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SUBSISTENCE MAPPING OF NUIQSUT, KAKTOVIK, AND BARROW

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LIST OF ACRONYMS AND ABBREVIATIONS

ADOLWD	Alaska Department of Labor and Workforce Development
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
GIS	Geographic Information System
GPS	Geographic Positioning System
IARPC	Interagency Arctic Research Policy Committee
ISER	Institute of Social and Economic Research
MMS	Minerals Management Service
NARL	Naval Arctic Research Laboratory
NEPA	National Environmental Policy Act
OCS	Outer Continental Shelf
SPSS	Stastical Package for the Social Sciences
SRB&A	Stephen R. Braund & Associates
USDOI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service

INTRODUCTION

The U.S. Department of Interior, Minerals Management Service (USDOI, MMS) is responsible for oil and gas leases on the Outer Continental Shelf (OCS). Biological, socioeconomic, and sociocultural studies are necessary to project, mitigate, and assess the effects of OCS oil and gas activities on the physical and human environment. Residents of Alaska's North Slope continue to practice a traditional subsistence lifestyle that has been passed on through generations. Residents rely heavily on both marine and terrestrial resources. The effects of OCS oil and gas activities on North Slope subsistence is therefore an important focus of MMS research. In 2004 Stephen R. Braund & Associates (SRB&A), in association with the North Slope Borough Department of Wildlife and under contract to MMS, initiated a subsistence mapping study in Nuiqsut, Kaktovik, and Barrow. The study is designed to develop a Geographic Information System (GIS) capable of describing regional subsistence patterns and measuring changes in these patterns over time. Study team members include Stephen R. Braund & Associates, North Slope Borough Department of Wildlife Management, Encompass Data & Mapping, ESRI-Northwest, Dr. John A. Kruse, and Dr. Jeffrey C. Johnson.

STUDY OBJECTIVES

SRB&A conducted field studies in Nuiqsut, Kaktovik, and Barrow to gather data relevant to subsistence uses among the three communities. The study team incorporated the data collected into a GIS designed by the team to permit measurement of changes in subsistence patterns over time. The GIS was used to develop the maps and tables presented in this report.

The objectives of this study are to:

- Develop a GIS, focusing on key species identified by MMS, which can be used to describe contemporary subsistence use patterns in Barrow, Kaktovik, and Nuiqsut and will support analyses of changes in subsistence use patterns over time. Key species initially identified by MMS were: bowhead whales, ringed seals, Arctic cisco, Arctic char/Dolly Varden, caribou, and those avian species that are determined through research to be significant local food sources. The study team expanded the study resources and the key resources for this study are: caribou, moose, bowhead whale, Arctic cisco, Arctic char/Dolly Varden, broad whitefish, burbot, geese, eider, ringed seal, bearded seal, walrus, wolf and wolverine.
- Coordinate with North Slope community organizations to conduct fieldwork in Barrow, Kaktovik, and Nuiqsut.
- Identify and interview informants who are knowledgeable about the hunting of the selected resources (or "experts") using social network methods.
- Use the GIS to describe current subsistence use patterns in the study communities.
- Prepare a peer-reviewed journal article for publication.

The objectives of this report are to:

- Describe the methods used for data collection and development of the GIS.
- Describe current subsistence patterns for Barrow, Kaktovik, and Nuiqsut harvesters.
- Illustrate the ability of the GIS to measure changes in subsistence patterns over time, using available historic subsistence data where possible.

STUDY AREA

For the purposes of this report, the study area includes all areas used for subsistence involving the key resources by residents of Barrow, Kaktovik, and Nuiqsut. The study area as reported by respondents in

the three communities is shown on Map 1. Placenames for Barrow, Kaktovik, and Nuiqsut are depicted on Maps 2 through 4.

METHODS

Ethical Principles

The project was guided by the social science research principles adopted by the Interagency Arctic Research Policy Committee (National Science Foundation [NSF] 1990). These principles call for the involvement of communities in all phases of research, including research design, implementation of fieldwork, and review and publication of results. Protecting the anonymity and well-being of participants and providing informed consent to all respondents prior to participation was a project priority.

Research Design

As the primary goal of this study is to provide current subsistence data to inform future Environmental Assessment (EA) and Environmental Impact Statement (EIS) analyses regarding the potential effects of offshore oil and gas development on subsistence uses, SRB&A designed its study to provide data in a way that it can most effectively be used in this context. The four primary elements of the National Environmental Policy Act (NEPA) impact assessment are direct effects, indirect effects, cumulative effects and mitigation. Thus, the approach of this work plan is to gather and analyze subsistence information that will be readily usable in a NEPA environmental consequences analysis.

Direct effects "are caused by the action and occur at the same time and place" (40 Code of Federal Regulations [CFR] 1508.8). Thus, a fundamental data need is spatial subsistence information (e.g., a description of where residents hunt, harvest, fish, and gather subsistence resources) in relation to any proposed development. This study provides current information on which to base a spatial description of subsistence uses by the study communities and which could be used in conjunction with other data to allow comparison of trends in subsistence uses. A primary element of the scope of work is therefore the spatial documentation of current subsistence uses within the study region. Geographic features associated with such uses include subsistence use areas, harvest locations ("kill sites"), hunting camp and cabin locations, and subsistence travel and hunting routes. Associated information such as months of harvest effort, travel method, harvest gear, number of participants, and duration of effort provide additional context to geographic subsistence use data.

Table 1 summarizes the subsistence pattern variables and observation periods initially identified by MMS. The research design described by MMS called for use of an initial set of interviews to determine the variables and observation periods (levels of resolution) to be used in the main fieldwork effort.

In November 2004, SRB&A study team members conducted 14 interviews in Nuiqsut to guide the design of the final field protocol. As a result of the Nuiqsut fieldwork, the study team made revisions to the study design. The revisions for each variable are described in detail below.

Subsistence Use Areas

Since many resources are harvested in more than one season per year, results based on an observation period of "most recent season" are affected by the timing of fieldwork. The study team therefore used "the last 12 months" as a preferable choice of observation unit for subsistence use areas. Initial fieldwork also revealed that idiosyncratic individual circumstances in the last 12 months (e.g., family and medical issues, travel equipment failure) can make subsistence use area reports for the last 12 months unrepresentative of contemporary harvest patterns. The team therefore added "the last 10 years" as an observation period for subsistence use areas. Because fieldwork in each community sometimes extended over multiple years, the "last 10 year" time period sometimes reflects more than 10 years. For example, fieldwork in Nuiqsut occurred in 2004, 2005, and 2006, and therefore the time period for "last 10 year" Nuiqsut maps is "1995-2006." Since subsistence use areas vary significantly by resource, reports of subsistence use areas are resource-specific.

Map 1 - Placenames Overview
Barrow, Kaktovik, and Nuiqsut

This map shows Barrow, Nuiqsut and Kaktovik placenames mentioned during interviews in 2004, 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Barrow Area (See Map 2 for Detail)

Kaktovik Area (See Map 3 for Detail)

Nuiqsut Area (See Map 4 for Detail)

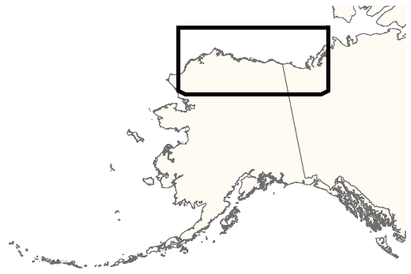
Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

0 25 50 100 Miles

0 25 50 100 Kilometers

N



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July 2009

ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

BROOKS RANGE

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Wainwright
Icy Cape
Point Lay
Atqasuk
Nuiqsut
Kaktovik
Prudhoe Bay
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Old Crow
Arctic Village
Anaktuvuk Pass
Noatak
Umiat
Howard Hill
White Hills
Lookout Ridge
Demarcation Point
Herschel Island
Cross Island
Flaxman Island
Peard Bay
Smith Bay
Harrison Bay
Teshekpuk Lake
Camden Bay
Mackenzie Bay
ESKIMO LAKES
Canada
United States
Yukon Territory
Alaska
Dalton Highway
Kokolik River
Kuk River
Meade River
Ikpikpuk River
Chipp River
Titaluk River
Awuna River
Colville River
Chandler River
Anaktuvuk River
Sagavanirktok River
Kuparuk River
Cunning River
Hulahula River
Firth River
Big Fish River
Mackenzie River
Porcupine River
Sheenjek River
Chandalar River

71°0'0"N
72°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 2 - Placenames, Barrow

This map shows Barrow placenames mentioned during interviews in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Chipp River Cabins

National Petroleum Reserve In Alaska

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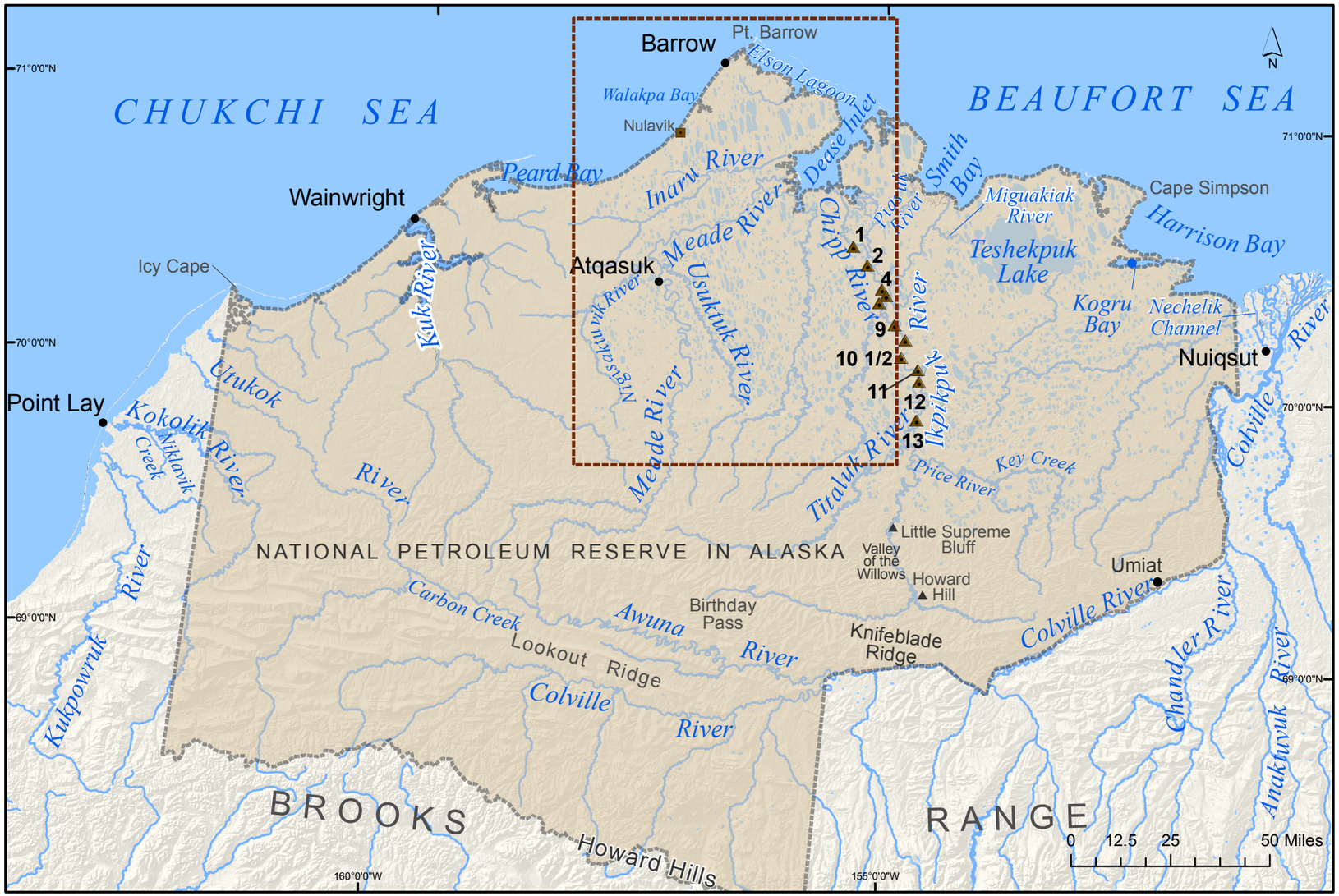

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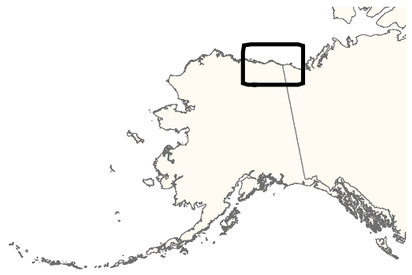
Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 3 - Placenames, Kaktovik

Arctic National Wildlife Refuge



This map shows Kaktovik placenames mentioned during interviews in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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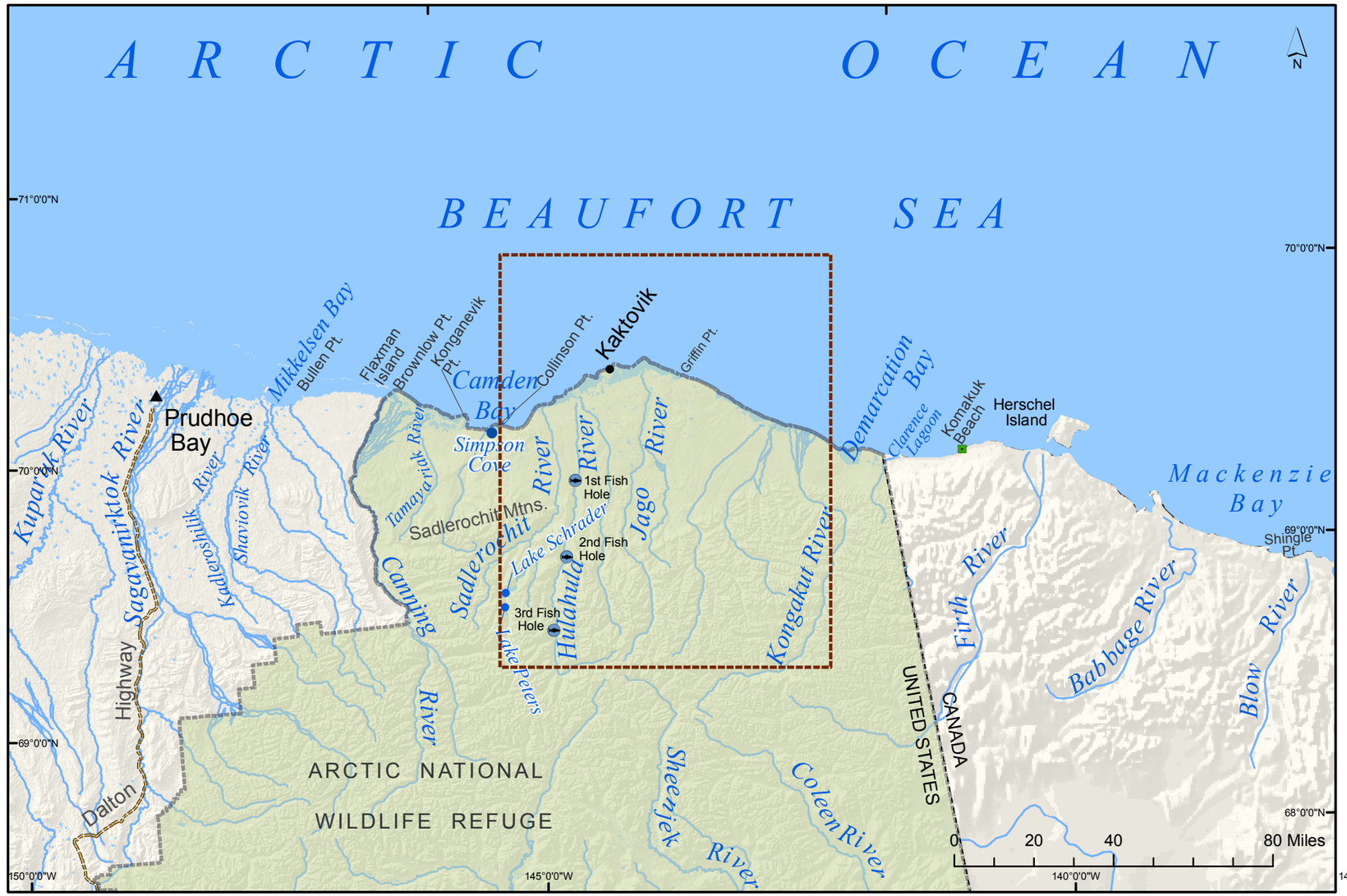

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Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 4 - Placenames, Nuiqsut

This map shows Nuiqsut placenames mentioned during interviews in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
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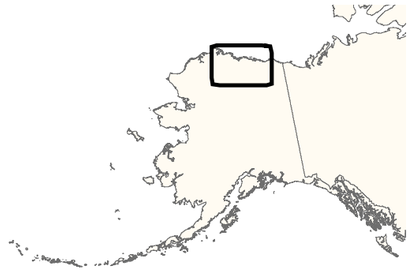
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Table 1: Initial Research Design

Measure (for each key resource)	Most Recent Season	Most Recent Hunt in Most Recent Season	Time period not specified
Subsistence use areas	●		
Preferred use areas	●		
Transportation methods	●		
Duration of trips	●		
Gear/weapon used	●		
Number harvested		●	
Number of participants		●	
Active and historically active hunting or fishing camps			●
Travel routes			●
Normal months of effort			●
Kill site			●
Butcher site (if not kill site or home)			●

Stephen R. Braund & Associates, 2010.

Preferred Use Areas

Initial fieldwork indicated that preferred use areas are frequently tied to personal circumstances (e.g., camp locations) and subject to year-to-year differences in the distribution of subsistence resources (e.g., "I go where the caribou are"). The team determined that a more sophisticated use of subsistence use area information than cumulative geographic extent could provide a more reliable measure of preferred use areas at a community level than by asking individuals for their own preferred use areas. The GIS is designed to calculate the degree of overlap in subsistence use areas. Areas of highest overlapping use (i.e., use areas reported by multiple harvesters) are interpreted to be preferred by the community over areas of least overlapping use. This method should only be used to determine areas more heavily used by residents during the study period rather than areas considered important by community residents. Some traditional use areas may not have a high degree of overlapping use during the study period due to their distance from the community, but are still culturally and historically important to residents and may provide substantial harvest amounts by a small number of users. Since subsistence use areas are resource-specific, GIS-generated representations of overlapping subsistence use areas are resource-specific as well.

Transportation Methods

Transportation methods vary most by season (e.g., boat versus snowmachine). Seasonal transportation patterns may vary from year to year in response to variations in the timing of break-up and freeze-up. Such changes are of much less importance to predicting and assessing the effects of OCS oil and gas development than more fundamental changes in patterns over longer periods of time, such as changes due

to obstructed access to hunting areas or increased access to a road system. For this reason, the study team chose the last 10 years as the most appropriate observation period, again reported by key resource.

Duration of Trips

Based on initial interviews, trip duration is closely related to trip distance and logistics. Trip duration therefore varies more between use areas than for the same use area over time. The team therefore decided that the most appropriate observation period is the last 12 months and the reporting unit key resource.

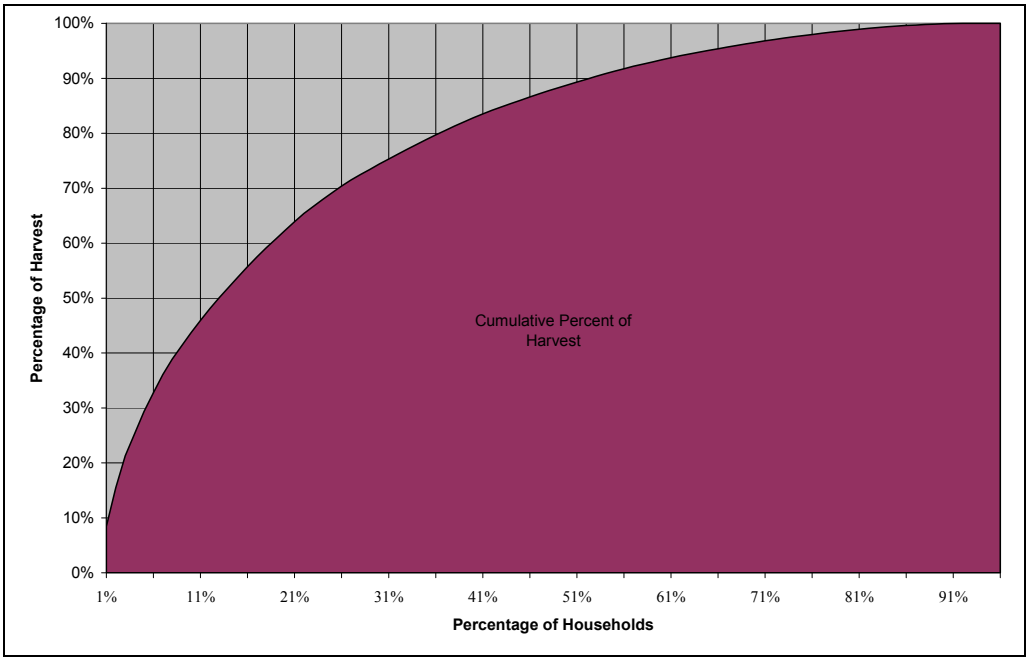
Gear/Weapon Use

Initial interviews results show that gear and weapons use does not vary significantly by use area. The primary source of variation is species. The team decided that gear and weapon use is therefore best reported as that generally used for each key resource.

Number Harvested

The amount harvested (number, usable weight) constitutes the single best measure of health of the subsistence lifestyle. Amount harvested integrates the effects of changes in resource availability, resource accessibility, time and money for hunting, and continued cultural preferences for subsistence resources. To be a valid integrative measure, however, harvest amounts must be generalizable at the community level. Data from previous research in Wainwright, for example (SRB&A and Institute of Social and Economic Research [ISER] 1993b), shows that the most active harvesters (i.e., the top 20 percent) account for about 60 percent of the community's harvest over the two year period 1988-89 (Figure 1). Thus a significant amount of the total community harvest (40 percent) can only be accounted for by including harvest reports from moderate and occasional harvesting households.

Figure 1: Percentage of Harvest Versus Percentage of Households, Wainwright 1988-89



Stephen R. Braund & Associates, 2010.

Social network sampling of the most active harvesters, a method used in this study, is suitable for capturing the large inter-household variation in subsistence use areas. Social network sampling is not suitable for estimating community harvest. Stratified probability sampling is the best method for estimating community harvests. Therefore, harvest amounts gathered during interviews are not reported in this study.

Number of Participants

Initial fieldwork results showed that the number of participants in harvest activities varies by trip. It is therefore difficult for a harvester to report an average number of participants. The team therefore decided that the most appropriate observation period is the most recent hunt. Initial interviews also revealed an ambiguity in the observation period "most recent hunt in most recent season," as the "most recent season" could have occurred in a prior year. The team therefore clarified the observation period to "most recent hunt in the last 12 months" and the reporting unit as key resource.

Active and Historically Active Hunting and Fishing Camps

Both camps and cabins are important elements of subsistence infrastructure. The team therefore broadened this measure to include cabins. Respondents provided the locations of camps and cabins that they used.

Travel Routes

Harvesters initially interviewed were best able to describe travel routes normally used rather than to describe annual variations. The team therefore adopted an observation period of "last 10 years." Travel routes vary primarily by subsistence use area location, or camp, cabin, or community destination. Travel routes are often used to access locations where residents participate in multiple harvest activities. Reporting travel route data by resource would not help explain variations in travel routes over time. The team therefore reports travel routes for all resources together.

Months of Effort

As in the case of subsistence use areas, initial interviews led the team to add "last 10 years" as an observation period. Months of effort may vary widely from year to year due to interannual differences in climate or personal circumstances. Changes in the timing of subsistence efforts are best explained by viewing months of effort over a broader timeframe. Therefore, the study team reports months of effort for the "last 10 years."

Kill Site

Initial interview respondents were asked to identify the kill site (referred to in this report as "most recent harvest location" or "most recent harvest area") of their most recent harvest activity for a given resource within the last 12 months. This approach proved feasible for harvesters and was adopted by the team for the main field effort. The number of most recent harvest locations identified for Barrow, Nuiqsut, and Kaktovik harvesters using this approach was 841. In comparison, the number of subsistence use areas identified as being used in the past 12 months was 1,924 and the number of subsistence use areas used in the past 10 years was 3,924. Most recent harvest locations as collected for most recent hunts are less likely to represent current subsistence patterns than subsistence use areas collected for the last 12 months and last 10 years. Furthermore, most recent harvest locations do not represent harvest locations for the entire 12 months previous to interviews; instead, they represent only most recent harvests.

Butcher Site

MMS requested the research team to test the feasibility of gathering butcher site location information in cases where the site was not the same as the kill site or the harvester's home. Because butcher sites are generally in the same location as harvest sites, except for certain resources, the study team chose to reduce respondent burden and drop butcher site as a measure.

Revised Research Design

Table 2 summarizes the research design resulting from the initial interviews. A new observation period, "last 10 years," was added for seven measures. "Last 12 months" was included as an additional observation period for three of the seven measures. "Most recent hunt" was retained, with the qualification that it took place in the past 12 months, for three measures. Number harvested was originally gathered (as evident in the Field Protocol, Appendix A), but dropped as a measure because the social network sampling method required for this study does not yield generalizable harvest amount data. Butcher site locations not equivalent to the kill site or harvester's home, were dropped as being problematic for harvesters to identify.

Table 2: Research Design Revised with Field Testing

Measure	Last 10 Years	Last 12 Months	Most Recent Hunt in Most Recent Season
Subsistence use areas (by key resource)	●	●	
Preferred use areas - measured by overlapping use areas by key resource	●	●	
Transportation methods by key resource	●		
Duration of trips by key resource			●
Gear/weapon used by key resource	●		
Number harvested - probability sampling of all households required			
Number of participants by key resource			●
Active and historically active hunting or fishing camps and cabins	●	●	
Travel routes	●		
Months of effort by key resource	●		
Kill site by key resource			●
Butcher site (if not kill site or home) - not feasible			

Stephen R. Braund & Associates, 2010.

Expansion of Key Resource List

The subsistence resources required for study by MMS were those which have historically been major sources of subsistence foods for residents in the study communities: caribou, bowhead whale, Arctic cisco, Arctic char/Dolly Varden, broad whitefish, ringed seal, and those avian species that are determined through research to be significant local food sources (determined to be geese and eiders). SRB&A

included the following additional resources in this study to encompass a broader suite of resources: moose, burbot, bearded seal, wolf/wolverine, and walrus.

Approval of the Research Design

In April 2004, the study team submitted the revised research design described above to MMS.

Project Planning and Community Approval

The success of this project was largely due to the involvement of local organizations and community residents with the study team in research design, implementation, and participation. In July 2004, SRB&A sent introductory letters to organizations, listed below, in Barrow, Kaktovik, and Nuiqsut explaining the project and requesting community participation in the study. Study team members made follow-up telephone calls to coordinating organizations to answer questions and discuss field schedules. While in the communities, SRB&A coordinated with these local organizations to contact individuals and schedule interviews. The coordinating organizations in Nuiqsut, Kaktovik, and Barrow were, respectively, the Native Village of Nuiqsut, Native Village of Kaktovik, and the North Slope Borough Department of Wildlife in Barrow, staff of which were also members of the study team. Prior to initiating research in Barrow, SRB&A also presented the study at a Barrow Whaling Captains' Association meeting in Barrow and received approval from the organization at that time.

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Informant Selection

SRB&A employed a social network method based on the one described in Johnson (1990) to create a sample of active and knowledgeable subsistence harvesters for each community and used this sample to select respondents. Social network methods facilitate the identification of respondents who as a group capture the variation in subsistence patterns among different families and hunting groups in each community. SRB&A received an initial list of names from the North Slope Borough Department of Wildlife Management. Based on their research in the communities, department staff identified these active and knowledgeable harvesters for each of the eight resources initially identified for the study. SRB&A developed a social networking form (Appendix B) and, starting in October 2004, conducted social networking interviews, by asking the above-mentioned persons to name active and knowledgeable harvesters ("experts") in their community for each of the resources initially selected for the study: bowhead whale, ringed seal, Arctic cisco, broad whitefish, Arctic char/Dolly Varden, caribou, geese, and eiders. The original goal was to then conduct social networking interviews with those individuals named as active and knowledgeable harvesters, and to continue this process until no new experts had been named. However, after completing the first round of interviews in Barrow, the study team had obtained a list of 222 active and knowledgeable harvesters. It was not feasible to conduct social networking interviews with these 222 individuals, and so the study team proceeded using the names identified during the first round of interviews in each community.

Based on the social networking interview results, the study team created a table of nominators and named experts. From these data, the study team developed social networking graphs for each resource and was able to identify individuals with high numbers of nominations, as well as individuals who were central to the social network. The study team identified the key informants or "experts" for each resource based on the number of nominations an individual received, the number of linkages an individual has with others in the social network ("point centrality"), and the degree to which they act as a "connector" between clusters of individuals in the network ("between-ness centrality"). In Barrow, centrality scores were assigned to each individual in the network. Individuals with high centrality scores and central locations on the social networking graphs also had high numbers of nominations, and the study team determined that frequency of nominations would adequately serve to represent active and knowledgeable harvesters in the community.

Based on the high correlation between high frequency of nominations, high centrality scores, and central location on the social networking graphs, in addition to confirmation from the North Slope Borough Department of Wildlife that the sample was comprised of active and knowledgeable harvesters, the study team decided to focus on residents with high frequencies of nominations for each community. The study team developed a sample list for each community, showing nominees in order of frequency of nominations. In addition, the study team raised the goal for the number of interviews. Based on discussions with MMS, the study team had originally planned on interviewing 40 individuals in Barrow, 20 individuals in Kaktovik, and 20 individuals in Nuiqsut. Because the sample lists included a high number of active and knowledgeable harvesters in each community, the study team raised their interview goal and ultimately interviewed 75 harvesters in Barrow, 38 in Kaktovik, and 33 in Nuiqsut, for a total of 146 interviews.

In some cases, SRB&A study team members interviewed individuals who were not included in the original community sample. Often, these individuals were respondents' spouses or hunting partners who were not on the list of active hunters, but who still participated actively in the interview. In other cases, community liaisons or employees of the coordinating organizations suggested people who were not on the list, but who were otherwise active subsistence users. Several individuals were suggested because of their ties with a person on the social networking sample who was unavailable or who had declined to participate in an interview. In Barrow, for example, the community liaison and North Slope Borough Department of Wildlife Management staff identified active whaling crew members for whaling captains who were unavailable. They also suggested that the study team interview children of elders on the sample who were no longer active and whose family had assumed the majority of the subsistence responsibilities. While in the communities, liaisons and representatives of the community organizations also helped ensure

that the interview sample provided a thorough geographic representation of the community's subsistence use areas. The North Slope Borough Department of Wildlife Management reviewed the final list of Barrow respondents and indicated that the sample of respondents would adequately describe hunting and harvesting patterns for the community of Barrow.

Fieldwork Preparation

Before scheduling fieldwork in the study communities, SRB&A developed an informed consent form, field mapping guide, and field mapping protocol (Appendix A). The field mapping guide and protocol were designed to ensure thorough and consistent interviews among study team members. Interviewers assisted in the development of the field protocols, and SRB&A provided necessary training prior to their conducting fieldwork. Study team members also prepared U.S. Geological Survey (USGS) 1:250,000 maps for use in the interviews, reviewing existing subsistence data to determine the likely extent of subsistence use areas for each community.

Interview Method

Upon arriving in each study community, the study team met with a representative of the local coordinating organization and reviewed the sample of experts for the community. In some cases, the organizations assigned a liaison to assist study team members in contacting local residents and scheduling interviews. In cases where no liaison was available, interviewers used the telephone and CB radio to contact individuals, or visited their homes to request an interview. Employees of the coordinating organizations also assisted researchers in contacting residents. Interviews took place in a space agreed upon by the coordinating organization, or at the residence of the respondent when requested or appropriate. In Barrow, the liaison provided transportation for those individuals who did not have transportation of their own. Before each interview began, study team members explained the project and asked each participant to read and sign the informed consent form. In some cases, respondents read the form but chose to wait until after the interview to sign it.

Two study team members were present for each interview. One team member conducted the interview and recorded information on an acetate sheet positioned over a 1:250,000 USGS map. SRB&A marked the clear acetate to standard locations on the USGS maps so that it could later be realigned for digitizing purposes, and information about the respondents' subsistence uses, travels, and harvests was recorded using color coded permanent markers on the acetate sheet. The second team member took detailed notes of the discussion and responses of the interviewees using a laptop computer. A primary objective of the detailed note taking was to record the respondent's local and traditional knowledge concerning their subsistence activities. When needed and available, local translators assisted researchers during interviews with elders. Translators were usually relatives of the respondent, were identified by the coordinating organization as being knowledgeable in the local language, or acted as the liaison for the study team. Researchers offered compensation for this service.

Interviewers recorded each feature as either a polygon (subsistence use areas, harvest areas), line (travel routes), or point (harvest locations, camps, and cabins). Use areas such as set net sites were often drawn as points (due to the small size of the area) but recorded as polygons so that they could be shown as overlapping use areas. Researchers assigned numbers to each feature as the interview proceeded (e.g., "Polygon 1"), and recorded this number next to the feature on the map and in the notes about that feature. This provided a link between the notes and the map and was later used to create distinct feature codes in the GIS database.

In some cases, study team members conducted interviews with more than one respondent. This was allowed if the individuals were spouses, hunting partners, or family members who traveled to many of the same areas for subsistence purposes. Interviewers used the same overlay for each respondent and used initials to denote respondents' use of an area. If more than one person used the same feature, SRB&A entered and digitized the feature once for each participant. Study team members were careful to distinguish between respondents' information on the maps and in the notes.

Study team members used a mapping field protocol to conduct interviews (see Appendix A). The interview covered harvest information for the last 10 years and last 12 months. Mapping interviews addressed the following resources:

- Caribou
- Moose
- Bowhead whale
- Arctic cisco
- Arctic char/Dolly Varden
- Broad whitefish
- Burbot
- Geese
- Eider
- Ringed seal
- Bearded seal
- Walrus
- Wolf and wolverine

Study team members generally began by mapping respondents' last 10 year subsistence use areas for each resource, then mapping use areas for the last 12 months (from the date of the interview). In addition, for each use area on the map, study team members recorded the month that feature was used and the travel method associated with the feature. Once use areas had been identified, respondents were asked to identify camps and cabins used during subsistence activities and travel routes used to access camps, cabins, use areas, and other communities. Researchers also recorded the harvest gear normally used for each resource.

After recording the hunting/harvest areas, interviewers mapped the location of the participants' most recent successful harvest activity for each resource, and recorded the following information:

- Harvest month
- Number of participants
- Duration of hunt (time away from the community)

Due to the broad range of resources addressed and the amount of information collected for each feature, SRB&A's subsistence mapping interviews tended to be lengthy. Each interview generally lasted between one and three hours, depending on the respondent's age, experience, activity level, and interview participation. The number of participants in each interview also affected the length of the interview.

At the conclusion of the interview, each participant received a $50 honorarium for their participation and time and signed a receipt. Some individuals chose to refuse the honorarium.

Fieldwork Summary

As shown in Table 3, SRB&A study team members interviewed a total of 146 individuals in Barrow, Nuiqsut, and Kaktovik. The study team conducted interviews in Nuiqsut in 2004, 2005, and 2006; interviews in Kaktovik in 2005 and 2006; and interviews in Barrow in 2006. Thus, the last 10 year and last 12 month time frames for use area data vary depending on which community the respondent lived in and when they were interviewed. Researchers were successful interviewing 70 percent of those Barrow individuals nominated by centrality, and 56 of these individuals were in the top half of nominees. Thirty-eight of ninety potential respondents were interviewed in Kaktovik (32 in the top half of nominees), and 33 of 62 respondents in Nuiqsut (21 in the top half of nominees).

Researchers focused on interviewing residents who had a high frequency of nominations. However, anyone on the list was a candidate for participation. Although researchers made numerous attempts to schedule interviews with highly-nominated individuals, this was not always possible. Some individuals were unavailable due to work or personal obligations, some were out of town or ill, and others simply

declined to participate. Those respondents who were lower on the list of nominated individuals still provided thorough and informative interviews.

Table 3: Fieldwork Summary, Barrow, Kaktovik, and Nuiqsut

	Number of Households (2000)	Population (2000)	Number of Persons Identified for Interviews	Number of People Interviewed	Number of Interview Workshops	Number (Percentage) of Respondents in Top 50% of Nominees by Nomination Frequency	Number of Interview Trips to Community to Conduct Interviews
Barrow	1,371	4,851	222	75	69	56 (75%)	5
Kaktovik	89	293	90	38	36	32 (84%)	3
Nuiqsut	110	433	62	33	40[1]	21 (64%)	4

[1]Some individuals participated in interviews for a second time after the final field protocol had been developed

Stephen R. Braund & Associates, 2010.

Pre-GIS Database Data Processing

A primary objective of this study is to produce a GIS database, referred to below as the MMS North Slope Subsistence Mapping Personal Geodatabase, which can be used by MMS to measure future changes in subsistence patterns. The team addressed this objective in the context of the informed consent of respondents that included a guarantee of confidentiality: "Individual harvester information will remain confidential and will not be included in either the maps or report." The MMS North Slope Subsistence Mapping Personal Geodatabase, part of the final report, is therefore a product of analyses of aggregated community information and does not provide individual harvester information. The following is a description of the intermediate steps between the field interviews and the MMS North Slope Mapping Personal Geodatabase.

Editing Notes and Overlays

After completing fieldwork in each community, study team members edited the acetate overlays and notes for each interview. They checked the overlays to ensure that all features had been numbered correctly without duplications and that the feature numbers were consistent with the information in the notes. For example, if a map contained 42 polygons, 10 lines, and five points, SRB&A ensured that none of these had accidentally been repeated in the field (e.g., two "Polygon 8s"). Study team members then wrote the total number of features on the corner of the overlay to assist digitizers. SRB&A also looked at each feature on the map ("Polygon 5," caribou use area), found the corresponding information in the notes, and made sure the notes were referring to the correct feature. SRB&A also proofread interview notes for typing errors, legibility and accuracy. The quotes provided in this report do not include interviewer's questions, and therefore some quotes may seem choppy because they are a series of responses to multiple questions from interviewers. In some cases, respondents' quotes included the Iñupiaq names for places or subsistence resources. Iñupiaq names for subsistence resources are included in the introductory section for each resource; in addition, Appendix C includes a glossary of Iñupiaq resource names. Figure 2 shows a typical map feature on a completed overlay and its corresponding notes.

Figure 2: Map Feature and Notes

Summer caribou hunting area?

I don't go by boat, four-wheeler. My limitation is the Inaru River and I go to the Skull Cliff, I am limited by the Skull Cliff. That's for summer caribou. From June to October, I look just on the land; Iko Bay, that's one of my best areas. [POLY 5]

Stephen R .Braund & Associates, 2010.

Data Entry

After editing the notes and overlays, study team members entered all of the features on each overlay into a Access field database created by SRB&A. SRB&A assigned a code to each feature, or a "feature code," which contained the community's airport code, interview date, respondent ID number, feature type (polygon, point, or line), and the feature number. The Feature Table in the database contained data on the characteristics of each identified polygon, point, or line (e.g., subsistence use areas, camps, travel routes). Each feature was entered once for each species harvested. For example, if a respondent harvested three species of geese at a use area polygon, that polygon was entered as three separate records. The same was true for camps and cabins; if a respondent reported staying at their cabin to harvest caribou, wolf, and wolverine, the point representing that cabin was entered as three separate records. Thus, the total number of camp and cabin records is much higher than the actual number of cabins reported. Additionally, the study team was not able to reconcile duplicate camp or cabin records (e.g., camps or cabins reported by multiple respondents), thus contributing to the large number of camps and cabins shown on camp and cabin maps in this report. A "Feature notes" field contained interview notes related to that feature as well as any necessary clarification from the person entering the data. The Access database also contained a resource form, in which members of the study team entered information regarding harvest gear.

Digitizing

Information derived from the interviews was also tied to the geographical information encoded in the acetate sheets created during the interviews. SRB&A digitized all features recorded on the acetate overlays and coded the points, lines, and polygons to information about the resources recorded during the interviews. All digitizing used ArcGIS ArcEdit software. Each GIS field record was assigned a unique Feature Code matching the unique Feature Code assigned to the Access Feature Record containing data on the type of feature, months used, and travel method. Digitized features included polygons associated with subsistence use areas and key habitat areas; lines associated with travel routes and key migration routes; and points associated with camps, cabins, and harvest locations. SRB&A developed an Analysis GIS to produce maps documenting subsistence use areas, camps and cabins, and travel routes and to

produce the final MMS North Slope Subsistence Mapping Personal Geodatabase. Table 4 depicts the number of digitized features for each community by feature and shape type.

Table 4: Number of Digitized Geographic Features by Feature and Shape Type, All Key Resources

Community	Feature Type	Shape Type			
		Line	Point	Polygon	Total
Barrow	Cabin	0	575	0	575
	Camp	0	129	0	129
	Harvest area	0	0	3,033	3,033
	Harvest site(s)	0	182	9	191
	Travel route	507	0	0	507
		507	886	3,042	4,435
Kaktovik	Cabin	0	131	0	131
	Camp	0	200	0	200
	Harvest area	0	0	1,614	1,614
	Harvest site(s)	0	69	1	70
	Travel route	458	0	0	458
		458	400	1,615	2,473
Nuiqsut	Cabin	0	68	0	68
	Camp	0	92	3	95
	Harvest area	0	1	1,224	1,225
	Harvest site(s)	0	100	1	101
	Travel route	102	0	0	102
		102	261	1,228	1,591
Region	Total	1,067	1,547	5,885	8,499

Stephen R. Braund & Associates, 2010.

Quality Control Procedures

Study team members conducted quality control checks of both the Access and the analysis GIS databases to ensure the accuracy of entered data and digitized features. After processing the data for a community, study team members reviewed each other's work carefully and made necessary corrections. While entering the data for each community, researchers made back-ups for each document on the SRB&A server and on individual hard drives. Through these quality control and back-up procedures, study team members limited the number of errors and omissions in the processed field data.

SPSS Analysis File Preparation

The Access Database resulting from entry of field data consists of four related tables: (1) Feature; (2) Resource; (3) Respondent; (4) Species. The Feature Table contains one record for each geographic feature mentioned by a respondent in connection with an individual resource. If a geographic feature was used for multiple resources or by multiple respondents, the feature was copied and a new record was entered for each species and/or respondent. Geographic features include polygons, lines, and points. Types of Feature records include: (1) subsistence use ("harvest") areas; (2) cabins; (3) camps; (4) travel routes; (5) harvest sites. The MMS Subsistence Mapping Project Feature Database includes 8,499 records of which 5,848 are last 10 year and last 12 month subsistence use areas, and 841 are most recent harvest locations (see Tables 4, 5, 6, and 7). The Resource Table contains information on harvest gear.

The Access Field database was designed with separate Respondent and Species tables to minimize data entry. Information from these linked tables was merged with the Feature Table. Using Stat Transfer, SRB&A exported the Merged Feature Table to the Statistical Package for the Social Sciences (SPSS). Tables 5 and 6 document the number of subsistence use area polygons for the last 12 months and

Table 5: Number of Last 10 Year Subsistence Use Areas and Number of Harvesters by Resource

	Number of Last 10 Year Subsistence Use Areas				Number (%) of Last 10 Year Harvesters			
	Barrow	**Kaktovik**	**Nuiqsut**	**Region**	**Barrow**	**Kaktovik**	**Nuiqsut**	**Region**
Caribou	369	172	94	635	73 (97%)	36 (95%)	32 (97%)	141 (97%)
Bowhead	114	28	21	163	64 (85%)	27 (71%)	19 (58%)	110 (75%)
Moose	9	4	36	49	9 (12%)	4 (11%)	31 (94%)	44 (30%)
Arctic cisco	45	113	66	224	28 (37%)	36 (95%)	33 (100%)	97 (66%)
Arctic char/Dolly Varden	95	189	43	327	41 (55%)	37 (97%)	26 (79%)	104 (71%)
Broad whitefish	261	44	58	363	69 (92%)	18 (47%)	26 (79%)	113 (77%)
Burbot	125	8	62	195	58 (77%)	4 (11%)	30 (91%)	92 (63%)
Geese	462	348	179	989	71 (95%)	37 (97%)	33 (100%)	141 (97%)
Eiders	262	106	61	429	63 (84%)	26 (68%)	28 (85%)	117 (80%)
Ringed seal	69	23	30	122	48 (64%)	16 (42%)	23 (70%)	87 (60%)
Bearded seal	73	36	38	147	63 (84%)	26 (68%)	27 (82%)	116 (79%)
Walrus	53	6	1	60	50 (67%)	5 (13%)	1 (3%)	56 (38%)
Wolf/Wolverine	92	60	69	221	31 (41%)	20 (53%)	24 (73%)	75 (51%)
Total	2,029	1,137	758	3,924	75 (100%)	38 (100%)	33 (100%)	146 (100%)

Stephen R. Braund & Associates, 2010.

Table 6: Number of Last 12 Months Subsistence Use Areas and Number of Harvesters by Resource

	Number of Last 12 Month Subsistence Use Areas				Number (% of respondents) of Last 12 Month Harvesters			
	Barrow	**Kaktovik**	**Nuiqsut**	**Region**	**Barrow**	**Kaktovik**	**Nuiqsut**	**Region**
Caribou	168	59	60	287	60 (80%)	27 (71%)	31 (94%)	118 (81%)
Bowhead	78	19	14	111	46 (61%)	19 (50%)	13 (39%)	78 (53%)
Moose	2	2	26	30	2 (3%)	2 (5%)	22 (67%)	26 (18%)
Arctic cisco	19	59	46	124	16 (21%)	27 (71%)	33 (100%)	76 (52%)
Arctic char/Dolly Varden	41	101	23	165	26 (35%)	30 (79%)	18 (55%)	74 (51%)
Broad whitefish	91	18	31	140	48 (64%)	12 (32%)	21 (64%)	81 (55%)
Burbot	50	2	40	92	29 (39%)	2 (5%)	26 (79%)	57 (39%)
Geese	233	125	103	461	49 (65%)	22 (58%)	29 (88%)	100 (68%)
Eiders	147	32	40	219	47 (63%)	10 (26%)	22 (67%)	79 (54%)
Ringed seal	43	13	20	76	36 (48%)	10 (26%)	15 (45%)	61 (42%)
Bearded seal	54	18	25	97	48 (64%)	13 (34%)	17 (52%)	78 (53%)
Walrus	29	2	0	31	29 (39%)	1 (3%)	0 (0%)	30 (21%)
Wolf/Wolverine	34	20	37	91	13 (17%)	8 (21%)	14 (42%)	35 (24%)
Total	989	470	465	1,924	69 (92%)	36 (95%)	33 (100%)	138 (95%)

Stephen R. Braund & Associates, 2010.

Table 7: Number of Most Recent Successful Harvest Locations and Number of Harvesters by Resource

MMS Resource Category	Number of Most Recent Successful Harvest Locations				Number (%) of Harvesters			
	Barrow	Kaktovik	Nuiqsut	Region	Barrow	Kaktovik	Nuiqsut	Region
Caribou	52	23	31	106	51 (68%)	22 (58%)	27 (82%)	100 (68%)
Bowhead	25	12	10	47	23 (31%)	12 (32%)	10 (30%)	45 (31%)
Moose	0	1	10	11	0 (0%)	1 (3%)	9 (27%)	10 (7%)
Arctic cisco	12	27	38	77	11 (15%)	24 (63%)	32 (97%)	67 (46%)
Arctic char/Dolly Varden	12	33	16	61	12 (16%)	26 (68%)	16 (48%)	54 (37%)
Broad whitefish	48	10	22	80	44 (59%)	10 (26%)	20 (61%)	74 (51%)
Burbot	21	0	24	45	20 (27%)	0 (0%)	22 (67%)	42 (29%)
Geese	103	30	46	179	44 (59%)	17 (45%)	29 (88%)	90 (62%)
Eiders	65	8	30	103	38 (51%)	6 (16%)	20 (61%)	64 (44%)
Ringed seal	26	7	12	45	26 (35%)	7 (18%)	12 (36%)	45 (31%)
Bearded seal	33	7	14	54	30 (40%)	7 (18%)	13 (39%)	50 (34%)
Walrus	13	1	0	14	13 (17%)	1 (3%)	0 (0%)	14 (10%)
Wolf/Wolverine	7	4	8	19	5 (7%)	3 (8%)	5 (15%)	13 (9%)
Total	417	163	261	841	66 (88%)	35 (92%)	33 (100%)	134 (92%)

Stephen R. Braund & Associates, 2010.

last 10 years and the number of harvesters contributing this information by resource category. Table 7 documents the number of most recent harvest locations in the 12 months prior to interviews and the number of harvesters contributing this information by resource category.

GIS Analysis File Preparation

The Merged Feature Table from the Access database was linked to the GIS field database to produce the Analysis GIS. The Analysis GIS was used to develop maps for the final report and to produce the MMS North Slope Subsistence Mapping Personal Geodatabase. Table 8 contains counts of the number of feature records in the Analysis GIS by key resource and feature type for all three communities. The SRB&A GIS mapping system consists of three possible methods of presenting mapped information. The first method is represented by Map 5 and is referred to as a "spaghetti map." The spaghetti map as shown is made up of vectors (e.g., a point, line or polygon) and represents overlaying all of the individual respondent outlines of Barrow, Kaktovik, and Nuiqsut subsistence use areas for all resources. This representation is not used in map production as it presents individual harvester data (e.g., individual polygons). The second method uses a single polygon to depict the extent of subsistence use areas for all respondents and all resources combined, as seen in Map 6. Researchers often use this method to represent subsistence use areas on maps and it is the expected representation of subsistence use areas in this study. While this single polygon approach clearly shows the extent of the use area, it does not differentiate between areas that are used by one person from those that are used by multiple persons. In a third, new method, SRB&A converts polygons (use areas) to a grid with each pixel being assigned a value of one. Then, the number of overlapping pixels are summed and assigned a color, with the darkest color representing the highest density (or number) of overlapping pixels. The color range in Map 7 represents 3,920 overlapping use areas for the three communities.

Table 8: Number of Feature Records by Key Resource and Feature Type

	Feature Type					
Key Resource	**Cabin**	**Camp**	**Harvest area**	**Harvest site**	**Travel route**	**Total**
Caribou	216	100	929	109	409	1,763
Bowhead Whale	13	9	279	70	41	412
Moose	5	16	79	20	6	126
Arctic cisco	29	27	350	10	47	463
Arctic char/Dolly Varden	56	35	493	3	84	671
Broad whitefish	92	21	507	4	70	694
Burbot	59	5	290	2	35	391
Geese	196	122	1,450	5	184	1,957
Eiders	16	29	647	1	50	743
Ringed seal	3	7	199	38	9	256
Bearded seal	4	10	245	46	11	316
Walrus	1	1	91	25	3	121
Wolf/Wolverine	84	42	313	29	118	586
All Resources	774	424	5,872	362	1,067	8,499

Stephen R. Braund & Associates, 2010.

Map 5 - Spaghetti Example
Barrow, Kaktovik, and Nuiqsut

This map represents Barrow, Kaktovik, and Nuiqsut subsistence use areas from 1995 through 2006 for all resources.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Subsistence Use Areas

3,920 use areas reported by 146 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Kaktovik
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Arctic Village
Anaktuvuk Pass
Old Crow
Noatak
Kokolik River
Ikpikpuk River
Meade River
Colville River
Awuna River
Chipp River
Smith Bay
Prudhoe Bay
Cross Island
Sagavanirktok River
Canning River
Demarcation Point
Herschel Island
Mackenzie Bay
Firth River
Mackenzie River
ESKIMO LAKES
Dalton Hwy
Anaktuvuk River
Sheenjek River
Porcupine River
Yukon Territory
Alaska
Canada
United States
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 6 - Dissolved Polygon Example
Barrow, Kaktovik, and Nuiqsut

This map represents Barrow, Kaktovik, and Nuiqsut subsistence use areas from 1995 through 2006 for all resources.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Dissolved Subsistence Use Areas

3,920 use areas reported by 146 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

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ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Kaktovik
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Old Crow
Arctic Village
Anaktuvuk Pass
Noatak

Peard Bay
Smith Bay
Chipp River
Teshekpuk Lake
Harrison Bay
Cross Island
Prudhoe Bay
Camden Bay
Demarcation Point
Herschel Island
Mackenzie Bay
ESKIMO LAKES
Kuk River
Meade River
Kokolik River
Ikpikpuk River
Colville River
Awuna River
Itkillik River
Sagavanirktok River
Canning River
Anaktuvik River
Hulahula River
Firth River
Mackenzie River
Noatak River
Sheenjek River
Porcupine River
Yukon Territory
Alaska
Canada
United States
Dalton Hwy

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N
72°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 7 - Overlapping Polygon Example
Barrow, Kaktovik, and Nuiqsut

This map represents Barrow, Kaktovik, and Nuiqsut subsistence use areas from 1995 through 2006 for all resources.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Overlapping Subsistence Use Areas

High
Low

3,920 use areas reported by 146 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Baseline Indicators of Subsistence Patterns

As stated in the introduction, the intent of this study is to facilitate the measurement of changes in subsistence patterns resulting from offshore oil and gas activities. Critical to this objective is the establishment of quantitative indicators of subsistence use. The social network sampling method mandated for this study supports some, but not all, of the following quantitative indicators of subsistence use.

- Change in subsistence use area
- Change in preferred use areas
- Change in harvest locations
- Change in participation
- Change in duration of harvest trips
- Change in transportation methods
- Change in harvest gear
- Change in months of harvest activity
- Change in harvest amount
- Change in resources

Subsistence Use Area: Abundance and quality of subsistence resources, physical and regulatory restrictions affecting access, visual and social disturbances, and the time and funds available to the harvester are all factors that may affect the subsistence use area used for subsistence. A decrease in subsistence use in an area is an indicator of a significant change. In the SRB&A method, each harvester directly identifies the particular subsistence use areas he or she has used over the past 10 years and during the last 12 months for each key resource. The study team produces maps of community subsistence use areas by conducting GIS analysis of use area polygons identified directly by harvesters. GIS technicians then create maps of these subsistence use areas, showing differences in the number of use areas as a color-coded gradient ("overlapping use areas"). SRB&A calculated the approximate square mileage of use areas for each resource by community using GIS software. These calculations are provided under individual resource discussions. Future changes in subsistence use areas constitute a leading indicator of change in subsistence since harvesters are likely to compensate for impacts in one geographic area by increased use of other areas.

Preferred Use Areas: Preferred use areas are measured by overlapping use of use areas. This method should only be used to determine areas more heavily used by residents during the study period rather than areas considered important by community residents. Some traditional use areas may not have a high degree of overlapping use during the study period due to their distance from the community, but are still culturally and historically important to residents and may provide substantial harvest amounts by a small number of users.

Harvest Location: Areas where hunters successfully harvest subsistence resources can be measured by gathering harvest location data. Harvest locations may be affected by changes in resource abundance, quality, and distribution, changes in physical access, visual and social disturbance, and the time and funds available to the harvester. All of these potential disturbances may result in decreased success rates in formerly successful areas. Study team members recorded the locations of respondents' most recent successful harvest during the last 12 months for each resource. These harvest locations are provided under

each resource discussion. Ongoing collection of these data would allow comparison of changes in harvest locations over time.

Number of Participants: The primary measure of participation used in subsistence research is the percentage of households (or adults) engaging in the harvest of each specified resource. Estimation of participation on a community level requires the use of probability sampling techniques rather than social network sampling. Therefore the traditional measure of participation is not feasible in this study design. Another measure of participation is the number of participants engaging in a harvest activity. This measure can be replicated and compared over time using social network sampling. Changes in the number of participants might follow changes in time and money available to harvesters, and indirectly through changes in technology (e.g., weapons and method of transportation). Harvesters were asked about the number of participants in their most recent harvest activity in the past 12 months by key resource.

Duration of Trips: Trip length affects harvesting costs. Multi-day trips can also provide significant opportunities for transfer of traditional and local knowledge. "Time on the land" is considered an important cultural value. Changes in resource distribution and abundance as well as changes in access and available time can affect the distance harvesters travel and the time they spend away from the community. SRB&A fieldwork measures the duration of trips to most recent harvest activity locations in the following categories: "More than 2 Weeks," "1-2 Weeks," "2-5 Nights," "1 Night," "Same Day." Harvesters were asked about the duration of trips made to each most recent harvest activity identified by key resource.

Methods of Transportation: Transportation methods used can affect the cost and the time required for subsistence activities. Knowledge of transportation use patterns can also be used to mitigate potential development effects. SRB&A fieldwork measured transportation methods by asking harvesters to identify all methods used to access a given subsistence use area. Principal methods identified include snowmachine, boat, four-wheeler, and walking. Harvesters were asked about the methods of transportation used to reach each subsistence use area they identified by key resource.

Harvest Gear: Choice of harvest gear can be affected by time and money available to harvesters as well as changes in technology. OCS oil and gas activities can directly and indirectly affect both time and money available to harvesters. Harvesters were asked to identify harvest gear normally used for each key resource.

Timing of Harvest Activity: Changes in the seasonal abundance of resources, physical and regulatory restrictions, and visual and social disturbances may affect use of subsistence use areas over the course of an annual cycle. SRB&A fieldwork measures the Timing of Harvest Activity by the harvester's identification of months in which each subsistence use area is used for a particular resource activity. Development impacts are more likely to occur if there is an overlap in the time of use and the time of disturbance (e.g., road traffic during hunting). Changes in the timing of harvest activity are a leading indicator of changes in subsistence. Harvesters were asked about the months they visited each subsistence use area they identified by key resource.

Harvest Amount: Changes in harvest amounts constitute the core indicator of changes in subsistence. Decreases in harvests of major species or in overall harvest have implications for household nutrition, quality of life, and cultural continuity. Other baseline indicators (e.g., subsistence area use, harvest success) are important to understanding changes in harvest amounts. As noted in the research design discussion, to be meaningful, measured harvest amounts must be generalizable to the community as a whole. Community harvests are based on a mix of harvester types: active, occasional, and even normally inactive residents. The social network sampling approach yields harvest reports for active harvesters. Since one possible effect of oil and gas development activities is to change the mix of harvester types (e.g., more occasional harvesters and fewer active harvesters), it is not possible to assume that changes in harvest amounts by active harvesters alone is a valid indicator of changes in community harvest amounts. It is possible to combine sampling approaches so that active harvesters are selected using social network sampling and occasional and normally inactive harvesters are selected with probability sampling,

provided harvest amounts were reported for a 12 month period. In this study, the sole use of social network sampling and the restriction of harvest reporting to the most recent harvest activity preclude the valid measurement of harvest amounts.

Change in Resources: Residents' observations about changes in resource use, abundance, quality, distribution, and migration are a key indicator of changes related to development. Although traditional knowledge about resource change was beyond the scope of this study, the study team recommends that future studies include systematic documentation of observed resource changes from experts identified through the social network sampling approach.

Organization of Results and Discussion

The communities included in this study are geographically and culturally unique from one another and have different patterns of subsistence use. Thus, the reporting of field findings is organized by community. A summary of the three communities follows the individual community discussions. Baseline indicators associated with residents' subsistence uses are discussed by resource under each community. These include: subsistence use areas, harvest locations, number of participants, duration of harvest trip, months of harvest effort, method of transportation, and harvest gear.

Following the presentation of current field results by community is a three-community ***Summary of Current Subsistence Patterns***. This section is followed by a discussion of ***Measuring Change in Subsistence Patterns***, including comparisons of 1990 and current data. The final section of the report describes the ***MMS Subsistence Mapping Personal Geodatabase***.

RESULTS AND DISCUSSION

Barrow

Barrow is located on the coast of the Chukchi Sea and is the northernmost community in Alaska. It is approximately 7.5 miles south of Point Barrow, where the Chukchi and Beaufort seas converge. The U.S. Census Bureau recorded a population of 4,581 Barrow residents in 2000 occupying 1,371 households (U.S. Census Bureau, 2002). Fifty-seven percent of these residents were listed as Alaska Native. More recent estimates put the population of Barrow in 2008 at 4,054 residents (Alaska Department of Labor and Workforce Development [ADOLWD], 2009). Barrow residents are situated in a location where both marine and terrestrial animals are readily available. Hunters target bowhead whale, ringed and bearded seal, and walrus as they migrate north along the Chukchi Sea, and also hunt bowhead whale as they return south in the fall. Birds, such as eider ducks and geese, are also present in great numbers during their migrations to key nesting grounds on the North Slope. Caribou move across the tundra throughout the year and are available to hunters especially during the summer and fall when they head to coastal areas and along rivers to escape the heat and insects. Residents also harvest fish such as broad whitefish, Arctic grayling, tomcod, and burbot, in local rivers and lakes and in Elson Lagoon. Other resources include moose, ptarmigan, and furbearing animals such as wolf and wolverine.

Caribou

Among land mammals, caribou (*tuttu*) was the most commonly harvested and used by Barrow residents during the study period. During interviews, 73 respondents (97 percent) provided last 10 year caribou use areas, and 60 (80 percent of respondents) provided last 12 month use areas (Tables 5 and 6). More respondents provided use areas for caribou than for any other study resource. Furthermore, more respondents (approximately two-thirds) reported successful caribou harvest locations within the last 12 months than for any other resource (Table 7).

Subsistence Use Areas

Maps 8 and 9 depict last 10 year (1997-2006) caribou use areas as reported by Barrow respondents, overlaid with last 12 month caribou use areas, and last 12 month caribou use areas overlaid with the locations of residents' most recent caribou harvests. During the 1997-2006 time period, residents reported hunting caribou as far east as Prudhoe Bay, as far west as Icy Cape, and beyond Colville River to the south (Map 8; see Maps 1 and 2 for detailed placenames). At least one respondent reported traveling beyond the extent of the map used during Barrow interviews. The highest numbers of overlapping use areas (shown in red) are located along Meade, Topagoruk, and Chipp rivers; around Pittalukruak Lake and Alaktak River; along the coast between Peard Bay and Dease Inlet; and inland from Barrow to the Inaru and Meade rivers. Residents also commonly reported hunting farther inland, east toward Ikpikpuk River and south past Atqasuk. The total last 10 year Barrow use area for caribou, shown on Map 8, is 26,328 square miles.

