911), possibly a clerical error (e.g., misread notes or telegram) as the catch was again reported as 26 belugas when the vessel reached Dundee (Dundee Courier November 2, 1911). Heavy ice prevented the <i>St. Hilda</i> from reaching the head of Cumberland Sound to hunt more belugas so, after meeting the <i>Thomas</i> it travelled round the SE Baffin coast to Davis Strait in search of its support vessel, the <i>Ernest William</i> , which carried the beluga hides and oil to Dundee (Dundee Courier December 23, 1911).
1911	6	15	21				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	Dundee Courier September 28, 1911	The Norwegian schooner <i>Thomas</i> carried 6 beluga skins back to Dundee after supplying the whaling station at Kekerten (Dundee Courier September 28, 1911), 1 more than reported by D. S. Henderson, in litt. 10 April 1980 (Mitchell and Reeves 1981). David Cardno apparently sent 15 beluga skins from Kekerten Station to Peterhead "with the store ship" in September (Sutherland 1996: 51)—possibly the <i>Thomas</i> .
1912	4	6	6				C=fair, from contemporary accounts, minimum, no data from other whalers		Inuit	Mitchell and Reeves 1981(cited D. S. Henderson, in litt., 10 April 1980 from the journal of the <i>Ernest William</i> ).	The Scottish vessel <i>Ernest William</i> traded for 2.5 belugas at Kekerten and 3 at Blacklead (Mitchell and Reeves 1981). It reported to Customs in Dundee carrying 4 whale skins (Dundee Courier October 15, 1912).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1913	22	22	22				C=fair, from contemporary accounts, minimum, no data from other whalers		Scottish whalers	<i>Erme</i> MS 1913	In late August the Sabellum Trading Co. supply vessel, the auxiliary motor schooner <i>Erme</i> , made an unsuccessful drive at Clearwater Fiord ( <i>Erme</i> MS 1913). On 15 August they traded 8 whales from the Inuit. Another 13 whale hides were among the traded stock at Blacklead Island in 1913. See also Mitchell and Reeves (1981:682). The <i>Ernest William</i> was wrecked at Keckerten on 24 August 1913, and its crew returned to Dundee aboard the <i>Erme</i> (Aberdeen Daily Journal October 6, 1913).
1914									Scottish whalers	<i>Erme</i> MS 1914	When the <i>Erme</i> arrived at Blacklead in August 1914, she found "every man away to the white whaling", apparently with the Dundee whaler <i>Morning</i> ( <i>Erme</i> MS 1914). The objective of the <i>Morning's</i> voyage was to establish trading stations in Cumberland Sound (Dundee Courier September 26, 1914). The vessel returned to Dundee with "a considerable cargo of Arctic produce" but no produce list was found. See also Mitchell and Reeves (1981:682).
1915											The supply ship <i>Tilly</i> of Dundee provisioned the stations in Cumberland Sound in 1915 but was wrecked in a late October storm returning with produce (Aberdeen Journal October 31, 1916). Captain Stephen drowned but the crew survived and wintered at Blacklead. Reeves and Mitchell (1981: 47) reported that from 1915 to 1923 the Kinnes's supply ship <i>Easonian</i> frequently conducted drives before returning to Britain with its load of merchandise. If drives were conducted between 1915 and 1920, they did not involve the <i>Easonian</i> , which was first sent into the Canadian Arctic in 1921 (Dundee Courier November 14, 1921).

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1916											The Dundee whaler <i>Erme</i> returned from Cumberland Sound in 1916 carrying the shipwrecked crew from the <i>Tilly</i> , who had wintered at Blacklead (Aberdeen Daily Journal October 31, 1916). A single beluga was taken in trade in the Cape Mercy area (Kanakaner Station), outside Cumberland Sound and oil and blubber were loaded at Kekerten (Kivietung) but there but there is no mention of other beluga catches ( <i>Erme</i> MS 1916). When it was wrecked the <i>Tilly</i> was not carrying produce from the Blacklead Whaling Station (Dundee Courier November 3, 1916).
1917											A schooner visited the stations in Cumberland Sound in 1917 (Dundee Courier October 25, 1919) but no information was found on its identity or beluga catch.
1918											The whaling stations in Cumberland Sound were not visited by a resupply vessel in 1918 (Goldring 1986a: 165).
1919											The chartered Norwegian schooner <i>Mercurius</i> was the first vessel to visit the Cumberland Gulf stations in over 2 years (The Scotsman October 21, 1919; Dundee Courier October 25, 1919). The vessel returned with a cargo of skins, oil and whalebone but no data were found on whether or how many belugas were included in the cargo. The vessel received a warm welcome from the Inuit, who had run out of ammunition and had had to resort to other methods of killing seals and walrus to prevent starvation. The Peterhead whaler <i>Albert</i> returned from Baffin Island carrying "skins, furs, oil, and ivory" from Pond Inlet and Cumberland Sound (Daily Herald November 11, 1919)—no produce list was found.

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1920	200	200	200				C=fair, from contemporary accounts, minimum, no data from other whalers		Sabellum Trading Co.	Vera MS 1920; HBCA A.75/50; Mitchell and Reeves 1981:682	The Sabellum Trading Co. reported the <i>Albert</i> 's cargo arriving in Scotland 1920-21 included 201 white whales (presumably hides) (Mitchell and Reeves 1981:682). The trip is described in the Engineer's journal but he does not list catches, except for 1 bear and 1 walrus ( <i>Albert</i> MS 1920). However, Inuit did take 200 in a single drive in Cumberland Sound in mid-September (HBCA A.75/50; see also Reeves and Mitchell 1987:24). The catch was not taken by the HBC, as their Pangnirtung Post had not yet been established, so this drive may have been the source of the hides carried by the motor ketch <i>Albert</i> . In an October 1921 lecture Captain Murray of the <i>Albert</i> described Inuit successfully driving about 200 belugas into the shallows of a narrow fiord (Aberdeen Daily Journal October 25, 1921). Members of the crew had travelled to "the fishing-grounds" by pinnace. Correspondence of the numbers suggests Murray was describing the 1920 drive and support it as the source of the <i>Albert</i> 's beluga hides.
Drives organized by the HBC (1921–1943)											
1921	1	1	1				C=uncertain, minimum no data from independent traders	Pangnirtung	HBC	HBCA B.455/a/1, Fo. 2-4	HBC established Netchelick Post in September 1921, renaming it Pangnirtung in 1924. The HBC caught 1 beluga in a seal net in September 1921 (HBCA B.455/a/1, Fo. 2-4). (see also Mitchell and Reeves 1981:670). The Dundee whaler <i>Easonian</i> returned from "successful trading near Kekert[e]n and Blacklead Island" but no data were found on the produce collected (Dundee Courier November 14, 1921).



Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1922	63	140	400				C=uncertain, minimum of 63 confirmed from HBC records, contemporary estimate of 400 by Taylor.	11 near Pangnirtung and 52 or more at Clearwater Fiord, 75 at Bon Accord	HBC	HBCA B.455/a/3,Fos.11- 19	Capt. J.G. Taylor of the motor ketch <i>Albert</i> , in a letter to the Deputy Governor of the HBC dated 23 June 1923 (HBCA A.95/62, Fo. 9-12), advocated increasing oil production from Cumberland Sound. This led to the installation in 1926-7 of machines to extract oil. Taylor stated that to the best of his knowledge the previous year's hunt had produced about 400 white whales, This did not include any whales caught by the competing trading companies. The HBC took 10 in a drive near their Pangnirtung post on 5 August and another 52 on 18 August in their "first" drive at Clearwater Fiord (HBCA B.455/a/3,Fos.11-19). Whale nets were also set and at least 1 whale was caught (19/8/22). Reeves and Mitchell (1981:47) estimated the catch at 65+. However, there may have been more drives as crews were also sent to conduct drives at Kingua on the 6 <sup>th</sup> of August and 3 boats returned from Kingua in early September with whales. In 1922, the motor schooner <i>Easonian</i> , Kinnes's supply ship, caught 75 belugas at Bob Accord before catching fire at Kekerten and burning to the waterline (Harper 1974; 1986:156).
1923	93	93	600				C=uncertain, minimum of 93 confirmed from HBC records, Soper estimated 600	Clearwater Fiord 67, Pangnirtung area 13	HBC	HBCA B.455/a/4, Fos. 8-14	The HBC landed 67 whales in an early August drive at Clearwater Fd and 13 in seal nets near Pangnirtung (HBCA B.455/a/4, Fos. 8-14). Their drive at the head of Pangnirtung Fd on 24-28 July was unsuccessful. Their competitors attempted 3 unsuccessful drives at Clearwater Fiord and Ooshooalik and by 6 August had run out of ammunition. In 1923, the HBC built an outpost at Clearwater Fd. (=Kingua Fd.; 12-22 Sept.), began to establish a rendering plant at Pangnirtung (Kemper 1980), and bought out its competitors in Cumberland Sound, establishing a virtual monopoly on local trade that lasted until 1965 (Reeves and Mitchell 1981:47). The Cumberland Gulf Trading Company (CGTC) had about 26 half-hides (13 belugas) when their stocks were inventoried for transfer (HBCA A.102/561/57, 23 Sept. 1923 letter from H.J. Purdy and Ralph Parsons). This total of 93 whales contrasts with Soper (1928:75): "In 1923 about six hundred animals were killed." A catch of this magnitude was remarkable and it

