Harvest studies in the Inuvialuit Settlement Region, Northwest Territories, Canada: 1999 and 2001-2003

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ABSTRACT

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The Inuvialuit Harvest Study (IHS) collected monthly harvest information from Inuvialuit subsistence harvesters from June 1987 through December 1998. In January 1999 the study was suspended for a year to expand its educational aspects and to encourage faltering participation. The study's return was short-lived and it was retired in April of 2001. At this time there are no plans by the IHS Administrative Group to begin the study again. Fisheries and Oceans Canada collected harvest information in some communities in 1999 so that some record of the harvest of important species could be maintained. In 2001-2003 effort was concentrated in areas where harvest information was needed to assess compliance with existing fishing plans or to maintain long-term data sets of the harvest of important species.

In 1999, the Hunters and Trappers Committees in Aklavik, Holman, Inuvik, Paulatuk and Tuktoyaktuk selected local interviewers to collect information on the location and number of fish harvested by Inuvialuit in these communities. The Inuvik harvest study used a mailed survey form; the rest of the communities used recall surveys carried out once per month on a house-to-house basis or contacted harvesters while fishing. In 2001, Holman and Sachs Harbour used a monthly recall survey for data collection, but owing to a late start, Paulatuk used a single house-to-house recall survey late in the year. In 2002 and 2003, the Holman, Paulatuk and Sachs Harbour harvest studies collected data using a house-to-house, monthly survey. The 2002-2003 study also gathered information on seal harvests as the harvest of those species had not been documented since 2000. A short study that recorded the Arctic cisco (*Coregonus autumnalis*) harvest took place in Tuktoyaktuk in 2003. Harvest data was collected during a house-to-house survey and contact with fishers while harvesting.

This report summarizes the reported harvests and methods of data collection used in all participating communities during 1999 and 2001-2003 and makes recommendations as to how, when and who should implement future harvest studies.

Key Words: Harvest, harvest studies, hunting, Inuvialuit, Arctic char, lake trout, Dolly Varden, whitefish, Arctic cisco, seals.

RÉSUMÉ

Stephenson, S.A. 2004. Harvest studies in the Inuvialuit Settlement Region, Northwest Territories, Canada: 1999 and 2001-2003. Can. Man. Rep. Fish. Aquat. Sci. 2700: vi + 34 p.

Des renseignements sur les récoltes de subsistance mensuelles des Inuvialuit ont été recueillis de juin 1987 à décembre 1998 dans le cadre de l'Étude des récoltes de subsistance des Inuvialuit (ERSI). L'ERSI a été interrompue pour une période d'un an en janvier 1999 en vue d'élargir ses aspects éducationnels et d'encourager la participation, qui était déclinante, mais après avoir repris, elle a cessé en avril 2001. À ce moment-ci, le groupe administratif chargé de cette étude ne prévoit pas la relancer. Pêches et Océans Canada a recueilli des renseignements sur les prises dans certaines collectivités en 1999, de sorte à maintenir un dossier des prises des espèces importantes. De 2001 à 2003, les efforts ont été ciblés surtout sur les régions pour lesquelles des données sur les prises étaient nécessaires pour évaluer le niveau de conformité aux plans de pêche en vigueur ou maintenir les séries de données à long terme sur les prises des espèces importantes.

En 1999, les comités de chasseurs et de trappeurs d'Aklavik, de Holman, d'Inuvik, de Paulatuk et

de Tuktoyaktuk ont choisi des enquêteurs locaux pour recueillir des renseignements sur l'endroit et le nombre de poissons récoltés par des Inuvialuit de ces collectivités. L'étude des récoltes de subsistance des pêcheurs d'Inuvik reposait sur un questionnaire adressé, tandis que les autres collectivités ont fait appel à une enquête mémoire effectuée de porte en porte une fois par mois ou à la communication directe avec les pêcheurs lorsqu'ils pêchaient. En 2001, les collectivités de Holman et de Sachs Harbour ont utilisé une enquête mémoire mensuelle pour recueillir des données, mais ayant commencé en retard, la collectivité de Paulatuk a fait une seule enquête mémoire de porte en porte vers la fin de l'année. En 2002 et 2003, des données sur les récoltes de subsistance dans les collectivités de Holman, de Paulatuk et de Sachs Harbour ont été recueillies par enquête mémoire mensuelle effectuée de porte en porte. Cette étude a aussi permis de recueillir des renseignements sur les récoltes de phoques, celles-ci n'ayant pas été documentées depuis 2000. Une étude de courte durée sur les prises de cisco arctique (*Coregonus autumnalis*) a été menée à Tuktoyaktuk en 2003 par le biais d'une enquête mémoire effectuée de porte en porte et de communication directe avec les pêcheurs lorsqu'ils pêchaient.

Sont résumées dans le présent rapport les récoltes déclarées et les méthodes de collecte des données utilisées dans toutes les collectivités participantes en 1999 et de 2001 à 2003. Y sont aussi formulées des recommandations à savoir qui devrait effectuer les études sur les prises de subsistance à l'avenir, quand et comment.

Mots-clés: récolte, études des récoltes, chasse, Inuvialuit, omble chevalier, touladi, Dolly Varden, corégone, cisco arctique, phoques.

INTRODUCTION

The Inuvialuit Harvest Study (IHS) collected information about fish and wildlife species harvested by Inuit residents of the Inuvialuit Settlement Region (ISR) between 1987 and 1998. As part of the Inuvialuit Final Agreement (IFA), harvest information was collected to;

- determine minimum subsistence need,
- ensure availability of adequate records of historic harvests should a negative impact from commercial/industrial development result in the need for compensation, and,
- ensure availability of harvest numbers for use by the various co-management groups formed under the IFA (*e.g.*, Hunters and Trappers Committees (HTC), the Inuvialuit Game Council (IGC) and the Fisheries Joint Management Committee (FJMC)).

Government departments and agencies, such as Fisheries and Oceans Canada, (DFO) use data collected by harvest studies to assist in making management decisions.

In the summer of 1998, the IHS Administrative Group noted decreasing participation and a general lack of awareness about the purpose of the existing IHS. They decided to suspend the study during 1999 so that it could be revised with an improved education and awareness component. Although the IHS resumed in the spring of 2000, the IHS Administrative Group decided that there would be no data collection after April 2001. There are currently no plans to resume the IHS.

While the IHS was being redesigned in 1999, DFO ran an abbreviated harvest study to ensure collection of harvest information on a limited number of fish species within the ISR. Maintaining harvest data information in certain areas to monitor the progress of community based fishing plans, Integrated Fisheries Management Plans (IFMP) or simply to maintain long-term data sets, was considered essential in ensuring the progress or success of these and future management and research plans. DFO initiated what were to be temporary harvest studies in the communities of Aklavik, Inuvik, Tuktoyaktuk, Holman and Paulatuk.

When the termination of the IHS was announced in April 2001, DFO began planning long-term harvest studies in the communities of Paulatuk, Holman and Sachs Harbour. Although the lead time was short, harvest studies were arranged for the summer and fall of 2001 to ensure the collection of information needed to co-manage specific fish stocks. For example, Paulatuk and Holman both have Arctic char (*Salvelinus alpinus*) management plans and DFO, FJMC and the responsible HTCs require harvest data to determine compliance with these plans. Sachs Harbour does not have a char management plan, but because the char harvest is important to the community, it was deemed necessary and prudent to maintain records of char harvests there.

The 2002 and 2003 harvest studies included participation by DFO, Resources Wildlife and Economic Development (RWED) (Government of the Northwest Territories) and the Canadian Wildlife Service (CWS). Pooling resources allowed for a single, 12 month study co-ordinated by DFO. These studies collected data on species in addition to fish and included periods not covered by the studies conducted in 1999 or 2001 by DFO. There are plans to continue this cooperative arrangement into the future. The harvest of mammals (other than seals) and birds by participants in the 2002 and 2003 harvest studies will be reported elsewhere by RWED and the CWS. The purpose of this manuscript is to provide a record of Inuit fish and seal harvests in the ISR up to the end of 2003 made during years of no IHS.

METHODS

The species list used in each community was based on the presence of community fishing or management plans, the need to maintain harvest data for inclusion in current or pending IFMPs or for ongoing studies being conducted by DFO. The timing of the study in each community in 1999 attempted to coincide with known periods of high fishing activity as reported previously by the IHS (*e.g.*, Fabijan 1997, 1998). Harvest studies began somewhat late in each

community in 2001 due to a lack of lead time. However, monthly interviews were conducted in most communities beginning in June of 2002 and continued in most areas until the end of December 2003.

HTCs in each community selected the harvest study worker. In 1999, the Aklavik HTC also helped plan the study. Harvester identities were kept confidential and are known only to harvest study personnel in each community. Although information on the general coastal or exact lake location of harvest was collected, it is rarely presented here both to add a further layer of anonymity and to protect traditional harvesting areas. This is consistent with the IHS procedure which collected general harvest location (*e.g.*, 10 x 10 km grid), but never revealed it to the public (*e.g.*, Fabijan 1998).

