

Summary of reported subsistence harvest of fish and marine mammals near Paulatuk, NT, 1988-2020

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SUMMARY OF REPORTED SUBSISTENCE HARVEST OF FISH AND MARINE
MAMMALS NEAR PAULATUK, NT, 1988–2020

by

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ABSTRACT

Lea, E.V., Campbell, K., Paulatuk Hunters and Trappers Committee, Matari, K.G.A., and Gallagher, C.P. 2026. Summary of reported subsistence harvest of fish and marine mammals near Paulatuk, NT, 1988–2020. *Can. Data Rep. Fish. Aquat. Sci.* 1471: v + 33 p.

Paulatuk, Northwest Territories, is a coastal community within the Inuvialuit Settlement Region, where harvesting of fish and marine mammals has profound subsistence and cultural significance to residents. Building on the Inuvialuit Harvest Study (1988–1997), monthly subsistence harvest surveys were conducted in Paulatuk 2004–2020 to record location, timing, and species harvested. These records were compiled with all available fish and marine mammal harvest data for this location and tabulated across the full time span of 1988–2020. Anadromous Arctic char records were further examined by fishery, season, and area. Anadromous Arctic char (annual average: 1,058 fish), landlocked Arctic char (annual average: 159), lake trout (annual average: 183), and whitefish species (annual average: 1,110) were the most commonly harvested fish species in the Paulatuk area between 2010 and 2019. Harvests of marine mammals were also reported, including beluga whales (annual average: 9), ringed seals (annual average: 6), and bearded seals (annual average: 4) during that same ten-year period (2010–2019). Harvest data are significant for monitoring and managing fish and marine mammal species important to the community, including through the Paulatuk Char and the Anguniaqvia Niqiqyuam Marine Protected Area working groups.

RÉSUMÉ

Lea, E.V., Campbell, K., Paulatuk Hunters and Trappers Committee, Matari, K.G.A., and Gallagher, C.P. 2026. Summary of reported subsistence harvest of fish and marine mammals near Paulatuk, NT, 1988–2020. Can. Data Rep. Fish. Aquat. Sci. 1471: v + 33 p.

Paulatuk, dans les Territoires du Nord-Ouest, est une collectivité côtière de la région désignée des Inuvialuit, où la récolte de poissons et de mammifères marins est importante pour les résidents sur le plan de la culture et de la subsistance. S'appuyant sur l'étude sur les récoltes des Inuvialuit, des enquêtes mensuelles sur la récolte de subsistance ont été réalisées à Paulatuk de 2004 à 2020 afin de consigner les espèces récoltées ainsi que l'emplacement et le moment de la récolte. Ces enregistrements ont été compilés avec toutes les autres données disponibles sur la récolte de poissons et de mammifères marins et présentés sous forme de tableaux pour la série chronologique complète de 1988 à 2020. Les données sur l'omble chevalier anadrome ont été examinées plus en détail selon la pêche, la saison et la zone. L'omble chevalier anadrome (moyenne annuelle : 1 058 poissons), l'omble chevalier confiné aux eaux intérieures (moyenne annuelle : 159), le touladi (moyenne annuelle : 183) et des espèces de corégones (moyenne annuelle : 1 110) ont été les espèces de poissons les plus couramment récoltées dans la région de Paulatuk entre 2010 et 2019. Des récoltes de mammifères marins, notamment de bélugas (moyenne annuelle : 9), de phoques annelés (moyenne annuelle : 6) et de phoques barbus (moyenne annuelle : 4) ont été enregistrées pendant la même période de dix ans (2010 à 2019). Les données sur la récolte sont fondamentales pour le suivi et la gestion des espèces de poissons et de mammifères marins importantes pour la collectivité, notamment dans le cadre des travaux du groupe de travail sur l'omble de Paulatuk et du groupe de travail sur la zone de protection marine d'Anguniaqvia Niqiqyuam.

INTRODUCTION

Paulatuk, Northwest Territories, is a coastal community in the Inuvialuit Settlement Region (ISR), situated on the southern shore of Darnley Bay, west of the mouth of the Hornaday River (Figure 1). Subsistence harvesting of fish and marine mammals from nearby coastal and fresh waters holds both cultural and nutritional significance to Inuvialuit from Paulatuk (PHTC et al. 2016). As established by the Inuvialuit Final Agreement (IFA; Canada 2005) in 1984, FJMC is the co-management body with mandated authority for fish and marine mammals within the ISR, supporting the Paulatuk Hunters and Trappers Committee (PHTC) and working with Fisheries and Oceans Canada (DFO) for co-managing fisheries in the Paulatuk area. One of the FJMC's mandated responsibilities is to determine current harvest levels (IFA Section 14.(64)(c)), accomplished through coordination with local Hunters and Trappers Committees (HTCs) and DFO in the collection of harvest data in Paulatuk and other ISR communities.

Various initiatives have been undertaken by co-management partners to conserve and manage wildlife species or areas with great significance to the community and/or region. For example, the Paulatuk Char Working Group (PCWG) was established by the FJMC in 1996 to mobilize community voice in order to develop, ratify, and implement a Fishing Plan for Arctic char (*Salvelinus alpinus*) under community leadership (PCWG 2006), which was most recently updated in 2025 (PCWG 2025). One of the key management tools employed under the Fishing Plan is the determination of a voluntary subsistence harvest level for anadromous (i.e., sea-run) Arctic char, a PCWG-recommended annual harvest total assessed to be sustainable given available scientific and Indigenous Knowledge shared at annual meetings.

Another major initiative, the Anguniaqvia Niqiyuam Marine Protected Area (ANMPA) was established under Canada's *Oceans Act* in 2016, along the eastern side of Cape Parry (Figure 1). The ANMPA was one of Canada's first MPAs with conservation objectives based on Indigenous Knowledge and is co-managed by the ANMPA Working Group (ANMPA WG), which was structured using the PCWG co-management model. While the ANMPA monitoring plan is still under development, the collection of subsistence harvest data in the ANMPA has been identified as a priority by the ANMPA WG (Ehrman et al. 2022).

The collection and maintenance of harvest data is essential for several reasons, including documenting their importance and supporting the long-term co-management of these resources. The Inuvialuit Harvest Study (IHS) was initiated in 1988 to collect subsistence harvest records from all six ISR communities (Joint Secretariat 2003). While the IHS was discontinued in 1997, similar harvest data surveys focused on fish and marine mammals have been conducted out of Paulatuk given the importance of these data to co-management activities and ongoing implementation of the Arctic char Fishing Plan (PCWG 2006, PCWG 2025). Complementary to these harvest surveys, long-term community-based Arctic char harvest monitoring programs have collected harvest, catch-effort, and biological data from summer coastal fisheries at traditional fishing camp locations around Darnley Bay (Harwood et al. 1999, Harwood et al. 2009, Gallagher et al. 2017). The longstanding ISR Beluga Subsistence Harvest Monitoring Program (Harwood et al. 2020, Murray et al. 2024) has also been operating in some capacity in Paulatuk since 1989, with the objective of collecting harvest and biological data after successful beluga hunts.

In this report, we summarize fish and marine mammal subsistence harvest data collected between 1988 and 2020 from the community of Paulatuk, including compilation of all known anadromous Arctic char harvest records 1968–2020. Subsistence harvest records of fish and marine mammals were previously published up to 2003 (Joint Secretariat 2003, Stephenson 2004), with the exception of anadromous and landlocked Arctic char which have been published

up to 2013 (Lea et al. 2020). Our key objective is to compile and update all available records of fish and marine mammals harvested out of the community of Paulatuk across the full time-series from 1988 to 2020.

METHODS

HARVEST SURVEYS 2004–2020

Consistent with the IHS (Joint Secretariat 2003) and follow-up surveys occurring between 1999 and 2003 (Stephenson 2004), the PHTC hired a community interviewer to record monthly fish and marine mammal subsistence harvest data between 2004 and 2020. The PHTC maintained a list of active subsistence harvesters, each assigned a unique identifier number that was used on the survey forms to maintain anonymity in the records. Surveys were generally conducted monthly for harvests occurring April to December, although there were some months when this varied or records were unavailable (Table A1). Beginning in 2012, surveys occurred twice a month in August and November because the Arctic char fisheries are most active during these months; this enabled the community to stay more informed of their total harvest relative to the voluntary harvest levels for Arctic char within each fishing season. Harvest surveys were generally not conducted from January to March due to limited harvesting of fish and marine mammals during this time; however, it is recognized that this could miss a small number of harvests (e.g., any winter seal hunting).

Community interviewers were responsible for reaching out to the list of active harvesters, in-person or over the phone, gathering and recording information on their harvests of fish and marine mammals from the preceding month. A standardized survey form (e.g., Figure A1) was used by the interviewer to record harvest details (species, count, date, and location) as reported by individual harvesters. Beginning in 2012, survey forms included a question pertaining to whether they had also reported their harvest to concurrent catch monitoring efforts for Arctic char to reduce the potential for double counting, as well as whether they were caught as a part of the winter Elders fishery, since the PCWG had a separate allocation for that component of the fishery. Beginning in 2013, harvesters were also asked to report on the number and location of 'blue char' harvested, a form identified by the community that was different from the 'river' Arctic char associated with the Hornaday River. The establishment of the ANMPA in 2016 led to an elevated interest to monitor the area and document its importance; consequently, a question was added to the surveys beginning in 2019 to determine if any of the harvest occurred within its boundaries. At the end of each survey form, some broad questions were posed to each harvester as an opportunity to share any other comments or unusual observations pertaining to their harvesting each month.