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											is surprising that it was not recorded in the post journal where staff kept daily records of individual whale and seal kills.
1924	600	800	800				C=fair, from contemporary on-site estimates of 600-800	Clearwater Fiord	HBC	HBCA B.455/a/5, Fo. 6; Soper (1928: 75)	An HBC drive on 14 July took 600-700 whales (HBCA B.455/a/5, Fo. 6). Soper (1928:75) reported the capture of 800 whales. Kemper (1980:488) cited a report of 2000 animals being driven ashore in the early years, 1923-25, but only the largest 800 were killed and processed for oil. This report likely refers to the 1924 catch. Mitchell and Reeves (1981:670) used the figure of 800 whales, as did Brodie <i>et al.</i> (1981:580). The Sabellum Trading Company supply vessel <i>Rosie</i> collected beluga hides from the Singiyah (Cape Haven) and Kanaker (Cape Mercy area) stations but its log did not mention collecting any from within Cumberland Sound ( <i>Rosie</i> MS 1924).
1925	422	422	422				C=good, from contemporary accounts and records	Clearwater Fiord	HBC	HBCA B.455/a/6/Fo. 13-17;	HBC drives in July took 422 whales (844 half hides) (HBCA B.455/a/6/Fo. 13-17). RCMP Const. L.F. Fielder described the capture of 400 whales in a 5-hour drive at Kingua Fiord on 25 July 1925 (NAC RG18, File G-567-66 Fielder, L.F., 25 July 1925, pp. 25-27). These drives usually took place on the spring tides. The skin and blubber were kept but the meat was allowed to drift away with the tides. Several hundred whales also escaped during the drive. Mitchell and Reeves (1981:670) cited a letter from O.S. Finnie 1/12/26 stating that half the oil was wasted. Kemper (1980:489) estimated the catch at "(800)", possibly based on the half-hide count. The Sabellum Trading Company supply vessel <i>Rosie</i> collected produce from the Singiyah (Cape Haven) and Kanaker (Cape Mercy area) stations but its log did not mention collecting any from within Cumberland Sound ( <i>Rosie</i> MS 1925).

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1926	217	248	248				C=good, from contemporary accounts and records	231 taken at Clearwater Fiord, 17 taken at Pangnirtung Fiord	HBC	HBCA B.455/a/7, Fos. 13-16, 20	The HBC caught over 200 belugas in a drive at Kingua Fd. Between 26 July and 1 August 1926, and 17 in a drive at the head of Pangnirtung Fiord on 18 July 1926 (HBCA B.455/a/7, Fos. 13-16). The first drive at Kingua and one at Oshualuk were unsuccessful. The total catch appears to have been 248 whales—"finished the hides today, 496 each" [presumably half-hides](HBCA B.455/a/7, Fo. 20). Stevenson (1997:97) also estimated the catch at 248. Mitchell and Reeves (1981) cited HBCA B.455/a/7, Fos.13-16 in providing an estimate of 217+. Processing of the cork ( <i>maktaaq</i> ) into high protein cattle feed @20 English pounds /ton was proposed (HBCA A.97/2, Fo. 21, letter by Mr. Townsend dated 12 April 1926). The HBC began installing machinery for processing blubber at Pangnirtung in the fall of 1926 (HBCA A.97/6,Fo.35-43). It was not ready for use until the spring of 1927.
1927	235	242	250				C=good, from contemporary accounts and records	180 taken at Clearwater Fiord; 46 taken at Oshaluk; 16 taken at Pangnirtung Fiord.	HBC	HBCA A97/6, Fo. 44-67;	The HBC caught 180 belugas in a drive at Kingua Fd on 20 July 1927. It was described as the "smallest [yield] during the past 3 years" (HBC B.455/a/8, Fo. 15). A second drive there about a week later was unsuccessful. A third drive at Oshaluk caught 46 on 29 July, and a fourth on 5 August caught 16 near the post in Pangnirtung Fiord. A detailed description of the drives and rendering operation in 1927 was prepared by G. Milling (HBCA A97/6, Fo. 35-67). This was the first year of operation for the new rendering equipment, which did not operate at full efficiency. A total of 136 barrels of oil (which equalled 5440 gal; HBCA A.95/61, Fo. 150) and 7200 lbs of skins were produced from the catch. Mitchell and Reeves (1981:670) cited HBCA B.455/a/8, Fo. 15-20 and estimated the catch at 235 whales ( <i>i.e.</i> , 180+40+15). Stevenson (1997:97) estimated 250 whales caught.
1928	300	325	350				C=fair, from contemporary on-site estimates of 300-350	Clearwater Fiord	HBC	HBCA B.455/a/9, Fo. 12; HBCA E.367/1; Anderson, 1934: 74	An HBC drive on 19 July was unsuccessful, but a drive on the 20 <sup>th</sup> caught over 300 whales (J.W. Sinclair's daily journals, HBCA E.367/1). The July catch was reported in the Post journal as 325-350 belugas (HBCA B.455/a/9, Fo. 12). The oil yield was 160 barrels. See also Mitchell

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											and Reeves (1981:670). Kemper (1980) and Brodie <i>et al.</i> (1981) both estimated 300 whales based on Anderson (1934). Stevenson (1997:97) estimated 350 whales.
1929	240	242	449				C=fair, from contemporary accounts, minimum, hide sales suggest 449	180 Clearwater Fiord, 60 Oshualuk, 2 near Pangnirtung	HBC	HBCA B.455/a/9, Fos. 69-71; see also J.W. Sinclair's daily journals, HBCA E.367/3,4.	The HBC conducted an unsuccessful drive on 23 July but caught 180 or 190 in a drive on 25 July, "many not fully grown" (HBCA B.455/a/9, Fos. 69-71; see also J.W. Sinclair's daily journals, HBCA E.367/3,4). Another drive was conducted "above Oshualuk" on or about 9 August and 60 "large" whales were caught. Two belugas were caught in seal nets. Kemper (1980) reported: HBC, Sgt. O.E. Petty 2/8/29 RCMP reports, 180 females and calves, 60 later. Mitchell and Reeves (1981:670) estimated the catch at 242 belugas; Stevenson (1997:97) at 240. There is good agreement between these figures and the HBC oil sales of 7750 gal for "the 1929 season", but not between their sale of 898 hides which represents about 449 whales (HBCA A95/68/Fo. 136a+b—letter dated 23/1/1930).
1930	272	272	272				C=good, from contemporary account	Clearwater Fiord	HBC	HBCA B.455/a/10, Fos. 7-15	The HBC stranded 500 belugas in a July drive but killed only what they could handle. These 272 whales yielded 10,015 gallons of oil (HBCA B.455/a/10, Fos. 7-15; see also Mitchell and Reeves 1981:670). Kemper (1980:489) indicates that they released 300. Stevenson (1997:97) also estimated 272.
1931	283	283	283				C=fair, contemporary account not seen, minimum	Clearwater Fiord	HBC	Mackenzie, 1948, Table 19 (cited in Mitchell and Reeves 1981:670)	A drive in 1931 caught over 283 belugas (MacKenzie 1948:Table 19 cited in Mitchell and Reeves 1981:670).
1932	183	183	200				C=fair, from a contemporary account, minimum, since 1 drive and 2 boatloads of hides not included	120+ belugas taken at Clearwater Fiord; 40 in a nearby fiord; 8 Pangnirtung area; 15 Bon Accord Harbour	HBC	HBCA B.455/a/12, Fos. 13-33	The HBC conducted 3 drives ca. 24 July 1932 (HBCA B.455/a/12, Fos. 13-33). The first at Kingua Fd caught 120 whales 'very few big', the second in a nearby fiord took 40 'small' [probably Shark Fiord], and the third at Kingua took 'very few'. Belugas (8) were also taken in seal nets—likely near the Pangnirtung post. Inuit brought (15 + 'two boat loads of whale hides got at there [sic] camp'— <i>i.e.</i> , Bonaccord). Mitchell and Reeves (1981:670) estimated the total catch at 200+ belugas. Kemper (1980) reported 183 ( <i>i.e.</i> , 160 plus 23