Summer and fall hunting either occurs along the coast east and west of Barrow, along local rivers, or overland by snowmachine as far as Inaru River. A number of residents reported hunting along the coast by boat and overland by snowmachine earlier in the summer (i.e., June) and along rivers during the late summer and fall. Caribou tend to more available in coastal areas during the summer when they head to the coast to escape high temperatures and for insect relief. Fall and summer caribou hunting along riversides often occurs in concert with fishing activities. Residents' primary caribou hunting areas, especially during the summer and fall, are often centered around family camp and cabin locations where residents stay, often for weeks at a time, to put up fish and harvest caribou. These camps and cabins are spread across the landscape, with clusters of camps and cabins for different family groups, and are located along the major rivers in the area, including Chipp, Meade, Inaru, Topagoruk, Alaktak, Ikpikpuk, and Miguakiak; at coastal locations including south of Barrow to Peard Bay; and at various lakes in the region including Tusikvoak, Sungovoak, Pittalugruaq, and Teshekpuk lakes. When traveling by boat, residents indicated that they generally harvest caribou close to the shore or riversides. Residents described hunting caribou along the coastline as follows:

> *You don't really have to look hard, because you see caribou like dots along the horizons. We won't get caribou every time we see them, but we'll take our time. We're selective, we're picky; we want to find the best place to anchor the boat, the strong herds. We're looking for the males, the young males, and those are up farther inland. If there's a good place to anchor the boat, and they're not too far from the coast line, then we'll come in and get some.* (SRB&A Barrow Interview April 2006)

> *I've hunted all along there, Christie Point, Avak [Creek], Tiny Island [along the coast of Elson Lagoon]. Skull Cliff, they're always there when it's really hot. Just to right about here [near Igalik].* (SRB&A Barrow Interview April 2006)

> *Along the coast line, weather permitting, we will [hunt caribou], because weather plays a major factor in how we travel. We will hunt along there. It used to take days, we just had the little skin boats and we always spent some time here around the bluffs [at Christie Pt]. Weather permitting, we will take a ride and hunt along the Avak [Creek] area. If they're at Christie Point for insect relief, they are all there.* (SRB&A Barrow Interview February 2006)

> *I go on a family trip down the coast, just scouting trips, looking for summer stuff. I go to the beach and have coffee and look around; if there are caribou within packing distance, I will go there, no more than a mile.* (SRB&A Barrow Interview December 2006)

Map 8 - Barrow Caribou Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

369 use areas reported by 73 respondents

Last 12 Months Dissolved Use Areas

168 use areas reported by 60 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 9 - Barrow Caribou Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low

168 use areas reported by 60 respondents

Most Recent Harvest Locations

52 harvest locations reported by 51 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

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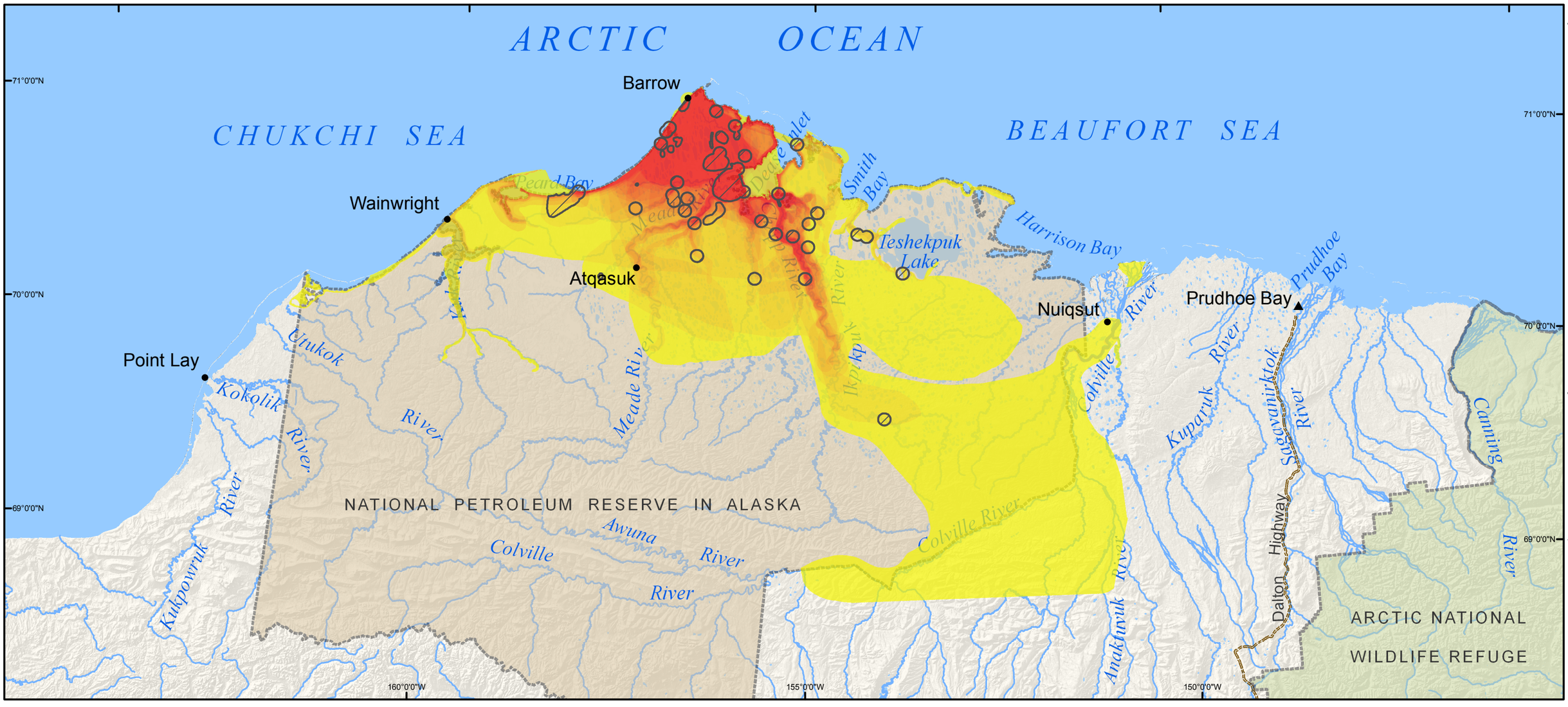


July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

> *I hunt* ugruks *and caribou at the same time on the west side, mostly hunting seals and caribou. We can't do it on the east side because of the barrier islands.* (SRB&A Barrow Interview February 2006)

Barrow hunters are able to cover a greater overland area in search of caribou during the winter months, when snow cover allows for extensive snowmachine travel. Although residents generally reported summer and fall as their primary seasons for caribou hunting, residents reported harvesting caribou throughout the winter as needed or during other subsistence activities such as fishing or hunting for wolf and wolverine. Residents reported traveling substantial distances when hunting wolf and wolverine during the winter and indicated that they also harvest caribou as needed during those activities. As one individual described,

> *Here, all the way…the farthest I've been is to right here out of Wainwright. It's like this to the foothills, to right here. And here, I've been south to Howard Hill, over Knifeblade Ridge, and all these rivers that come out of Colville River. I made it to Noatak River is as far as I made it south, I think. That's usually wolf and wolverine hunting, but I'll get a caribou if I see one.* (SRB&A Barrow Interview April 2006)

Several harvesters noted that oil and gas activities east of Barrow in recent years have affected caribou movement and distribution. Changes in caribou distribution determine where residents hunt:

> *Wintertime, they're mostly, if they're disturbed here [around Chipp River], they'll be over here. The oil companies are all along the Chipp and they're pushing the caribou all the way over here [to the west]. For a few years now.* (SRB&A Barrow Interview March 2006)

Residents often described favorite hunting areas based on a variety of factors, including the proximity of the area to family camp or cabin locations, personal or family connections to the area, success rates within the area, the quality of caribou in the area, and personal knowledge of the area. In other words, residents' preference for an area was not always dependent on hunting success within that area. Favorite caribou hunting areas as described by Barrow residents include, but are not limited to Chipp, Okpiksak, Topagoruk, Meade, Nauyalik, and Alaktak rivers; Teshekpuk Lake; near Barrow; and south of Barrow toward Wainwright and Atqasuk. Barrow hunters' comments regarding their favorite caribou hunting areas include the following:

> *A preferable place I would go is where my cabin is located at* Nauyalik. *There were fish all the time in that creek, caribou coming from the south, north, and west. You can stay there and not even move a mile and the caribou will always come to you.* (SRB&A Barrow Interview April 2006)

> *Mostly in this area just right outside of town**.** But if we are picky in the summer, and we want really fat ones we will go up in here [Topagorak River]. It is weird when you go hunting there everything is a lot fatter and not as spooked, up here they area always running and not as fat.* (SRB&A Barrow Interview December 2006)

> *The most preferred caribou that are fat is near Barrow on the southwest side. My second option is south of Teshekpuk Lake because I can set traps for wolf and wolverine at the same time.* (SRB&A Barrow Interview February 2006)

> *You know, I also like this* Pulayaaq *area [on Meade River]. That's really fun in there. I love that river country, it's really pretty out there. You feel like you're back in the Pleistocene Era.* (SRB&A Barrow Interview February 2006)

Wainwright, around Wainwright, the caribou seem to be fatter, less stressed. [I go there] in the fall time. Along the coast line all the way from Barrow, that's the one I prefer to hunt, the caribou seem to be fatter and less stressed because they come from the south, the ones that come from the east are bugged out. (SRB&A Barrow Interview February 2006)

But my favorite place to go is these three lakes [south of Teshekpuk]. That's where I make my piåuraq *caribou. I bury it in the snow for three days and then take it out and butcher it. You have to eat it frozen.* (SRB&A Barrow Interview February 2006)

The upper cabin, and I really love the Chipp River in the summertime. That's the best. The Chipp is the area I like to explore. My preferred area is right there [at the cabin], though. That's where I grew up, that's where I got my first caribou, and that's where my granddaughter got her first one last summer. (SRB&A Barrow Interview February 2006)

My favorite spot would probably be right in here [12-18 mile radius around Atqasuk]. If there's hardly any caribou up here, I head out there. That's when I need caribou. That's a go-to place. My favorite hunting spot. The caribou are the fattest right there. (SRB&A Barrow Interview February 2006)

There is a creek close to Skull Cliff, all these creeks, when it first snows you can go inside and it muffles the noise of the machines and you can get real close to them. One of the best places is on the Inaru and Iviksuk *area [on Inaru River].* (SRB&A Barrow Interview March 2006)

Everywhere. But the most exciting one is before they start going back south, near the mouth of the Meade River. We go in through there, right at this point. They cross a lot, right there, going south. That's one major crossing point. (SRB&A Barrow Interview March 2006)

Right along that creek there, you're close to Barrow, the trail is good, and it's always a good place to hunt during the summertime and another good thing is that creek near the end of the Gas Well road, so I can drive to the end of the Gas Well Road, trek up there, and shoot caribou. Right around my cabin is a good place. I can butcher my caribou, dry it on the top of my cabin and leave it for a couple of weeks there, and then come back and have nice aged caribou. (SRB&A Barrow Interview March 2006)

Residents' last 12 month caribou hunting areas were similar to those reported for the 1997-2006 time period (see Maps 8 and 9), although residents did not travel as far south or east as they did over the previous 10 years. The highest numbers of overlapping use areas (Map 9) were located in areas similar to those shown on Map 8, with a lower frequency of overlapping use areas reported along the upper Ikpikpuk and Miguakiak rivers during the last 12 month time period. The total last 12 month use area for caribou, shown on Map 9, is 14,628 square miles. One individual reported that river travel had been limited in the previous 12 months due to low water levels:

We didn't get very far because of the water table being low. We had a dry summer. By Chip 1, number 75 (pointing to Barrow Camps and Cabin map). We stayed there four or five days between hunting and fishing in the fall. We tried going up the other rivers and the same thing. We couldn't go very far because of the water table. There were caribou farther where we didn't have access. We ended coming back with a four-wheeler, loading it in a boat and going from there. (SRB&A Barrow Interview February 2006)

Most Recent Harvest

Harvest Locations

As shown in Table 7, 51 Barrow respondents reported successful harvest locations within the 12 months prior to their interview. Residents' most recent harvest locations are depicted on Map 9. Residents reported a number of successful harvest locations between Barrow and Meade River, as well as along the Chipp River, near Teshekpuk Lake, near Peard Bay, and at several other inland locations. Several residents described harvesting caribou relatively close to Barrow. Residents provided the following descriptions of their most recent caribou harvests:

> *It was about five miles near town, there were thousands of caribou. I got 27 in about a week and a half period. They usually come from the west in the fall time, but this year they didn't. It had to do with their food.* (SRB&A Barrow Interview February 2006)

> *February. February 13th, I think. Right near this lake, this long lake. I just went straight south and I got five caribou. There's a lot of caribou right down here too [behind Skull Cliff]. They're coming that way. I was in an airplane a few days ago [and saw them].* (SRB&A Barrow Interview April 2006)

> *Right by the Rolligon, right by where the seismic [activity is]. I got six right there, it was just me. I was gone for two days, three days, and two nights.* (SRB&A Barrow Interview February 2006)

> *At the cabin, three mile radius. Tommy did the hauling, he went with a boat on his off hours, and went back to work. It takes about an hour to get into there. That's the last time in that area. There was me and my daughter, my son and my nephew, and my husband. Three weeks [trip duration], maybe.* (SRB&A Barrow Interview February 2006)

> *October, early November. That was on the Chipp River. We went straight east from the cabin. We got four of them, I was with one brother and two of my sons. There was three snowmachines. We stayed the night at the cabin.* (SRB&A Barrow Interview February 2006)

> *[My last harvest was] on this lake [Sungovoak] here. I try to get just two or three at a time. I don't try to get too many at once. I just got two. I just go by myself. That was a day trip. Last year, they were so close to town, along that road. They were all over that gas fuel road. You didn't even have to use a snowmachine. You could go with a truck. That was after freeze-up, in November.* (SRB&A Barrow Interview February 2006)

Number of Participants

Two or more individuals participated in over three quarters (77 percent) of most recent caribou harvests reported by Barrow respondents (Table 9). Twenty-three percent of most recent harvests were carried out by one individual. Residents generally indicated that they travel in groups to camps and cabins along various local rivers to hunt caribou during the summer and fall months, after the spring bowhead and geese hunts have come to a close. These pursuits are often combined with the harvesting of fish, such as broad whitefish. The majority of solitary hunts occur during the winter months, while residents travel by snowmachine in search of caribou.

Table 9: Barrow Number of Participants in Most Recent Caribou Harvest Locations

Number of Participants	Percentage of Harvest Locations
1 person	23%
2-3 people	56%
4 or more people	21%
Number of Most Recent Harvest Locations	52

Stephen R. Braund & Associates, 2010.

Duration of Trip

Forty-two percent of most recent caribou harvests reported by Barrow respondents occurred during same day hunting trips (Table 10). Forty-seven percent occurred while respondents stayed at camps or cabins for multiple nights, and 26 percent occurred during hunting trips that lasted at least one week. Longer trips were more commonly reported during the summer and fall months, while most winter harvests occurred during same day trips. One individual explained that he takes only day trips because "I always have to go to work the next day" (SRB&A Barrow Interview March 2006).

Table 10: Barrow Duration of Trips in Most Recent Caribou Harvest Locations

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	13%
1-2 weeks	13%
2-5 nights	21%
1 night	10%
Same day	42%
Number of Most Recent Harvest Locations	52

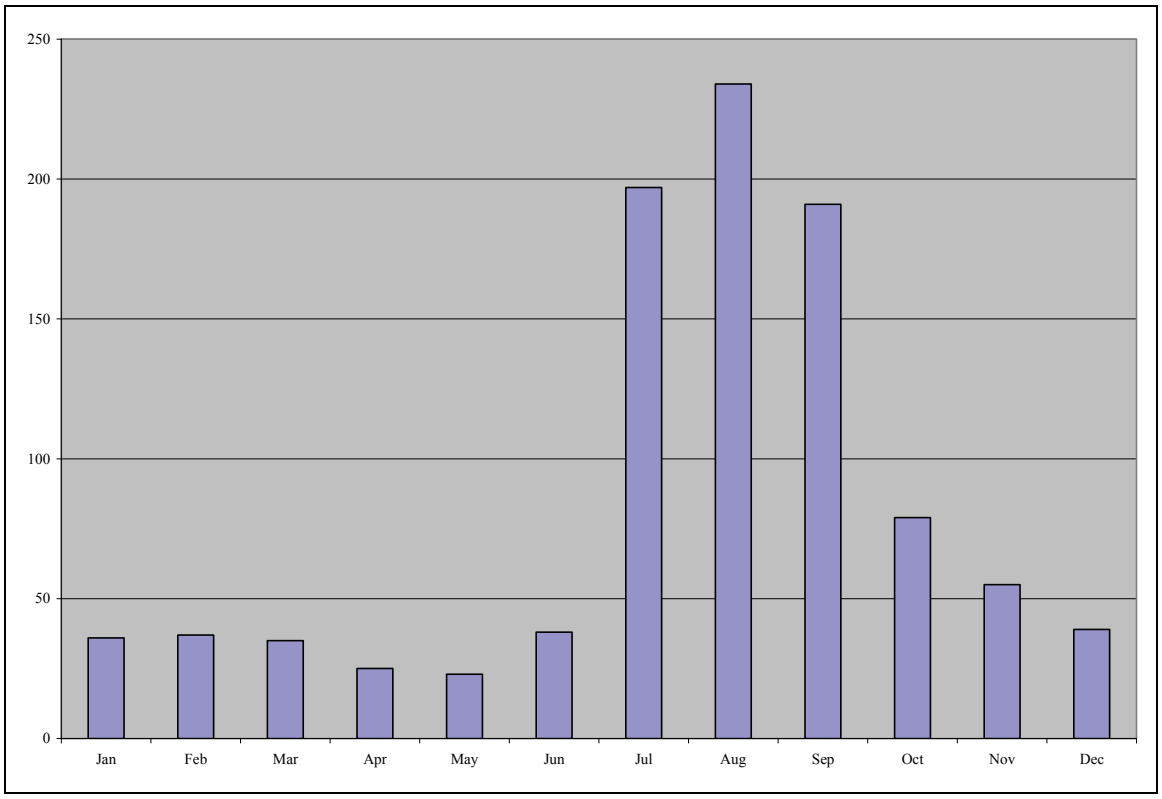
Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Barrow residents reported hunting caribou year-round with peak activity from July until September (Figure 3). As discussed above, the majority of caribou hunting occurs by boat during the summer and fall months along the coast and inland along various rivers; caribou are taken as needed throughout the winter months. The fewest number of use areas were reported during the months of April and May, described by respondents as the main calving season. The timing of the caribou hunt depends on various factors. A number of respondents indicated that they prefer the taste of caribou harvested during the fall when they are fattest but avoid harvesting them during the late fall rut. One individual said,

> *The caribou are eating the greens, and they taste like them. That is why I hunt in the fall time because they are eating the tall grass and the lichen.* (SRB&A Barrow Interview April 2006)

Figure 3: Barrow Use Areas for Caribou by Month



Stephen R. Braund & Associates, 2010.

Residents observed that caribou tend to be on the coast during the hot summer months to escape the heat and the insects, and move further inland as the fall advances. As one person described,

> *Most of the time from July to August I hunt the coast line. I boat along the coast; they are on the beach, and then later in the year I go inland. Just off the shore I use a boat; I'm not going to walk. When it gets too hot and the mosquitoes get too thick they are on the coast near Wainwright.* (SRB&A Barrow Interview February 2006)

A number of respondents reported traveling along the coast south of Barrow toward Peard Bay during the summer and then moving east and traveling upriver in the fall. One individual provided this observation regarding the benefits of harvesting caribou at certain times of the year:

> *When the caribou start mating [I don't like to hunt]; it's almost better to get them in August. When it comes time for the caribou mukluks, the best time of year is September. You have to cut them real careful on the hooves. And in the winter [the skin is thicker]. It's so much better to have a caribou skin than a mattress because it keeps. When it's under ice fishing time, that's the best time to get it. We try not to catch the bulls [at that time].* (SRB&A Barrow Interview March 2006)

One Barrow hunter observed that the timing of the fall caribou migration had changed over the last 10 years, indicating that the caribou move through their hunting areas later because of warmer temperatures. He provided the following description of these changes:

> *We start going up there in mid July to early September; we go back and forth. It used to be about the 20th of August to Labor Day, but the last few years it has been to the 15th of September. The last 10 years the caribou migration has moved back farther in time. They*

have started migrating later because the weather is warmer. They stay north longer and leave later. The year before, they didn't start moving before the first week of September. Last year I don't know where they were. The migration behavior has changed because the weather is warmer. It used to be the early part of September [when] the ice starts forming on the lakes, and we had to get home before Labor Day weekend, but last year we stayed to the 15th and the ice hadn't formed yet. We had been going up there since the mid 70s, and we have been noticing the change in the last 10 or 12 years. (SRB&A Barrow Interview March 2006)

Method of Transportation

Table 11 shows the methods of transportation residents reported using to travel to caribou use areas. The majority of use areas (63 percent) were accessed by boat, while 31 percent were accessed by snowmachine and 10 percent by four-wheeler. Boat is the primary mode of transportation for coastal and riverine hunting. However, residents also reported using snowmachine to access summer use areas south of Barrow, and some cited a preference for this method of travel. One individual commented,

> *I don't too much hunting by boat, it's too costly, too time-consuming; you could get trapped out there. So what I do is hunt caribou a lot by snowmachine in the summertime.* (SRB&A Barrow Interview March 2006)

Another person described,

> *There are trails that will take you to these lakes. Driving a snowmachine on tundra, even on the dry lakes, is like driving a boat on glass water. From June, latter part of June all the way to August. When it starts to get dark early. When it gets dark, boy it gets dark. The terrain's not level. You could crash or get stuck. It gets dangerous.* (SRB&A Barrow Interview April 2006)

Residents also reported traveling shorter distances by four-wheeler along established trails, or bringing four-wheelers in their boats to access inland areas or hunt around camps and cabins. A common destination for four-wheeler hunting is along the coast south of Barrow. Winter hunting generally occurs by snowmachine and begins in October.

Table 11: Barrow Method of Transportation to Caribou Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	31%
Four-wheeler	10%
Boat	63%
Foot	1%
Plane	1%
Car/truck	1%
Number of Use Areas	369

Stephen R. Braund & Associates, 2010.

Harvest Gear

Barrow residents reported 20 calibers of rifles with which they hunt caribou (see Table 12). By far the most popular weapon was the .243 caliber rifle, reported by nearly half (48 percent) of respondents, followed by the .22-250 and .223. Residents generally reported using different weapons depending on the distance of the target and preferred using smaller calibers that do less damage to the meat:

> *.223, it does the least damage and you don't have to reload [as often], it has clips.* (SRB&A Barrow Interview February 2006)

> *.223, .243 for long range. .223 is just short range. It doesn't leave as big a hole.* (SRB&A Barrow Interview February 2006)

> *.22-250, .243, .22 mag…. Something that won't damage the meat. I've gotten a lot caribous with .22s. I use .22 for a reason.* (SRB&A Barrow Interview March 2006)

> *.22-250. We don't use a really high-caliber rifle because it just tears up the meat.* (SRB&A Barrow Interview March 2006)

Table 12: Barrow Caribou Harvest Gear

Rifle Caliber	Number (%) of Harvesters[1]
.243	33 (48%)
.22-250	17 (25%)
.223	12 (17%)
.25-06	10 (14%)
.22 mag	8 (11%)
.270	7 (10%)
.308	6 (8%)
.22	4 (5%)
.222	4 (5%)
.30-06	4 (5%)
.17	3 (4%)
.220 swift	2 (2%)
.30-30	2 (2%)
.257	1 (1%)
6mm	1 (1%)
7mm	1 (1%)
.32	1 (1%)
mini 14	1 (1%)
.44-40	1 (1%)
.357	1 (1%)

[1]The percentages shown are calculated from the number of respondents who reported harvest gear and not from the total number of harvesters

Stephen R. Braund & Associates, 2010.

Bowhead Whale

Of the four marine mammals commonly harvested by Barrow residents, bowhead whales (*aġviq*) are the most prized and central to Iñupiaq cultural identity. Hunters are organized into whaling crews headed by whaling captains, who number over 50 in the community of Barrow. Of the respondents interviewed for this study, 85 percent (64) identified bowhead whale use areas for the last 10 years, surpassed only by the number of respondents reporting use areas for broad whitefish, caribou, and geese (Table 5). Sixty-one percent reported hunting bowhead whales within the 12 months previous to their interview (Table 6). Because of the nature of the bowhead whale hunt (involving multiple people in one crew, and sometimes multiple crews in one harvest), the data regarding most recent harvests are presented differently in this section than for other resources. This is because of the high overlap of respondents who are on the same crews and the existence of Geographic Positioning System (GPS) data recorded by the North Slope Borough. The number of participants and duration of trip tables were not included because they are based on most recent harvest locations, but discussions of the general trends remain.

Subsistence Use Areas

Last 10 year bowhead whale hunting areas overlaid with last 12 month use areas are depicted on Map 10. Residents reported hunting bowhead whales west and east of Point Barrow ("the point"). Spring hunting generally occurs west of the point and closer to shore, while fall hunting occurs both west and east of the point, and sometimes substantial distances offshore. Residents reported hunting bowhead whales almost as far as Smith Bay to the east and as far as Skull Cliff to the west. One individual, who is on a whaling crew in Wainwright, identified a Wainwright bowhead whale use area. The highest numbers of overlapping bowhead whale use areas are located up to 20 miles offshore, between Walakpa River to the west and Cooper Island to the east. The total last 10 year Barrow use area for bowhead whale, shown on Map 10, is 5,227 square miles.

Residents reported that their spring whale hunting area varies yearly depending on the location of the open lead. A number of whale hunters observed that the lead has been closer to shore in recent years:

> *Just to Walakpa, about a quarter mile, half a mile out. Probably about the last 10 years the ice conditions have been getting rotten. Sometimes we used to go 10 miles out. (SRB&A Barrow Interview February 2006)*

> *When I first started whaling, it was way out there, 14 miles. It's gotten closer and closer in the last few years. Closest was probably about two miles. Usually [hunt] right there on the lead, because we're in skin boats.* (SRB&A Barrow Interview April 2006)

Residents generally indicated that spring whale hunting occurs no farther than Point Barrow to the north and Walakpa to the south. Several people noted that the currents beyond Point Barrow are stronger, resulting in dangerous whale hunting conditions. However, some individuals reported instances in which whaling crews harvested whales beyond the point or as far south as Skull Cliff. Barrow harvesters provided the following descriptions of their spring whale hunting areas:

> *From Shooting Station we have been as far as [nine] miles from Will Rogers Monument. We've set camp down there, just because we camp there doesn't mean we harvest there. We may come close to the monument; the lead has a habit of breaking here. Less than a mile here [from the shore at Monument]. For some reason it goes out here, one year it may be a few miles and another year it may be 16 miles. We haven't been out farther than 16 miles, that's just one year. We've been down by Browerville. Three to six miles [from shore] roughly.* (SRB&A Barrow Interview February 2006)

Map 10 - Barrow Bowhead Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

114 use areas reported by 64 respondents

Last 12 Months Dissolved Use Areas

78 use areas reported by 46 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC OCEAN

72°0'0"N

71°0'0"N

CHUKCHI SEA

BEAUFORT SEA

Barrow

Wainwright

Atqasuk

Nuiqsut

Prudhoe Bay

Thetis Island

Cross Island

NATIONAL PETROLEUM RESERVE IN ALASKA

Peard Bay

Inaru River

Meade River

Topagoruk River

Dease Inlet

Chipp River

Ikpikpuk River

Smith Bay

Harrison Bay

Teshekpuk Lake

Fish Creek

Prudhoe Bay

Mikkelsen Bay

Kuk River

160°0'0"W

155°0'0"W

150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Only to the lead about 10 miles, real close to Barrow. Just straight out about 10 miles out, I don't want to go out in the ocean, it's too dangerous, and the currents are faster. The point is a very treacherous place. A whaling captain can spend about 10 to 12 thousand dollars on a hunt. (SRB&A Barrow Interview February 2006)

We usually go by the point just west of Point Barrow. And not any farther than the point because of the current gets too strong. (SRB&A Barrow Interview February 2006)

The captain that I go whaling with likes to go north, in front of the hangars, out in front here somewhere. He likes to find something that has a bay like this [a bay that brings them in closer to shore]. They like to come in and cruise along the ice. He likes to find a little inlet or a little bay. You got to try to find the best spots, build your trails early. All the time I remember, my captain is on this side of the ocean. All the way past Monument. Right to Monument. I remember one guy went way past Monument, between Skull Cliff and Monument, and he caught a whale. And it was three days of butchering, and how many hours [transporting the meat]. There were times when the open lead was a far as five miles out. And that was in between the shooting station and Niksiuraq. It's been two and half, three miles from Monument. It's not always straight. You can tell you're pretty far away from shore. (SRB&A Barrow Interview April 2006)

Fall hunting areas also depend on various factors, including the location of migrating bowhead whales. Several respondents mentioned an incident during which whaling crews had to travel as far east as Cape Simpson (on Smith Bay) because seismic testing had diverted bowhead whales from shore. Although residents reported hunting for bowhead whales both west and east of the point during the fall, hunters generally indicated that the primary fall hunting area is east or northeast of the point. Residents indicated that whales are often found migrating parallel to the barrier islands at a distance of at least one or two miles. A number of people reported setting their compasses once they reach the point and traveling until they see a pod of whales:

When we first go out we set our compass to 30 degrees and if we don't see any whales, we'll set our compass to 30 degrees and go 15 miles and look in that area. But that's a lot of ocean to look. Sometimes we'll just go zigging, looking for whales. Most of the time, that's where the whales are, 30 degrees on the compass. Once we get past the point, we set our compasses. Some of the boats they'll come to the islands and look back and forth. Once we start sighting whales, we'll tell the other boats and they'll ask us what our GPS setting is. (SRB&A Barrow Interview April 2006)

Usually off the point, compass heading due east and if there is sightings we go to Cooper Island, that's the farthest, by the time you tow a whale back the meat is spoiled. (SRB&A Barrow Interview February 2006)

Twenty-two miles north from the point, Nuwuk. [Northeast] 60 degrees. That is the hot spot; that is where everybody got their whales. (SRB&A Barrow Interview March 2006)

Residents' last 12 month bowhead whale use areas were similar to those reported for the last 10 years (Maps 10 and 11). Hunters did not travel as far from shore during the 12 months prior to their interviews and did not report any use areas near Wainwright. The highest numbers of overlapping bowhead whale use areas were from Barrow east to Ekilukruak Entrance. The total last 12 month Barrow use area for bowhead whale, shown on Map 11, is 2,082 square miles. Residents provided the following descriptions of their last 12 month bowhead whale hunting activities:

Map 11 - Barrow Bowhead Use Areas, Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
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Last 12 Months
Overlapping Use Areas

High
Low

78 use areas reported by 46 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

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July 2009

ARCTIC OCEAN

72°0'0"N

CHUKCHI SEA

71°0'0"N

BEAUFORT SEA

Barrow

Wainwright

Peard Bay

Inaru River

Meade River

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Harrison Bay

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Topagorak River

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NATIONAL PETROLEUM RESERVE IN ALASKA

Atqasuk

Thetis Island

Cross Island

Prudhoe Bay

Mikkelsen Bay

Fish Creek

Nuiqsut

160°0'0"W

155°0'0"W

150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

We were down out here [near Hollywood] for about two weeks. It was maybe a mile and a half out. Once you make a camp you stay there. A lot more rough ice came in and added a lot more rough ice and we moved out from the point, about five miles out. (SRB&A Barrow Interview April 2006)

We were at 19 miles [from Barrow], at one point. If there's a whale at 19 miles, there's probably gonna be more out there. So everyone's in a rush [to get one]. Twelve miles [last year]. We went out 12 miles and on our way home, the whale was eight miles out of town. Every year is different. The first one was the eight mile, and the most recent one was 12 miles northeast of the point. Right around in there. We didn't even have to look around, because we could see those blows from a few miles away and we just made a B-line for them. [Not west of Barrow at all]. There were already other boats that went ahead of us and they started to report whales, so we just started to go fast. (SRB&A Barrow Interview April 2006)

The first pod of whales were kind of early, last year was the latter part of April, they are a week to two weeks earlier because of global warming. At least a couple years now, the conditions are getting real dangerous; we have to find a place where the ice is thick enough to pull a whale onto it. Last year we were out by, straight out by the hangar, we were straight out from NARL [Naval Arctic Research Laboratory]; that was where most of us were, we were five miles out. The trail was pretty rough at times. Out at the point, it must have been three miles from the point where we helped butcher a whale that somebody else got. This spring we had a hard time. Our crew didn't get one last spring, we helped; we try to send a couple guys from the crew to help butcher a whale to get shares. (SRB&A Barrow Interview March 2006)

Residents generally did not report any "favorite" bowhead whale hunting areas because their hunting areas vary yearly depending on the location of the bowhead whale migration and weather and ice conditions. Residents indicated that they prefer harvesting bowhead whales closer to the community; such harvests are safer for whaling crews and ensure that bowhead whale meat will not be spoiled. However, as indicated above, hunters will travel great distances to harvest bowhead whale when necessary. A number of residents identified particularly successful areas, such as east of the point and along the barrier islands:

Close to the barrier islands and as close as possible. One year we just went three miles and we got the whale. (SRB&A Barrow Interview February 2006)

Wherever they are, most people favor to go close to the point because that's where the whales are coming close to shore. Last 10 years that was my preferred area. (SRB&A Barrow Interview February 2006)

Most Recent Harvest

Harvest Locations

As shown in Table 7, 23 of 75 Barrow harvesters (31 percent) reported successful bowhead whale harvests in the 12 months prior to their interviews. The harvest sites collected during SRB&A interviews were identified by respondents on the USGS map used during interviews and without the aid of GPS data. The North Slope Borough Department of Wildlife Management collects harvest location data, often with GPS coordinates, for bowhead whales harvested each year. Because more reliable bowhead whale harvest data for all three study communities are available from the North Slope Borough, the most recent

bowhead whale harvest locations collected by SRB&A are not included in this report. Residents' descriptions of their most recent bowhead whale harvests included the following:

> *We were straight out from this location, and we harvested a whale right in here, that's only about two or three miles out. And going this way, maybe seven miles on the trail because it zigzags. But the trail to the whale camp can vary from three miles to 15 miles.* (SRB&A Barrow Interview February 2006)

> *The fall time is when we got two; we got them on Monday and Thursday. We caught it on opening day which was a Monday, and we got back out on Thursday. In fact that was the one my dad gave to his brother. He got the credit. We got to get two whales. We caught our whale two miles out, two and a half miles off shore that was the first one and the second one we got three miles off shore here [out from Barrow]. This is the preferred area. We didn't go any farther. The first whale we got on opening day, we weren't three miles out. [We went] roughly out there [six miles] but we harvested the whale three miles out.... There were five of us [in the boat]. It may be October 2nd is the one over here [out from Barrow] and October 7th was the last one.* (SRB&A Barrow Interview February 2006)

> *We were just out maybe half an hour [before we saw a whale]; it was straight [out]. I felt like we didn't even go boating. It was the beginning of the season. We had already got three whales, and I picked up my dad in Peard Bay and then we got it October 4. There was about eight of us on the boat, myself, my dad, there was about eight of us.* (SRB&A Barrow Interview February 2006)

> *About 17 miles to the east, we weren't very far out, we could see the islands, five to six miles. Seventeen miles is the farthest, that's where we found them. October. Same general area to the east. Ten in the boat itself.* (SRB&A Barrow Interview February 2006)

> *We got one up here, and we got the other one right about here. This one [closer to Barrow] was more recent. This one [north of Barrow] was about a week, two weeks before. We were in and out. When the ice is too close, we go in [from camp]. I don't even know [how long we were camping]. That north one, we were camping forever. Could be a whole month, off and on. It all depends on the weather and the water and the ice conditions.* (SRB&A Barrow Interview February 2006)

> *Off of Barrow going north. Last fall we just went three miles out of Barrow and got our whale, we were searching 10 to 15 miles out. We just happened to be one of the last crews that day, we had engine problems. The whale just surfaced by our boat. Three to four miles from Barrow we got the whale. The previous year we got one out from Tapkaluk Island. We had searched all day and a pilot said there was some ice by Elson Lagoon, and we went to see and there were lots of whales surfacing. There was lots of slush ice.* (SRB&A Barrow Interview February 2006)

Number of Participants

As noted above, there are over 50 bowhead whaling crews in Barrow, and each crew consists of a whaling captain and crew members. In addition to the whaling crew, other individuals, such as crew members' wives and other community members, provide support from shore. Crew members often hold specific roles such as co-captain, harpooners, steersmen, and cooks. A number of individuals reported starting out on whaling crews when they were young as "boyers," providing general support (e.g., cooking, readying

supplies, etc.) to whaling crew members. Whaling captains' and crew members' wives provide essential support to the whaling crews, sewing bearded seal (*ugruk*) skins for construction of skin boats (*umiat*), sewing parkas and other clothing for whaling crew members, and providing assistance with butchering, processing, and cooking once a bowhead whale has been harvested. Other community members provide financial and logistical support for whaling crews. Thus, the overall number of participants in a single bowhead whale hunt is much higher than the number of whaling crew members present in the boat at the time of the harvest. The number of crew members in a boat varies by season – a spring whale hunt generally requires a greater number of participants (between five and 10 crew members) than a fall whale hunt (fewer than five crew members in a boat) (EDAW, Inc., Adams/Russell Consulting, Applied Sociocultural Research, Donald G. Callaway, Circumpolar Research Associates, and Northern Economics, Inc. 2008).

When asked to identify the number of participants involved in the most recent bowhead harvest, respondents either reported the total number of people on their whaling crew or the number of people in the boat at the time of the harvest. Some respondents also counted people on other whaling crews that assisted in the harvest. Only one Barrow respondent reported a recent bowhead harvest with fewer than four participants. One harvester reported that 12 individuals participated in their last bowhead harvest, saying,

> *We were between NARL and three miles off shore. There were six on our boat and another six at our camp. Spring time, it was on the first week in May.* (SRB&A Barrow Interview February 2006)

Duration of Trip

Researchers asked respondents the duration of trip to their most recent bowhead harvest area. Answers to this question varied by respondent. Several residents, discussing their last spring bowhead hunt, reported camping on the ice for over two weeks while they tried to harvest bowheads and thus described the duration of trip during their most recent harvest in terms of the entire spring whaling season. For example, one harvester provided this description of their last spring bowhead hunt:

> *We got a whale, right in front of NARL, pretty close, little over a mile; I don't think it was a mile and a half. On the average it was probably seven or eight [people in the boat]. May, first part of May. We were out probably about a week and a half before we were fortunate to strike a whale.* (SRB&A Barrow Interview February 2006)

Others described the length of time on the open water during their hunt or indicated that they traveled from Barrow to their whaling camp on a daily basis and thus reported same day trips at their most recent spring bowhead harvest area.

In general, spring whaling occurs over an extended period of time, with whaling camps set up along the open lead and whaling crew members present at each whaling camp at all times. Athough individual crew members may travel back and forth between the whaling camp and the community for supplies, employment, and other needs, there is generally a constant presence of whaling crew members at whaling camps throughout the spring bowhead whale season or until the there has been a successful harvest. In contrast, all fall bowhead harvests are day trips, with whaling crews leaving by boat from Barrow and returning on the same day.

Months of Harvest Effort

Unlike the other study communities of Nuiqsut and Kaktovik, Barrow residents participate in a spring bowhead hunt as well as the fall bowhead hunt. Residents generally described the spring bowhead hunt as taking place during April and May, although a small number of bowhead whale use areas were reported

as late as the month of June (Figure 4). One harvester provided the following description of his spring bowhead hunt:

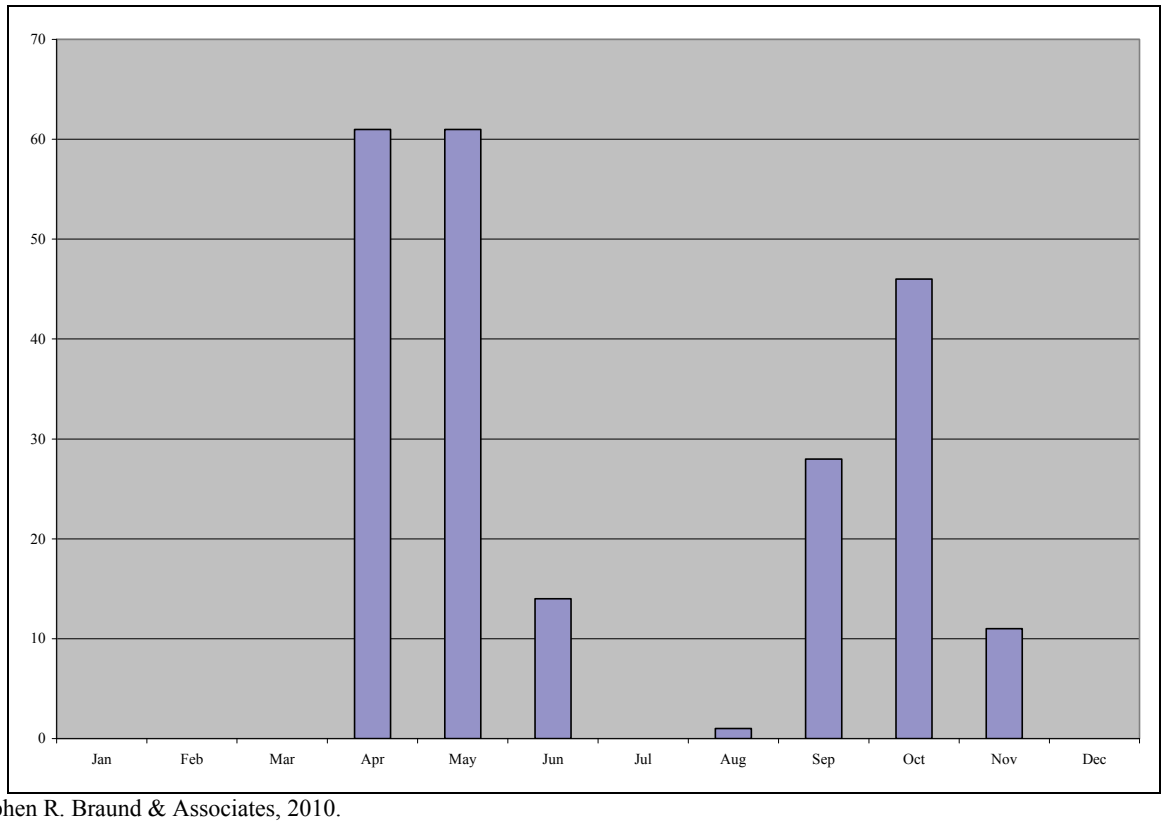
> *About 20th of April through 30th of May. Some people go into the month of June. I don't like to go out in June. It's not as safe. There's lots of potholes. You've got the sunlight melting the ice from the top, and even though it might look solid from the top, you don't know how much has been receding from the bottom [from the current]* (SRB&A Barrow Interview April 2006)

The fall bowhead hunt generally occurs during September and October. Barrow hunters reported the most fall bowhead use areas for the month of October. Respondents noted that the whaling captains set the timing of the fall hunt. Several people indicated that they prefer to hunt in October after the larger whales have migrated through. Two individuals commented,

> *Some people try to whale in September, but in the fall time, the whales that are migrating, the big whales come in late August and they're along in here all the time [along the islands]. Then later in October, the small ones are showing up.* (SRB&A Barrow Interview April 2006)

> *September, October, depends on when the captains open the date. Sometimes we go in September but more recently they have been wanting to go in the end of September and October.* (SRB&A Barrow Interview February 2006)

Figure 4: Barrow Use Areas for Bowhead by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

As depicted in Table 13, whaling crews use snowmachine and boat to access bowhead whale use areas. While respondents reported using boat to access 100 percent of use areas, they used snowmachine to access 57 percent of use areas. This is consistent with the fact that snowmachines are used only during the spring whaling season to access whaling camps after the crews have broken trail. Whaling crews travel in power driven aluminum boats to hunt in open water during the fall and use hand paddled skin boats (*umiat*) to travel in open leads during the spring. Aluminum boats are also used during the spring to tow harvested whales. One individual described spring hunting methods as follows:

> *In spring, we don't use outboards unless the whale is struck. We wrestle the aluminum boat out there. We use an aluminum boat to tow the whale. We retrieve the whale back in by aluminum boat. We don't know how to paddle it back; the old men back then were supernatural men. The majority of the crews have outboards out there, with 50 horse power motors. We have to beat the whale from getting on the other side of the lead. The moment we strike the whale we get the aluminum boat, as soon as we can.* (SRB&A Barrow Interview February 2006)

Table 13: Barrow Method of Transportation to Bowhead Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	57%
Four-wheeler	0%
Boat	100%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	114

Stephen R. Braund & Associates, 2010.

Harvest Gear

Because methods and equipment used to hunt bowhead whales vary little among whaling crews, respondents' responses regarding bowhead harvest gear were not tabulated for this report. Bowhead harvesters reported using darting guns, which carry both a harpoon and a bomb, as the primary weapon during bowhead hunts. Hunters sometimes use a shoulder gun after having struck the whale with the darting gun. Respondents' comments varied concerning their preference and use of the traditional bomb versus the new Penthrite bomb. A number of respondents preferred the new Penthrite bomb because of its ability to quickly kill the bowhead. One person said,

> *We use the super bomb. Super bomb is a lot quicker, we don't have to chase it. It will die right away.* (SRB&A Barrow Interview March 2006)

Many individuals, however, commented that the Penthrite bomb creates too much damage to the meat and reported a preference for the traditional bomb, saying,

> *When I go whaling with a group, I don't like the big [super] bombs, it's overkill. When the powder goes out, it goes throughout the body. I don't know how dangerous that is for you. You can see streaks coming out of the blubber. That's powder leaking out into the*

*whale. We were taught not to eat the meat where the bomb went off. (*SRB&A Barrow Interview February 2006)

I prefer the traditional [bomb]. I fired a superbomb. They do work, I think the nitro, as soon as it blows up in the whale, it fries the meat up, and cooks it instantly. Not good. Whole big portion [is wasted]. That's why I go for traditional [bombs]. (SRB&A Barrow Interview March 2006)

Moose

Only nine of 75 Barrow respondents (12 percent) reported hunting moose (*tuttuvak*) in the last 10 years, and two within the last 12 months (Tables 5 and 6). Because only aggregated information of four or more respondents is included in this report, the figures and tables related to last 12 months moose harvest activities, including most recent harvests, are not included below.

Moose are rare in the Barrow area and a number of residents indicated that they prefer caribou. As one individual said,

I never hunt moose, even if I saw one. Once in a while we see them. Some people do shoot them but if caribou is what you grow up with it is a preference. I crave caribou meat. (SRB&A Barrow Interview April 2006)

Those residents who reported hunting moose generally did so south toward the Colville River, although some indicated that moose are periodically available closer to the community. A number of residents indicated that they hunt moose only when they present themselves during their travels.

While both Native and non-Native residents participated in this study, the majority of respondents were Iñupiaq hunters. Moose hunting may be more common among non-Iñupiaq residents of Barrow; SRB&A and ISER (1993: 57) noted that "Some non-Natives fly to outlying areas such as the Colville to hunt moose and Dall sheep." During the three study years for that subsistence study (1987, 1988, and 1989), seven percent of Native households participated in moose harvests (SRB&A and ISER 1993: Table 10). Moose accounted for 12 percent of terrestrial mammal harvests during those three years, and Barrow households harvested an estimated average of 48 moose per year (a number which the study team believed to be a high estimate rather than an average) (SRB&A and ISER 1993: Figure 19, Table 15). Additional harvest data for Barrow are available in Appendix D.

Subsistence Use Areas

Last 10 year moose hunting areas are depicted on Map 12 and indicate that, with the exception of hunting moose along the Colville River while visiting friends and family in Nuiqsut, residents generally do not hunt moose in a particular place. Several residents reported hunting moose while looking for wolf and wolverine toward the Colville River and the Brooks Range. The total last 10 year Barrow use area for moose, as shown on Map 12 is 14,541 square miles. Residents provided the following descriptions of their moose hunting activities:

If they present themselves, I will hunt a moose, around Pittalukruak Lake, if they are in there, and they present themselves. That will be in August. I'd say about six years ago. (SRB&A Barrow Interview February 2006)

Yes, this area when I run into them, Titaluk River. Every time I go I usually go in the Titaluk area, just a little ways past Birthday Creek. And then straight up to Chipp to Semiutak and then in a general area back [to Barrow]. Birthday Pass, I don't go very far from Trade [land marker] and then to Atqasuk. I don't usually go to the east of the Ikpikpuk River [and then back to Barrow]. They just opened the moose season last week.

Map 12 - Barrow Moose Use Areas, Last 10 Years (1997-2006)

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High
Low

9 use areas reported by 9 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

Barrow

Wainwright

Atqasuk

Nuiqsut

Prudhoe Bay

Point Lay

Peard Bay

Meade River

Dease Inlet

Smith Bay

Chipp River

Teshekpuk Lake

Harrison Bay

Prudhoe Bay

Kuk River

Ukukok River

Kokolik River

Ikpikpuk River

Colville River

Kuparuk River

Sagavanirktok River

Canning River

Kukpowruk River

Awuna River

Anaktuvuk River

Dalton Highway

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

69°0'0"N

160°0'0"W

155°0'0"W

150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

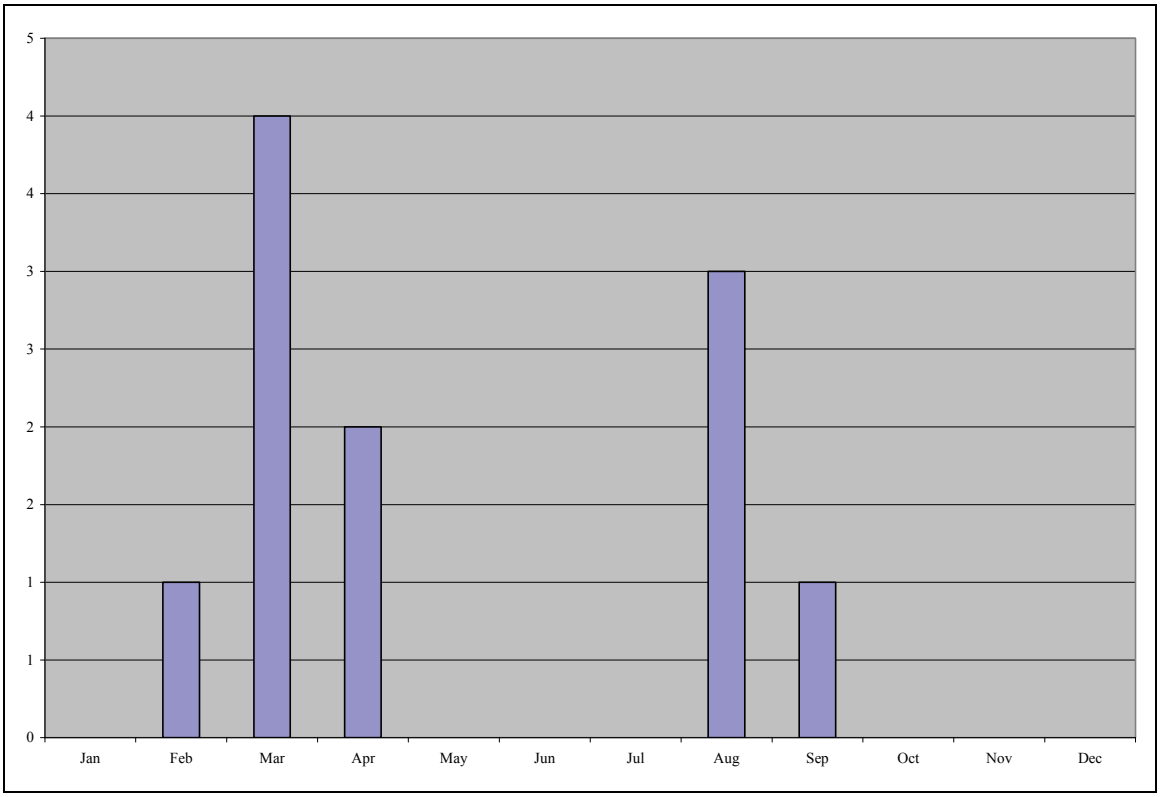
We are looking for wolf and wolverine, the only time I catch moose is if it is not too deep snow. (SRB&A Barrow Interview February 2006)

Yes. Birthday Pass. Past Birthday Pass, into the Colville, I got one moose on here and another one on this other side [of Colville]. That's where I get my winter moose, on the Colville. The other one was west of that, heading past Howard Pass, just below Smith Mountain. (SRB&A Barrow Interview March 2006)

Months of Harvest Effort

Barrow respondents reported two separate seasons for moose hunting over the last 10 years. They described traveling to moose use areas from February to April and then again in August and September (Figure 5).

Figure 5: Barrow Use Areas for Moose by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported using snowmachine and boat to access a similar number of moose use areas (Table 14). This is consistent with the data presented in Figure 5, which show the majority of moose use areas reported in March and August.

Harvest Gear

Those respondents who reported harvest gear for moose indicated that they used weapons similar to those used to harvest caribou (Table 15). Two individuals reported using a .243, and two reported using a .270. Other rifle calibers used by respondents to harvest moose include .223, .25-06, and .22-50.

Table 14: Barrow Method of Transportation to Moose Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	56%
Four-wheeler	0%
Boat	44%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	9

Stephen R. Braund & Associates, 2010.

Table 15: Barrow Moose Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.270	2 (66%)
.243	2 (66%)
.223	1 (33%)
.25-06	1 (33%)
.22-250	1 (33%)

Stephen R. Braund & Associates, 2010.

Arctic Cisco

Over one-third (37 percent) of Barrow respondents reported harvesting Arctic cisco (*qaaktaq*) in the last 10 years and approximately one-quarter (21 percent) reported attempting to harvest the resource in the last 12 months (Tables 5 and 6). According to Barrow respondents, Arctic cisco are available in limited supply near the community of Barrow and only in certain locations. A number of residents indicated that they only receive Arctic cisco from Nuiqsut residents or travel to the Nuiqsut area to harvest them. One individual said,

> *I get fish from Nuiqsut. The whitefish, the* qaaktaq. *At this time of the year, there's going to be [people giving out fish]*. (SRB&A Barrow Interview February 2006)

In the Barrow area, respondents reported harvesting Arctic cisco primarily in Kuyanak Bay. One person observed, "*Qaaktaq* is saltwater fish, they stay at the mouth; Kuyanak is where my dad used to get them. I order them from Nuiqsut" (SRB&A Barrow Interview March 2006).

Subsistence Use Areas

Maps 13 and 14 show Barrow last 10 year (1997-2006) and last 12 month Arctic cisco use areas. Although residents indicated that Arctic cisco are not abundant in the Barrow area, they did report periodically harvesting these fish in their nets while fishing in Elson Lagoon or towards the mouths of Inaru, Meade, and Chipp rivers. Residents also reported harvesting Arctic cisco in several other locations including near Teshekpuk Lake and Usuktuk River near Atqasuk. The total last 10 year Barrow use area

Maps 13, 14, 15 - Barrow Arctic Cisco Use Areas, Last 10 Years (1997-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic Cisco Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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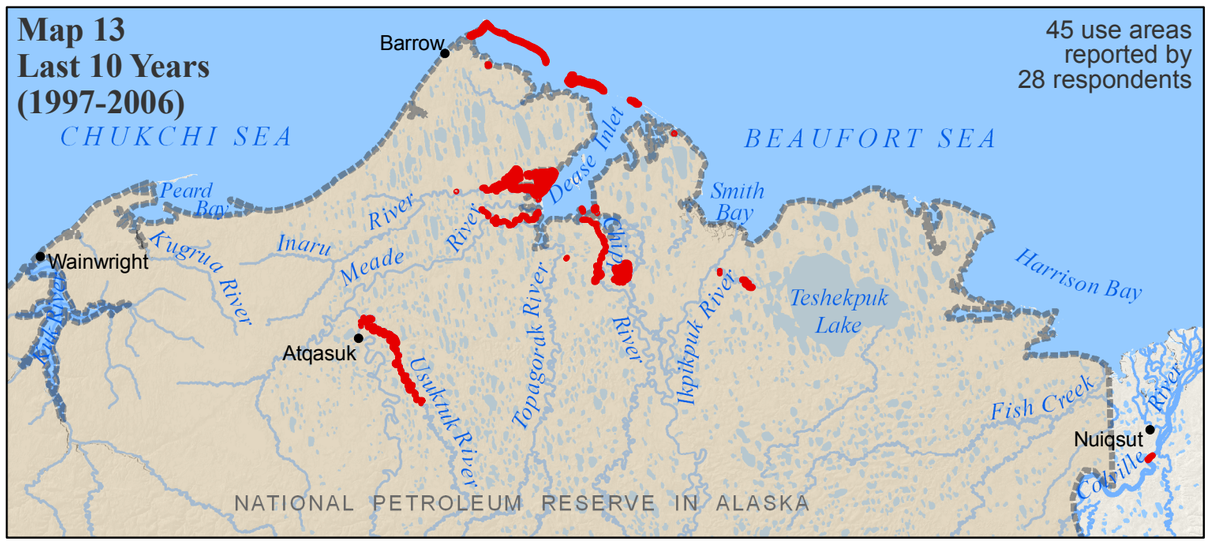
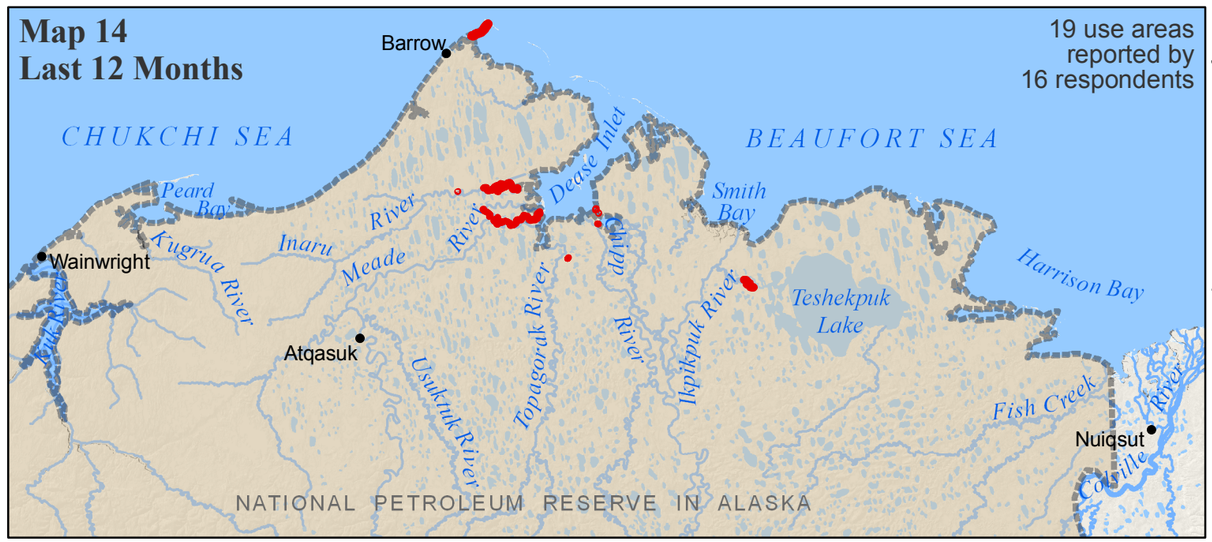
Map 13
Last 10 Years (1997-2006)

45 use areas reported by 28 respondents



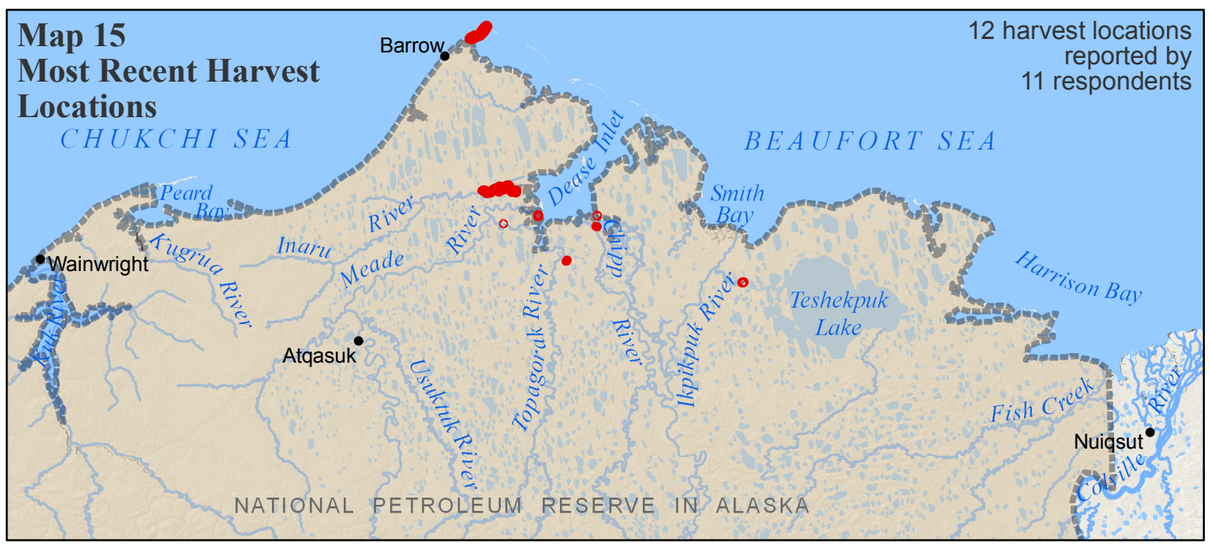
Map 14
Last 12 Months

19 use areas reported by 16 respondents



Map 15
Most Recent Harvest Locations

12 harvest locations reported by 11 respondents



Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

for Arctic cisco, as shown on Map 13, is 60 square miles. As noted above, a number of Barrow harvesters indicated that Arctic cisco are more commonly harvested in Kuyanak Bay:

> *We get* qaaktaq *out here by the [Kuyanak Bay] where there is salty water; they don't go inside [the rivers]. [I go in] October when it freezes up by snowmachine. [I set a] net under the ice. We haven't been to that place in six years.* (SRB&A Barrow Interview March 2006)

> *Yeah, you'll get those right around* Pulayaq*, and right around Kuyanak Bay, anywhere in this area, you'll find* qaaktaq*. And right around here, a lot of smelts and* qaaktaq*.* (SRB&A Barrow Interview March 2006)

In the 12 months prior to their mapping interviews, residents reported harvesting Arctic cisco in Elson Lagoon, Inaru River, Meade River, Chipp River, and near Teshekpuk Lake. The total last 12 month Barrow use area for Arctic cisco, shown on Map 14, is 10 square miles.

Most Recent Harvest

Harvest Locations

Eleven Barrow respondents reported successful harvests of Arctic cisco in the 12 months prior to their interviews. These harvests occurred in Elson Lagoon; and on Inaru, Meade, Chipp, Topagoruk, and Miguakiak rivers (see Map 15). Two residents provided the following descriptions of their most recent Arctic cisco harvests:

> *We got one sack, we were too early. That's in October, it was just myself. I went over the weekend, three days. I used a net.* (SRB&A Barrow Interview February 2006)

> *Less than 30 fish, maybe. It was early week of December, when the ice got really thick. My uncle was supposed to come meet me out there but he broke down, and I didn't know where to put my net, so I only got a gunny sack. And my uncle and aunt told me if I'd gone a little bit downriver, I would have got a lot. I was there for a little less than a week.* (SRB&A Barrow Interview March 2006)

Number of Participants

Harvests of Arctic cisco by one participant occurred at 50 percent of the most recent harvests reported by Barrow respondents (Table 16). Four or more people participated in 33 percent of the most recent Arctic cisco harvests.

Table 16: Barrow Number of Participants During Most Recent Arctic Cisco Harvests

Number of Participants	Percentage of Harvest Locations
1 person	50%
2-3 people	17%
4 or more people	33%
Number of Most Recent Harvest Locations	12

Stephen R. Braund & Associates, 2010.

Duration of Trip

As indicated in Table 17, 30 percent of most recent trips to Arctic cisco harvest areas lasted from one to two weeks, and additional 40 percent lasted more than two weeks. Several respondents described harvesting Arctic cisco while on extended stays at summer and fall camps. Residents did not report any same day trips to any most recent Arctic cisco harvest areas. As discussed above, Barrow respondents indicated that this species of fish is not available close to the community of Barrow. Residents must either travel to locations east of the community to harvest Arctic cisco or receive Arctic cisco from Nuiqsut.

Table 17: Barrow Duration of Trips to Most Recent Arctic Cisco Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	40%
1-2 weeks	30%
2-5 nights	20%
1 night	10%
Same day	0%
Number of Most Recent Harvest Locations	10

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Barrow harvesters reported visiting the majority of Arctic cisco use areas from July to November (Figure 6). Several respondents indicated that the best time to target Arctic cisco is right after freeze-up. They commented,

> *We set nets on the Inaru, and we get them in a couple days. That is right after whaling, when everything is frozen solid. September, October, November, December. There is a point where it all freezes.* (SRB&A Barrow Interview April 2006)

> *There are a lot of them there. October, November.* (SRB&A Barrow Interview April 2006)

> *November, through December. Best time, that's when they come in, towards mid-winter when the ice is really thick.* (SRB&A Barrow Interview March 2006)

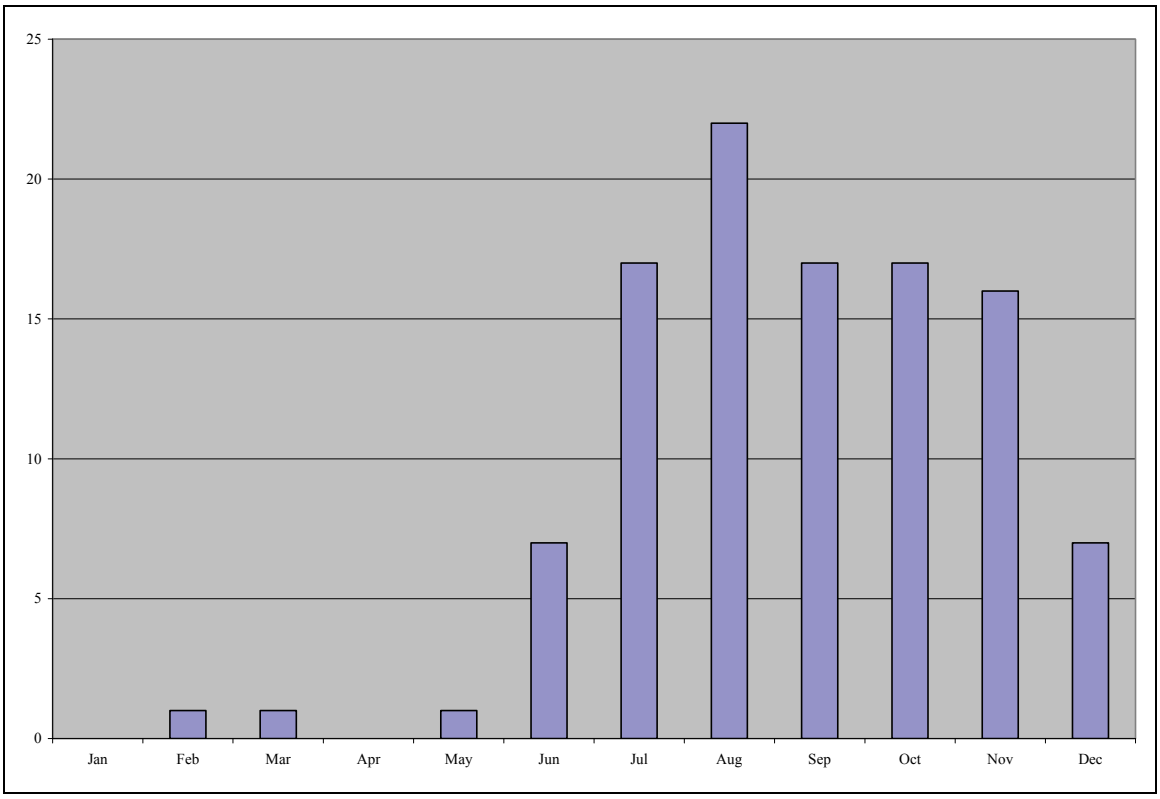
Method of Transportation

Consistent with the timing of the Arctic cisco harvest depicted in Figure 6, residents reported using primarily snowmachine and boat to access 58 percent and 47 percent of Arctic cisco use areas, respectively (Table 18).

Harvest Gear

Twenty-two harvesters reported using nets to harvest Arctic cisco (Table 19). Few individuals reported using rod and reel or jigging for these fish.

Figure 6: Barrow Use Areas for Arctic Cisco by Month



Stephen R. Braund & Associates, 2010.

Table 18: Barrow Method of Transportation to Arctic Cisco Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	58%
Four-wheeler	2%
Boat	47%
Foot	0%
Plane	0%
Car/truck	2%
Number of Use Areas	45

Stephen R. Braund & Associates, 2010.

Table 19: Barrow Arctic Cisco Harvest Gear

Gear	Number (%) of Harvesters
Nets	22 (88%)
Jigging	4 (16%)
Rod and Reel	2 (8%)

Stephen R. Braund & Associates, 2010.

Arctic Char/Dolly Varden

Forty-one Barrow harvesters (55 percent of respondents) provided 95 last 10 year Arctic char/Dolly Varden (*paikłuk*/*iqalukpik*) use areas (Table 5). Twenty-six respondents (35 percent) reported attempting to harvest Arctic char/Dolly Varden within the last 12 months (Table 6), although less than half of these respondents (12 of 26) reported successful harvests of these fish (Table 7). Residents generally reported harvesting Arctic char/Dolly Varden with nets in the ocean (primarily Elson Lagoon) or by rod and reel in local rivers.