Completed survey forms were submitted to DFO for tabulation and distribution to PHTC and FJMC. To protect sensitive harvesting locations, data were pooled among all harvesters for the purposes of this report; however, detailed, individual records have been securely maintained by the PHTC. Comprehensive reports and summaries, broken down by area and month, were reviewed and verified annually, and sometimes as frequent as monthly, by the PHTC. Summaries were also reviewed and verified during annual winter PCWG meetings, with a focus on the reported harvest of anadromous Arctic char. The community generally expressed high confidence in the numbers reported by these surveys, except for years when there were notable breaks in monthly coverage (i.e., 2007 and 2008; see Table A1). Furthermore, with the onset of the COVID-19 pandemic the community expressed lower confidence in reported numbers in 2020, particularly considering restrictions imposed with in-person visits.

COMPILATION OF AVAILABLE HARVEST RECORDS

Fish and marine mammal subsistence harvest data from earlier years (i.e., 1988–2003) were compiled and tabulated from all available sources including Joint Secretariat (2003) for 1988–1997, Stephenson (2004) for 1999–2003, and annual totals for 2004–2020 reported here. It should be noted that survey forms and species of interest varied over the time series; therefore, comparisons between 1988 and 2020 should be interpreted cautiously. More specifically, in certain years, harvest data was only collected for select species; therefore, for species with no or low reported harvest in a given year, it was not possible to discern whether there was truly no/low harvest or if the survey design did not solicit harvest data for that species in that year. For example, Pacific salmon (*Onchorynchus spp.*) were only added to the data forms beginning in 2020; however, they would have been reported under “other species” in earlier years but not necessarily queried through the interviews.

This report adds to the time series of harvested landlocked and anadromous Arctic char presented in Lea et al. (2020). The recording of anadromous Arctic char harvest (subsistence, commercial, and sport) extends back to 1968 (see Table A2; MacDonnell (1987, 1988), PCWG (2006) for 1987–2003, Lea et al. (2020) for 2003–2013, and this report for 2014–2020). Although PCWG records of anadromous Arctic char harvest 1988–2003 varied slightly from what was reported through harvest surveys, it was assumed that the PCWG records were the most accurate given annual review and input by the PCWG. More effort has been applied since 2017 to consolidate all available harvest records from both harvest surveys and monitoring programs, while accounting for double counting, to produce what was the most accurate total harvest of anadromous Arctic char.

Beluga harvest records were compiled, in addition to the sources listed above, using the 2017 assessment on the status of the Eastern Beaufort Sea Beluga stock (Harwood et al. 2020) and the FJMC’s annual data reports summarizing data and activities of the ISR Beluga Subsistence Harvest Monitoring Program for the years 2010–2020 (Murray et al. 2024, Campbell et al. in prep, Murray et al. in prep-a, Murray et al. in prep-b). When there were discrepancies amongst reported numbers from the various sources, the highest number was used as the estimate, as the different collection methods would not necessarily have complete coverage for any given year (Table A3).

HARVEST SUMMARIES

Anadromous Arctic char

All available harvest records for anadromous Arctic char were compiled by fishery (i.e., commercial, sport, and subsistence) for the years 1968–2020. To provide a representation of current harvest levels, the range and average for the most recent ten years were presented (i.e., 2010–2019; 2020 was excluded from this calculation given issues with the survey that year). To continue the time series of seasonal harvest data presented in PCWG (2006) and Lea et al. (2020), reported harvest was divided between open water (June–September inclusive) and under ice during fall (October–December) relative to the voluntary subsistence harvest level determined annually by the PCWG. The reported harvest of anadromous Arctic char were divided among three geographic regions, the West Darnley Bay area (generally within the bounds of the ANMPA), the Hornaday River area which includes the southern end of Darnley Bay as well as upriver catches during fall, the Lasard Creek area on the eastern side of Darnley Bay, and all other locations that were unclear or unreported in the survey forms. While it would have been preferred to discern between coastal and river harvest for the Hornaday River area, this was not always possible based on the level of detail provided in the survey forms. Furthermore, since the coastal contribution of the Hornaday River population (vs. the Brock

River population) has been shown to be relatively consistent among coastal locations in Darnley Bay as assessed by genetic mixed-stock fishery analysis (Boguski et al. 2016, Harris et al. 2016), stock composition estimates could be applied to the summer coastal and fall under-ice fishery breakdowns if there was a future interest in estimating total harvest from each population. It should be noted that these geographic breakdowns may not sum up to the annual totals reported here given that other data sources (e.g., monitoring programs) were used to assess for the most accurate and complete tabulation of total harvest. Lastly, the number of 'blue char' reported in the harvest surveys were tabulated by geographic area between 2003 and 2020.

Other species

Figures were also generated for other key harvested fish and marine mammal species, specifically landlocked Arctic char, lake trout (*Salvelinus namaycush*), whitefish species (Broad whitefish, *Coregonus nasus*; Lake whitefish, *C. clupeaformis*; and unspecified, *Coregonus spp.*), beluga whales (*Delphinapterus leucas*), ringed seals (*Pusa hispida*), and bearded seals (*Erignathus barbatus*) for all years of reported data, 1988–2020. Ranges were presented for the entire 1988–2020 time series. To provide a representation of current harvest levels for these species, the range and average for the most recent ten years were presented (i.e., 2010-2019; 2020 was excluded from this calculation given issues with the survey that year). All other species were tabulated and presented in summary tables, but no summary statistics were calculated due to limitations in available data. All reported harvests of fish and marine mammals identified as occurring within the ANMPA in 2019 and 2020 were summarized.

RESULTS

Anadromous and landlocked Arctic char, lake trout, and whitefish species (especially broad whitefish) were consistently harvested in relatively high numbers across the time series 1988–2020 (Table 1). Beluga, ringed seals, and bearded seals were also reported as harvested in most years (Table 2).

Within the ANMPA, fish and marine mammals reported as harvested include 16 anadromous Arctic char, 13 beluga, and 97 broad whitefish harvested in 2019, and 16 anadromous Arctic char, 13 beluga, and 97 broad whitefish in 2020. A small number of lake trout, lake whitefish, and Pacific salmon were reported from the ANMPA in 2019 and 2020 (≤ 20 for each species combined between years); however, upon further examination of the records, it was determined that these were from freshwater lakes adjacent to the ANMPA.

FISH

Anadromous Arctic char

Reported annual subsistence harvest of anadromous Arctic char during 2010–2019 ranged between 918 and 2,509 fish, with an average of 1,508 annually, and a maximum annual value over the 1987–2020 time series of 3,850 fish in 1995 (Table 1, Figure 2). Total harvest of anadromous Arctic char has been considerably lower in recent years relative to historical values, particularly relative to the 1970s and 1980s when a commercial fishery was active in the area, with a maximum total number of 5,456 fish recorded in 1982 (Table A2, Figure 2; MacDonnell 1987, 1988). Sport fishing of anadromous Arctic char is considered negligible across the time series, even more so since 2013 with regulatory changes that have restricted the retention of Arctic char caught in the Hornaday River to prioritize the subsistence fishery, this at the request of the PHTC and PCWG.

Anadromous Arctic char are harvested predominantly in nearshore marine waters during the open water season, with a smaller proportion taken during the fall under-ice fishery which occurs mostly at Nuvuqpalluq (“the bluffs”) and further upstream in the Hornaday River towards the Coalmine area (Table 3, Figure 1, Figure 3). Annual total harvest reported by the community has remained below the voluntary recommended harvest level determined annually by the PCWG in most years, which has ranged between 1,700 and 2,000 fish annually between 1998 and 2020 (Table 2, Figure 3).

Harvest from the coastal area near the Hornaday River during summer, and upriver in the Hornaday River, has consistently been larger than the West Darnley Bay and Lasard Creek areas with the exception of 2006 (Table 4, Figure 4). Although harvest of Arctic char within the West Darnley Bay area, within the ANMPA, tend to be relatively low, this continues to be an important traditional harvesting area for some community members. Although fishing seemed to be shifting more from coastal areas around the Hornaday River to the Lasard Creek area between 2006 and 2014, it appears fishing at Lasard Creek has declined in more recent years. This is possibly due to unfavourable weather and water conditions for travelling to the location. It was noted at a PCWG meeting that weather was unfavourable to travel to Lasard Creek in 2013 and the family that typically harvest in that area were unable to travel there in 2017 due to equipment issues. Reports of ‘blue char’ have occurred within all coastal areas of Darnley Bay; however, relative to the total harvest in each area, they occur most commonly in the West Darnley Bay area.

Landlocked Arctic char

Reported annual harvest of landlocked Arctic char during 2010–2019 ranged between 58 and 334 fish, with an average of 159 annually, and a maximum annual value over the 1988–2020 time series of 431 fish in 2006 (Table 1, Figure 5).

Lake trout

Reported annual harvest of lake trout during 2010–2019 ranged between 69 and 368 fish, with an average of 183 annually, and a maximum annual value over the 1988–2020 time series of 725 fish in 2004 (Table 1, Figure 6).