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	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
								area			from seal nets)--the boatloads of hides were either included in the 23 or missed. Stevenson (1997:97) estimated 160+.
1933	427	427	427				C=good, from a contemporary account	424 taken at Clearwater Fd; 3 at Pangnirtung	HBC	HBCA B.455/a/13, Fos. 8-24	On 13 July 1933, the HBC conducted a single drive that yielded 848 half hides ( <i>i.e.</i> , at least 424 whales) and 12,343 gal of oil (HBCA B.455/a/13, Fos. 8-14). It took at least 5 trips by many boats to return the catch to Pangnirtung for processing. On September 3 belugas were also taken near Pangnirtung in whale and seal nets. This agrees with Mitchell and Reeves (1981:670). Kemper (1980) reported 395; Stevenson (1997:97) reported 425.
1934	18	18	180				C=uncertain: conflicting data, minimum at least 18 were taken, perhaps 180	18 at Bon Accord Harbour	HBC	NAC RG18, File G-567-66, Corey, L.E., 4 May 1935, pp. 149; Stevenson (1997:97)	In the summer of 1934, "porpoise" were obtained only with considerable difficulty and production of hides and oil showed a marked decrease (HBCA RG3/2/9 pp. 135). A drive was attempted and some whales were caught but no numbers were reported (HBCA B.455/a/14, Fos. 8-42 cited by Mitchell and Reeves 1981: 670). In October an Inuit brought in 'a load of whale hide' and in May 1935 women were 'salting whale hide', probably from the previous year. These hides may have been from about 18 belugas that the RCMP reported were caught in the autumn of 1934 at Bon Accord Harbour (NAC RG18, File G-567-66, Corey, L.E., 4 May 1935, pp. 149). Most were taken in nets as the Inuit saw shooting whales as a "waste of ammunition". Stevenson (1997:97) reported a catch of 180 animals but the source is uncertain and the number could not be verified. No data in Kemper (1980).
1935	300	300	300				C=fair, contemporary account but numbers may have been estimates	Clearwater Fiord	HBC	HBCA B.455/a/14, Fos. 51-53	The HBC conducted two drives, one on 23 July 1935 that yielded 200 belugas and another on 31 July that yielded 100 animals, mostly large (HBCA B.455/a/14, Fos. 51-53). The initial catch of 200 animals was described as "a small number of whales". Mitchell and Reeves (1981:670) and Kemper (1980:489) reported the catch as 300. Stevenson (1997:97) apparently missed the data from the second drive and reported the catch as 200.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1936	240	240	240				C=good, contemporary account	Clearwater Fiord	HBC	NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175	The HBC caught 36 whales in a drive at Kingua Fiord in early July (6 <sup>th</sup> or 7 <sup>th</sup> ) and 204 there in a drive later in the month (18-24 July) (NAC RG18, File G-567-66, McDowell, R.G., 27 July 1936, pp. 174-175). Whale meat from the latter drive was cached on a nearby island to be divided among the Inuit, with the HBC taking the rest. Many belugas were passed enroute to the 2 <sup>nd</sup> drive, including a school of ca. 700. Two additional drives were unsuccessful as the whales were becoming familiar with the driving technique and would escape herding by passing under the boats. The catch yielded 170-45 gal. drums of oil. Reeves and Mitchell (1987:24) and Stevenson (1997:97) quote the same catches. Reeves and Mitchell (1987:24) cited a different source: P.A.C., RCMP Rep., 5 August 1937, RG 85, Vol. 1045, file 540-3, part 3-C.
1937	0	0	0				C=good, from contemporary accounts			HBCA RG3/26B/23	The HBC did not conduct a drive in 1937 because it had been unable to sell the whale hides secured previous year (P.A.C., RCMP Rep., 5 August 1937, RG 85, Vol. 1045, file 540-3, part 3-C cited in Reeves and Mitchell 1987:24).. Stevenson (1997:97) also indicated there was no drive in 1937 (see also HBCA RG3/26B/23).
1938	0	0	0				C=good, from contemporary accounts			HBCA RG3/26B/8 and 23	The HBC did not conduct a drive in 1938 (HBCA RG3/26B/23; see also P.A.C., Letter from McKeand to Gibson, 5 Dec. 1938, RG 85, Vol. 1084, file 401-2, part I cited in Reeves and Mitchell 1987:24).. Neither HBCA RG3/26B/8 nor Stevenson (1997:97) mentioned a whale drive in 1938.
1939	300	300	400				C=good, from contemporary accounts	Clearwater Fiord	HBC	HBCA RG3/26B/23; HBCA RG3/35/4 pg. 9; HBCA B.455/a/15, Fo.95	Whaling operations were carried out last summer {1939} after a lapse of 3 years (HBCA RG3/26B/23). A drive was conducted on or about 30 July. In one drive 300 whales were secured, providing 170 barrels of oil (7625 gal) and 7298 lbs of hides. This hide and oil yield was the same as the total for the year (HBCA RG3/35/4 pg. 9). It suggests that the RCMP total of 400+ (P.A.C., RCMP Rep. 20 August 1940, RG 85, Vol., 1045, file 540-3, part 3-C cited in Reeves and Mitchell 1987:24) was high. The drive took place in July and early August and was successful enough that all