Subsistence Use Areas

Maps 16 and 17 depict Barrow harvesters' last 10 year (1997-2006) and last 12 month Arctic char/Dolly Varden use areas. Over the last 10 years, residents reported harvesting Arctic char/Dolly Varden in front of the community, in Elson Lagoon, and at various locations along the Meade, Inaru, and Chipp rivers. Residents also reported harvesting Arctic char/Dolly Varden as far as Kugrua River and in various lakes in the region, extending almost as far east as Kealok Creek, south of Teshekpuk Lake. The total last 10 year Barrow use area for Arctic char/Dolly Varden, shown on Map 16, is 130 square miles. As discussed above, the majority of Arctic char/Dolly Varden harvests occur during the summertime with nets or by rod and reel. A number of residents reported setting nets in Elson Lagoon, commonly at the "shooting station," during the summer and early fall months to harvest various species of fish, including Arctic char, Arctic cisco, and salmon. Residents provided the following descriptions of harvesting Arctic char/Dolly Varden in Elson Lagoon:

> *I set a net out there every year [at the Shooting Station]; I catch salmon every year. I put nets out at the spit; I get a lot of Arctic char and salmon. There are nets all the way; just below Niksiuraq I put my net out. July 20th until August, and when I am done getting salmon, it is time to go get caribou. I have been doing that since I was young. I was there for three weeks long [last year]. I got some Arctic char, it was a few, maybe four. July and through August, a month. When I get enough, I give them away and I go caribou hunting.* (SRB&A Barrow Interview March 2006)

> *If you want to get Arctic cisco, or arctic char, you can put your net out in the ocean in the summertime. The main kind of fish is the broad whitefish and the Arctic grayling.* (SRB&A Barrow Interview April 2006)

> *First time I rod and reel at* Niksiuraq *with rod and reel, I got some Arctic char. It's becoming a popular thing; everybody's buying fishing poles now! Between the second week of June all the way to the mid-week of July. This little, right in that bay here, all along the edge, right up to this little canal. Everybody goes there by car. I tried last year, but I didn't have any luck. But there were a few people that were fortunate to get some of those fish.* (SRB&A Barrow Interview April 2006)

> *In Elson Lagoon all the way to the point [Point Barrow]. There are all kinds of fish in that lagoon. I get some Arctic flounders, kings, reds, silvers, pinks and some Arctic cisco. I get some* aanaakliqs *[broad whitefish] there. We get the Arctic char at the point [Point Barrow]. [That is] about the 18th of July until mid September depending on the weather. When I go out by day trip for caribou. [Last year I got] cisco out at* Piġniq. *We got quite a bit of char this year along the* Piġniq *area. [I got] three dozen chars.* (SRB&A Barrow Interview February 2006)

Maps 16, 17, 18 - Barrow Arctic Char/Dolly Varden Use Areas, Last 10 Years (1997-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic Char/Dolly Varden Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

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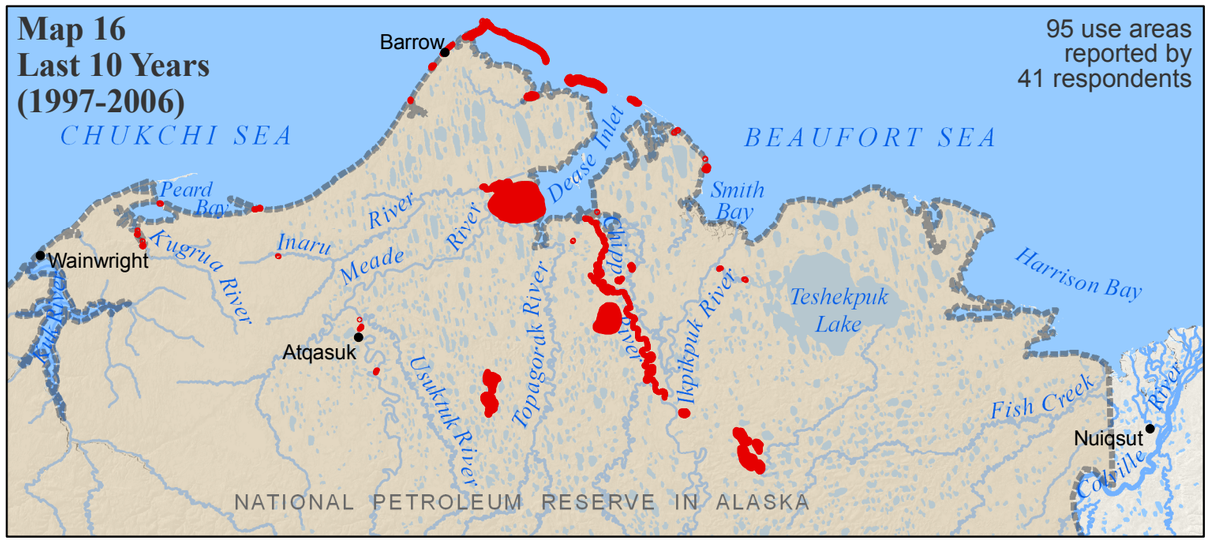
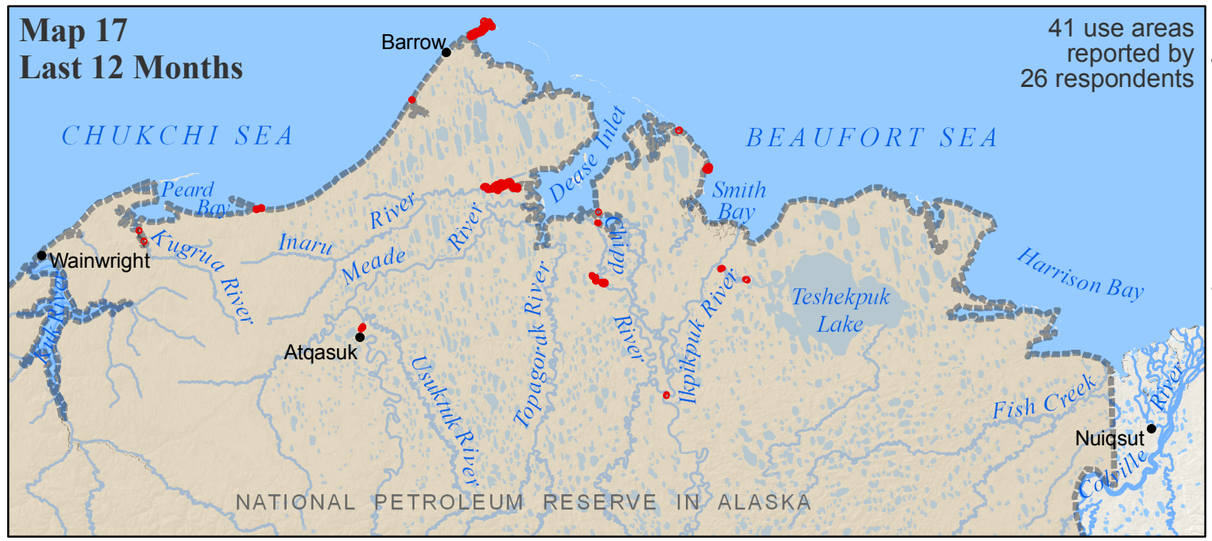
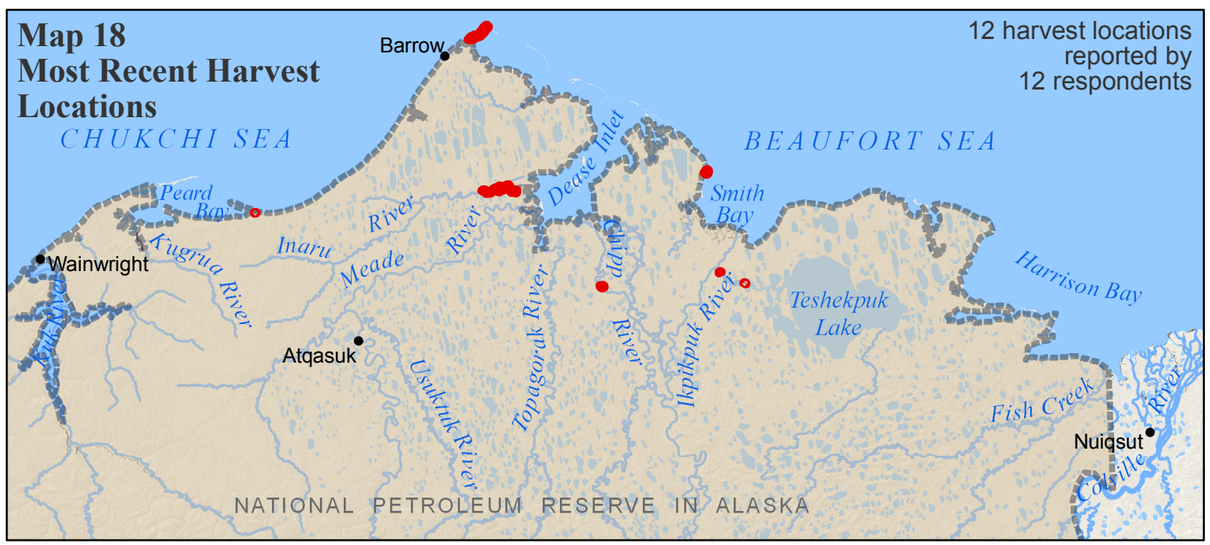






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

> *This entire lagoon is good for fishing. Any bay that has small drainages coming into it; those are good places [and on the inside the lagoons]. Anywhere you can get to the islands and hang out. Most preferable areas are along the edges [of islands] or between two islands. Some times of year there's a break between the long [Cooper Island] and smaller islands and those are good fishing areas. That's late July [to] September. The weather has to be the main factor. Salmon, silvers, pinks, least cisco, Arctic cisco [and Dolly Varden], but we prefer the big ones if we can. They're pretty much the same [fish in all the areas].* (SRB&A Barrow Interview February 2006)

Residents also reported setting nets near family cabins on Inaru, Meade, and Chipp rivers during the summer to harvest broad whitefish in addition to other species of fish, including Arctic char and Arctic cisco:

> *We get a few Dolly Varden with a net. We usually put out a net on the Chipp River and we would always get least cisco, and we used to get the Dolly Varden. Usually [we get] the least cisco because we used a small net. We use them as bait for the burbot, we hook for the burbot. [We do this] in October and November.* (SRB&A Barrow Interview February 2006)

> *[Chip 9] is a good fishing area,* aanaakliq*, lake trout, pikes, Dolly Varden. The Dolly Varden are between Ikpikpuk and the Alaktak. That was a settlement site before war broke out. That is for drying, and we smoke them and kipper them. We put them in the ice cellar. The ice cellar would freeze them overnight at 30 feet. We use that until August.* (SRB&A Barrow Interview April 2006)

Last 12 month use areas for Arctic char/Dolly Varden are depicted on Map 17. Residents reported fishing for Arctic char/Dolly Varden in the ocean at Elson Lagoon, along the coast toward Smith Bay, and near Peard Bay; in Meade, Chipp, Miguakiak, and Kugrua rivers; and near Atqasuk. The total last 12 month Barrow use area for Arctic char/Dolly Varden, shown on Map 17, is eight square miles.

Most Recent Harvest

Harvest Locations

Twelve Barrow respondents reported successful harvests of Arctic char/Dolly Varden during the 12 months prior to their interviews. Successful harvests were located along the western portion of Elson Lagoon and on Inaru, Chipp, Meade, Topagoruk, and Miguakiak rivers (Map 18).

Number of Participants

Table 20, shows 58 percent of most recent Arctic char/Dolly Varden harvests involved four or more participants. These groups of four or more people were often comprised of immediate and/or extended family members. As one person explained,

> *I took my smaller children. We got like nine or 10 [fish], just enough for dinner. It was the family that went, five of us. [That was] July; we were out just for the weekend.* (SRB&A Barrow Interview February 2006)

Thirty-three percent of recent harvests had two to three participants, and eight percent had only one participant.

Table 20: Barrow Number of Participants During Most Recent Arctic Char/Dolly Varden Harvests

Number of Participants	Percentage of Harvest Locations
1 person	8%
2-3 people	33%
4 or more people	58%
Number of Most Recent Harvest Locations	12

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents reported extended stays of more than one week at 75 percent of all most recent Arctic char/Dolly Varden harvest areas (Table 21). Only eight percent of most recent harvests occurred during day trips.

Table 21: Barrow Duration of Trips to Most Recent Arctic Char/Dolly Varden Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	50%
1-2 weeks	25%
2-5 nights	17%
1 night	0%
Same day	8%
Number of Most Recent Harvest Locations	12

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

As illustrated in Figure 7, Barrow residents reported using the majority of their Arctic char/Dolly Varden use areas in July and August. A few residents mentioned harvesting this fish resource as late as December. Several respondents reported harvesting Arctic char/Dolly Varden during the summer months as they target an assortment of other fish in various locations. One resident explained,

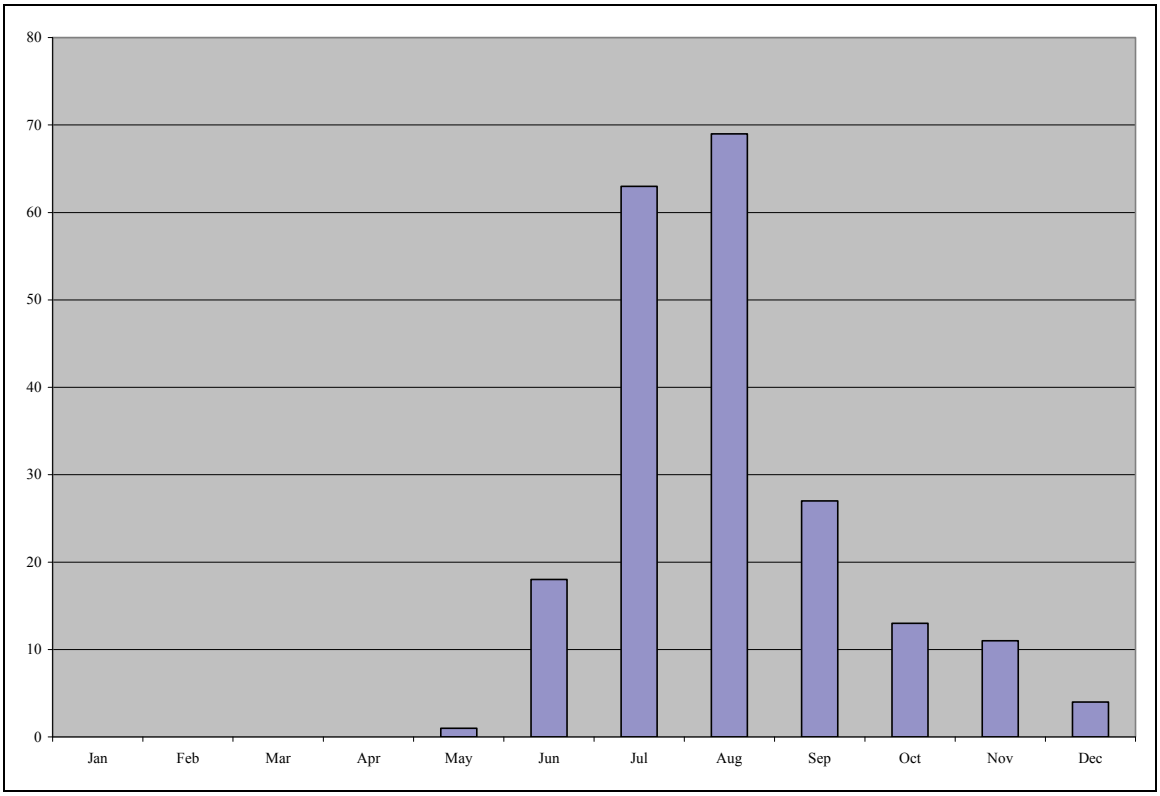
> *I also do a lot of net fishing by the landing dock there. It's a little lagoon that has a drainage. It's real shallow, but you get a lot of fish in there, least ciscoes, silvers, kings, Arctic char, Dolly Varden, pinks, dog salmon, it's a variety of fish. [We fish] from late July to September. I just pack up my truck [and drive] right to the lake.* (SRB&A Barrow Interview February 2006)

Method of Transportation

Respondents reported using boats to access more than half (59 percent) of Arctic char/Dolly Varden use areas (Table 22). Snowmachine was the mode of transportation to 16 percent of use areas. As discussed

above, Arctic char/Dolly Varden harvests occur primarily during the summer months of July and August, with some use continuing into the winter.

Figure 7: Barrow Use Areas for Arctic Char/Dolly Varden by Month



Stephen R. Braund & Associates, 2010.

Table 22: Barrow Method of Transportation to Arctic Char/Dolly Varden Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	16%
Four-wheeler	4%
Boat	59%
Foot	0%
Plane	0%
Car/truck	8%
Number of Use Areas	95

Stephen R. Braund & Associates, 2010.

Harvest Gear

Seventy-seven percent of reporting harvesters use nets to harvest Arctic char/Dolly Varden, and 19 percent reported using rod and reel (Table 23). A few of these harvesters reported using both types of gear. Speaking about his Arctic char/Dolly Varden gear one individual said, "Sometimes [I fish with] rod and reel, but mostly nets" (SRB&A Barrow Interview April 2006).

Table 23: Barrow Arctic Char/Dolly Varden Harvest Gear

Gear	Number (%) of Harvesters
Nets	28 (77%)
Rod and Reel	7 (19%)
Jigging	4 (11%)

Stephen R. Braund & Associates, 2010.

Broad Whitefish

The harvesting of broad whitefish (*aanaakliq*) is a common activity among Barrow residents and provides a substantial amount of their yearly harvests in comparison to other fish species (see Appendix D). Sixty-nine harvesters (92 percent of respondents) identified last 10 year broad whitefish use areas, and 44 reported harvests of broad whitefish within the last 12 months (Tables 5 and 6). Residents travel to fish camps and cabins to set nets for whitefish during the summer and fall and harvest them in local lakes (such as Sungovoak Lake) and in Elson Lagoon. One individual provided the following description of the fall broad whitefish harvest:

> *The fish are coming out in October. Anywhere you set your net you will get some, especially in our area, in this bend there by the cabin. The female's belly's stomach is so full of eggs and they get caught in the net and they release their eggs. The grayling is attracted to something and they come to the net and you start jigging. That is in October. It doesn't take you long. You have to quit because you got too many, I only have so much family. I get six sacks and share it with our families and our crew. These guys that are whaling are eating fish frozen in seal oil and you are cold for a little while and after that it warms you for the rest of the day. Before they go out [whaling] my son goes out and distribute the sacks."* (SRB&A Barrow Interview April 2006)

Subsistence Use Areas

Barrow respondents harvest broad whitefish primarily with nets during the summer and fall, often while staying at family camp or cabin locations for extended periods of time. Map 19 shows last 10 year broad whitefish use areas as reported by Barrow respondents. These use areas extend as far east as Colville River and as far west as Peard Bay. The total last 10 year Barrow use area for broad whitefish, shown on Map 19, is 200 square miles.

Residents most commonly reported harvesting broad whitefish on Chipp, Inaru, Meade, Alaktak, and Miguakiak rivers, as well as near Pittalukruak Lake and locations closer to Barrow, especially at Lake Tusikvoak and Lake Sungovoak. Certain residents also reported fishing for broad whitefish south of the community, in Walakpa Bay and Peard Bay, as well as harvesting broad whitefish, along with various other species of fish, in Elson Lagoon. A number of residents pointed out specific areas where they set nets and where they experience high rates of harvest success – these areas are often located near residents' camps or cabins. As one individual said,

> *There are shallow and deep parts in that lake. The shallow parts hold the smaller fish, and the deep parts hold the bigger fish. People have their certain camps they're used to. But there's lots of fish in all these areas. You've just got to know your area and [use] trial and error.* (SRB&A Barrow Interview April 2006)

Other respondents provided the following descriptions of their usual harvest areas for broad whitefish:

Maps 19, 20, 21 - Barrow Broad Whitefish Use Areas, Last 10 Years (1997-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Broad Whitefish Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

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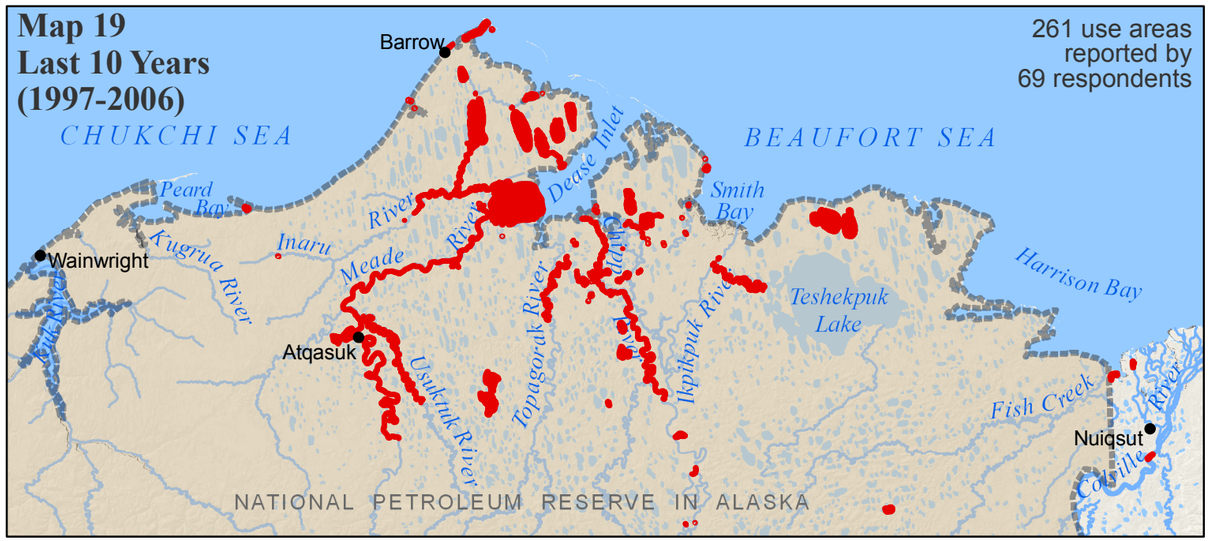
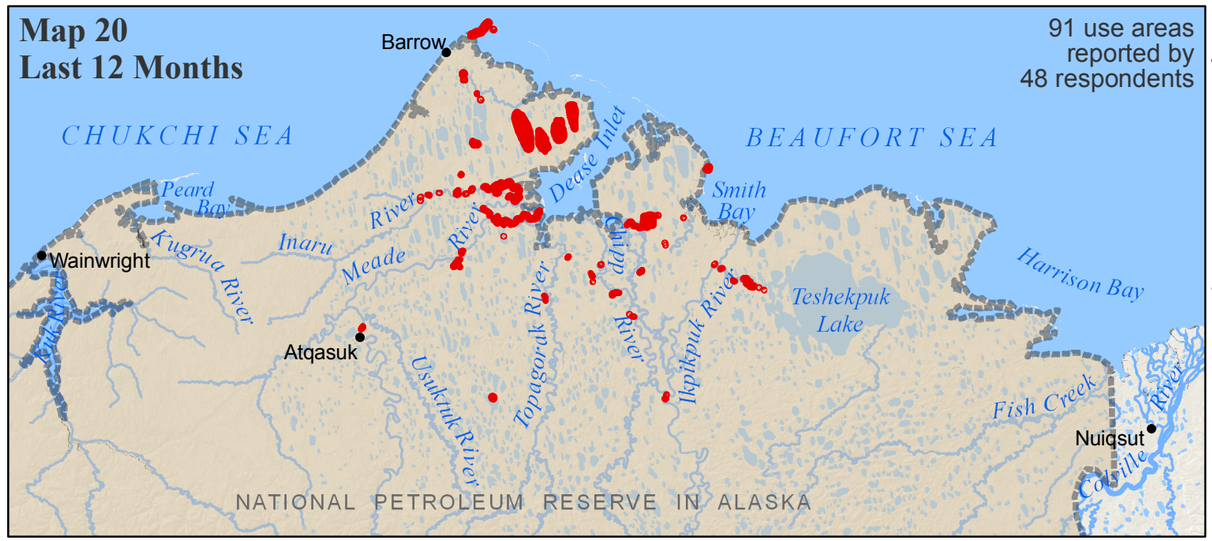
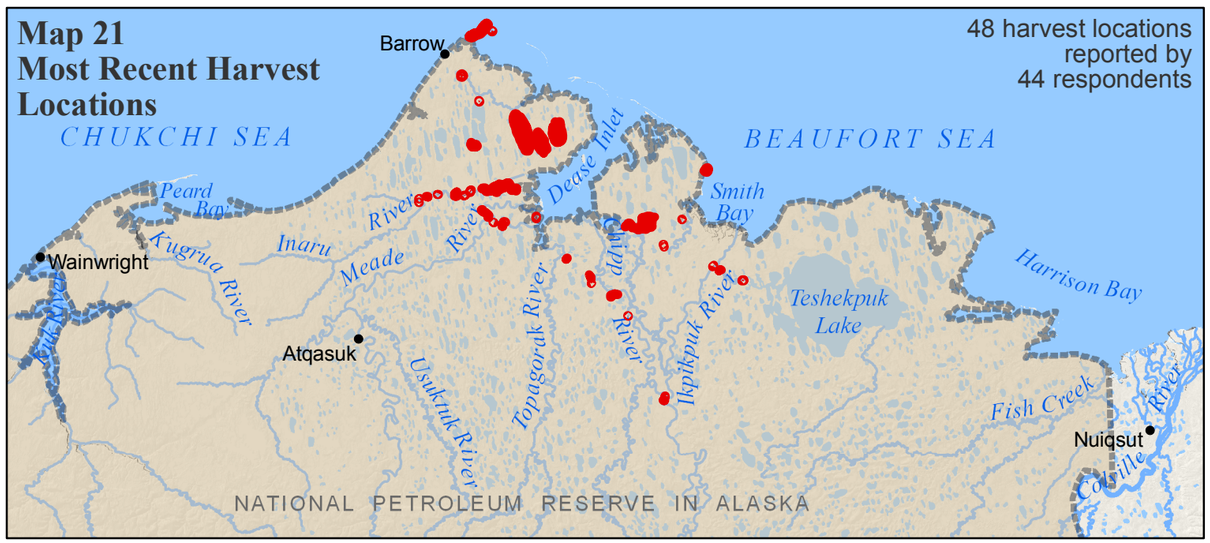






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

Chip 4. We travel along the river and look for deep spots to set up a net. It's a small pocket for the deepest part; it starts out at seven or eight feet, then goes down to 14 feet in the middle. I block it with four nets and measure the bottom. That's how I know it's a major spawning ground for the fish. I get whitefish, grayling, tittaaliq, pikuktuuq [humpback whitefish]. Their spawning [humpback whitefish] is maybe about four to six weeks behind the broad whitefish. That's mostly to make some dried fish in the summer, July to late August and then September to second week in October. (SRB&A Barrow Interview February 2006)

Nauyalik, right there at my cabin. Lots of whitefish, every day you could catch whitefish. Our cabin sits here, here's the main river, and the creek [where we set our net] is from here to the end of this. Kind of right where it has an elbow. That's where we usually like to go to [harvest] whitefish. Mainly whitefish, and a little bit of grayling. (SRB&A Barrow Interview April 2006)

Chipp River, my home away from home. Chip 12. Right in the main river. That's a deep fishing hole right there. Aanaakliq*, arctic grayling, burbot, once in a while we get pike, sometimes we get the humpback whitefish. Our main hole is Chip 12. Sometimes we catch about, one year we caught up to 128 sacks of aanaakliq. 40, 50 [in a sack]. One year we had 14 sled loads of fish that we caught by net. That was six, seven years ago. I caught a lot of grayling [there] by fish hook. Over 100 in a day. Usually like late September until early October. In October, we usually head down Chipp River to do some fall fishing.* (SRB&A Barrow Interview March 2006)

This drainage sustains Teshekpuk Lake. It's the most overlooked drainage in the whole slope; it's deep and this is the only river that goes out of Teshekpuk Lake; it contains so much fish and game. I get whitefish, king salmon, silver salmon, dog salmon, burbot, lingcod, grayling, bottom fish, shellfish, and that smiley looking fish, but the most important is the broad whitefish. Our food and what we eat, about 60 percent of our food comes from that area. When it starts freezing up the whitefish come out in the millions. Just for two weeks, when the water settles down, that's when to catch the fish, in fall time and June when the fish start coming. [My preferred fishing area is] over by our camp [on the Miguakiak River]. Salmon, broad whitefish, [Arctic] cisco. I think all the fish are in there. (SRB&A Barrow Interview February 2006)

Alaktak, past the cabin. Kunuglak *area, close to these smaller lakes. You go through these lakes and go through these little areas, fishing for whitefish and grayling on that little river, or rather that water connecting there.*

A few respondents cited a preference regarding where (i.e., in rivers or lakes) broad whitefish are harvested, indicating that broad whitefish harvested in lakes are fatter and taste different than those harvested in rivers. Several residents made the following comments regarding these differences:

But I'm finding out that they [broad whitefish harvested in lakes] are too fat compared to the river fish and they're always full, so that makes for poor cooking, because they have so much lake bottom sediment within them. The river fish diet is restricted to what they feed on. They're a lot leaner [than the lake fish]. (SRB&A Barrow Interview March 2006)

Aanaakliq*, I just fish from the lakes, not the rivers anymore.... They are fat and they don't have the grassy taste to them. They get the [grassy] taste from the rivers.* (SRB&A Barrow interview February 2006)

I ended up getting a lot of fish in that lake. There's a big area there where we like to get fish. They taste different than the ones on the river. Actually, the ones on the lakes are better. (SRB&A Barrow Interview March 2006)

One individual observed that broad whitefish had been scarce on the Inaru River for some years due to effects from seismic testing, but noted that these fish are making a comeback in that drainage:

I grew up in here [Inaru], we used to get big whitefish, fat, lots of eggs in them, up until one year when they did some kind of seismic testing up in there. And for many years [after that] we couldn't get those kinds of fish anymore. We could set our nets out there and get tons of them. But they're making a comeback. (SRB&A Barrow Interview February 2006)

Map 20 depicts residents' last 12 month broad whitefish use areas occurring in Elson Lagoon, various local lakes, and in Inaru, Meade, Topagoruk, Chipp, Ikpikpuk, and Miguagiak rivers. The total last 12 month Barrow use area for broad whitefish, shown on Map 20, is 46 square miles. Residents provided the following descriptions of their fishing activities over the previous 12 months:

I was doing a lot of fishing at the point this summer. I didn't get to camp until July 23rd. I was out there to August 1st and then I went back out there for a few days in August and then fished in Barrow. (SRB&A Barrow Interview March 2006)

I went ice fishing at Meade River. Our cabin area there [is our preferred area]. We get the aanaakliq *(broad whitefish) and we get the* tittaaliq *(burbot) and the* pikuktuuq *(humpback whitefish), the grayling. Just by our cabin [is our preferred area], we just stay on the Inaru, because it wasn't thick enough to cross the river.*

[Last year was] over there at Tusikvoak Lake. On the edges of the lake. There are some broad whitefish. For three days the broad whitefish are in Tusikvoak Lake, they are huge, you will have enough to feed a family they are so huge. Fall time, September, October. (SRB&A Barrow Interview February 2006)

A number of residents identified certain places as "favorite" areas to harvest broad whitefish; in many cases, residents preferred harvesting fish close to camps or cabins. Residents also cited a preference for certain areas due to the productivity of the area or the size or quality of fish harvested in the area. Three residents observed,

Right there. Bigger whitefish, but this one would be my first favorite spot [by Atqasuk]. Big fat ones, better than those [on Miguakiak]. (SRB&A Barrow Interview March 2006)

I'd rather stay at my cabin [to harvest whitefish] and get what I need. (SRB&A Barrow Interview April 2006)

After June we go to the Inaru. Mainly whitefish, aanaakliq. *The rest of the year at the cabin, July and August. My preferred fishing area is Inaru and Aŋmalugaluk [creek]; it is so accessible.* (SRB&A Barrow Interview February 2006)

That's where I know I'll always get a lot of fish [in the Meade River Delta area]. (SRB&A Barrow Interview March 2006)

I like to get fish from this lake [north of Teshekpuk, Naluakruk]; they have a really good taste. Only once in a while I go out there. If I could get a lot of cash, I could go there and go fishing. It's really close to the ocean, and they're really tasty saltwater fish. (SRB&A Barrow Interview March 2006)

Most Recent Harvest

Harvest Locations

Map 21 depicts Barrow residents' most recent broad whitefish harvest locations. Similar to their last 12 month use areas, residents reported harvesting broad whitefish most recently in Elson Lagoon, various local lakes (including Sungovoak, Tusikvoak, and Pittalukruak), and in Inaru, Alaktak, Meade, Chipp, and Migiuakiak rivers. Residents' most recent broad whitefish harvests commonly occurred in the fall (September or October) prior to their interviews, and the method of harvest was most commonly by net. Residents provided the following descriptions of their most recent harvests:

Last fall, last trip [was] up the Chipp [River]. [We got] broad whitefish, mainly those, a few burbots and mainly whitefish. [There was] about six of us. [We went in] September. We got about 150 [broad whitefish]. Probably half a dozen or so [burbot]. [We were there] about 10 days. (SRB&A Barrow Interview February 2006)

That would be in the Sungovoak Lake in July. In summer time I make my rounds. I set the net and go around the area and then come back and check my nets. Two [sacks] at the minimum. I didn't count them; I brought back two sacks in one day. If we leave it [net] out over night, you can get 40 in one night. (SRB&A Barrow Interview February 2006)

Chip 1. Right before freeze-up, I almost got frozen in over there. I got almost 10 gunny bags. About less than 25, 30 in a gunny bag. Eight good size gunny bags. If I had the big gunny bags, I would have had about eight of them. [I went at] first freeze-up, in October. The river was almost frozen. Somewhere around October, end of October. (SRB&A Barrow Interview March 2006)

[My most recent harvest is at] the second cabin. [I got] broad nosed [broad whitefish], grayling and tittaaliq*, the burbot. [That was in] September; after that they go out to the ocean. It is usually just me and my nephew. Usually at the most we go for just three or four days; we take day trips. After we get a load of fish, we have to take it back to Barrow because we don't have a cellar. We never leave the net; just set the net out when we are there. We average about 10 sacks [of broad whitefish], 15 fish per sack, maybe even 20 per sack. Three hundred fish for the whole season, we only catch enough for the year.* (SRB&A Barrow Interview February 2006)

Tusikvoak [is the most recent harvest]. We went the first week in November [last time]; that's when we pull in the net. There were three of us; it was by snowmachine about 27 miles out, an hour one way. [Day trip]. All I can say is two sacks. It was just whitefish; over 60 plus in each sack. That was for our winter stock and for whaling and for the widowers that don't have anyone to fish for them.

Maybe about 25 per sack, the last trip I picked up 16 sacks. That was the last trip; the first trip was 25 sacks. Just at Chip 9. I closed fishing in October. When the spawning is over, I don't go for them [then]; they are soft. (SRB&A Barrow Interview April 2006)

Number of Participants

Two or more people participated in 94 percent of most recent broad whitefish harvests reported by Barrow respondents (Table 24). Only six percent of most recent harvests were harvested by an unaccompanied individual. Like many of their harvest activities, respondents reported fishing for broad whitefish often at family cabins with other family members. Two individuals provided the following comments about the cooperative effort of family members during their most recent broad whitefish harvests:

> *We stayed there about six days. It was me, my wife and my son. We went to Okpiksak and put out the nets and got some caribou. We got one hundred [fish] in one night. We had to go because it was raining.* (SRB&A Barrow Interview February 2006)

> *There was my mom, my brother, my nephew and me. They haven't been to that cabin in so long, I brought them up there. I was over there for four days, and there were a lot of fish there.* (SRB&A Barrow Interview March 2006)

Table 24: Barrow Number of Participants During Most Recent Broad Whitefish Harvests

Number of Participants	Percentage of Harvest Locations
1 person	6%
2-3 people	42%
4 or more people	52%
Number of Most Recent Harvest Locations	48

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents' duration of trips to most recent broad whitefish harvest areas ranged from seven percent of harvest trips lasting one night to 39 percent lasting one to two weeks (Table 25). Twenty-four percent of most recent trips had durations of two to five nights, and 20 percent of harvests occurred during trips lasting more than two weeks. Broad whitefish harvesting often occurs for days at a time from camps and cabins located inland on major drainages and lakes in the Barrow area. One individual reported taking multiple trips to the family cabin and staying for varying periods of time during the broad whitefish season, saying,

> *Right on Chipp River. In the summer, we do a lot of fishing right in our little river. Mostly we get* aanaakliq *[broad whitefish] there [with a net], from July through September. We went all the way up to September. Two weeks in the summer would be July. In August there are some. September, they're going back in and we get some. Not in May. Not the whole three months all at one time. Just here and there, certain weeks.* (SRB&A Barrow Interview February 2006)

Months of Harvest Effort

The majority of harvesting activities at broad whitefish use areas occurs during July, August, September, and October (Figure 8). A number of respondents explained that broad whitefish start running in large numbers in the rivers beginning in July and into October and these are the best months to harvest these fish. A few individuals reported that the best time to harvest broad whitefish is "right before freeze-up,"

in the fall. In October, nets are usually set under the ice. Respondents indicate that broad whitefish harvested too early or late in the season are of lesser quality. One respondent noted,

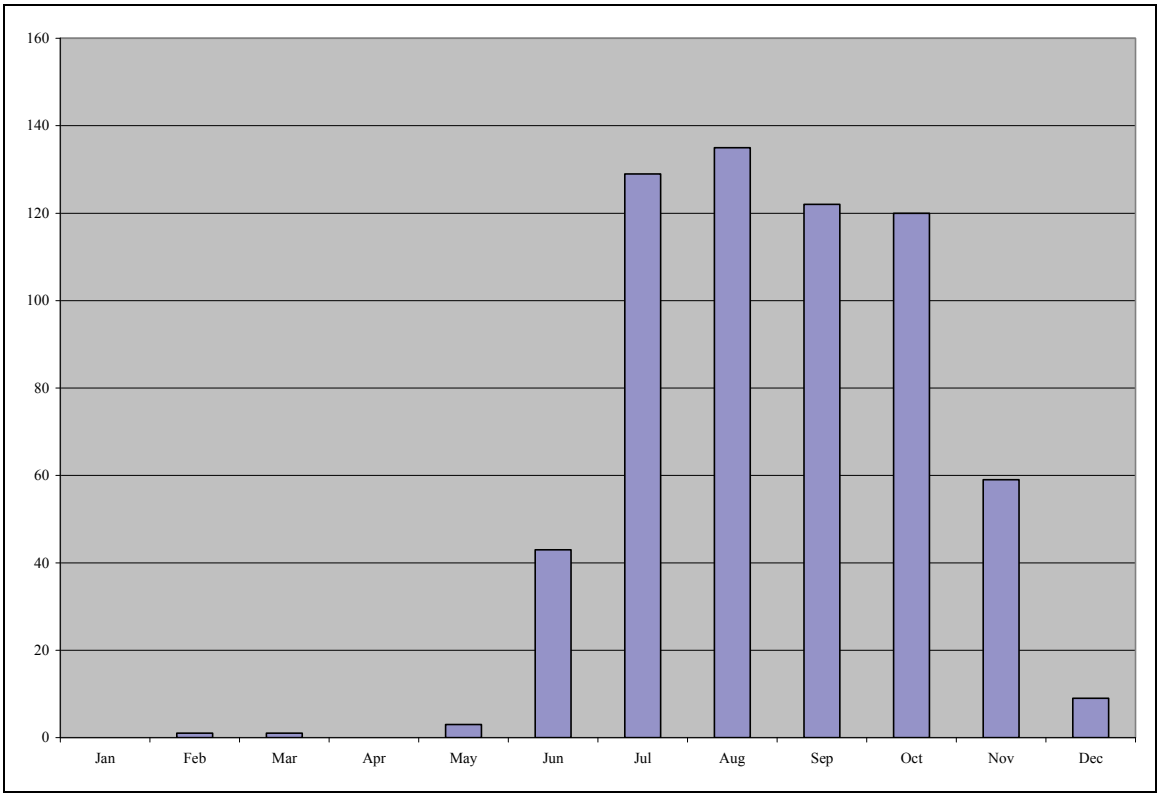
> *Broad whitefish go out in September, when they come in is June, July. That's a good time to go for summer fishing. When they first get up there, they're kind of slushy or mushy. You give them about a week and that's when you start setting your nets out. When they first come in, they're kind of slushy, runny meat. You wait about a week, then June, July, and August you get them.* (SRB&A Barrow Interview February 2006)

Table 25: Barrow Duration of Trips to Most Recent Broad Whitefish Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	20%
1-2 weeks	39%
2-5 nights	24%
1 night	7%
Same day	11%
Number of Most Recent Harvest Locations	46

Stephen R. Braund & Associates, 2010.

Figure 8: Barrow Use Areas for Broad Whitefish by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Barrow respondents reported using boat to access 61 percent of broad whitefish use areas and snowmachine to 45 percent of use areas (Table 26). Residents reported harvesting these fish both during the summer and fall, when boat and snowmachine travel are common.

Table 26: Barrow Method of Transportation to Broad Whitefish Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	45%
Four-wheeler	3%
Boat	61%
Foot	0%
Plane	2%
Car/truck	2%
Number of Use Areas	261

Stephen R. Braund & Associates, 2010.

Harvest Gear

All individuals reporting broad whitefish harvest gear stated that they used nets (Table 27). A few of these harvesters also reported using rod and reel or jigging for broad whitefish. Describing his net fishing for broad whitefish one harvester said,

> *I clean my nets three times a day; I get about 250 a day. If I clean it twice a day I get 100. I clean it once in the morning and once in the evening, that is just* aanaakliq *and we catch a lot of these [grayling] at the same spot.* (SRB&A Barrow Interview April 2006)

Residents generally set nets for broad whitefish, catching other fish incidentally, and check the nets daily. As the rivers and lakes freeze up in October, residents set nets under the ice.

Table 27: Barrow Broad Whitefish Harvest Gear

Gear	Number (%) of Harvesters
Nets	65 (100%)
Jigging	7 (10%)
Rod and Reel	6 (9%)

Stephen R. Braund & Associates, 2010.

Burbot

Burbot (*tittaaliq*) are not harvested in quantities comparable to broad whitefish, but are rather caught incidentally in the net, during other subsistence pursuits, or when residents jig through the ice for burbot or other fish during the winter months. As one individual described, "People don't eat the burbot *(tittaaliq)* like we do the *aanaakliq*. We get both the broad whitefish and the *pikuktuuq* [humpback whitefish]" (SRB&A Barrow Interview April 2006). A number of respondents reported harvesting burbot not for themselves but for community elders or other friends or family. One individual said,

One of my sisters really loves that fish [burbot], so I'll bring a few back for her. I'm not looking for burbot. There's a certain time during jigging when you'll mostly get them. (SRB&A Barrow Interview February 2006)

During interviews, 58 respondents reported last 10 year burbot use areas, and 29 reported last 12 month use areas (Tables 5 and 6). Twenty individuals successfully harvested burbot in the last 12 months (Table 7).

Subsistence Use Areas

Map 22 depicts last 10 year (1997-2006) burbot use areas as reported by Barrow respondents. Because residents often harvest burbot in nets while targeting broad whitefish, burbot use areas are somewhat similar to broad whitefish use areas. However, residents also reported traveling to specific areas to jig for burbot. Residents reported ice fishing for burbot on various rivers, including Chipp, Inaru, and Meade rivers, and lakes in the region. The total last 10 year Barrow use area for burbot, shown on Map 22, is 126 square miles. Several residents described harvesting burbot and other fish during the fall at camp and cabin locations on the Inaru River:

[Burbot] up at Iviksuk [on Inaru River], that is where my ice fishing is. In that little creek, we go there. That's where we get our sulukpaugaq *[grayling] and* tittaaliq *[burbot]. When it starts freezing up [September and October]. When you go out too late, you catch hardly any grayling.* (SRB&A Barrow Interview March 2006)

They get them on the big rivers. Inaru. Winter time they go on that big river, right around here. There is a little tent city around there, net for tittaaliq *and* aanaakliq*, and grayling.* (SRB&A Barrow Interview December 2006)

We go up the river for burbot. Usually we follow the creek up to Inaru, there is a small tent city there and as soon as the ice is thick they spread out and they got camps all over. It depends on if there are too many people, I find another spot. Burbot, Arctic cisco and least cisco. When it starts freezing, October. When I was there [last time] the ice was too thin too cross." (SRB&A Barrow Interview February 2006)

Residents also reported fishing for burbot at other locations, such as on Chipp, Alaktak, and Topagoruk rivers and various lakes in the region:

Tittaaliq*, the burbot, we get that in the Chipp River. We go further downriver. It's this little creek that goes to these lakes, it's very shallow. But when it is open, there are lots of these burbots. We've been getting like 50 a day for a while. We like to pass them out. My wife likes to pass them out.* (SRB&A Barrow Interview March 2006)

That's in the lakes and the rivers. Upper cabin, we go up to this little creek [for jigging]. The lakes by our upper cabin, we do trout and the least cisco. The burbot, we catch them around the upper cabin too. Earlier when we catch them they are kind of black and then they get lighter [as there is more sunlight]. We stay at the cabin and then we always bring our tent if we want to overnight somewhere. Most of the time we'll overnight at one of these lakes and just go back and get our things from the cabin. Even from my cabin we go camp a short ways. (SRB&A Barrow Interview February 2006)

Maps 22, 23, 24 - Barrow Burbot Use Areas, Last 10 Years (1997-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Burbot Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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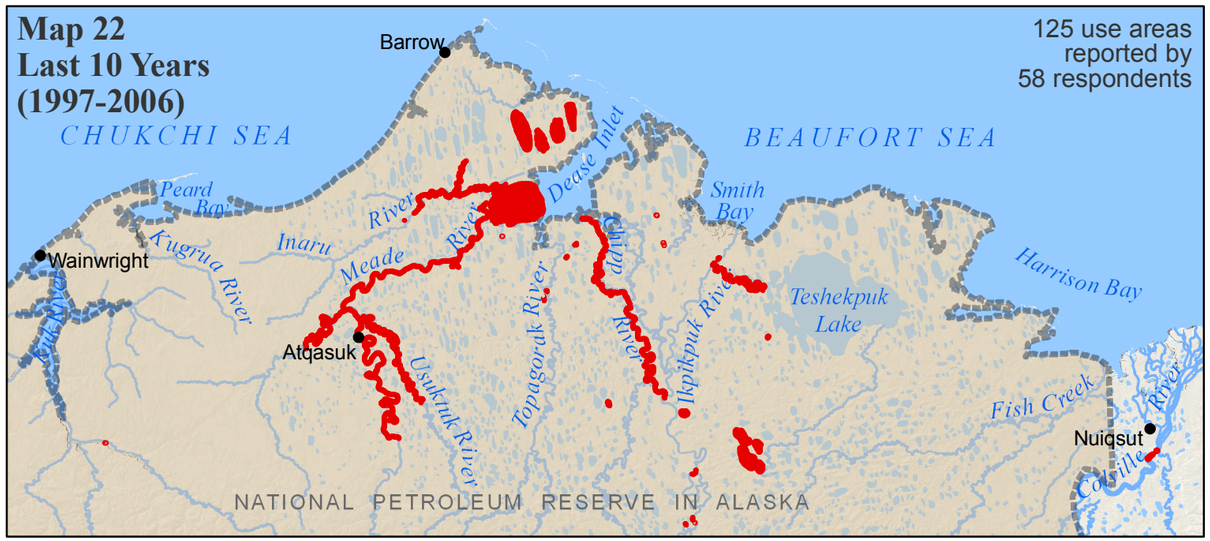
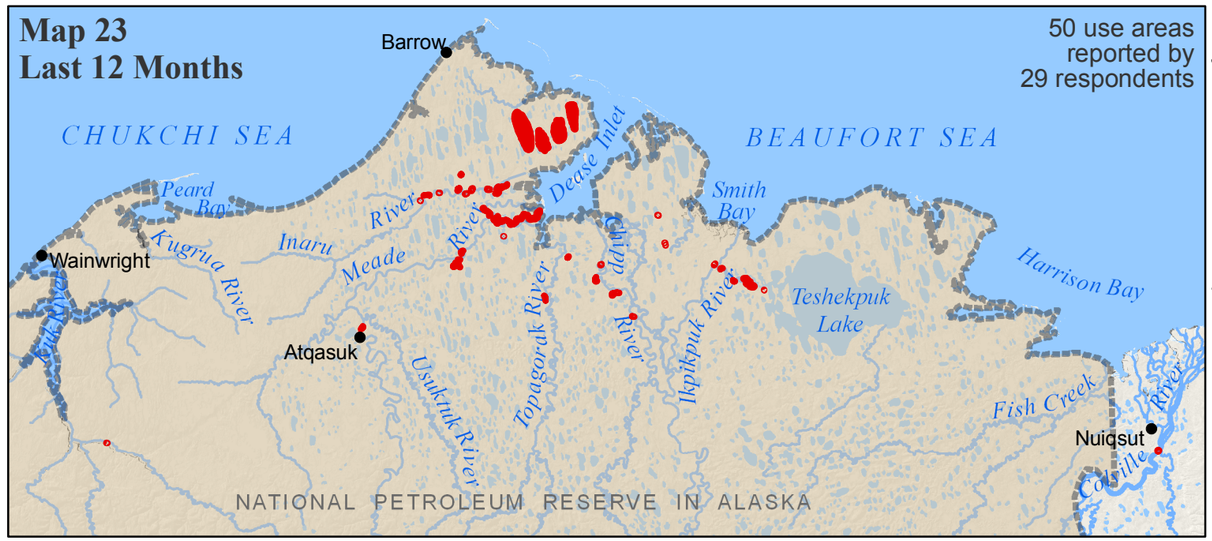
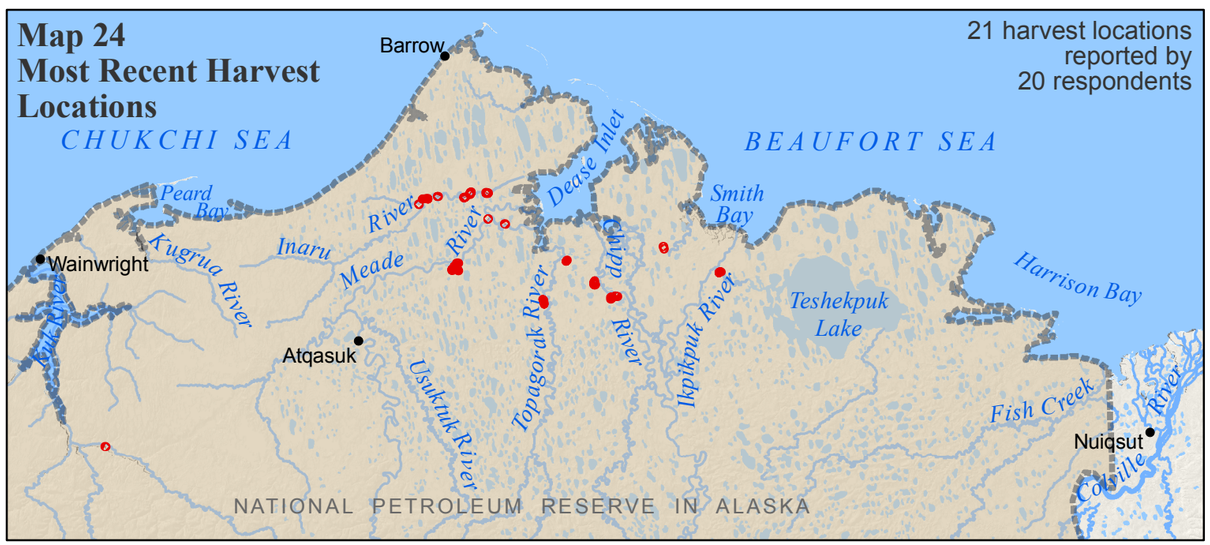






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

> Tittaliq *[burbot], that's the Meade River, at Atqasuk. The real Atqasuk. That's what they call it,* Atqasukiak. *The real place, before they moved it to the village. Winter ice fishing. And we get the* qaaktaq *at the same time, and the humpback, the* pikuktuuq. *Right at this creek, right there [Usuktuk River]. A lot of burbot, big burbot. The biggest one I got was this long and this wide.* (SRB&A Barrow Interview March 2006)

> *Those four lakes together, [between Chip 11 and Ikpikpuk River], they've got* tittaaliq*, Arctic char, and trout [lake trout]. Those are ugly looking fish [burbot], but they've got good livers. Like peanut butter.* (SRB&A Barrow Interview February 2006)

Map 23 depicts Barrow residents' last 12 month burbot use areas occurring over a less expansive area than in the last 10 years. In the 12 months prior to their interviews, residents reported traveling to Inaru, Meade, Topagoruk, Chipp, and Miguakiak rivers, as well as a number of lakes in the region to harvest burbot. The total last 12 month Barrow use area for burbot, shown on Map 23, is 33 square miles.

Most Recent Harvest

Harvest Locations

As shown on Map 24, residents' most recent harvests of burbot generally occurred in rivers, including Inaru, Meade, Topagoruk, Chipp, and Migiuakiak rivers. A number of residents described their most recent harvests as incidental catches while setting nets for broad whitefish and other species of fish. Others described ice fishing for burbot and harvesting more substantial quantities:

> *There was a whole bunch of us, about 10. I just got 10 burbot. The whole group got pretty close to 30. Those [burbot], you fish in the dark, night time fish; they bite in the day, but they are more active at night.* (SRB&A Barrow Interview February 2006)

> *I got 30 myself, and Jacob got four; it was in November on the Chipp River. And we were only out there for two days. There was me, him and my husband.* (SRB&A Barrow Interview February 2006)

Number of Participants

Similar to other fish resources, respondents reported two or more participants at 90 percent of their last burbot harvests (Table 28). Solo burbot harvests occurred at only 10 percent of these use areas.

Table 28: Barrow Number of Participants During Most Recent Burbot Harvests

Number of Participants	Percentage of Harvest Locations
1 person	10%
2-3 people	52%
4 or more people	38%
Number of Most Recent Harvest Locations	21

Stephen R. Braund & Associates, 2010.

Duration of Trip

As shown in Table 29, Barrow individuals reported trips lasting one to two weeks at 40 percent of their most recent burbot use areas, with an additional 20 percent lasting more than two weeks. Only five percent of their most recent burbot harvesting trips lasted one day. As discussed above, residents commonly reported traveling to family camps or cabins for extended periods of time to harvest various subsistence resources.

Table 29: Barrow Duration of Trips to Most Recent Burbot Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	20%
1-2 weeks	40%
2-5 nights	15%
1 night	20%
Same day	5%
Number of Most Recent Harvest Locations	20

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Respondents harvest burbot throughout the year, although they reported the highest numbers of use areas in the summer and fall, peaking in October (Figure 9). Many residents described jigging for burbot in October as soon as the ice became thick enough for travel:

> *We do ice fishing in that area, and we go down to this area for burbot in October [by] snowmachine. Same kinds down there, October.* (SRB&A Barrow Interview December 2006)

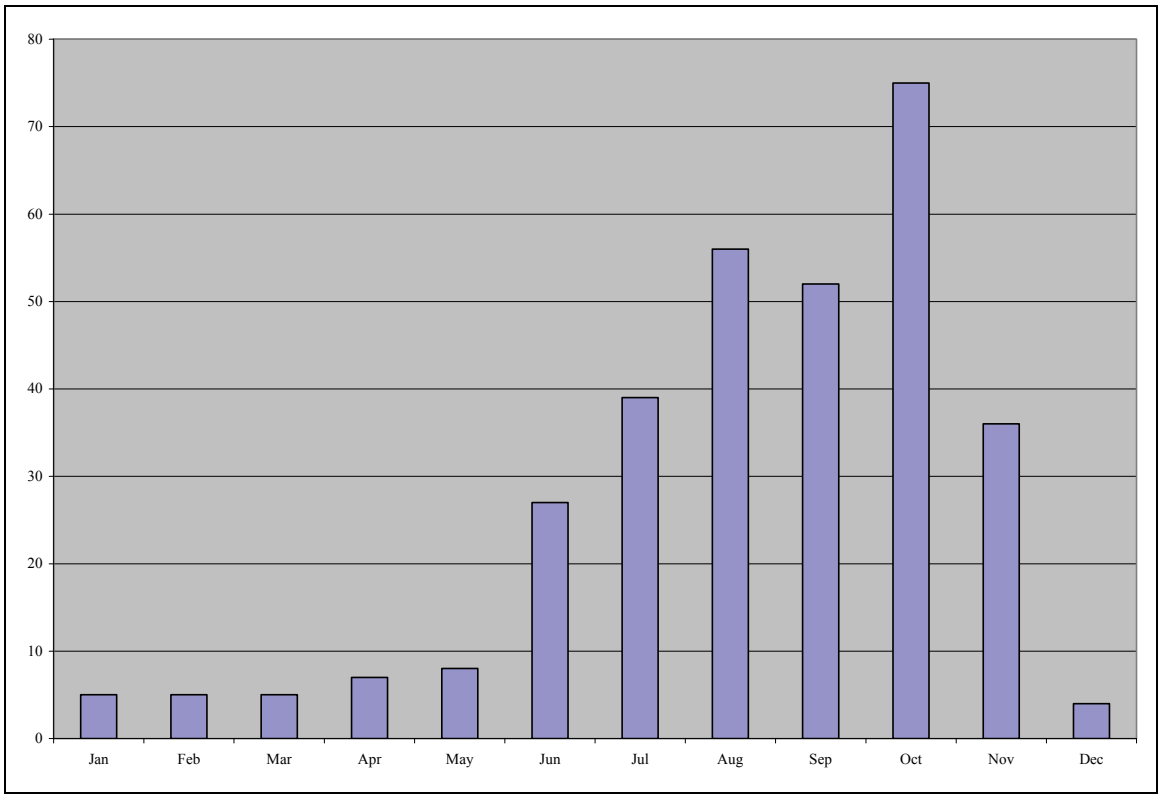
> *In the fall time [Chipp River], just for burbot. That's with jigging. One time my wife pulled one up and there was another burbot eating it. That's in October, sometimes in November. And sometimes we get them in April.* (SRB&A Barrow Interview February 2006)

One individual reported harvesting burbot both under the ice in the fall and after breakup in the spring, saying,

> *[We get burbot] right in here [near Atqasuk], on all kinds of different trips. [That is] all summer [I get fish] in those areas. [Burbot fishing] is under the ice, fall fishing. August, fall time, and spring time, during break-up, in June. Right after break-up you can get a lot of burbot.* (SRB&A Barrow Interview February 2006)

Otherwise, residents harvest burbot incidentally while setting nets or using rod and reel to harvest broad whitefish or Arctic grayling.

Figure 9: Barrow Use Areas for Burbot by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Residents reported using snowmachine to access 57 percent of burbot use areas and boat to access 45 percent of use areas, consistent with the months of harvest effort during the summer and into late fall when the rivers freeze over (Table 30).

Table 30: Barrow Method of Transportation to Burbot Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	57%
Four-wheeler	0%
Boat	45%
Foot	0%
Plane	3%
Car/truck	0%
Number of Use Areas	125

Stephen R. Braund & Associates, 2010.

Harvest Gear

As shown in Table 31, a relatively equal number of harvesters reported catching burbot by jigging (62 percent) and nets (60 percent). As discussed above, respondents described harvesting burbot by jigging,

but also catch these fish in their nets while fishing for other fish resources. Two individuals made the following comments regarding their burbot harvest methods:

> *The burbot is all over the place, some times they get in the net and we hook them.* (SRB&A Barrow Interview March 2006)

> *Burbot, the only way we can catch them is the fish that are already stuck in the net, the burbot try to swallow those fish and that's the only time we can catch them, and other times we set a sink line to the bottom.* (SRB&A Barrow Interview February 2006)

Table 31: Barrow Burbot Harvest Gear

Gear	Number (%) of Harvesters
Jigging	30 (62%)
Nets	29 (60%)
Rod and Reel	3 (6%)

Stephen R. Braund & Associates, 2010.

Geese

The majority of Barrow respondents (95 percent) reported hunting geese in the last 10 years (Table 5). Forty-nine individuals (65 percent) reported successfully harvesting geese in the 12 months prior to their interview (Table 6). After the bowhead whaling season, residents travel inland to camps and cabins with family or whaling crew members to hunt various species of geese, including white-fronted geese (*niġliq*) (also referred to as "specklebellies"), Canada geese (*iqsraġutilik*), brants (*niġliñġaq*), and snow geese (*kaŋuk*). It is customary for whaling crews to share some of their geese harvests at the *Nalukataq* festival. Residents who do not participate in whaling may travel inland earlier to harvest geese.

Subsistence Use Areas

Map 25 shows Barrow last 10 year (1997-2006) geese use areas, with last 12 month use areas overlaid. From 1997-2006, residents reported hunting geese as far east as Teshekpuk Lake, beyond Wainwright to the south, and substantial distances offshore from Barrow. The highest number of overlapping use areas are located along the coast from Barrow south past Walakpa Bay and at Peard Bay; around Avak Creek; and around Inaru, Meade, Topagoruk, Chipp rivers, Piasuk, and Miguakiak rivers. In addition, a high number of overlapping use areas were reported near Lake Sungovoak and Ekalgruak Lake, including an area many referred to as "mud lake." The total last 10 year Barrow use area for geese, shown on Map 25, is 3,943 square miles.

Locations farther from Barrow (e.g., Chipp, Topagoruk, and Miguakiak rivers) are generally visited early in the season when rivers are still crossable; residents harvest geese closer to the community (e.g., Inaru River, Iko Bay) as the season proceeds. Several residents described this pattern of hunting as follows:

> *We go 38 miles inland; that is our camping grounds. We tupiq (set up a tent) right here in this valley. We got our floorboard right there and they make, in walking distance, they make blinds all along here. [We don't hike] too far, walking distance from camp. We follow the snowmelt, we break camp with the snow conditions. We start here [at out tent camp] and then go to Aŋmalugaluk. It's in the little valley. We make it constant to the 3rd week in May to June. [We travel to] the [hunting areas] farther down [first] and we listen to the VHF and they tell us about the conditions, and we know when to move on. They [the rivers] are not crossable.* (SRB&A Barrow Interview March 2006)

Map 25 - Barrow Geese Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

462 use areas reported by 70 respondents

Last 12 Months Dissolved Use Areas

233 use areas reported by 49 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Point Lay
Peard Bay
Dease Inlet
Smith Bay
Teshekpuk Lake
Harrison Bay
Prudhoe Bay
Meade River
Ikpikpuk River
Kuk River
Ulukok River
Kokolik River
Kukpowruk River
Colville River
Awuna River
Kuparuk River
Sagavanirktok River
Canning River
Anaktuvuk River
Dalton Highway
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

I have been all the way up to [Topagoruk River] and on the Meade River. The next place I go down to is this spot on the Meade River. If the river starts to get full we have to be on the west side of the river. From there when the river is too full I go to the Inaru River; that's just a six hour trip. (SRB&A Barrow Interview February 2006)

We start at the upper cabin and then to the Meade River, and then we go home and unload the sled and then go to the cabin. That real big lake by Avak area [Lake Tusikvoak]; it is more towards the ocean side because the snow is already starting to melt. We follow the snow home. (SRB&A Barrow Interview March 2006)

Residents generally identified specific areas where they camp and hunt geese every year, often located near family camps or cabins, or at camps used specifically for geese hunting. While some individuals reported one primary area where they harvest geese, the majority of residents reported visiting multiple areas, located at varying distances from Barrow, each year. One individual described,

We would go along the Inaru River [for white-fronted geese]…. The other area I've been going to is my cabin around that lake [near Nigisaktuvik River]. [We get] those white-fronted geese…. We get a lot of brant in the summer time and when they are coming back [in the fall], but at Peard Bay. The good thing with Peard Bay, there is no major river system to cross…. [I hunt white-fronted geese] up at Chip 1, Chip 2 in the lakes all the way up to the cabin [at Chip 12]. Usually we will be traveling and hunting at the same time. You can't go up when the rivers and lakes get water on them so we stay close to town. Usually the ice is still frozen on the coast. (SRB&A Barrow Interview February 2006)

The areas used each year depend on the timing (e.g., whether the area is accessible due to snow and break-up conditions), the species targeted, proximity to camps and cabins, and personal preferences. A number of residents indicated that they travel to coastal locations (such as at Peard Bay or Point Barrow) specifically to harvest black brant, as they are less available inland:

Black brant, you can catch those up here [directly east of Barrow], and if you want to harvest large [amounts] you can go [here] [Wainwright area]. Black brant are not my favorite type of geese, but if I'm in the area and I can harvest them, I harvest them. When I go eider duck hunting over here [in the lagoon], the black brants sometimes fly back and forth where the eider ducks fly south. The black brants fly back and forth between feeding grounds. (SRB&A Barrow Interview February 2006)

[We get brant] at Peard Bay in August, right near the end of August. [We hunt by] four-wheeler or boat. Sometimes we walk and go by four-wheeler but most of the time we take the boat. [My preferred hunting area for] the brants is at the end of the bay where the two bars meet. (SRB&A Barrow Interview March 2006)

We get the brant a lot. They travel the same time; they fly in July and follow the edge and we get a lot of them, when we hunt the eider ducks between town and Walakpa. If the wind is a nice southwest wind, they fly with that wind. The brant come in July, but we will get some early ones. They like to follow the beach when there is no ice. (SRB&A Barrow Interview March 2006)

Residents described last 12 month use areas (Map 26) similar to those reported for the 1997-2006 time period (see Map 25). A high number of overlapping use areas were reported south of Lake Sungovoak, and along Inaru, Meade, Topagoruk, and Chipp rivers (Map 26). Fewer use areas were reported along the

Map 26 - Barrow Geese Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low

233 use areas reported by 49 respondents

Most Recent Harvest Locations

103 use areas reported by 44 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

Barrow

Wainwright

Atqasuk

Point Lay

Nuiqsut

Prudhoe Bay

Peard Bay

Dease Inlet

Smith Bay

Teshekpuk Lake

Harrison Bay

Prudhoe Bay

Meade River

Ikpikpuk River

Kuk River

Ulukok River

Kokolik River

Kukpowruk River

Colville River

Awuna River

Kuparuk River

Sagavanirktok River

Dalton Highway

Canning River

Anaktuvuk River

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

69°0'0"N

160°0'0"W

155°0'0"W

150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

coast south of Barrow and near Peard Bay. The total last 12 month Barrow use area for geese, shown on Map 26, is 822 square miles.

Several residents indicated that high water and poor snow conditions during the last 12 months affected their usual hunting patterns:

> *[I hunt geese] on the Meade River by that lake right there; those are my geese hunting sites. We get the speckle bellies [white-fronted goose] and the snow goose and the brant. The speckle bellies and if the snow goose gets too close, we will drop them too. I go up to the farthest place [first] and then come back. It all depends; I went to all the places last summer. Latter part of May, that's the only time we hunt them when they are first coming up. [We went to all of [the hunting areas last year]…. We didn't go through Avak Creek last year. Every year we try to follow the same path back home. But the snow conditions prevented us from doing that. The next weekend he went back to stay.* (SRB&A Barrow Interview March 2006)

> *[Last year we went] to the cabin [on the Topagoruk River]. We stayed there only three days because the rivers filled so fast. I usually hike about a mile away, or if I have a snowmachine that I can hide, the geese get scared real easy. They recognize a snowmachine.* (SRB&A Barrow Interview February 2006)

During interviews, some respondents identified "favorite" geese hunting areas. Residents usually identified favorite areas based on the proximity of the area to family camps or cabins, their hunting success in the area, or simply the beauty of the area. Residents provided the following descriptions of their favorite geese hunting areas:

> *I'd say probably this spot [Piasuk River]. There are so many geese all over.* (SRB&A Barrow Interview April 2006)

> *I've been going here [Inaru and Meade] mostly. Right off the mouth of this [Nigisaktuvik River], right in here. On the north side of it. These are preferred areas right in here. The geese just funnel into these certain areas I know.* (SRB&A Barrow interview February 2006)

> *Up and down the Meade, up and down the Nigisaktuvik and right around by the river. That's one of my preferred places, and over here at the mouth [of Nigisaktuvik] and way down here, and way down here. When I want to go on a short trip, over here, a little bit further back, right in here [near Atqasuk]. And the other side of the lake. There are a lot of good places to go geese hunting. Up in here, here's the "Y." And at the end of Nigisaktuvik, at the "Y". They flock [there] just before they disperse. I don't hunt very long there, because I'll get my year's supply in no time. I'll be there for just a couple of hours, and I'll be done.* (SRB&A Barrow Interview March 2006)

> *As far as inland as we can. I have gone to Oumalik; I was out there three years ago. I took my sons there and they want to come back it was so beautiful.* (SRB&A Barrow Interview February 2006)

Most Recent Harvest

Harvest Locations

As depicted in Table 7, 44 (59 percent) Barrow respondents reported successful harvests of geese within the 12 months prior to their interviews. The locations of Barrow respondents' most recent geese harvests

are shown with last 12 month use areas on Map 26. Residents' most recent harvests occurred along the Gas Well Road (which runs east of Barrow), near Avak Creek, south of Barrow past Walakpa, near Lake Sungovoak, and along the Inaru, Meade, Topagoruk, Chipp, Paisuk, Ikpikpuk, and Miguakiak rivers. Residents' descriptions of their most recent harvests included the following:

> *It's my 20 minute secret; it takes 20 minutes to get there. [Placename], right at the end, right around the dry lake at the end of it. They like the mud, that area is dry. [I get the] white-fronted geese, [snow geese], and brant. May and June, by snowmachine. [Last time] we [the hunting group] caught like 45; we don't like to catch too much. About half of them [were white-fronted geese] and then the other half are the speckle bellies, it's the same thing. Half and half white-fronted goose. [I got] maybe three [brant], they flew by us. We don't like to hunt the snow geese. I got speckle bellies.* (SRB&A Barrow Interview February 2006)

> *Last year I went on day trips with my wife to Iko Bay in this area, this little area. There's a plateau area right there, with geese there. Last year was day trips. I guess [the most recent harvest] would be [at] Avak Creek. We got four white-fronted geese. There was already an existing blind over there and nobody around.* (SRB&A Barrow Interview March 2006)

> *Last May we were up here [on the Chipp River]. Right in that same area. There were more geese last year, holy smokes! We stay out until the conditions start getting worse.* (SRB&A Barrow Interview February 2006)

Number of Participants

Four or more individuals participated at 62 percent of most recent geese harvests (Table 32). Two to three people harvested from 31 percent of most recent geese harvests. Respondents generally reported traveling to geese hunting camps or cabins with extended family or whaling crew members to harvest geese in the spring. Two hunters provided these examples:

> *We went over here to Topagoruk. There was 10 of us, me, my wife, a couple grandkids, sons, daughters. We were out there about five days.* (SRB&A Barrow Interview April 2006)

> *There was 20 plus people. When we go hunting, my dad has five brothers and they all have five kids. (SRB&A Barrow Interview April 2006)*

Table 32: Barrow Number of Participants During Most Recent Geese Harvests

Number of Participants	Percentage of Harvest Locations
1 person	7%
2-3 people	31%
4 or more people	62%
Number of Most Recent Harvest Locations	97

Stephen R. Braund & Associates, 2010.