Harvest data collected in 1999 was used to monitor the progress of the Rat River Char Fishing Plan (RRCWG 1999), monitor the status of the Shingle Point fishery (Stephenson 2003) and provide input for the proposed West Side Char Management Plan and for the inconnu (*Stenodus leucichthys*) IFMP for Aklavik, Inuvik and Tuktoyaktuk (Stephenson and Moshenko 2000). Broad whitefish (*Coregonus nasus*) harvest data in Aklavik, Inuvik and Tuktoyaktuk was collected for use in the proposed Integrated Management Plan (IMP) for that species.

Arctic char harvest data collected in 1999 and 2001-2003 from Paulatuk and Holman was used to monitor the Paulatuk Char Management Plan (PHTC 1999) and the Holman Char Fishing Plan (HCWG 2001).

Harvest data collected on species other than those listed above was used to maintain baseline information in areas that might experience development (*e.g.*, proposed highway near Husky Lakes, oil and gas exploration), could require future study (*e.g.*, Holman area lake trout (*Salvelinus namaycush*) and Sachs Harbour Arctic char) or were part of long-term monitoring programs (*e.g.*, Tuktoyaktuk Arctic cisco (*Coregonus autumnalis*)). Harvest study workers were encouraged to explain to interviewees why the information was being collected.

Community harvester lists were determined by HTC executives (*e.g.*, Inuvik, Tuktoyaktuk - 1999), through direct interviews with all households and potential harvesters within the community (*e.g.*, Holman, Paulatuk – 1999, 2001-2003; Sachs Harbour – 2001-2003) or by approaching people as they were fishing (Aklavik – 1999; Tuktoyaktuk - 2003). Harvest data collection varied slightly in each community and the method used is described below.

As many Inuit residents of the ISR refer to Arctic cisco, least cisco (*Coregonus sardinella*), lake herring (*C. artedi*) and Pacific herring (*Clupea pallasi*) as (either singly or collectively) “cisco” or “herring”, it is possible that several species may have been reported under one name. Similarly, many Inuit refer to broad whitefish and lake whitefish (*Coregonus clupeaformis*) as “whitefish”. This does not create a problem in areas where only a single species is present (*e.g.*, Sachs Harbour and Holman areas), in areas where both species co-occur, accurate identification was impossible.

In some years, harvesters volunteered information on species other than those specifically requested by the harvest study worker. This information is reported here for completeness although readers are cautioned that volunteered data is almost certainly incomplete and may under-represent the true harvest of the species. As such, no effort has been made to compare these harvests with records from the IHS.

No statistical review was planned or performed for these harvest studies. Results are presented “as reported” and are subject to biases possibly associated with using the IHS reporting format. Usher and Wendt (1999) completed a statistical analysis and review of the IHS data acquisition methods (*i.e.*, door-to-door surveys) and respondent rate and interested readers should refer to them.

As much as possible, the information in the tables below is presented in a manner comparable to previous IHS reports (*e.g.*, Fabijan 2000; Pinard 2001). In the tables, a (0) means no harvest while a (-) means no data.

Harvest Data Collection

Aklavik

Harvest studies took place in Aklavik only in 1999. The Aklavik HTC participated in the design of the study and stationed a full-time monitor at Shingle Point to record the Dolly Varden (*Salvelinus malma*) and Arctic cisco harvest during the traditional July – August fishing period. Shingle Point fishers were interviewed by the monitor every two to three days from July 9 – August 21. In addition, several fishers in the area (*e.g.*, Running River) were also given books in which they recorded their own harvests.

The HTC also hired a town monitor to record the harvest of Dolly Varden, inconnu and broad whitefish by people fishing at the community from June-October. The town monitor met and interviewed fishers weekly as they checked their nets, and asked these people if they knew of any others that were fishing. When it wasn't possible to interview fishers while they were checking their nets, the monitor later went to their homes and asked about their harvests. The HTC also hired a local resident to record the kind and number of fish he landed daily to feed his dogs during the five-month period of the study.

Holman

Holman harvest data in 1999 was collected monthly by interviewing all known harvesters from June-October. This method, similar to that used by the IHS, was chosen as it had worked well in the past. The study collected information on the number and location of lake trout and Arctic char harvested. As lake trout are the second most frequently harvested fish species by Holman residents (Fabijan 1998), it was thought valuable to maintain harvest records should harvest pressure switch from char to lake trout. The interview sheet used in Holman during 1999 (Appendix 1) is similar to the one used in Tuktoyaktuk in 1999.

The 2001 harvest data from Holman was also collected by monthly interviews (July-November) with all known and potential harvesters. However, contrary to 1999 and the years of the IHS, the harvest worker hired in 2001 treated each household as a single harvester and therefore the harvesting activity of several people over 16 years of age was combined. The 2001 harvest study gathered information on the number and location of lake trout and Arctic char harvested. The 2001 Holman interview sheet (similar to that also used in Sachs Harbour) is reproduced in Appendix 2.

The 2002 and 2003 Holman harvest studies again treated every person over 16 years of age as an individual harvester. Interviews began in early June of 2002. An initial recall interview, to determine the harvests made in April and May, was followed by monthly interviews conducted to the end of December 2003. In addition to harvest information on lake trout and Arctic char harvests, the 2002 and 2003 studies also collected information on the number of ringed (*Phoca hispida*) and bearded (*Erignathus barbatus*) seals landed. With minor changes, the 2002 interview sheet was similar to that of 2001. However, the 2003 interview sheet, also used in Sachs Harbour and Paulatuk, specifically asked if the respondent had fished or hunted seals (Appendix 3).

Inuvik

Harvest studies took place in Inuvik in 1999 only. A mail survey using harvest cards (Appendix 4) was chosen primarily to determine if the response rate would be similar to that of the house-to-house method used by the IHS. If so, then a mail survey could perhaps be used in future studies. In an attempt to increase participation, respondents were informed that all returned harvest cards, even if they indicated no harvest, were eligible for a monthly prize draw.

The Inuvik HTC co-ordinated the monthly mailing of harvest cards to all known harvesters from July-November 1999. At the end of each month, a new card was mailed with a reminder to return the previous card. The HTC Resource Person also followed up this reminder by telephone. The Inuvik study requested information on the harvest of inconnu, broad whitefish and Arctic cisco. Lake trout harvest from Husky Lakes was also requested.

Paulatuk

The 1999 Paulatuk harvest study collected information only on the Arctic char harvest. Maintaining a record of the char harvest was essential for determining compliance with the recommended harvest levels and harvesting locations outlined in the Paulatuk Char Management Plan (PHTC 1999). Interviews were conducted during two house-to-house surveys of fishery participants following the spring and fall char runs on the Hornaday River.

Due to a late start in the community, the 2001 harvest study was confined to a single door-to-door recall survey conducted in December after fishing had ended for the year. Interviews requested information only on Arctic char harvests between June and November. Due to the very long recall period involved, it would likely not have been useful to ask for information on other species.

Similar to other participating communities, the 2002 study began in June with a recall survey for April and May and ran as a monthly house-to-house survey until March 2003. Harvesters were asked to report their harvest of Arctic char, lake trout and ringed and bearded seals. After a three month delay, the 2003 study continued in June as a recall survey for April and May and ran as a monthly house-to-house survey until the end of November.

Sachs Harbour

All known harvesters were interviewed monthly during a house-to-house survey from June-November during 2001. The Sachs Harbour study collected information on the number and locations of lake trout and Arctic char harvested.

In late 2000, Sachs Harbour residents stated that Arctic char were becoming more difficult to capture and suggested that their numbers and average size might be declining. Along with biological studies, maintaining annual harvest records for this species is one of the necessary steps in understanding the situation. Although there is no fishing plan in Sachs Harbour, harvest information will be required should the need for a char plan or other fisheries management action be identified. No concerns have been expressed about the area lake trout stocks. However, if Arctic char numbers are indeed declining and residents begin targeting lake trout as the main fish species, it will be valuable to have a continuous record of lake trout harvests. Lake trout are the second most frequently harvested fish species on Banks Island (Fabijan 2000; Pinard 2001) and one of the few alternate species available should Arctic char stocks exhibit significant declines in abundance.

As in 2001, the 2002 harvest study in Sachs Harbour began in early June with a house-to-house recall survey for the months of April and May. Following the recall survey, residents were interviewed on a monthly basis for the remainder of the year and asked to report their harvests of Arctic char, lake trout and ringed and bearded seals. The 2003 study continued uninterrupted from January until the end of December.

Tuktoyaktuk

A harvest study took place in Tuktoyaktuk only in 1999. The harvest study collected information on the number of inconnu, Arctic cisco, lake whitefish and broad whitefish harvested by Inuit residents of Tuktoyaktuk. Information as to the number of lake trout harvested from Husky Lakes was also collected. Husky Lakes is a popular fishing location for residents of Tuktoyaktuk and Inuvik, and maintaining information on the lake trout harvest in the area prior to potential development (*e.g.*, the proposed Tuktoyaktuk Highway or any oil and gas activity) was considered valuable. Harvest information was collected through house-to-house interviews with all harvesters identified by the HTC.