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
											boats went back for a second load of whales (HBCA B.455/a/15, Fo.95 cited in Mitchell and Reeves 1981:670). Mitchell and Reeves' (1981:670) initial catch estimate of 150 whales was based on the volume of oil rendered, which was estimated from a photograph (their Fig. 14). Stevenson (1997:97) also estimated 300 whales. Motor boats available included the <i>Nimrod</i> , 32' with a 16 HP Acadia engine, principal tow boat for whaling; <i>Pang'k</i> , 26' with a 13 HP Acadia engine, tow boat when whaling and for general post use; <i>Pinnace</i> , 26' condemned and to be sold; <i>Ungava</i> , 36', engine removed in 1939, used as a scow for whaling operations; and a 12' dingy and 12' canoe for post use (HBCA RG3/26B/23, p. 5).
1940	424	424	424				C=good, from contemporary accounts	Clearwater Fiord	HBC	HBCA RG3/26B/36 J.A. Thom; HBCA SF-White Whales: S.J. Stewart Whaling at Pangnirtung 1940, 3 typed MS p.	The HBC caught 424 belugas and 36 narwhals in 1940 (HBCA RG3/26B/36 J.A. Thom; HBCA SF-White Whales: S.J. Stewart Whaling at Pangnirtung 1940, 3 typed MS p.). A total of 4 drives were carried out, including "fully-manned" trips to Kingua Fiord on 3 and 15 August. The drive on the 15 <sup>th</sup> produced either 358 (S.J. Stewart) or 361 whales (J.A. Thom). The total catch yielded 313 barrels of whale oil and 13,169 lbs of skins that were shipped out in the summer of 1940. Stevenson (1997:97) also estimated 424 belugas.
1941	300	300	300				C=fair, from a contemporary account, minimum, hide weight suggests the catch may have been larger	Clearwater Fiord	HBC	NAC RG18, File G-567-66, Hamilton, R.E., 19 August 1941, pp. 266	The HBC and RCMP caught 300 belugas in a 4 hr drive at Kingua Fiord on 9 August 1941 (NAC RG18, File G-567-66, Hamilton, R.E., 19 August 1941, pp. 266). The skin, blubber, and meat were kept. The meat was divided between the HBC and RCMP, and some was given to the medical officer and Anglican Hospital. A letter from J.W. Anderson dated 13 Jan. 1947 (HBCA RG7/1/715) indicates that the last shipment of hides brought out from the Arctic by the HBC was in 1941, and consisted of 13,000 lbs of hides without cork. This was in response to John Dawborn and Son's interest in obtaining about 500 half hides, which Anderson described as the approximate pre-war production from the eastern Arctic. The HBC apparently sold produce from the 1941 catch at a loss. The close similarity in weight of hides shipped in 1940 (HBCA RG3/26B/36 J.A.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
											Thom) and 1941 (HBCA RG7/1/715 J.W. Anderson letter 13 Jan. 1947), suggests that the reporters were referring to the same shipment and one reported the wrong date. Kemper (1980:489) cited a letter by J.J. Heagerly dated 20/3/42 as stating that the HBC produced a record of 250 tons of oil in 1941. The type of oil and its local origins were not stated and Heagerly's letter was not found.
1942	317	317	317				C=fair: estimate based on hide sales.		HBC	HBCA RG2/22/16	Kemper (1980:489) reported that the HBC conducted a beluga drive in 1942. A total of 10,132.5 lbs of beluga [porpoise] hides was shipped from Pangnirtung in 1942 (HBCA RG2/22/16). At about 32 lbs of hide per whale (Table 1), this would translate to about 317 whales. This appears to contradict a letter from J.W. Anderson dated 13 Jan. 1947 (HBCA RG7/1/715), which states that the last shipment of hides brought out from the Arctic by the HBC was in 1941. Anderson may have been referring only to overseas shipments.
1943	157	157	157				C=good, contemporary catch record	Clearwater Fiord	HBC	HBCA RG3/74B/10	The HBC caught 157 whales in an early August drive (before the 5 <sup>th</sup> ), mostly smaller animals as many of the large whales broke through the cordon and escaped (HBCA RG3/74B/10). A second drive conducted between 14 and 21 August was unsuccessful. The HBCA RG2/22/16 lists the sale of 6500 lbs of porpoise hides (i.e., beluga) from Pangnirtung in 1943. This appears to contradict a letter from J.W. Anderson dated 13 Jan. 1947 (HBCA RG7/1/715), which states that the last shipment of hides brought out from the Arctic by the HBC was in 1941. Anderson may have been referring only to overseas shipments.
1944							C=uncertain, likely low	Clearwater Fiord	HBC	HBCA RG3/74B/25	The HBC conducted a drive on 5 August but the catch was "poor" (HBCA RG3/74B/25).
1945	10	10	10				C=good, contemporary catch record, minimum	Clearwater Fiord	HBC	HBCA RG3/74B/25	The HBC caught 10 belugas at Kingua on 30-31 July and tried again in early August with "no real success" (HBCA RG3/74B/25).
Drives organized by Inuit (1946-1960)											



Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1946							C=uncertain, likely low			HBCA RG7/1/715, in lit. 22 October 1946	The HBC hide shed was demolished and rebuilt as a warehouse (HBCA RG7/7A/248). No beluga whale oil was available in 1946 (HBCA RG7/1/715, in lit. 22 October 1946).
1947							C=uncertain, likely low			HBCA RG7/1/715	J.W. Anderson in a letter on 5 March 1947 (HBCA RG7/1/715), advised the HBC post manager not to undertake a drive as it was “quite an expensive operation costing upwards of \$5,000.00”—but also instructed the manager to obtain a few barrels of hides for tanning at John Dawbarn and Sons, The Tannery, Market Harborough, Leicestershire, England. In a letter dated 13 Jan. 1947, J.W. Anderson mentions that the equipment used at Pangnirtung for processing whales had deteriorated during the war.
1948	80	105	107				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 107 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Kemper (1980:489) estimated the commercial catch at 105 whales from the HBC data on the oil yield for the year, using a rate of 32.7 gal/whale. Kemper based his conversion on a higher total oil yield (3,420 gal. oil, C.W. Douglas). Brodie (1970:113) believed that the average oil yield may have been closer to 40 gal/whale and estimated the catch at 80 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 105 and subsistence estimate of 40 (see also 1954).
1949	128	171	171				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 171 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 128 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 171 and subsistence estimate of 40 (see also 1954).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1950	65	87	87				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 87 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 65 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 87 and subsistence estimate of 40 (see also 1954).
1951	219	292	292				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 292 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 219 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 292 and subsistence estimate of 40. Note from P.A.C. Nichols (HBCA RG7/1/715) indicates that 8766 gal of porpoise [beluga] oil was shipped from Pangnirtung in 1951 (see also 1954).
1952	156	204	204				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 204 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 156 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 204 and subsistence estimate of 40. (see also 1954)
1953	160	213	213				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 213 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 160 whales; he also suggested that another 40 whales may have been caught for subsistence

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
											(see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 213 and subsistence estimate of 40. (see also 1954)
1954	140	186	186				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 186 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) believed that the oil yield may have been closer to 40 gal/whale and estimated the catch at 140 whales; he also suggested that another 40 whales may have been caught for subsistence (see also Brodie <i>et al.</i> 1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 186 and subsistence estimate of 40. Most whales processed at the Pangnirtung plant in 1954 were taken by individual Inuit using their own boats (Reeves and Mitchell 1981:48). In an article published in April 1954, J.W. Anderson (1954) wrote that there had been no organized whale hunt at Pangnirtung for the past 6 years—likely meaning that the HBC did not drive whales, but that Inuit brought hides and fat to the post for sale. There they were flensed, the blubber ground into oil, and hides dry-salted and packed for shipment. The “present day” industry was described as quite modest, yielding 6000-8000 gallons of oil and 8000 to 13000 lbs of hides.
1955	192	255	255				C=fair, estimated from oil yield		Inuit	HBC oil records (Sergeant 1962:Table 1)	Sergeant (1962:Table 1) estimated the commercial catch at 255 whales from the HBC data on the oil yield for the year, using a rate of 30 gal/whale. Brodie (1970:113) suggested that the oil yield may have been closer to 40 gal/whale and estimated the catch at 194 whales. He also suggested that another 40 whales may have been caught for subsistence. The commercial catch estimate was reduced to 192 by Brodie <i>et al.</i> (1981:580). Kemper (1980:489) and Strong (1989:10) used a commercial estimate of 255 and subsistence estimate of 40 whales.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1956	100	100	225	25	25	40	C+S=fair, contemporary estimates		Inuit	RCMP Game Report (Sergeant 1962:Table 1)	Sergeant (1962:Table 1), Brodie (1970:113), and Kemper (1980:489) cited the RCMP catch estimate of 125 whales. Sergeant and Kemper both indicated that the Inuit traded (100) whales to the HBC, suggesting that the other 25 whales were caught for subsistence. Brodie (1970:113) suggested that another 40 whales may have been caught for subsistence, and Kemper (1980:489) included these whales to arrive at the same total of 165 whales. These authors considered the traded whales to be the commercial total, but Strong (1989) added the traded whales to the RCMP catch estimate to arrive at a commercial total of 225 whales.
1957	100	100	100	4	4	4	C=uncertain, source could not be verified.	Blacklead Island area	Inuit	NAC RG18, File TA-500-20-10-14, Barr, G.G., 1957- 1958, p. 3; Commercial from RCMP Game Report; Sergeant 1962:Table 1	Sergeant (1962:Table 1) and Brodie (1970:113) cite an RCMP catch estimate of 104 whales. Brodie (1970:113) suggested that another 40 whales may have been caught for subsistence. Both Kemper (1980:489) and Strong (1989:12) used the same numbers as Brodie. These estimates are at odds with the RCMP report on Game Conditions, which states that no belugas were traded as ice conditions would not allow the Inuit to hunt during the migration season—Pangnirtung Fiord was the only place with open water during July and August (NAC RG18, File TA-500-20-10-14, Barr, G.G., 1957-1958, p. 3). Four whales were killed by Inuit but not traded. Kilabuk (1998:56) reported the entrapment of over 100 belugas in the fall of 1956—these whales may make up the other 100 animals cited by above by Sergeant and Brodie. Mitchell and Reeves (1981: 673) cited the Pangnirtung RCMP Game Report for 1956-57 as the source of information on the entrapment and capture of at least 100 belugas in the Blacklead Island area of Cumberland Sound in the spring of 1957.