Whitefish species (broad whitefish, lake whitefish, and unspecified)

Reported annual harvest of broad whitefish during 2010–2019 ranged between 296 and 1,896 fish, with an average of 1,099 annually, and a maximum annual value over the 1988–2020 time series of 2,333 fish in 2009 (Table 1, Figure 7). When also accounting for lake whitefish or unspecified whitefish (which had few reports in recent years), reported annual harvest of all whitefish species 2010–2019 ranged between 396 and 1,896 fish, with an average of 1,110 annually, and a maximum annual value over the 1988–2020 time series of 2,973 fish in 2009 (Table 1, Figure 7).

Other fish species

Other fish species including cisco species (Arctic cisco, *C. autumnalis*, locally known as ‘herring’; Least cisco, *C. sardinella*), saffron cod (*Eleginus gracilis*), Arctic grayling (*Thymallus arcticus*), Northern pike (*Esox lucius*), burbot (*Lota lota*), and Pacific herring (*Clupea pallasii*), were also reported but not consistently or in high abundance over the 1988–2020 time series (Table 1). Pacific salmon were reported as harvested in 2016 and 2019, with 23 and 172 fish reported, respectively, in each year.

MARINE MAMMALS

Beluga whale

Using the best estimate of total landed annual harvest (see Table A3), reported annual harvest of beluga during 2010–2019 ranged between 0 and 18, with an average of 9 annually, and a maximum annual value over the 1988–2020 time series of 30 belugas in 2005 (Table 2, Figure 8).

Ringed seal

Reported annual harvest of ringed seal during 2010–2019 ranged between 0 and 19, with an average of 6 annually, and a maximum annual value over the 1988–2020 time series of 147 seals in 1995 (Table 2, Figure 8).

Bearded seal

Reported annual harvest of bearded seal during 2010–2019 ranged between 0 and 8, with an average of 4 annually, and a maximum annual value over the 1988–2020 time series of 12 seals in 2006 (Table 2, Figure 8).

DISCUSSION

While the harvest data collected in this report are valuable for informing co-management partners in the monitoring and management of key wildlife species, any interpretations and applications of the data must be reaffirmed by Indigenous Knowledge and community observations. Many potential factors could influence harvest patterns and trends over time, including but not limited to environmental, economic, social, and cultural drivers, in addition to changes observed and challenges faced with a changing climate. Forums such as the PCWG or ANMPA WG provide an ideal space for Indigenous Knowledge related to wildlife and harvesting patterns to be documented, shared, and mobilized.

While the community has expressed relatively high confidence in most years of data collection, and data were verified periodically by PCWG and PHTC, reported harvests should be considered as best estimates rather than precise totals. These subsistence harvest surveys are voluntary, and although efforts are made to follow up with harvesters, they may not always be available for an interview (e.g., if they are out on the land or out of town). While some individuals record their daily harvests in calendars or notebooks, many will recall and report a best estimate of what they had harvested each month rather than an exact count. Variation in survey approaches over the years also poses some challenges with examining patterns over time. Based on past records, it was not always possible to discern what species harvest data was solicited for, and if an absence of records is reflective of no harvest of a given species or if those records were not solicited and/or documented. Therefore, we suggest that due caution should be applied when comparing records over the entire time-series, especially records for species that have not consistently been reported each year.

Although these data provide an indication of reduced harvest numbers over time, they highlight the continued importance of harvesting of fish and marine mammals in the Paulatuk area, particularly Arctic char (anadromous and landlocked), lake trout, whitefish, beluga whales, ringed seals, and bearded seals. While residents of Paulatuk have identified whitefish populations as a priority for the community in recent years, and local monitoring efforts have been conducted by the PHTC in partnership with DFO and independent consultants, these species have received relatively limited attention in terms of management and monitoring over

time. This report highlights the long-term importance of these whitefish fisheries, particularly for broad whitefish, which have a total annual harvest number similar to, and at times greater than, anadromous Arctic char.

Anadromous Arctic char continue to be managed by the PCWG, informed by harvest records, long-term monitoring programs, dedicated research programs, and the sharing of Indigenous Knowledge at the working group table. The PCWG undertakes these annual assessments of stock status by considering the best available information for the populations in the area to make annual management decisions for the upcoming year, including the voluntary harvest level (PCWG 2025). The last peer-reviewed stock assessment for Arctic char in the Paulatuk area occurred in 2014, at which time results from biological and catch-effort data and population modelling suggested that the population was not experiencing overfishing and that the stock was healthy (DFO 2016).

The harvesting of Arctic char continues to be a very important subsistence fishery for the community. To ensure the sustainability of the fishery and to prioritize the subsistence fishery, management actions have been taken over time to restrict any other fisheries in the area, including any commercial fisheries (discontinued in the 1980s) or sport fisheries (considered to be negligible with current regulations). During summer, the southern end of Darnley Bay, close to the community and near the mouth of the Hornaday River, and upriver in the Hornaday River system during fall, continue to be the areas where the majority of fishing for Arctic char is occurring. Although fishing activities seemed to be shifting more towards Lasard Creek between 2009 and 2014 (Gallagher et al. 2017, Lea et al. 2020), it appears that harvests have declined slightly in that area in recent years. While Arctic char does not tend to be harvested in high numbers in west Darnley Bay (within the ANMPA) relative to other areas, many families use this area every year for their harvesting activities. There is also a higher frequency of 'blue char' reported in west Darnley Bay, which is consistent with the results from annual monitoring programs (Gallagher unpublished).

These harvest data provide further documentation of the significance of the ANMPA as a harvesting area for the community of Paulatuk, particularly for Arctic char, beluga, and broad whitefish. The ANMPA was the first marine protected area in Canada that was developed with a conservation objective solely based on Indigenous Knowledge in recognition of the importance of the area for Arctic char, beluga, seals and other wildlife populations in the area, as well as for the community's harvesting activities (Chambers and MacDonnell 2012, Kavik-AXYS Inc. 2012). As identified by the ANMPA WG, the ongoing collection and maintenance of these harvest records, presented with Indigenous Knowledge, and results from research and monitoring programs (e.g., Gallagher et al. 2017, McNicholl et al. 2024, Christie et al. 2025) will help to inform essential indicators for the developing ANMPA monitoring plan (see Ehrman et al. 2022).

The collection of fish and marine mammal harvest data continues to be a priority for co-management partners. First and foremost, these records serve as essential documentation of the location and timing of subsistence harvesting activities undertaken by the community, both in support of conservation of those species and environmental impact assessments as well as opportunities for continued harvesting in those areas. Harvest data can serve as an indicator of change in the area, including documenting the presence of range-expanding species (e.g., Pacific salmon reported above- see Chila et al. 2022, Dunmall et al. 2024). Subsistence harvest data can also be used to inform the design of research and harvest monitoring programs (Bell and Harwood 2012), including a better understanding of possible samples sizes that could be obtained from the regular subsistence harvest. Harvest data can further support co-management partners in management and monitoring of important species through its application in formalized stock assessments (e.g., DFO 2016) and population modelling exercises (e.g., Zhu et al. 2017). The continued documentation of subsistence harvest records

is an essential component of the sustainable co-management and conservation of these important wildlife species and their habitats.

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We gratefully acknowledge all Paulatuk harvesters for their ongoing participation in these surveys, along with PHTC Resource Staff Diane Ruben and Jill Green and community interviewers Noel Green, Melanie Wolki, Kourtney Ruben, and Michael Nolan Green for leading on these surveys 2003–2020 and all those who contributed in earlier years. We recognize the individuals who had the vision to initiate the PCWG, including the late Don Dowler, the late Nelson Green, the late Tony Green, Lois Harwood, John Max Kudlak, the late Marcus Ruben, and Ruben Ruben. We acknowledge the continued support, input, and guidance provided by the PCWG over nearly three decades. We thank the FJMC and DFO for supporting survey costs through annual IFA Implementation funding. Mapping support was generously provided by Jarrett Friesen (DFO). We thank Lois Harwood and Laurissa Christie for their helpful reviews of this report.

DATA MANAGEMENT AND ACCESS

Detailed harvest records are stored by DFO, FJMC, and PHTC and these files can only be accessed with written approval from FJMC and PHTC. The authors respectfully request that anyone wishing to use the data published in this report contact FJMC Staff Biologist (Box 2120, Inuvik, NT, X0E 0T0, 867-777-2828, fjmc-rb@jointsec.nt.ca) and DFO (Ellen Lea, Ellen.Lea@dfo-mpo.gc.ca) before doing so.

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TABLES

Table 1. Reported harvest of all fish species harvested by Paulatuk 1988–2020. Sources of information for anadromous and landlocked Arctic char are 1988–2003 (PCWG 2006), 2003–2013 (Lea et al. 2020) and 2014–2020 (this report). Sources of information for all other species are Joint Secretariat (2003) for 1988–1997, Stephenson (2004) for 1999–2003, and this report for 2003–2020. An absence of harvest for a species in a given year could represent zero harvest and/or that harvest data for that species was not solicited for that year (presented as no data (ND) in Figures 5–7). A relatively lower number may also reflect that harvest data for that species was not solicited for that year, but was recorded by the interviewer when shared by the harvester. The asterisks denote years in which confidence in the survey totals were considered poor by due to issues with completeness and/or monthly coverage.