Harvest of Arctic cisco has traditionally been high in Tuktoyaktuk during the July through However, cisco harvests have been highly variable presumably due to weather during harvesting periods, harvester interest and probable changes to cisco numbers. Due to greatly increased oil and gas activity near Tuktoyaktuk, both on and offshore during 2000-2002, as well as suspected declines in Arctic cisco numbers in some areas, there was again interest in documenting the

harvest.

A harvest study targeting the Tuktoyaktuk Harbour cisco harvest took place in the summer and fall of 2003 to determine if the harvest had changed since 2000. The harvest worker interviewed people while they were fishing for cisco or carried out house-to-house interviews with known harvesters.

RESULTS AND DISCUSSION

Aklavik

Shingle Point Area

The harvest monitor recorded the harvest of 220 Dolly Varden by people fishing at four camps at Shingle Point although the actual number of harvesters involved and the timing of the harvest was not recorded. One of the log books used at nearby Running River was lost by the fisher. However, the HTC estimated that at least 30 additional Dolly Varden were harvested there. The combined harvest of 250 Dolly Varden in the Shingle Point area is approximately half of that reported in 1998 and a third of that reported in 1996 and 1997 (Fabijan 1997, 1998, 2000). Shingle Point fishers reported the harvest of 2,052 Arctic cisco. An estimated 500 cisco were harvested at Running River (Table 1). The reported cisco harvest was higher than in 1996, but lower than in 1997 and 1998 (Fabijan 1997, 1998, 2000).

Town

The town monitor reported the harvest of 247 Dolly Varden, 950 inconnu and 2,908 broad whitefish from June 9 – October 31, 1999 (Table 1). This harvest is comparable, but typically higher, than harvests reported from 1996-1998 (Fabijan 1997, 1998, 2000).

Eleven individuals were interviewed during the course of the town study, although it is unknown if these people harvested every month. By comparison, the 1996 IHS reported a maximum of eleven individuals harvesting any of these species in any given month during the same time period (Fabijan 1997) while in 1997 there was a reported maximum of six harvesters (Fabijan 1998). Therefore, the number of harvesters surveyed during the 1999 study is comparable to previous IHS surveys.

Holman

An average of 106 potential harvesters was interviewed during each of the five months of the 1999 study (Table 2) making it similar to previous IHS years (Fabijan 1997, 1998). Holman residents reported the harvest of 5,499 Arctic char and 1,825 lake trout (Table 3). Almost the entire October Arctic char harvest of 907 fish was taken from Fish Lake (Kuujjua River system) and was within the recommended 1000 char limit set out in the 1999 Holman Char Fishing Plan (HCWG 2001). The entire Holman Arctic char harvest in 1999 is broken down as coastal and lacustrine in Table 4. Table 5 presents information on the number of harvesters harvesting selected species during all years of the study.

An average of 70 potential harvesters was interviewed during each of the five months of the 2001 study (Table 2). This is lower than previous study years (90-114 fish and wildlife harvesters) (Fabijan 1998, 2000) because the 2001 study considered each household as a single harvester rather than considering each person over 16 years of age (excluding husband and wife) as a distinct harvester (*e.g.*, Fabijan 2000). However, when considering the number of harvesters who reported harvesting fish, the number of harvesters is comparable with harvests reported in 2000 (Pinard 2001).

Holman residents reported the harvest of 4,842 Arctic char and 638 lake trout (Table 3). The lake trout harvest for 2001 was higher than that for the same time period reported for 1997 (520), 1998 (329) and 2000 (547) (Fabijan 1998, 2000; Pinard 2001). However, the 2001 harvest is lower than the 780 fish reported for the period of July through October in 1999.

The reported Fish Lake (and total Kuujjua River system) harvest of 729 char was below the recommended limit of 1000 char set out in the Holman Char Fishing Plan (HCWG 2001) although it was almost 20% lower than the approximately 900 reported

by the Fish Lake monitors (L. Harwood, pers. comm.). Keeping track of fish as they are harvested, as opposed to trying to recall the exact number harvested at a later date, may be the cause of this discrepancy. Stephenson (2003) noted large differences in harvest records collected by on site monitors and recall surveys in the western Arctic.

The Holman Arctic char harvest is presented as coastal and lacustrine harvest in Table 4. The combined coastal/lacustrine harvest is lower than the same period in 1999 although the lacustrine harvest increased from 1999 levels. Table 5 presents information on the number of Holman harvesters fishing for specific species during the 2001 and other harvest study periods.

An average of 100 potential harvesters was interviewed monthly during the nine months of the 2002 harvest study. The hiring of a new harvest study worker for 2002 meant that, similar to the IHS, all harvesters over 16 years of age were interviewed separately resulting in an apparent large increase in the number of harvesters over 2001 (Table 2). The number of harvesters interviewed was similar to 1999.

Holman residents reported the harvest of 5,527 Arctic char and 3,751 lake trout in 2002. Total harvests of lake trout were higher than in 2001 because the harvest study started earlier and included the traditionally high lake trout harvest months of April, May and June (Table 3). Lake trout harvests in 2002 exceeded those reported in 1998 (Fabijan 2000) and 2000 (Pinard 2001). The coastal Arctic char harvests did remain below the recommended safe limits of 4,500 char as recommended in the char plan for the Holman coastal area harvest (HCWG 2001) (Table 4).

A total of 818 ringed and six bearded seals were reported harvested during the study. The number of participants involved in this harvesting and the number of seals harvested are very similar to the 830 ringed and 10 bearded seals reported in 2000 (Pinard 2001).

The 2003 harvest study recorded a total of 3,148 Arctic char, 2,740 lake trout, 486 ringed seals and six bearded seals. The harvest of all species, except bearded seals, was considerably lower than in 2002. Except for Arctic char, the number of harvesters reporting the harvest of each species is similar to 2002 (Table 5). Although the number of individuals on the harvester list remained the same as in 2002, the number of people reporting harvests was lower (Table 2). The reported Arctic char harvest was again below the recommended limits in the Holman char plan for various locations and water bodies near Holman (HCWG 2001).

Inuvik

The Inuvik HTC mailed 121 harvest cards every month from July to November. The average monthly response to the 1999 mailing survey was 21 harvesters (16.5%). Almost 75% of these respondents reported no harvest (Table 6). The number of respondents declined monthly from 28 in July to only 11 in November. A total of 690 inconnu, 1,636 broad whitefish, 48 Arctic cisco and 37 lake trout were reported during the course of the study (Table 7).

Participation in the 1999 mail survey was lower than that previously reported by the IHS survey (Fabijan 1998, 2000) and lower than in 2000 (Pinard 2001). Note, however, that the 2000 IHS (Pinard 2001) reported participation based on the harvest of any species, thus making it impossible to compare with this study that requested information only on fish harvests. The 1999 survey did show that the number of fishers involved in the harvest of the selected species (Table 8) was generally similar to that reported in the past (*e.g.*, Fabijan 1998, 2000). Harvests of all fish species during the study period were slightly lower than those reported for 1997, 1998 and 2000 (Fabijan 1998, 2000; Pinard 2001).

Besides having only limited success in recording harvests, this method was considered too labour-intensive and costly to adopt as a permanent method. It is unlikely that any single group or agency could dedicate as much time to a mail survey as the HTC Resource Person did. The additional costs associated with providing incentives to participate are also likely to be

untenable in the long-term. In fact, the inclusion of prizes did not appear to increase participation beyond the usual (*e.g.*, Fabijan 2000; Pinard 2001). The use of any type of written survey in the western Arctic seems to be a poor choice due to varying degrees of literacy.

Paulatuk

Seventeen Paulatuk fishers reported harvesting Arctic char during the spring and nine during the autumn of 1999. This is similar to the average number of harvesters participating in Arctic char fishing in the coastal area and Hornaday River in recent years (*e.g.*, Fabijan 1998, 2000). These harvesters reported 645 char during the coastal spring fishery and 248 during the fall harvest in the Hornaday River (Table 9). An additional 743 char were harvested by eleven fishers during the upstream migration in August and September. These harvests were recorded by monitors stationed on the Hornaday River (L. Harwood, pers. comm.).

These results are not directly comparable with those reported during the IHS primarily due to the way the information was collected (long recall as opposed to monthly survey), but the total harvest is similar to that reported in 1998 (Fabijan 2000). Arctic char harvests were higher in the summer period and lower in the autumn than the reported harvests of 1998 (Fabijan 2000). Total harvest within the Hornaday River was below the 1,700 char safe limit recommended by the Paulatuk Char Management Plan (PHTC 1999).

Paulatuk fishers reported the harvest of 1,897 anadromous Arctic char in 2001 (Table 10) while few landlocked char were harvested (Table 11). Of the anadromous harvest, 639 were captured during the spring fishery, 1,113 in the summer and 145 during the autumn fishery. Char monitors reported the harvest of 881 from the Hornaday River during August (L. Harwood, pers. comm.) which is very similar to the 899 reported to the harvest study worker (Table 11) The number of harvesters (30) was higher than the 22 reporting the harvest of 1,281 anadromous Arctic char in 2000 (Pinard 2001) (Table 12).