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1958	42	42	42	20	20	20	C=good: from contemporary trade record, S=fair: minimum, contemporary on-site estimate, could be 60.		Inuit	NAC RG18, File TA-500-20-10-14, Jenkin, T.C., 1958-1959, p. 6; Subsistence letter from R.A.J. Phillips, 10/1/58 (Kemper 1980:489)	Inuit traded 42 belugas to the HBC for processing, and may have caught another 20 that were not traded (NAC RG18, File TA-500-20-10-14, Jenkin, T.C., 1958-1959, p. 6). Anders (ed.) (1967:186), Sergeant (1962:Table 1), Brodie (1970:113), and Kemper (1980:489) all cited this estimate (either 62 or 63 whales) as the commercial catch. Brodie (1970:113) suggested that another 40 may have been caught for subsistence. Kemper (1980:489) and Strong (1989:10) suggested that 100 whales may have been caught for subsistence, based on a letter from R.A.J. Phillips. The addition of 40 or 100 whales to these totals may result in "double-counting" of the subsistence and possibly the commercial catches.
1959	153	153	153				C=good: from contemporary trade record		Inuit	NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1959-1960, p. 16-17	153 whales were traded to the HBC for processing (NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1959-1960, p. 16-17). Inuit used the whale meat for dog food. Sergeant (1962:Table 1), Anders (ed.) (1967:186), Brodie (1970:113), Kemper (1980:489), Brodie <i>et al.</i> (1981:580), and Strong (1989:10) all cited this number for commercial catch. Brodie (1970:113) suggested that an additional 40 whales may have been caught for subsistence.
1960	155	155	155				C=good: from contemporary trade record		Inuit	NAC RG18, File TA-500-20-10-14, C.B., 1960-1961, p. 21-22	155 whales were traded to the HBC for processing (NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1960-1961, p. 21-22). Inuit used the whale meat for dog food. Sergeant (1962:Table 1), Anders (ed.) (1967:186), Brodie (1970:113), Kemper (1980:489), Brodie <i>et al.</i> (1981:580), and Strong (1989:10) all cited this number for commercial catch. Brodie (1970:113) suggested that an additional 40 whales may have been caught for subsistence.
Inuit subsistence (1961-2016)											

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1961	60	60	60				C=good, from contemporary trade record		Inuit	NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1961-1962, p. 28- 29	60 whales were traded to the HBC for processing (NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1961-1962, p. 28-29). Inuit used the whale meat for dog food. Sergeant (1962:Table 1), Anders (ed.) (1967:186), Brodie (1970:113), Kemper (1980:489) and Brodie <i>et al.</i> (1981:580), and Strong (1989:10) all cited this number. Brodie (1970:113) suggested that another 40 whales may have been caught for subsistence.
1962	0	0	8	52	52	52	C=good, from former HBC manager		Inuit	Ross Peyton, HBC (Kemper 1980:489)	Ross Peyton the former HBC manager reported a catch of 52 belugas (Kemper 1980:489). Strong (1989:10) used the same estimate. The RCMP reported that 3,260 lbs of blubber were traded to the HBC (NAC RG18, File TA-500-20-10-14, Alexander, C.B., 1962- 1963, p. 34-35). Based on an estimate of 420 lbs of blubber per whale, this might have represented about 8 whales. Whether these whales were included in Peyton's total is unknown. Inuit used the meat from the traded whales for dog food.
1963	167	167	167				C=fair, estimated from blubber and oil sales for the year		Inuit	NAC RG18, File TA-500-20-10-14, McPhee, M.J., 1963-1964, p. 38- 39	The RCMP reported 10,803 lbs of beluga blubber and 4,224 gal. of beluga oil were traded by the HBC (NAC RG18, File TA-500- 20-10-14, MCPhee, M.J., 1963-1964, p. 38-39). Based on an estimate of 420 lbs of blubber or 30 gal of oil per whale, this may represent 26 + 141 whales. Inuit used the meat from the traded whales for dog food. Kemper (1980:489) and Strong (1989:10) reported a landed catch of 46. The source of this number is uncertain.
1964				69	69	150	C=uncertain, conflicting data, minimum 69, maximum 150		Inuit	Kemper (1980:489)	Footo (1966 cited in Kemper 1980:489) reported a catch of 69 based on the RCMP Game report. This number was not found in the published version of the report ( <i>i.e.</i> , Anders (ed.) 1967). Strong (1989:10) reported the capture of 150 belugas, the source is uncertain. RCMP reported that hunting of belugas was declining due to lack of a local market for oil or skins, but that "a good number" were taken to feed sled dogs (NAC RG18, File TA-500-20-10-14, MCPhee, M.J., 1 July 1964 – 30 June 1965, p. 43-43).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1965				65	65	65	C=fair, source of original data unknown		Inuit	Kemper (1980:489)	Kemper (1980:489) reported a catch of 65 belugas. The source of this number is uncertain. Strong (1989:10) used the same estimate. Contemporary RCMP reports indicated that "large numbers were taken for dog food, but that the price offered for whale skin did not entice the Inuit to hunt extensively for commercial sale (NAC RG18, File TA-500-20-10-14, Grabowski, J.S., 1 July 1965 – 30 June 1966, p. 49-50).
1966	45	45	45	24	35	75	C=good, on- site scientific sampling, S=good, on- site observation.	All netting was carried out in Clearwater Fiord	Inuit and DIAND	Brodie (1970:113)	Brodie's (1971:113) estimated the "non-commercial kill" at 80 belugas. Kemper (1980:489) and Strong (1989:10) estimated the catch at 120 belugas, perhaps based on Anders' (ed.) (1967:42) statement that "fewer than 60 [whales] are killed annually by the Eskimos" plus a scientific permit for sampling 60 whales. Brodie (1967:4) wrote "During the summer of 1966, the Department of Indian Affairs and Northern Development began a program in Cumberland Sound to encourage the use of nylon nets by Inuit for the purpose of capturing whales. This was carried out in an attempt to train Inuit in the use of large nets and to revitalize a small whaling industry based on netting." He scientifically sampled 58 from the nets and 11 from the hunt (35 male: 34 female); 11 were recently born calves (6 male: 5 female). Larger netted animals were skinned and about 90 sides (i.e., 45 whales) were sold to the HBC. Blubber was rendered over an open fire, using the waste material left after rendering the blubber (grax) for fuel. About 32 drums of oil (1440 gal) were rendered (~32 gal/whale). <i>Maktaaq</i> was used for human consumption and some of the carcasses were used for dog food (NAC RG18, File TA-500-20-10-14, Stechly, E.J. Cst., 1 July 1966 – 30 June 1967, p. 57-58).
1967				55	60	100	S=good, on- site scientific sampling	mostly in Clearwater Fiord	Inuit and DFO	Brodie (1970:113)	Brodie (1970:113) sampled 6 whales from hunts and 49 taken in nets for scientific purposes at Clearwater Fiord (see also 1966). He estimated the "non-commercial" catch at 60 whales. The scientific sample was purposely biased towards younger animals. Kemper (1980:489) and Strong (1989:10) estimated the catch at 100 belugas, adding 40 whales taken