Duration of Trip

The majority of trips (68 percent) to most recent geese harvest areas lasted either two to five nights or one to two weeks (Table 33). Nine percent of trips lasted more than two weeks and an approximately equal number of trips (eight percent) lasted only one day. Ninety-one percent of trips lasted at least one night. A few respondents indicated that the duration of trip sometimes depends on the number of geese flying through the area and how long the migration lasts. One individual commented, "On average we will do two weeks but if they are really flying it will take two days" (SRB&A Barrow Interview April 2006). The duration of trip to most recent harvest areas also depends on the distance of that harvest area from the community. Hunting locations farther from the community are generally used for longer periods of time.

Table 33: Barrow Duration of Trips to Most Recent Geese Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	9%
1-2 weeks	41%
2-5 nights	27%
1 night	14%
Same day	8%
Number of Most Recent Harvest Locations	95

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

As depicted in Figure 10, Barrow residents reported over four hundred geese use areas for the month of May. This is the main geese-hunting time, after the spring bowhead whale hunt. Substantially fewer geese use areas (close to 100) were reported for June. Even fewer use areas were reported for the following months of July to October. Many of the residents commented that the geese season begins just after the spring bowhead hunt, with many harvesters finishing their geese hunting just before the *Nalukataq* feast in June. Two harvesters said,

> *[We go] right after whaling because it is part of the festival. We go up in the last week in May, those that haven't caught a whale, they are still whaling.... You don't hunt them when they are nesting.* (SRB&A Barrow Interview April 2006)

> *If we are able to catch a whale we spend a week to 10 days [geese hunting] before Nalukataq the blanket toss feast, whale feast.* (SRB&A Barrow Interview February 2006)

However, others travel to geese hunting areas during the whaling season. As on individual observed,

> *[I go] after whaling, but some people go during whaling, like my whaling captain. End of May, early June, after whaling is over. But people go before.* (SRB&A Barrow Interview March 2006)

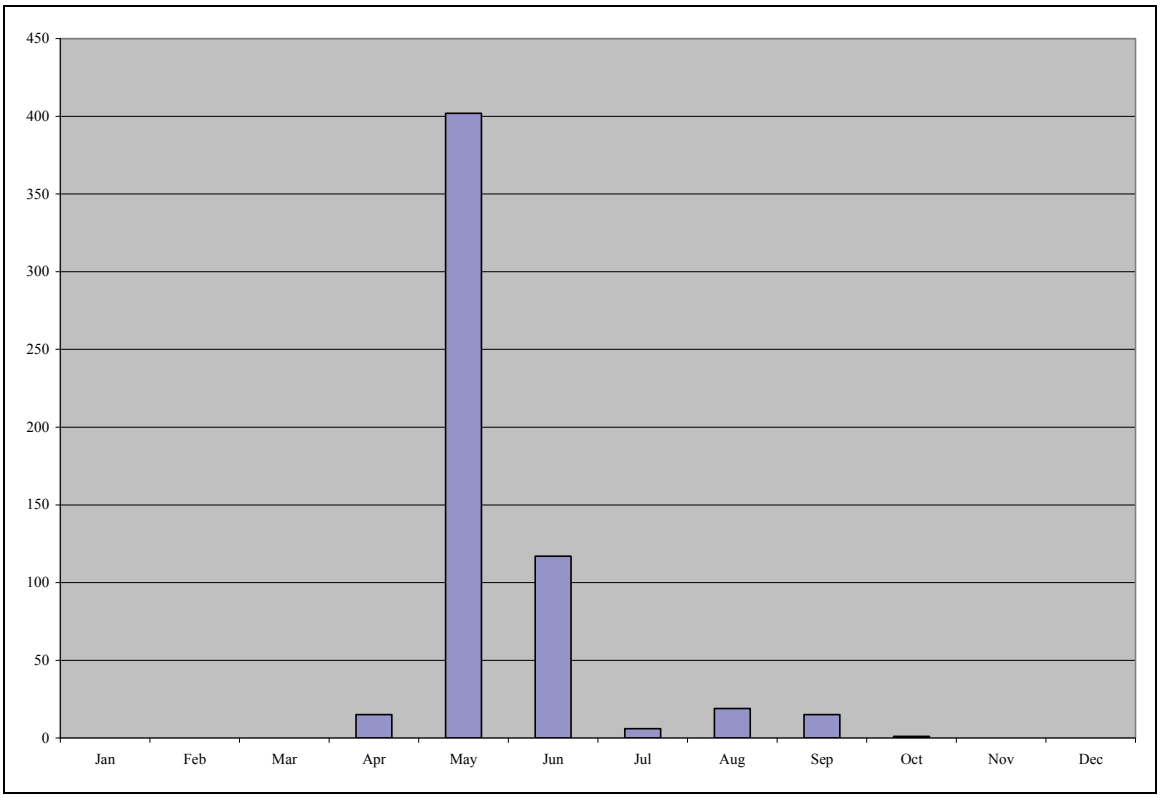
Method of Transportation

Consistent with the timing of the geese hunt (May and early June), residents reported using snowmachine to access 86 percent of use areas (Table 34). Four-wheeler and boat were also reported as means of transportation to geese harvest areas. Some residents reported traveling to nearby areas by four-wheeler or boat in the fall when the geese are returning south. As one individual described,

If I do anything in the fall I go to the gas well area when they [geese] are going back. That's August, September. Either by truck or four-wheeler. (SRB&A Barrow Interview February 2006)

As noted above, residents use snowmachines to travel to more distant inland locations earlier in the spring while conditions still allow, then move closer to the community as the rivers break up. Four-wheelers and boats are used later in the season when snowmachine travel is not longer possible.

Figure 10: Barrow Use Areas for Geese by Month



Stephen R. Braund & Associates, 2010.

Table 34: Barrow Method of Transportation to Geese Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	86%
Four-wheeler	4%
Boat	4%
Foot	2%
Plane	0%
Car/truck	1%
Number of Use Areas	462

Stephen R. Braund & Associates, 2010.

Harvest Gear

Table 35 shows geese hunting gear reported by Barrow residents. Ninety-two percent of geese harvesters providing harvest gear data reported using 12 gauge shotguns to harvest their geese. Fewer individuals used the 20 gauge shotguns, and even fewer reported using .410 shotguns. Only one individual reported using a 16 gauge or .22 for geese hunting.

Table 35: Barrow Geese Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
12	53 (92%)
20	9 (15%)
.410	3 (5%)
16	1 (1%)
.22	1 (1%)

Stephen R. Braund & Associates, 2010.

Eider

Residents reported hunting both king (*qiŋalik*) and common (*amauligruaq*) eiders on the ice when the lead is closed during the spring whaling season and during the late summer and fall, usually at a location north of Barrow called *Piġniq*. During interviews, 63 respondents (84 percent of those interviewed) provided 262 last 10 year use areas for eider (Table 5). Forty-seven individuals, 38 of whom had successful harvests, reported last 12 month use areas (Tables 6 and 7).

Subsistence Use Areas

Eider hunting is generally a spring and summer subsistence activity that occurs in tandem with bowhead whale hunting, while the ducks fly over along the coast to their northern migratory destinations, and during the summer and fall when they are returning south. Map 27 depicts last 10 year (1997-2006) eider hunting as reported by Barrow respondents. Residents reported hunting for eiders offshore between Peard Bay and the Tapkaluk Islands, in Elson Lagoon, near Wainwright, inland along the Inaru and Meade rivers, and as far east as the Colville River delta. The highest number of overlapping use areas were reported offshore from the community between Point Barrow and Walakpa, as well as on the spit to Point Barrow. The total last 10 year Barrow use area for eiders, shown on Map 27, is 2,753 square miles.

Residents generally described hunting eiders during the spring bowhead whaling season or in the summer and fall near *Piġniq*. Whaling crew members indicated that they hunt eiders near spring whaling camps when the ice comes in and they are unable to hunt whales, hence the similarities between the last 10 year eider and bowhead whale use areas (Map 10 and Map 27). Respondents stressed that they are careful not to hunt eiders when whales are migrating past. Residents provided the following descriptions of their spring eider hunting activities:

> *Eider ducks are the favorite time of the year for me when they're coming in from the south; they carry a lot of fat in them. That fat is the delicacy part of the whole deal on the duck. It tastes really oceany, real salty. I always look forward to the ducks coming in during the spring time, more than anything else, except for the geese. We've gone as far* Nulavik *[hunting eiders] and as deep as maybe five miles, all the way up to where the open lead brought us to. You can go as far as to the point, but I never go out that way because when the ducks come [they're farther out when they're toward the point]. During whaling, when they're really busy whaling, we don't shoot them. Sometimes you're lucky and they'll be flying close to the shore.* (SRB&A Barrow Interview April 2006)

Map 27 - Barrow Eider Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
262 use areas reported by 63 respondents

Last 12 Months Dissolved Use Areas

147 use areas reported by 47 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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ARCTIC OCEAN

72°0'0"N

CHUKCHI SEA

71°0'0"N

BEAUFORT SEA

Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Thetis Island
Cross Island

NATIONAL PETROLEUM RESERVE IN ALASKA

Peard Bay
Inaru River
Meade River
Kuk River
Dease Inlet
Chipp River
Topagorak River
Ikpikpuk River
Smith Bay
Teshekpuk Lake
Harrison Bay
Fish Creek
Prudhoe Bay
Mikkelsen Bay

160°0'0"W
155°0'0"W
150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Out on the shore fast ice in the spring, half a mile and depending on how many people are out there I go north, right up to the point, Point Barrow. That's in early May. We are able to hunt the ducks with the southwest wind, when the ice comes in and we can't go whaling. (SRB&A Barrow Interview February 2006)

During the spring, that's when they start coming from the south, but when you're out there, the whalers, everybody knows that there's no shooting. When there are whales out there, we don't shoot at all. It scares the whales away. You can see those [bolos] on the beach, with the ivory tips. I guess some people used to use those. When the ice comes in, there's a bunch of water spots out there, where the ducks don't go to the shore at times. We go out there some days, then bring home nothing. And then some days you're lucky to get a couple for a pot [of soup]. I usually go out to the south side. That's because when you're [closer to Barrow], they tend to get higher and higher because people are shooting at them. (SRB&A Barrow Interview February 2006)

During the fall, residents travel to the Piġniq area to hunt eiders as they fly overhead during their migration south. One resident observed that this is a common activity among Barrow residents, saying,

There's a lot of duck hunting up here in Barrow, at the Shooting Station. Everyone's going to point that out. June until October, sometimes into November. [My last harvest area was] that one in Barrow. Not too many [eiders], maybe 10 or 15 for the whole summer. Go out and get a couple. [Half and half king and common eiders]. I get most of them in September. Most of my hunting's in September. The young ones flying back. Maybe spring time, maybe 20 of them [total]. There are a lot of guys that do that duck hunting. I just get enough to send to my relatives in the spring time. (SRB&A Barrow Interview February 2006)

One respondent commented that he had experienced decreased eider hunting success at *Piġniq* due to changes in their flying patterns:

We got eight [eiders at the Shooting Station], less than 10; they are getting harder and harder to get. Their numbers are down this last couple years. Maybe the ice conditions are making them fly all over now; they are spreading out their patterns. You see them fly close through here [beyond the point]. They are not in a small narrow pattern, they are spreading out now. (SRB&A Barrow Interview March 2006)

Several residents identified Brant Point (also referred to as "*Tekegakrok* Point"), just east of *Piġniq* as a favored eider hunting area, saying,

Brant Point, I'll go by boat over to Brant Point, and I'll get to Tekelagroak [Point]. There's a piece of fingerland that they fly over, and I prefer to have my ducks fall on the tundra than in the water.... When they do fall in the water, they get the lice. That's why I prefer Tekelagruak [Pt], because they go crashing down on the tundra instead of the water. (SRB&A Barrow Interview March 2006)

When the eiders start coming back I go to the point Tekegakrok and to the Shooting Station. I take my shotgun when I check my nets. That is between August and September depending on the migration. I went with my boat on a three hour trip. (SRB&A Barrow Interview February 2006)

There's a place called Brant Point, right here. That's a really good place to go for duck hunting if you want to be without a lot of people around. (SRB&A Barrow Interview April 2006)

In the last 12 months, residents reported hunting eider ducks offshore between Walakpa and Point Barrow, on the spit to Point Barrow, in Elson Lagoon, and along the Inaru and Meade rivers (Map 28). The total last 12 month Barrow use area for eider, shown on Map 28, is 510 square miles.

Most Recent Harvest

Harvest Locations

Map 28 depicts the locations of Barrow residents' most recent eider harvests, overlaid with last 12 month eider use areas. All most recent harvests of eiders occurred either offshore from Barrow, along the spit to Point Barrow, or in the western portion of Elson Lagoon. Residents generally described their most recent harvests occurring either during the spring bowhead whale hunt and in the summer and fall near *Piġniq*:

> *That's the hot spot [along the coast from Walakpa to Point Barrow]. Sometimes they are split up half and half, common and king [eiders]. I don't eat them all; I give them to elders. [There was] maybe four or five of us. That was in spring, around the spring migration during the bowhead hunt. It was about two to four weeks.* (SRB&A Barrow Interview February 2006)

> *[Last year I was] just between Monument and that place [Singaruak Creek], inside the ice. I was just staying in that one place, and then we had to move later at the point. We didn't get a chance to shoot at the point, though. I got maybe four, mostly my nephews. I got about four or five. About three males, the kings and two females, those brown ones [two commons]. I guess I shot at a flock, that's about it. Different spots, maybe three of us. But they were in different spots. [We hunted them] while we were waiting for that lead to open, which it never did. [We were there] for two weeks. It took two weeks to make two trails.* (SRB&A Barrow Interview March 2006)

> *[We hunt eiders] right by* Piġniq*, mostly. You drive your truck all the way to* Piġniq *[and hunt them] on their fly back. [We got] a couple of gunny bags. Less than 30, maybe. I didn't get too many kings; maybe half a gunny bag – 10, 15 of them. We sat out there for a little while, me and my brother and my cousin. [We harvested them on] different dates, though, not all at once. I didn't catch a lot.* (SRB&A Barrow Interview March 2006)

> *[I got] 18 at the cabin [at* Piġniq*]. We go there when the northeast wind is blowing. We went there about seven times. Basically we just go there to relax, to beach comb for ivory or sit there and watch the ducks go by, leisure time. I brought back four on the last one. It took just the whole evening.* (SRB&A Barrow Interview February 2006)

Number of Participants

Compared to many of the other resources harvested by Barrow residents, respondents reported a relatively higher number of solo hunts at 43 percent of most recent eider harvests (Table 36). As most eider hunting areas are located close to Barrow, at *Piġniq*, or on the ice during the spring bowhead whale harvest, few people reported hunting eiders in large groups. Responses regarding the number of participants varied; some reported the entire whaling crew as participants during their most recent harvest, and others reported only their own harvests. Twenty-eight percent of recent eider harvests had two to three participants, and the remaining 30 percent of harvests had four or more people participating in the hunt.

Map 28 - Barrow Eider Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
147 use areas reported by 47 respondents

Most Recent Harvest Locations

65 use areas reported by 38 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
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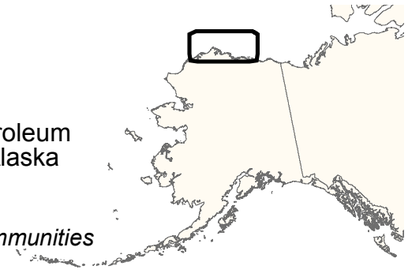

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Peard Bay
Inaru River
Meade River
Dease Inlet
Chipp River
Topagorak River
Ikpikpuk River
Smith Bay
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Fish Creek
Prudhoe Bay
Mikkelsen Bay
Kuk River

Projection: Alaska Albers Equal Area Conic, NAD 1983

Table 36: Barrow Number of Participants During Most Recent Eider Harvests

Number of Participants	Percentage of Harvest Locations
1 person	43%
2-3 people	28%
4 or more people	30%
Number of Most Recent Harvest Locations	61

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents reported a comparatively high number of same day trips to eider use areas than for other resources. As shown in Table 37, 68 percent of all most recent eider harvest trips lasted one day. As discussed above, one reason for this high number of same day trips relates to the fact that a significant number of eider use areas are located within close distance to Barrow, more specifically just north of Barrow at the Shooting Station and out on the ice during spring bowhead hunting. As one person described, "*Piġniq*, the Shooting Station. I went duck hunting along *Piġniq* strip [last year]....Day trips, we'd leave in the morning and come back in the late afternoon" (SRB&A Barrow Interview April 2006).

Table 37: Barrow Duration of Trips to Most Recent Eider Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	13%
1-2 weeks	13%
2-5 nights	6%
1 night	0%
Same day	68%
Number of Most Recent Harvest Locations	62

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Eider hunting by Barrow residents occurs throughout the spring, summer, and fall, with the number of reported eider use areas peaking in the spring (May) and late summer (August) (Figure 11). The spring hunt occurs on the ice near open leads during the whale hunt. Several respondents emphasized that eider hunting occurs only when the lead is closed, so as not to disrupt whaling efforts. Residents indicated that the eiders follow the open leads north toward Barrow in the spring, then return south in the late summer and fall, often flying directly over *Piġniq*. As one hunter described,

> *The ones at* Piġniq*, in the spring is when we get them coming up this way, and they work their way over and they come back in early fall. It's got to be late July to late September. [In the spring we hunt in] April and May [on the ice]*. (SRB&A Barrow Interview April 2006)

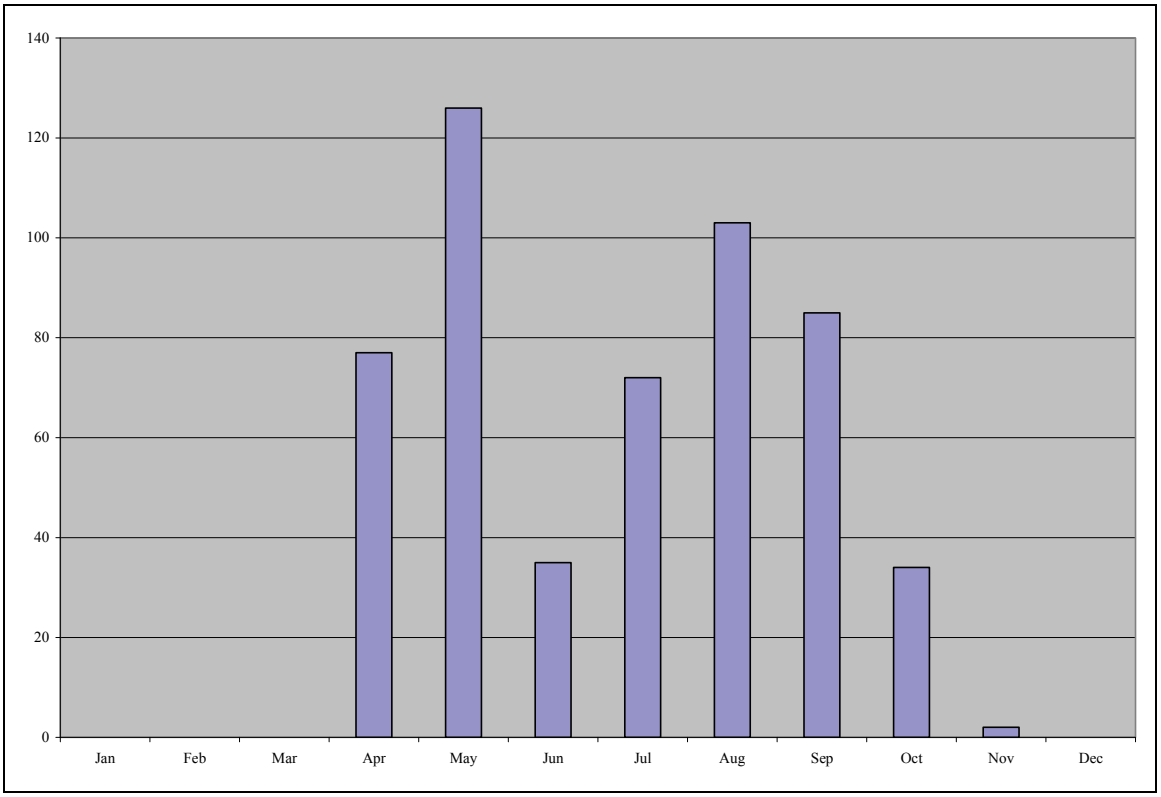
Residents reported preferences for eiders harvested at different times of year. One indicated that those returning in the fall "taste like the mudflats," while another said,

> *I tell my son to go the point in September. That's when the young ones [are there]. They're starting to fly, and they're nice and fat; they've got a lot of fat on them, and their meat is tender.* (SRB&A Barrow Interview April 2006)

One hunter provided this observation about differences between male and female eiders in terms of seasonal timing and taste:

> *[We hunt eiders] in July. The males will come first, they're tasty. Later on the females [without their young] will come. What I always thought is they have lost their eggs. Predators have taken their eggs – seagulls have eaten them. Much later, the females with their young will come in. And they are easier targets. The meat is soft and some people like them. I like them, too.* (SRB&A Barrow Interview March 2006)

Figure 11: Barrow Use Areas for Eider by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Residents reported using snowmachine to access the majority of eider use areas (53 percent), presumably those located on the ice near whaling camps (Table 38). Boat was the mode of transportation to 21 percent of eider use areas and car/truck was the mode of transportation to 17 percent of use areas. Residents generally use trucks or four-wheelers to travel to *Piġniq*, and sometimes harvest eiders by boat in the summer and early fall along the coast east of Barrow.

Table 38: Barrow Method of Transportation to Eider Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	53%
Four-wheeler	5%
Boat	21%
Foot	4%
Plane	0%
Car/truck	17%
Number of Use Areas	262

Stephen R. Braund & Associates, 2010.

Harvest Gear

The primary type of gear used to harvest eiders is the 12 gauge shotgun (Table 39), reported by 93 percent of those respondents providing harvest gear data. One individual reported using a bola to harvest eiders during the spring when the lead is open to avoid disturbing the whales in their migration. He said,

> *I hunt them with a bola during waiting in spring. We are out west of the point. They don't allow us to disturb the whales. We hunt them with shotguns when the ice comes in.* (SRB&A Barrow Interview April 2006)

Table 39: Barrow Eider Harvest Gear

Shotgun Gauge	Number (%) of Harvesters
12	44 (93%)
20	5 (10%)
.410	2 (4%)
16	1 (2%)

Stephen R. Braund & Associates, 2010.

Ringed Seal

During interviews, respondents indicated that ringed seals (*natchiq*) are not harvested in great quantities and are not as important a resource as bearded seal (*ugruk*), which is necessary for the building of skin boats. While ringed seal was once a primary source of food for dog teams, the need for this has lessened with the introduction of snowmachines and the resulting decline in the use of dogs for travel. However, a number of respondents indicated that they continue to hunt ringed seal year-round as needed, using them for meat and seal oil. Some respondents reported hunting ringed seal while looking for bearded seal during the summer months. One individual observed,

> *There are a lot of bearded and ringed seal. There are a lot of them in June. Bearded seal, we mainly go out for them; very occasionally we get the ringed seal when we are going for bearded seal or if we get a desire to get one.* (SRB&A Barrow Interview March 2006)

However, ringed seal are also available during the winter months on the ice and can supplement residents' diets during the winter. One individual described his winter ringed seal hunting methods as follows:

> *[I hunt ringed seal] right on the ice edge right here, [from] October to March. From Walakpa to the point, wherever the ice opens. Sometimes it's closer [to Barrow] at the beginning of the year. Maybe four miles [north of the point]. We're always looking for good places. I like to hunt seals. There's only a few of us that still hunt seals in Barrow in the winter. You have to be real careful and smart and know what you're doing, and if you see someone out there who's not usually out there at those times, you have to look out for them. Look out for wind conditions. Make sure you're on the right side of the crack.* (SRB&A Barrow Interview April 2006)

Forty-eight Barrow respondents (64 percent) provided last 10 year ringed seal use areas, and 36 (48 percent) provided last 12 month use areas (Tables 5 and 6).

Subsistence Use Areas

Map 29 shows Barrow last 10 year ringed seal use areas extending offshore from Peard Bay in the west to beyond Smith Bay to the east, as well as offshore from Wainwright and in the Colville River delta. The highest number of overlapping use areas occur from Nulavik to Point Barrow. A relatively high number of use areas were also reported along the coast to Skull Cliff and along the Tapkaluk Islands. The total last 10 year Barrow use area for ringed seal, shown on Map 29, is 5,173 square miles.

As discussed above, residents often harvest ringed seal while hunting for bearded seal and, sometimes, walrus during the summer. One individual described hunting both bearded and ringed seal offshore from Barrow as far as Skull Cliff, saying,

> *The winter time is always the best time to go* natchiq *hunting, but that was when I was young. [I hunt ringed seal] in the summertime, in the boat [in the last 10 years]. We always launch from the Browerville boat docks, and sometimes we go 35 miles out here [pointing to map]. We go find that ice that used to connect with the shore ice, wherever that ice is. [The farthest is] about 35 miles north [of the point]. [I hunt them] about mid-July. Nowadays, it's like early July. First or second week of July. It used to be the latter part of July. [We do not hunt] much into August, because the weather gets rough. We've been as far south as the Skull Cliff area; we never went all the way past that. You've got only enough gas in the boat to go too far. We're looking for bearded seals. Mainly* ugruk*, and we'll get maybe one or two* natchiq*, if it's a real small* natchiq. (SRB&A Barrow Interview April 2006)

A few individuals reported harvesting ringed seals in Elson Lagoon, either hunting them in boats or harvesting them in fishing nets during the summer. Others reported targeting ringed seals (often simply referred to as "seals" versus "*ugruk*") close to the shore or near the mouths of rivers during the open water season, either traveling by four-wheeler or boat. Two hunters described,

> *From Barrow all the way, you see nothing but seals, all the way in this area here [indicating on map]. They're only about a quarter of a mile out. Seals are a shore mammal, mostly. Most of the time it's just on the shore. Go all the way to Peard Bay. From July on through August, September, October, it depends.* (SRB&A Barrow Interview April 2006)

> *We caught one [ringed seal] right off the beach. Right at Walakpa. I took my grandkids for a picnic, real nice warm, calm [day]. We always see all kinds of seals from Barrow over to there. That Walakpa River is where the little fish, smelt or tomcod, they're going into those two rivers…Walakpa right there, where's that Nunavak River? That's where most of the fish are coming out on those two rivers. [I got] one* natchiq*, but my son catches quite a few, my youngest son. This was right after 4th of July. Nice, warm day.* (SRB&A Barrow Interview April 2006)

Map 29 - Barrow Ringed Seal Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
69 use areas reported by 48 respondents

Last 12 Months Dissolved Use Areas

43 use areas reported by 36 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

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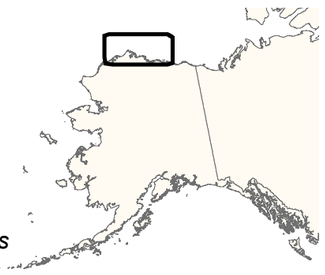
0 25 50 100 Kilometers
N



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Dease Inlet
Smith Bay
Topagoruk River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Kuk River
Prudhoe Bay
Mikkelsen Bay
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents also hunt ringed seal in open leads and along the ice edge during the winter months. Winter hunting generally occurs closer to the community, although residents reported traveling as far south as Skull Cliff and traveling east of the point. Several respondents reported hunting ringed seals during the spring whaling season at whaling camps. Barrow hunters provided the following descriptions of their winter ringed seal hunting activities:

> *[I look for ringed seal] especially when I go duck hunting on the coast. [I look for them] on the ice, about the third part of May. A quarter mile out from Barrow all the way down to Skull Cliff area. I've seen lots of ringed seal in one bundle. Sometimes the bearded seal are on the ice in the spring. That is with a four-wheeler or a snowmachine.* (SRB&A Barrow Interview February 2006)

> *Right before breakup I like to go east of the point; there is a flat area they are sun bathing because there is nobody around there. They are closer into shore and on occasion I've got a bearded seal out there because they are out farther. They are right in there by NARL. That's after whaling.* (SRB&A Barrow Interview February 2006)

> *Sometimes they are on the edge of the ice. We will drive up with a four-wheeler to get them. Not more than a mile hiking, if they are on the ice sunbathing. Wherever there is an open lead. [I go by] snowmachine when it is whaling time, and then after that when it is getting warmer in the end of May and first week of June, we get the ringed seal by four-wheeler along the shore. I've hunted in the first week in November when it started to freeze. It is just when I feel like hunting.* (SRB&A Barrow Interview April 2006)

> *That's my thing, all winter! Here are my winter grounds, right here. All this, I go as far as down here, Skull Cliff, if the ice conditions are not too much. If the ice conditions are good, I'll get them close by. Ringed seal, spotted, and* ugruk. *I get them all summer, but I don't really hunt them [then]. I have buddies that hunt them all the time. People don't really eat spotted seal, the meat. They're mostly for their [pelts]. Ringed seal, I'm starting about the end of September, October, all the way through end of June.* (SRB&A Barrow Interview February 2006)

A number of respondents identified the area around Nunavak Bay as a favored seal hunting area. These residents observed,

> *The most preferred area is from Nulavik all the way to Nunavak. That's the feeding area. If the ice is retreating I go to the north where the ice is concentrated. It's hard to hunt seals in the open ice; it's hard to get an accurate shot. I cover that whole area into the ice lead. I pass the currents. When I go out 10 miles, I go through three currents, at five miles I pass the currents, it's more swifter.* (SRB&A Barrow Interview February 2006)

> *Yeah, right in front of Nunavak is where I like to go, just offshore to about like five miles. It seems like where they like to hang out, just feeding I guess [bearded and ringed seal].* (SRB&A Barrow Interview March 2006)

Barrow respondents' last 12 month ringed seal use areas are shown on Map 29 (overlaid with last 10 year use areas), and Map 30. Residents' last 12 month use areas are similar to the last 10 year use areas shown on Map 29, although they do not extend as far offshore. Residents traveled as far west as Peard Bay and as far east as Cape Simpson in the last 12 months to hunt for ringed seal. The highest numbers of overlapping last 12 month use areas were reported offshore from Barrow between Walakpa and Point Barrow (Map 30). The total last 12 month Barrow use area for ringed seal, shown on Map 30, is 2,082 square miles.

Map 30 - Barrow Ringed Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
43 use areas reported by 36 respondents

Most Recent Harvest Locations

26 use areas reported by 26 respondents

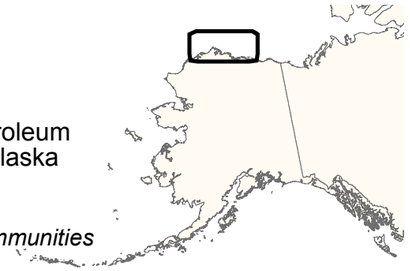
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N



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ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

72°0'0"N

71°0'0"N

160°0'0"W

155°0'0"W

150°0'0"W

Barrow

Wainwright

Atqasuk

Nuiqsut

Prudhoe Bay

Thetis Island

Cross Island

NATIONAL PETROLEUM RESERVE IN ALASKA

Peard Bay

Inaru River

Meade River

Dease Inlet

Chipp River

Topagorak River

Ikpikpuk River

Smith Bay

Teshekpuk Lake

Harrison Bay

Fish Creek

Prudhoe Bay

Mikkelsen Bay

Kuk River

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents hunted both during the ice-free season and along open leads during the winter. A number of residents indicated that weather or ice conditions had affected their ability to hunt ringed seal in the previous year. One individual commented that hunters had focused on hunting seals north of the point in the previous year because that was where the ice had been. During the summer, respondents indicated that the ice, which bearded seal follow when migrating, had gone out too fast and residents could not reach seal or walrus:

> *We didn't go that far. We didn't even go, maybe 20 miles was the farthest we went, but no farther than that, and it was when the ice was just leaving us, and we had to use as many days as we could because the ice was trying to go farther and farther out. I don't think we went past Hollywood and past the point.* (SRB&A Barrow Interview April 2006)

> *We didn't even catch one last year, not even a* natchiq *or a bearded seal. Just that one-day trip - it was 10 miles out [from shore] and the next day there wasn't any ice at all.* (SRB&A Barrow Interview March 2006)

> *You should have done this a couple years ago because we had a bad year this year, we didn't get any seals this year compared to eight. [It was because of] the ice conditions; it all depends on the ice conditions.* (SRB&A Barrow Interview March 2006)

During the winter, several residents commented that ice conditions limited ice edge hunting of ringed seal:

> *When it was open it was at least two miles out. This was the first winter. It was hard because we didn't get many seals. There were changing winds; me and my brother got only six seals. Usually we can bring home 30 seals.* (SRB&A Barrow Interview March 2006)

> *This year it was real bad. Early fall while there was still ice movement I got a few on the coastline by the point, at the point. That was the only reasonable ice because the young ice was breaking off. [It was] right by the point. I got two of them this winter. The lead is so far out and it's rough out there. That's about right after fall whaling October, latter part of October. By snowmachine, there was a little bit of ice. We just make day trips and go back [home].* (SRB&A Barrow Interview March 2006)

Most Recent Harvest

Harvest Locations

As depicted on Map 30, the majority of Barrow respondents' ringed seal harvest locations occurred close to shore between Walakpa Bay to the west and Tapkaluk Islands to the east. A few most recent harvests occurred farther from shore. Residents described their most recent harvests occurring both during the summer and winter:

> *Right in front of Barrow, about 300 to 400 yards away, [we get them] when they are plentiful. We got about five; we didn't try to catch many. [We used] just one boat, three or four people [were in the boat].* (SRB&A Barrow Interview February 2006)

> *The last time I hunted was November, but I didn't catch any. The last one I got was in the spring time. That was in June, right after whaling season, no farther than the point. I don't know exactly [where it was], just in the area. I think I just got one.* (SRB&A Barrow Interview April 2006)

That is where I taught my son how the hunt seals from the beach in June. We just sit there on the beach and wait for them to come up through the cracks. I am not shooting; I am showing my son how. We sit and wait. We got a couple last year. There are a lot of seals in June when the ice is melting and the cracks are open. [My son and I camped out June, July and August]; I just go back and forth every day. (SRB&A Barrow Interview March 2006)

We got only one this year. We had a southwest wind; it closes up the lead. It was at the point. The edge, it wasn't very far, half a mile I think. In September, we went to the point before freeze up. We use our kayaks. (SRB&A Barrow Interview March 2006)

Number of Participants

As indicated in Table 40, 60 percent of most recent ringed seal harvests involved two to three people. One-person ringed seal hunts occurred at only eight percent of the most recent areas. At least four people participated in the remaining 32 percent of ringed seal harvests.

Table 40: Barrow Number of Participants During Most Recent Ringed Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	8%
2-3 people	60%
4 or more people	32%
Number of Most Recent Harvest Locations	25

Stephen R. Braund & Associates, 2010.

Duration of Trip

Barrow residents described taking day trips to 85 percent of their most recent ringed seal harvest areas (Table 41). Many of the respondents described hunting ringed seal close to Point Barrow and thus trips lasting longer than one day were rarely necessary. One such harvester said,

Right off Point Barrow, just right off the point half a mile and that's where we ran into the seals. We got seven in that one day; it was the same three of us, in July. (SRB&A Barrow Interview February 2006)

Table 41: Barrow Duration of Trips to Most Recent Ringed Seal Harvest Areas

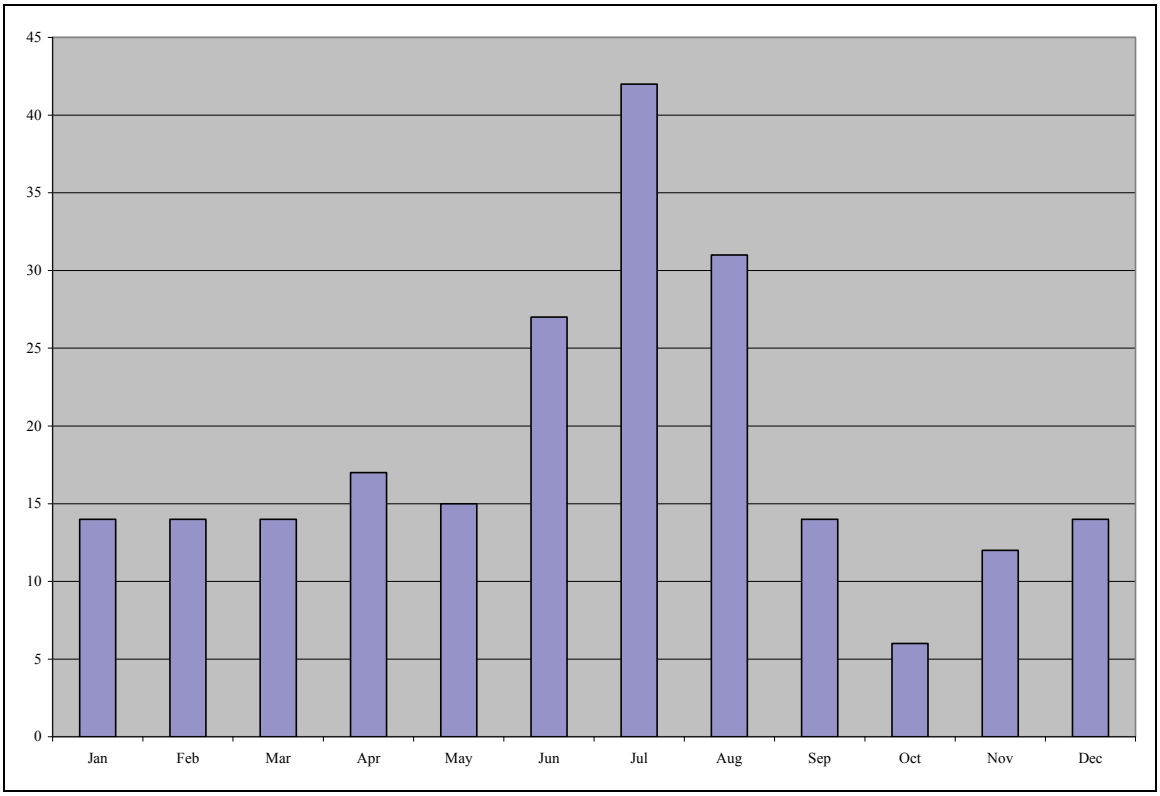
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	8%
1-2 weeks	4%
2-5 nights	0%
1 night	4%
Same day	85%
Number of Most Recent Harvest Locations	26

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Respondents reported hunting ringed seals year round. The number of use areas reported for ringed seal peak in June, July, and August (Figure 12). Residents reported visiting the lowest number of use areas in October. Residents either hunt ringed seals on the ice during the winter or in the open water during the summer and early fall, while hunting bearded seal.

Figure 12: Barrow Use Areas for Ringed Seal by Month



Stephen R. Braund & Associates, 2010.

Discussing the timing of the ringed seal hunt, harvesters made the following comments:

> *Year round, on the ice or in the water. We hunt them all year round but if there is a part of the seal you want (you go at a certain time). Fur is August, and in spring and summer they shed their hair; we use those just for blubber and meat.* (SRB&A Barrow Interview March 2006)

> *[I hunt ringed seal from] November to April. Their skins are no good in April, but they're still good to eat.* (SRB&A Barrow Interview April 2006)

> *I've been hunting since December, but when we do go out I've gotten three this year. [I hunt] until whaling time, until March or April. Or even when we're out there [during whaling], we'll catch seals for dinner. Not so much [in May] because we have so much* maktak *by then. [We hunt] from when we have ice until spring*. (SRB&A Barrow Interview March 2006)

They can be anywhere from late November to the month of May. Springtime the male ones aren't very good hunting. They smell like gasoline. They're in the rutting season. If you don't smell its nose and you cut it up and cook it, it smells like you poured gasoline on the meat. (SRB&A Barrow Interview February 2006)

Method of Transportation

Residents reported using boat to access the majority (71 percent) of ringed seal use areas and snowmachine to access 35 percent of use areas (Table 42). Other lesser used modes of transportation include four-wheeler (four percent) and foot (six percent). Snowmachine, four-wheeler, and foot are used to access ringed seals as they lay on the ice in the winter or along the shore at any time of year. One individual described,

We will drive up with a four-wheeler to get them. Not more than a mile hiking, if they are on the ice sunbathing. Wherever there is an open lead. [I go by] snowmachine when it is whaling time, and then after that when it is getting warmer in the end of May and first week of June, we get the ringed seal by four-wheeler along the shore. (SRB&A Barrow Interview April 2006)

Residents also use boats in open leads during the winter months; as one individual described,

Snowmachine is a very important part on seal hunting. That's the only way you can carry your sled to retrieve the seal. You have to use a snowmachine and a sled to carry your boat to the open water. You take your boat from the sled and put it in the open water. Seals don't sink very well because they have that thick fat on them. (SRB&A Barrow Interview February 2006)

Residents reported using boats to hunt seals in open water during the summer or in open leads in the winter and spring. As discussed above, residents harvest ringed seal year-round; the method of transportation used depends on the timing of the hunt.

Table 42: Barrow Method of Transportation to Ringed Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	35%
Four-wheeler	4%
Boat	71%
Foot	6%
Plane	0%
Car/truck	1%
Number of Use Areas	69

Stephen R. Braund & Associates, 2010.

Harvest Gear

Barrow ringed seal harvesters reported using a variety of rifle calibers for their ringed seal hunts. The most common rifle calibers used were the .243, .223, and .22 (Table 43). Many of these harvesters often reported having used several different types of rifle calibers for ringed seal. One person said, "Anything from .22 magnum to .243 or .25-06. I prefer a .22 magnum" (SRB&A Barrow Interview February 2006).

Table 43: Barrow Ringed Seal Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
.243	12 (27%)
.223	10 (23%)
.22	9 (20%)
.22 mag	8 (18%)
.22-250	5 (11%)
.25-06	4 (9%)
.222	3 (6%)
.220	3 (6%)
12 gauge	2 (4%)
.224	1 (2%)
.308	1 (2%)

Stephen R. Braund & Associates, 2010.

Bearded Seal

Bearded seal (*ugruk*) is an important resource for Barrow residents and not only provides meat and seal oil for consumption, but is necessary for the building of skin boats (*umiat*) used during the spring whaling season. Of the 75 respondents interviewed, 84 percent (63 respondents) reported hunting bearded seal in the last 10 years, and 64 percent (48 respondents) reported doing so in the last 12 months (Tables 5 and 6). Thirty respondents reported successful harvests of bearded seal in the last 12 months, 63 percent of those 48 persons who attempted harvests (Table 7). Because bearded seals follow the ice pack north during their summer migrations, the availability of these highly desired marine mammals depends on the year's ice conditions.

Subsistence Use Areas

Barrow respondents' last 10 year (1997-2006) bearded seal use areas are depicted on Map 31 and show use areas extending as far west as Wainwright and as far east as Prudhoe Bay (reported by an individual who had traveled by boat to Prudhoe Bay in the last 10 years and hunted seals along the way). Respondents reported a high frequency of overlapping bearded seal use areas between Skull Cliff and Point Barrow and over 20 miles offshore. A relatively high number of use areas occur even farther from shore, as far west as Peard Bay and as far east as Ekalugruak Entrance. The total last 10 year Barrow use area for bearded seal, shown on Map 31, is 8,084 square miles.

Residents indicated that their use areas vary yearly depending on the location of the ice pack. Bearded seal follow the ice pack north past Barrow each year. Several residents described the variability of bearded seal hunting areas as follows:

> *We don't hunt the bearded seal when there is no ice. Ice not only brings in the nutrients and the fish are under the ice, but the bearded seals have to haul out on the ice. They like to sunbathe. It moves in and out, we don't bother going out if the ice is not out there. In the past five years people have become reliant on the computer and the GPS and we have bigger boats. When the ice gets rotten people will start going out looking for them.* (SRB&A Barrow Interview April 2006)

Map 31 - Barrow Bearded Seal Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
73 use areas reported by 63 respondents

Last 12 Months Dissolved Use Areas

54 use areas reported by 38 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Peard Bay
Inaru River
Meade River
Dease Inlet
Smith Bay
Topagoruk River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Fish Creek
Prudhoe Bay
Mikkelsen Bay
Kuk River

Projection: Alaska Albers Equal Area Conic, NAD 1983

> *It depends on where the ice is, the floating ice, sometimes the tides, the current, you may have to go way our there to get walrus and seals and* ugruk. (SRB&A Barrow Interview February 2006)

> *That's a favorite time of the year, in July. As soon as the ice goes out. I'd say even boating from about Skull Cliff all the way to about 15 miles out, 20 miles out [from the point]. It depends on the ice pack, the ice floes, about two miles or three miles, but when we go furthest west, it's about 32 miles to the ice. If it's a good day, you follow the ice.* (SRB&A Barrow Interview March 2006)

Some hunters reported limiting their travels to a certain offshore distance due to safety concerns. One hunter said, "Bearded seal hunting is five miles out from Barrow. More than five miles is too dangerous; it's an unforgiving place" (SRB&A Barrow Interview February 2006). Others reported going substantial distances offshore. As one individual described, "It depends on your gas and your faith in your equipment." Changing ice conditions in recent years have affected the distance hunters must travel to access bearded seal hunting grounds. As two hunters described,

> *After breakup the farthest we go down is Skull Cliff and up to 30 miles out into the ocean. Before, 30 miles would never be in our minds. That is too far. This 30 mile hunt never existed before 10 years ago, [but] the ice has been receding. Nowadays we go in late June and early July. Once the ice goes you need to go 30 miles to get them.* (SRB&A Barrow Interview February 2006)

> *That was getting too dangerous with my boat. I hunt closer to shore on the way to Peard Bay, and I have a way to shelter my boat if I have to. My father says to not go out farther that five miles or you will get in trouble. But the ice changes are making it necessary to go farther. I go 10 to 15 miles north of Barrow, but I have another boat with me; I don't go out alone.* (SRB&A Barrow Interview February 2006)

Hunters commonly mentioned the currently high price of fuel and many noted that they try to harvest bearded seal as close to shore as possible in order to cut down on expenses; however, when necessary, Barrow respondents travel great distances. Residents' last 12 months use areas, shown on Map 32, are located between Peard Bay in the west and as far as Prudhoe Bay, with the highest number of overlapping use areas reported between Walakpa and Point Barrow and up to 20 miles from shore. Residents traveled up to approximately 40 miles from shore in pursuit of bearded seal. The total last 12 month Barrow use for bearded seal, shown on Map 32, is 2,580 square miles.

Regarding the trend of changing ice conditions (e.g., early break-up), Barrow respondents indicated that the previous year had been no exception. One individual observed,

> *Bearded seal was not a very good season for the crew this year, because the ice pack was too far out. I think the folks who hunted in early May had the best chance. I wasn't actually with my brothers when they did get the few, this season. This season, the ice was too far out for most of the boaters and the winds. It's just not safe.* Ugruk *is on the ocean side. It depends on where the lead [ice pack] is. Five miles is a good safe time to go. With it being a mile or so out, at least there's some protection from the waves. [We go] when the ice first goes out.* (SRB&A Barrow Interview February 2006)

A number of residents identified favored areas for hunting bearded seal. These "favorite" areas do not necessarily reflect where residents experience high harvest success rates, as successful areas change from year to year. Similar to ringed seal, multiple people reported a preference for hunting between Walakpa Bay (near "Monument") and Nunavak Bay, as well as staying closer to shore for their hunting activities. Several individuals commented that seals feed in these areas:

Map 32 - Barrow Bearded Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
54 use areas reported by 38 respondents

Most Recent Harvest Locations

33 use areas reported by 30 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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ARCTIC OCEAN

72°0'0"N

CHUKCHI SEA

71°0'0"N

BEAUFORT SEA

Barrow
Wainwright
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NATIONAL PETROLEUM RESERVE IN ALASKA

Peard Bay
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Harrison Bay
Thetis Island
Cross Island
Prudhoe Bay
Mikkelsen Bay
Fish Creek
Kuk River

160°0'0"W
155°0'0"W
150°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

The most preferred area is from Nulavik all the way to Nunavak. That's the feeding area; if the ice is retreating I go to the north where the ice is concentrated. It's hard to hunt seals in the open ice; it's hard to get an accurate shot. I cover that whole area into the ice lead. I pass the currents. When I go out 10 miles I go through three currents, at five miles I pass the currents, it's swifter. (SRB&A Barrow Interview February 2006)

Yeah, right in front of Nunavak is where I like to go, just offshore to about like five miles. It seems like where they like to hang out; just feeding I guess. [Bearded and ringed]. (SRB&A Barrow Interview March 2006)

I like to go west in front of the monument. Two summers ago we went in front of Monument and within one hour we had seven seals, three of them were small ones, we loaded the small ones and towed the others back. (SRB&A Barrow Interview February 2006)

My preferred area is Nunavak [Bay]. That's where we hunt ugruk*, right in front of Barrow to the point [Point Barrow] but preferred is right in front of Nunavak.* (SRB&A Barrow Interview February 2006)

Most Recent Harvest

Harvest Locations

As discussed, above, a number of residents had difficulty harvesting bearded seal in the previous year due to poor ice conditions, and some indicated that 2005 was the first year they didn't harvest any bearded seal. As two people said,

Last year I didn't get an ugruk *because the ice left; last year was pretty poor. That was when I went camping for the weekend, but all summer it was pretty poor last year.* (SRB&A Barrow Interview February 2006)

Last year was the first year I didn't get any ugruk*. It was real different. The seals like to travel with the ice. [There was no ice].* (SRB&A Barrow Interview March 2006)

Others were more successful harvesting bearded seals. Barrow respondents' most recent bearded seal harvests are depicted on Map 32. The majority of these harvests occurred between Walakpa Bay and Point Barrow and up to 20 miles from shore. However, some harvests occurred substantially farther from shore, beyond the point, and south of Walakpa Bay. Residents provided the following descriptions of their most recent bearded seal harvests:

Not even a mile off the shore. Straight from the boat ramp from Barrow was the last one I caught. We caught three of them. We weren't really looking for them and they just popped up. (SRB&A Barrow Interview April 2006)

*About 15 miles out from the point, I got those two [*ugruk*]. That was a lousy year. We didn't expect the ice not to come back. It came back a couple times, but we had to wait for good weather. Good weather's when I got those two* ugruk. (SRB&A Barrow Interview March 2006)

My three sons got three big ugruks *[last year]. I didn't get them; I was driving the boat. We had like three boats; that's the crew. We help each other. We already got the skins for*

the boat; it's a group activity. Right in front of Nunavak [Bay], about one mile out. (SRB&A Barrow Interview February 2006)

Probably by Walakpa is where we caught our last seals, probably three miles off the land. We caught one regular and one bearded seal. That was in July. (SRB&A Barrow Interview March 2006)

Last year I did shoot that ugrugaq*, a younger smaller one. If you shoot your first seal, you've got to give it away. It had to be around this area right here. We came out north, and then we went south and we went back north again. We went chasing and chasing and chasing. When we came back, we came close to Nuwuk. We had to follow the coast to get back to Barrow.* (SRB&A Barrow Interview April 2006)

Number of Participants

At least two people participated in all most recent bearded seal harvests, and 55 percent of these harvests involved four or more participants (Table 44). Bearded seal hunting requires multiple participants as the hunt takes place in boats on open water. One individual described bearded seal hunting as a group activity, saying,

I helped harvest some [bearded seals last year]. Three or four of us went out on a boat. Hunting for bearded seals is like a whaling crew activity. We use the skins to make the skin boats. Same place as whaling, just about. (SRB&A Barrow Interview February 2006)

Table 44: Barrow Number of Participants During Most Recent Bearded Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	45%
4 or more people	55%
Number of Most Recent Harvest Locations	33

Stephen R. Braund & Associates, 2010.

Duration of Trip

Residents generally hunt bearded seals from Barrow, although some reported hunting seals while staying at camps or cabins along the coast south of Barrow, including at Peard Bay. All trips to Barrow most recent bearded seal harvest areas were reported as same day trips (Table 45).

Months of Harvest Effort

Barrow residents reported hunting bearded seal primarily in the summer months, with the number of use areas peaking in July and declining in August and September (Figure 13). A number of respondents indicated that bearded seal are most abundant and available during July and into August. Two individuals provided the following comments:

[We hunted] until late August, and they started to disappear because they were moving away. We hunt bearded seal and walrus at the same time whenever we can; we never miss a time because we need them for whaling. We use bearded seals for boat skins. We

go anytime. We preserve them [skins] in the warm storage in oil. (SRB&A Barrow Interview April 2006)

[I go] in July, that's when the ice breaks up and the Bering Sea mammals come over. (SRB&A Barrow Interview February 2006)

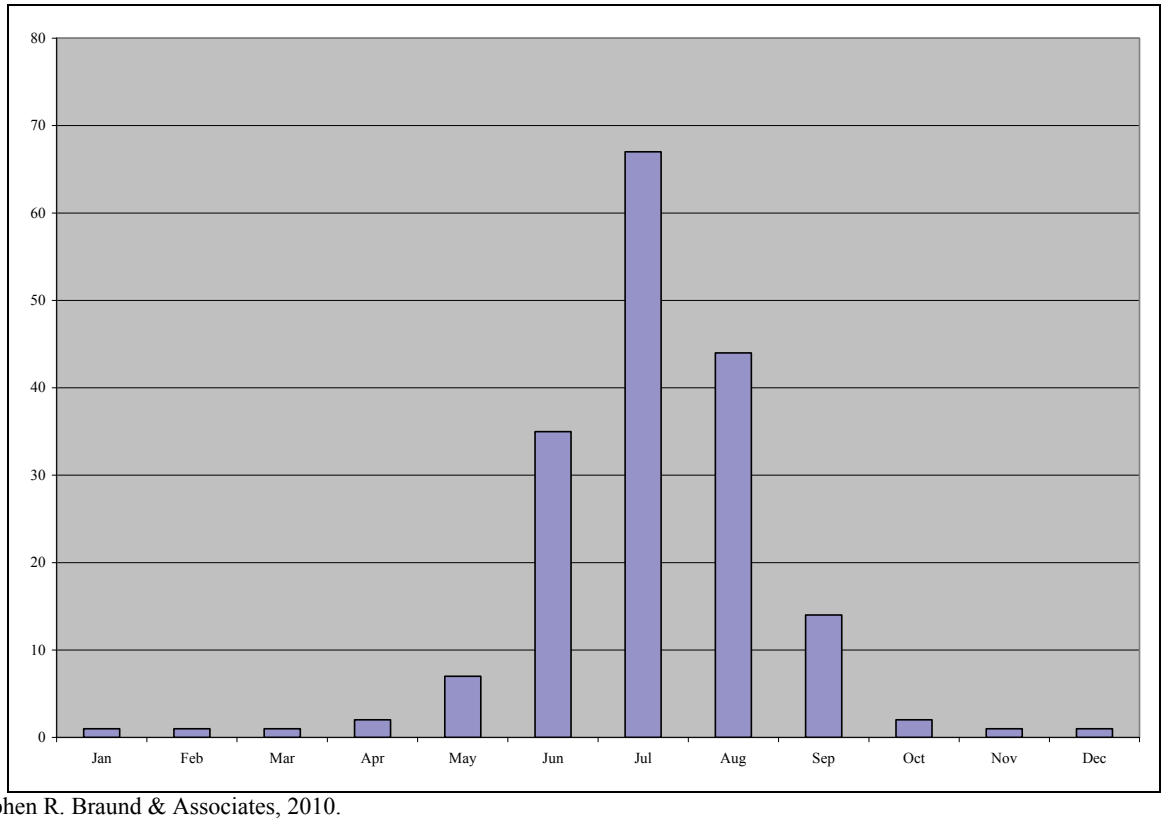
The timing and success of the bearded seal hunt depends primarily on ice conditions. The bearded seal generally migrate north with the ice pack as it breaks up along the Chukchi Sea, which usually occurs in June or July; if the ice is far from shore, hunters have difficulty reaching them. Several residents noted that the ice has been breaking up early in recent years.

Table 45: Barrow Duration of Trips to Most Recent Bearded Seal Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	0%
1 night	0%
Same day	100%
Number of Most Recent Harvest Locations	33

Stephen R. Braund & Associates, 2010.

Figure 13: Barrow Use Areas for Bearded Seal by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

As the above discussion implies, Barrow residents primarily use boats (96 percent) to access bearded seal hunting areas (Table 46). A couple of Barrow respondents indicated that they hunt bearded seal from the ice edge in the winter. However, as the majority of bearded seals return south to winter, this is less common.

Table 46: Barrow Method of Transportation to Bearded Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	5%
Four-wheeler	1%
Boat	96%
Foot	1%
Plane	0%
Car/truck	0%
Number of Use Areas	73

Stephen R. Braund & Associates, 2010.

Harvest Gear

Bearded seal harvesters reported 14 different rifle calibers used during their hunt (Table 47). The top three most common rifle calibers used by these harvesters were the .243, .223, and .22-250 rifles.

Table 47: Barrow Bearded Seal Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.243	19 (35%)
.223	17 (32%)
.22-250	13 (24%)
.22	6 (11%)
.22 mag	6 (11%)
.222	4 (7%)
30-06	3 (5%)
.308	3 (5%)
.220	3 (5%)
6mm	2 (3%)
.25-06	2 (3%)
.375	1 (1%)
.224	1 (1%)
.17	1 (1%)

Stephen R. Braund & Associates, 2010.

Respondents explained they generally use the smallest caliber they can to shoot bearded seals, to prevent the animals from sinking before they can be retrieved:

> *I mostly use .17 Remington because I don't want to put a big hole on the head because it will sink because it's so heavy.* (SRB&A Barrow Interview April 2006)

> *I prefer my .22-250. And the .223 because it doesn't sink as fast because it's still alive when I shoot it in the head. It gives me more time to retrieve it.* (SRB&A Barrow Interview March 2006)

> *.243, .223 or .22-250, we don't go higher than that, they sink like a rock.* (SRB&A Barrow Interview February 2006)

Walrus

Walrus (*aiviq*) hunting generally occurs while residents look for bearded seal near the ice pack during the summer months, although some individuals reported traveling farther offshore to find walrus. One individual described his walrus hunting trips as follows:

> *Whichever ones we come across first, we harvest. If I have my bigger boat we try to get only two or three walrus. With the bearded seal, even in my smaller boat I'll get two. We've got a limit of two a day.* (SRB&A Barrow Interview February 2006)

Fifty Barrow respondents (67 percent) reported hunting walrus in the last 10 years, and 29 (39 percent) reported hunting them in the last 12 months (Tables 5 and 6). Only 13 respondents (17 percent of those interviewed) reported successful harvests of walrus in the last 12 months (Table 7).

Subsistence Use Areas

Barrow last 10 year (1997-2006) and last 12 month walrus use areas are shown on Map 33. Walrus hunting areas are similar to those for bearded seal (see Map 31), but extend farther from shore and farther west beyond Wainwright. The total last 10 year Barrow use area for walrus, shown on Map 33, is 9,373 square miles. A high number of overlapping use areas occur between Skull Cliff and Point Barrow and over 20 miles from shore. Some residents reported traveling much farther than 20 miles. Several individuals described,

> *Walrus is mostly here in front of Barrow. Walrus can vary. Some years you can catch them two miles off Barrow. The farthest I've gone is 25 to 30 miles. I've seen some of my relatives travel 40 to 70 miles to get a walrus. Walrus are seasonal after the ice goes out.* (SRB&A Barrow Interview February 2006)

> *The walrus hunts are with my uncle. Those two times were when we were intending to go for bearded seal. And being that there were no bearded seals at those times, we leaned back on the walrus because there were so many and they were abundant. It had to be further west, just a little bit. And when I shot that one, it had to be way out there somewhere. We went deep into that scattered ice…. It would have to be about maybe 80 miles, maybe, being that the scattered ice conditions.* (SRB&A Barrow Interview April 2006)

> *Forty-two miles was one day and 58 one day, the farthest is 58 miles and the closest is 10 minutes. West 270 on the compass dial, before GPS you had to get your bearings, before we go out we get our bearings. We go 270. It all depends on the ice.* (SRB&A Barrow Interview March 2006)

Map 33 - Barrow Walrus Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
53 use areas reported by 50 respondents

Last 12 Months Dissolved Use Areas

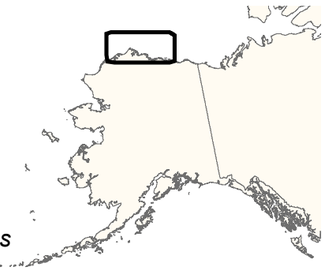
29 use areas reported by 29 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N



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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
Barrow
Wainwright
Atqasuk
Nuiqsut
Thetis Island
Cross Island
Prudhoe Bay
Peard Bay
Inaru River
Meade River
Dease Inlet
Chipp River
Smith Bay
Topagoruk River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Mikkelsen Bay
Kuk River
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents generally reported hunting walrus at the same time and place as bearded seal, although some described walrus hunting as a separate event which occurs somewhat farther from shore. Residents described,

> *We go for walrus too, latter part of July. The ice goes out and when the ice comes back in, the walrus are bathing up on top of it. [The distance] depends on how close they get. I can remember going as far as Monument, Nulavik because you want to try to be the first people to go after these walrus. We go this way [southwest] to go after them. And after several days, we go [straight out]. Rarely do I see people go north for the walrus. Shooting station,* Piġniq *area [is the farthest north]. When you go walrus hunting, you've got to go way far, 15, 20 miles. If you're lucky they're real close and you can see them from the beach. Probably to Nulavik area, and maybe to Skull Cliff.* (SRB&A Barrow Interview April 2006)

> *Further out in the ocean for the walrus; you have to go out to the floating ice, 10, 12 miles [out]. If I can see the ice from the beach, which is about 14 miles, I'll travel that far. I might dare to go further, but not too much further. Common distance is about 14 miles.* (SRB&A Barrow Interview March 2006)

Last 12 months walrus use areas, shown on Maps 33 and 34, extend from Peard Bay to the west and Tapkaluk Islands to the east, as well as offshore from Barrow up to approximately 80 miles. The highest numbers of overlapping last 12 month use areas are located between Walakpa and Point Barrow, with a relatively high number of overlapping use areas also occurring as far as Skull Cliff to the west and offshore approximately 20 miles. The total last 12 month Barrow use area for walrus, shown on Map 34, is 6,024 square miles. Residents traveled substantial distances in search of walrus:

> *Thirty-two miles north of the point and 27 miles west of Barrow. It all depends on the current and the wind. It's not a B-line shot; you can't do that. It all depends on the current and the wind. The ice was further out, and we didn't see a whole bunch of walruses until August. That was 32 miles [north of the point].* (SRB&A Barrow Interview March 2006)

> *Last year was a bad year. We went 22 miles straight out of town. We went 22 miles [from Point Barrow] and went around.* (SRB&A Barrow Interview April 2006)

> *I went further out, seven or eight miles. We ended up coming back in towards Barrow because we were listening for the walrus, and we heard them south of us toward the shore. And sure enough there was ice flowing back in toward the current. The young ones are very light and agile and are very aggressive. The older ones are more laid back. They're big and heavy and they don't want to move around too much.* (SRB&A Barrow Interview March 2006)

Residents generally did not identify "favorite" areas for hunting walrus, instead indicating that they follow the ice pack in search of walrus. However, several respondents indicated that they prefer to hunt walrus west of Barrow, with two hunters providing the following explanations:

> *My preferred location for walrus hunting is west from Barrow, anywhere west. Because the south current is so fast, that while you're butchering them, you're on your way back to Barrow. That's the safest way we learned from the old-timers. They purposefully went west, because their boats were much slower then.* (SRB&A Barrow Interview February 2006)

Map 34 - Barrow Walrus Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
29 use areas reported by 29 respondents

Most Recent Harvest Locations

13 use areas reported by 13 respondents

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Thetis Island
Cross Island
Peard Bay
Inaru River
Meade River
Dease Inlet
Topagoruk River
Chipp River
Ikpikpuk River
Smith Bay
Harrison Bay
Teshekpuk Lake
Fish Creek
Prudhoe Bay
Mikkelsen Bay
Kuk River

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

In June and July the current goes north to the east and it travels 10 knots an hour; you don't want to hunt north of Barrow. When you are hunting seals you go west and once you shoot the walrus on the ice and you butcher it you are in front of Barrow. That is the preferred direction. If you shoot it in front of Barrow you will be in front of Admiralty Bay [by the time you are done butchering it]. (SRB&A Barrow Interview February 2006)

Most Recent Harvest

Harvest Locations

As shown in Table 7, 13 Barrow respondents (17 percent of those interviewed) reported successful harvests of walrus in the 12 months prior to their interviews. A number of residents indicated that, while they were not successful harvesting walrus in the previous year, they had harvested walrus in recent years. The locations of last 12 month most recent harvests are depicted on Map 34 and located both close to Barrow and at substantial distances offshore, including one harvest located approximately 80 miles offshore from Barrow. All most recent harvests were located offshore between Skull Cliff and Point Barrow. Residents provided the following descriptions of their most recent walrus harvests:

Yep, Point Franklin was the farthest [I went], and we got one straight out from Skull Cliff, about 10 miles out…. It was a pretty big male. (SRB&A Barrow Interview December 2006)

We got a couple walrus; we were about 15 miles straight out from Barrow. We got two. Because of the open water we couldn't get out again. (SRB&A Barrow Interview February 2006)

The last walrus I got was right in front of Barrow. Not too far. We weren't too far off shore. Four, five miles offshore. It was close. (SRB&A Barrow Interview March 2006)

Number of Participants

Respondents reported four or more participants at 38 percent of their most recent walrus harvests (Table 48). The remainder of their most recent walrus hunts had between two to three participants. Like the bearded seal hunt, the walrus hunt requires multiple participants to butcher harvested walruses and transport the meat to the community.

Table 48: Barrow Number of Participants During Most Recent Walrus Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	62%
4 or more people	38%
Number of Most Recent Harvest Locations	13

Stephen R. Braund & Associates, 2010.

Duration of Trip

Barrow respondents reported taking day trips to all most recent walrus harvest areas (Table 49). Like seal harvest areas, the majority of walrus use areas are relatively close to Barrow and do not require trips lasting longer than one day. Even longer trips are completed in one day.