Similar to 1999, the 2001 results are not directly comparable with those collected in IHS years since the 2001 results are based on a single recall survey. The reported harvest may be very inaccurate due to the length of time involved. Additionally, although the 1999 harvest data was roughly reported as either “spring” or “autumn” (Table 9) which allows for quantitative comparisons with other years, qualitative comparisons are not possible. Except for a reported decline in harvests in 2000 (Pinard 2001), it appears that harvests remained relatively similar from year to year. The Hornaday River harvest in 2001 (Table 11) remained within the recommended safe limit of 1,700 char outlined in the Paulatuk Char Management Plan (PHTC 1999) and the number of participating harvesters was similar to 1999 (Table 9).

A longer lead time made possible a monthly harvest study in Paulatuk in 2002. Paulatuk residents were asked to provide information on their harvest of Arctic char, lake trout and ringed and bearded seals. The number of lake trout and char harvested and the number of harvesters involved in those fisheries was much higher than in 2000 (Pinard 2001) (Table 13, 14). Several harvesters volunteered information on their harvests of other fish species (Table 14). Although 25 harvesters reported the harvest of “whitefish”, broad and lake whitefish both occur in the Paulatuk area and the information provided was not species specific. The number of seals harvested and the number of seal hunters in 2002 was similar to 2000 (Pinard 2001).

The 2003 Arctic char harvest was 25% higher than that reported in 2002 while the harvest of lake trout declined by 20% compared to 2002 (Table 14). Seal harvests remained relatively similar between years. The number of individuals reporting harvests of any fish or marine mammals declined from 2002. The number of people interviewed increased and the number of people refusing to be interviewed declined.

Between the 4-18th of August, char monitors on the Hornaday River recorded the harvest of 855 char during the upstream run (L. Harwood, pers. comm.). This reported harvest is very similar to the 877 fish

reported to the harvest study interviewer. Differences between harvest numbers is due to char captured after the end of monitoring, but reported to the harvest study.

Sachs Harbour

An average of 35 potential harvesters was interviewed during the June-November Sachs Harbour harvest study of 2001 (Table 15). An approximately equal number of these harvesters indicated harvesting Arctic char or lake trout (Table 16). Residents reported the harvest of 196 Arctic char and 142 lake trout (Table 17). The 2001 char harvest was one of the lowest reported in recent years and less than a third of that reported in 2000 (Fabijan 1997, 1998, 2000; Pinard 2001).

Sachs Harbour was the only community in 2001 in which some people declined to be interviewed. These people represented almost 20% of all harvesters. The number of non-respondents cannot be compared with previous years as these numbers were not reported (*e.g.*, Fabijan 2000; Pinard 2001). Due to the small population of Sachs Harbour, even a few active harvesters that refuse to participate in the study can greatly influence the outcome, so the 2001 results must be viewed cautiously. However, the number of harvesters reporting a fish harvest was similar to previous IHS years (Fabijan 1998, 2000; Pinard 2001) suggesting that perhaps the 2001 results, while not complete, may be comparable with previous study years. The harvest study interviewer in Sachs Harbour during 2001-2003 had worked for the IHS in previous years (1994-2000) and was well versed in interview methods and familiar with the community harvesters.

The 2002 harvest study in Sachs Harbour began as a recall survey in late May and gathered information on the April and May harvest of Arctic char, lake trout and ringed and bearded seals. An average of 33 harvesters was interviewed monthly (Table 15), slightly fewer than in 2001. However, more harvesters participated in Arctic char or lake trout harvesting than in 2001 (Table 16) resulting in a higher harvest than in 2001 (Table 17).

The 2003 study ran uninterrupted from January through December 2003. The number of harvesters participating in the harvest of each species was similar or higher to that of 2002 although the number of Arctic char, lake trout and ringed seal harvested declined. In 2003, as in 2002, there was a continued decline in the number of harvesters that did not wish to participate in the study (Table 15).

Tuktoyaktuk

A total of 35 harvesters were contacted during the 1999 harvest study (Table 18). However, almost 1/3 of those on the harvester list could not be contacted on a regular monthly basis and only a small number of harvesters were contacted during the first month of the study. On average, 33 harvesters were on the harvester list during the study. Although the number of harvesters appears low, the number of people reporting fishing in July and September (Table 19) is close to previous IHS averages (Fabijan 1997, 1998).

Broad whitefish and Arctic cisco harvests (Table 20) were similar in size and timing to those reported through the IHS (Fabijan 1997, 1998). However, lake whitefish harvests were only 20-30% of those recorded during similar, previous periods (Fabijan 1997, 1998). Lake trout harvests were similar to corresponding periods in 1996 but far below the 230 fish reported in 1997 (Fabijan 1997, 1998).

The majority of respondents approached during the 2003 Arctic cisco study had harvested some fish and were willing to provide harvest information (Table 21). The number reporting the harvest of Arctic cisco (Table 22) is similar to previous study years (*e.g.*, Fabijan 2000). The reported 2003 harvest of 13,497 Arctic cisco (Table 23) places it on par with harvests from the late 1990s (*e.g.*, Fabijan 1998, 2000) (except 1999) and higher than that of 2000 (*e.g.*, Pinard 2001). However, the 2003 harvest is far below the numbers reported in 1987 and 1988 (Fabijan 1991).

Approximately 65% of the seventeen harvesters queried believed that fishing was better than previous years while 30%

thought it was about the same. Harvest of "whitefish" cannot be compared with previous years as the information was not recorded by species. Additionally, this volunteered information from only a few fishers is almost certainly an incomplete record of the harvest.

RECOMMENDATIONS

All future harvest studies in the ISR, whether run by a reformed IHS Administrative Group, DFO or some collaborative group of agencies and departments, should consider and attempt to address the following recommendations. Although these recommendations are written with fish and marine mammal management in mind, the recommendations could be similarly useful for the management of terrestrial species.

Management uncertainties arising as a direct result of the loss of the IHS have been noted by DFO several times over the past few years. For example, the lack of information on the Dolly Varden harvest by Inuit harvesters from Aklavik makes it impossible to determine whether the total harvest of Rat River Dolly Varden is below that recommended by the Rat River Fishing Plan (RRCWG 1999). Current information on the harvest of Dolly Varden and other fish species from the Aklavik area and Yukon North Slope would also greatly assist the West Side Working Group who are developing a management plan for Yukon North Slope rivers. The lack of current or even recent harvest data from a few areas may restrict the preparation, monitoring or overall effectiveness of community based fishing plans, IMPs and the completion of stock status reports. Due to the number of fishing plans planned for or currently in place throughout the ISR, there appears to be few areas in which harvest studies could run only every second or third year and yet still provide enough harvest data for proper management. Therefore;

> *1. So long as the IHS remains inoperative, all future fishing or management plans developed or under development in the ISR should include a long-term plan for securing annual harvest information either through a localized harvest study or, preferably, a stock specific monitoring program.*

Although some harvest data collected through the harvest study worker or by field monitors is virtually identical (*e.g.*, recent Hornaday River and Holman area Fish Lake Arctic char harvests), there is also evidence from several areas and over the course of several years to suggest that harvest information collected by stock- or area-specific monitoring programs verses the information collected by recall surveys may be very dissimilar. This suggests that on-site monitoring is much more accurate and that harvesters may unintentionally misreport these same harvests during recall harvest study interviews. There may be up to 300% discrepancy (with up to 20% being common) between harvests recorded by recall and monitoring methods. Future management plans should take into account the probability that even if harvest data is available, it likely underestimates the true harvest by a substantial amount. Therefore;

> *2. Whenever possible, serious consideration should be given to establishing monitoring programs for documenting the harvest of specific stocks at specific locations or times rather than relying only on numbers reported through harvest studies. Buffers should be built into any recovery or management plan if only harvest data is used due to the problem of recall harvest studies usually under-reporting the actual harvest. Monitoring programs more accurately document the harvest (see above) and they may also be designed to gather biological or catch-per-unit-effort information. Monitoring programs also provide direct interaction with harvesters on-site and provide an opportunity to gather or disseminate additional information.*

There is evidence to suggest that at least some portion of the harvest is unreported to harvest study workers (*e.g.*, Stephenson 2003). For example, DFO has been purchasing Pacific salmon carcasses from western Arctic harvesters as part of a long-term genetic and distributional study. Many

of these salmon harvests have not been reported to harvest study workers, suggesting that captures of other salmon may also be unreported. The occurrence of these and other rare species (including birds and terrestrial and marine mammals) in the Arctic is of great interest to those studying their distributions. Accurate reporting of all harvests and the information on the sightings or capture of animals out of their traditional range is highly desirable. Therefore;

3. All future harvest studies should inquire about the capture of rare or unusual species. If the respondent indicates a harvest (or sighting) of an unusual species, such as Pacific salmon or walrus, follow-up questions should ensure the collection of as much information as possible.