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
											for subsistence to Brodie's total. Brodie (1970:110) estimated the Clearwater Fiord population at 769 animals in late August 1967. He estimated that, overall, at least 40 adult belugas and calves were taken annually for subsistence by the camps in Cumberland Sound (Brodie 1970:111). These camps were being abandoned at the time as people concentrated at Pangnirtung, with consequent reduction in whale mortality. In 1967 there were no longer organized whale drives but Inuit still brought hides to the HBC for sale (Anon. 1967). The oil rendered was shipped to Montreal for making oleomargarine and fine soaps; hides were sent to England for making shoelaces and belts. The RCMP estimated that 28 whales were taken for human and dog food (NAC RG18, File TA-500-20-10-14, Fox, M.T., 1 July 1967 – 30 June 1968, p. 64-65).
1968				27	27	50	S=fair, on-site, contemporary estimate, minimum, DFO estimated 50		Inuit	NAC RG18, File TA-500-20-10-14, Kearley, H., 1 July 1968 – 30 June 1969, p. 75; G. Robins, DFO (cited in Kemper 1980:489)	The RCMP estimated that 27 whales were taken for human and dog food (NAC RG18, File TA-500-20-10-14, Kearley, H., 1 July 1968 – 30 June 1969, p. 75). G. Robins, DFO (cited in Kemper 1980:489) estimated the catch at 50 whales. Strong (1989:10) used the same number.
1969				50	60	60	S=fair, on-site, contemporary estimate, minimum, DFO estimated 50		Inuit	NAC RG18, File TA-500-20-10-14, Kearley, H., 1 July 1969 -30 June 1970, pp. 78-79	The RCMP estimated that 60 whales were taken for human and dog food (NAC RG18, File TA-500-20-10-14, Kearley, H., 1 July 1969 -30 June 1970, pp. 78-79). G. Robins, DFO (cited in Kemper 1980:489) estimated the catch at 50 whales. Strong (1989:10) used the same number. The community of Pangnirtung's attempt to self-regulate the catch began in 1969 (Strong 1989:2).
1970				100	100	100	S=fair, on-site, contemporary estimate.		Inuit	G. Robins, DFO (cited in Kemper 1980:489)	G. Robins, DFO (cited in Kemper 1980:489) estimated the catch at 100 whales. Strong (1989:10) used the same number.
1971				50	50	50	S=fair, contemporary estimate		Inuit	G. Robins, DFO (cited in Kemper 1980:489)	Strong (1989:10) used the same estimate.



Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1972				50	61	61	S=fair, on-site, contemporary estimate, minimum, DFO estimated 61		Inuit	RCMP Game Rep.+ HBC records (Brodie <i>et al.</i> 1981:580)	Strong (1989:10) used the same estimate. Kemper (1980:489) reported a catch of 50 based on an earlier DFO estimate by G. Robins.
1973				40	43	43	S=fair, contemporary estimate		Inuit	data compiled by DFO (Brodie <i>et al.</i> 1981:580)	Strong (1989:10) used the same estimate. Kemper (1980:489) reported a catch of 40 based on an earlier DFO estimate by G. Robins.
1974				44	125	125	S=fair, contemporary estimate		Inuit	Brodie <i>et al.</i> (1981:580); G. Robins, DFO citedd in Kemper (1980:489)	DFO has variously reported the 1974 subsistence catch as 44 (Brodie <i>et al.</i> 1981) or 125 belugas (G. Robins, DFO cited in Kemper 1980:489). The latter report stated that the catch increased sharply in 1974 when Inuit began to sell <i>maktaaq</i> to the Co-op for resale (Kemper 1980:489) but Brodie <i>et al.</i> (1981:580) reported that these sales did not begin until 1976. Strong (1989:10) reported the same estimate as Kemper.
1975				50	50	50	S=fair, contemporary estimate		Inuit	G. Robins, DFO (Kemper 1980:489)	Brodie <i>et al.</i> (1981:580) and Strong (1989:10) used the same estimate, which may be based on earlier estimates rather than an actual count.
1976				120	120	120	S=fair, contemporary estimate, minimum.		Inuit	G. Robins, DFO (Kemper 1980:489)	Brodie <i>et al.</i> (1981:580) and Strong (1989:10) used the same estimate. There was an increase in the catch from 1976 to 1979 associated with the sale of <i>maktaaq</i> by the Pangnirtung Cooperative to other settlements (Brodie <i>et al.</i> 1981:580)
1977				178	178	178	S=fair, contemporary estimate		Inuit	G. Robins, DFO (Kemper 1980:489)	Brodie <i>et al.</i> (1981:580) and Strong (1989:10) used the same estimate. There was an increase in the catch from 1976 to 1979 associated with the sale of <i>maktaaq</i> by the Pangnirtung Cooperative to other settlements (Brodie <i>et al.</i> 1981:580). McLaren-Marex (1978) conducted an aerial photo survey of Clearwater Fiord on 16 August 1977. They counted 624 whales and estimated the population before the seasons hunt at 803 (see also Brodie <i>et al.</i> 1981:581)

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1978				85	85	85	S=fair, contemporary estimate, minimum.		Inuit	data compiled by DFO (Kemper 1980:489)	Brodie <i>et al.</i> (1981:580) and Strong (1989:10) used the same estimate. There was an increase in the catch from 1976 to 1979 associated with the sale of <i>maktaaq</i> by the Pangnirtung Cooperative to other settlements (Brodie <i>et al.</i> 1981:580)
1979				70	70	70	S=fair, contemporary estimate		Inuit	data compiled by DFO (Brodie et al. 1981:580)	Strong (1989:10) used the same estimate. Brodie <i>et al.</i> (1981:580) estimated the catch at 82 whales. There was an increase in the catch from 1976 to 1979 associated with the sale of <i>maktaaq</i> by the Pangnirtung Cooperative to other settlements (Brodie <i>et al.</i> 1981:580). This trade was discouraged in 1979.
1980				43	43	43	S=fair, contemporary estimate		Inuit	Strong (1989:11)	DFO established an annual community catch quota of 40 belugas for the 1980-81 hunting season (Brodie <i>et al.</i> 1981:582; Strong 1989). BRIA estimate, extrapolated from the catch reported, was 85 (J. Pattimore unpubl. data). This estimate may have been inflated by extrapolation of a small sample of hunter catches (Donaldson 1988: 238).
1981				45	45	45	S=good, contemporary estimate		Inuit	Strong (1989:11)	BRIA estimate, extrapolated from the catch report of 29 (Donaldson 1983: Table 26) was 30±1.5 (Donaldson 1988:70).
1982				40	40	40	S=good, scientific sampling of hunts	17 outside and at least 21 inside Clearwater Fiord (Orr and Richard 1985)	Inuit	Strong (1989:11)	DFO monitored 3 hunts at Clearwater Fiord (Orr and Richard 1985). The first on 21 July lasted from 0400-1630. It involved 4-7.3 m freighter canoes with 9 hunters initially and increased to 8 canoes with 17 hunters as the day progressed; 19 whales were landed. All dead whales seen by DFO floated, so sinking losses were believed to be low. The second on 22 July lasted from 0930-1130, involved 7 hunters in 3 freighter canoes, and did not land any whales. The third on 24 July lasted from 1030-1630. It involved 2 hunters in a freighter canoe and 1 in a 7.3 m fiberglass Lake Winnipeg fishing yawl. Two whales were landed. BRIA estimate, extrapolated from the catch reported, was 31±2.9 (Donaldson 1988:70).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1983				44	44	44	S=good, scientific sampling of hunts	16 outside and at least 20 inside Clearwater Fiord (Orr and Richard 1985)	Inuit	Strong (1989:11)	DFO monitored a hunt at Clearwater Fiord on 15 August that lasted from 0310-0845 (Orr and Richard 1985). It involved 25 vessels (7.3 m freighter canoes and 7.3 Lake Winnipeg fishing yawls) and 52 hunters. About 20 whales were landed. The BRIA estimate, extrapolated from the catch reported, was 128±17 (Donaldson 1988:70). Based on the onsite observations this extrapolation may have inflated the estimate.
1984				40	40	40	S=good, scientific sampling of hunts	27 outside and at least 11 at Clearwater Fiord (Orr and Richard 1985)	Inuit	Strong (1989:11)	DFO monitored 8 hunts at Clearwater Fiord (Orr and Richard 1985). 1) 16 August: involved 8 hunters in 4 freighter canoes, lasted from 0845-2130 h, landed 6 whales, 1 dead whale sank and was lost, 10-12 others may have been wounded. 2) 17 August: 10 men in 5 freighter canoes, lasted from 1745-2100 h, and did not land any whales. 3) 18 August: 11 hunters in 6 canoes, lasted from 1145-2130 h, landed 1 whale, may have wounded 9. 4) 20 August: 3 hunters in 2 canoes, lasted from 0945-1245 h, and did not land any whales. 5) 21 August: 1 canoe, lasted from 1600-2010 h, no whales were landed but 3 were wounded. 6) 23 August: 2 hunters, lasted from 1000-1750 h, landed one whale. No others were believed to have been wounded. 7) 24 August: 2 hunters—another joined at 1130 h, lasted from 0900-1800 h, and landed 1 whale. The number wounded is unknown. 8) 25 August: 3 hunters, lasted from 0830-1330 h, and landed 2 whales. The BRIA estimate, extrapolated from the catch reported (2), was 6 (Pattimore 1985:109).
1985				44	44	44	S=good, quota monitoring		Inuit	Strong (1989:11)	In 1985 the Pangnirtung Hunters and Trappers Association banned beluga hunting in Clearwater Fiord (Richard and Pike 1993:140).
1986				26	26	26	S=good, quota monitoring		Inuit	Strong (1989:11)	
1987				40	40	40	S=good, quota monitoring		Inuit	Strong (1989:11)	
1988				44	46	48	± 5% S=good, quota monitoring		Inuit	RRO (DFO 1991: 56)	