Year	Arctic char (anad.)	Arctic char (landlocked)	Lake trout	Broad whitefish	Lake whitefish	Whitefish (unspec.)	Herring/ Cisco (unspec)	Cod (Saffron)	Arctic Grayling	Northern Pike	Burbot	Pacific Herring	Pacific Salmon	Other/ Not specified
1988	2,829	162	440	1,722	412	44	253		10	2	4	38		551 Arctic char (unspec.), 1 Inconnu
1989	2,880	108	227	2,277	696		25	60	20		2	104		40 Herring (Lake)
1990	2,369	367	215	876	30		90	10			1	125		
1991	2,424	234	390	849	123		10	513	21		41	149		6 Arctic cod
1992	2,408	183	527	1,174	66				30		18	150		
1993	1,839	10	272	467	25		10				6			
1994	2,290	96	419	1,359	265		128			18	65			
1995	3,850	68	416	1,524	217				58		9	416		500 flounder, 2 sucker
1996	1,984	8	170	1,076							4	170		
1997	1,956	60	355	1,611	396			96	6		3	355		
1998	1,686													

Year	Arctic char (anad.)	Arctic char (landlocked)	Lake trout	Broad whitefish	Lake whitefish	Whitefish (unspec.)	Herring/ Cisco (unspec)	Cod (Saffron)	Arctic Grayling	Northern Pike	Burbot	Pacific Herring	Pacific Salmon	Other/ Not specified
1999	1,636													
2000	1,492													
2001	1,949													
2002	1,598		572			1,833	195		18	5	20	73		
2003	1,522	219	450	520	461	1,397	276				13	309		50 rock cod, 130 Tom cod
2004	1,597	295	725	1,110	137	13	51			5	7	4		
2005	665	240	366	448	586	815	10				76	551		
2006	1,300	431	520	1,583	41	5	20		2		106	22		
*2007	724	156	179	532	95		92				6	4		
*2008	479	312	457	1,546	183	164	33		15		12	113		
2009	1,793	319	331	2,333	89							88		
2010	1,175	153	368	1,054							1			
2011	1,119	111	69	731							11			
2012	1,561	334	131	296	100									10 lake salmon
2013	1,570	80	112	1,022					9		1			
2014	2,509	167	140	719	3					2	6	3		

Year	Arctic char (anad.)	Arctic char (landlocked)	Lake trout	Broad whitefish	Lake whitefish	Whitefish (unspec.)	Herring/ Cisco (unspec)	Cod (Saffron)	Arctic Grayling	Northern Pike	Burbot	Pacific Herring	Pacific Salmon	Other/ Not specified
2015	1,966	58	146	1,556	8		6		6		3			
2016	1,982	147	302	1,896					2		23		23	
2017	1,046	106	275	900					3		8			1 sucker
2018	1,236	168	143	1,545										
2019	918	270	143	1,270									172	
*2020	621	51	327	861										
Ten year average (2010-2019)	1,508	159	183	1,099										

Table 2. Reported landed harvest of marine mammals harvested by Paulatuk 1988–2020. Sources of information are Joint Secretariat (2003) for 1988–1997, Stephenson (2004) for 1999–2003, this report for 2003–2020, and Murray et al. 2024, Campbell et al. in prep, Murray et al. in prep-a, Murray et al. in prep-b for beluga harvest reports (see Table A.3). No surveys occurred between 1998 and 2001; however, beluga harvest data were still tabulated through the monitoring program. The asterisks denote years in which confidence in the survey totals were considered poor by due to issues with completeness and/or monthly coverage.

Year	Beluga whale	Ringed seal	Bearded seal	Other
1988	0	55	5	4 seal (unspecified)
1989	6	101	4	
1990	0	95	5	
1991	16	52	0	
1992	19	63	5	
1993	4	102	2	
1994	8	89	5	
1995	11	147	4	
1996	25	91	6	
1997	7	37	10	
1998	2	-	-	
1999	1	-	-	
2000	2	-	-	
2001	0	-	-	
2002	0	82	6	
2003	20	97	2	
2004	25	58	4	
2005	30	56	1	
2006	10	78	12	
*2007	17	22	10	
*2008	5	11	3	
2009	1	0	0	
2010	0	4	0	
2011	0	0	0	
2012	7	0	0	
2013	11	2	0	

Year	Beluga whale	Ringed seal	Bearded seal	Other
2014	16	8	1	
2015	18	12	8	
2016	7	19	0	
2017	0	2	0	
2018	15	11	3	
2019	18	4	2	
2020	23	0	0	
Ten year average (2010–2019)	9	6	6	

Table 3. Reported seasonal harvest of anadromous Arctic char from open water and under-ice fisheries, and the total annual harvest relative to the PCWG voluntary harvest level in the Paulatuk area, 1987–2020. The asterisks denote years in which confidence in the survey totals were considered poor by due to issues with completeness and/or monthly coverage.

Year	Open water	Under-ice	Total harvest	Voluntary harvest level
1987	1,841	551	2,392	-
1988	2,205	624	2,829	-
1989	1,389	1,491	2,880	-
1990	1,913	456	2,369	-
1991	1,976	448	2,424	-
1992	1,638	770	2,408	-
1993	1,442	387	1,829	-
1994	1,439	851	2,290	-
1995	3,074	776	3,850	-
1996	1,529	455	1,984	-
1997	1,662	294	1,956	-
1998	1,495	191	1,686	1,700
1999	1,388	248	1,636	1,700
2000	1,366	126	1,492	1,700
2001	1,804	145	1,949	1,700
2002	1,291	298	1,589	1,700
2003	1,392	130	1,522	1,700
2004	1,345	252	1,597	1,700
2005	641	24	665	1,700
2006	1,220	80	1,300	1,700
*2007	491	233	724	1,700
*2008	173	306	479	1,700
2009	1,166	627	1,793	1,700
2010	659	516	1,175	1,700
2011	766	353	1,119	1,700
2012	1,324	237	1,561	1,700
2013	1,045	525	1,570	1,800
2014	2,088	421	2,509	1,900

Year	Open water	Under-ice	Total harvest	Voluntary harvest level
2015	1,063	903	1,966	1,900
2016	1,308	659	1,967	1,900
2017	697	349	1,046	1,900
2018	961	275	1,236	2,000
2019	753	165	918	2,000
*2020	491	130	621	2,000

Table 4. Reported harvest of anadromous Arctic char by area, 2003–2020. The asterisks denote years in which confidence in the survey totals were considered poor by due to issues with completeness and/or monthly coverage. Note that the total of these areas may not sum to the annual totals reported elsewhere in the report given that other data sources (e.g., monitoring programs) were used to assess for the most accurate and complete tabulation of total harvest.

Year	West Darnley Bay	Hornaday River area	Lasard Creek area	Other
2003	144	1,282	96	
2004	87	1,261	248	1
2005	55	503	107	
2006	257	326	717	
*2007		548	151	25
*2008	62	369	48	
2009	48	983	762	
2010	5	730	440	
2011	48	713	350	8
2012	33	788	690	50
2013	235	1,068	267	
2014	110	1,816	570	13
2015	69	1,580	311	6
2016	59	1,586	314	23
2017	36	945		
2018	70	712	335	42
2019	77	426	230	
*2020	16	386	50	

Table 5. Reported harvest of 'blue char' as tabulated from subsistence harvest surveys performed in Paulatuk 2013–2020.

Year	West Darnley Bay area	Hornaday River area	Lasard Creek area	Total
2013	49	2	0	53
2014	0	0	0	0
2015	36	13	0	62
2016	6	0	23	29
2017	34	59	0	152
2018	10	12	335	369
2019	37	50	90	227
2020	5	27	0	59