Months of Harvest Effort

Respondents reported hunting walrus from June to September, with the most use areas reported in July (Figure 14). This is similar to the seasonal pattern of bearded seal harvests. During interviews, many residents described hunting walrus at the same time as hunting bearded seal. One individual said,

> *[We hunt walrus] until late August and they started to disappear because they were moving away. We hunt bearded seal and walrus at the same time whenever we can; we never miss a time because we need them for whaling.* (SRB&A Barrow Interview April 2006)

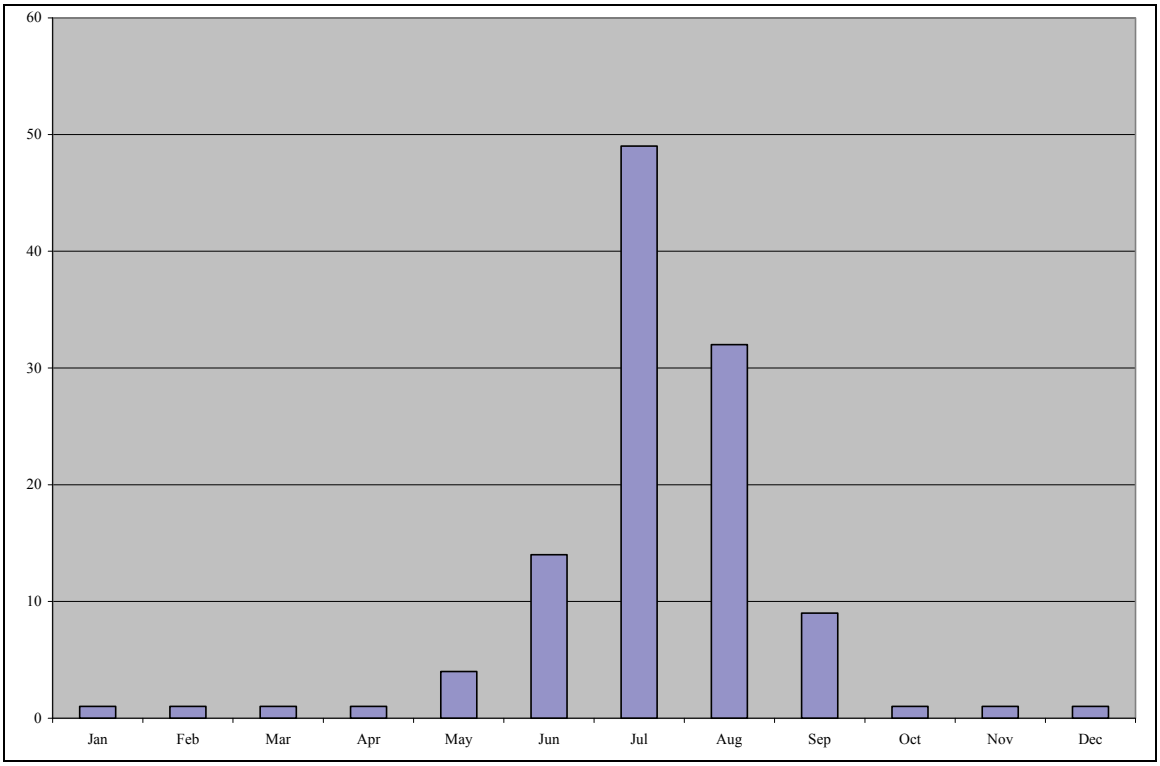
One individual reported hunting walrus whenever they are available and indicated that some have been known to over-winter in the area, hence the presence of year-round use areas in Figure 14.

Table 49: Barrow Duration of Trips to Most Recent Walrus Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	0%
1 night	0%
Same day	100%
Number of Most Recent Harvest Locations	13

Stephen R. Braund & Associates, 2010.

Figure 14: Barrow Use Areas for Walrus by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported using boat to access 100 percent of walrus use areas (Table 50). Residents travel by boat to harvest walrus on and around ice floes as they migrate north with the pack ice.

Table 50: Barrow Method of Transportation to Walrus Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	2%
Four-wheeler	0%
Boat	100%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	53

Stephen R. Braund & Associates, 2010.

Harvest Gear

Barrow individuals reported nearly 20 different rifle calibers for their walrus hunting (Table 51). The most common rifle calibers used included the .308, .270, .30-06, .25-06, .223 and 7mm. One resident discussed the need for a large caliber rifle to penetrate the walrus' thick hide. He said,

> *308 and .375 not the .22mag. Same for walrus, high powered rifle. When you use a smaller caliber rifle you just shoot at the walrus [and] it just sticks to thick hide. Sometimes the bullet bounces off if you shoot with a small caliber.* (SRB&A Barrow Interview December 2006)

Table 51: Barrow Walrus Harvest Gear

Rifle Caliber	Number (%) of Harvesters	Rifle Caliber (cont.)	Number (%) of Harvesters
.308	11 (26%)	.300	2 (4%)
.270	10 (24%)	.257	2 (4%)
.30-06	7 (17%)	.44-40	1 (2%)
.25-06	7 (17%)	.224	1 (2%)
.223	6 (12%)	.220	1 (2%)
7mm	6 (12%)	7.62x39	1 (2%)
.243	4 (5%)	.22	1 (2%)
.22-250	4 (5%)	.375	1 (2%)
.45-70	2 (4%)	.357	1 (2%)
		.30-30	1 (2%)

Stephen R. Braund & Associates, 2010.

Wolf/Wolverine

Wolf (*amaġuq*) and wolverine (*qavvik*) hunting is less common than other subsistence pursuits because it generally requires long-distance travel during cold winter months. However, a number of people reported hunting these furbearers regularly, sometimes taking extended trips and staying in cabins near the Ikpikpuk and Colville rivers. Approximately 41 percent of Barrow respondents (31 individuals) reported last 10 year use areas for wolf/wolverine (Table 5). Thirteen respondents (17 percent) reported hunting wolf/wolverine in the last 12 months, and five (seven percent) reported successful harvests (Tables 6 and 7).

Subsistence Use Areas

As shown on Map 35, Barrow hunters reported traveling great distances in pursuit of wolf, wolverine, and other furbearing animals. Barrow last 10 year (1997-2006) wolf and wolverine use areas extend south beyond the Colville River, west as far as Point Lay, and east beyond Kuparuk River. Several respondents reported traveling beyond the extent of the map used during Barrow interviews in search of wolf and wolverine. The highest number of overlapping wolf and wolverine use areas were reported between Barrow and the upper Meade, Chipp, and Ikpikpuk rivers. The total last 10 year Barrow use area for wolf and wolverine, as shown on Map 35, is 41,595 square miles.

Some residents reported hunting wolf and wolverine in the same general area as they search for caribou; as one individual said, "Same area that I go caribou hunting; they follow the caribou." Others reported traveling to more distant locations, especially along the upper Ikpikpuk River drainages and in the foothills of the Brooks Mountains, especially those surrounding Titaluk, Awuna, and Colville rivers, which are known by these hunters for their abundance of furbearing animals. Several individuals also reported setting traplines in these areas for wolves, wolverines, and foxes. Residents generally indicated that they begin looking for wolf and wolverine as soon as they leave Barrow, but often do not encounter them until they are farther south of the community. Barrow respondents provided the following detailed descriptions of their wolf and wolverine hunting activities south of Barrow:

> *Last three wolves, we caught them…it was on the Topagoruk River. The first two wolves I ever got were on the Topagoruk River, between these two cabins. That was two years ago. I have gone in the last five years, but I got my last two ones in 2004. I got my first wolverine at [Name]'s, right at his cabin. The furthest south I've gone was to Howard Hill, and I got one on the way back, almost by Little Supreme Bluff, the third wolverine. [We look] in the high bluffs, in these ravines here. For some reason the wolverine seem to like these creeks. I caught my last wolverine right in here. Somewhere in that area.* (SRB&A Barrow Interview February 2006)

> *I've been off the map. We go from Barrow, and I go near our cabin and cut across. I don't like to go over lakes. From Topagoruk we will go straight to Chip 9, and we will try to go on a straight trail. And then from Chip 9, we will go to Chip 10 ½ and from 10 ½ we will cut to 13, and we try to stay on one side. We try to get there in one day. Sometimes we stay at the cabin. That is where I started; I would stay there for a week or two weeks. We will just go look around at Price Creek and Key Creek. And I have been to Howard Hill and Knifeblade Ridge and as far as Killik [River]. If I travel Umiat I will go to Square Lake and I will follow the tractor trail. If I stay at Umiat I will go all over. We have camped out at Chandler and Anaktuvuk River. I usually hunt the whole way down all the way to Anaktuvuk. We were hunting on our way to Nuiqsut. We were going for gas. It was a straight line and not a hunting route but we were looking along the way and then right back to our camp and along the Chandler. We pitched a tent. I have been up hunting in all the creeks. I've been to Square Lake and from the cabin I have been in this area around Howard Hill and Little Supreme Bluff and to Knifeblade Ridge. [I hunt there from] April 1st to May 1st and two days after Christmas.* (SRB&A Barrow Interview April 2006)

Map 35 - Barrow Wolf and Wolverine Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
92 use areas reported by 31 respondents

Last 12 Months Dissolved Use Areas

34 use areas reported by 13 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Prudhoe Bay
Peard Bay
Meade River
Chipp River
Dease Inlet
Smith Bay
Harrison Bay
Teshekpuk Lake
Prudhoe Bay
Ikpikpuk River
Colville River
Itkillik River
Anaktuvuk River
Kuparuk River
Sagavanirktok River
Dalton Highway
Canning River
Kukpowruk River
Awuna River
Kokolik River
Utukok River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

All along the area, around Carbon Creek all the way along Knifeblade Ridge, along the Colville and 20 to 30 miles wide area to our cabin [at Chip 12]. All the way to Teshekpuk Lake. We go right down through Inigok. And all the area from the cabin north to Barrow and Peard Bay…. Titaluk River, it's real hard to find a crossing and the wolves go in this area, and they got it made because it's hard to find a way; its real deep and steep. Along the snowmachine crossing back up to Barrow from Atqasuk to Chip 2…. The last couple years I haven't been to the cabin at Birthday Pass; we were going there every year in 95, 96, 97. We would go farther south around Carbon Creek and Lookout Ridge. My wife got her first wolverine around Awuna River; that was about 10 years ago. (SRB&A Barrow Interview February 2006)

A number of residents reported favorite wolf and wolverine hunting destinations, often pointing to the upper Ikpikpuk River and to drainages within the foothills of the Brooks Range. Several residents described,

I like Umiat because of the scenery; I like the Colville and the Chandler. (SRB&A Barrow Interview April 2006)

The high hills, that's where they seem to be more, below all the lakes. To Wainwright, we just follow the edge of the lakes. (SRB&A Barrow Interview February 2006)

The best is around that bend [on Ikpikpuk River] and around the Koluktak Lakes is the best area for me. Anywhere it's easy. I love that spot, too, around little Supreme [Bluff] area, the Inigok, too. (SRB&A Barrow Interview February 2006)

Yes I do, it's this general area [around Price River] because these rivers get all close to each other and then spread out, five rivers are within a mile apart and the game are all in there. (SRB&A Barrow Interview February 2006)

This area is favorite, just because I know the terrain [around Chip 13]. This is called Singiluk. It's an ancient hunting traditional area for wolf and wolverine hunting. Ever since I learned that, I've been going there, and I've caught two wolverines since then. (SRB&A Barrow Interview March 2006)

Maps 35 and 36 depict Barrow residents' last 12 month wolf and wolverine use areas. Residents generally traveled south and east of Barrow, although hunting activity was also reported toward Wainwright and then south to Awuna River. Last 12 month use areas extended from Barrow east as far as Nuiqsut, and beyond the Colville River to the south. The highest number of overlapping use areas were reported along the upper Ikpikpuk River. The total last 12 month Barrow use area for wolf and wolverine, as shown on Map 36, is 12,147 square miles. Residents described their last 12 month wolf and wolverine hunting activities as follows:

I went to the cabin [Chip 13] in December [2005]. My last trips were mainly this area [along the Ikpikpuk River]. It depends on the season, or who I'm going to follow. The last time, I followed [Name]. The other time I followed [Name]. That's who I'm going to follow up to Umiat for wolverine. I was gone pretty close to two weeks [last wolf and wolverine trip]. (SRB&A Barrow Interview February 2006)

I went all the way up to Colville. Once I get into Colville I look up and down. I usually don't see [wolf and wolverine] until I get to Chip 9. (SRB&A Barrow Interview April 2006)

Map 36 - Barrow Wolf and Wolverine Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
34 use areas reported by 13 respondents

Most Recent Harvest Locations

7 use areas reported by 5 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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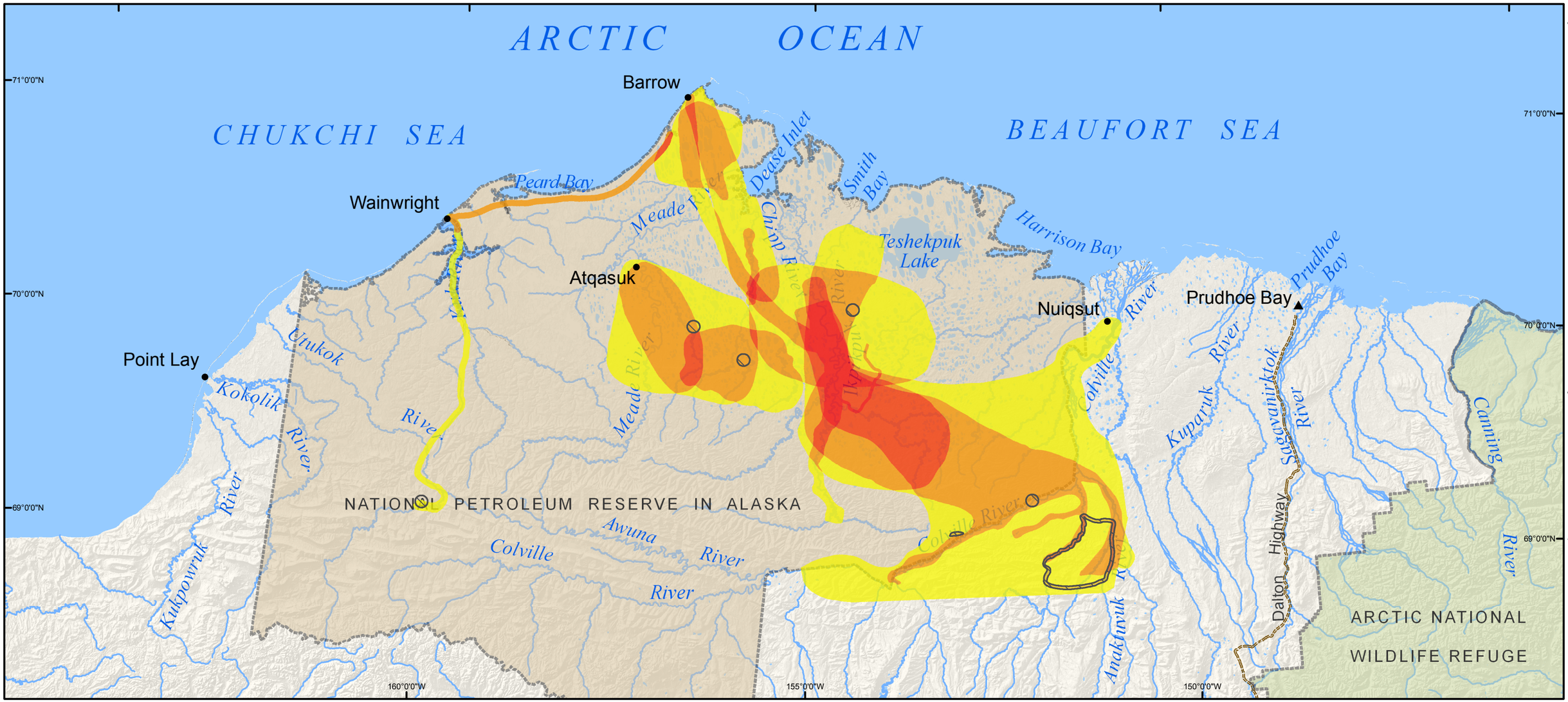


July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

All the way to Umiat. We went this way [south]. Not towards Teshekpuk. Wolf, wolverine and lynx. Mostly see all the lynx on the Colville. I think we got four all together, between five of us. And Killik we went eight miles down the river [and along Anaktuvuk and Chandler rivers to Big Bend]; we were getting pretty close to the mountains. Really high foothills. (SRB&A Barrow Interview December 2006)

Most Recent Harvest

Harvest Locations

As shown in Table 7, five Barrow respondents (seven percent of those interviewed) reported successful harvests of wolf or wolverine in the 12 months prior to their interviews. Other residents were not successful during the previous year or did not go hunting, but reported successful harvests in recent years. The locations of Barrow respondents' most recent wolf and wolverine harvests are depicted on Map 36. Barrow respondents provided the following descriptions of their most recent harvests of wolf and wolverine:

And the wolverines, I got one on Anaktuvuk River and one on Colville. I got three on Chandler River; that was the last one I got. Thirty miles up Anaktuvuk River, thirty miles up Chandler River. The very last wolverine I caught was right here on Chandler. I caught four that day. I got one on the Anaktuvuk River. But then I came over here, and I got three of them on this river. That's the best I've ever done. We had eight when he left, and after he left, there were four more. Eight for me and four for [Name]. Two weeks. (SRB&A Barrow Interview April 2006)

Ten miles from the cabin [on Topagoruk River]. In January, I got one. Just me, for one week, 10 days. You can go forever and only get one animal. (SRB&A Barrow Interview February 2006)

Right here [south of Teshekpuk Lake and east of Chip 9]. On December 18, 2005 I got my last wolverine. Me and my father-in-law; we were hunting at the same time, and we saw tracks and followed it. We were out six hours from the cabin. (SRB&A Barrow Interview February 2006)

Number of Participants

Seventy-one percent of all most recent wolf/wolverine harvests involved two to three participants (Table 52). Fourteen percent of most recent wolf/wolverine harvests occurred during solo hunts, and the same percentage occurred during trips with four or more people.

Table 52: Barrow Number of Participants During Most Recent Wolf/Wolverine Harvests

Number of Participants	Percentage of Harvest Locations
1 person	14%
2-3 people	71%
4 or more people	14%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

Duration of Trip

The duration of trip to the seven reported most recent wolf/wolverine harvests varied from one night to more than two weeks, although no harvests occurred during same day trips (Table 53). Residents generally travel a substantial distance from Barrow to hunt wolf and wolverine, and usually stay at cabins during these extended trips.

Table 53: Barrow Duration of Trips to Most Recent Wolf/Wolverine Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	14%
1-2 weeks	29%
2-5 nights	29%
1 night	29%
Same day	0%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Barrow residents reported hunting for wolf and wolverine from October until June (Figure 15). The number of reported use areas reaches a peak in February and March and drops dramatically from April until activities cease in June. Respondents prefer to hunt wolf and wolverine in February and March because during those months their fur is in prime condition. Furthermore, the days are longer and conditions are more conducive to extensive travel. Three respondents explained,

> *If I was to go, now [February] would be a good time to go. March and then you want to get them before April because the sun changes the color of the fur. You can do one hundred miles a day in March.* (SRB&A Barrow Interview February 2006)

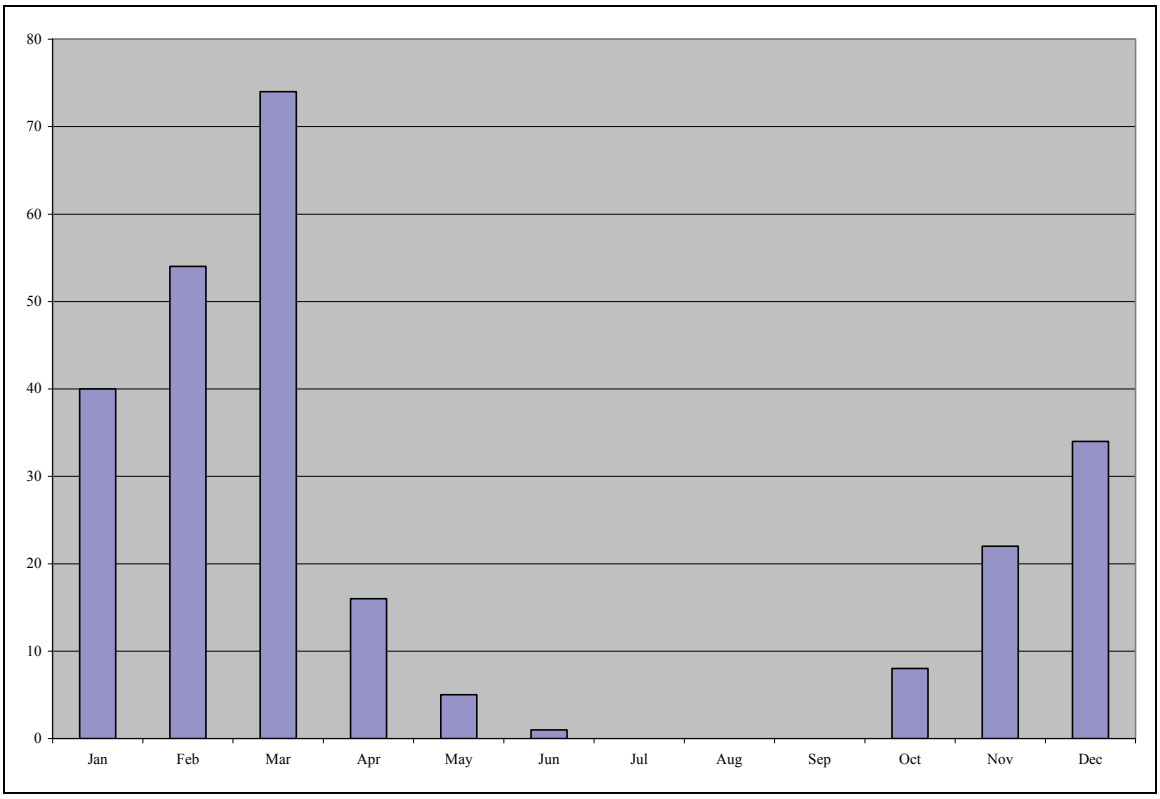
> *[I go] in February, March. After March the sun starts hitting their fur, and it gets scraggily.* (SRB&A Barrow Interview February 2006)

> *Mainly March; several times we've gone out in December but not very far. [March is better because there is] more daylight and you've got more drifted snow, the hard packed snow. After the main drifts are there you can drive on the hills. In December you got the soft snow, softer than heck; burn more fuel and you are limited to where you go. You have to take a gas run. Drop off of a drum and a half or if you have a base camp and you fan out to places from there.* (SRB&A Barrow Interview February 2006)

Method of Transportation

As the majority of wolf and wolverine harvests occur during the winter months, the snowmachine is the primary mode of transportation to wolf and wolverine use areas, and Barrow harvesters used snowmachines to travel to 100 percent of their use areas over the last 10 years (Table 54).

Figure 15: Barrow Use Areas for Wolf/Wolverine by Month



Stephen R. Braund & Associates, 2010.

Table 54: Barrow Method of Transportation to Wolf/Wolverine Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	100%
Four-wheeler	0%
Boat	0%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	92

Stephen R. Braund & Associates, 2010.

Harvest Gear

Harvesters reported using several small caliber rifles during their wolf and wolverine hunts, including .243, .22 and .223 rifles (Table 55). Five harvesters reported using traps to harvest wolf and wolverine. However, one individual said he had to stop using traps in recent years due to an increase in Rolligon activity, saying,

[I use a] .243. I didn't put my traps out this year because of the activity, [the Rolligons] went over my traps in the previous years. They were overriding our traps. (SRB&A Barrow Interview February 2006)

Table 55: Barrow Wolf/Wolverine Harvest Gear

Rifle Caliber or Trap	Number (%) of Harvesters
.243	6 (27%)
.22	6 (27%)
.223	5 (22%)
Trap	5 (22%)
.22 mag	4 (18%)
.357	3 (13%)
.22-250	2 (9%)
.17	2 (9%)
.25-06	2 (9%)
.30-06	1 (4%)
.220	1 (4%)
.222	1 (4%)
9mm	1 (4%)
.45	1 (4%)
.38	1 (4%)

Stephen R. Braund & Associates, 2010.

Resource Summary

A total of 75 Barrow respondents provided 2,029 last 10 year subsistence use areas for the resources discussed in this report (Table 5). Sixty-nine of these respondents (92 percent) reported hunting at least one resource in the last 12 months (Table 6). Caribou was the most commonly sought terrestrial mammal, with 97 percent of respondents (73 individuals) reporting use areas, and bowhead whale was the most commonly sought marine mammal with 85 percent of respondents (64 individuals) reporting use areas. Other comparably hunted resources include bearded seal (84 percent or 63 respondents), broad whitefish (92 percent or 69 respondents), eiders (84 percent or 63 respondents), and geese (95 percent or 71 respondents) (Table 5). Sixty-nine Barrow respondents (92 percent of those interviewed) reported last 12 month use areas for at least one resource, with 66 individuals (88 percent of respondents) reporting successful harvests during those 12 months (Tables 6 and 7).

Subsistence Use Areas

Map 37 shows Barrow last 10 year use areas for all use areas, overlain with last 12 month use areas for all resources. This map illustrates the extensive distances Barrow residents travel to harvest subsistence resources. Land and river subsistence activities occur as far as Point Lay to the west and beyond Anaktuvuk River to the east. Ocean hunting extends from the Wainwright area east to Prudhoe Bay. Residents reported traveling up to 80 miles from shore in search of marine mammals during the open water season. The highest number of overlapping use areas occur offshore up to approximately 20 miles between Skull Cliff and Ekilukruak Entrance, overland to Inaru River, along the coast to Peard Bay, and

Map 37 - Barrow All Resource Use Areas, Last 10 Years (1997-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

2,029 use areas reported by 75 respondents

Last 12 Months Dissolved Use Areas

989 use areas reported by 69 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE RESERVE
Barrow
Wainwright
Atqasuk
Point Lay
Nuiqsut
Prudhoe Bay
Kaktovik
Cape Lisburne
Point Hope
Dalton Highway
Harrison Bay
Camden Bay
Meade River
Colville River
Kokolik River
Kukpowruk River
Awuna River
Kuparuk River
Sagavanirktok River
Canning River
Hulahula River
Anaktuvuk River
Ikpikpuk River
Teshekpuk Lake
Peard Bay
Prudhoe Bay
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
165°0'0"W
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

along the Inaru, Meade, Topagoruk, Chipp, Alaktak, Ikpikpuk, and Miguakiak rivers. Relatively high amounts of overland travel were reported toward Atqasuk and beyond Ikpikpuk River, and offshore from Barrow at greater distances. The total last 10 year Barrow use area for all resources, as shown on Map 37, is 53,687 square miles.

Residents reported traveling offshore on the ice and by boat during the open water seasons to hunt marine mammals as well as eiders; overland by snowmachine during the winter months to harvest caribou, wolf, and wolverine and during the spring months to harvest geese; to local lakes year-round to harvest various species of fish; and along various rivers in the region to harvest fish and caribou during the summer and fall months.

Residents covered a substantial but somewhat smaller area in the 12 months prior to interviews, extending beyond Colville River to the south and east, and as far as Icy Cape to the west. The highest number of overlapping last 12 month use areas, as shown on Map 38, are located offshore between Skull Cliff and Ekilukruak Entrance, overland between Barrow and Inaru River, along the coast south of Barrow to Peard Bay, along the coast east of Barrow into Dease Inlet, and along the Inaru, Meade, and Chipp rivers. The total last 12 month Barrow use area for all resources, as shown on Map 38, is 23,926 square miles.

Most Recent Harvest

As depicted in Table 7, 66 Barrow respondents reported 417 successful harvest locations in the 12 months prior to interviews. Residents reported the highest number of successful harvest locations for geese (owing to the fact that residents often visited multiple geese hunting locations in the same hunting trip), followed by eiders, caribou, broad whitefish, bearded seal, ringed seal, and bowhead whales. More than half of Barrow respondents reported successful harvests of caribou, broad whitefish, geese, and eiders, and more than one quarter of respondents reported successful harvests of bearded seal, ringed seal, bowhead whale, and burbot.

Harvest Locations

Barrow residents' most recent harvests for all resources are shown on Map 38. A high number of harvests occurred offshore from Barrow between Nulavik and Point Barrow, along the Meade, Inaru, and Chipp rivers, and at various locations between Barrow, Inaru River, and Dease Inlet. Harvests were reported up to over 60 miles offshore from Barrow and inland as far as Awuna and Anaktuvuk rivers.

Number of Participants

As indicated in Table 56, Barrow subsistence activities tend to involve multiple participants. In fact, nearly half (46 percent) of all most recent harvests reported by Barrow respondents were carried out by four or more people. Only 15 percent of most recent harvests were conducted on solo trips. In the case of marine mammal hunting, hunting groups are desirable and necessary.

Whaling crews consist of residents who either assist in the actual hunt or provide support from the whaling camp or from town. Bearded seal and walrus hunts require at least several people so that one individual can maneuver the boat while the others focus on the harvest of these large animals. Figure 16 shows the percentage of most recent harvests involving four or more participants, by resource. Bowhead whale hunting had the highest percentage of harvests by four or more participants, followed by geese, Arctic char/Dolly Varden, and bearded seal. Caribou hunting had the lowest percentage of most recent harvests involving four or more participants.

Map 38 - Barrow All Resource Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low

989 use areas reported by 69 respondents

Most Recent Harvest Locations

417 use areas reported by 66 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

72°0'0"N

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

165°0'0"W

160°0'0"W

155°0'0"W

150°0'0"W

145°0'0"W

Barrow

Wainwright

Atqasuk

Point Lay

Cape Lisburne

Point Hope

Nuiqsut

Prudhoe Bay

Kaktovik

Peard Bay

Smith Bay

Harrison Bay

Teshekpuk Lake

Camden Bay

Prudhoe Bay

Meade River

Ikpikpuk River

Colville River

Kuparuk River

Sagavanirktok River

Canning River

Hulahula River

Utukok River

Kokolik River

Kukpowruk River

Awuna River

Anaktuvuk River

Dalton Highway

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE RESERVE

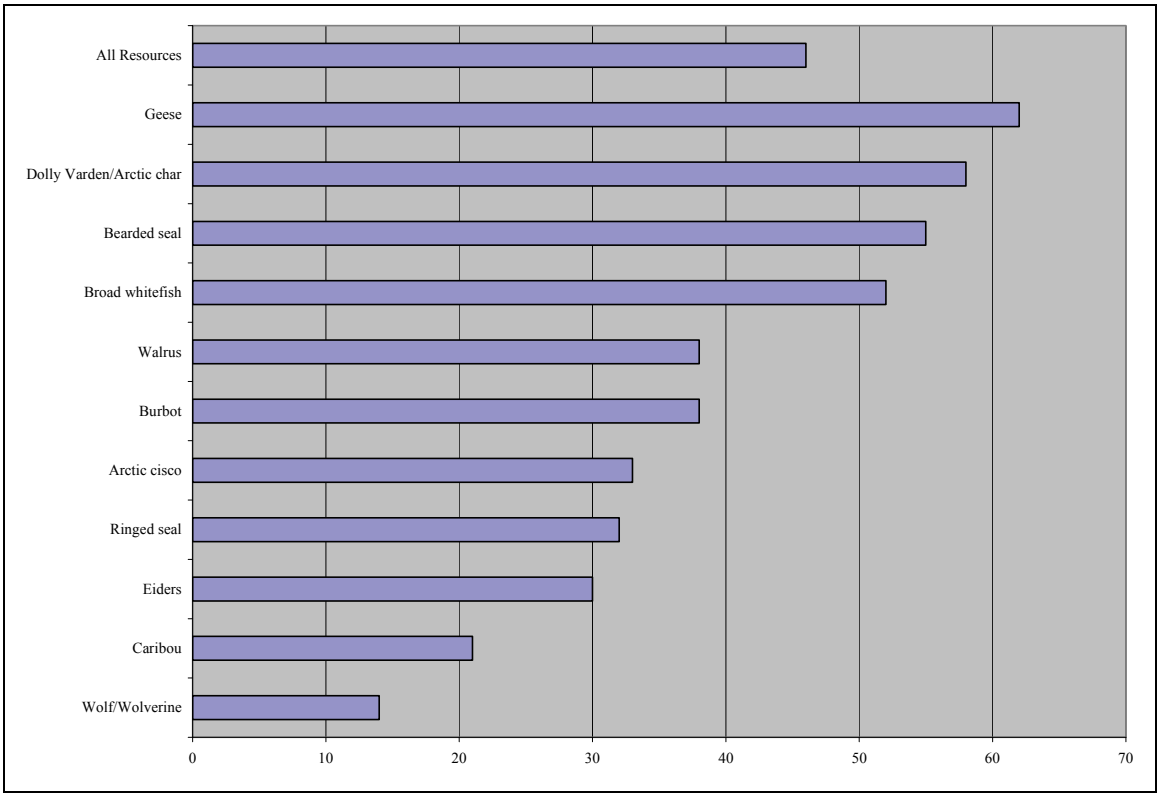
Projection: Alaska Albers Equal Area Conic, NAD 1983

Table 56: Barrow Number of Participants During Most Recent All Resources Harvests

Number of Participants	Percentage of Harvest Locations
1 person	15%
2-3 people	39%
4 or more people	46%
Number of Most Recent Harvest Locations	404

Stephen R. Braund & Associates, 2010.

Figure 16: Percentage of Most Recent Barrow Harvests with Four or More Participants



Stephen R. Braund & Associates, 2010.

Duration of Trip

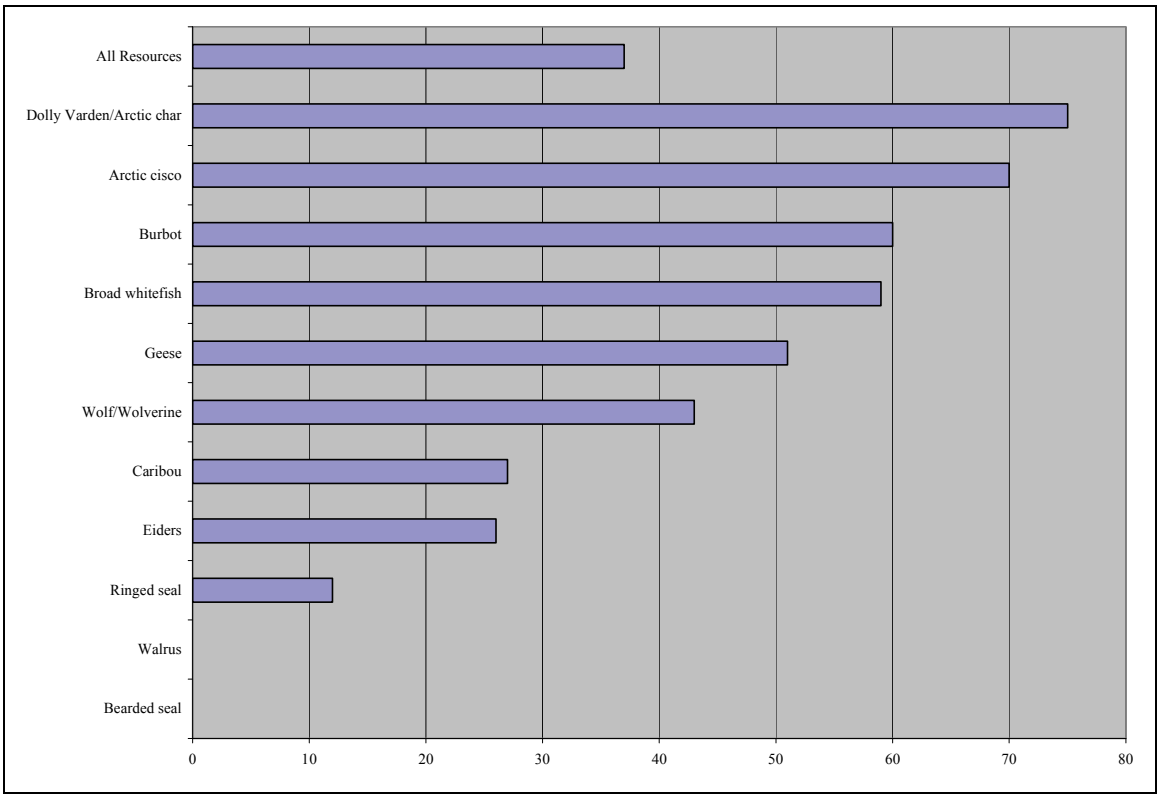
While 40 percent of Barrow most recent harvests reportedly occurred during day trips, 53 percent lasted at least two nights, and 38 percent lasted one week or more (Table 57). The duration of trip to a subsistence use area depends on factors such as the distance of the area from the community, the nature of the subsistence activity, the resource pursued, and the time of year. For example, with the exception of extended wolf and wolverine hunts, long trips are less common in the winter than in the summer and fall, when families often travel to cabin locations for extended periods of time to harvest fish and hunt caribou (see Figure 17). Residents generally take day trips when boating for marine mammals (see Figure 17) or traveling to harvest areas located on the local road system.

Table 57: Barrow Duration of Trips to Most Recent All Resources Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	15%
1-2 weeks	23%
2-5 nights	15%
1 night	8%
Same day	40%
Number of Most Recent Harvest Locations	398

Stephen R. Braund & Associates, 2010.

Figure 17: Percentage of Most Recent Barrow Harvests Lasting More Than One Week



Stephen R. Braund & Associates, 2010.

As shown on Maps 39 through 42, which depict most recent harvest locations in terms of duration of trip, residents generally reported taking same day trips to offshore use areas or use areas located between Barrow and Inaru River (Map 39). One night trips extended somewhat farther from the community to Chipp and Topagoruk rivers or as far as Colville River during the winter months (Map 39). Residents reported spending two to five nights or between one to two weeks primarily at inland locations along the Inaru, Meade, Topagoruk, Chipp rivers, Alaktak, and Miguakiak rivers (Maps 40 and 41). Residents also reported extended stays (between one and two weeks and more than two weeks) offshore from Barrow, presumably during the spring bowhead whale hunt (Maps 41 and 42).

Maps 39, 40, 41, 42
Barrow Duration of Trip to Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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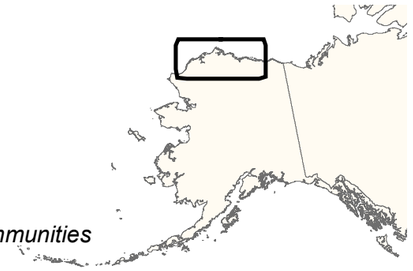
Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 70 140 280 Kilometers

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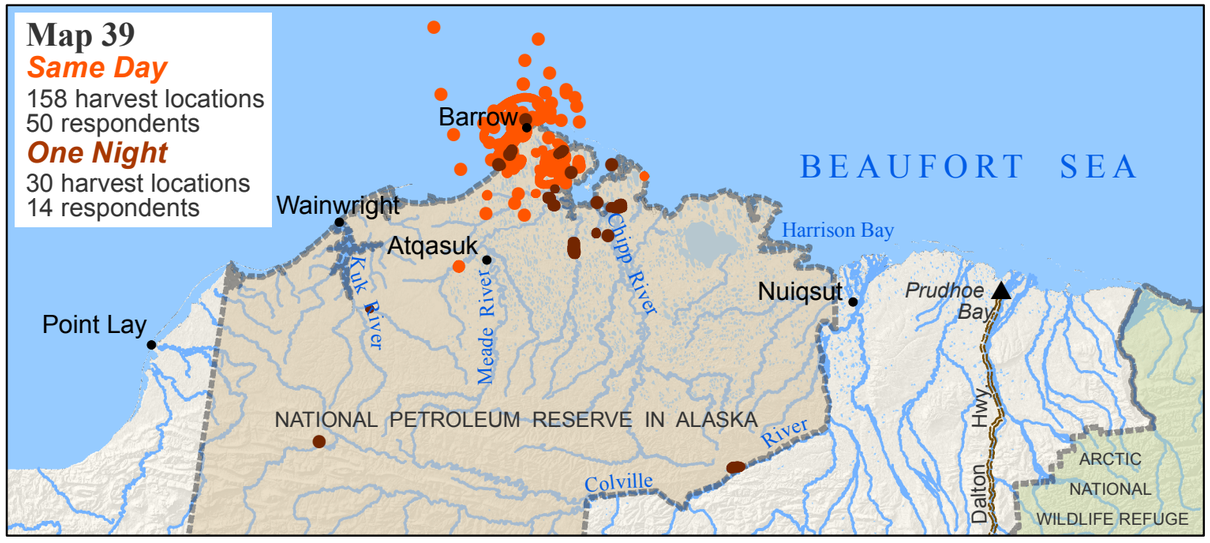
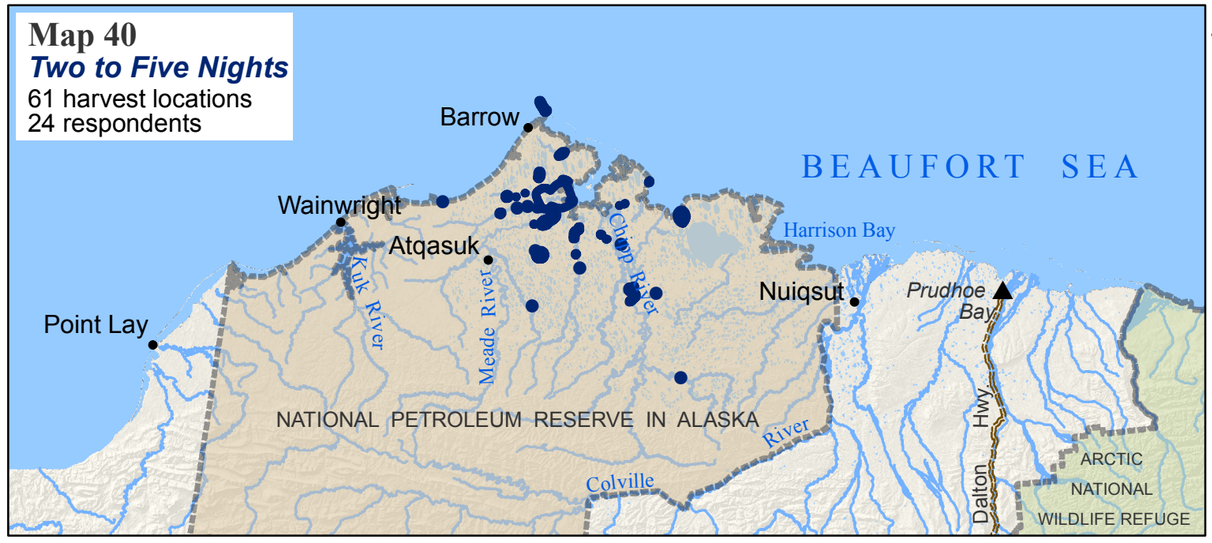
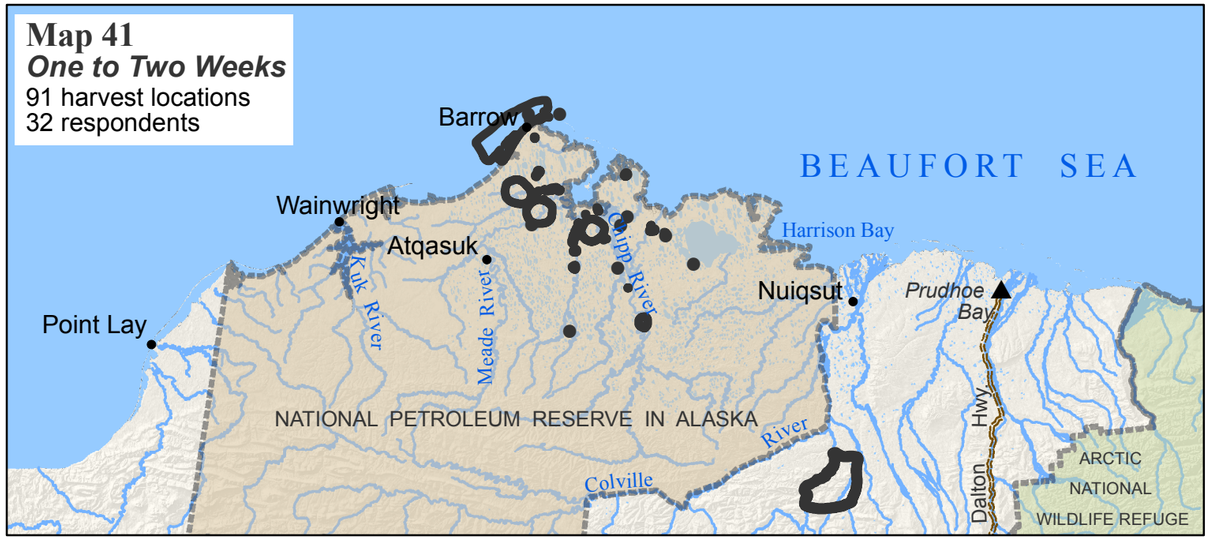
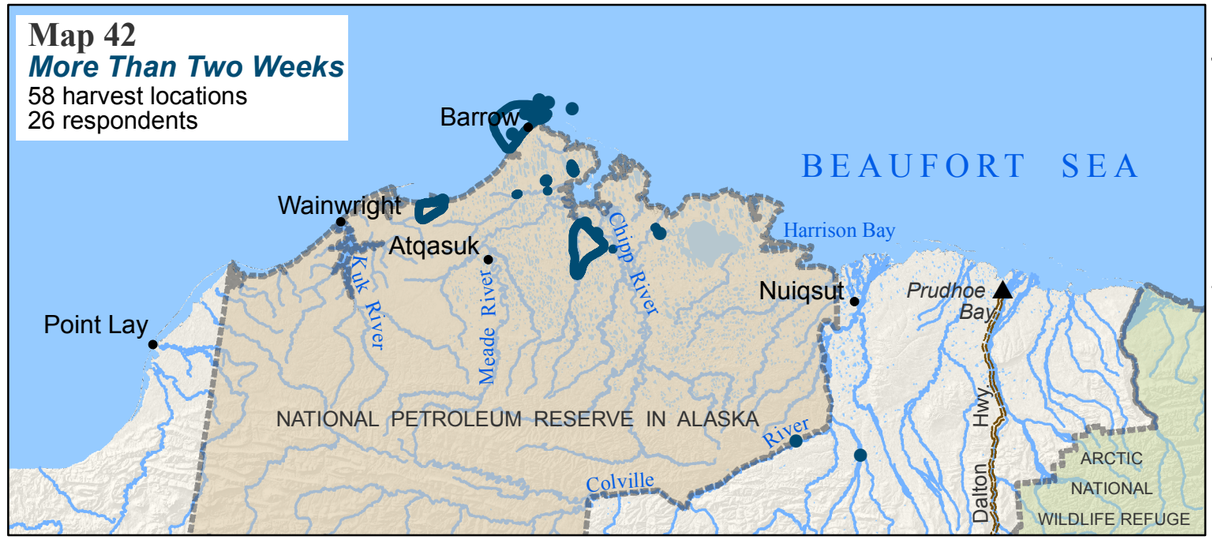






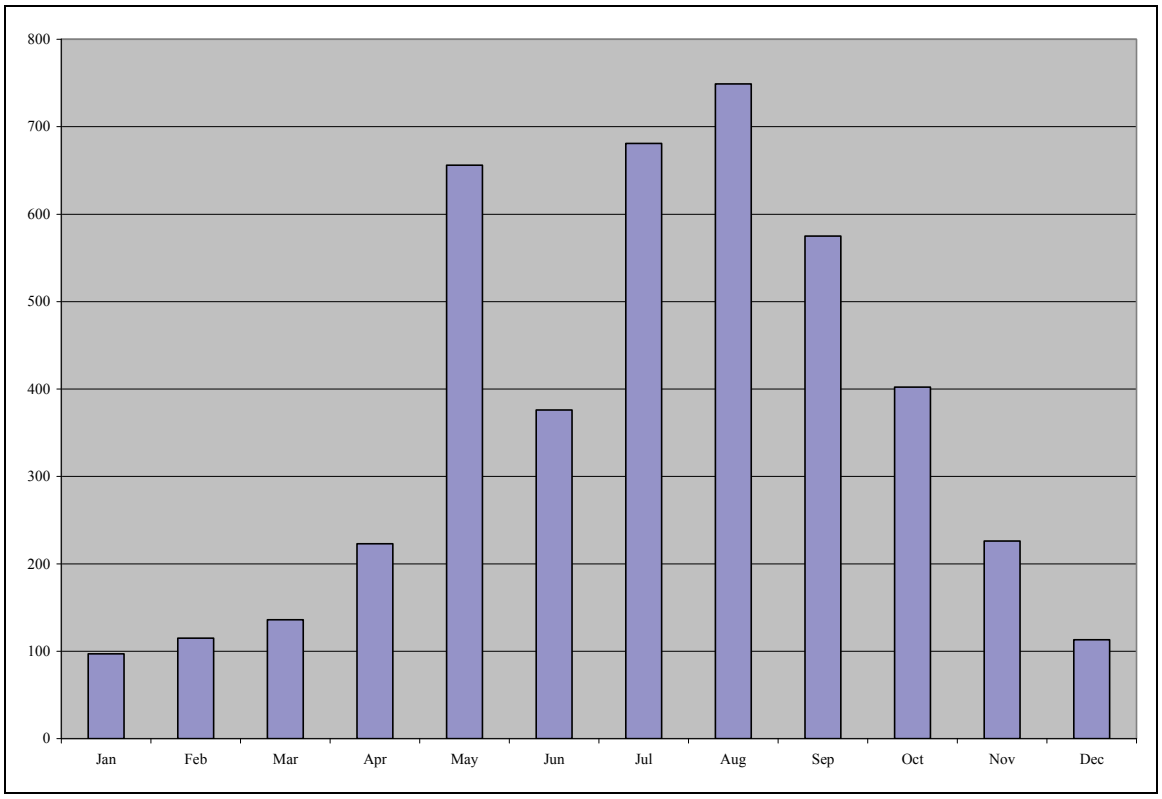


Projection: Alaska Albers Equal Area Conic, NAD 1983

Months of Harvest Effort

As shown in Figure 18, Barrow subsistence activities occur year-round, with the number of reported use areas peaking in May and from July to September. The fewest use areas were reported from December until February, when residents indicated that temperatures are cold and conditions not conducive to extensive snowmachine travel. Residents begin the spring season (April and May) by hunting bowhead whale in open leads along the Chukchi Sea, then traveling inland to harvest waterfowl. The summer and fall months are occupied by hunting marine mammals (bearded and ringed seal, walrus) in the open ocean, traveling along the coast and inland to hunt caribou, and harvesting a variety of fish with nets, rod and reel, and jigging poles. The fall caribou and fishing season is followed by fall whaling in October. The winter months are limited primarily to the hunting of wolf and wolverine and the incidental caribou.

Figure 18: Barrow Use Areas for All Resources by Month



Stephen R. Braund & Associates, 2010.

Maps 43 through 54 depict Barrow last 10 year (1997-2006) all resource use areas by month. During the months of November through April (Maps 43 through 48), residents travel overland by snowmachine. Areas with moderate to high numbers of overlapping use areas extend further south toward the Colville River as the months proceed. A high number overlapping use areas occur offshore in April, during the spring bowhead whale hunt, and in November, when some residents reported continuing harvests of bowhead whales and ringed seals. Maps 49 through 54 (May through October) illustrate a shift from overland travel to offshore and riverine travel during the summer and fall months. Overland travel continues in May when residents travel inland by snowmachine to harvest geese. Riverine travel gradually increases from June through September, peaking in September during the fall caribou and broad whitefish harvests. Residents begin traveling more extensively by snowmachine during October. Offshore hunting is common during all of these months, with bowhead whale hunting in May and October and harvests of other marine mammals from June through September.

Maps 43-48 - Barrow Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1997-2006)
November-April

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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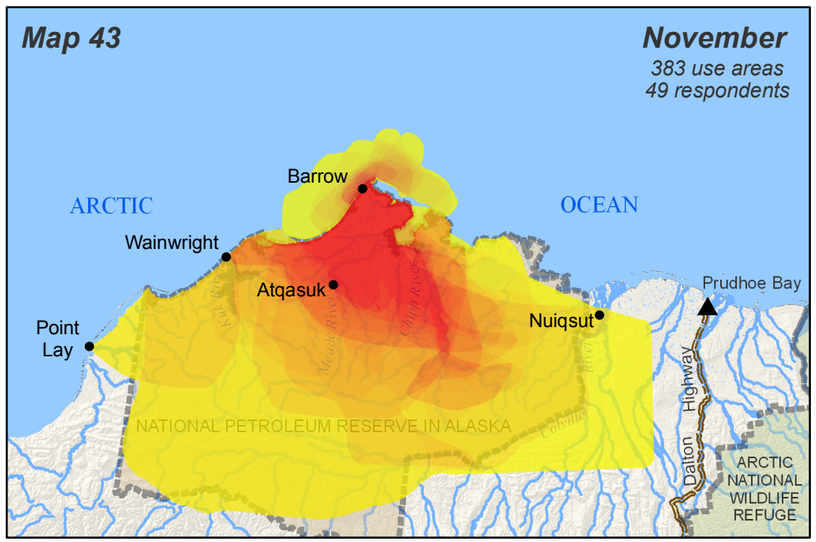

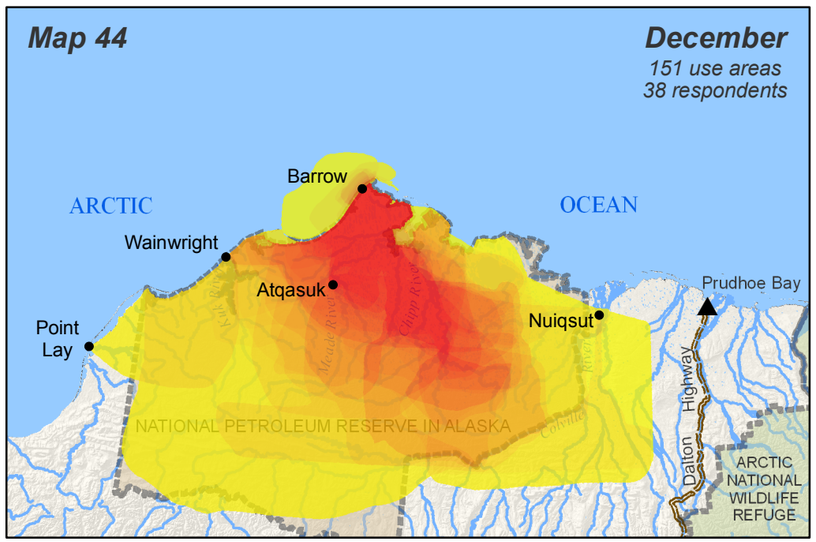

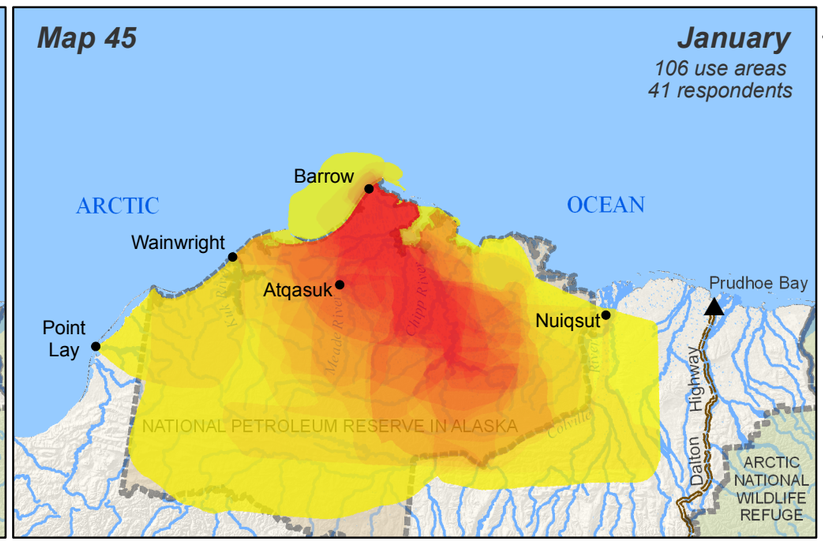

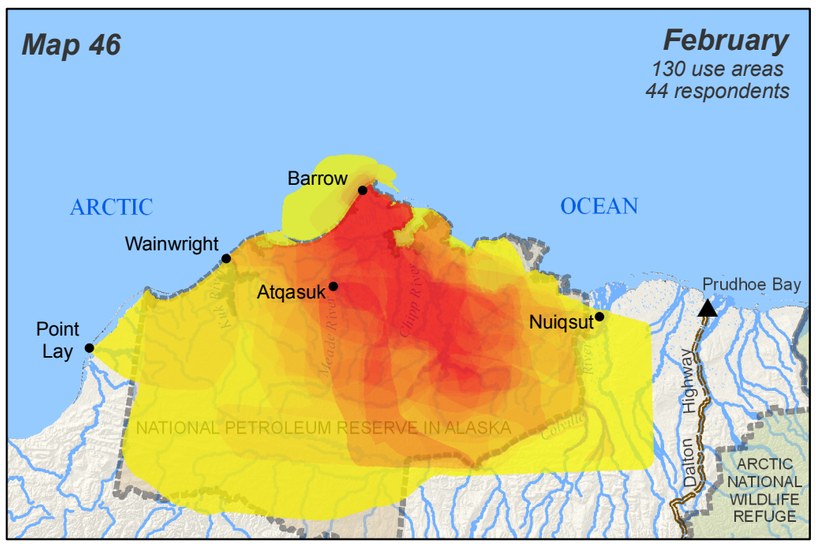

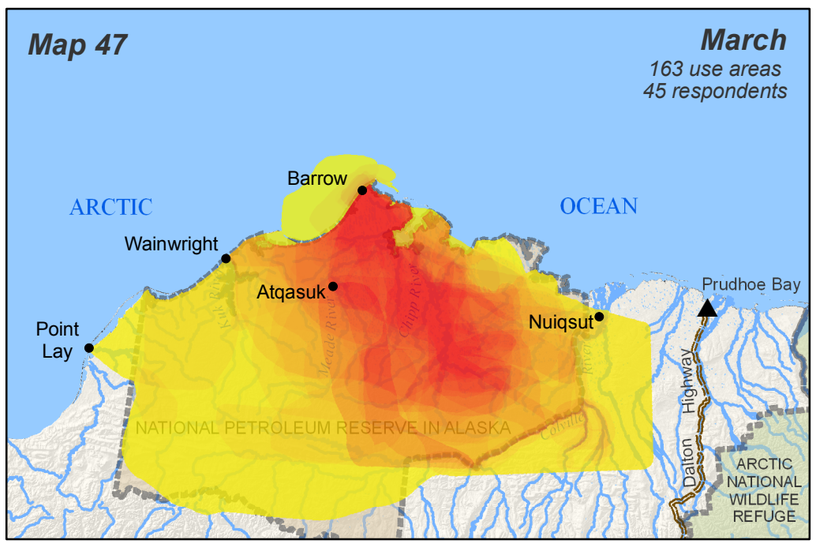

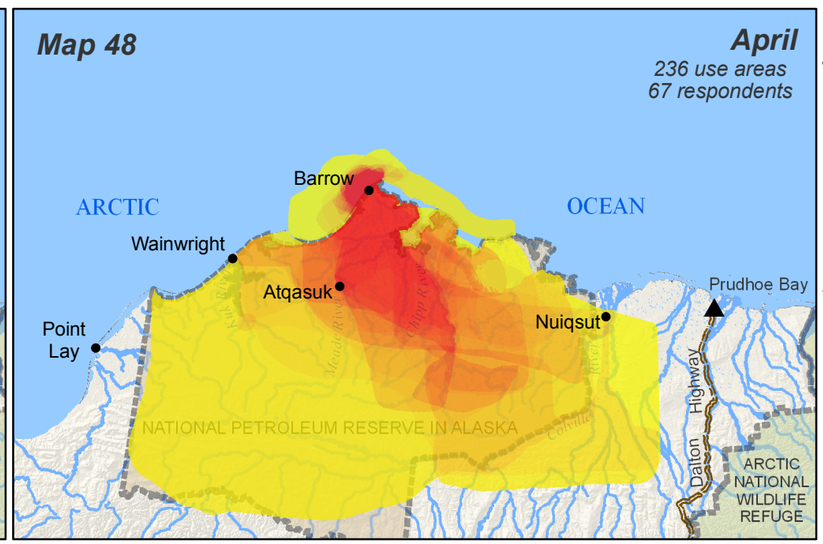

Projection: Alaska Albers Equal Area Conic, NAD 1983

Maps 49-54 - Barrow Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1997-2006)
May-October

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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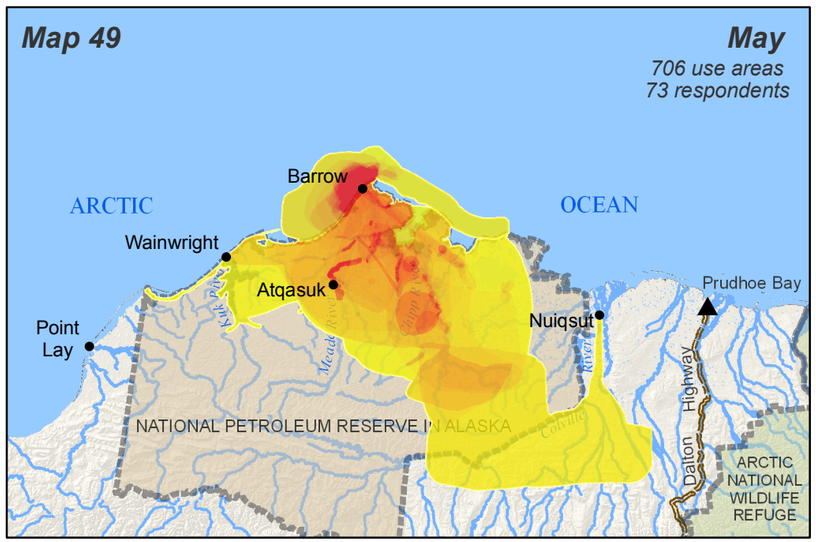
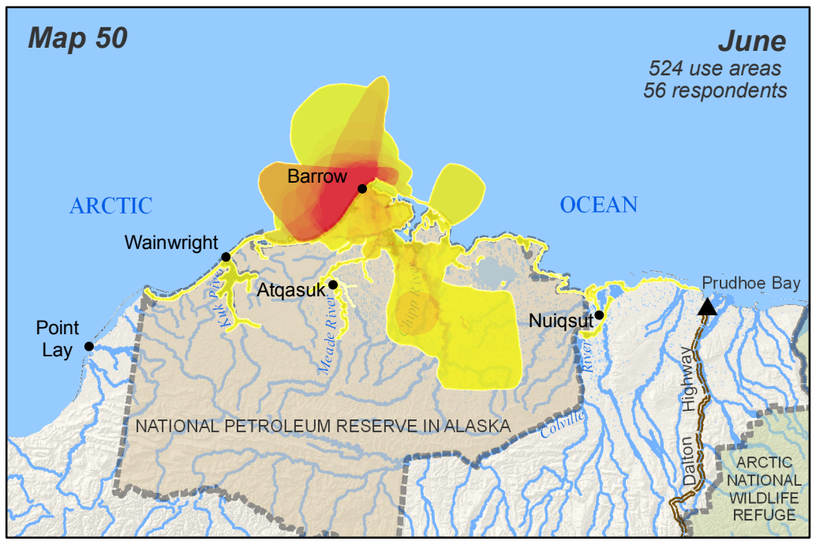
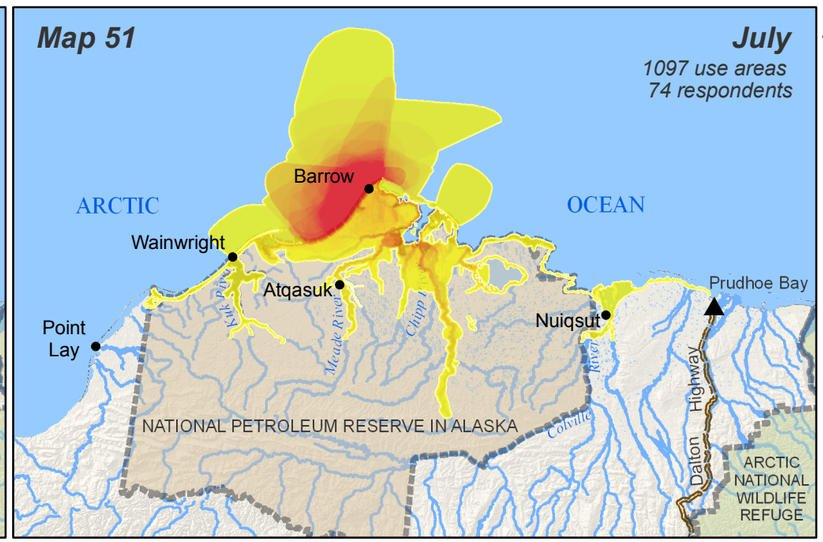
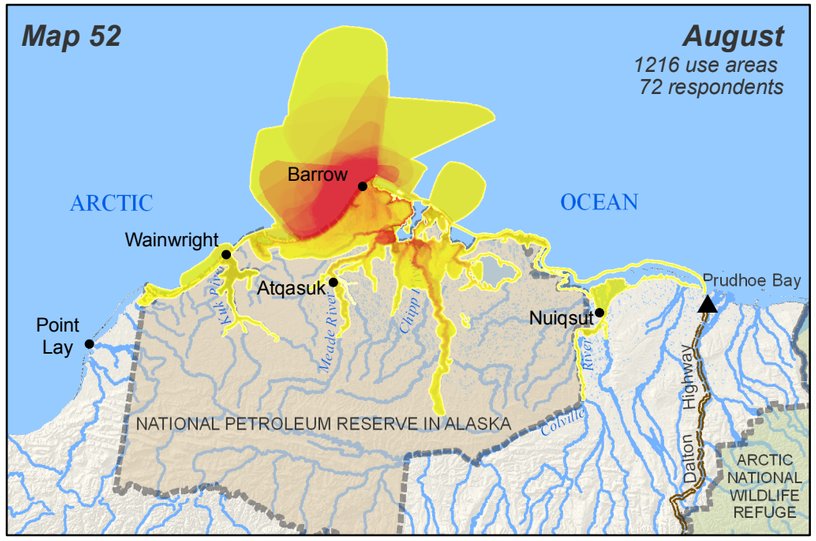
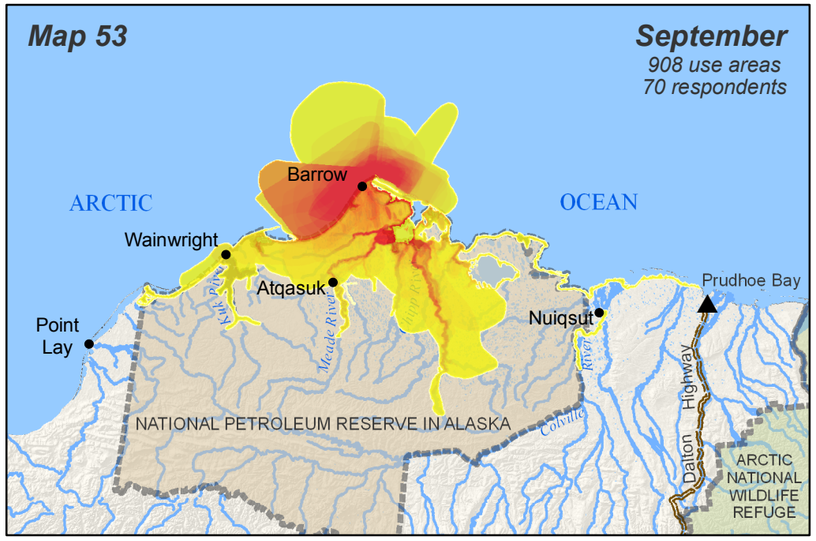
July 2009

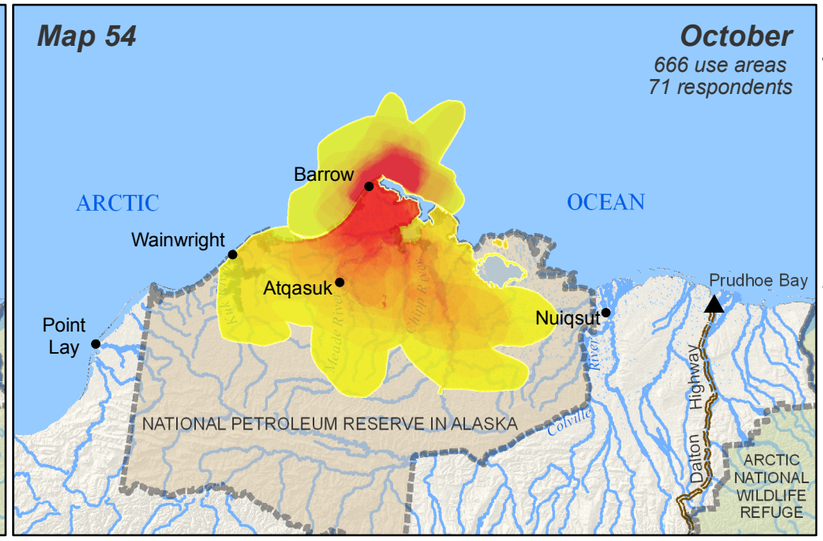












Projection: Alaska Albers Equal Area Conic, NAD 1983

Method of Transportation

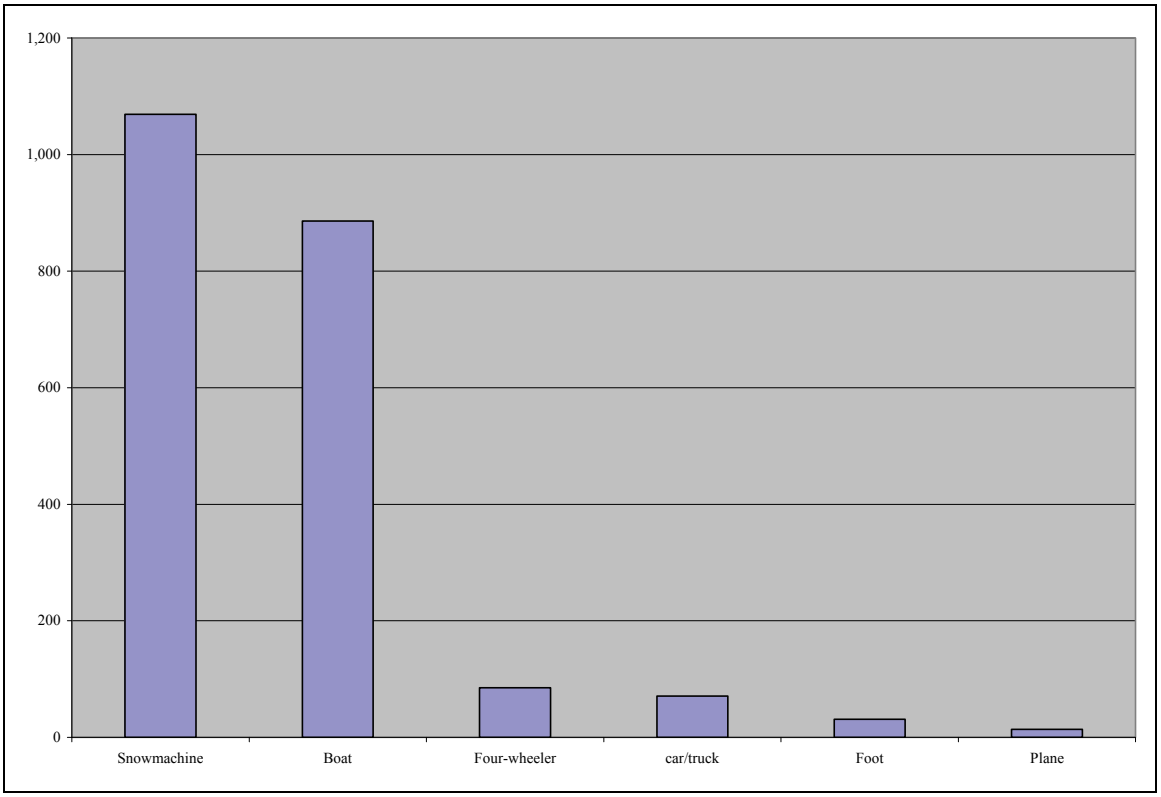
Residents reported using snowmachines to access over half (53 percent) of use areas and boats to access 44 percent of use areas (Table 58, Figure 19). Four-wheelers, car/truck, foot, and plane were other lesser-used modes of transportation. Snowmachine use occurs throughout the winter and spring (October to May) and during the summer, when residents drive the vehicles over the tundra to access local lakes or locations beyond, as far as the Inaru River. Snowmachine use peaks in May, when residents travel to open leads to hunt bowhead whales and inland to harvest waterfowl. Beginning in June, when the ice breaks up in the ocean, residents begin traveling by boat along the coast to hunt caribou and other resources as available; however, the main boating season begins in July and extends into September or, at the latest, October.