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1989				38	42	46	± 10% S=good, quota monitoring		Inuit	RRO (DFO 1992a+G25: 58)	
1990				30	36	43	± 20% S=fair, quota monitoring		Inuit	RRO (DFO 1992b: 64)	In June 1990, DFO lowered the annual catch quota to 5 belugas (Richard and Pike 1993). Similar restrictions were placed on the Iqaluit and Kimmirut (formerly Lake Harbour) beluga hunts. The hunters ignored this quota reduction.
1991				28	31	34	± 10% S=good, quota monitoring		Inuit	HTA (DFO 1993: 66)	To mend relations between DFO and the hunters a formal co-management structure was established, and a quota of 35 animals was implemented for the 1991-1992 season by DFO Central and Arctic Variation Order (Richard and Pike 1993:140; Planning Committee for the Co-Management of Southeast Baffin Beluga 1994:47ff.).
1992				33	35	37	± 5% S=good, quota monitoring		Inuit	Fisheries Officer (DFO 1994: 101)	
1993				15	15	15	± 0% S=good, quota monitoring		Inuit	Fisheries Officer (DFO 1995: 81)	
1994				34	35	36	± 3% S=good, quota monitoring		Inuit	Fisheries Officer (DFO 1996: 82)	In 1994, the Pangnirtung HTA extended the no hunting zone to include both Clearwater and Shark fiords (Planning Committee for the Co-Management of Southeast Baffin Beluga 1994).
1995				30	31	32	± 3% S=good, quota monitoring		Inuit	Fisheries Officer (DFO 1997: 76)	
1996				40	41	42	± 3% S=good, quota monitoring		Inuit	Fisheries Officer (DFO 1999: 68)	The NWMB harvest study reported beluga catches in July – September, and estimated the total catch at 54±17 (Priest and Usher 2004:321). This estimate was considered high and may have been inflated by low response rates early in the year.
1997				47	47	47	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	The NWMB harvest study reported beluga catches in June - August, and estimated the total catch at 41±14 (Priest and Usher 2004:324).

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
1998				35	35	35	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	The NWMB harvest study reported beluga catches in June and July, and estimated the total catch at 10 (Priest and Usher 2004:327). Community feedback suggested that the NWMB estimate was low.
1999				50	50	50	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	The NWMB harvest study reported beluga catches in May –August and October t, and estimated the total catch at 36 (Priest and Usher 2004:327 and 330). Community feedback suggested that the NWMB estimate was low.
2000				37	37	37	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	The NWMB harvest study reported beluga catches in May, July and August, and estimated the total catch at 36 (Priest and Usher 2004:330 and 333).
2001				39	39	39	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	In September, DFO issued a Variation Notice allowing the harvest of 3 belugas entrapped by ice near Avatakttoo; 2 were caught and 1 killed and lost (P. Hall, DFO Winnipeg, pers. comm.).
2002				41	41	41	S=good, quota monitoring		Inuit	DFO unpubl. data (I. Itorcheak, DFO Iqaluit, pers. comm.)	The annual catch quota was raised to 41 for the 2002-2003 hunting season (DFO 2002:3) and has been maintained at that level since then ( <i>i.e.</i> , through 2016-2017 season) using annual DFO Variation Orders (P. Hall, DFO Winnipeg, pers. comm.). As a condition of this increase the community was to collect information on struck and loss rates and landings. Pangniirtung hunters hunt belugas mostly in summer and avoid taking calves and females with calves (DFO 2002:3).
2003				46	46	46	S=good, quota monitoring		Inuit	DFO unpubl. data (A. Currie, DFO Iqaluit, pers. comm. Sept. 2010)	
2004				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2005				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	

Year (1)*	Commercial			Non-Commercial			Confidence <sup>1</sup> (8)	Location <sup>2</sup> (9)	Hunter affiliation (10)	Primary data sources (11)	Comments (12)
	Min (2)	Best (3)	Max (4)	Min (5)	Best (6)	Max (7)					
2006				52	52	52	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	In the fall of 2005, 5 belugas were entrapped by ice near the head of Kangerk Fiord (P. Hall, DFO Winnipeg, pers. comm.). In February 2006, 1 was landed and 1 struck and lost. The HTA herded about 10 belugas out of the Tajagiaq area in early October to prevent the whales from being entrapped by ice.
2007				48	48	48	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2008				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2009				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2010				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2011				42	42	42	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2012				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2013				41	41	41	S=good, quota monitoring		Inuit	Hall <i>et al.</i> 2015	
2014				41	41	41	S=good, quota monitoring		Inuit	DFO unpubl. data (P. Hall, DFO Winnipeg, pers. comm. 2017)	
2015				18	18	18	S=good, quota monitoring		Inuit	DFO unpubl. data (P. Hall, DFO Winnipeg, pers. comm. 2017)	The summer beluga hunt was limited by the presence of large amounts of ice in Cumberland Sound.
2016				41	41	60	S=good, quota monitoring		Inuit	DFO unpubl. data (P. Hall, DFO Winnipeg, pers. comm. 2017)	The HTO officially reported the catch as 41 belugas but anecdotal reports suggest about 60 belugas may have been caught.

<sup>1</sup> The confidence limits between 1988 and 1996 are based on the subjective judgment of the RRO or DFO personnel who compiled the data, not statistical calculations. Other comments are subjective judgments about the reliability of the data (*i.e.*, good, fair, uncertain, about, minimum--see text for explanation).

## Appendix 2. Newspaper Archives

During the period of interest to this study many of the newspapers changed their titles. This can complicate archival searches, since the articles may be listed under the title that appears on their header or under a shorter title that better reflects the long-term continuity of the paper. These title relationships are summarized below for newspapers of interest that the British Newspaper Archives has or plans to have:

### Aberdeen Evening Express

- 1879–99 Aberdeen Evening Express
- 1899–1999 Evening Express

### Aberdeen Free Press

- 1853–53 The Aberdeen Free Press and North of Scotland Review
- 1854–55 The Aberdeen Free Press
- 1855–69 The Aberdeen Free Press, Peterhead, Fraserburgh, and Buchan News, and North of Scotland Advertiser
- 1869–72 The Aberdeen Free Press, and North of Scotland Advertiser
- 1872–74 The Aberdeen Daily Free Press
- 1874–1900 The Daily Free Press

### Aberdeen Herald and General Advertiser

- 1832–76 The Aberdeen Herald and General Advertiser for the Counties of Aberdeen, Banff and Kincardine

### Aberdeen People's Journal

- 1861–77 Aberdeen, Banff and Kincardine People's Journal
- 1877–1908 People's Journal for Aberdeen, Banff, Kincardine, etc.
- 1909–13 Aberdeen People's Journal
- 1913–50 People's Journal

### Aberdeen Press and Journal

- 1747–99 Aberdeen Journal
- 1798–1899 The Aberdeen Journal and General Advertiser for the North of Scotland
- 1876–1903 Aberdeen Weekly Journal and General Advertiser for the North of Scotland
- 1877–1901 Aberdeen Journal, and General Advertiser for the North of Scotland
- 1901–22 Aberdeen Daily Journal
- 1922–39 Aberdeen Press and Journal
- 1939–2001 Press and Journal

### Ballymena Observer

- 1857–1958 The Ballymena Observer

### Bristol Times and Mirror

- 1839–53 Bristol Times and Bath Advocate
- 1853–64 Bristol Times, and Felix Farley's Bristol Journal
- 1865–72 Daily Bristol Times and Mirror

### Bury Free Press

- 1856–1955 The Bury Free Press

### Cardiff Times

- 1858–1900 The Cardiff Times, etc.