FIGURES

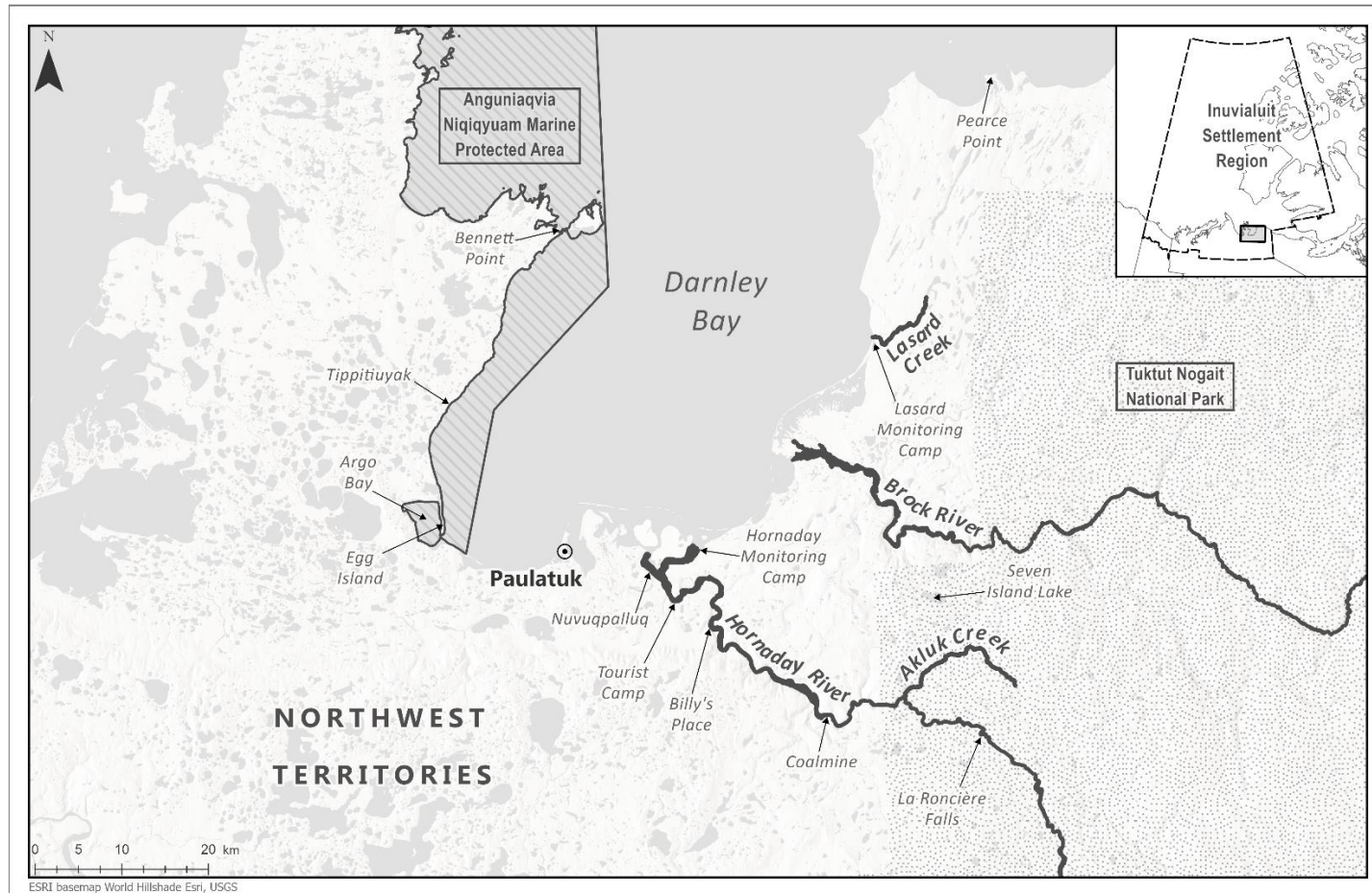


Figure 1. Location of Paulatuk, Northwest Territories, and important areas for Arctic char fisheries for the community (map credit: Jarrett Friesen, DFO; ESRI basemap: World Hillshade ESRI, USGS).

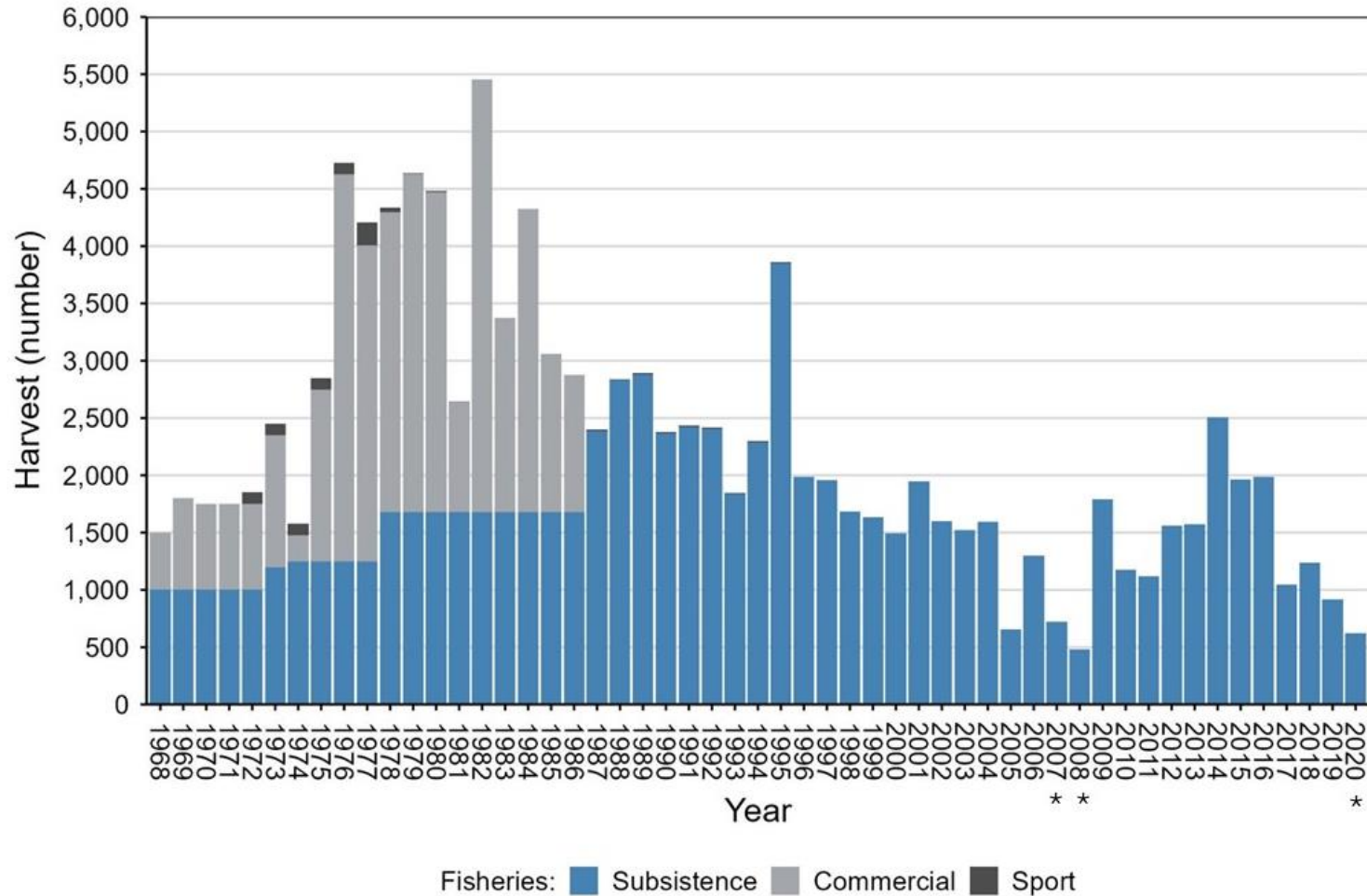


Figure 2. Reported harvest of anadromous Arctic char in the Paulatuk area from subsistence, commercial, and sport fisheries, 1968–2020 (see Table A2 for references). The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage.

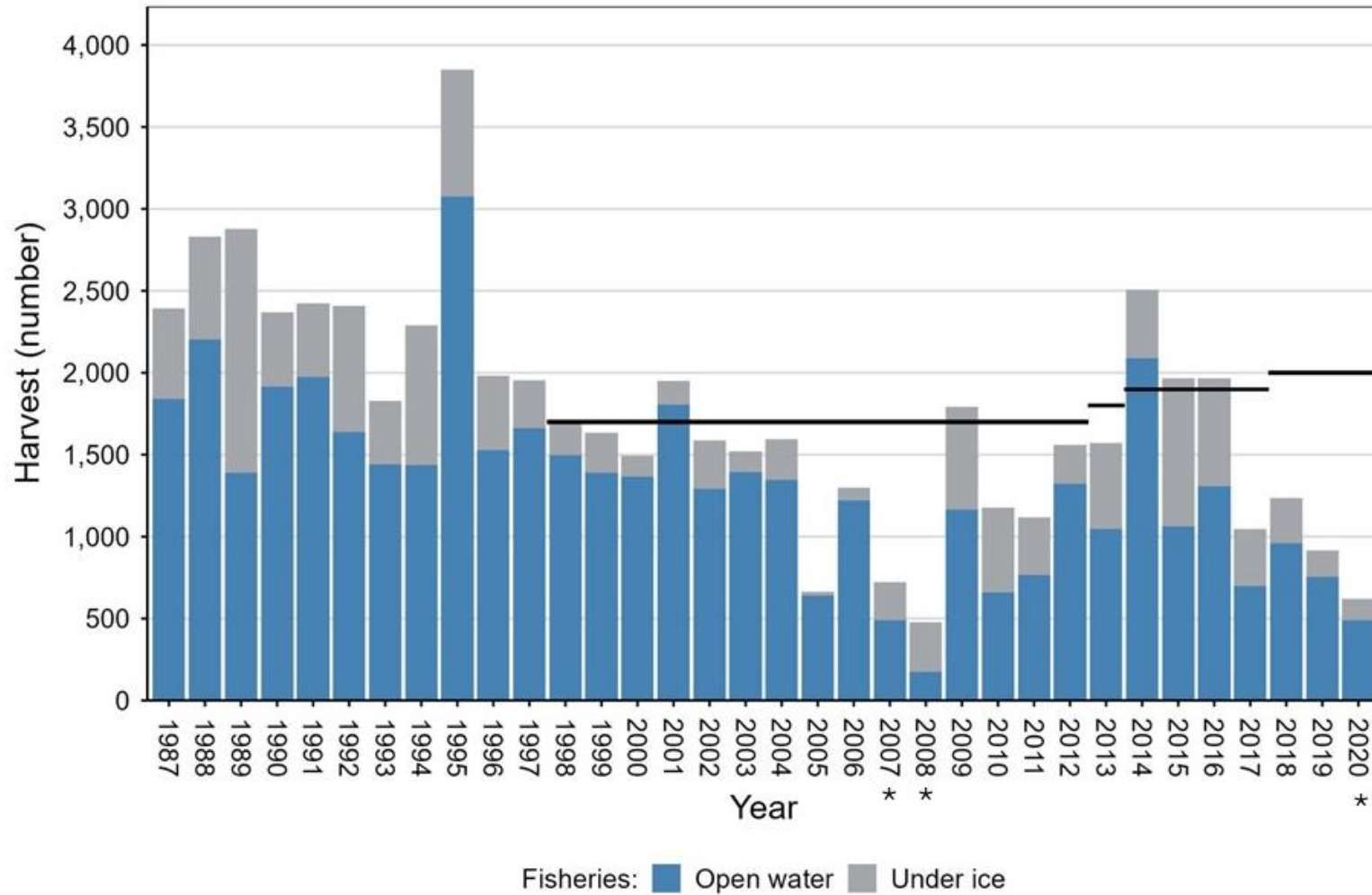


Figure 3. Seasonal harvest of anadromous Arctic char between open water and under-ice fisheries in the Paulatuk area, 1987–2020. The voluntary harvest level determined by the PCWG annually beginning in 1998 is shown with the black horizontal line. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage.