Table 58: Barrow Method of Transportation to All Resources Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	53%
Four-wheeler	4%
Boat	44%
Foot	2%
Plane	1%
Car/truck	3%
Number of Use Areas	2,029

Stephen R. Braund & Associates, 2010.

Figure 19: Barrow Travel Methods



Stephen R. Braund & Associates, 2010.

Local modes of transportation include four-wheeler, truck, car, and foot, all of which are used to access hunting and harvesting locations throughout the summer and fall months. Residents use four-wheelers to access hunting and fishing areas relatively close to Barrow, and to hunt from camps and cabins. Some respondents reported flying to cabin locations to hunt caribou or harvest fish during the summer and fall.

Maps 55 through 58 depict Barrow last 10 year use areas (1997-2006) by method of transportation. Boat travel occurs offshore from Barrow at substantial distances and along the coast line and rivers of the area. Residents travel both overland and offshore (in the case of bowhead whales, eider ducks, and ringed seals) with snowmachine. Four-wheeler travel is generally limited to travel along the coast and overland to Inaru River, although a few individuals reported taking four-wheelers to camp and cabin locations farther inland to hunt in those areas. Map 58 depicts use areas accessed by "other" forms of transportation, including foot, plane, and car/truck.

Camps and Cabins

Map 59 depicts camps, cabins, and platforms both identified by Barrow respondents and included on an existing North Slope Borough camp and cabins map. Some of the locations shown on Map 59 may be the same camps or cabins identified by multiple people during the interviews; the study team was not able to reconcile these duplicate camp or cabin records, and thus Map 59 likely depicts a higher number of Barrow camp and cabins than actually exist. Camps and cabins shown on Map 59 extend as far as Kokolik River near Point Lay, Colville River, and Anaktuvuk River. The highest numbers of camps and cabins identified by Barrow respondents are located along the Inaru, Meade, Topagoruk, Chipp, Alaktak, Ikpikpuk, and Miguakiak rivers; along Iko Bay and Avak Creek; on the coast south of Barrow; and around Teshekpuk Lake. Cabins located farther inland from Barrow, such as along the upper Ikpikpuk River and along Colville Rivers, are generally accessed by snowmachine during the winter months, and are more often used during furbearer hunting trips.

Barrow residents travel to family cabins to participate in a variety of subsistence activities, including harvests of fish, caribou, furbearers, and geese. Residents also reported camping spots and platforms where they hunt geese each spring or engage in other subsistence pursuits. Cabins are owned by individuals and used by extended family and friends. Thus, the majority of respondents reported having access to cabins within the last 10 years because of friend or family associations, even if they did not personally own a cabin.

Residents reported traveling to camp or cabin locations especially during the summer and fall; often, entire families stay at these locations, with all family members participating in at least some aspect of the subsistence harvest. Hunting and harvesting activities generally radiate out from camps and cabins – camp and cabin locations were generally chosen based on their proximity to favored hunting or fishing areas. Barrow hunters use cabins as landmarks during their overland travels and often referenced camp and cabin locations when reporting harvest locations.

Thus, camps and cabins are highly important in supporting Barrow residents' subsistence lifestyle. They allow residents to take extended trips inland for harvests of subsistence resources, and they allow residents of all ages to participate in these activities. Furthermore, the presence of these structures across the landscape often ensure shelter in the case of bad weather or emergencies and are useful to hunters traveling overland.

Travel Routes

Map 60 depicts travel routes identified by Barrow respondents. Travel routes were identified both overland and along shorelines and rivers. Overland travel is generally by snowmachine although residents also reported using four-wheelers to travel along the coast and overland as far as Inaru River. Map 60 shows heavy travel along the coastline south of Barrow to Peard Bay and east of Barrow into Dease Inlet (where residents access Inaru, Meade, Topagoruk, Chipp, and Alaktak rivers) and Smith Bay (where

Maps 55-58 - Barrow Method of Transportation
All Resource Use Areas
Last 10 Years (1997-2006)

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

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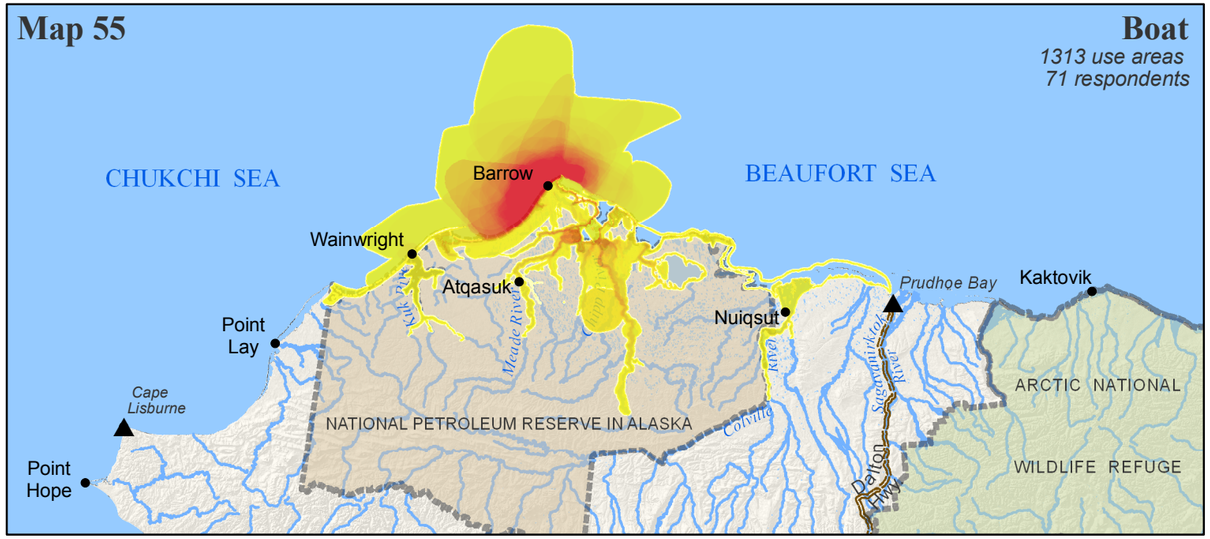
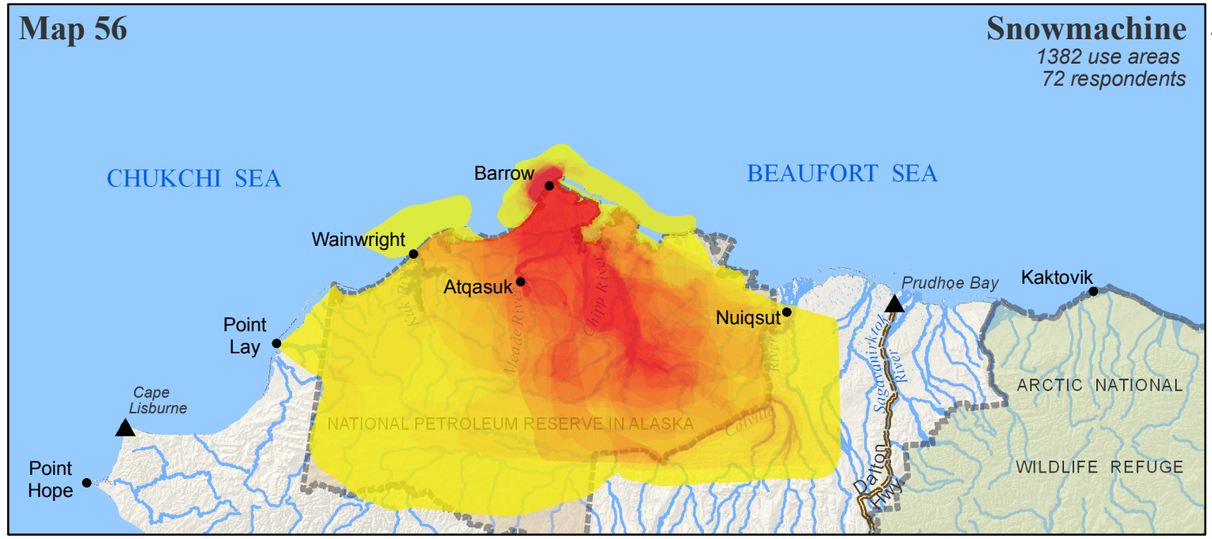
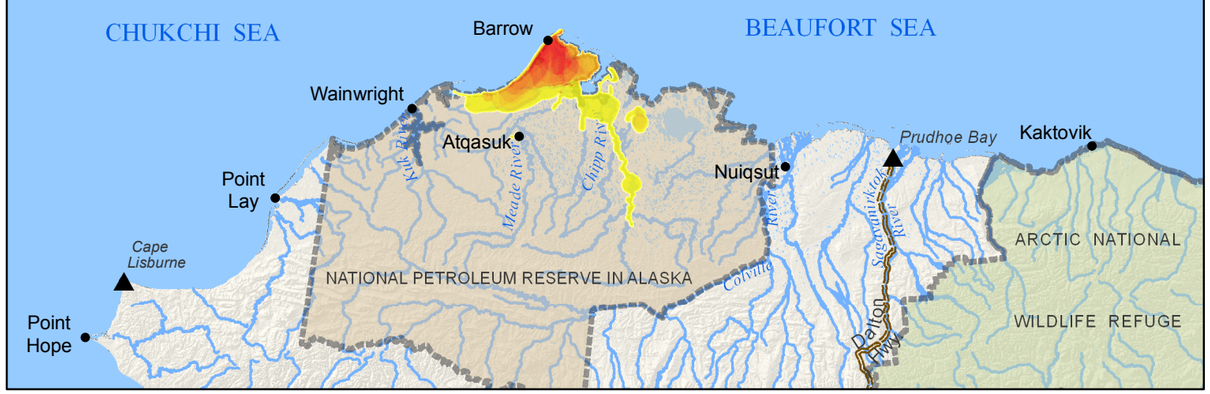
Map 55 — Boat
1313 use areas
71 respondents



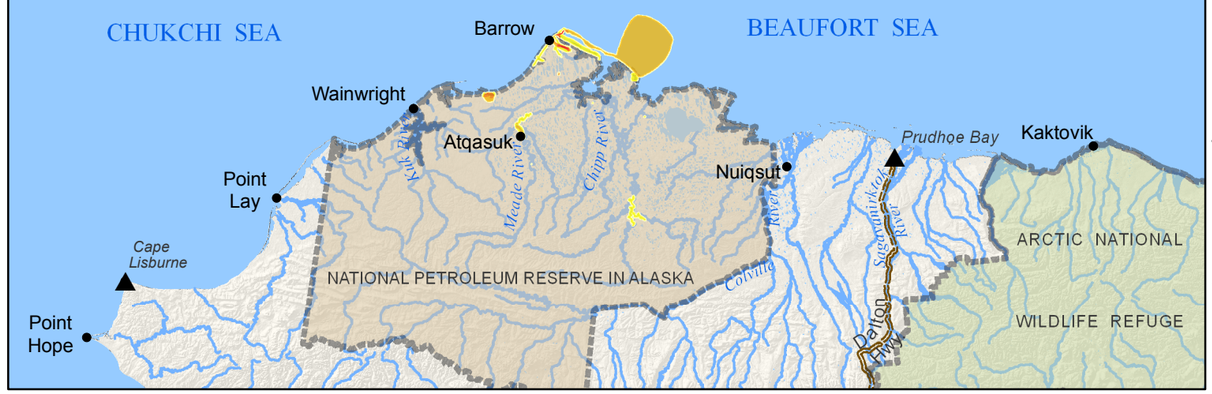
Map 56 — Snowmachine
1382 use areas
72 respondents



Map 57 — Four-wheeler
115 use areas
35 respondents



Map 58 — Other
164 use areas
44 respondents



Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 59 - Barrow Camps, Cabins and Tent Platforms

Stephen R. Braund and Associates (SRB&A) data shown on this map are based on interviews conducted in Barrow in 2006. **North Slope Borough (NSB)** data are based on the 2003 NSB camp, cabin and platform map (North Slope Borough Geographic Information Systems 2003).

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Cabins and camps recorded only during SRB&A interviews (including duplicate records).

Cabins and camps recorded only during North Slope Borough interviews and shown on the NSB camps and cabins map

Cabins and platforms recorded during North Slope Borough and SRB&A interviews.

Some points on this map may have been used while respondents visited or lived in other communities.

National Petroleum Reserve In Alaska

Arctic National Wildlife Refuge

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July 2009

ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

Barrow

Wainwright

Atqasuk

Nuiqsut

Prudhoe Bay

Point Lay

Peard Bay

Dease Inlet

Smith Bay

Harrison Bay

Prudhoe Bay

Teshekpuk Lake

Meade River

Ikpikpuk River

Colville River

Kuparuk River

Sagavanirktok River

Dalton Highway

Canning River

Anaktuvuk River

Kukpowruk River

Kokolik River

Utukok River

Awuna River

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

69°0'0"N

160°0'0"W

155°0'0"W

150°0'0"W

0 25 50 100 Miles

0 25 50 100 Kilometers

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 60- Barrow Travel Routes

Stephen R. Braund and Associates (SRB&A) data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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68 Respondents Identified Travel Routes

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Some routes shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

Barrow

Wainwright

Atqasuk

Nuiqsut

Prudhoe Bay

Point Lay

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

Dalton Highway

71°0'0"N

70°0'0"N

69°0'0"N

160°0'0"W

155°0'0"W

150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

residents access Miguakiak River and Teshekpuk Lake). Residents also reported a high number of travel routes overland between Barrow and Inaru River, and farther inland to Teshekpuk Lake and Chipp and Ikpikpuk rivers. Residents generally reported travel routes to camps and cabins, indicating that once they reach these locations they fan out in different directions for hunting purposes. However, others reported travel routes they use when searching for caribou, wolf, or wolverine.

Kaktovik

The community of Kaktovik is located on Barter Island just off the Beaufort Sea coast approximately 120 miles east of Prudhoe Bay and 90 miles west of the Canadian border. Kaktovik is located just north of the Arctic National Wildlife Refuge (ANWR) and thus residents have seen a large numbers of visitors to their community and to their traditionally used lands, including researchers, recreationists, filmmakers, oil and gas representatives, and government agency representatives, over the years. The U.S. Census of 2000 lists the community's population at 293 individuals occupying a total of 89 households (U.S. Census Bureau, 2002). In 2000, 75 percent of all residents were Alaska Natives. More recent estimates in 2006 report 288 individuals living in Kaktovik (ADOLWD, 2006). Residents harvest a variety of wild resources including caribou, bowhead whale, Arctic cisco, broad whitefish, seals, geese, and eiders.

Caribou

Caribou (*tuttu*) hunting is a key subsistence activity for Kaktovik residents. During SRB&A mapping interviews, 36 of 38 respondents (95 percent) reported last 10 year use areas for caribou, and 27 (71 percent) reported hunting caribou in the last 12 months (Tables 5 and 6). The majority of these hunters (22) reported successful harvests (Table 7). Caribou are available on the mainland along the coast during the summer months and inland throughout the year.

Subsistence Use Areas

Map 61 depicts last 10 year (1996/97-2005/06) caribou hunting areas as reported by Kaktovik residents. Kaktovik residents reported traveling substantial distances from their community to hunt for caribou. Although respondents identified use areas as far west as Ikpikpuk River and beyond the Mackenzie River delta in Canada to the east, the highest number of overlapping caribou use areas occur along the coast between Bullen Point and Demarcation Bay; along Hulahula River and portions of Sadlerochit, Okpilak, and Jago rivers; and in the foothills of the Brooks Range between Hulahula and Sadlerochit rivers, including around Kikiktat Mountain and Lake Schrader. See Maps 1 and 3 for detailed placenames. The total last 10 year Kaktovik use area for caribou, as shown on Map 61, is 15,168 square miles.

Residents generally reported hunting caribou along the coast during the summer months and then traveling inland during the winter months (usually starting in October) by snowmachine. Residents also reported hunting along the coast by snowmachine. Kaktovik residents either head west or east of Barter Island to hunt caribou along the coastline and sometimes indicated a preference of one direction over another depending on factors such as their experiences in the area and historical uses of the area. A few individuals explained that the caribou are fatter or healthier west of Barter Island. One respondent said,

> *To Konganevik, I been over on this side of the map [west], sometimes we hunt caribous on the east side, they been skinny [in the east] that's why we go west, [the caribou are] fatter.* (SRB&A Kaktovik Interview November 2005)

However, most individuals reported traveling in either direction to some extent over the last 10 years. Residents travel both inside and outside the barrier islands, depending on the navigability of lagoons along the way. While residents indicated they are able to travel up some rivers, such as Canning River, by boat, many of them are too shallow during the summer months for extensive travel. Hunters commonly set up camps along the spit or on the coast during their summer travels, or they stay in established cabins. Residents' descriptions of their summer caribou hunting areas included the following:

Map 61 - Kaktovik Caribou Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Last 10 Years Overlapping Use Areas

High
Low

172 use areas reported by 36 respondents

Last 12 Months Dissolved Use Areas

59 use areas reported by 27 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

A R C T I C O C E A N

B E A U F O R T S E A

Smith Bay
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Nuiqsut
Colville River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Tuktoyaktuk
Eskimo Lakes
Inuvik
Aklavik
Mackenzie River
Fort McPherson
Tsiigehtchic
NATIONAL PETROLEUM RESERVE IN ALASKA
Colville River
Anaktuvuk River
Dalton Highway
ARCTIC NATIONAL WILDLIFE REFUGE
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
Sheenjek River
Coleen River
UNITED STATES
CANADA
Firth River
Babbage River
Blow River

71°0'0"N
70°0'0"N
69°0'0"N
72°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

We go all the way to Canning River and all the way to here, Flaxman Island, and to Bullen Point. We just camp on the sand spit and go to the island to look for caribou. (SRB&A Kaktovik Interview November 2005)

Every summer we got a camp right over here right in this general area [Tapkaurak Lagoon]. Right here where I could drive a boat in, right around that area. That is where that big herd usually comes around. (SRB&A Kaktovik Interview June 2005)

Probably to Konganevik, just right around that island there. [We] look along the way. No there is really no problem, but you just have to look out for big rocks there. Walk real close to shoreline, probably a couple hundred yards. [Starts looking from Kaktovik]. Too shallow to look in Hulahula. Mostly go probably to Angun Point [to the east] (SRB&A Kaktovik Interview November 2006)

Summer we just go way over here on this side with a boat [east of Barter Island to Demarcation Bay]. We go quite a ways, sometimes it is close, sometimes when they are around just along the beach. Sometimes we see some caribou all over. Next time I will go over there in July. Sometimes when you don't see caribou over here you go over to other side [west of Barter Island]. People hunt around here too, all the way over to here [Canning River]. I have been inside this country with a boat [Canning River]. Just not too far along the river [braided area]. We see that little lake, where is that little lake, when you go in, there is that little lake, and yeah, that one in there, and sometime there is a lot of them…. (SRB&A Kaktovik Interview November 2006)

Brownlow Point. To the east I never, the only place I go is Pokok [Lagoon]. [That] is the furthest I have gone for caribou, and geese, ducks. Maybe other people [go farther]. Look down the coast [in] July and August. We get what we need, because I don't have an ice cellar, so I am limited to catch what we can consume…. I go to Arey Island for fish and caribou and go camping. There is an old settlement there from way back. Whalebones lined up. My wife's mother found an artifact for a spear; [it] had a hole in it for rope. Caribou will come out there. (SRB&A Kaktovik Interview November 2006)

Once snow and ice conditions allow for safe overland travel, Kaktovik residents head inland to hunt caribou. Respondents identified three locations on Hulahula River, referred to as "First, Second, and Third Fish Hole," as landmarks for subsistence users in the area. Residents own cabins at these locations, which are commonly visited while residents harvest fish and caribou. Hunters generally reported leaving Barter Island, crossing Okpilak River, and then following Hulahula River as far as First, Second or Third Fish Hole. Once inland, residents often cross over to Sadlerochit River, hunting along the river or in the area between Hulahula and Sadlerochit rivers, especially around Lake Schrader. One individual described traveling to inland caribou hunting areas, saying,

This is mostly the path that I go on; I usually cut across and then hit the river and then follow it [Hulahula River]. Right to the top of the bank on this [east] side of the river. From First Fish Hole, cut across, right there we cut across and then down. That is how I go to Schrader Lake. (SRB&A Kaktovik Interview November 2006)

Some hunters also reported hunting by snowmachine in other areas, such as around the Sadlerochit Mountains and along Jago River. A number of Kaktovik residents have family connections with the Canadian communities of Aklavik and Inuvik, and several reported that they were originally from those communities. Some had moved to Kaktovik within the previous 10 years and identified use areas located in Canada. Residents described their winter caribou hunting activities as follows:

Winter we go up the Hulahula up to Second Fish Hole; we just follow the river. A little bit of Jago too. We just usually follow the Hulahula River. We start around December and go to March maybe. We get caribou too here [on Sadlerochit River], and we go across the land to Second Fish Hole. (SRB&A Kaktovik Interview November 2006)

Second Fish Hole, Schrader Lake, Okpilak, Hulahula, Jago, First Fish Hole. We look all over. Sagavanirktok River. We look along the coast when we head back. We go through the ocean. By snowmachine we go along the coast. In the winter time [the Sagavanirktok River] is a good place to go. Franklin Bluffs. We go back along the river, we look with binoculars. We went by shortcut to Flaxman Island. On snowmachine we go to Flat Top Mountain; we even go inside Sadlerochit, in the middle of these mountains. When we stop we climb the mountain and look. Second Fish Hole, First Fish Hole, Schrader Lake. (SRB&A Kaktovik Interview November 2006)

Winter time we go on the beach looking for caribou. The furthest we went following this we went to Red Hill and got some caribou there one year. That is a long ways to go. Sometimes you don't have to go that far. Yesterday I went across the mainland and got eight…. We go up Okpilak Lake too. We have a cabin there too, and we go there every year. We try to go up every winter, spring time, April. Not really to hunt, but to go see the cabin and work on it. There are some fish in there. We go up the Okpilak River, go towards Jago too, somewhere in this area. We start in October, every season is different, to early May. (SRB&A Kaktovik Interview November 2006)

Usually we wait until we settle down, and they will go out. At least we know there is caribou. [I look for] caribou and sheep [further up the river]; you look up and that is where all the sheep are, or down if you are lucky. We go all the way to Third [Fish Hole], around that area. Watch for ice floe in there. Some of the caribou in there stick around this area by Kikiktat Mountain. (SRB&A Kaktovik Interview November 2006)

A number of residents identified favored caribou hunting areas. In some cases, these areas were specific; in others, residents reported general areas they preferred hunting. For example, some respondents cited a preference for hunting along the coast or hunting inland by snowmachine; others identified more specific areas. In particular, a number of hunters identified Konganevik, along the coast west of Barter Island, as a favorite hunting area. Residents' descriptions of their favorite caribou hunting areas included the following:

[My favorite caribou hunting area is] probably around 'Second Fish Hole' area because nobody likes to go up there in the dark. (SRB&A Kaktovik Interview June 2005)

To the west. That's by where my family goes. I'm not as familiar with that area [east of Barter Island]. Starting from Jago, on this way [to the west], that's my preferred area. That's summer with a boat. (SRB&A Kaktovik Interview November 2005)

My favorite area would be on the beach in Camden bay. (SRB&A Kaktovik Interview November 2005)

Probably around second and first fish hole in the fall time October through April (SRB&A Kaktovik Interview June 2005)

Kaktovik respondents' last 12 month caribou hunting areas are depicted on Maps 61 and 62. In the 12 months prior to their interviews, residents reported hunting caribou along the coast between Brownlow Point and beyond Demarcation Point as far as Herschel Island. They traveled inland in areas similar to

Map 62 - Kaktovik Caribou Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
59 use areas reported by 27 respondents

Most Recent Harvest Locations

23 harvest locations reported by 22 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

ARCTIC OCEAN
BEAUFORT SEA
Smith Bay
Teshekpuk Lake
Harrison Bay
Ikpikpuk River
Fish Creek
Nuiqsut
Colville River
Kaktovik
Camden Bay
Prudhoe Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Tuktoyaktuk
Eskimo Lakes
Inuvik
Aklavik
Fort McPherson
Tsiigehtchic
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Dalton Highway
UNITED STATES
CANADA
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

those used in the last 10 years, surrounding Sadlerochit, Hulahula, Okpilak, and Jago rivers, and along the foothills of the Sadlerochit Mountains. The highest number of overlapping use areas were reported along the coast between Konganevik and Demarcation Bay and inland along the Hulahula River toward the mountains. The total last 12 month Kaktovik use area for caribou, as shown on Map 62, is 2,721 square miles. Residents described their last 12 month caribou hunting activities as follows:

> *Every summer we got a camp right over here right in this general area [near Tapkaurak Lagoon]. Right here where I could drive a boat in, right around that area. That is where that big herd usually comes around. Another place I went last summer was Demarcation. We pitch a tent right in there. We were there a week. Right in the spit; we were standing right there. We were sitting right on a log and there it [the caribou] was.* (SRB&A Kaktovik Interview June 2005)

> *All the way to Camden Bay, when the ice was still there, but I didn't get any. My nephew got some there this summer. Camden Bay, right around here, I think they got about three or four that day.* (SRB&A Kaktovik Interview November 2005)

> *I went just right here [Camden Bay], all the way to the shoreline. Go check over here to the point [Konganevik]. Around here we don't have to go so far. We wait for them to come down, but there are times when people…. They don't come down to the beach and they bring four-wheelers. I don't do that. I just wait for them to come down to the beach and if we don't catch them with the boat, I wait until snowmachine [season]. I am pretty successful with boat.* (SRB&A Kaktovik Interview November 2006)

> *Mostly by First and Second [Fish Hole] and then we went camping up in second and we shot a couple there. Along here wherever we see them; we travel around there. Mostly around these areas, somewhere around there [on the Hulahula River south of Kikiktat Mountain]. Just mostly in that area and then we head over.* (SRB&A Kaktovik Interview June 2005)

Most Recent Harvest

Harvest Locations

The locations of Kaktovik respondents' most recent harvest locations are depicted on Map 62. Residents reported successful harvests of caribou at various locations along the coast, including several areas in Camden Bay, across from Barter Island, Griffin Point, Pokok Bay, Demarcation Bay and Herschel Island. Successful harvests were also reported in the area surrounding the Hulahula and Sadlerochit rivers. Several Kaktovik residents provided the following descriptions of their most recent caribou harvests:

> *I went across [to] the mainland and got eight. Last harvest was yesterday, fresh meat. I wasn't alone; there were four of us. Day trip, few hours, might have taken us an hour to skin them.* (SRB&A Kaktovik Interview November 2006)

> *The most recent was Demarcation. That was mine, right there at camp. I got one caribou, and there were three of us: me, my mom, and [Name] helped me. That was in August. It was supposed to be a week long trip, but the weather got bad. That caribou fed everyone at the camp!* (SRB&A Kaktovik Interview November 2005)

> *Griffin Point [last caribou harvest]. Right by the cabin. I think that is the cabin. This one here. Pokok. Right next to it. Not too far from the cabin. About 50 yards maybe. There was a whole herd; must have been a thousand maybe. It was like thunder on the land.*

Like five or six o'clock in the morning something was chasing them.... (SRB&A Kaktovik Interview June 2005)

There were maybe five of us; we stayed three or four days, camping. I think there were eight all together. That was maybe the end of July. The last caribou had to have been at Brownlow, and a couple at Konganevik. (SRB&A Kaktovik Interview November 2006)

Number of Participants

As indicated in Table 59, two to three individuals participated in 50 percent of all most recent caribou harvests. Forty-five percent of most recent caribou harvests had four or more participants. In many instances, respondents described hunting caribou with immediate and extended family members. Describing the participation of his family in their recent caribou hunt, one man stated,

[My last caribou harvest was in] July last year, last July, that's when I got stuck out there. [It was] me and my wife and three kids and some other people maybe seven people there. We camped there. [I got] just one, I didn't catch much this year. (SRB&A Kaktovik Interview November 2005)

Solo hunts occurred at only five percent of most recent caribou harvests.

Table 59: Kaktovik Number of Participants During Most Recent Caribou Harvests

Number of Participants	Percentage of Harvest Locations
1 person	5%
2-3 people	50%
4 or more people	45%
Number of Most Recent Harvest Locations	22

Stephen R. Braund & Associates, 2010.

Duration of Trip

Kaktovik residents reported taking day trips to over half (57 percent) of all recent caribou harvest areas (Table 60). Just under 30 percent of trips to recent harvest areas lasted one week or more. Residents made the following comments regarding the range of trips at recent caribou harvest areas:

Yes, it was over right around Griffin Point, on the mainland. I only got one. Somewhere in July, middle of July. It was only me. It was a day trip (SRB&A Kaktovik Interview November 2005)

I went up in February with four people. [We were gone for] 11 days. I would say about 12 [caribou], but they were different days. I could handle two a day, but I will probably handle one a day next year because I am getting older. (SRB&A Kaktovik Interview June 2005)

Residents reported staying at camps and cabins located along coastal areas near Barter Island and even into Canada for those residents with ties to Aklavik or Inuvik, or inland (see "Camps and Cabins," below).

Table 60: Kaktovik Duration of Trips to Most Recent Caribou Harvest Areas

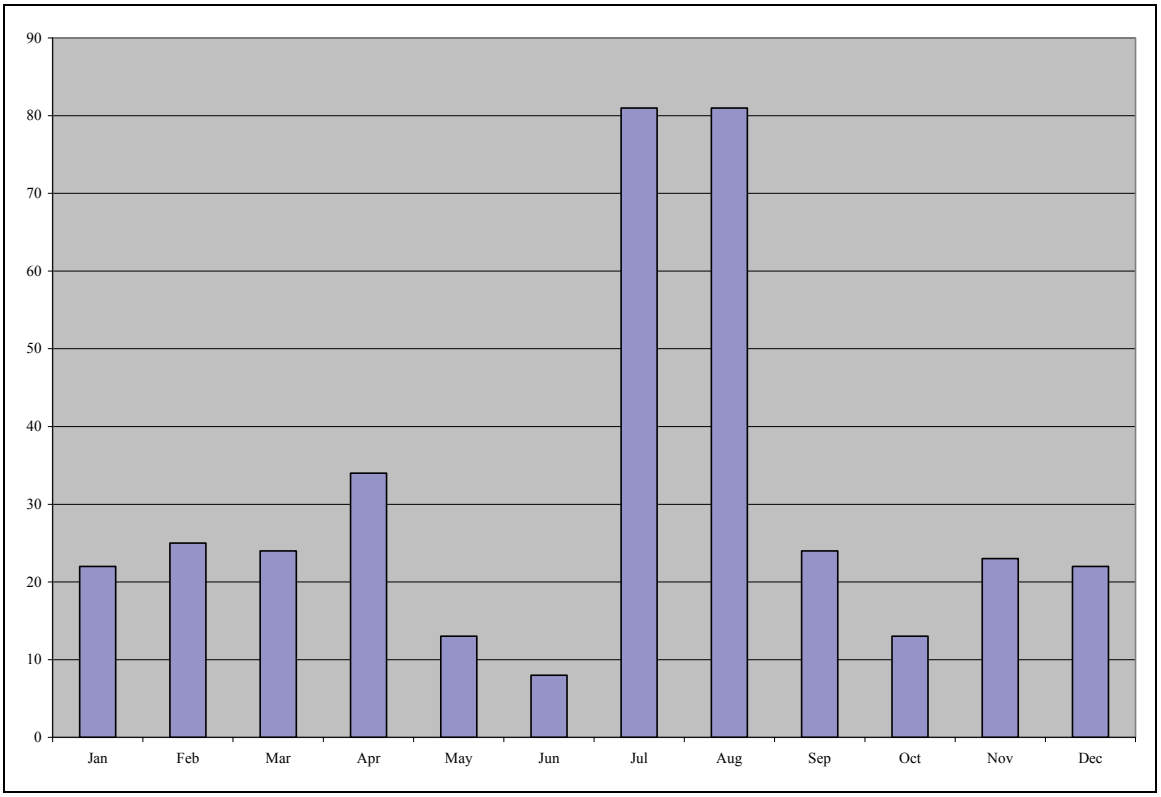
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	10%
1-2 weeks	19%
2-5 nights	0%
1 night	14%
Same day	57%
Number of Most Recent Harvest Locations	21

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

As shown in Figure 20, the majority of use areas for caribou were reported during July and August. Several residents indicated that they begin hunting caribou during these months as soon as the waterways are free of ice. One resident commented, "[I hunt caribou in] July, August, whenever the ice opens up, September even" (SRB&A Kaktovik Interview November 2005). Another respondent added that they do not hunt caribou during their calving period in the late spring and early summer, saying, "We don't usually get them in spring time, they are calving; if we need it, we get them. They are too flimsy [at that time of year]" (SRB&A Kaktovik Interview November 2005).

Figure 20: Kaktovik Use Areas for Caribou by Month



Stephen R. Braund & Associates, 2010.

Several residents observed that caribou harvested earlier in the summer, when it is cooler, are of better quality. One individual observed that overall temperatures had been warmer in recent years:

> *It's in July or last part of June; it's getting warmer, global warming. If the caribou goes through there, and we don't see them we don't get them. When it's cool, you'll get good caribou, but if it's hot they will be poor because they are running from the mosquitoes.* (SRB&A Kaktovik Interview November 2005)

A number of residents also reported hunting caribou during the winter months, particularly from November, after the fall rut, to April. One person described his winter hunting pursuits of caribou, saying,

> *Snowmachine, any time of the year, except October that is when the bulls start. We don't usually get them, they taste yucky, they are rutting. Yeah, November through April.* (SRB&A Kaktovik Interview November 2006)

Method of Transportation

Respondents travel by boat to access the majority (69 percent) of caribou use areas and by snowmachine to access 31 percent of use areas (Table 61). As discussed above, residents hunt caribou primarily during the summer months of July and August, when boat is the only way to travel from Barter Island. However, residents also hunt caribou throughout the winter months as soon as the ice is safe for travel. Some respondents reported traveling by foot or four-wheeler from camps or cabins or to travel inland from waterways.

Table 61: Kaktovik Method of Transportation to Caribou Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	31%
Four-wheeler	2%
Boat	69%
Foot	4%
Car/truck	0%
Number of Use Areas	172

Stephen R. Braund & Associates, 2010.

Harvest Gear

The majority of Kaktovik caribou harvesters (59%) reported using .270 rifles for their caribou harvests (Table 62). Seven individuals reported using .22-.250 rifles. No other given rifle caliber was reported by more than two respondents. Often residents described using multiple rifle calibers for their caribou harvesting.

Table 62: Kaktovik Caribou Harvest Gear

Rifle Caliber	Number (%) of Harvesters	Rifle Caliber (cont.)	Number (%) of Harvesters
.270	16 (59%)	.280	1 (4%)
.22-250	7 (26%)	.250	1 (4%)
.243	2 (7%)	.25-06	1 (4%)
30-30	2 (7%)	.222	1 (4%)
30-06	2 (7%)	7mm	1 (4%)

Stephen R. Braund & Associates, 2010.

Bowhead Whale

Kaktovik residents participate in the fall hunting of bowhead whales (*aġviq*), traveling offshore to great distances in order to harvest them. Residents either actively participate in bowhead whale hunting by joining whaling crews or provide support from land. During interviews, 27 respondents (71 percent) reported use areas for bowhead whale in the last 10 years and 19 respondents (50 percent) reported whaling in the last 12 months (Tables 5 and 6). Twelve of these individuals (32 percent) reported successful harvests during the season prior to their interviews (Table 7). Data regarding most recent bowhead harvest locations are treated differently in this report than for other resources (see explanation above under "Barrow," "Bowhead Whale"). Thus, tables regarding duration of trip and number of participants are not included in this section.

Subsistence Use Areas

Kaktovik last 10 year bowhead whale use areas are depicted on Map 63. Kaktovik bowhead whale hunters reported traveling between Camden Bay to the west and Nuvagapak Lagoon to the east, and substantial distances offshore. Residents reported traveling up to approximately 50 miles from Kaktovik in search of bowhead whales (Map 63). The highest number of overlapping bowhead whale use areas occur between up to approximately 25 miles from shore, between Arey Island and Tapkaurak Lagoon. The total last 10 year Kaktovik use area for bowhead whales, as shown on Map 63, is 2,525 square miles. Residents generally indicated that they stay within 15 and 30 miles from shore, and only travel farther when bowhead whales are not available closer to shore or when ice conditions or supply or drilling ships force hunters farther from shore. Harvesting bowhead whales close to shore ensures that residents can tow the whale back to shore without risk of meat spoilage and without other risks associated with hunter safety. One individual described,

> *The furthest we have gone here would be about 17 miles this way [west] and 21 miles this way [east]. We just travel sometimes that way and if anybody sees [whales] any closer we go to that. I like staying closer to the land. Too slow of a trip when you are towing a whale, it takes to long, it's too far. Well, you cannot get too close to Hulahula and Okpilak sometimes. [We go] just for the day; we would be going home. The longest we have been out is for 22 hours. I remember that time.* (SRB&A Kaktovik Interview June 2005)

Other Kaktovik residents described their last 10 year bowhead whale hunting activities as follows:

> *We went out, 12 to 15 miles out [hunting bowhead whale]. [The farthest] would be over 30 miles out. That's when the supply ship to Canada [was there], and we had to go out [farther from shore].* (SRB&A Kaktovik Interview November 2005)

> *I am with my step-dad's crew with whaling. We go out right around here [north of Barter Island] sometimes 15 to 20 miles. Mostly we are just right inside here [north of Barter Island]. We hardly go over there [to the west]. Usually those whaling captains have their own boats. I am just the crew. I just go out with my captain. Just right in front just about 15 to 20 miles out you see.* (SRB&A Kaktovik interview November 2006)

> *[The farthest I went out was] about 50 miles this way. There was no ice whatsoever but there was no whale. There was a boat, a drilling boat there for months. We had to go 50 miles out to see a whale because there was nothing there; we had to go out for an hour.* (SRB&A Kaktovik Interview November 2005)

Map 63 - Kaktovik Bowhead Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

28 use areas reported by 27 respondents

Last 12 Months Dissolved Use Areas

19 use areas reported by 19 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Camden Bay
Demarcation Bay
Cross Island
Flaxman Island
Kaktovik
Prudhoe Bay
Mikkelsen Bay
Prudhoe Bay
Herschel Island
Phillips Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents' last 12 month bowhead whale use areas are shown on Maps 63 and 64. Last 12 month use areas were generally located within 30 miles of Barter Island. The highest numbers of overlapping last 12 month use areas were located straight out from Barter Island up to 15 miles. The total last 12 month Kaktovik use area for bowhead whales, shown on Map 64, is 1,444 square miles. Respondents interviewed in November 2006 indicated that ice conditions had resulted in some hunters traveling farther or losing whales in the fall prior to their interviews (2005):

> *This year was the furthest we probably went out, about 30 miles. I would say right around there. We cut across this way [to the east] to get past the ice; that is why we went that far. I would probably say about 20 miles [furthest north]. Something like that.* (SRB&A Kaktovik Interview November 2006)

> *Sometimes right near there, sometimes out there, [it depends on] migrating and ice conditions. [The] last 10 years there has not been a lot of floating ice and this last summer we had a lot of broken ice, and it was hard whaling. We lost a couple of whales this summer because of that. Somewhere in the 18 mile range. Little past Arey Island.* (SRB&A Kaktovik Interview November 2006)

> *Last year we went 19 miles; everybody was catching them at 19 miles. I think it was straight out. On our GPS it was 19 miles where they start getting them; maybe 22 miles, something like that. We tried to go on the north side of them and make them go toward land. [We] go to Arey Island, just straight down. We look for the small ones down by the shoreline first. And if we don't see them then we go further out.* (SRB&A Kaktovik Interview November 2006)

Most Recent Harvest

Harvest Locations

The harvest sites collected during SRB&A interviews were identified by respondents on the USGS map used during interviews and without the aid of GPS data. The North Slope Borough Department of Wildlife Management collects harvest location data, often with GPS coordinates, for bowhead whales harvested each year. Because more reliable bowhead whale harvest data for all three study communities are available from the North Slope Borough, most recent bowhead whale harvest locations collected by SRB&A are not included in this report. However, residents provided the following descriptions of their most recent bowhead whale harvests:

> *[We were] 31 miles from Barter by the time they killed it. Northeast [of Barter Island]. All the boats were over that way. We caught it at 20 miles and by the time we killed it, it was 31 miles out. September. The village got three [whales]. Twenty miles is where we first struck it, and last year we got one like five miles from Barter.* (SRB&A Kaktovik Interview November 2006)

> *Not very far, last fall probably, beyond the three miles limit. Eleven mile radius. We don't go in the lagoons not for bowhead. [There were] five [people last time] maybe on the boat but there were more than that in a crew. That time we got a whale…they were here at nine, and we were done cutting it up, and they beached the whale at 2:30. Maybe like nine hours total. That was a rare one. We caught two in the same day.* (SRB&A Kaktovik Interview June 2005)

> *We got one last fall. It was a small one. Not too far, five miles, northeast. Just about five miles out of Barter Island.* (SRB&A Kaktovik Interview November 2005)

Map 64 - Kaktovik Bowhead Use Areas, Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months
Overlapping Use Areas

High
Low

14 use areas reported by 13 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Flaxman Island
Kaktovik
Prudhoe Bay
Prudhoe Bay
Mikkelsen Bay
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

This last one was 21 miles to the east. Twelve miles offshore. It was a big whale; I like to catch the small ones. This one was a 44 feet long. Nice beautiful baleen though. How many years ago they catch a whale, it was a 55 feet long; they found out it was 150 years old. (SRB&A Kaktovik Interview November 2006)

Number of Participants

Bowhead whale hunts generally involve multiple participants because they are carried out by whaling crews and require multiple individuals (such as a steersman, harpooner, and general crew members to assist) in one boat for a successful and safe hunt. Other crew members or community residents come to the aid of crew members once they have successfully towed a whale to shore. According to respondents, the majority of most recent Kaktovik bowhead harvests involved at least four individuals in the boat.

Duration of Trip

Because the fall whale hunt is based from Barter Island, residents do not camp or stay in cabins during these hunts. Instead, crews take day trips from the island in search of whales, returning once they are successful, when they need to refuel or rest, or when they encounter poor weather. Harvesters described their recent bowhead harvest trip as lasting anywhere from a few hours to a full day depending on the location of the strike. Two respondents said,

Just about five miles [out], that's where they were feeding. That same day we caught ours and then we went again and then he [got one]. Took only an hour and 20 minutes maybe to catch that first one. (SRB&A Kaktovik Interview June 2005)

We went a couple of years ago and pulled one whale out and then we had to go and get another one. It was 14 miles northwest [from here]. There was like five of us in the boat. Actually seven in that one day. [It took] eight hours probably. SRB&A Kaktovik Interview June 2005)

Months of Harvest Effort

As illustrated in Figure 21, respondents most frequently reported bowhead whale use areas for the month of September. As one individual stated, "September is the only time we go whaling" (SRB&A Kaktovik Interview June 2005). A small number of use areas was reported in July, August, and October.

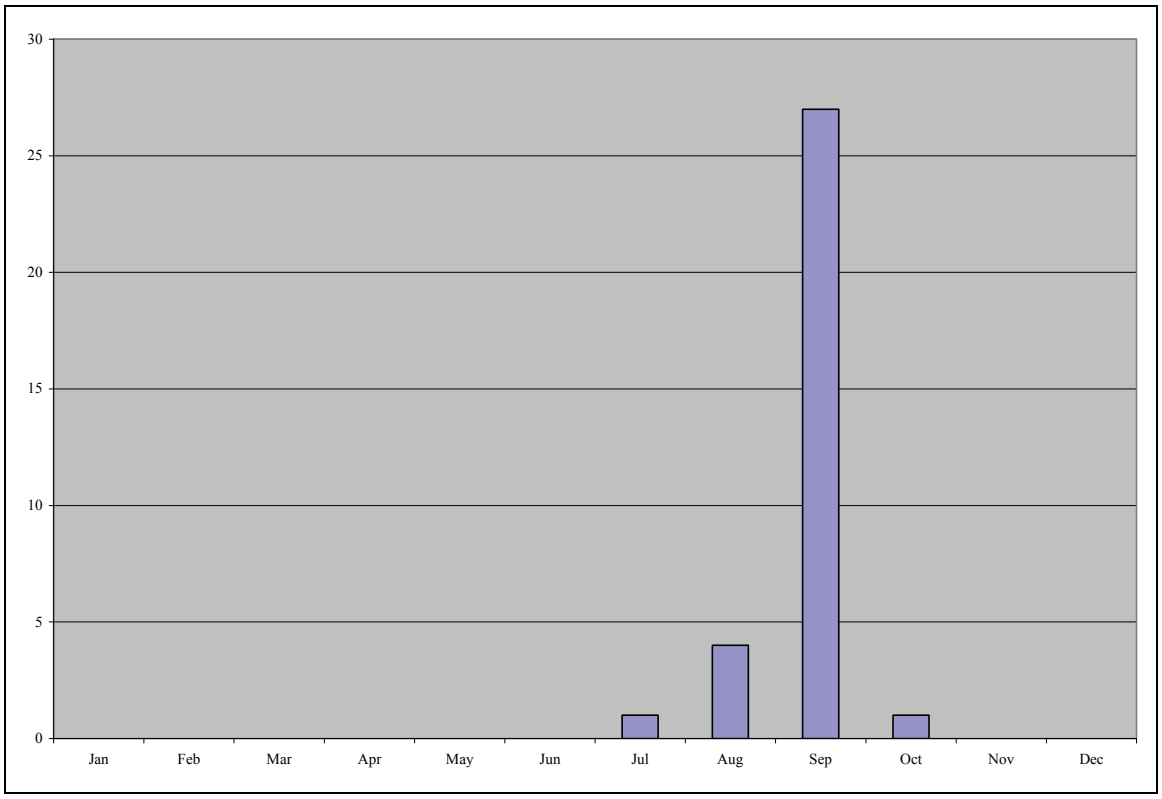
Method of Transportation

As discussed above under "Months of Harvest Effort," residents hunt bowheads primarily during September, when the ocean is ice-free. Whaling crews use aluminum boats to hunt and harvest whales (Table 63).

Harvest Gear

Respondents described using darting guns as their primary weapon during bowhead hunts. A few people reported using shoulder guns as well, although other individuals stated they no longer use this weapon because of safety concerns. One individual explained, "They use a harpoon and they have shoulder guns but hardly anybody uses those because they seem to blow up. We use a darting gun" (SRB&A Kaktovik Interview June 2005).

Figure 21: Kaktovik Use Areas for Bowhead by Month



Stephen R. Braund & Associates, 2010.

Table 63: Kaktovik Method of Transportation to Bowhead Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	0%
Four-wheeler	0%
Boat	100%
Foot	0%
Car/truck	0%
Number of Use Areas	28

Stephen R. Braund & Associates, 2010.

Moose

Moose (*tuttuvak*) hunting is a rare activity for Kaktovik residents, with only four respondents (11 percent) reporting last 10 year use areas (Table 5). Only two respondents (five percent) reported hunting moose in the last 12 months, and only one was successful (Tables 6 and 7). Because only aggregated information of four or more respondents is included in this report, the maps, figures, and tables related to last 12 months moose harvest activities, including most recent harvests, are not included below.

According to respondents, subsistence moose hunting in the region opened only recently, and residents must apply for a permit to hunt moose. One individual explained,

> *Let's see, nope [no moose hunting in the last 10 years]. No, it's been closed; they just opened it recently. They just opened it last spring; it's been closed for 10 years.* (SRB&A Kaktovik Interview June 2005)

A number of people reported that they do not like the taste of moose:

> *We noticed that we don't use the moose in the delta. Too much willow taste and in town there's lots of willow. The meat is tough, it just tastes like willow. They don't bother hunting [moose].* (SRB&A Kaktovik Interview November 2005)

> *No I don't [hunt moose], [they are] too willowy. They taste like willow. I'd rather eat the willows.* (SRB&A Kaktovik Interview November 2005)

Subsistence Use Areas

Map 65 depicts last 10 year Kaktovik moose use areas occurring around Sadlerochit, Hulahula, and Okpilak rivers. The highest number of overlapping use areas were reported along Sadlerochit River, Kekiktuk River, and around Lake Schrader. The total last 10 year Kaktovik use area for moose, as shown on Map 65, is 707 square miles. Three moose hunters provided these descriptions of moose hunting in the area:

> *Sadlerochit, this area where they like to feed. Sometimes up Kekiktuk; they go up in there. Sometimes we go up in there; sometimes there is not enough snow. By snowmachine. Now they, the permit system, I hardly go hunt moose now. In the past [we went] in springtime when we are heading up, in April. Oh, last year I got a moose for Thanksgiving. Right in this area somewhere in here [at the base of the Sadlerochit Mountains], in October.* (SRB&A Kaktovik Interview November 2006)

> *Sometimes [I hunt moose]; you have to have a permit. Well, not too often. On the way to Okpiluk….we took the Hulahula route to the first fish hole cabin and from there we went to Okpiluk…we have a cabin right next to this lake. It was on the way up we saw it…somewhere around here, I think.* (SRB&A Kaktovik Interview June 2005)

> *I had a designated hunt permit. I was right around this area here [Lake Schrader]. Remember when they had that big forest fire in the Interior, all the moose and porcupines were coming up.* (SRB&A Kaktovik Interview June 2005)

Months of Harvest Effort

The four individuals who reported hunting moose in the last 10 years described hunting moose from October to April, with the most use areas accessed during April (Figure 22).

Method of Transportation

Respondents reported hunting moose only during the winter or spring (See above under "Months of Harvest Effort") when the primary method of travel is snowmachine (Table 64).

Harvest Gear

Two Kaktovik individuals reported harvest gear for moose (Table 65). They reported using .270, .243, and .22 rifle calibers.

Map 65 - Kaktovik Moose Use Areas, Last 10 Years (1996-2006)

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High
Low

4 use areas reported by 4 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

71°0'0"N
70°0'0"N
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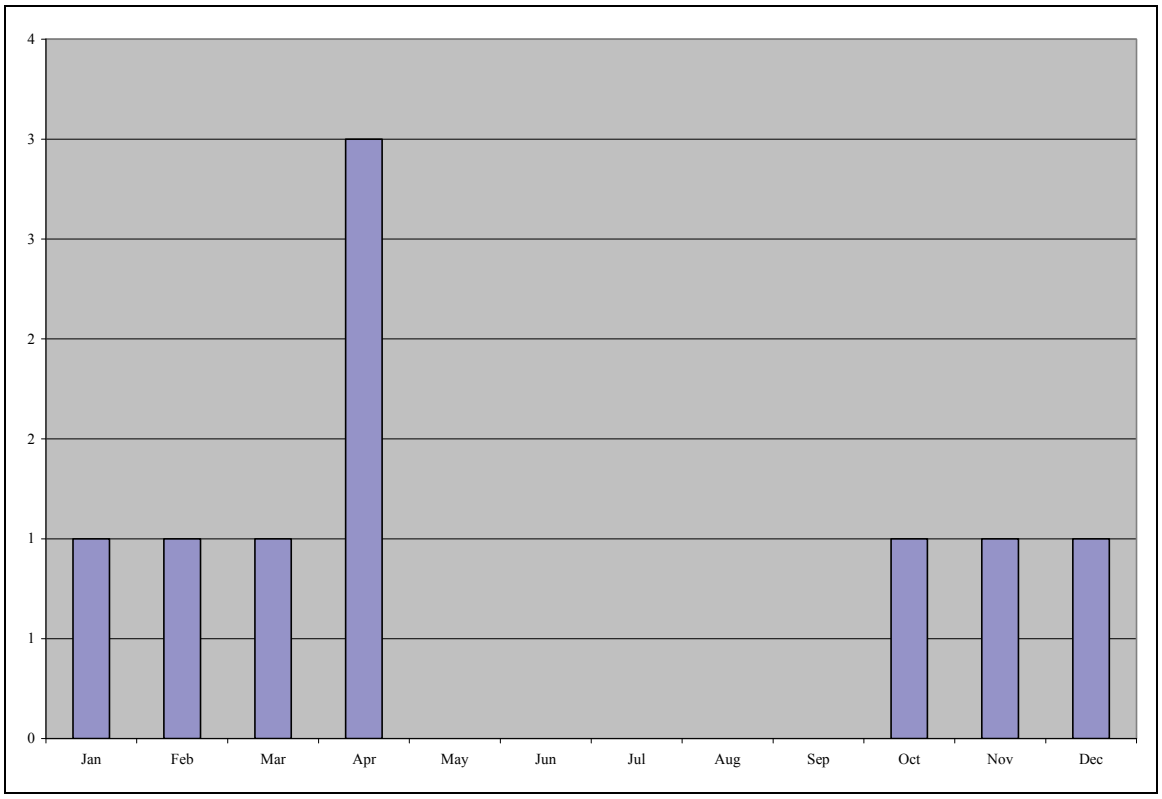
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Prudhoe Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Figure 22: Kaktovik Use Areas for Moose by Month



Stephen R. Braund & Associates, 2010.

Table 64: Kaktovik Method of Transportation to Moose Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	100%
Four-wheeler	0%
Boat	0%
Foot	0%
Car/truck	0%
Number of Use Areas	4

Stephen R. Braund & Associates, 2010.

Table 65: Kaktovik Moose Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.270	1 (50%)
.243	1 (50%)
.22	1 (50%)

Stephen R. Braund & Associates, 2010.

Arctic Cisco

Kaktovik residents reported harvesting Arctic cisco (*qaaktaq*) during the summer as they migrate from the Mackenzie River to the Colville River each year. During interviews, 95 percent of respondents (36 persons) reported last 10 year subsistence use areas for Arctic cisco (Table 5), and 71 percent (27) respondents reported last 12 month use areas (Table 6). Twenty-four (63 percent) respondents reported successful harvests during that period of time (Table 7).