### Cheltenham Chronicle

- 1809–49 The Cheltenham Chronicle and Gloucestershire Advertiser

- 1850–87 The Cheltenham Chronicle and Parish Register and General Advertiser for Gloucestershire and adjoining counties
- 1887–1900 The Cheltenham Chronicle
- 1901–60 Cheltenham Chronicle and Gloucestershire Graphic

#### Cheltenham Looker-on

- 1833–35 The Looker-On: a note book of the sayings and doings of Cheltenham
- 1836–1913 The Cheltenham Looker-On
- 1913–19 The Looker-On
- 1919–20 The Cheltenham & County Looker-On

#### Cornubian and Redruth Times

- 1867–79 The Redruth Times, and Camborne Advertiser
- 1879–1904 The Cornubian and Redruth Times
- 1904–24 The Cornubian and Cornwall County Times
- 1911–24 The Cornubian and Cornwall Mining Times
- 1924–25 Cornwall County Times

#### Daily Herald (London; 1911-1961)

- 1911–14 The Daily Herald
- 1914–18 The Herald
- 1919–61 Daily Herald

#### Driffield Times (1869-1949)

- 1869-1949 The Driffield Times

#### Dundee Advertiser (founded as the Dundee Perth and Cupar Advertiser)

- 1861–1926 Dundee Advertiser (then amalgamated with Dundee Courier)

#### Dundee Courier

- 1839–61 Dundee Courier
- 1861–62 Dundee Courier and Daily Argus
- 1862–99 The Dundee Courier & Argus
- 1874–99 The Dundee Courier & Argus
- 1900–26 The Courier and Argus
- 1926–26 Dundee Advertiser and Courier
- 1926–26 Dundee Courier and Advertiser
- 1926–55 Courier and advertiser

#### Dundee Evening Post

- 1900–05 The Evening Post

#### Dundee Evening Telegraph

- 1877–1904 The Evening Telegraph
- 1905–50 The Evening Telegraph and Post

#### Dundee People's Journal

- 1858–68 Dundee, Perth and Forfar People's Journal. [Dundee, Perth, Forfar, and Fife People's Journal]
- 1869–1905 People's Journal for Dundee
- 1905–50 The People's Journal

#### Dundee Weekly News

- 1856–85 The Weekly News
- 1885–92 The Dundee Weekly News

#### Dundee Yearbook (1901)

#### Dundee Perth and Cupar Advertiser:



- 1839–61 Dundee, Perth, and Cupar Advertiser
- 1861–64 Dundee Advertiser (see above Dundee Advertiser)

#### Edinburgh Evening Courant

- 1727–1871 The Edinburgh Evening Courant

#### Edinburgh Evening News

- 1873–1955 Edinburgh Evening News

#### Evening Star

- 1885–93 The Star of the East.
- 1893–1909 Evening star (Ipswich, England)

#### Fife Herald

- 1824–81 The Fife Herald, Kinross, Strathearn and Clackmannan Advertiser
- 1862–93 The Fife Herald
- 1893–1955 The Fife Herald & Journal

#### Fifeshire Advertiser

- 1849–53 Fifeshire Advertiser, of News, Politics, and Local Occurrences
- 1853–53 Fifeshire Advertiser
- 1853–54 Fifeshire Advertiser, and Scottish Midland Counties Weekly Telegraph of News, Politics, and Local Occurrences
- 1854–1956 The Fifeshire Advertiser

#### Globe

- 1804–22 The Globe.
- 1822–1921 The Globe and Traveller

#### Graphic

- 1869–1932 The Graphic

#### Greenock Telegraph and Clyde Shipping Gazette:

- 1857–1909 The Greenock Telegraph and Clyde Shipping

#### Hull and Eastern Counties Herald

- 1838–61 Eastern Counties Herald, etc.
- 1861–72 Hull and Eastern Counties Herald

#### Illustrated Sporting and Dramatic News

- 1874–1943 Illustrated Sporting and Dramatic News
- 1944–57 Sport & Country
- 1958–70 Farm & Country

#### John o'Groat Journal

- 1836–1952 John o' Groat Journal

#### Lancaster Gazette

- 1801–03 The Lancaster Gazetteer, and General Advertiser for Lancashire, Westmorland
- 1801–94 The Lancaster Gazette

#### Larne Times

- 1893–1936 The Larne Times and Weekly Telegraph
- 1936–55 Larne Times

#### Leeds Intelligencer

- 1754–1809 The Leeds Intelligencer
- 1809–18 Wright's Leeds Intelligencer
- 1819–66 The Leeds Intelligencer and Yorkshire General Advertiser

#### Lloyd's List

- 1801–84 Lloyd's list

- 1884–1914 Shipping & Mercantile Gazette and Lloyd's List (London, England : 1884)

#### London Evening Standard

- 1827–1909 The Standard
- 1860–71 The evening standard
- 1920–22 Evening standard

#### Manchester Courier and Lancashire General Advertiser

- 1825–1916 Manchester Courier, and Lancashire General Advertiser

#### Montrose, Arbroath and Brechin review; and Forfar and Kincardineshire Advertiser

- 1818–1919 Montrose, Arbroath and Brechin Review; and Forfar and Kincardineshire Advertiser
- 1919–23 Montrose Review
- 1923–34 Montrose Review, and Forfar and Kincardineshire Advertiser
- 1930–59 Montrose Review, and Angus and Kincardineshire Advertiser

#### Morning Advertiser

- 1804–72 Morning Advertiser (London, England : 1801)

#### North Devon Journal

- 1824–1941 The North Devon Journal
- 1941–50 The North Devon Journal - Herald

#### Northampton Mercury

- 1733–1931 Northampton Mercury
- 1931–55 Mercury & Herald.

#### Nottingham Evening Post

- 1878–1961 The Nottingham Evening Post

#### People's Journal (See Dundee People's Journal)

#### People's Journal for Dundee (See Dundee People's Journal)

#### Peterhead Sentinel and General Advertiser for Buchan District

- 1858–66 Peterhead Sentinel and General Advertiser for Buchan District
- 1866–1914 Peterhead Sentinel and Buchan Journal, and General Advertiser for Aberdeenshire

#### Sheffield Evening Telegraph

- 1887–88 Sheffield Evening Telegraph
- 1888–97 Evening Telegraph and Star, and, Sheffield Daily Times
- 1898–1937 Yorkshire Telegraph and Star
- 1937–38 Telegraph & Star
- 1938–55 The Star

#### Sheffield Weekly Telegraph

- 1884–87 The Sheffield Weekly Telegraph
- 1887–1951 The Weekly Telegraph

#### Sherborne Mercury

- 1748–48 The Sherborne Mercury, or Weekly Advertiser
- 1770–1800 The Western Flying Post; or, Sherborne and Yeovil Mercury
- 1801–67 The Western Flying Post; or, Sherborne and Yeovil Mercury

#### Shetland Times

- 1872–1950 The Shetland Times
- 1872–73 The Zetland Times

#### Shields Daily Gazette

- 1855–60 North and South Shields Gazette
- 1860–76 North & South Shields Gazette and Daily Telegraph
- 1877–84 North & South Shields Daily Gazette and Shipping Telegraph

- 1884–1932 The Shields Daily Gazette and Shipping Telegraph
- 1915–55 The Shields Gazette and Shipping Telegraph

#### Shields Daily News

- 1864–1933 The Shields Daily News
- 1933–37 The Shields News
- 1938–59 The Shields Evening News

#### Shipping and Mercantile Gazette

- 1838–84 Shipping and Mercantile Gazette (London, England : 1838)

#### South Wales Daily News

- 1872–1910 South Wales Daily News

#### St. James Gazette

- 1880–1905 The St James's gazette

#### Tamworth Herald

- 1870–1950 The Tamworth Herald

#### The Evening Freeman

- 1837–71 The Evening Freeman

#### The Scotsman

- 1817–2010 The Scotsman

#### The Sketch

- 1893–1958 Sketch (London, England : 1893)

#### The Tatler

- 1902–1940 The Tatler (London)

#### West Briton and Cornwall Advertiser

- 1810–1944 The West Briton and Cornwall Advertiser
- 1944–50 The West Briton

#### Western Daily Press

- 1858–1932 The Western Daily Press
- 1932–50 The Western Daily Press and Bristol Mirror

#### Western Morning News

- 1860–1950 The Western Morning News

#### Yorkshire Evening Post

- 1890–1954 The Yorkshire Evening Post