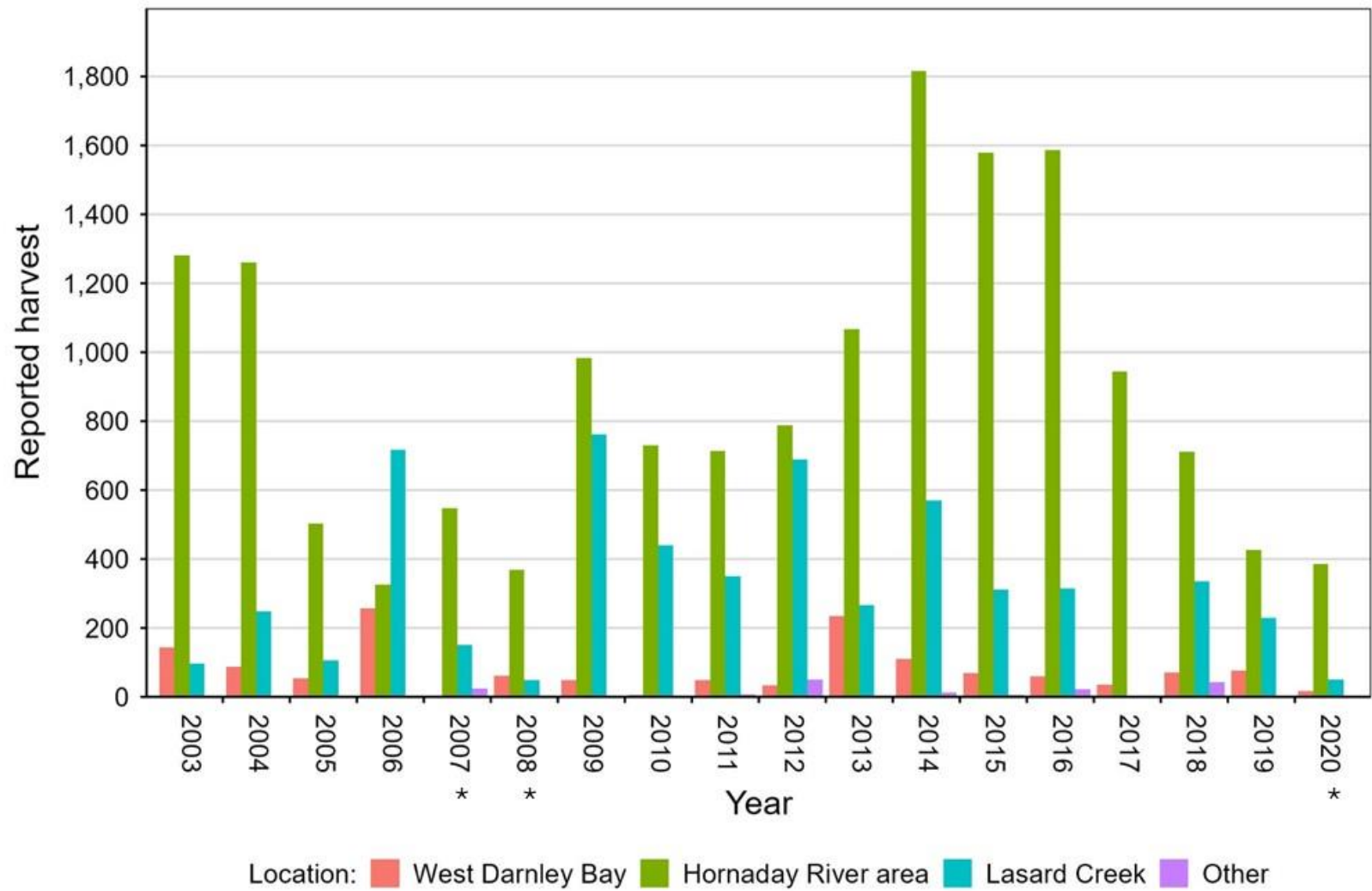


Figure 4. Reported harvest of anadromous Arctic char by area, 2003–2020. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage.

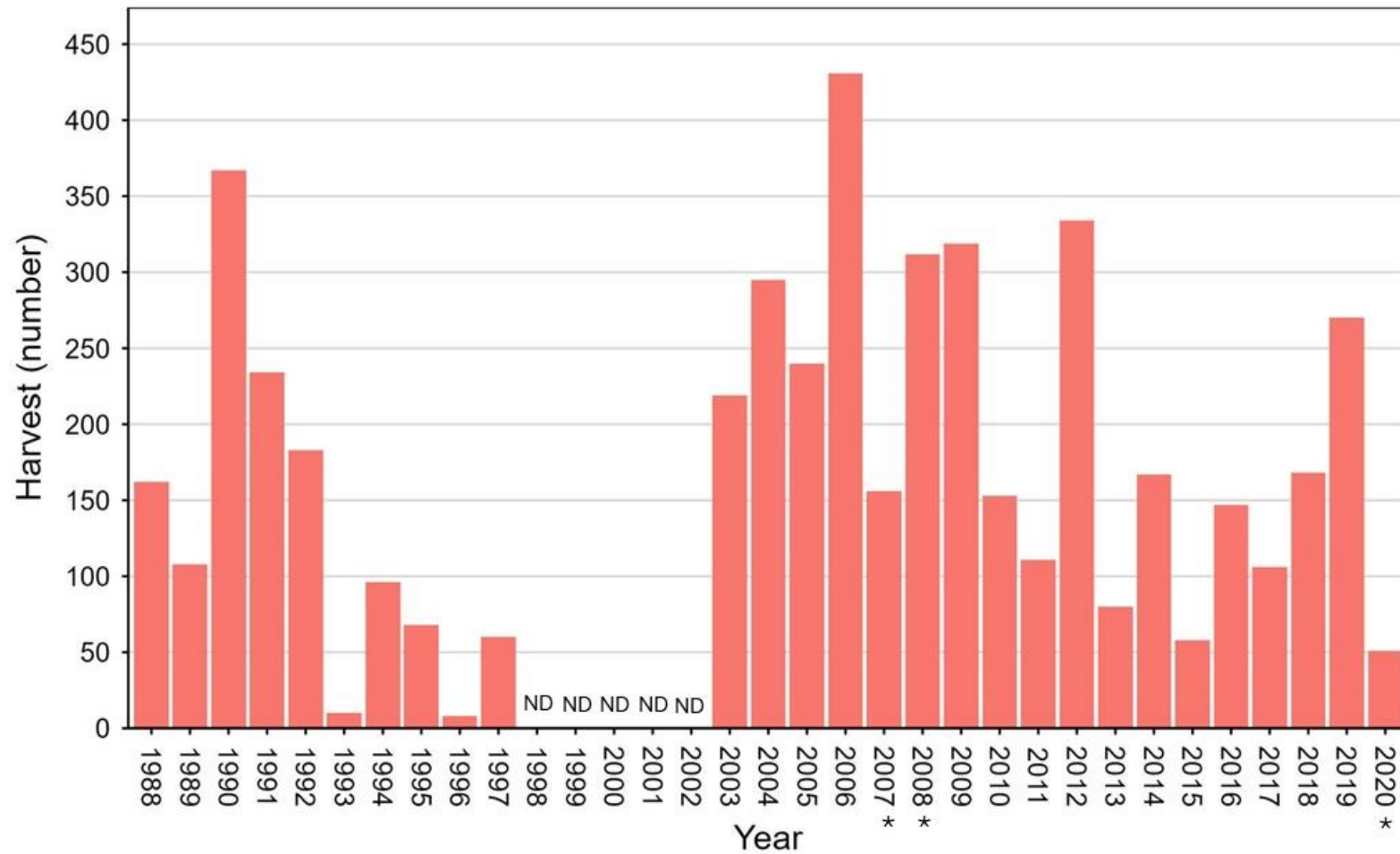


Figure 5. Annual reported subsistence harvest of landlocked Arctic char in the Paulatuk area, 1988–2020. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage. ND signifies years when no surveys were conducted and therefore no harvest data are available.