Subsistence Use Areas

Katovik residents' last 10 year Arctic cisco use areas are depicted on Map 66 and show harvests of these fish as far west as Sagavanirktok River and as far east as the Mackenzie River delta (presumably reported by individuals who had previously lived in Aklavik or Inuvik). The total last 10 year Kaktovik use area for Arctic cisco, shown on Map 66, is 133 square miles. Residents commonly reported setting nets or fishing with rod and reel off of Barter Island or along barrier islands near Barter Island, such as Arey Island and Bernard Spit, to harvest Arctic cisco along with other species of fish such as Arctic char. Residents generally described harvesting Arctic cisco in nets while also targeting Arctic char/Dolly Varden, and several people observed that in certain places Arctic cisco are less available than other species of fish, especially those areas close to the community. A number of residents provided descriptions harvesting Arctic cisco at use areas closer to the community of Kaktovik:

> *Right at home. We catch them at the hangar and at the end of the air strip and this side over here, and right here, there's a channel here. That's the right place.* (SRB&A Kaktovik Interview November 2005)

> *[We get]* qaaktaq*, right here on the outside, we set nets there [at Anderson Point]. We set nets at Arey Island, right there on the ocean side, right there we have two different nets. We get both kinds. And [we get* qaaktaq *and char] at the spit there, on the inside and the outside, at the end there, where it breaks from the [Barter] island to the sand bar. We set nets here, on the ocean side and we have nets here at our fish camp [on the southeastern side of Barter Island] in the last 10 years.* (SRB&A Kaktovik Interview November 2005)

> *We don't go very far to get fish. We usually set the net [at Arey Island and Bernard Spit] and go back [to the village] and then come back to check. We use a boat to set it and use a really long net to pull it in.* (SRB&A Kaktovik Interview November 2005)

> Qaaktaq*? We net them, behind the hangar. We set a net out just behind the hangar on the sand spit. In the lagoon, inside the lagoon. And that's Arctic char, too - both…that's netting. July, August, as soon as the ice goes away.* (SRB&A Kaktovik Interview June 2005)

Kaktovik respondents also reported traveling to more distant locations to harvest Arctic cisco. Residents commonly mentioned fishing in Camden Bay, specifically Collinson Point (referred to locally as "POW-D," the name of the DEW [Distant Early Warning] Line site located at Collinson Point), Griffin Point, and Demarcation Bay:

> *There is some good fishing right near Camden Bay. Probably right around here [on the east side of the bay]. A lot of whitefish go right through there in August. Cisco and char.* (SRB&A Kaktovik Interview November 2006)

> *[We get Arctic cisco] in the lagoon [at Griffin Point], next to our camp site. We get chars [also]. Camden Bay right on other [west] side of Hulahula, I get ciscoes and chars. Arey Island, right here before that turn. On the ocean side. I get chars and cisco.* (SRB&A Kaktovik Interview November 2006)

Maps 66, 67, 68 - Kaktovik Arctic Cisco Use Areas, Last 10 Years (1996-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic Cisco Subsistence Use Areas and Harvest Locations

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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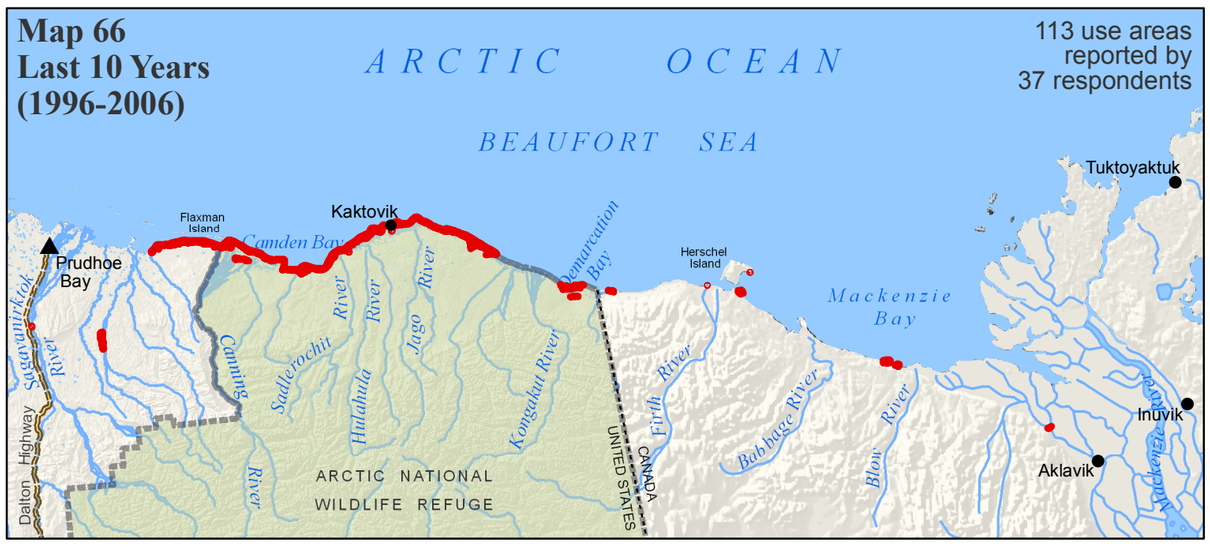
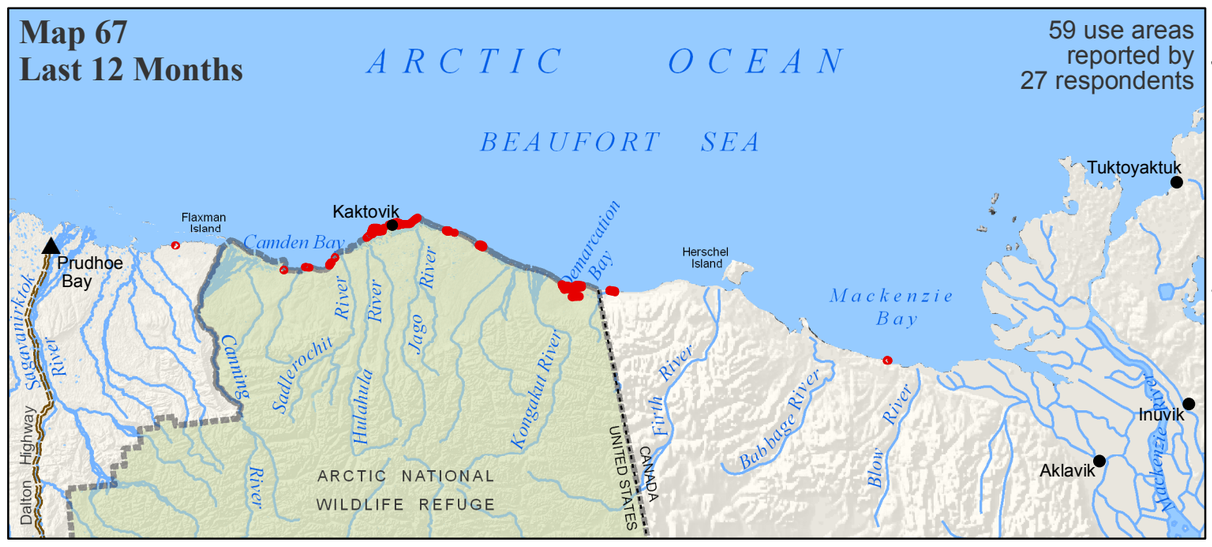
Map 66
Last 10 Years (1996-2006)

113 use areas reported by 37 respondents



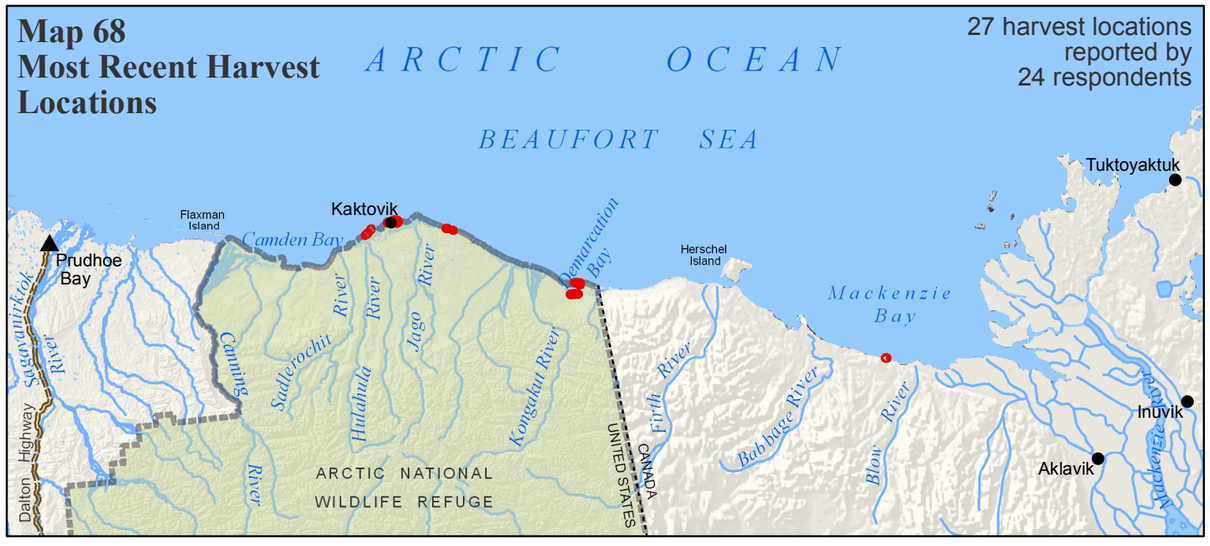
Map 67
Last 12 Months

59 use areas reported by 27 respondents



Map 68
Most Recent Harvest Locations

27 harvest locations reported by 24 respondents



Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

> *Clarence Lagoon, Angun Point, Jago, Demarcation, everywhere, all around. On the inside and the outside in the summer time. Along the coast on the outside…. We get the same kind in the [Sagavanirktok] River, by the bluffs. You can see the fish.* Qaaktaq, Iqalukpik. *Lots of them. Snowmachine in the winter. We went there in February and March, me and my dad. That was the last time I went that way…. At Griffin Point on the inside. We get there by boat,* Qaaktaq, *flounder, dog salmon, silver salmon,* Iqalukpik, Kanayuq. *[I fish at Bernard Spit] but the waves are eating [the spit] all up. I just go there in the summer time when the lagoon has no more ice. We go there and catch fish. You can to farther to Jago…. All across this, inside and out [on Arey Island] all the way down to the point. Inside and outside…. Anderson [Point], by POW-D [Collinson Point].* (SRB&A Kaktovik Interview November 2006)

> *It's like a 45 minute drive from Barter. We have always known it as "POW-D". It's further around here someplace. There is a lagoon right there where we were catching cisco, right about here. We had a net, and we were getting those arctic ciscoes.* (SRB&A Kaktovik Interview June 2005)

Several residents who previously lived in Canada reported last 10 year use areas near Shingle Point and Herschel Island. Various families from the nearby community of Aklavik travel to Shingle Point each year to set nets for fish and engage in other subsistence activities. One individual provided this description of Shingle Point:

> [We harvest Arctic cisco] at Shingle Point, right where we stay. Right here, right on the outside of the ocean. I was cutting until three in the morning [once]. That's what we try for there [Arctic cisco] because we get too much char over here. We like cisco smoked. Dry fish we call it. And with the char we bake or boil or fry them. When we counted on that list there was 128 of us [at Shingle Point]. It's a little game. That's where everybody goes. [There are] about 30 cabins at Shingle Point. Our own camp we have, but we share everything. Every summer, 128 of us. (SRB&A Kaktovik Interview June 2005)

A few residents cited preferences for certain use areas for various reasons, including the proximity of the use area to the community and the productivity of the use area in terms of harvests. One individual described,

> *I would say [my favorite area] is Arey Island because man when we put the net out, we get a lot of fish. Once in awhile when you get a good run you get a lot by the airstrip.* (SRB&A Kaktovik Interview June 2005)

As shown on Map 67, in the last 12 months residents reported harvesting Arctic cisco from Barter Island west to Arey Island and east to Jago Spit, in Camden Bay, and at several locations east of Barter Island including near Griffin Point, Angun Lagoon, and Demarcation Bay. The total last 12 month Kaktovik use area for Arctic cisco, shown on Map 67, is 20 square miles. Residents provided the following descriptions of their last 12 month Arctic cisco harvest activities:

> *I went fishing down by the whale shack on the east side, with my daughter from Norway. Hardly any fish this year. When we catch some they were small. My daughter ordered a small fish net; it just catches the small ones.* Qaaktaq *is down by that whaling shack.* (SRB&A Kaktovik Interview November 2006)

> *I did [go this year to] Demarcation [Bay]. [We went in] July, middle part of July. [We were there for] two, three weeks; my engine went out on me for about three weeks. [We got] quite a few [fish]. We were smoking the fish.* (SRB&A Kaktovik Interview November 2005)

When we go over to Demarcation, we do some fishing over there too. I went over to Demarcation last year; it's right in here, alongside [the sand spit] here. I've been mostly fishing for herring [a local name for Arctic cisco], and Arctic char. [We go] in July, probably last week of July until the middle of August. (SRB&A Kaktovik Interview June 2005)

Most Recent Harvest

Harvest Locations

The locations of Kaktovik respondents' most recent Arctic cisco harvests are depicted on Map 68. Twenty-four respondents reported successful harvests of Arctic cisco in the 12 months prior to their interviews (Table 7). Residents reported harvesting Arctic cisco as far east as Shingle Point near the Mackenzie River in the last 12 months. In addition to Shingle Point, most recent Arctic cisco harvest locations include Arey Island, Barter Island, Bernard Spit, Griffin Point, and Demarcation Bay:

Last summer time harvest would be the netting, on Bernard Spit. I would round it out to 60 [fish] over the summer, over all. (SRB&A Kaktovik Interview November 2006)

Right in front of Kaktovik. [That's in] July and then again carrying my nets July-September all of them. [The last time was with my] family, my wife and three kids. [We go] all summer. We just go down and put it out and pull it in. [We get] 10 a day; it depends on the run, some days you get 50, some days you get more. I would say I got a hundred or more [during the whole seasons]. (SRB&A Kaktovik Interview June 2005)

Arey Island, right here before that turn, on the ocean side. [We] get chars and cisco, in August [by] boat. [That was my] last spot. Ciscoes must have been 50 this year in a net. Hardly any here, hardly any fish around that part [harvests more fish at Griffin Point]. Less than a dozen there [Arey Island]. (SRB&A Kaktovik Interview November 2006)

Number of Participants

As shown in Table 66, 70 percent of most recent Arctic cisco harvests reported by Kaktovik respondents involved at four or more participants, while 22 percent of recent harvests were carried out by one individual. Several harvesters reported traveling with family members to Arctic cisco harvest areas. One individual said,

All along there [Demarcation Bay], that's where the qaaktaq *is. We dry the fish and Arctic char. [We were there for] about three weeks. We get some people who come to fish with us, my family, my brother's family and other families, about 30 people, just about the end of July and August about August 15th we came back.* (SRB&A Kaktovik Interview November 2005)

Many of the solo harvesters reported that their most recent harvests of Arctic cisco occurred at the nearby airstrip on Barter Island. One such individual commented,

I just do rod and reel. I just drive to the end and drive over [by] truck. I got three or four; most of them were at the end of the runway behind the hangar. (SRB&A Kaktovik Interview June 2005)

Table 66: Kaktovik Number of Participants During Most Recent Arctic Cisco Harvests

Number of Participants	Percentage of Harvest Locations
1 person	22%
2-3 people	7%
4 or more people	70%
Number of Most Recent Harvest Locations	27

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents reported either taking day trips (56 percent) or extended trips (lasting over two weeks) (41 percent) to the majority of most recent Arctic Cisco harvest locations (Table 67). Residents generally reported taking day trips to harvest Arctic cisco at locations on or near Barter Island. As one individual stated,

> *We just walk. We can fish in the lagoon in our back yard towards the hangar. I like to use rod and reel. August, July. We just fish around the hangar. We just go for the day. We just walk over and back. Sometimes it's nice to catch a ride.* (SRB&A Kaktovik Interview November 2005)

Other people described camping for extended stays at more distant locations, such as Demarcation Bay or at camp sites on nearby barrier islands such as Arey Island, while they fished for Arctic cisco. One respondent made the following comment:

> *[The last fish harvest] was Demarcation; because that was the last place we went camping. Must have been about 10, 15, of us there. [We were there] middle of July to middle of August. I think we got over a hundred [Arctic cisco].* (SRB&A Kaktovik Interview June 2005)

Table 67: Kaktovik Duration of Trips to Most Recent Arctic Cisco Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	41%
1-2 weeks	0%
2-5 nights	4%
1 night	0%
Same day	56%
Number of Most Recent Harvest Locations	27

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Kaktovik respondents described fishing for Arctic cisco primarily during July and August, with the highest numbers of Arctic cisco reported during those months (Figure 23). Residents generally reported harvesting these fish as soon as the ice breaks up. Two residents explained,

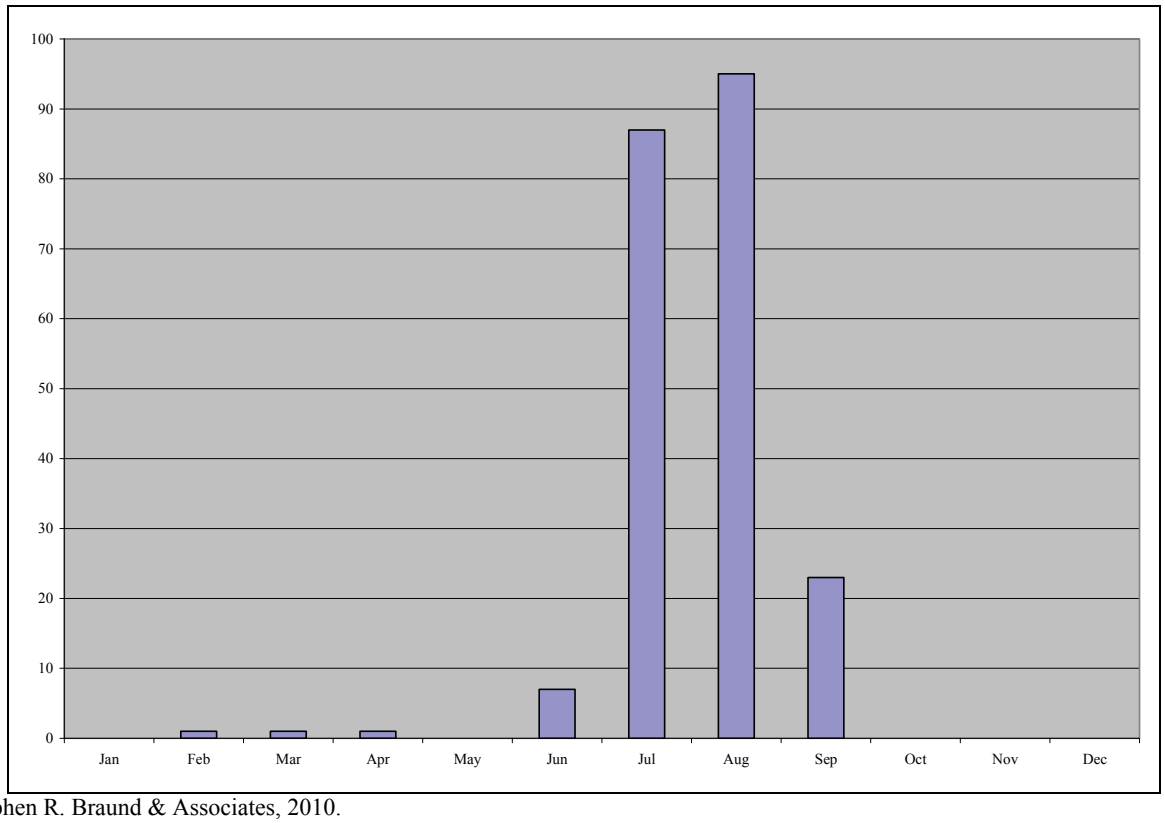
Early summer, right when ice is breaking up. When I hear people finally catch them I go, probably in July. I didn't go this summer. (SRB&A Kaktovik Interview November 2006)

July, August, as soon as the ice goes away. (SRB&A Kaktovik Interview June 2005)

One resident observed that the previous summer had been colder and rainer than usual, affecting their ability to dry fish:

> July and August; July is the best part because it is warm. Just those two months but this year was really, really cold; we didn't have any summer, mostly damp weather. We had to make a smoke house to keep the heat on the fish; I use a tent sometimes.

Figure 23: Kaktovik Use Areas for Arctic Cisco by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported using a variety of transportation methods to Arctic cisco use areas, with boat being the primary mode to access these areas (75 percent), followed by four-wheeler, foot, and car/truck (Table 68). Residents used boats to access use areas not located on Barter Island, and the remaining modes of transportation to travel to nearby use areas.

Harvest Gear

Nearly all Arctic cisco harvesters (88 percent) use nets to harvest this subsistence resource (Table 69). Fifty percent of harvesters also reported using rod and reel to catch Arctic cisco. Only one person mentioned using a jigging rod to harvest this resource.

Table 68: Kaktovik Method of Transportation to Arctic Cisco Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	2%
Four-wheeler	19%
Boat	75%
Foot	12%
Car/truck	10%
Number of Use Areas	113

Stephen R. Braund & Associates, 2010.

Table 69: Kaktovik Arctic Cisco Harvest Gear

Gear	Number (%) of Harvesters
Nets	28 (88%)
Rod and Reel	16 (50%)
Jigging	1 (3%)

Stephen R. Braund & Associates, 2010.

Arctic Char/Dolly Varden

The harvesting of Arctic char/Dolly Varden (*paikłuk*/*iqalukpik*) is a common subsistence activity in Kaktovik. During SRB&A interviews, all but one respondent (95 percent) reported harvest Arctic char/Dolly Varden in the last 10 years (Table 5). Thirty individuals (79 percent of respondents) reported doing so in the last 12 months (Table 6). As discussed above, harvests of Arctic char/Dolly Varden often coincide with harvests of Arctic cisco during the summer months, and much of the information regarding Arctic char/Dolly varden and Arctic cisco harvesting is similar.

Most Kaktovik respondents reported harvesting Arctic char; however, some reported harvesting Dolly Varden. Because of the close physical similarities between Arctic char and Dolly Varden, and the difficulties in distinguishing the two species, the data related to each species were combined under one heading. This section uses the term Arctic char because the majority of respondents referred to these fish as such.

Subsistence Use Areas

Although residents often harvest Arctic char and Arctic cisco in the same places, Arctic cisco harvests are generally limited to the coast. In contrast, residents harvest Arctic char at both coastal and inland locations. Map 69 depicts last 10 year Arctic char use areas occurring along the coast between Mikkelsen Bay to the west and Shingle Point (in Canada) to the east, and inland along Sagavanirktok, Shaviovik, Canning, Hulahula, Kongakut, Mackenzie, and Big Fish rivers. The total last 10 year Kaktovik use area for Arctic char, as shown on Map 69, is 146 square miles.

The above "Arctic cisco" discussion includes residents' descriptions of summer Arctic char and Arctic cisco harvests with nets along the coast and barrier islands. However, a number of individuals identified areas visited specifically for Arctic char. As one individual described,

Maps 69, 70, 71 - Kaktovik Arctic Char/Dolly Varden Use Areas, Last 10 Years (1996-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic Char/Dolly Varden Subsistence Use Areas and Harvest Locations

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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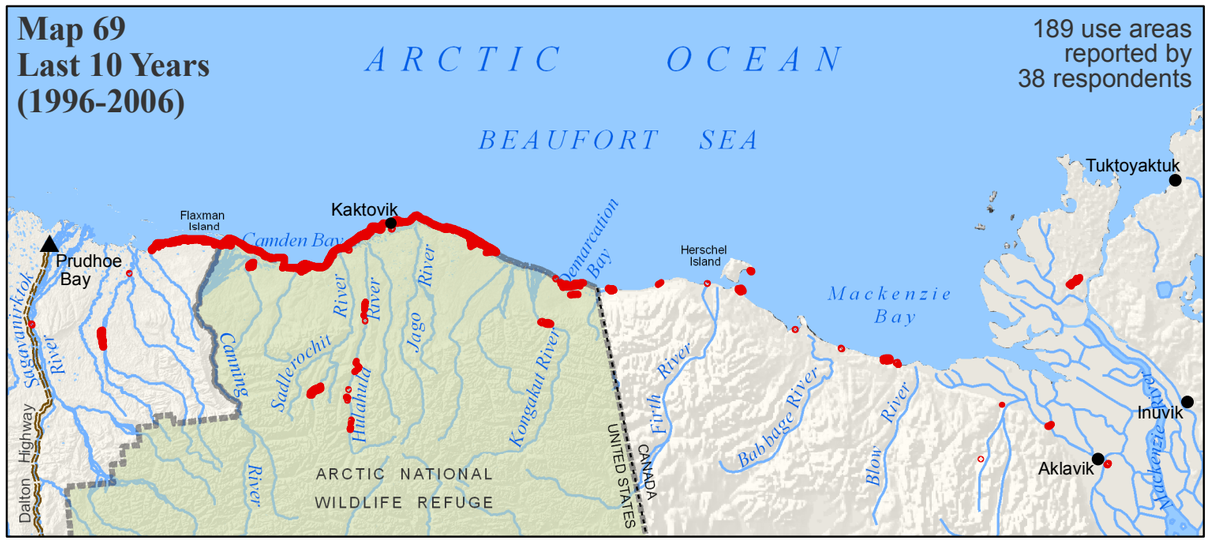
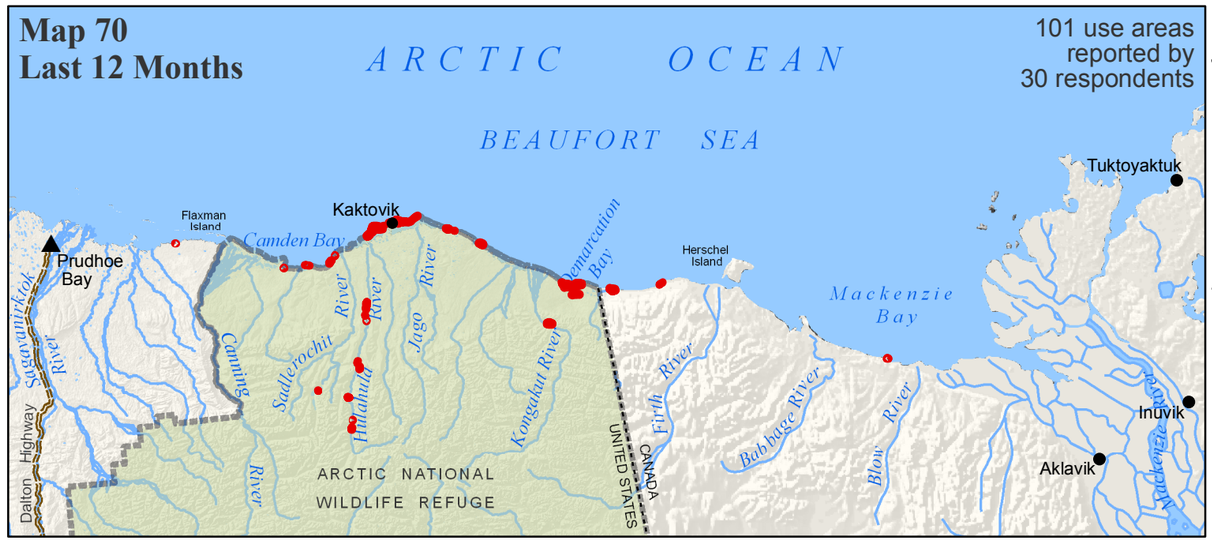




Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

Same places [as Arctic cisco] but [also] Griffin Point, right inside the lagoon, yeah. Right in there. Right over where the cabin is. My uncle has a cabin there. A log cabin. That's where my auntie likes to make her smoked fish. For Artic char, they travel all the way to Canada. (SRB&A Kaktovik Interview June 2005)

Kaktovik respondents also commonly reported harvesting Arctic char with rod and reel on Barter Island and along the coast at various locations.

During the winter months residents reported traveling inland by snowmachine to fish for Arctic char in addition to other fish species (such as lake trout and Arctic grayling) through the ice. In particular, a number of individuals reported traveling to First, Second, and Third fish holes on Hulahula River:

First Fish Hole, somewhere in that area. There is a cabin there everybody stops at. [We get] char; sometimes we stay at the cabin, overnight sometimes. First Fishing Hole is April, sometimes in the fall too. Fall time we go up, October, November mostly; some people go up October. (SRB&A Kaktovik Interview November 2006)

I go fishing up there at First and Second [Fish Hole] too. You get some of the small ones too. Ice fishing, for char. Char in First and Second Fish Hole by snowmachine. Even the red ones. Some are red colored too; you get them red bellied kind. Sometimes I go to Third Fishing Hole. Close to Patuk right in there. Some people go hunting up there to Canning [south of East and West Patuk creeks, which flow into Hulahula near Third Fish Hole]. I get char at Third Fish Hole. I go hunting up there and go fishing; when it is bad weather you go fishing. (SRB&A Kaktovik Interview November 2006)

We go out fishing winter time to Hulahula, First, Second, and Third [Fishing holes], ice fishing. Just those Arctic chars, and what they call those grayling. We only catch those. When you go up those rivers, not First, but Second and Third, always are open, so that is how you go ice fishing. But you have to drill it or chop the ice. Any time as long as you reach it. As long as you can cross Barter Island you can reach. November to May or June. (SRB&A Kaktovik Interview November 2006)

Residents also reported traveling to other inland areas to harvest Arctic char, including Kongakut River, Sagavanirktok River, Shaviovik River, Mackenzie Delta, and Schrader Lake. Residents provided the following additional descriptions of Arctic char use areas:

Schrader Lake in the spring time. Could be char or Dolly Varden. Springtime, April, lake trout, Dolly Varden, and grayling. (SRB&A Kaktovik Interview November 2006)

I did some fishing on the Kongakut River, too, right on that bend there too. We get Arctic char. I take the snow machine and follow the creek up and then go home. Usually I spend about three or four days, but I get permission from my Uncle's wife before I go over. (SRB&A Kaktovik Interview June 2005)

We go to a spot [on Shaviovik River]. Somewhere around here in the river. Ice jigging, we throw a big hook, snagging. A lot of grayling, cisco, we got big char too. [We went in] April before the river went out. [We go there for] one week. [We stay] in a set up tent. (SRB&A Kaktovik Interview June 2005)

Kaktovik respondents' last 12 month Arctic char use areas are depicted on Map 70. Residents reported traveling along the coast during the summer and inland to Hulahula and Kongakut rivers and Schrader Lake in the last 12 months to harvest Arctic char. The total last 12 month Kaktovik use area for Arctic char, shown on Map 70, is 25 square miles. Three residents described,

Up here at Second [Fish Hole], that is where we go ice fishing. There's always a lot of people down there. Probably less then 10 [in our group]. Most of them were camping further down. You know, we were staying in the First Fish Hole. It would have to be almost a week. (SRB&A Kaktovik Interview June 2005)

In November I went up to 'Second Fish Hole' and 'First Fish Hole'. 'Second Fish Hole' is right there. Right in that area [at the base of Kikiktak Mountain]. And I didn't catch nothing from Hulahula. That would be November, but like I said I didn't catch any last time. That was really poor fishing last year. (SRB&A Kaktovik Interview June 2005)

We went up to Arey Island. We had our net on the outside, and we docked the boat on the inside. It's closer to the west end. We got char, cisco and whitefish. Once in awhile you catch one or two [cisco]. That's July and August. (SRB&A Kaktovik Interview June 2005)

Most Recent Harvest

Harvest Locations

Kaktovik respondents' most recent harvests of Arctic char, as depicted on Map 71, generally occurred at coastal locations including the mouth of Canning River, Arey Island, Barter Island, Griffin Point, Demarcation Bay, and Shingle Point. Two individuals described their most recent harvests of Arctic char as follows:

[Most recent harvest at Arey Island]: Man, I don't know. We got lots. We set the net out and there would be 20 or 30 in the afternoon and towards the evening we get like 30. A whole day with a good run is like 70. I would say five days a week you would keep the net out. We just fill up our freezers. Maybe a little over 200 maybe. (SRB&A Kaktovik Interview June 2005)

I got two fish right there, right by the airport, ocean side. That one down there, my mom's old fish camp. [We] put a net out; we did this summer. Char, whitefish [cisco], hopefully salmon, once in a while we get chum, and the other kind of salmon. My fishing rod I got two, not very big, but big enough for me to eat. (SRB&A Kaktovik Interview November 2006)

For additional descriptions of residents' most recent harvests of Arctic char, see the similar discussion above under "Arctic cisco."

Number of Participants

Community members reported four or more participants at 58 percent of their most recent Arctic char harvest locations (Table 70). Approximately one-quarter (27 percent) of Arctic char recent harvests had only one participant. Like harvests of other fish species, respondents often reported harvesting Arctic char with several family members. One harvester said,

[The last time we got char was] probably late August. [We didn't get] very many, maybe five. [It was just] me and my family. Two boys and a girl and my wife. There are five of us. (SRB&A Kaktovik Interview November 2005)

Table 70: Kaktovik Number of Participants During Most Recent Arctic Char/Dolly Varden Harvests

Number of Participants	Percentage of Harvest Locations
1 person	27%
2-3 people	15%
4 or more people	58%
Number of Most Recent Harvest Locations	33

Stephen R. Braund & Associates, 2010.

Duration of Trip

Table 71 shows 52 percent of most recent Arctic char harvests taking place within the same day. Twenty-seven percent of harvests happened over a period longer than two weeks. Like Arctic cisco harvests, a number of respondents reported harvesting Arctic char during day trips to nearby locations, particularly to the lagoon near the end of the Barter Island runway and on Arey Island. Two respondents provided the following comments:

> *Arey Island, right here before that turn, on the ocean side, I get chars and cisco. Ciscoes must have been 50 this year in a net. Hardly any here, hardly any fish around that part. About 30 char. There was me, my mom and my brother and his wife. Just a day trip.* SRB&A Kaktovik Interview November 2006)

> *Right at home, we catch them at the hangar. [That's in] August, and the same places for char. [Char is] earlier, June, July, August. No nets, I use a rod and reel for char and cisco. [It's all] day trips.* (SRB&A Kaktovik Interview November 2005)

Residents also reported taking camping trips to more remote locations, such as one of the three community "Fish Holes" located on the Hulahula River.

Table 71: Kaktovik Duration of Trips to Most Recent Arctic Char/Dolly Varden Harvest Locations

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	27%
1-2 weeks	9%
2-5 nights	6%
1 night	6%
Same day	52%
Number of Most Recent Harvest Locations	33

Stephen R. Braund & Associates, 2010.

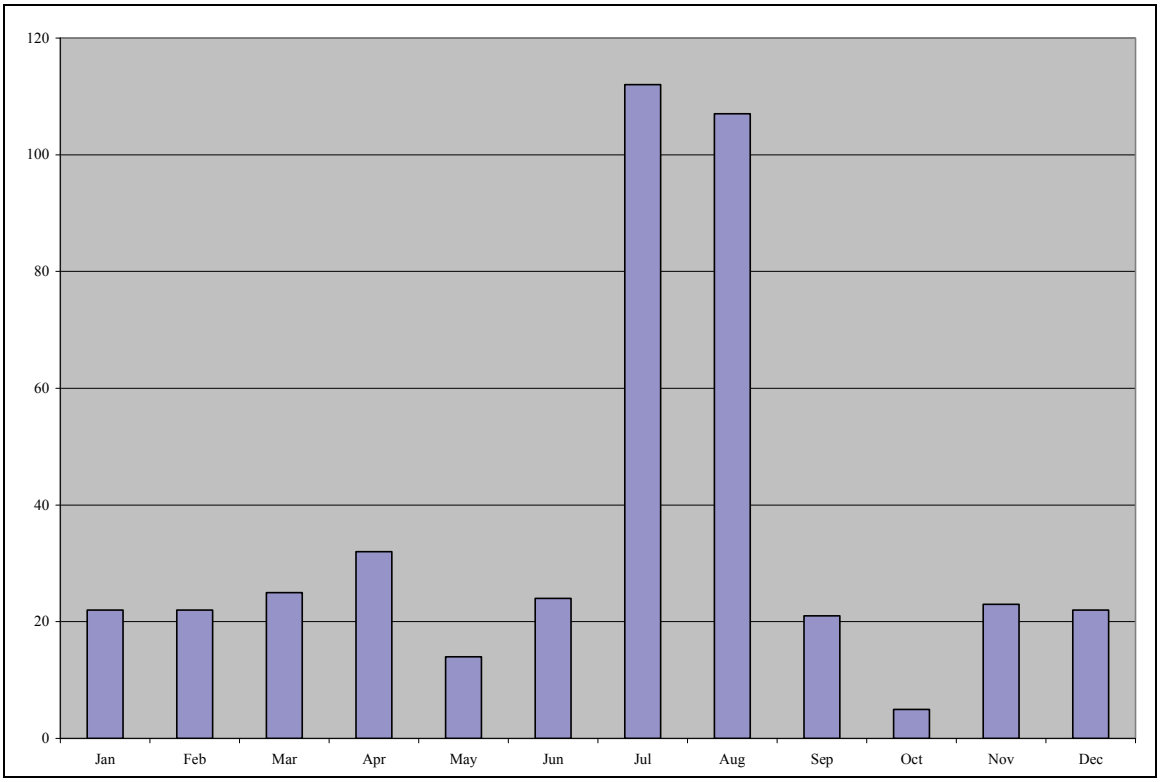
Months of Harvest Effort

Kaktovik residents described harvesting Arctic char throughout the year, although the majority of their Arctic char use areas were reported during July and August (Figure 24). One person explained why the majority of Arctic char harvest occurs during these two months, saying,

> *Late June. They come out of the Huluhula, all the fish, and go to the coast. There is still ice in the ocean but they come out where the ice is off the island and congregate there. Char, [I] try in July. That is about it.* (SRB&A Kaktovik Interview November 2006)

Residents also reported harvesting Arctic char during the winter months with jigging poles.

Figure 24: Kaktovik Use Areas for Arctic Char/Dolly Varden by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Kaktovik respondents reported traveling to Arctic char use areas primarily by boat (56 percent of use areas) (Table 72). This is consistent with the majority of use areas being used in July and August. Residents access 25 percent of use areas with snowmachine; these are inland areas used during the winter months for jigging. Other modes of transportation used to access nearby Arctic char use areas include four-wheeler, foot, and car/truck.

Harvest Gear

Eighty-three percent of Arctic char harvesters reporting using nets (Table 73). Twenty-three individuals (63 percent) also use rod and reel at their Arctic char use areas. Twelve residents reported jigging for this type of fish during the winter.

Table 72: Kaktovik Method of Transportation to Arctic Char/Dolly Varden Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	25%
Four-wheeler	14%
Boat	56%
Foot	10%
Car/truck	6%
Number of Use Areas	189

Stephen R. Braund & Associates, 2010.

Table 73: Kaktovik Arctic Char/Dolly Varden Harvest Gear

Gear	Number (%) of Harvesters
Nets	30 (83%)
Rod and Reel	23 (63%)
Jigging	12 (33%)

Stephen R. Braund & Associates, 2010.

Broad Whitefish

The harvesting of broad whitefish (*aanaakliq*) in Kaktovik is less common than that of Arctic cisco or Arctic char. One individual said, "No, they get [broad whitefish] further towards Nuiqsut" (SRB&A Kaktovik Interview November 2005). However, nearly half of respondents (18, or 47 percent) reported harvesting broad whitefish in the last 10 years, and 12 (32 percent) reported harvesting them in the last 12 months (Tables 5 and 6). Ten of these respondents had successful harvests (Table 7).

Subsistence Use Areas

As depicted on Map 72, Kaktovik residents reported harvesting broad whitefish primarily along the coast or in river mouths between Mikkelsen Bay and Shingle Point. Residents also reported harvesting broad whitefish inland at Lake Schrader. The total last 10 year Kaktovik use area for broad whitefish, shown on Map 72, is 120 square miles.

A number of individuals reported harvesting broad whitefish in nets during the summer while targeting Arctic char and Arctic cisco (see residents' descriptions above under "Arctic Cisco" and "Arctic Char/Dolly Varden). Two individuals described,

> *[We do summer fishing] mostly on the island, the sand spit on the inside. Arctic cisco and char, and sometimes whitefish.* (SRB&A Kaktovik Interview November 2006)

> *[Whitefish] travel through there, along the coast [of Barter Island]. [We know] because we could see them swimming close by the beach. They make little ripples and you could tell when they are coming.* (SRB&A Kaktovik Interview June 2005)

Maps 72, 73, 74 - Kaktovik Broad Whitefish Use Areas, Last 10 Years (1996-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Broad Whitefish Subsistence Use Areas and Harvest Locations

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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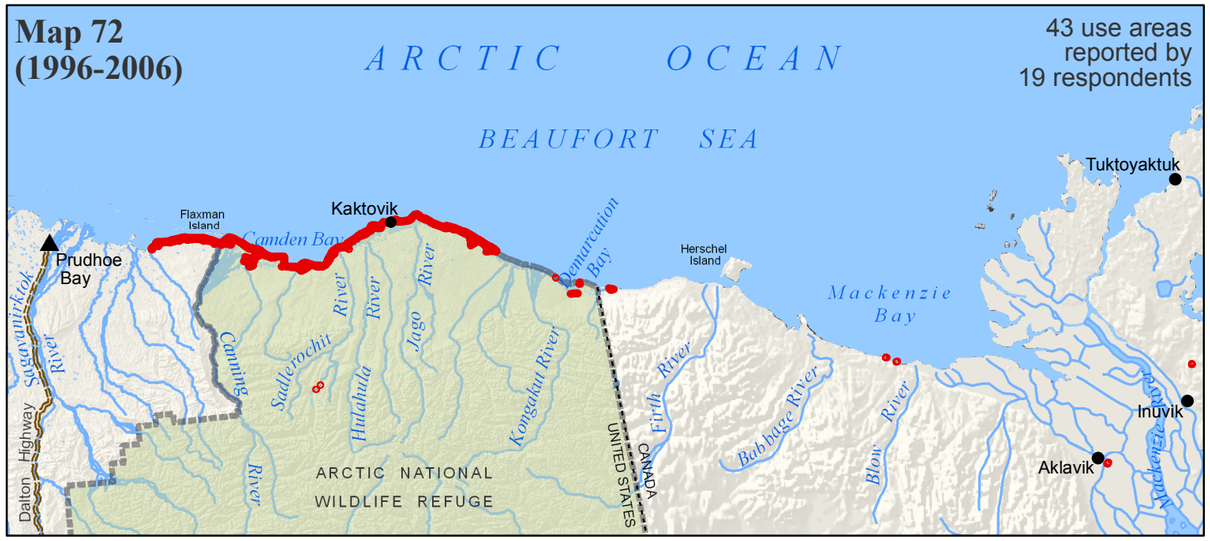
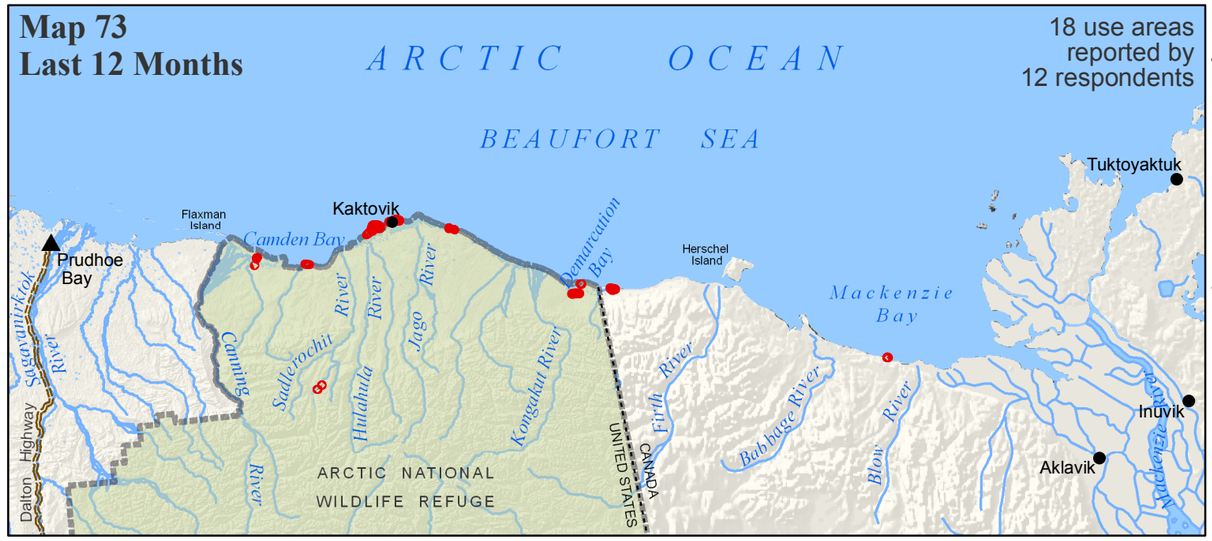
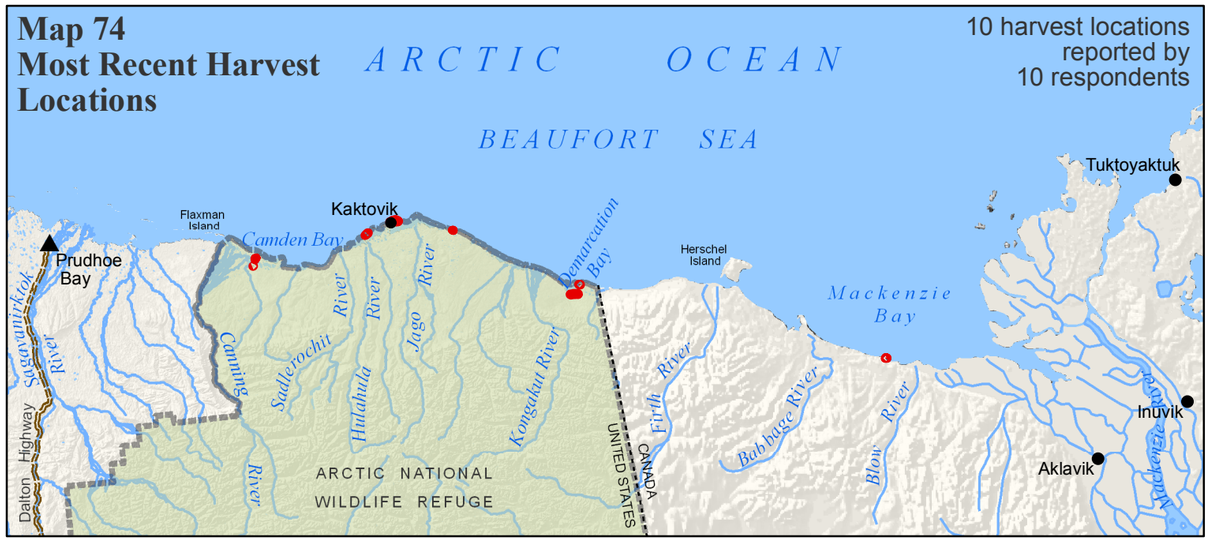






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

Others identified more specific areas where they harvest broad whitefish either by rod and reel or through the ice in the winter. In particular, a number of individuals reported harvesting whitefish in or near the mouth of Canning River:

> *Go to Canning River and get* aanaakliqs *and grayling.* Aanaakliqs *is big whitefish [broad whitefish].* (SRB&A Kaktovik Interview November 2006)

> *Canning River - Right in here, I think. That was whitefish. First part of August, I think it was. That is the farthest west I have been so far. I think it was just that one we caught [last year].* (SRB&A Kaktovik Interview June 2005)

> *[We] cut across through here and go inside that river [Tamayariak River, near Canning River] quite a ways in with a net. We camped on each side of that bank there. [We get] whitefish, char and broad fish. We go to some of the lakes with rod and reel too. Never tried ice fishing over there; they said it was pretty good. [We go in] July, August. [We] usually camp.* (SRB&A Kaktovik Interview June 2005)

> *I have fished in here, in here for broad whitefish, burbot, grayling [at] the mouth of Canning [River]. [That's in the] summer months, July through September. Along in the river and probably up to this lake here.* (SRB&A Kaktovik Interview June 2005)

A few individuals reported harvesting broad whitefish through the ice during the winter months. These respondents described,

> *[At] Schrader Lake I ice fished there for trout. Whitefish and trout. [I go] where there is creeks going down to the lake because all the sediments come down, and we will put about 10 holes there. Right around November when the ice is about two feet thin. November all the way to April. I am a weekend warrior; when I get a chance I go up and when there is adequate snow coverage.* (SRB&A Kaktovik Interview June 2005)

> *We get whitefish at] the same spot you set the net out; you go to Jack Fish Creek for jigging and another place right in town. There's a place at Marten Creek there, from Aklavik just a couple miles, six miles. You go this way from Aklavik across the river and you go to Fish Point. Just right in town, just across the river.* (SRB&A Kaktovik Interview November 2005)

In the 12 months prior to their interviews, Kaktovik respondents reported fishing for broad whitefish near Kaktovik (on Barter Island, Arey Island, and Bernard Spit), in Canning and Tamayariak rivers, and at Griffin Point, Demarcation Bay, Lake Schrader, Clarence Lagoon, and Shingle Point (Map 73). The total last 12 month Kaktovik use area for broad whitefish, show on Map 73, is nine square miles. One individual described harvesting broad whitefish at Canning River in the previous 12 months, saying,

> *I went to Canning last August with a net. I only got one [broad whitefish], and about 20 to 30 grayling. Last spot I got grayling [was at Canning River]. It was an overnight trip. Just me and my cousin.* (SRB&A Kaktovik Interview June 2005)

Most Recent Harvest

Harvest Locations

Most recent broad whitefish harvests as reported by Kaktovik subsistence users are depicted on Map 74. Residents reported successful harvests of broad whitefish at Canning River, Arey Island, Barter Island (including Bernard Spit), Demarcation Bay, and Shingle Point.

Number of Participants

Four or more individuals actively participated in 90 percent of most recent broad whitefish harvests reported by Kaktovik respondents (Table 74). No respondents reported harvesting broad whitefish by themselves, and only 10 percent of most recent harvests involved two to three participants. One elder described taking their grandkids to Pokok Lagoon to harvest a variety of fish including broad whitefish and said,

> *We have some grandkids that go out with us so it varies. Sometimes they come visit, and they help out.... It all depends on who all goes there. [About eight total]. I always make my kids go up.* (SRB&A Kaktovik Interview June 2005)

Table 74: Kaktovik Number of Participants During Most Recent Broad Whitefish Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	10%
4 or more people	90%
Number of Most Recent Harvest Locations	10

Stephen R. Braund & Associates, 2010.

Duration of Trip

Kaktovik residents reported that 70 percent of their trips to most recent broad whitefish harvest areas lasted longer than two weeks (Table 75). The remaining 30 percent of most recent broad whitefish trips were same day trips or overnight trips lasting up to two weeks. Describing their extended stay on Arey Island for whitefish, Arctic char, and Arctic cisco, one individual commented,

> *There was just three or four of us [the last time we got some], but we would get a lot of visitors. We set the camp for two months, but we would run home to shower and get food. We just pull it up [the net] during the night.* (SRB&A Kaktovik Interview June 2005)

Table 75: Kaktovik Duration of Trips to Most Recent Broad Whitefish Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	70%
1-2 weeks	0%
2-5 nights	0%
1 night	10%
Same day	20%
Number of Most Recent Harvest Locations	10

Stephen R. Braund & Associates, 2010.

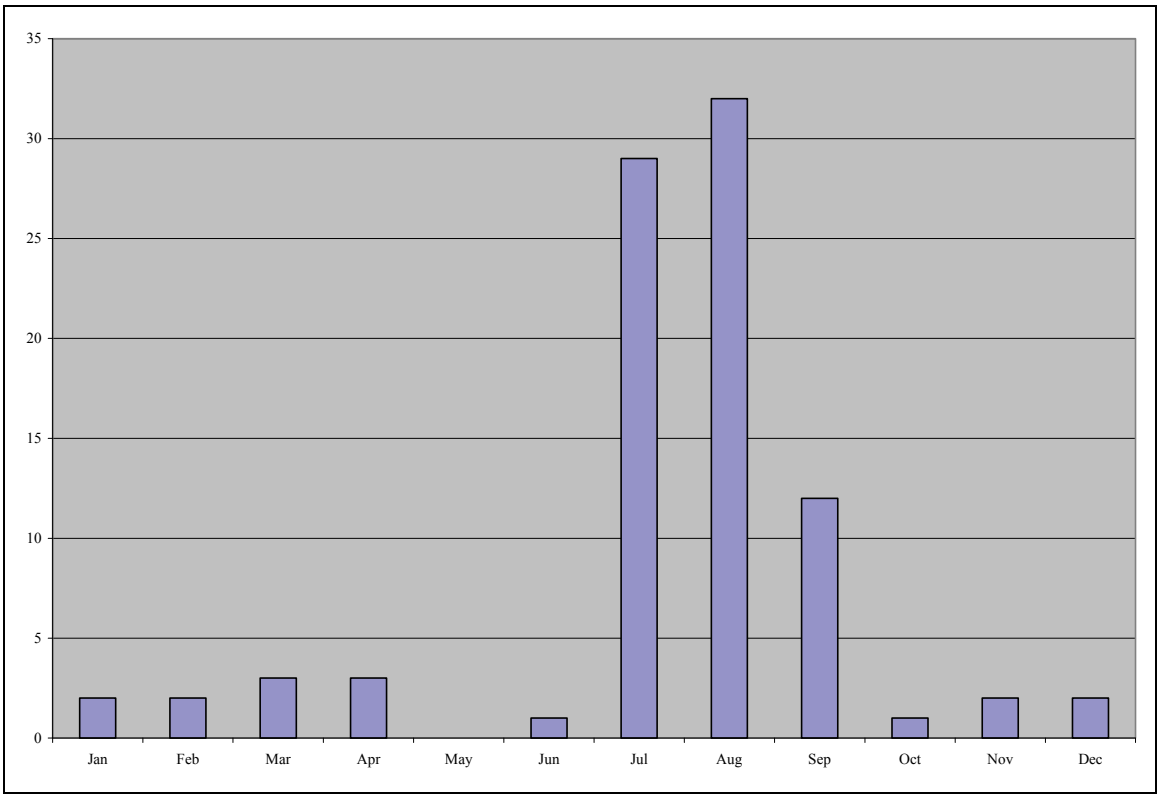
Months of Harvest Effort

As shown on Figure 25, respondents access the bulk of their broad whitefish use areas in July, August and into September. Like much of their summer fishing, residents begin harvesting broad whitefish as soon as the ice opens. One person made the following comment regarding his months of broad whitefish harvest:

> *[We fish] right inside the Lagoon. Just come down here [by the runway]. [I use] a net because I am never lucky. We use a boat. [We go as] soon as the ice is open sometimes July, August, September - we never know when the Lagoon is open.* (SRB&A Kaktovik Interview June 2005)

A few individuals reported ice fishing for broad whitefish during the winter months.

Figure 25: Kaktovik Use Areas for Broad Whitefish by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

As the majority of broad whitefish use occurs in the summer (July and August), residents reported using boat as the primary mode of transportation to those use areas (Table 76). Respondents reported taking boats to access 82 percent of use areas and four-wheelers to 14 percent of use areas. Other lesser used modes of transportation included snowmachine, foot, and car/truck.

Harvest Gear

Ninety-three percent of broad whitefish harvesters reporting gear used nets to catch their whitefish (Table 77). A few individuals also mentioned using rod and reel for broad whitefish.

Table 76: Kaktovik Method of Transportation to Broad Whitefish Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	7%
Four-wheeler	14%
Boat	82%
Foot	5%
Car/truck	5%
Number of Use Areas	44

Stephen R. Braund & Associates, 2010.

Table 77: Kaktovik Broad Whitefish Harvest Gear

Gear	Number (%) of Harvesters
Nets	14 (93%)
Rod and Reel	4 (26%)
Jigging	0 (0%)

Stephen R. Braund & Associates, 2010.

Burbot

Of the fish species discussed in this report, burbot (*tittaaliq*) was the least commonly harvested by Kaktovik residents. Only four respondents reported last 10 year burbot use areas, and only half of these respondents reported harvesting burbot in the last 12 months. Because only aggregated information of four or more respondents is included in this report, the figures and tables related to last 12 months burbot harvest activities, including most recent harvests, are not included. Residents generally indicated that burbot are not highly desired, and some indicated that they are not widely available near Kaktovik. One individual observed,

> *I don't like it [burbot]; it's ugly, I don't like the liver. People like it, but I don't like it in my house. The smell stays in there forever; it's a powerful fish.* (SRB&A Kaktovik Interview November 2005)

Subsistence Use Areas

Residents generally reported harvesting burbot while targeting other fish such as Arctic char, Arctic cisco, and broad whitefish. Map 75 shows last 10 year burbot harvest areas occurring along the coast and in the mouths of rivers between Mikkelsen Bay and Angun Point, as well as at two coastal locations (Shingle Point and Komakuk Beach) in Canada. The total last 10 year use area for burbot, shown on Map 75, is 110 square miles.

Few residents reported fishing exclusively for burbot, although one reported jigging for the fish near Kaktovik, saying, "[We get burbot] just right in town, across from town in the river. There's a little creek and little lake. You do the hooking, there's a lot of people fighting for loche [another name for burbot]" (SRB&A Kaktovik Interview November 2005).

Maps 75 - Kaktovik Burbot Use Areas
Last 10 Years (1996-2006)

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Use Areas

8 use areas
reported by
4 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

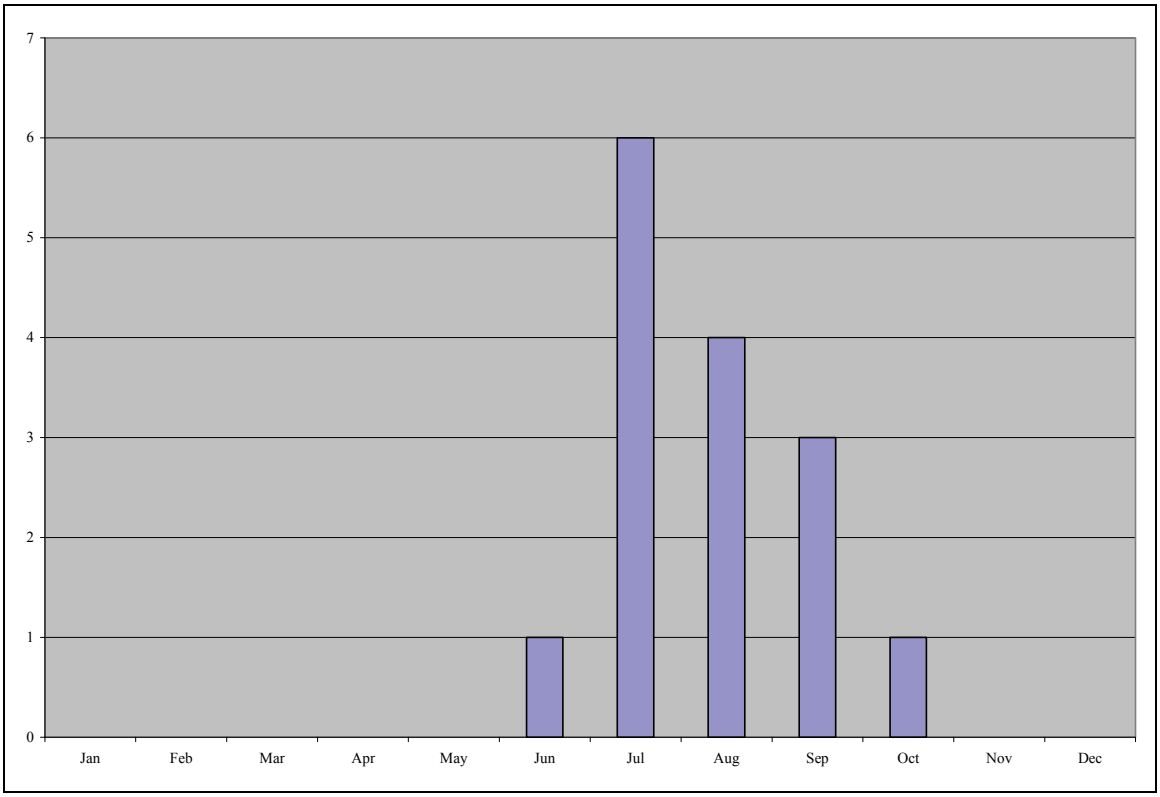
ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Prudhoe Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Months of Harvest Effort

Those individuals who reported harvesting burbot over the last 10 years indicated that they use their burbot use areas between the months of June through October (Figure 26). These individuals reported the most use areas for the month of July.

Figure 26: Kaktovik Use Areas for Burbot by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Kaktovik respondents reported using boat to access 75 percent of burbot use areas (Table 78). They accessed 13 percent of use areas with snowmachines and another 13 percent by foot.

Table 78: Kaktovik Method of Transportation to Burbot Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	13%
Four-wheeler	0%
Boat	75%
Foot	13%
Car/truck	0%
Number of Use Areas	8

Stephen R. Braund & Associates, 2010.

Harvest Gear

Those respondents who reported last 10 year use areas for burbot described using jigging rods, nets, and rod and reel to harvest them (Table 79).

Table 79: Kaktovik Burbot Harvest Gear

Gear	Number (%) of Harvesters
Jigging	2 (50%)
Nets	1 (25%)
Rod and Reel	1 (25%)

Stephen R. Braund & Associates, 2010.

Geese

Nearly all Kaktovik respondents (37 of 38) reported hunting geese in the last 10 years (Table 5). Twenty-two of these respondents (58 percent of respondents) reported hunting geese within 12 months prior to their interview, and 17 of these individuals (45 percent of respondents) were successful (Tables 6 and 7). Respondents reported harvesting four species of geese: brant (*niġlinġaq*), white-fronted (*niġliq*), Canada (*iqsraġutilik*), and lesser snow geese (*kaŋuq*).

Subsistence Use Areas

Kaktovik last 10 year geese use areas are depicted on Map 76 and show Kaktovik residents covering an expansive area for subsistence harvests of this resource. Respondents reported traveling as far west as beyond Prudhoe Bay and as far east as the Mackenzie Delta. The highest numbers of overlapping geese use areas are located between "POW D" (Collinson Point) to the west and Pokok Lagoon to the east, as well as inland along Hulahula, Okpilak, and Jago rivers and across from Barter Island. The total last 10 year Kaktovik use area for geese, as shown on Map 76, is 2,416 square miles.

Geese hunting locations commonly identified by local residents include Pokok Lagoon, Griffin Point, Angun Point, Camden Bay (especially "POW D," or Collinson Point), and along the lower portions of Okpilak, Hulahula, and Jago rivers. In particular, a number of residents reported camping at Pokok Lagoon each spring during the waterfowl hunting season:

> *Just up to Pokok [Lagoon], we set a tent and camp there, where the hills start, right next to the lagoon there, and set up a tent. That's the only place I go. We hunt them just in that part [near our camp at Pokok Lagoon]; they fly right there.* (SRB&A Kaktovik Interview November 2005)

> *We go over toward the Pokok Lagoon, we put up our tents for geese on the sand spit. Just right in there. [We get] Canadian geese and sometimes black Brant. Sometime snow geese, but not all the time.* (SRB&A Kaktovik Interview November 2005)

> *We've been over to Pokok, travel with ski-doo. I think it's right there; we usually set up our camp there, tents. Oh, it's just a small little area. We just sit there. They're flying right over where we are. I usually get the white-front [geese] there.* (SRB&A Kaktovik Interview June 2005)

> *Pokok [Lagoon], we usually camp over there. [We went] there this year; quite a few people go to Pokok [Lagoon]. In that Pokok [Lagoon] area and all the way around, everybody hunts there whenever they are flying….* (SRB&A Kaktovik Interview November 2005)

Map 76 - Kaktovik Geese Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

348 use areas reported by 38 respondents

Last 12 Months Dissolved Use Areas

126 use areas reported by 22 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
BEAUFORT SEA
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
145°0'0"W
140°0'0"W
135°0'0"W
Tuktoyaktuk
Kaktovik
Flaxman Island
Camden Bay
Prudhoe Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Inuvik
Aklavik
Sagavanirktok River
Dalton Highway
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA
Firth River
Babbage River
Blow River
Mackenzie River

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents also commonly travel to Okpilak, Hulahula, and Jago rivers by snowmachine, before the ice goes out, to hunt geese. Although residents generally reported hunting near the mouths of these rivers, a few individuals reported traveling farther inland to hunt geese at First Fish Hole. A number of individuals reported setting up camps or staying in cabins near Okpilak River. Several residents provided the following descriptions of hunting in these areas:

> *This one area [on the Okpilak River] here [is the most important area]. Early May and June, that is where all the geese come through. After work I would go over and come back about two or three in the morning. I take a snowmachine and cut across or follow this trail when there is adequate snow cover. The snow melted quicker this year than last year. Usually we are out this time of year but people are afraid of that water. [We get] geese and black brant.* (SRB&A Kaktovik Interview June 2005)

> *Day trips to…right around here, to Pinguns [near the mouth of Jago River]. Sand hills. You can see them, on nice days. That's a good spot…MINE! I went there, and [other residents] went up here [a different location], and I got [some] just that afternoon, and they didn't catch none! Brants and specklebellies.* (SRB&A Kaktovik Interview June 2005)

> *[Waterfowl hunting] would be on the shoreline. We usually go over here. With a snow machine. Just as far as to that [Okpilak] river. We would just stay over here by the river. We have a duck blind there. That would be all three: brant, [Canada and white-fronted]…. Before the rivers go out we used to catch those Canadian honkers. We usually go up the Hulahula. That would be from May 10 to…and when the river goes out I just go over here [mouth of Okpilak River]. That's for those Canadian Geese and the Honkers. The brant don't come until the last week of May. Sometimes we catch snow geese, but those they are kind of hard.* (SRB&A Kaktovik Interview June 2005)

> *It would be Okpilak just not too far, just camp in the area for geese. Not too far before breakup season. We got eider ducks. Common eiders, no Kings but once in a great while we get brant and speckle bellies and these are the ones we always see. [This area is] mostly geese but you will get ducks too. May is when we have been going out. That is where we always went for ducks or geese. There [are] some people that like to go east but I like hunting west…. We went further east [for geese and eiders] but that is the one [Okpilak River] we preferred. We went in-between there [Tapkaurak Point] and Griffin Point just around there somewhere. We just stopped to look around Griffin Point and over here [around the Oruktalik Lagoon].* (SRB&A Kaktovik Interview June 2005)

In addition to hunting geese by snowmachine in the spring, residents reported traveling by boat along the coast during the summer and fall (e.g., August and September) to harvest geese. One individual hunts geese primarily during the open water season and described,

> *We get all the geese in fall – September. I go mostly to 'POW-D.' I prefer 'POW-D.' We prefer to go to Camden [Bay], but it depends on the weather. [We hunt geese] probably all this area here [the mouth of the Jago River], and at the end of the spit [Bernard Spit] there in the fall and spring…. [We went] to Pokok to the beginning of the lagoon [for geese], that's the best place, but it was scary [traveling]…. [Angun Lagoon], to where it [the spit] starts, to where this sand bar is. All four geese there. That was in fall.* (SRB&A Kaktovik Interview November 2005)

Another individual reported traveling to different areas in the spring and fall to hunt geese, saying,

> *[We get geese] south of Manning Point. Right on the coast. [We get] black brant, geese, sometimes we get the pintails. [That's in] May, mid June. Like this time of year when the*

wind is blowing from the west, [we go by] snowmachine. [My favorite place is] probably Manning Point. Takes about 10 or 15 minutes to get there if you go fast…. [We go to] Clarence Lagoon in mid September. [We get] black brant geese, snow geese, eiders when they are heading back in July and August and sometimes September and October after whaling. [We go by] boat and snowmachine sometimes. (SRB&A Kaktovik Interview June 2005)

Several residents identified "favorite" areas to hunt geese, including Okpilak River, "POW D," Griffin Point, and Angun Point. Three individuals said,

Yeah, if I could get there, its hard to get to it, it's really rough in Angun Point. All the geese go right through there; it's a good place to get them. (SRB&A Kaktovik Interview November 2005)

Spring time it's Okpilak [River], because that's where we've got a cabin. (SRB&A Kaktovik Interview November 2005)

We prefer to go to Camden [Bay], but it depends on the weather. (SRB&A Kaktovik Interview November 2005)

Residents' last 12 month geese use areas are depicted on Maps 76 and 77. Residents reported hunting geese along the coast between Konganevik to the west and Angun Point the east, near Demarcation Bay, inland along Sadlerochit, Hulahula, Okpilak, and Jago rivers, and on the mainland across from Barter Island. The highest numbers of last 12 month use areas were reported along Bernard Spit, near the mouths of Hulahula and Okpilak rivers, and inland across from Barter Island, as well as along the coast between Hulahula and Jago rivers. The total last 12 month Kaktovik use area for geese, as shown on Map 77, is 175 square miles.

Most Recent Harvest

Harvest Locations

Seventeen Kaktovik respondents reported successful harvests in the 12 months prior to their interviews (Table 7). Kaktovik residents' most recent geese harvests, shown on Map 77, were located on Barter Island, Arey Island, along the coast between Hulahula and Jago rivers, along the Hulahula, Okpilak, and Jago rivers, and farther east from Kaktovik at Pokok Lagoon, Pokok Bay, and Angun Point. Kaktovik respondents' descriptions of their most recent geese harvests included the following:

I went to Okpilak, not too far inland. Right about here. It was right about here. They have camp because that lake is right there. And it's mostly brants, or brants and Canada geese. We had a good season. (SRB&A Kaktovik Interview June 2005)

Pokok. Just over here at the end at that old sod house. [With a] Skidoo. We just came back a couple of weeks ago. Snow machine on the ocean. We go outside of the Tukuks*, the sandbars, because you can't go though those channels; they are pretty dangerous. [Two residents] just came back from there yesterday.* (SRB&A Kaktovik Interview June 2005)

[I hunt geese at] Jago [River]; I go all the way around here with snowmachine. I follow the river up and down, up and down. I haven't got very many this year, maybe five to 10 of them this year. [I got] half and half, maybe. No Brant this year, I got all Canada and speckle belly [geese]. My last harvest was on the island, and I caught two of the Canadian geese just back there on the gravel pile, right about here [south end of the island]. That was in September. Just Canadian [geese]. (SRB&A Kaktovik Interview November 2005)

Map 77 - Kaktovik Geese Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High

Low

126 use areas reported by 22 respondents

Most Recent Harvest Locations

30 harvest locations reported by 17 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

145°0'0"W

140°0'0"W

135°0'0"W

Tuktoyaktuk

Kaktovik

Flaxman Island

Camden Bay

Prudhoe Bay

Demarcation Bay

Herschel Island

Mackenzie Bay

Inuvik

Aklavik

Sagavanirktok River

Dalton Highway

Canning River

Sadlerochit River

Hulahula River

Jago River

Kongakut River

Firth River

Babbage River

Blow River

Mackenzie River

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UNITED STATES

CANADA

Projection: Alaska Albers Equal Area Conic, NAD 1983

Right here when they are coming back right here [at Pokok Bay], when they are migrating back. I just caught the geese, August, middle part of August with boat. I got black brants, maybe two Canadian. Maybe I caught three [snow geese]; those ones are smart. (SRB&A Kaktovik Interview November 2006)

Number of Participants

Four or more people participated in 71 percent of Kaktovik most recent geese harvests (Table 80). Fourteen percent of recent geese harvests had one participant, and the same number of recent harvests had two to three participants. Geese hunting is generally a group activity with hunters traveling with family, sometimes multiple families, to geese hunting camps or taking day trips to nearby locations. One individual described traveling to Okpilak with his whole family as well as four other families during their most recent geese harvest, saying,

My whole family. All of us. [We] never leave home without them. [There were] five families over there. We all go together and we all go back together. We set tent next to each other. About 15, 20 of us there. (SRB&A Kaktovik Interview June 2005)

Another individual indicated that his most recent harvest of geese was a collective effort among multiple hunters, saying,

Last spring there was a whole bunch, maybe 13 to 15 guys. There was like six tents there. And then everybody shared [the harvested geese], with all of it divided up. And we came back home and fed everybody, and sent some off to relatives. One king eider. One elder wanted one so I caught one, but I mostly caught the black brants, and geese. (SRB&A Kaktovik Interview November 2006)

Table 80: Kaktovik Number of Participants During Most Recent Geese Harvests

Number of Participants	Percentage of Harvest Locations
1 person	14%
2-3 people	14%
4 or more people	71%
Number of Most Recent Harvest Locations	28

Stephen R. Braund & Associates, 2010.

Duration of Trip

Kaktovik harvesters described taking day trips to 57 percent of their most recent geese harvest areas (Table 81). Thirty percent of their last geese harvest trips lasted longer than one week. A number of respondents reported traveling to specific locations and setting up geese hunting camps where they stay for extended periods of time. Some people indicated that they travel back and forth between these geese hunting camps and town to get supplies.

Months of Harvest Effort

Respondents described hunting geese primarily during the spring months of May and June and during the fall months of August and September (Figure 27). Residents reported the highest number of geese use areas for the month of May. A few respondents described hunting geese only during the spring, while

others reported only hunting geese during the fall. Two harvesters provided the following comments about the timing of their geese hunts:

> *Maybe around September sometime. I never hunt them when they're doing their breeding and stuff.* (SRB&A Kaktovik Interview November 2005)

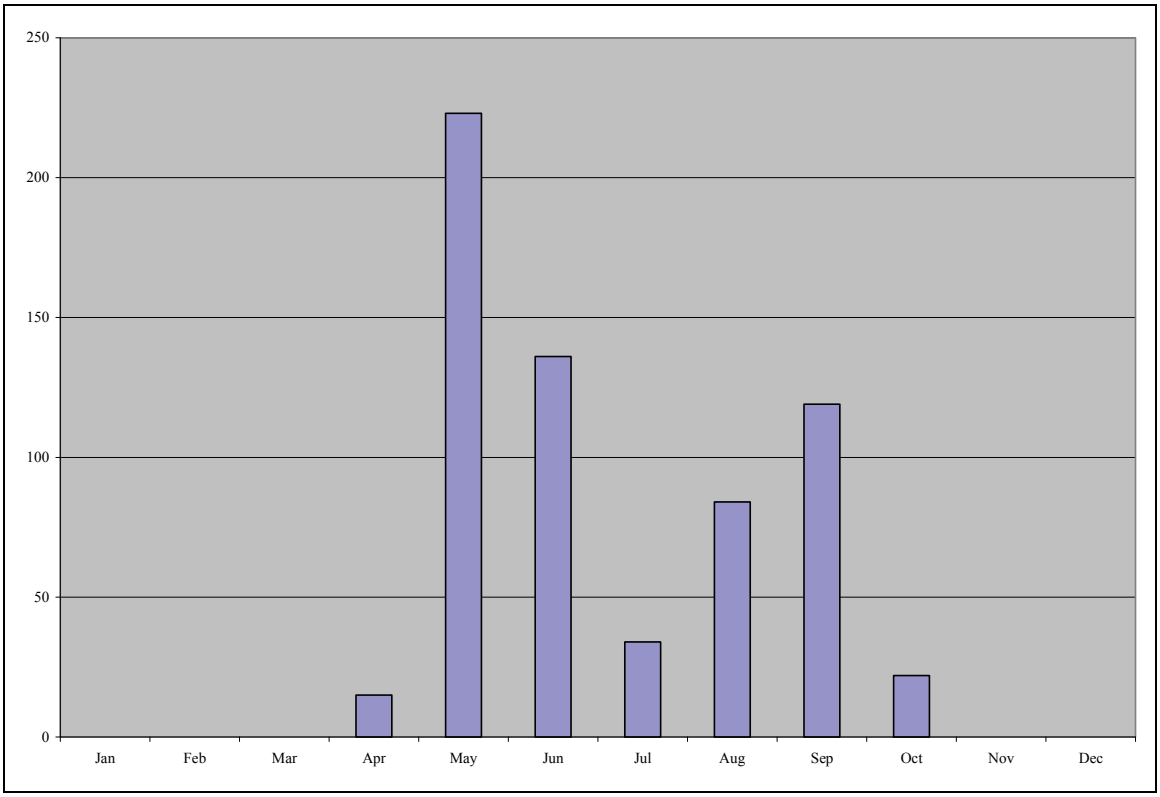
> *Just only [hunt geese in] spring time, starting in May and then come back in June.* (SRB&A Kaktovik Interview November 2005)

Table 81: Kaktovik Duration of Trips to Most Recent Geese Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	13%
1-2 weeks	17%
2-5 nights	7%
1 night	7%
Same day	57%
Number of Most Recent Harvest Locations	30

Stephen R. Braund & Associates, 2010.