Based on 1999 results, a mail-out harvest study is largely unsuitable for the western Arctic area. The respondent rate will likely be low while the maintenance level would be high. Limited participation would make it difficult to extrapolate any harvest numbers to a total harvest. Therefore;

4. Future harvest studies should not rely on written surveys, but instead continue to use door-to-door surveys or similar methods that increase personal contact between harvesters and study workers.

The loss of the IHS negatively impacts the ability to manage resources. Small scale harvest studies, conducted co-operatively by several government departments or agencies should continue to be conducted during peak hunting and fishing periods. While recognizing the limits noted above for recall surveys, co-operative studies reduce harvester interview fatigue and reduce costs and duplication of effort while maintaining important and required information on harvesting trends. Therefore;

5. Co-operative harvest studies, such as those conducted in 2002-2003, should be used in the western Arctic whenever possible to maintain harvest information and reduce costs to any single group. The participating agencies have a responsibility to ensure the results of these harvest studies are returned or otherwise made available to the communities as soon as possible.

As evidenced by low historic response rates to the IHS in some communities, harvest studies have not always provided a good return on investment. Some agencies are reluctant to spend their ever dwindling financial resources on harvest studies in some communities. There is a need to develop and use novel approaches in the collection of harvest data in these communities. HTCs also bear a great responsibility in the collection of harvest data and they should make an effort to help educate and convince their membership of the value of participation in harvest or monitoring studies. Therefore;

6. Greater effort should be made by co-management partners in the ISR to begin studies that focus on the period(s) of highest harvesting activity in their area. As soon as possible, these studies should begin in Aklavik, Inuvik and Tuktoyaktuk since they have not been part of any regular harvest study since the end of the IHS in 2000.

The lack of recent harvest information from Inuvik, Aklavik and, to a lesser extent, Tuktoyaktuk, not only handicaps fisheries management efforts in the area, but also fails to provide current information on harvests by area residents at a time when oil and gas exploration is expanding within the Delta. The Mackenzie Valley pipeline is now almost certain to be in place by the end of the decade. Harvest information is needed in those areas closest to the proposed development and, therefore, potentially the most likely to be affected by any negative events. While DFO uses harvest information to assist in management, the collection of harvest data should be one of the prime responsibilities of co-management groups (*e.g.*, HTCs, IGC). Although DFO has previously secured funding for harvest data collection in some areas, in some years there has been no community interest in carrying out this work. Therefore;

7. An increased effort should be made to resume some level of harvest data collection within communities that are at greatest risk of being negatively affected by increasing oil and gas activity. Selected monitoring or harvest studies could target key or sensitive species so that changes to harvests could be documented. The FJMC should convey the importance of these studies to the IGC and responsible HTCs so that the HTCs can explain to their membership that there is a need to resume harvest studies.

A comparison of recent harvest data with that available from the early years of the IHS (*e.g.*, Fabijan 1991) suggests that the harvest of many species is on the decline throughout the ISR. There are many possible explanations for declining harvests not limited to but including; possible climate change resulting in changes in the timing of appearance or location of fish and other wildlife, harvester involvement in wage economies resulting in limited time to participate in harvesting, high costs (*e.g.*, gasoline and equipment) associated with harvesting activities making these activities prohibitive to some people, and an increasing number of traditional harvesters reaching an age where harvesting activities are simply too difficult.

Regardless of the reason, while decreasing harvests might initially appear to make the job of resource management easier, declines in the number of people possessing knowledge or having a long experience of resource use means that fisheries and wildlife managers may be losing a vital link to local observations concerning the health of fish and wildlife stocks. These observations are often the first indication of changes to a resource that may ultimately require management intervention. The sharing of these “on the land” observations should be encouraged through harvest studies as an additional means that harvesters may use to help guide the management of fish and wildlife.

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Figure 1: Map of Inuvialuit Settlement Region showing locations of communities discussed in text.

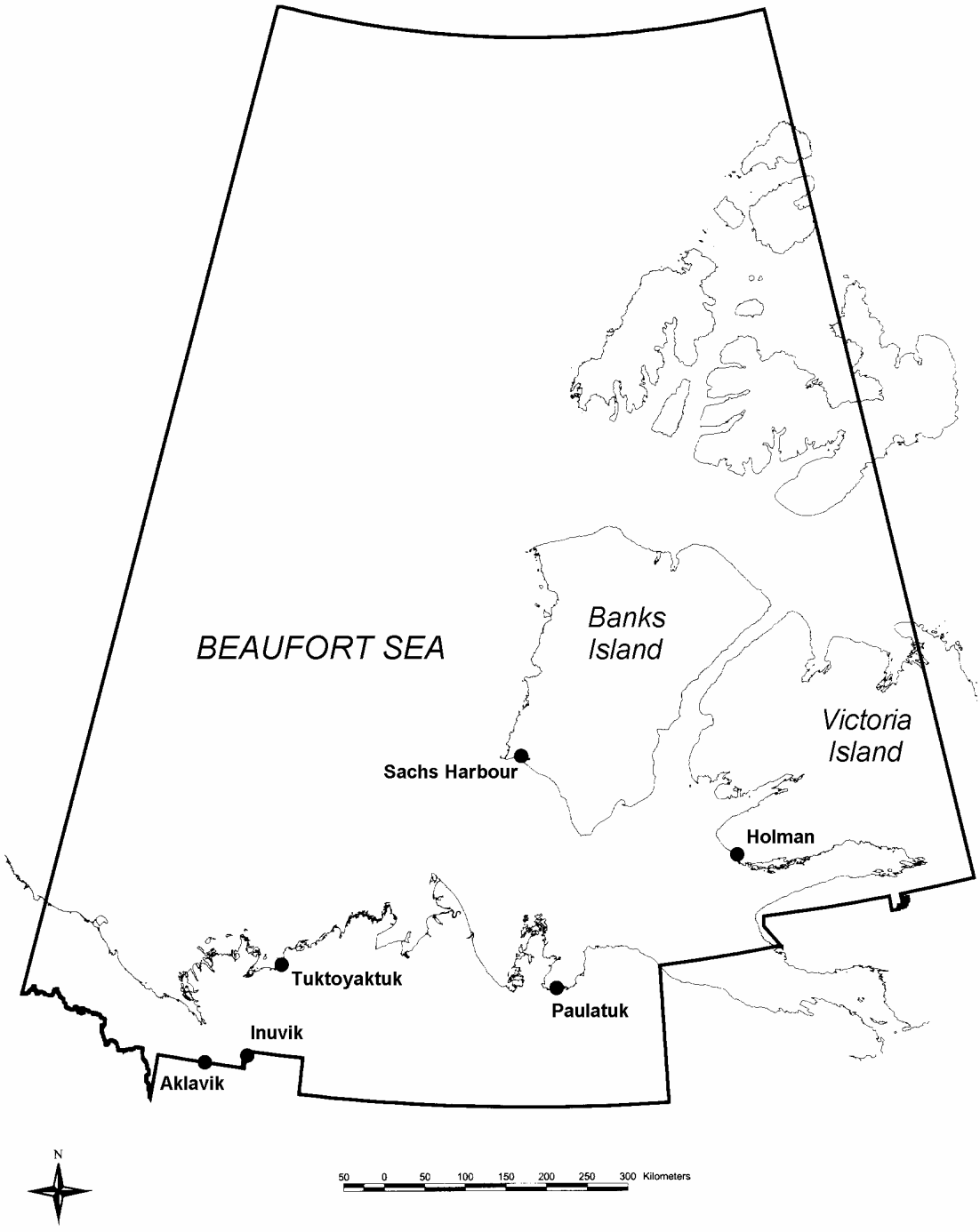

Table 1: Reported fish harvest in the community of Aklavik and at Shingle Point in 1999.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Inconnu	-	-	-	-	-	86	287	147	52	378	-	-	950
Broad whitefish	-	-	-	-	-	219	385	650	476	1178	-	-	2908
Dolly Varden	-	-	-	-	-	4	18	146	79	0	-	-	247
Arctic cisco[A]	-	-	-	-	-	-	2552[B]		-	-	-	-	2552
Dolly Varden[A]	-	-	-	-	-	-	250[B]		-	-	-	-	250

[A] Shingle Point area harvest only
[B] Estimate – see text for details

Table 2: Summary of interview responses from the Holman harvest study by month, 1999 and 2001-2003