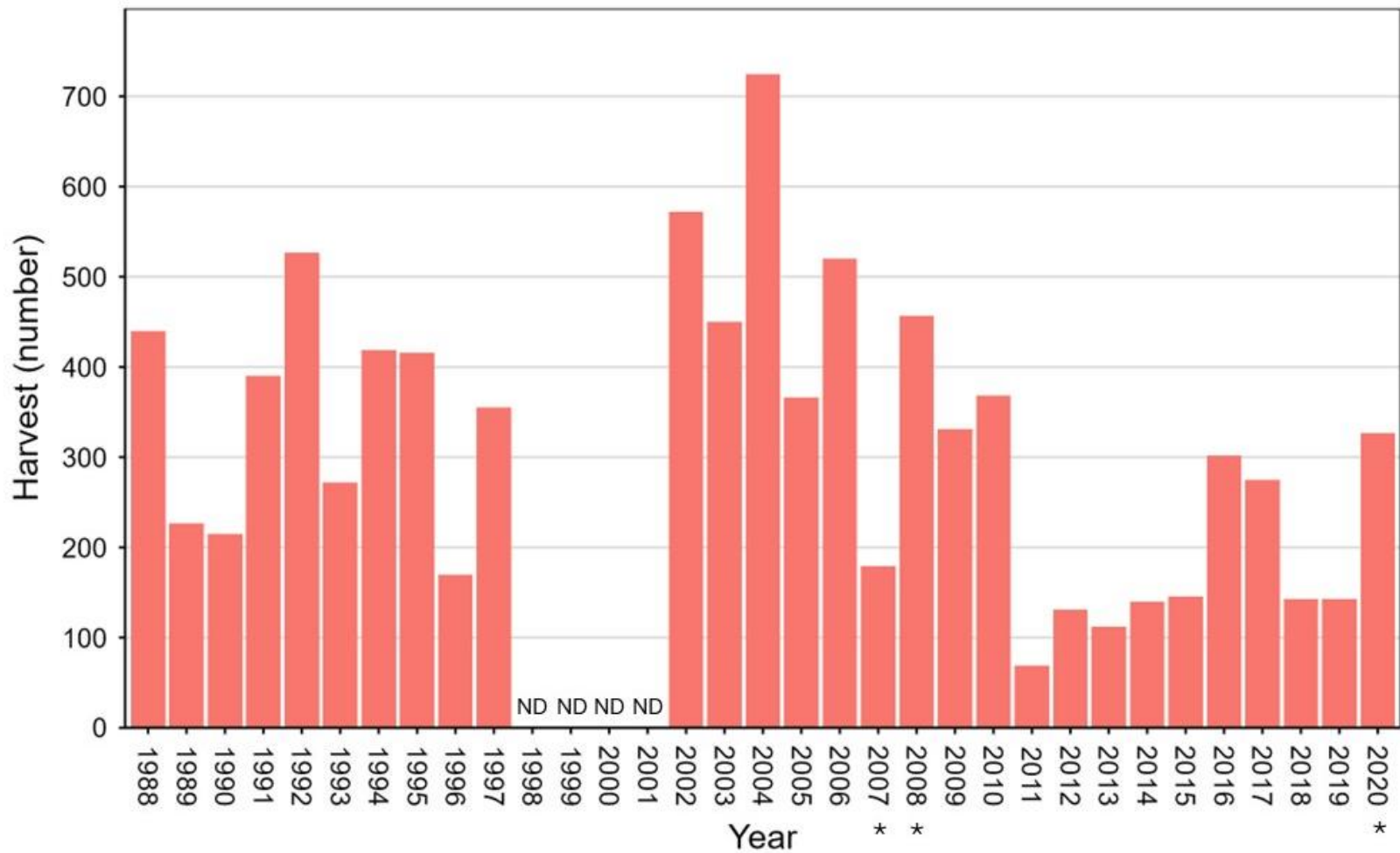


Figure 6. Annual reported subsistence harvest of lake trout in the Paulatuk area, 1988–2020. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage. ND signifies years when no surveys were conducted and therefore no harvest data are available.

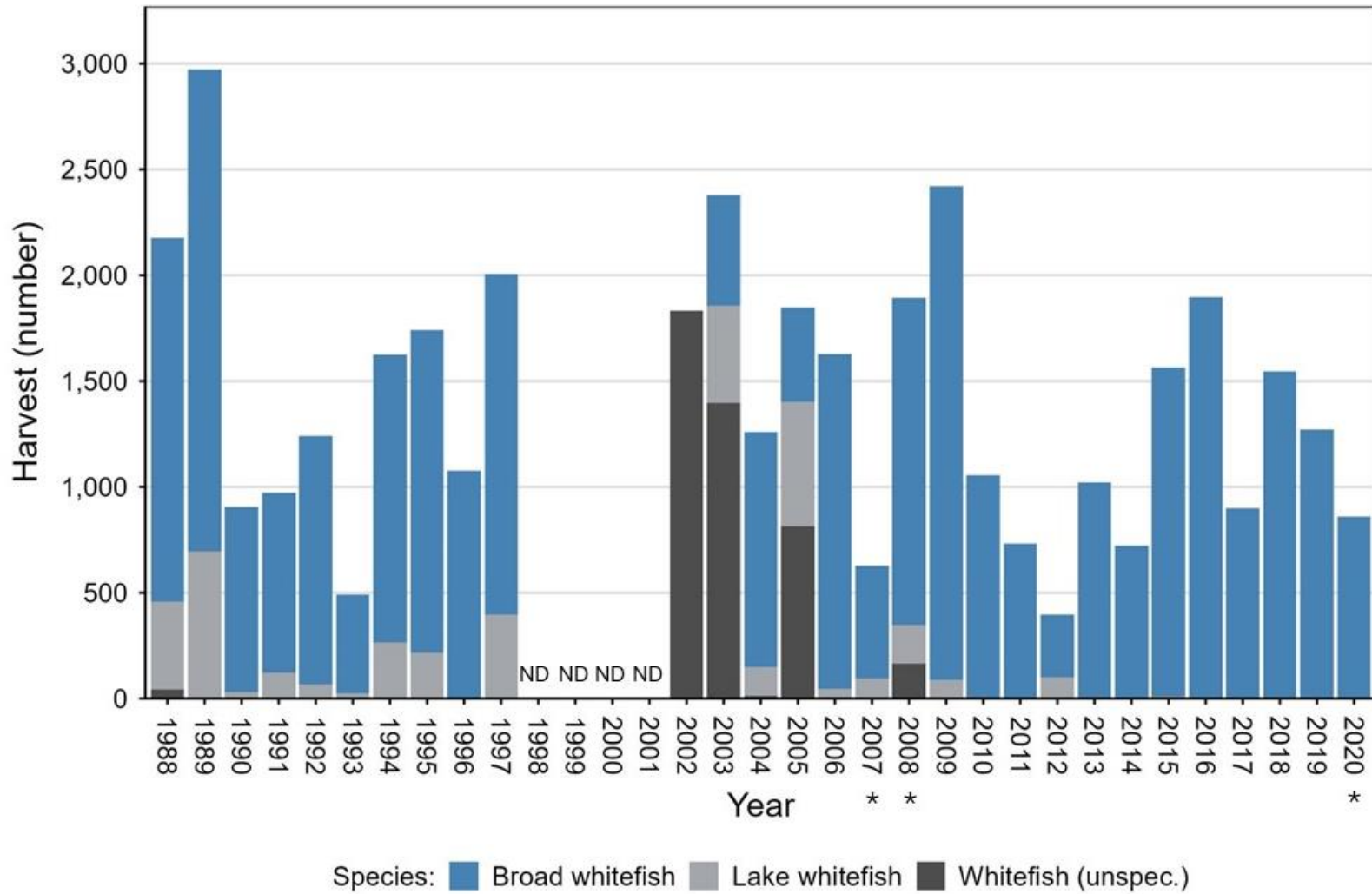


Figure 7. Annual reported subsistence harvest of whitefish species in the Paulatuk area, 1988–2020. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage. ND signifies years when no surveys were conducted and therefore no harvest data are available.