1999	Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
	Hunter list	-	-	-	-	-	120	121	110	105	76	-	-	106
	Harvested	-	-	-	-	-	59	67	46[A]	20[A]	28[B]	-	-	44
	No harvest	-	-	-	-	-	54	43	49	62	27	-	-	47
	Attempted but no harvest	-	-	-	-	-	7	7	2	3	1	-	-	4
	No response	-	-	-	-	-	0	4	13	20	20	-	-	11.4
	Response rate (%)	-	-	-	-	-	100	96.7	88.2	80.1	73.7	-	-	87.7
2001	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	-	-	-	-	-	-	62	62	76	69	83	-	70
	Harvested	-	-	-	-	-	-	54	34	10	25	6	-	26
	No harvest	-	-	-	-	-	-	6	26	66	44	76	-	44
	Attempted but no harvest	-	-	-	-	-	-	2	2	0	0	0		< 1
	No response	-	-	-	-	-	-	0	0	0	0	1	-	< 1
	Response rate (%)	-	-	-	-	-	-	100	100	100	100	98.8	-	99.8
2002	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	-	-	-	101	101	100	100	100	98	98	99	99	100
	Harvested *	-	-	-	23	58	54	73	47	14	29	11	6	35
	No harvest	-	-	-	64	26	34	20	46	74	63	84	93	56
	Attempted but no harvest	-	-	-	10	11	2	1	1	0	0	0	0	3
	No response[C]	-	-	-	4	6 (2)	10 (2)	6	6 (3)	10 (4)	6 (1)	4 (2)	0	6
	Response rate (%)	-	-	-	96.1	94.1	90.0	94.0	94.0	89.8	93.9	96.0	100	94.2
2003	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	101	101	101	95	98	99	101	99	101	101	100	101	100
	Harvested *	2	2	2	19	43	59	31	34	7	22	1	1	19
	No harvest	97	90	79	65	45	40	46	53	83	66	80	83	69
	Attempted but no harvest	1	2	2	0	0	0	0	0	0	0	0	0	0.4
	No response[C]	1	7	18	11	10	0	24	12	11	13	19	17	11
	Response rate (%)	99.0	93.1	82.2	88.4	89.8	100	76.2	87.8	89.1	87.1	81.0	83.1	88.1

* Harvested refers to the number of people reporting the harvest of fish or seals.
[A] Includes one person that harvested only "cod" species.
[B] Includes two harvesters who reported fish species other than char or lake trout.
[C] Number refers to those that moved or could not be contacted. Number in parentheses refers to those of the total "no response" that did not wish to be interviewed.

Table 3: Reported harvests by month in Holman during 1999 and 2001-2003.

1999	Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	Arctic char	-	-	-	-	-	248	2591	1253	500	907	-	-	5499
	Lake trout	-	-	-	-	-	1045	297	82	64	337	-	-	1825
	Lake whitefish	-	-	-	-	-	0	0	0	0	204	-	-	204
2001	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	-	-	-	-	-	-	2266	1042	161	1077	296	-	4842
	Lake trout	-	-	-	-	-	-	322	156	15	128	17	-	638
	Lake whitefish	-	-	-	-	-	-	0	0	0	0	18	-	18
2002	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	-	-	-	0	3	89	2131	1746	95	1180	283	0	5527
	Lake trout	-	-	-	521	1019	1334	305	123	97	242	110	0	3751
	Lake whitefish	-	-	-	0	0	0	0	0	0	16	1	0	17
	Ringed seal	-	-	-	7	33	49	284	338	68	0	12	27	818
	Bearded seal	-	-	-	0	2	0	3	0	1	0	0	0	6
2003	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	0	0	0	0	0	2	1022	1191	188	742	0	3	3148
	Lake trout	0	0	2	170	1154	1109	4	52	47	184	23	3	2740
	Ringed seal	5	4	2	0	13	112	180	168	2	0	0	0	486
	Bearded seal	0	0	0	0	0	1	0	5	0	0	0	0	6

Table 4: Number of coastal and lake captured Arctic char reported by month during the Holman harvest study, 1999 and 2001-2003.

1999	Month	Coastal	Lake
	June	157	91
	July	2581	10
	August	1216	37
	September	493	7
	October	0	907
	Total	**4447**	**1052**
2001	**Month**	**Coastal**	**Lake**
	July	2266	0
	August	1042	0
	September	161	0
	October	0	1077
	November	0	296
	Total	**3469**	**1373**
2002	**Month**	**Coastal**	**Lake**
	April	0	0
	May	0	3
	June	77	12
	July	2131	0
	August	1734	12
	September	46	49
	October	24	1156
	November	8	275
	December	0	0
	Total	**4020**	**1507**
2003	**Month**	**Coastal**	**Lake**
	June	0	2
	July	1022	0
	August	1191	0
	September	75	236
	October	0	619
	November	0	0
	December	0	3
	Total	**2288**	**860**

Table 5: Number of harvesters by month reporting selected species during the Holman harvest study, 1999 and 2001-2003.

1999	Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters*
	Arctic char	-	-	-	-	-	22	57	36	14	18	-	-	72
	Lake trout	-	-	-	-	-	50	20	15	6	20	-	-	69
	Lake whitefish	-	-	-	-	-	0	0	0	0	12	-	-	12
2001	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	-	-	-	-	-	-	51	29	7	22	6	-	64
	Lake trout	-	-	-	-	-	-	16	8	3	17	3	-	37
	Lake whitefish	-	-	-	-	-	-	0	0	0	0	3	-	3
2002	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	-	-	-	0	2	11	63	34	4	27	8	0	69
	Lake trout	-	-	-	21	53	48	19	10	4	25	8	0	72
	Lake whitefish	-	-	-	0	0	0	0	0	0	3	1	0	3
	Ringed seal	-	-	-	2	3	18	42	29	10	0	3	6	50
	Bearded seal	-	-	-	0	1	0	3	0	1	0	0	0	4
2003	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	0	0	0	0	0	1	30	28	5	19	0	1	52
	Lake trout	0	0	1	19	44	50	1	4	3	18	2	1	70
	Ringed seal	2	2	1	0	7	24	25	21	1	0	0	0	46
	Bearded seal	0	0	0	0	0	1	0	2	0	0	0	0	3

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

Table 6: Summary of interview responses from the Inuvik harvest study, 1999.

Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Hunter list	-	-	-	-	-	-	121	121	121	121	121	-	121
Harvested	-	-	-	-	-	-	9	8	4	3	3	-	5
No harvest	-	-	-	-	-	-	19	19	19	15	8	-	16
Attempted, but no harvest	-	-	-	-	-	-	0	0	0	0	0	-	0
No response[A]	-	-	-	-	-	-	93	94	98	103	110	-	100
Response rate (%)	-	-	-	-	-	-	23.1	22.3	19.0	14.8	9.01	-	17.6

[A] Number refers to those that did not return harvest cards.

Table 7: Reported fish harvest by month in Inuvik during 1999.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Inconnu	-	-	-	-	-	-	238	119	27	279	27	-	690
Broad whitefish	-	-	-	-	-	-	753	460	101	322	0	-	1636
Arctic cisco	-	-	-	-	-	-	47	0	1	0	0	-	48
Lake trout[A]	-	-	-	-	-	-	37	0	0	0	0	-	37

[A] Harvests from Husky Lake only

Table 8: Number of harvesters fishing each species by month during the Inuvik harvest study, 1997-1999 (harvest data from Fabijan 1998, 2000; Stephenson 2000).

Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters 1999 *	1998	1997
Inconnu	-	-	-	-	-	-	6	6	4	1	3	-	16	22	9
Broad whitefish	-	-	-	-	-	-	8	6	2	3	0	-	13	20	11
Arctic cisco	-	-	-	-	-	-	4	1	1	0	0	-	6	2	2
Lake trout	-	-	-	-	-	-	1	0	0	0	0	-	1	5	2

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

Table 9: Reported harvest of Arctic char and number of unique harvesters during three fishing periods in Paulatuk during 1999.

Fishing Period	Number of Arctic char	Number of Unique Harvesters*
June/July	645	17
August/September	743[A]	11[A]
November/December	248	9
Harvest/Harvesters	**1636**	**26**

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

[A] August/September data from L. Harwood, DFO Yellowknife (pers. comm.)

Table 10: Total reported harvest of Arctic char in Paulatuk from June to November, 1997-2001 (harvest data from Fabijan 1998, 2000; Harwood pers. comm.; Stephenson 2000; Pinard 2001).

Fishing Period	2001	2000	1999*	1998	1997
June	312	336		156	122
July	327	303	645	914	149
August	1053	568		390	990
September	60	94	743	30	15
October	111	139		79	230
November	34	15	248	42	19
December	0	25	0	0	0
Total for Period	**1897**	**1480**	**1636**	**1611**	**1525**

***** Harvest recorded as spring, summer and fall only

Table 11: Number of coastal, landlocked and Hornaday River Arctic char reported harvested by month during the Paulatuk harvest study, 2001 and 2003.

2001	Month	Coastal	Landlocked	Hornaday River
	June	293	19	0
	July	282	30	15
	August	129	0	899
	September	0	0	85
	October	0	0	111
	November	0	4	30
	Total	**704**	**53**	**1140**
2003	**Month**	**Coastal**	**Landlocked**	**Hornaday River**
	May	0	6	0
	June	258	105	0
	July	428	24	0
	August	35	84	877
	September	5	0	0
	October	0	0	23
	November	0	12	210
	Total	**726**	**231**	**1110**

Table 12: Number of harvesters by month and species during the Paulatuk harvest study, 2001-2003.

2001	Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters*
	Arctic char	-	-	-	-	-	9	14	18	3	5	3	-	30
2002	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	-	-	-	0	3	10	14	16	5	14	0	0	33
	Lake trout	-	-	-	7	11	13	1	3	10	6	0	0	34
	Bearded seal	-	-	-	1	0	0	2	1	2	0	0	0	5
	Ringed seal	-	-	-	7	1	2	3	6	3	0	0	0	12
	Pacific herring	-	-	-	0	0	2	3	1	0	0	0	0	3
	Burbot	-	-	-	0	0	0	0	0	0	1	0	0	1
	Unspecified Cisco	-	-	-	0	0	2	2	1	0	0	0	0	3
	Arctic grayling	-	-	-	0	0	0	0	0	0	3	0	0	3
	Northern pike	-	-	-	0	0	0	0	0	1	0	0	0	1
	Unspecified whitefish	-	-	-	0	0	9	13	4	3	12	0	0	25
2003	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	0	0	0	0	1	17	21	16	1	5	15	-	39
	Lake trout	0	1	0	8	14	7	4	5	5	1	7	-	29
	Bearded seal	0	0	0	0	0	1	1	0	0	0	0	-	2
	Ringed seal	2	1	0	2	1	1	2	5	2	1	0	-	8
	Pacific herring	0	0	0	0	0	2	1	2	2	0	0	-	6
	Burbot	0	0	0	0	1	0	0	0	0	0	1	-	2
	Unspecified Cisco	0	0	0	0	0	1	0	1	2	0	0	-	3
	Rock cod	0	0	0	0	0	0	0	0	1	0	0	-	1
	Tom cod	0	0	0	0	0	0	0	0	1	0	0	-	1
	Unspecified whitefish	0	0	0	0	0	13	14	1	0	5	0	-	22
	Lake whitefish	0	0	0	0	0	0	0	0	1	1	2	-	4
	Broad whitefish	0	0	0	0	0	0	0	0	2	1	13	-	16

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

Table 13: Total number of harvesters interviewed and response by month for Paulatuk, 2002-2003.

2002	Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
	Hunter list	-	-	-	47	47	47	54	55	56	58	59	58	53
	Harvested *	-	-	-	13	15	28	20	19	18	17	12	0	16
	No harvest	-	-	-	31	28	15	30	31	35	38	46	58	36
	Attempted, but no harvest	-	-	-	0	0	0	0	0	0	0	0	0	0
	No response[A]	-	-	-	3	4	4 (1)	4 (1)	5 (2)	3 (1)	3 (1)	1	0	3
	Response rate (%)	-	-	-	93.6	91.5	91.5	92.6	90.9	94.6	94.8	98.3	100	94.2
2003	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	58	58	59	59	58	56	59	60	60	59	59	-	59
	Harvested *	2	2	0	9	16	22	24	22	10	8	18	-	12
	No harvest	55	55	58	48	41	34	34	38	50	49	40	-	46
	Attempted, but no harvest	0	0	0	2	1	0	1	0	0	2	1	-	0.6
	No response[A]	1	1	1	0	0	0	0	0	0	0	0	-	0.3
	Response rate (%)	98.3	98.3	98.3	100	100	100	100	100	100	100	100	-	99.5

* Harvested refers to the number of people reporting the harvest of fish or seals.
[A] Number refers to those that moved or could not be contacted. Number in parentheses refers to those of the total "no response" that did not wish to be interviewed.

Table 14: Reported harvests by month in Paulatuk, 2001-2003.

2001	Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	Arctic char	-	-	-	-	-	312	327	1028	85	111	34	0	1897
2002	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	-	-	-	0	8	104	185	994	139	159	0	0	1589
	Lake trout	-	-	-	67	81	244	1	16	114	49	0	0	572
	Bearded seal	-	-	-	1	0	0	2	1	2	0	0	0	6
	Ringed seal	-	-	-	29	16	9	4	16	8	0	0	0	82
	Pacific herring	-	-	-	0	0	30	31	12	0	0	0	0	73
	Burbot	-	-	-	0	0	0	0	0	0	20	0	0	20
	Unspecified Cisco	-	-	-	0	0	55	80	60	0	0	0	0	195
	Arctic grayling	-	-	-	0	0	0	0	0	0	18	0	0	18
	Northern pike	-	-	-	0	0	0	0	0	5	0	0	0	5
	Unspecified whitefish	-	-	-	0	0	547	735	52	130	369	0	0	1833
2003	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	0	0	0	0	6	363	452	996	5	23	222	-	2067
	Lake trout	0	3	0	65	124	57	20	39	61	50	31	-	450
	Bearded seal	0	0	0	0	0	1	1	0	0	0	0	-	2
	Ringed seal	10	5	0	5	2	6	6	42	15	6	0	-	97
	Pacific herring	0	0	0	0	0	60	4	135	110	0	0	-	309
	Burbot	0	0	0	0	10	0	0	0	0	0	3	-	13
	Unspecified Cisco	0	0	0	0	0	50	0	163	63	0	0	-	276
	Rock cod	0	0	0	0	0	0	0	0	50	0	0	-	50
	Tom cod	0	0	0	0	0	0	0	0	130	0	0	-	130
	Unspecified whitefish	0	0	0	0	0	552	520	50	0	275	0	-	1397
	Lake Whitefish	0	0	0	0	0	0	0	0	21	100	18	-	139
	Broad whitefish	0	0	0	0	0	0	0	0	31	45	444	-	520

Table 15: Total number of harvesters interviewed and response by month for Sachs Harbour, 2001-2003.

2001	Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
	Hunter list	-	-	-	-	-	36	36	35	35	35	35	-	35
	Harvested	-	-	-	-	-	1	3	3	2	0	3	-	2
	No harvest	-	-	-	-	-	21	19	20	24	25	24	-	22
	Attempted but no harvest	-	-	-	-	-	0	0	0	0	0	0	-	0
	No response[A]	-	-	-	-	-	14 (9)	14 (9)	12 (9)	9 (7)	10 (7)	8 (7)	-	11
	Response rate (%)	-	-	-	-	-	61.1	61.1	65.7	74.3	71.4	77.1	-	68.5
2002	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	-	-	-	34	34	34	34	34	33	33	32	32	33
	Harvested*	-	-	-	5	14	4	10	9	4	6	1	0	6
	No harvest	-	-	-	24	14	22	16	18	18	18	26	28	20
	Attempted but no harvest	-	-	-	0	0	0	0	0	0	0	0	0	0
	No response[A]	-	-	-	5 (2)	6	8 (4)	8 (4)	7 (3)	11 (5)	9 (5)	5 (3)	4	7
	Response rate (%)	-	-	-	85.3	82.3	76.5	76.5	79.4	66.6	72.7	84.4	87.5	79.0
2003	**Hunter Response**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean**
	Hunter list	35	35	35	35	35	35	35	35	35	35	35	35	35
	Harvested*	0	0	0	9	13	12	9	14	2	2	0	0	5
	No harvest	35	35	35	23	21	23	20	19	32	33	35	35	28
	Attempted but no harvest	0	0	0	0	0	0	0	0	0	0	0	0	0
	No response[A]	0	0	0	3 (2)	1	0	6 (3)	3 (3)	1	0	0	0	1
	Response rate (%)	100	100	100	91.4	97.1	100	82.8	94.3	97.1	100	100	100	96.8

* Harvested refers to the number of people reporting the harvest of fish or seals.
[A] Number refers to those that moved or could not be contacted. Number in parentheses refers to those of the total "no response" that did not wish to be interviewed.

Table 16: Number of harvesters by month during the Sachs Harbour harvest study, 2001-2003.

2001	Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters*
	Arctic char	-	-	-	-	-	0	3	2	1	0	3	-	7
	Lake trout	-	-	-	-	-	1	2	2	1	0	3	-	8
2002	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	-	-	-	2	9	3	7	4	1	6	1	0	21
	Lake trout	-	-	-	5	13	2	3	2	2	4	1	0	17
	Bearded seal	-	-	-	0	0	0	1	2	1	0	0	0	3
	Ringed seal	-	-	-	0	1	1	6	5	0	0	0	0	8
	Lake whitefish	-	-	-	0	0	0	1	1	0	0	0	0	2
2003	**Number of harvesters reporting selected species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Number of Unique Harvesters***
	Arctic char	0	0	0	7	12	11	6	8	2	2	0	0	24
	Lake trout	0	0	0	8	8	4	4	4	0	0	0	0	18
	Bearded seal	0	0	0	0	0	0	1	7	0	0	0	0	7
	Ringed seal	0	0	0	0	0	0	1	6	0	0	0	0	6
	Tom cod	0	0	0	0	0	0	2	0	0	0	0	0	2
	Herring sp.	0	0	0	0	0	0	2	0	0	0	0	0	2

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

Table 17: Reported harvest by month in Sachs Harbour, 2001-2003.