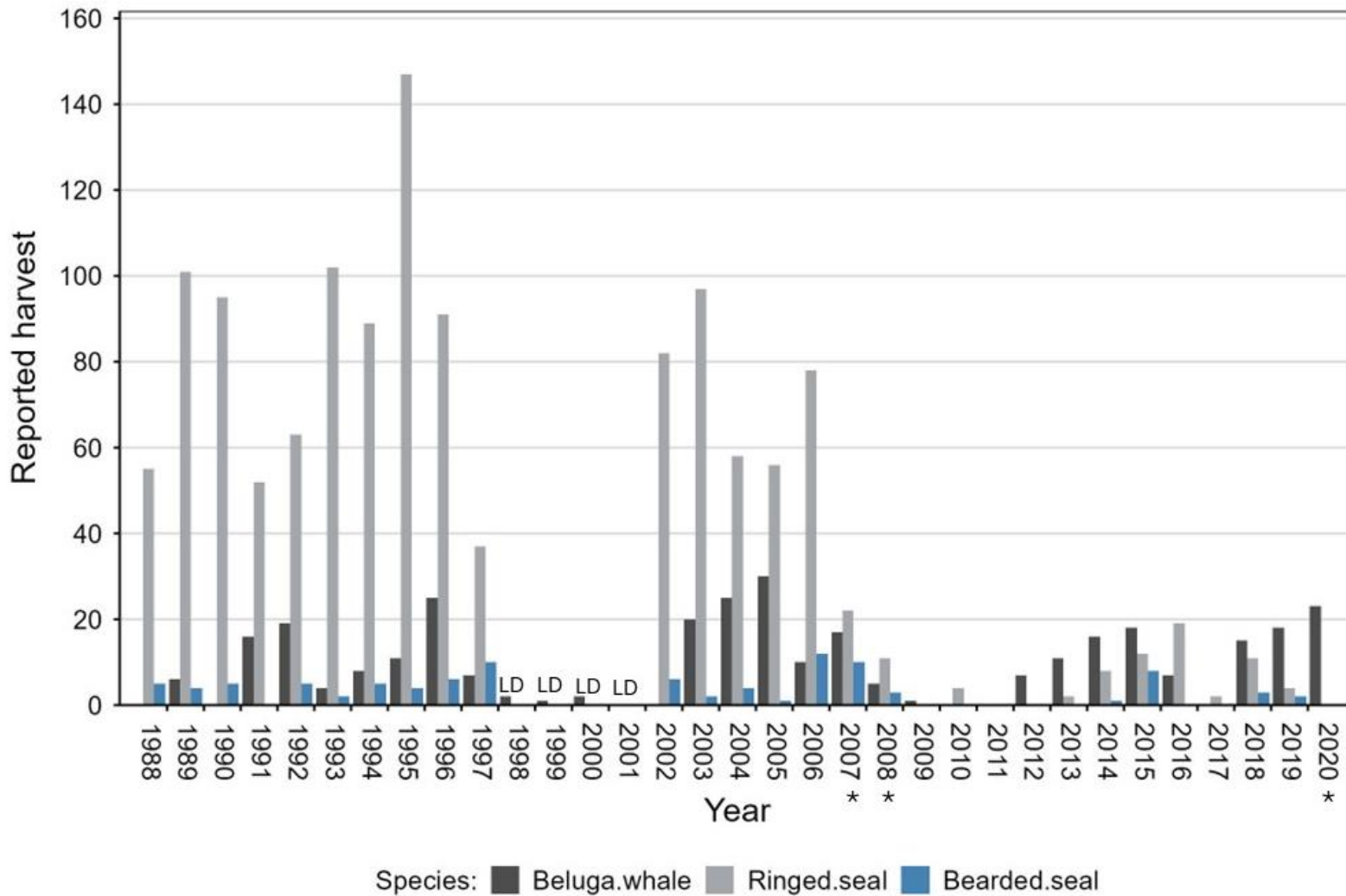


Figure 8. Annual reported subsistence harvest of marine mammals in the Paulatuk area, 1988–2020. The asterisks denote years in which confidence in the survey totals were considered poor due to issues with completeness and/or monthly coverage. Limited data (LD) signifies years when no surveys were conducted and therefore limited harvest data are available, with the exception of beluga harvest numbers, which were collected solely from the ISR Beluga Subsistence Harvest Monitoring Program.

APPENDIX. TABLES AND FIGURES

Table A1. Monthly subsistence harvest surveys were generally conducted monthly out of Paulatuk between 2003 and 2020, with the exception of the months noted with NS (no surveys) or ND (no data) below. In most years surveys did not occur during January-March given that minimal harvest happens during the peak of winter (no surveys= NS); in earlier years, it was not possible whether to determine whether a survey did not occur or if the data could not be located (no data; ND).

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
2003												ND
2004	ND	ND	ND									
2005	ND	ND	ND									
2006												
2007							ND				ND	ND
2008								ND	ND		ND	
2009												
2010												
2011	NS	NS										
2012	NS	NS	NS									
2013	NS	NS	NS									
2014	NS	NS	NS									
2015	NS	NS	NS									
2016	NS	NS	NS									
2017	NS	NS	NS									
2018	NS	NS	NS									
2019	NS	NS	NS									
2020	NS	NS	NS									

NS: no surveys not conducted this month

ND: no data; survey data unavailable; either not conducted or misplaced.

Table A2. Annual harvest of anadromous Arctic char from subsistence, commercial, and sport fisheries in the Paulatuk area, 1968–2020. Within the ISR, the Inuvialuit have the preferential right to harvest fish for subsistence purposes, including trade, barter and sale to other Inuvialuit (Section 14(31) of the IFA; Canada 2005). Commercial fisheries are licenced quotas issued for the purposes of selling fish more broadly (i.e., to non-beneficiaries), whereas sport fisheries are individual fishing activities licenced under the authority of a Northwest Territories sport fishing licence. Sources of information include MacDonnell (1987; 1988), Joint Secretariat (2003), PHTC (2006), Lea et al. (2013), and this report. Where sport fishing harvest was not available (na) it is presumed low. Where only weight was recorded, the number of individuals was calculated using a conversion factor of 2.3 kg/fish. The asterisks denote years in which confidence in the survey totals were considered poor by due to issues with completeness and/or monthly coverage.

Year	Subsistence	Commercial	Sport	Total
1968	1,000	500	na	1,500
1969	1,000	800	na	1,800
1970	1,000	750	na	1,750
1971	1,000	750	na	1,750
1972	1,000	750	100	1,850
1973	1,200	1,151	100	2,451
1974	1,250	229	100	1,579
1975	1,250	1,500	100	2,850
1976	1,250	3,376	100	4,726
1977	1,250	2,757	200	4,207
1978	1,676	2,619	40	4,335
1979	1,676	2,954	10	4,640
1980	1,676	2,794	10	4,480
1981	1,676	972	na	2,648
1982	1,676	3,780	na	5,456
1983	1,676	1,700	na	3,376
1984	1,676	2,650	na	4,326
1985	1,676	1,382	na	3,058
1986	1,676	1,201	na	2,877
1987	2,392	-	10	2,402
1988	2,829	-	10	2,839
1989	2,880	-	10	2,890
1990	2,369	-	10	2,379
1991	2,424	-	10	2,434
1992	2,408	-	10	2,418
1993	1,839	-	10	1,849
1994	2,290	-	10	2,300
1995	3,850	-	10	3,860
1996	1,984	-	na	1,984
1997	1,956	-	na	1,956
1998	1,686	-	na	1,686
1999	1,636	-	na	1,636
2000	1,492	-	na	1,492
2001	1,949	-	na	1,949

Year	Subsistence	Commercial	Sport	Total
2002	1,598	-	na	1,598
2003	1,522	-	na	1,522
2004	1,597	-	na	1,597
2005	655	-	na	655
2006	1,300	-	na	1,300
*2007	724	-	na	724
*2008	479	-	na	479
2009	1,793	-	na	1,793
2010	1,175	-	na	1,175
2011	1,119	-	na	1,119
2012	1,561	-	na	1,561
2013	1,570	-	na	1,570
2014	2,509	-	na	2,509
2015	1,966	-	na	1,966
2016	1,985	-	na	1,985
2017	1,046	-	na	1,046
2018	1,236	-	na	1,236
2019	918	-	na	918
*2020	621	-	na	621

Table A3. ISR Beluga harvest numbers for the years 1988–2020, gathered from Joint Secretariat (2003) and recent fish and marine mammal harvest surveys, as well as Harwood et al. (2020), Murray et al. 2024, Campbell et al. in prep, Murray et al. in prep-a, and Murray et al. in prep-b. The Estimate column was determined using the highest value from the available sources, to account for years where certain methods may not have elicited complete coverage.

Year	Reported in harvest surveys	Harwood et al. (2020)	FJMC Annual Beluga Data Reports	Estimate
1988	0	0		0
1989	6	4		6
1990	0	0		0
1991	16	16		16
1992	19	18		19
1993	4	3		4
1994	8	8		8
1995	11	11		11
1996	24	25		25
1997	7	7		7
1998		2		2
1999		1		1
2000		2		2
2001		0		0
2002		0		0
2003		20		20
2004		25		25
2005		30		30
2006		10		10
2007		17		17
2008		5		5
2009		1		1
2010	0	0	0	0
2011	2	9	9	0
2012	0	7	7	7
2013	0	11	11	11
2014	13	10	16	16
2015	16	15	18	18
2016	7	-	5	7
2017		-	0	0
2018	10	-	15	15
2019	14	-	18	18
2020	13	-	23	23

Paulatuk 2020-21 Fish and Marine Mammal Harvest Study	Harvester Number		Community Paulatuk			
	Interview Date		Interviewer			
Harvest information from: _____ to _____						
Did you fish or hunt whales/seals this month: <input type="checkbox"/> YES <input type="checkbox"/> NO, if YES then fill in harvest information.						
FISH						
Species	Harvest Date	Number	Harvest Location		ANMPA <input checked="" type="checkbox"/>	
Arctic Char (Sea-run)						
Of these Arctic Char harvested:						
a) Were these already accounted for by the summer char monitors? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIALLY If partially, how many were already accounted for? _____						
b) Were these caught as a part of the winter elders' fishery? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIALLY If partially, how many? _____						
c) Were any of these blue char? <input type="checkbox"/> YES <input type="checkbox"/> NO If yes, how many and where were they caught? _____						
Lake Trout						
Broad Whitefish						
Lake Whitefish						
Lake Herring						
Landlocked Arctic char						
Salmon						
Other (specify)						
MARINE MAMMALS						
Species	Harvest Date	Number Harvested	Struck & Lost	Sex	Harvest Location(s)	ANMPA <input checked="" type="checkbox"/>
Beluga						
Ringed Seal						
Bearded Seal						
<small>(Male = M, Female = F, Unknown = UK)</small>						
OTHER COMMENTS:						
How was fishing/hunting compared to previous seasons?						
Did you notice anything unusual (e.g., unusual fish, scars, parasites)? <input type="checkbox"/> Yes <input type="checkbox"/> No						
If YES, please explain						

Figure A1. Example of a blank subsistence fish and marine mammal harvest survey form used in Paulatuk in 2020–2021.