2001	Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	Arctic char	-	-	-	-	-	0	21	94	20	0	61	-	196
	Lake trout	-	-	-	-	-	30	18	6	3	0	85	-	142
2002	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	-	-	-	23	95	190	49	193	17	89	1	0	657
	Lake trout	-	-	-	54	169	15	95	7	18	109	26	0	493
	Bearded seal	-	-	-	0	0	0	3	2	3	0	0	0	8
	Ringed seal	-	-	-	0	1	1	28	40	0	0	0	0	70
	Lake whitefish	-	-	-	0	0	0	25	7	0	0	0	0	32
2003	**Species**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
	Arctic char	0	0	0	53	143	233	24	30	62	7	0	0	552
	Lake trout	0	0	0	92	46	55	20	49	0	0	0	0	262
	Bearded seal	0	0	0	0	0	0	2	9	0	0	0	0	11
	Ringed seal	0	0	0	0	0	0	4	28	0	0	0	0	32
	Tom cod	0	0	0	0	0	0	13	0	0	0	0	0	13
	Herring sp.	0	0	0	0	0	0	34	0	0	0	0	0	34

Table 18: Summary of interview responses from the Tuktoyaktuk harvest study by month, 1999.

Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Hunter list	-	-	-	-	-	5	41	29	41	41	40	-	33
Harvested	-	-	-	-	-	4	22	3	18	0	1	-	8
No harvest	-	-	-	-	-	0	6	15	9	31	34	-	16
Attempted, but no harvest	-	-	-	-	-	0	0	1	0	0	0	-	< 1
No response[A]	-	-	-	-	-	1	13	10	13	10	5	-	8.7
Response rate (%)	-	-	-	-	-	80.0	68.3	65.5	65.8	75.6	87.5	-	73.8

[A] Number refers to those that moved or could not be contacted.

Table 19: Number of harvesters by month participating in fish harvesting during the Tuktoyaktuk harvest study, 1999.

Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters*
Inconnu	-	-	-	-	-	3	17	1	7	0	1	-	21
Broad whitefish	-	-	-	-	-	4	18	3	13	0	0	-	24
Lake whitefish	-	-	-	-	-	2	10	1	5	0	0	-	14
Arctic cisco	-	-	-	-	-	2	17	0	18	0	0	-	27
Lake trout	-	-	-	-	-	0	5	0	1	0	0	-	6
Rainbow smelt	-	-	-	-	-	1	0	0	0	0	0	-	1
Northern pike	-	-	-	-	-	0	1	0	0	0	0	-	1

* Some harvesters may have harvested in more than one month, but they are counted only once in the total

Table 20: Reported fish harvest by month in Tuktoyaktuk during 1999.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Inconnu	-	-	-	-	-	76	374[A]	500	840	0	100	-	1890+
Broad whitefish	-	-	-	-	-	282	2089[A]	1103	2240	0	0	-	5714+
Lake whitefish	-	-	-	-	-	40	51[A]	100	210	0	0	-	401+
Arctic cisco	-	-	-	-	-	260	6453[A]	0	14853	0	0	-	21556+
Lake trout	-	-	-	-	-	0	37[B]	0	2[C]	0	0	-	39
Rainbow smelt	-	-	-	-	-	40	0	0	0	0	0	-	40
Northern pike	-	-	-	-	-	0	5	0	0	0	0	-	5

[A] Actual harvest is higher as exact numbers could not be recalled.
[B] All but one from Husky Lakes.
[C] Both from Tuktoyaktuk Harbour.

Table 21: Summary of interview responses from the Tuktoyaktuk cisco harvest study, 2003.

Hunter Response	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Hunter list	-	-	-	-	-	-	37	42[A]			-	-	40
Harvested	-	-	-	-	-	-	21	22[A]			-	-	21
No harvest	-	-	-	-	-	-	8	6[A]			-	-	7
Attempted, but no harvest	-	-	-	-	-	-	0	0[A]			-	-	0
No response[B]	-	-	-	-	-	-	8	12[A] (4)			-	-	10
Response rate (%)	-	-	-	-	-	-	78.4	69.8[A]			-	-	74.1

[A] August, September and October interviews/harvests were grouped
[B] Number refers to those that moved or could not be contacted. Number in parentheses refers to those of the total "no response" that did not wish to be interviewed.

Table 22: Number of harvesters by month participating in fish harvesting during the Tuktoyaktuk Arctic cisco harvest study, 2003.

Number of harvesters reporting selected species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Number of Unique Harvesters*
Arctic cisco[A]	-	-	-	-	-	-	13	6	8	19	-	-	28
Arctic cisco							13	19[B]			-	-	26
Whitefish sp.	-	-	-	-	-	-	13	19[B]			-	-	26

* Some harvesters may have harvested in more than one month, but they are counted only once in the total.
[A] Represents those interviewed while harvesting.
[B] August, September and October harvests were grouped during house-to-house interviews.

Table 23: Reported fish harvest by month in Tuktoyaktuk during the Arctic cisco harvest study, 2003.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Arctic cisco[A]	-	-	-	-	-	-	1570	823	269	3003	-	-	5665
Arctic cisco	-	-	-	-	-	-	-	7832[B]			-	-	7832
Whitefish sp.	-	-	-	-	-	-	3468	5940[B]			-	-	9408

[A] Represents those interviewed while harvesting.
[B] August, September and October harvests were grouped during house-to-house interviews.

Appendix 1: Harvest study interview sheet used in Holman in 1999.

FJMC/DFO	Fisher Number	Community **HOLMAN**
Fish Harvest Study	Interview Date	Interviewer Jill
Harvest information from: _____ to _____.		

Fishing Code: ☐ 1) Fished. **2)** Fished, but no catch. **3)** Did not fish. **4)** Could not contact. **5)** Did not want to be interviewed. **6)** Other.

Fish Name	**Number**	**Location**	**Number**	**Location**	**Number**	**Location**
Lake trout						
Arctic charr						
Cisco						
Herring						

Comments:
How was fishing compared to previous seasons?
Did you get what you needed? (why not?)
Did you notice anything interesting or unusual?

Days of the month spent fishing.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Appendix 2: Harvest study interview sheet used in Holman and Sachs Harbour in 2001.

DFO/Holman	Harvester Number	Community
2001 Harvest Study	Interview Date	**HOLMAN**
		Interviewer

Harvest information from: _____ to _____

Fishing Code: ☐ 1) Fished. **2)** Fished, but no catch. **3)** Did not fish. **4)** Could not contact. **5)** Did not want to be interviewed. **6)** Other.

Fish Name	**Number**	**Location**	**Number**	**Location**	**Number**	**Location**
Lake trout						
Arctic char						
	Number Adult or calf		**Number** Adult or calf		**Number** Adult or calf	
Caribou	Male Female		Male Female		Male Female	
Caribou	Male Female		Male Female		Male Female	

Comments:
How was fishing/hunting compared to previous seasons?
Did you get what you needed? (why not?)
Did you notice anything interesting or unusual (e.g., unusual birds, animals or fish)?

Days of the month spent fishing.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Appendix 3: Harvest study interview sheet used in Holman in 2003.

DFO/ CWS/ RWED Holman 2003 Harvest Study	Harvester Number	Community **HOLMAN**
	Interview Date	Interviewer

Harvest information from: _____ to _____.

Did you hunt caribou this month: YES / NO, if yes then fill in harvest information.
Did you fish or hunt seals this month: YES / NO, if yes then fill in harvest information.
Did you hunt waterfowl this month: YES / NO, if yes then fill in harvest information.

Harvest Code: 1) Tried, but no harvest 2) Could not contact 3) Did not want to be interviewed

Harvest Code	Species	Harvest Date	Number Harvested	Bull-Cow-Calf			Harvest Location
	Caribou						

Harvest Code	Species	Harvest Date	Number Harvested	Harvest Location
	Arctic char			
	Lake trout			
	Ringed Seal			
	Bearded Seal			

Harvest Code	Species	Harvest Date	Number Harvested	Harvest Location
	King Eider			
	Common Eider			
	Canada Goose			
	Snow Goose			
	Brant			

Comments:
How was fishing/hunting compared to previous seasons?
Did you notice anything unusual (*e.g.*, unusual birds, animals or fish)?

Appendix 4: Harvest study mail survey card used in Inuvik in 1999.

FJMC/DFO Harvest Study - Please complete this card on a regular basis, marking the number of fish of each species caught on each day of the month.
A new card will arrive every month.
Please return this card even if you did not harvest fish as *you are still eligible for the draws!* Thank you!

Record the number of each fish species captured. *All fish from the Mackenzie River except as noted!*

Week One	1	2	3	4	5	6	7	8
Coney								
Broad Whitefish								
Cisco								
Lake Trout Husky Lakes								
Week Two	9	10	11	12	13	14	15	16
Coney								
Broad Whitefish								
Cisco								
Lake Trout Husky Lakes								

Covering Period: 1999

Record the number of each fish species captured. *All fish from the Mackenzie River except as noted!*

Week Three	17	18	19	20	21	22	23	24
Coney								
Broad Whitefish								
Cisco								
Lake Trout Husky Lakes								
Week Four	25	26	27	28	29	30	31	Total
Coney								
Broad Whitefish								
Cisco								
Lake Trout Husky Lakes								