Figure 27: Kaktovik Use Areas for Geese by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported using snowmachine to access 66 percent of use areas and boat to access 47 percent of use areas (Table 82). As discussed above, the majority of geese use areas were reported in the spring (May and June), when snowmachine travel is common, and in the fall (August and September), when one must use a boat to travel off of Barter Island. Residents reported using four-wheelers or traveling by foot to access use areas located on Barter Island. One individual explained that snowmachines allow residents to travel to use areas inaccessible by boat:

> *Its snowmachine straight. Yep. It's on snow and ice it don't matter when snow is around. We can reach anywhere with snow machine, but with boat it is limited.* (SRB&A Kaktovik Interview November 2005)

Residents also indicated that the spring hunt depends on the timing of breakup. One person interviewed in June 2005 commented that the snow had melted earlier than usual and this affected residents' geese hunting that year:

> *Yes, I take a snow machine and cut across or follow this trail when there is adequate snow cover. The snow melted quicker than last year. Usually we are out this time of year but people are afraid of that water.* (SRB&A Kaktovik Interview June 2005)

Table 82: Kaktovik Method of Transportation to Geese Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	66%
Four-wheeler	3%
Boat	47%
Foot	3%
Car/truck	0%
Number of Use Areas	348

Stephen R. Braund & Associates, 2010.

Harvest Gear

As shown in Table 83, the majority of geese harvesters use 12 gauge shotguns. A few residents reported using 20 gauge shotguns, and only one respondent reporting using a 16 gauge shotgun to hunt geese.

Table 83: Kaktovik Geese Harvest Gear

Shotgun Gauge	Number (%) of Harvesters
12	24 (88%)
20	6 (22%)
16	1 (3%)

Stephen R. Braund & Associates, 2010.

Eider

According to Kaktovik respondents, eider duck hunting is less common than geese hunting and often occurs as the opportunity presents itself. Residents often reported hunting them at the same times and

places they hunt geese. One individual said, "We don't hunt them much. I mean, if they cruise by, we'll get them" (SRB&A Kaktovik Interview November 2005). However, 68 percent of respondents (26) reported hunting eiders in the last 10 years, and 26 percent (10 respondents) reported hunting them in the last 12 months (Tables 5 and 6). Six of these last 12 month harvesters reported successful harvests of eiders (Table 7). Respondents reported hunting both king (*qiŋalik*) and common (*amauligruaq*) eiders.

Subsistence Use Areas

As noted above, eider hunting generally occurs in the same areas and at the same time as geese hunting, although some areas are considered more successful than others in terms of eider ducks. Thus, the last 10 year eider use areas shown on Map 78 are similar to the geese use areas shown on Map 76. Kaktovik respondents reported harvesting eiders along the coast as far west as Sagavanirktok River and as far east as the Mackenzie Delta, and inland along Okpilak and Jago rivers. The highest numbers of overlapping use areas were reported at coastal locations. The total last 10 year Kaktovik use area for eiders, as shown on Map 78, is 2,298 square miles. Local hunters noted that eiders tend to fly along the coast rather than inland. In particular, a number of individuals specifically reported harvesting eider ducks on Arey Island:

> *Arey Island, there is eider duck hunting [for] common and king [eiders]. Same time as geese hunting, April and May, when we go from one point to the other.* (SRB&A Kaktovik Interview June 2005)

> *Eider ducks we got at Arey Island. That's for ducks…one time we set camp there, it's a duck camp. Mostly eiders. May, June…when the eggs start coming.* (SRB&A Kaktovik Interview June 2005)

> *Eiders are toward Arey Island; they mostly like to stay on the water. King and common eiders, only two kinds we get. Hardly anyone sees the spectacled eiders there. I know they come in spring and fall time.* (SRB&A Kaktovik Interview November 2006)

> *[I get] eiders or you get black brant [on Arey Island]. [I go in] May or this time of year [June]. I go live over there. [I take a] four-wheeler. You can take a snow machine there too.* (SRB&A Kaktovik Interview June 2005)

Kaktovik respondents' last 12 month eider use areas, shown on Map 79, occur along the coast between Konganevik and Beaufort Lagoon and inland along at several locations, including Sadlerochit River, Hulahula River, and Jago River. The highest numbers of overlapping use areas were reported near Barter Island, including along Bernard Spit and Arey Island. The total last 12 month Kaktovik use area for eider, as shown on Map 79, is 95 square miles.

Most Recent Harvest

Harvest Locations

The locations of Kaktovik most recent eider harvests are shown with last 12 month use areas on Map 79. As noted earlier, eight Kaktovik hunters reported successful harvests of eiders 12 months prior to their interviews. Residents reported harvesting eider at Arey Island, Bernard Spit, on the mainland southwest of Barter Island, along the coast to Jago River, and at Pokok Lagoon and Pokok Bay. One individual described,

> *[Last harvest] was right here in front of Bernard Spit right on the Western end. [We got] eiders, long tail, geese. [It was just] myself and a couple other guys. Just a day trip. [We got] six eiders, one goose, and three long tails.* (SRB&A Kaktovik Interview June 2005)

Map 78 - Kaktovik Eider Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High

Low

105 use areas reported by 26 respondents

Last 12 Months Dissolved Use Areas

32 use areas reported by 10 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

145°0'0"W

140°0'0"W

135°0'0"W

Tuktoyaktuk

Kaktovik

Flaxman Island

Prudhoe Bay

Camden Bay

Demarcation Bay

Herschel Island

Mackenzie Bay

Inuvik

Aklavik

Sagavanirktok River

Dalton Highway

Canning River

Sadlerochit River

Hulahula River

Jago River

Kongakut River

Firth River

Babbage River

Blow River

Mackenzie River

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UNITED STATES

CANADA

Projection: Alaska Albers Equal Area Conic. NAD 1983

Map 79 - Kaktovik Eider Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
32 use areas reported by 10 respondents

Most Recent Harvest Locations

8 harvest locations reported by 6 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
N

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July 2009

ARCTIC OCEAN

Beaufort Sea

71°0'0"N
70°0'0"N
69°0'0"N
70°30'0"N
145°0'0"W
140°0'0"W

Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Prudhoe Bay
Dalton Hwy
Sagavanirktok River
Shaviovik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Demarcation Bay
UNITED STATES
CANADA
Herschel Island
Firth River
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Number of Participants

Similar to geese hunting, Kaktovik respondents reported four or more people at the majority (75 percent) of their most recent eider harvests (Table 84). Two to three people participated at the remaining 25 percent of most recent eider harvests. One harvester (quoted above under "geese") described his most recent harvest as a cooperative effort of 13 to 15 individuals harvesting geese and eiders for community members and distant relatives.

Table 84: Kaktovik Number of Participants During Most Recent Eider Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	25%
4 or more people	75%
Number of Most Recent Harvest Locations	8

Stephen R. Braund & Associates, 2010.

Duration of Trip

As shown in Table 85, respondents described 63 percent of their most recent trips to eider harvest areas lasting longer than one week and additional 38 percent lasting only one day. As with many of their subsistence pursuits, many of the same day trips were reported for locations near Barter Island, such as Arey Island, and many of the trips lasting longer than one week were for areas farther from Barter Island, such as Pokok Lagoon.

Table 85: Kaktovik Duration of Trips to Most Recent Eider Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	13%
1-2 weeks	50%
2-5 nights	0%
1 night	0%
Same day	38%
Number of Most Recent Harvest Locations	8

Stephen R. Braund & Associates, 2010.

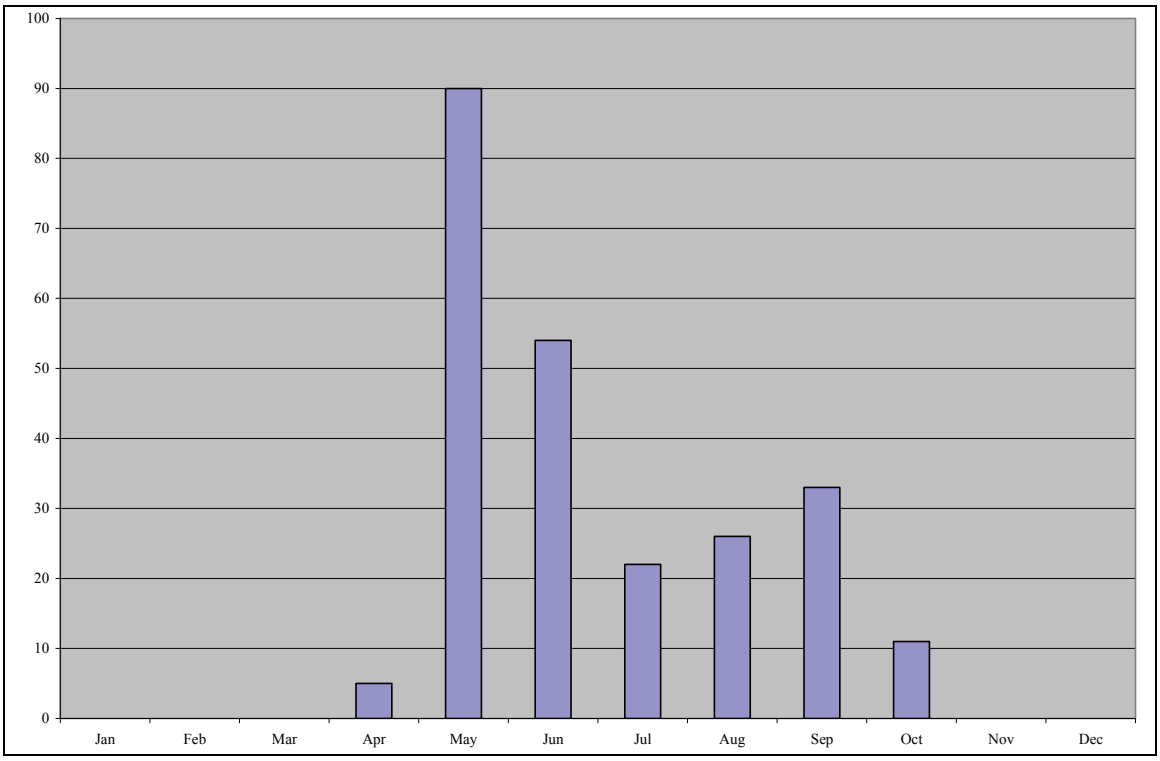
Months of Harvest Effort

As shown on Figure 28, Kaktovik residents' reported using the majority of eider use areas during May and June and, to a lesser extent, from July through September (Figure 28). However, some residents also mentioned harvesting eiders as early as April and as late as October. Several respondents indicated they hunt eiders in conjunction with geese hunting, saying,

> *Arey Island, there is eider duck hunting [for] common and king [eiders]. Same time as geese hunting, April and May, when we go from one point to the other. We just move in May.* (SRB&A Kaktovik Interview June 2005)

[We got] geese and ducks – eiders, common eiders, snowgoose too, sometimes - in May, end of May. That was a long time ago. [I went by] snow machine. We had a camp…we set camp when we go that far. (SRB&A Kaktovik Interview June 2005)

Figure 28: Kaktovik Use Areas for Eider by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

As the majority of eider hunting occurs in May and June (see above, under "Months of Harvest Effort"), respondents reported using snowmachine to access 81 percent of eider use areas (Table 86). Respondents used boat to travel to areas used after breakup (usually in July). One individual described,

I have gone to Camden Bay with snowmachines. When they return in the fall [we get] eiders and geese, late August and September with a boat. (SRB&A Kaktovik Interview June 2005)

Table 86: Kaktovik Method of Transportation to Eider Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	81%
Four-wheeler	3%
Boat	45%
Foot	5%
Car/truck	0%
Number of Use Areas	106

Stephen R. Braund & Associates, 2010.

Harvest Gear

Eighty-six percent of harvesters reporting harvest gear for eiders described using 12 gauge shotguns (Table 87). Only four individuals mentioned using a 20 gauge or 16 gauge shotgun for their eider harvests.

Table 87: Kaktovik Eider Harvest Gear

Shotgun Gauge	Number (%) of Harvesters
12	13 (86%)
20	3 (20%)
16	1 (6%)

Stephen R. Braund & Associates, 2010.

Ringed Seal

Sixteen Kaktovik respondents (42 percent of those interviewed) reported hunting ringed seal (*natchiq*) in the last 10 years, and 10 reported hunting them in the last 12 months, with seven reporting successful harvests. A few respondents indicated that ringed seal hunting is less common than in the past. One individual explained, "They don't hardly hunt them anymore because there are no dogs. People use to use it for dog food" (SRB&A Kaktovik Interview November 2006).

Subsistence Use Areas

Last 10 year ringed seal use areas, as reported by Kaktovik respondents, are shown on Map 80. Residents reported looking for ringed seal, usually while also searching for bearded seal, offshore between Prudhoe Bay to the west and Demarcation Bay to the east. Although residents reported hunting ringed seals up to approximately 30 miles from shore, the highest numbers of overlapping use areas generally occur within a few miles from shore and between Anderson Point in Camden Bay and Griffin Point. The total last 10 year use area for ringed seal, as shown on Map 80, is 2,139 square miles. Residents reported periodically harvesting ringed seal inside the lagoons close to Barter Island. Two individuals provided the following descriptions of their summer ringed seal hunting activities:

> *We hunt them every summer. The furthest was mostly close to Barter Island; we don't go way far to look for them. I would say a 10 mile radius, not too large; they are close by, you don't have to go far to find them.* Ugruk *and* natchiq. *July, August, September, sometimes in September, by boat.* (SRB&A Kaktovik Interview November 2006)

> *Looking all the way [to Camden Bay]. Looking for anything that moves. We go out this way [to the west] because it is mostly shallow over here. And then the channel changes so we go this way. If you have good eyes, binoculars [you can see for a couple miles]. We just go around and look around for seals or anything that pops up. If you are lucky you can get an* ugruk. (SRB&A Kaktovik Interview November 2006)

> *We hunt [bearded and ringed seals] basically the same area as caribou, in the summer time, [all the way] from Griffin Point to around this [Konganevik] area. That's our preferred area, to this area. That's the best place. We find a lot of ringed seal down in these lagoons here. You have to go through the ice.* (SRB&A Kaktovik Interview November 2005)

Map 80 - Kaktovik Ringed Seal Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
23 use areas reported by 16 respondents

Last 12 Months Dissolved Use Areas

13 use areas reported by 10 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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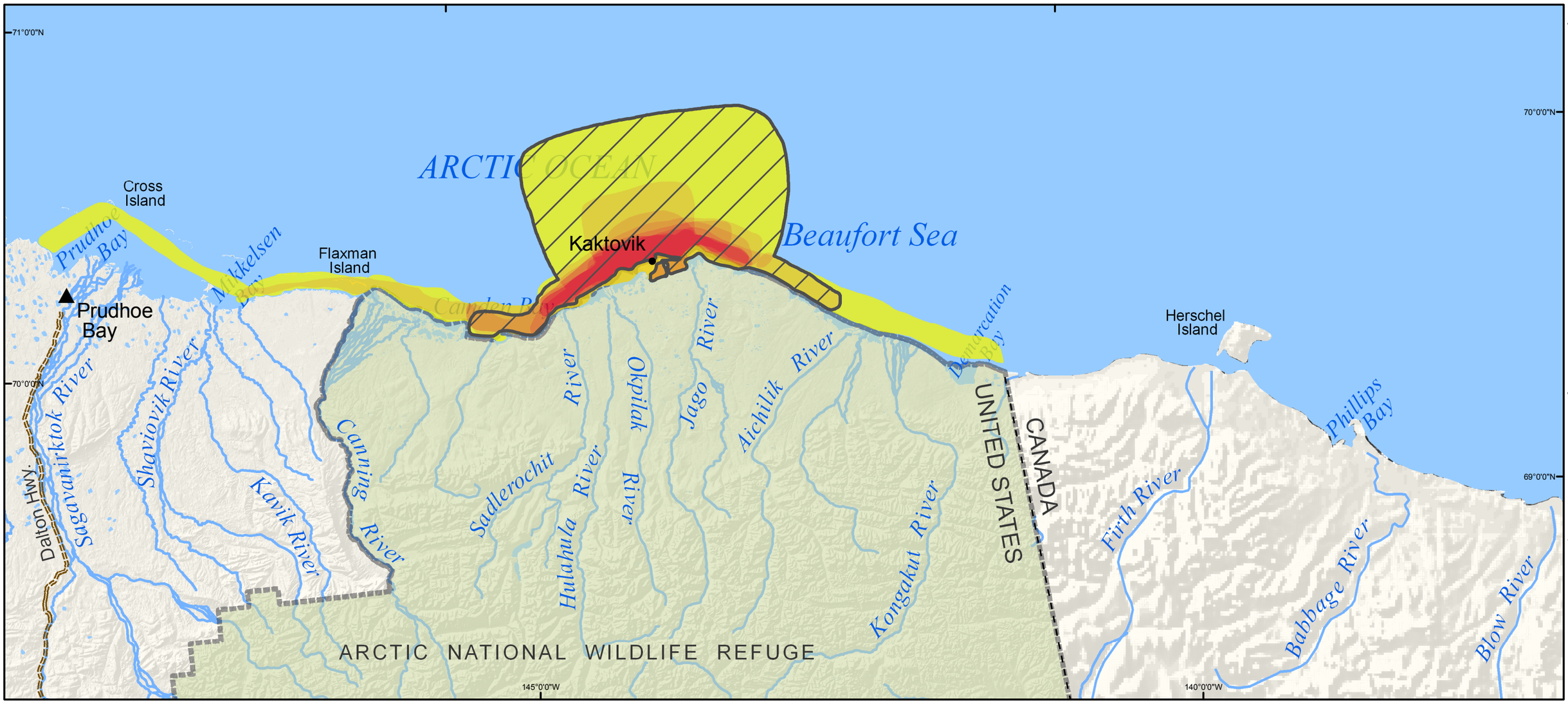

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Kaktovik hunters travel by boat to look for ringed seals on floating ice, often while also hunting for bearded seal, or sometimes along the ice edge by snowmachine before break-up, during the spring. One respondent described,

> *We try to get them around just about 10, 12 miles east, outside the islands along the ice, just before breakup. That would be in July. We don't go too far out, just a couple miles. We would rather have them on the edge of the ice, in the middle of July. We like [to hunt] them on the ice. Mostly we like the other kind [of seal], the* ugruk. (SRB&A Kaktovik Interview November 2005)

Last 12 month use areas extended along the coast between Camden Bay and Angun Point, and offshore up to approximately 30 miles (Maps 80 and 81). A high number of overlapping use areas was reported between Anderson Point and Griffin Point within several miles from shore. The total last 12 month Kaktovik use area for ringed seal, shown on Map 81, is 1,594 square miles. Two residents described recent (last 12 month) ringed seal hunting activities as follows:

> *[In] springtime me and my cousin were looking for ringed seals by snow machine. Snowmachining in April and May. Usually outside the Barrier Island is pretty smooth.* (SRB&A Kaktovik Interview June 2005)

> *I tried to catch one [ringed seal] here the other day, but I didn't catch one. Maybe a couple miles [north of Barter Island]. You can go to different places, but I thought I saw them in there. That is where I went. I didn't get any.* (SRB&A Kaktovik Interview June 2005)

Most Recent Harvest

Harvest Locations

Seven Kaktovik respondents reported successful harvests of ringed seal in the 12 months prior to interviews (Table 7). Map 81 depicts the locations of these harvests occurring between Camden Bay and Angun Point and offshore a substantial distance, with individual harvests (harvest locations) occurring closer to shore near Barter Island and offshore from Griffin Point. Some individuals were unable to identify the exact location of their harvests; in these cases, the last 12 month use area represents the locations of their last harvest. Several residents provided the following descriptions of their most recent harvests:

> *Yes, I got one a couple of weeks ago right between Barter and Arey [islands]. I don't know it was a ringed seal. It was a common seal. [Looking at picture] Yep, ringed seal... I was trying to see if I could get some duck, and I saw the seal.* (SRB&A Kaktovik Interview June 2005)

> *Last one [ringed seal] I caught I think it was right on Jago right around here [right near the spit just beyond Jago River]. [That was in] May. [It was] about an eight hour trip. I sat here for awhile and saw three brown bears and a couple of caribou.* (SRB&A Kaktovik Interview June 2005)

> *[We got a ringed seal] just right outside the island, about a mile off. Me and my oldest brother, we got one seal. I did hunt bearded seal, but I didn't get any bearded seal.* (SRB&A Kaktovik Interview November 2005)

Map 81 - Kaktovik Ringed Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
13 use areas reported by 10 respondents

Most Recent Harvest Locations

7 harvest locations reported by 7 respondents

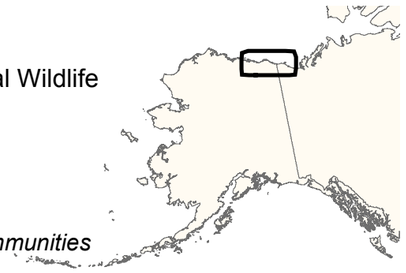
Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N



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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Flaxman Island
Kaktovik
Prudhoe Bay
Prudhoe Bay
Mikkelsen Bay
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
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Projection: Alaska Albers Equal Area Conic, NAD 1983

Number of Participants

As depicted in Table 88, Kaktovik residents reported two to three participants at 71 percent of their most recent ringed seal harvests. Solo hunts and harvests involving four or more people took place at 28 percent of most recent harvest locations. One individual reported that his most recent ringed seal harvest occurred while hunting for eider ducks. He said,

> *I got one [seal] a couple of weeks ago right between Barter and Arey [islands], it was a ringed seal. That one I got a couple of weeks ago on snowmachine. [That was] myself, just myself.* (SRB&A Kaktovik Interview June 2005)

Table 88: Kaktovik Number of Participants During Most Recent Ringed Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	14%
2-3 people	71%
4 or more people	14%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

Duration of Trip

Community members reported same day trips at all most recent ringed seal harvest areas (Table 89).

Table 89: Kaktovik Duration of Trips to Most Recent Ringed Seal Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	0%
1 night	0%
Same day	100%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

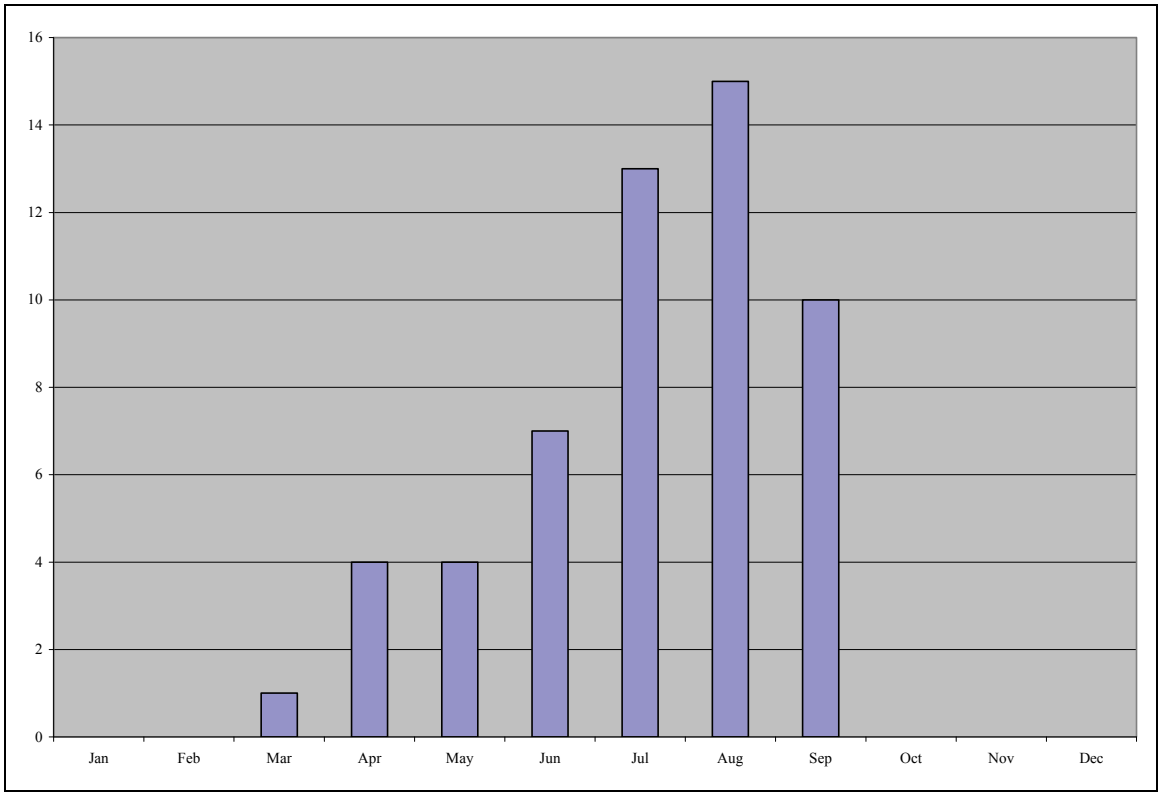
Months of Harvest Effort

Figure 29 shows a steady increase in the number of ringed seal use areas accessed by Kaktovik hunters from March until August, and continuing into September. Residents reported the majority of use areas between July and September. Describing his ringed seal harvest during these three months, one resident commented,

> *[I hunt seals] from that [area between Konganevik and Beaufort Lagoon] and then I got another seal last summer. Mostly on the ocean side within the three mile limit. [That's in] July, August, September.* (SRB&A Kaktovik Interview June 2005)

Residents generally hunt ringed seal after the ice breaks up in July, although some also reported harvesting them when traveling on the ice with snowmachines.

Figure 29: Kaktovik Use Areas for Ringed Seal by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

As the above discussion indicates, the majority of ringed seal hunting occurs in open water by boat. Respondents reported using boat to travel to 91 percent of ringed seal use areas, and snowmachine to 22 percent of use areas (Table 90).

Table 90: Kaktovik Method of Transportation to Ringed Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	22%
Four-wheeler	0%
Boat	91%
Foot	0%
Car/truck	0%
Number of Use Areas	23

Stephen R. Braund & Associates, 2010.

Harvest Gear

The majority of ringed seal harvesters reporting using either .270 or .22 rifles during their ringed seal hunt (Table 91). One harvester reported using both weapons when hunting ringed seal. He stated, "A .270, it's

my all around weapon of choice or a .22 – you don't want to mess their head up too much" (SRB&A Kaktovik Interview June 2005). Two individuals also reported using 12 gauge shotguns for close range shots.

Table 91: Kaktovik Ringed Seal Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
.22	8 (57%)
.270	6 (42%)
.22-250	3 (21%)
.22 mag	2 (14%)
12 gauge	2 (14%)
.243	1 (7%)
.280	1 (7%)

Stephen R. Braund & Associates, 2010.

Bearded Seal

Respondents indicated that bearded seal (*ugruk*) hunting is more common than ringed seal hunting in recent years, with 26 respondents (68 percent) hunting bearded seal in the last 10 years and 13 individuals hunting bearded seal in the last 12 months (Tables 5 and 6). Seven residents reported successful harvests of bearded seal in the last 12 months (Table 7). While some respondents indicated that the need for ringed seal has lessened due to the decrease in the use of dog teams, bearded seal remains an important source of food to many Kaktovik residents. One person commented,

> *We don't have any more dogs. I hunted them [ringed seal] when I had dogs; I hunted them for my dogs. I only hunt* ugruk *[now]. Bearded seal – we eat them, oh yes.* (SRB&A Kaktovik Interview November 2005)

Subsistence Use Areas

Given that residents generally reported hunting ringed seal while looking for bearded seal, the last 10 year use areas for bearded seal (Map 82) are nearly identical to those for ringed seal (Map 80). Bearded seal hunting occurs along the coast as far west as Prudhoe Bay and as far east as the United States/Canada border. Residents reported looking for bearded seal as far as approximately 30 miles from shore, but generally hunt them closer to shore, up to five miles. The highest numbers of overlapping use areas were reported between Camden Bay and Griffin Point. The total last 10 year Kaktovik use area for bearded seal, as shown on Map 82, is 2,143 square miles.

Several descriptions of residents' last 10 year seal hunting areas are provided above under "Ringed Seal." Two Kaktovik hunters provided the following additional descriptions of their bearded seal hunting activities:

> *A couple of miles out, and that would be in July. About as far as to Arey Island. Down to here. We catch them when the ice is not too far out. When they are on top of the ice, for bearded seal. Sometimes when there is quite a ways, we just go out [further]. You could mark it all the way to Jago [Lagoon]. On the outside on the ocean. Before the ice goes out. Probably July and August. When there are too many mosquitos; we go out on the ocean to get away from the bugs.* (SRB&A Kaktovik Interview June 2005)

Map 82 - Kaktovik Bearded Seal Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

36 use areas reported by 26 respondents

Last 12 Months Dissolved Use Areas

18 use areas reported by 13 respondents

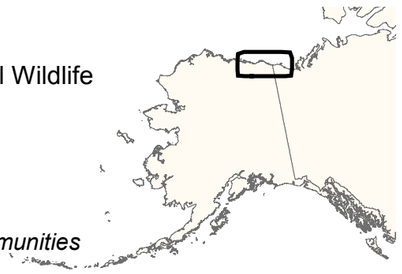
Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N



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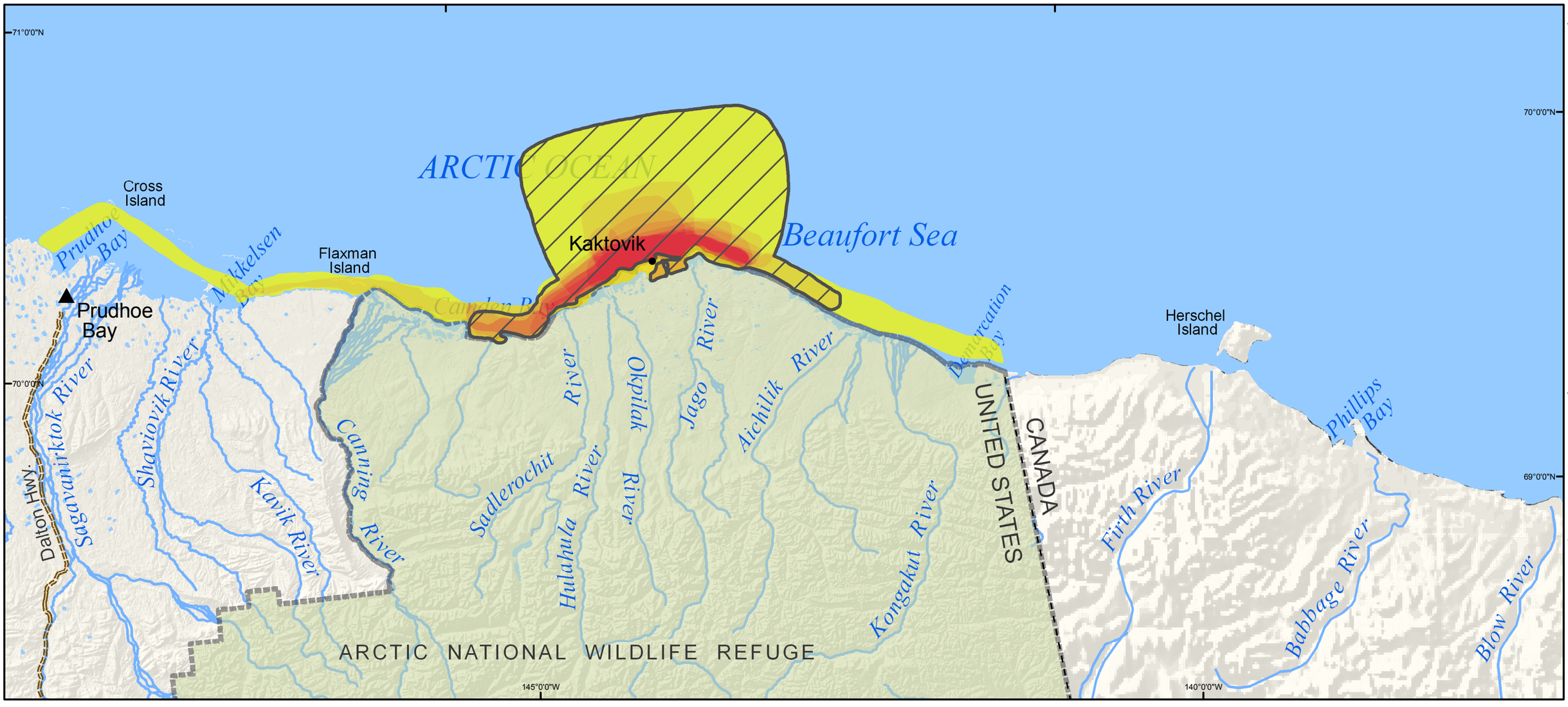


July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

> Ugruk *are on ice, sunbathing, on clean ice. Little further than Arey Island. Usually in part of a river, sunbathe and go for fish and sunbath some more. Depends where there is ice. Jago, I don't know, some people do; I just tell you where I go. Each person has a special place where they go.* (SRB&A Kaktovik Interview November 2006)

Residents last 12 month use areas are depicted on Maps 82 and 83 and are generally in the same area as their last 10 year use areas, though not extending as far west or east. The total last 12 month Kaktovik use area for bearded seal, shown on Map 83, is 1,603 square miles. One individual commented that during the previous year the ice pack had stayed close to Kaktovik for longer than usual. He described,

> *Probably down [on this] side of Arey, don't know how far away but right in this area, right where the ice is at. This year the ice stayed longer than usual; people were catching them straight out [from Barter Island]. This is where I caught mine. Fall time, early fall, before whaling, probably end of August.* (SRB&A Kaktovik Interview November 2006)

Most Recent Harvest

Harvest Locations

Kaktovik residents most recent harvests of bearded seal are shown on Map 83 with last 12 month use areas. As with bearded seal, some individuals were unable to identify the exact location of their harvests; in these cases, the last 12 month use area represents the locations of their last harvest. Individual harvest locations were reported relatively close to shore near Barter Island, Arey Island, and Tapkaurak Lagoon. One individual described harvesting bearded seal in Camden Bay in the last 12 months with his whaling crew. He described,

> *Last year my crew got two* ugruk. *Going to POW D, going to west. They were sunbathing on ice. Someplace in here. Ice was close, like a couple of miles, a mile, my whaling crew was hunting…. My crew got two of them; we gave one away, two was too much. That is what we do, my crew; woman have no man to support her, we give a share of whale.* (SRB&A Kaktovik Interview November 2006)

Number of Participants

Kaktovik residents reported four or more participants at 43 percent of their most recent bearded seal harvests, and two to three participants at an additional 43 percent of most recent harvest areas (Table 92). Fourteen percent of most recent bearded seal harvest areas were solo harvests.

Table 92: Kaktovik Number of Participants During Most Recent Bearded Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	14%
2-3 people	43%
4 or more people	43%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

Map 83 - Kaktovik Bearded Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
25 use areas reported by 17 respondents

Most Recent Harvest Locations

7 harvest locations reported by 7 respondents

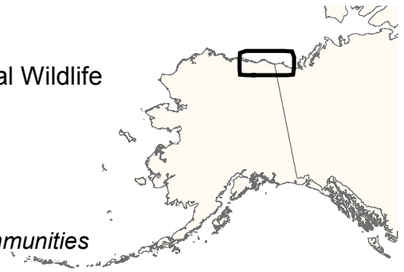
Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N



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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Prudhoe Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
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ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Duration of Trip

All trips to most recent bearded seal harvest areas lasted one day (Table 93).

Table 93: Kaktovik Duration of Trips to Most Recent Bearded Seal Harvest Areas

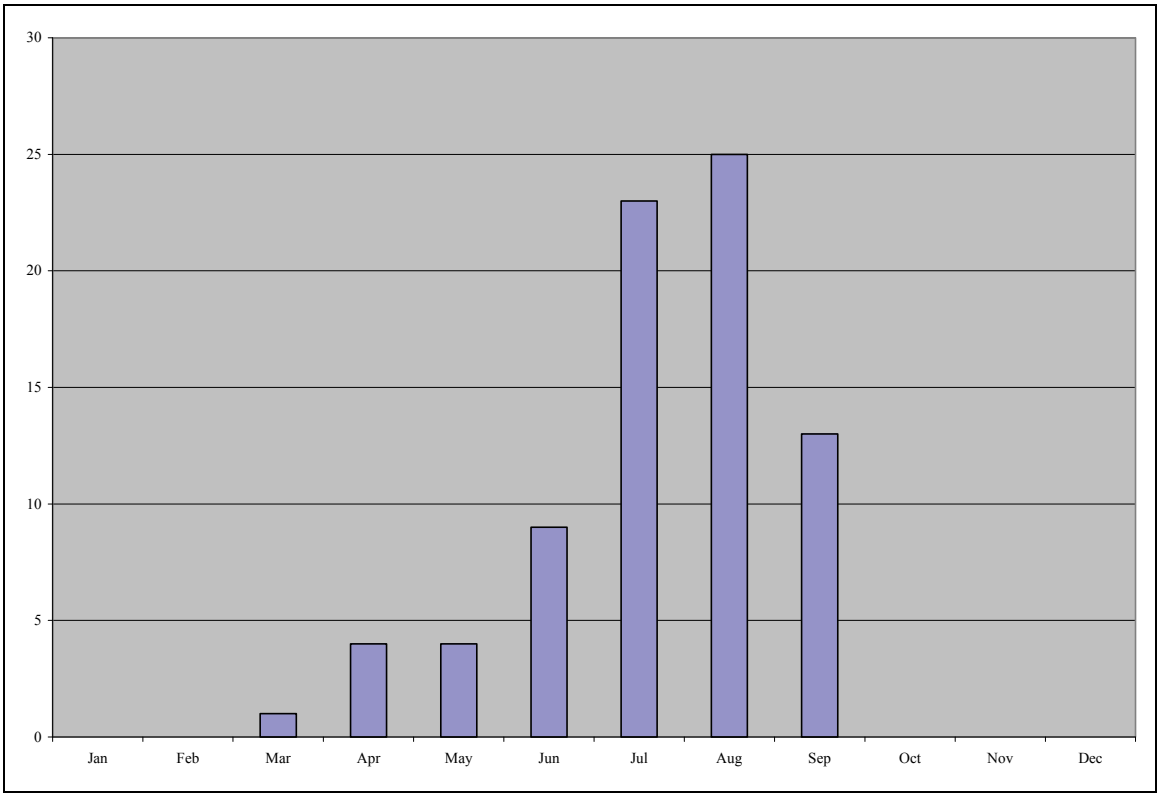
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	0%
1 night	0%
Same day	100%
Number of Most Recent Harvest Locations	7

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Bearded seal hunting activities, like ringed seal, begin in March, peaking in July and August, and then conclude in September (Figure 30).

Figure 30: Kaktovik Use Areas for Bearded Seal by Month



Stephen R. Braund & Associates, 2010.

A number of residents indicated that they hunt ringed seal and bearded seal at the same time. Two respondents said,

> *Sometimes we go into the lagoons for bearded seal and ringed seal, near Barter Island. [We go in] April through August when they come on the ice. We limit ourselves on the bearded seal, for the seal oil.* (SRB&A Kaktovik Interview November 2005)

> *We hunt them every summer. The furthest was mostly close to Barter Island; we don't go way far to look for them. I would say a 10 mile radius, not too large. They are close by; you don't have to go far to find them.* Ugruk *[bearded seal] and* natchiq *[ringed seal]. July, August, September, sometimes in September, we go by boat.* (SRB&A Kaktovik Interview November 2006)

Method of Transportation

Respondents reported using boat to travel to 94 percent of bearded seal use areas and snowmachine to travel to 14 percent of use areas (Table 94). Residents generally reported hunting bearded seals in open water or as they rest on floating ice.

Table 94: Kaktovik Method of Transportation to Bearded Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	14%
Four-wheeler	0%
Boat	94%
Foot	0%
Car/truck	0%
Number of Use Areas	36

Stephen R. Braund & Associates, 2010.

Harvest Gear

Eleven hunters reported using a .270 rifle during bearded seal hunts. Seven respondents reported using .22-.250 or .22 rifles (Table 95). Several harvesters described using multiple rifle calibers during their bearded seal hunts.

Table 95: Kaktovik Bearded Seal Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.270	11 (68%)
.22-250	4 (25%)
.22	3 (18%)
.243	1 (6%)
.280	1 (6%)
30-06	1 (6%)
.350	1 (6%)

Stephen R. Braund & Associates, 2010.

Walrus

Kaktovik respondents indicated that walrus (*aiviq*) are rare in the area, and they generally only harvest them when they are available during other subsistence activities. As one individual said, "Just [hunt walrus] if you're hunting bearded seal and you see one, and blam! You rarely ever see them up here" (SRB&A Kaktovik Interview November 2005). Bearded seals were described as the primary marine mammal (aside from bowhead whales) harvested in the area. During interviews, five Kaktovik residents reported hunting walrus in the last 10 years, and one individual reported hunting walrus in the last 12 months (Tables 5 and 6). Because only aggregated information of four or more respondents is included in this report, the figures and tables related to last 12 months walrus harvest activities, including most recent harvests, are not included below.

Subsistence Use Areas

Kaktovik residents' last 10 year walrus hunting areas are shown on Map 84. Residents reported hunting walrus offshore primarily north of Barter Island, although use areas were also reported west of the community toward Mikkelsen Bay and east near Herschel Island. The total last 10 year Kaktovik use area for walrus, as shown on Map 84, is 830 square miles. Hunters generally harvest walrus when the opportunity presents itself during their travels or during other subsistence pursuits (e.g., bearded seal and bowhead whale hunting), rather than taking trips specifically to hunt walrus. Residents described,

> *When the ice comes in with them, drifting ice. [They are on] the farther ice; we see them rarely. Around Barter Island we just see them once in a while. We don't see a herd of them. Fall time, same time as fall whaling.* (SRB&A Kaktovik Interview November 2005)

> *My uncle got one [on] Arey Island, right there. I was on my way to here. I was quite a way out, and I saw the walrus. It might have been at the end of August, middle of August. We just travel and see it. It's not a normal thing. We don't go looking [for them]. I helped my uncle tow it back. That was just last summer.* (SRB&A Kaktovik Interview November 2005)

> *Last 10 years, I just [got a walrus] straight out [from Barter Island], right here…. [We get them in] September, except that one I caught was in July.* (SRB&A Kaktovik Interview November 2005)

Months of Harvest Effort

Five Kaktovik harvesters reported hunting walrus in the last 10 years (Table 5). They reported hunting from June to October (Figure 31). The highest number of walrus use areas was reported for the month of July.

Method of Transportation

Residents reported using only boat to access walrus use areas (Table 96). Walrus are generally found at substantial distances from shore, where they travel with the ice pack. However, a few respondents reported seeing them on land more often than in the past.

Harvest Gear

As depicted in Table 97, Kaktovik walrus hunter reported using a variety of rifle calibers during their walrus hunts.

Map 84 - Kaktovik Walrus Use Areas, Last 10 Years (1996-2006)

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High
6 use areas reported by 5 respondents
Low

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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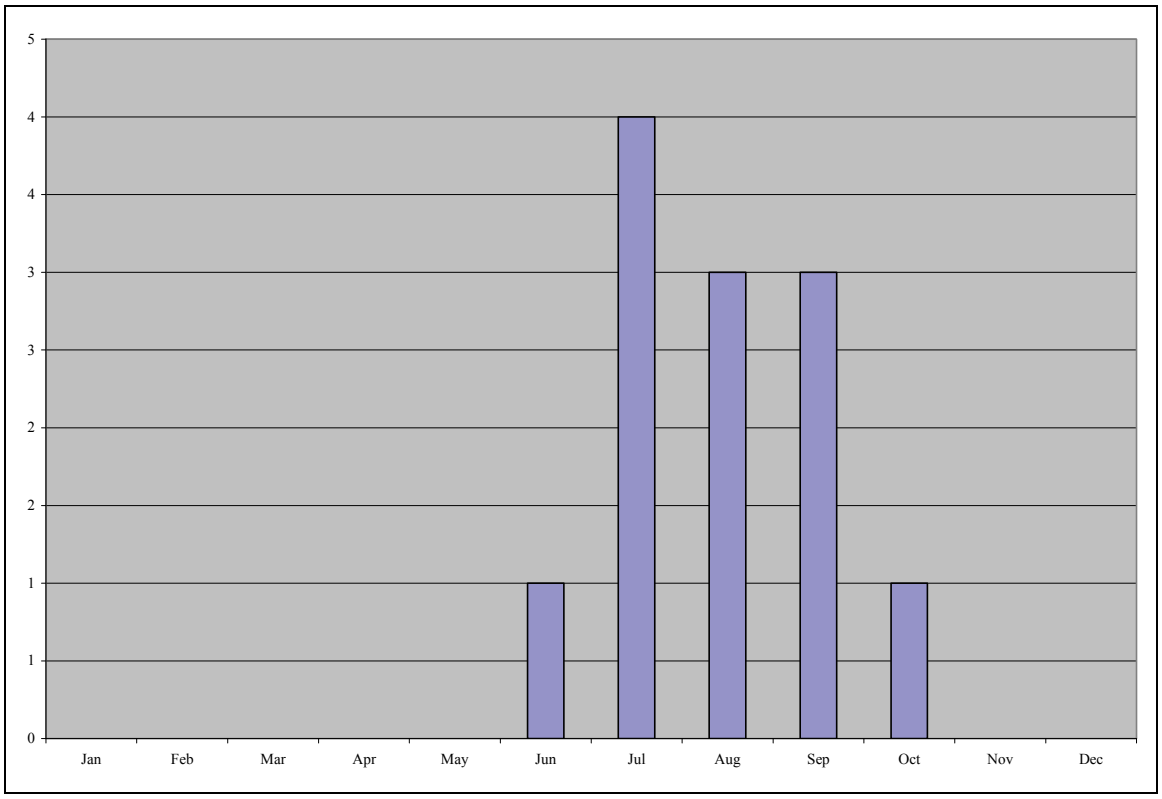
July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Prudhoe Bay
Herschel Island
Demarcation Bay
Phillips Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Figure 31: Kaktovik Use Areas for Walrus by Month



Stephen R. Braund & Associates, 2010.

Table 96: Kaktovik Method of Transportation to Walrus Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	0%
Four-wheeler	0%
Boat	100%
Foot	0%
Car/truck	0%
Number of Use Areas	6

Stephen R. Braund & Associates, 2010.

Table 97: Kaktovik Walrus Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.22-250	1 (25%)
.270	1 (25%)
.280	1 (25%)
7.62x39	1 (25%)

Stephen R. Braund & Associates, 2010.

Wolf/Wolverine

Wolf (*amaġuq*) and wolverine (*qavvik*) hunting is a relatively common activity among Kaktovik residents, with over half (71 percent) of respondents hunting these animals in the last 10 years, and eight individuals hunting them in the last 12 months (Tables 5 and 6). Three of these individuals reported successful harvests of wolf and wolverine in the last 12 months (Table 7). Because only aggregated information of four or more respondents is included in this report, the figures and tables related to most recent wolf and wolverine harvest activities, including most recent harvests, are not included below.

Subsistence Use Areas

Last 10 year Kaktovik wolf and wolverine hunting areas, as identified by Kaktovik respondents, are shown on Map 85, and are similar to the caribou use areas shown on Map 61. Kaktovik hunters reported hunting wolf and wolverine south of Barter Island in an area surrounding Sadlerochit, Hulahula, Okpilak, and Jago rivers, with the highest number of overlapping use areas reported along Hulahula River and the upper portion of Sadlerochit River, in the foothills of the Brooks Range between those two rivers, and around Lake Schrader and Lake Peters. A relatively high number of overlapping use areas was also reported between Hulahula and Jago rivers. A small number of individuals reported hunting wolf and wolverine west along Kadleroshilik River toward Sagavanirktok River and east near Mackenzie River. The total last 10 year Kaktovik use area for wolf and wolverine, as shown on Map 85, is 4,880 square miles. Residents generally reported hunting wolf and wolverine in the same areas and at the same time as caribou, or while traveling to inland cabins for other subsistence activities such as fishing or sheep hunting:

> *I hardly start going up there [this year]. Where I show you there is a camping place up there; that is where people are going to start going again. [They] stay up there two weeks and then go home. They look for caribou and sheep and ice fishing. Wolverines, mostly they hunt and look around. If they don't have time to get them, they go home. I have been the first one up there already, but hardly any snow. Same time and place as caribou.* (SRB&A Kaktovik Interview November 2006)

> *Just when we go to our cabins, we run into these animals. Hulahula and Okpilak and Sadlerochit, those are the three main rivers we go up. We go in winter time and spring time. I don't know, we don't go out hunting for them, just whenever you run into them.* (SRB&A Kaktovik Interview November 2006)

Several people indicated that wolves and wolverines follow the caribou. One individual observed that wolves are generally available farther inland, whereas wolverine can be found closer to the coast. He said,

> *It would be anywhere along these mountains here, almost that same area as the caribou. Mainly the same route as the caribou. Mostly the wolverine would follow the caribou along the coast and the wolves follow the caribou and sheep by the mountains.* (SRB&A Kaktovik Interview November 2005)

Another respondent reported hunting wolverine relatively close to Barter Island, saying,

> *And close to the island here for wolverine. Just around there, yeah, all the way to Jago [Lagoon], probably all the way up. I sometimes go all the way down close to the mountains for wolverine.* (SRB&A Kaktovik Interview June 2005)

A number of individuals identified more specific areas where they look for wolf and wolverine, including the areas around Lake Schrader, Kikiktat Mountain, and Jago River:

Map 85 - Kaktovik Wolf and Wolverine Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
60 use areas reported by 20 respondents

Last 12 Months Dissolved Use Areas

18 use areas reported by 7 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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July 2009

ARCTIC OCEAN
BEAUFORT SEA
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
145°0'0"W
140°0'0"W
135°0'0"W
Tuktoyaktuk
Kaktovik
Flaxman Island
Camden Bay
Prudhoe Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Inuvik
Aklavik
Sagavanirktok River
Dalton Highway
Canning River
Sadlerochit River
Hula Hula River
Jago River
Kongakut River
Firth River
Babbage River
Blow River
Mackenzie River
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA

Projection: Alaska Albers Equal Area Conic, NAD 1983

[Wolf and wolverine hunting] would be at Hulahula; the ones that I caught would be at Schrader Lake and the Kikiktat Mountain. That is where the wolves usually hang around and all the wolverine. That is where I got the three wolves and the two wolverines both times. I believe about five years ago I got a wolverine, and the year before that I got three wolves and another wolverine. This is in November [by snowmachine]. (SRB&A Kaktovik Interview June 2005)

I go from Jago [for wolf and wolverine], from here, all the way to here and back [pointing on the map]. I come this way straight across and back home or I stay and I go this way or follow the [Jago] river back. And sometimes I cross here, back to the village. Sometimes I cross the island and go straight to Jago. (SRB&A Kaktovik Interview November 2005)

Right along here [along Jago River], especially Jago, every year I go there. I didn't go there [to the mountains]; I go [to the mountains] if I have to. (SRB&A Kaktovik Interview November 2005)

One hunter cited a preference for hunting wolf and wolverine along an area of Aichilik River, saying, "My favorite spot is over here somewhere [around Aichilik River]. Sometimes in late fall there is a river that runs out of water, and that's what the wolverine feeds on" (SRB&A Kaktovik Interview June 2005).

In the 12 months prior to their interviews, eight Kaktovik respondents reported hunting for wolf and wolverine. These individuals reported hunting in an area similar to the last 10 years: inland around Sadlerochit, Hulahula, Okpilak, and Jago rivers; along the foothills of Sadlerochit Mountains; at a small area east of Sagavanirktok River, and near Pokok Bay (Maps 85 and 86). The highest numbers of overlapping last 12 month wolf and wolverine use areas occur along the upper portions of Sadlerochit and Hulahula rivers and around Kikiktat Mountain and Lake Schrader (Map 86). The total last 12 month Katkvoik use area for wolf and wolverine, as shown on Map 86, is 2,175 square miles.

Months of Harvest Effort

Kaktovik harvesters reported accessing the majority of their wolf/wolverine use areas from October to April (Figure 32). One person responded that he begins hunting as soon as the ice freezes enough for snowmachine travel until the wolf/wolverine hunting season ends on April 15, stating,

[I hunt wolf/wolverine from] November right after freeze up sometimes. Like I said, I am a weekend warrior. April 15 is the [regulatory] deadline. When our ancestors [hunted], they didn't have regulations. (SRB&A Kaktovik Interview June 2005)

Method of Transportation

As wolf and wolverine hunting occurs almost exclusively during the winter months, residents reported using snowmachine to access 98 percent of use areas (Table 98). Other modes of transportation (such as boat) would be used only when hunting these animals opportunistically.

Harvest Gear

As shown in Table 99, residents reported using .22-.250 or .270 rifles as the primary caliber for wolf and wolverine hunting. All other rifle calibers were reported by no more than one individual.

Map 86 - Kaktovik Wolf and Wolverine Use Areas, Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months
Overlapping Use Areas

High
Low

18 use areas reported by 7 respondents

Arctic National Wildlife Refuge

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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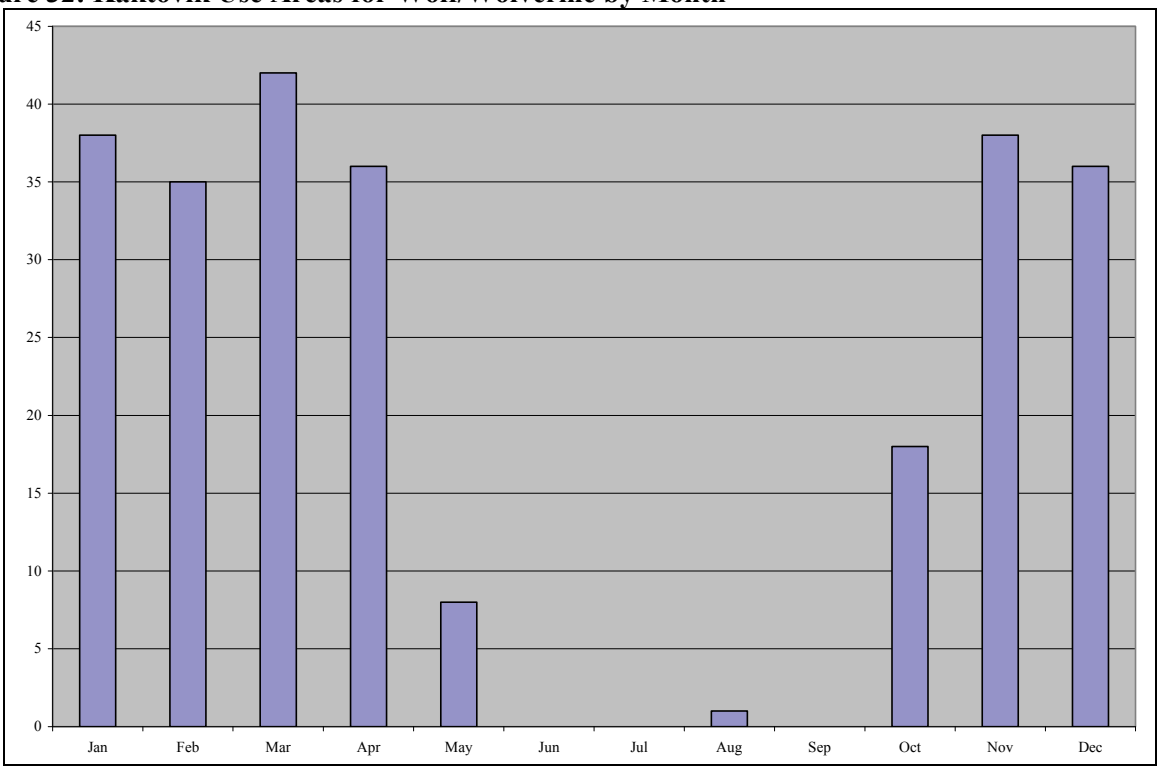
July 2009

ARCTIC OCEAN
BEAUFORT SEA
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
145°0'0"W
140°0'0"W
135°0'0"W
Tuktoyaktuk
Kaktovik
Flaxman Island
Camden Bay
Prudhoe Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Inuvik
Aklavik
Sagavanirktok River
Dalton Highway
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
Firth River
Babbage River
Blow River
Mackenzie River
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA

Projection: Alaska Albers Equal Area Conic, NAD 1983

Figure 32: Kaktovik Use Areas for Wolf/Wolverine by Month



Stephen R. Braund & Associates, 2010.

Table 98: Kaktovik Method of Transportation to Wolf/Wolverine Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	98%
Four-wheeler	0%
Boat	2%
Foot	0%
Car/truck	0%
Number of Use Areas	60

Stephen R. Braund & Associates, 2010.

Table 99: Kaktovik Wolf/Wolverine Harvest Gear

Rifle Caliber	Number (%) of Harvesters	Rifle Caliber (cont.)	Number (%) of Harvesters
.22-250	5 (45%)	30-30	1 (9%)
.270	4 (36%)	30-06	1 (9%)
.25-20	1 (9%)	7mm	1 (9%)
.25-06	1 (9%)	7.62x39	1 (9%)
		.539	1 (9%)

Stephen R. Braund & Associates, 2010.

Resource Summary

During SRB&A interviews, 38 respondents provided 1,137 last 10 year use areas (Table 5). Thirty-six of these 38 respondents (95 percent) reported attempting to harvest at least one resource in the last 12 months (Table 6). Arctic char/Dolly Varden and geese were the most commonly sought resources, with 37 respondents (98 percent) reporting last 10 year use areas, followed by caribou (95 percent), Arctic cisco (95 percent), bowhead whale (71 percent), bearded seal (68 percent), and eiders (68 percent). The least commonly harvested resources (in terms of the number of harvesters) were burbot, moose, and walrus (Table 5).

Subsistence Use Areas

Kaktovik last 10 year use areas for all key resources are shown on Map 87. Kaktovik subsistence use areas occur as far west as Ikpikpuk River and Teshekpuk Lake area and as far east as the Mackenzie Delta in Canada. The highest numbers of overlapping use areas occur along the Beaufort Sea shore between Brownlow Point and Demarcation Bay; inland around Sadlerochit, Hulahula, Okpilak, and Jago rivers; and offshore up to approximately 25 miles. The total last 10 year Kaktovik use area for all resources, as shown on Map 87, is 20,341 square miles and extends approximately 500 miles along the Beaufort Sea coast.

Residents travel along the coast and barrier islands during the summer months to hunt caribou, harvest fish with nets or rod and reel, and hunt geese and eiders. Offshore hunting also generally occurs during the summer and fall months, with residents looking for bowhead whales, seals (bearded and ringed) and walrus. After the snow falls, subsistence users travel inland to hunt caribou, harvest fish through the ice, and to search for wolf and wolverine. Residents indicated that water levels in nearby rivers are generally too low for extensive upriver travel; however, some reported traveling by boat along rivers farther west or east of the community, such as Canning River and Mackenzie River.

In the 12 months prior to Katkovik residents' interviews, respondents reported traveling in an area similar to the last 10 years, although not as far to the west or east. Last 12 month use areas are depicted on Maps 87 and 88 and extend along the coast between Bullen Point and Komakuk Beach (in Canada); offshore substantial distances, and inland around in a large area around Sadlerochit, Hulahula, Okpilak, and Jago rivers. The highest numbers of overlapping use areas occur offshore between Arey Island and Griffin Point up to 10 miles from shore; along the coast between Konganevik and Pokok Lagoon; and inland around the mouth of Okpilak and Hulahula rivers, between the upper portions of Sadlerochit and Hulahula rivers, and along the lower portion of Jago River (Map 88). The total last 12 month Kaktovik use area for all resources, as shown on Map 88, is 4,578 square miles.

Most Recent Harvest

Harvest Locations

Thirty-five of 38 (95 percent) Kaktovik respondents reported successful harvests of at least one key resource during the last 12 months (Table 7). More than half of these respondents reported successful harvests of Arctic char (26), Arctic cisco (24), caribou (22), and geese (17). The locations of residents' most recent harvest locations (within the previous 12 months) for all key resources are shown on Map 88. Most recent harvest locations were reported as far west as Canning River and as far east as Herschel Island, offshore at substantial distances, and inland near the headwaters of Hulahula River.

Number of Participants

As Table 100 shows, over 60 percent of all most recent harvests by Kaktovik respondents involved at least four participants. An additional 21 percent involved two to three participants. Solo hunts occurred at

Map 87 - Kaktovik All Resource Use Areas, Last 10 Years (1996-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

1,135 use areas reported by 38 respondents

Last 12 Months Dissolved Use Areas

468 use areas reported by 36 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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July 2009

ARCTIC OCEAN
BEAUFORT SEA
Smith Bay
Harrison Bay
Teshekpuk Lake
Ikpikpuk River
Fish Creek
Nuiqsut
Colville River
NATIONAL PETROLEUM RESERVE IN ALASKA
Prudhoe Bay
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Mackenzie Bay
Tuktoyaktuk
Inuvik
Aklavik
Fort McPherson
Tsiigehtchic
Kuparuk River
Sagavanirktok River
Dalton Highway
Anaktuvuk River
Canning River
Sadlerochit River
Trapper Creek
Kongakut River
Firth River
Babbage River
Blow River
Mackenzie River
Eskimo Lakes
ARCTIC NATIONAL WILDLIFE REFUGE
Sheenjek River
Coleen River
UNITED STATES
CANADA
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 88 - Kaktovik All Resource Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
468 use areas reported by 36 respondents

Most Recent Harvest Locations

163 harvest locations reported by 35 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Smith Bay
Harrison Bay
Teshekpuk Lake
Ikpikpuk River
Fish Creek
Nuiqsut
Colville River
Prudhoe Bay
Kuparuk River
Sagavanirktok River
Dalton Highway
Anaktuvuk River
NATIONAL PETROLEUM RESERVE IN ALASKA
Kaktovik
Camden Bay
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
Demarcation Bay
ARCTIC NATIONAL WILDLIFE REFUGE
Sheenjek River
Coleen River
UNITED STATES
CANADA
Herschel Island
Mackenzie Bay
Firth River
Babbage River
Blow River
Tuktoyaktuk
Eskimo Lakes
Inuvik
Mackenzie River
Aklavik
Fort McPherson
Tsiigehtchic

Projection: Alaska Albers Equal Area Conic, NAD 1983

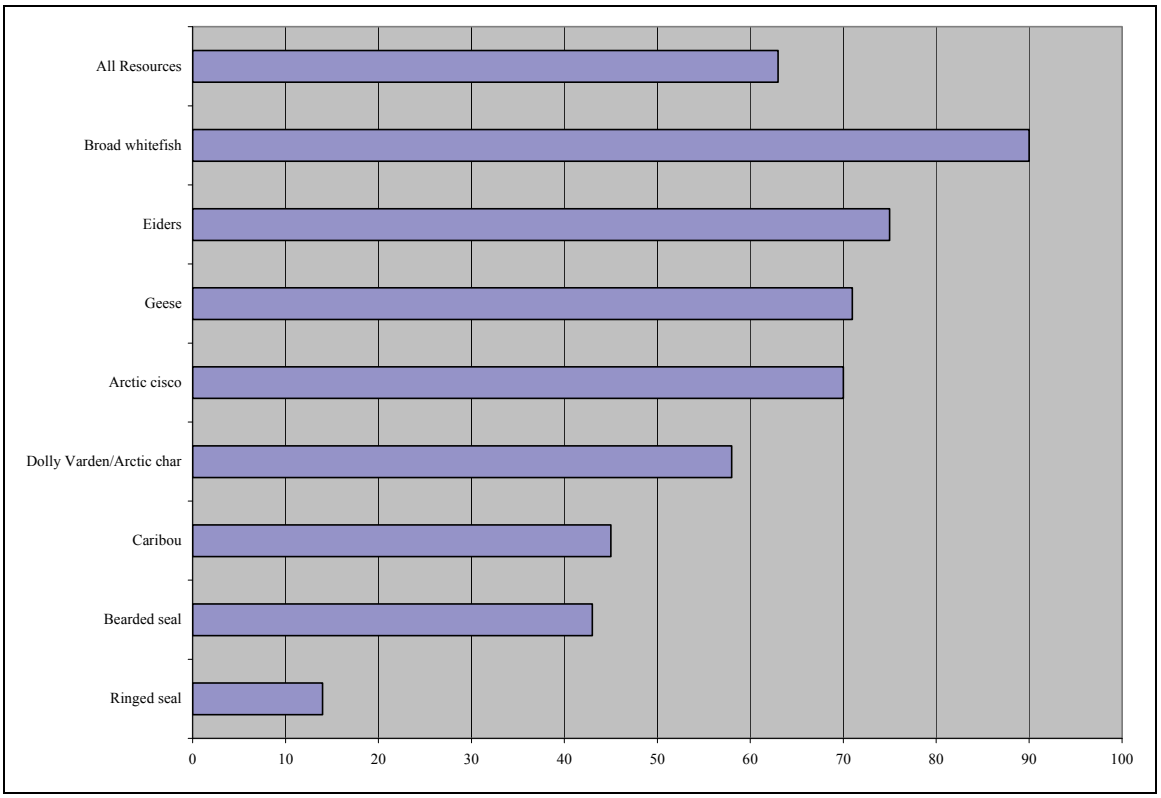
only 16 percent of all recent harvests. This table indicates that multiple individuals, often family most recent harvests involving at least four participants, by resource. As depicted in this figure, broad whitefish harvests generally had the highest number of participants, followed by eiders, geese, Arctic cisco, and Arctic char/Dolly Varden, caribou, and bearded seal. The resource with the lowest percentage of harvests with four or more participants was ringed seal.

Table 100: Kaktovik Number of Participants During Most Recent All Resources Harvests

Number of Participants	Percentage of Harvest Locations
1 person	16%
2-3 people	21%
4 or more people	63%
Number of Most Recent Harvest Locations	160

Stephen R. Braund & Associates, 2010.

Figure 33: Percentage of Most Recent Kaktovik Harvests with Four or More Participants



Stephen R. Braund & Associates, 2010.

Duration of Trip

Kaktovik respondents reported taking day trips to 58 percent of all most recent harvest trips (Table 101). One third of most recent trips to harvest areas took longer than one week. As described under previous resource discussions, individuals often reported taking day trips to nearby areas for a variety of subsistence resources. Most recent harvests lasting longer than one week often occurred at further distant locales and/or for resources harvested in large quantities, such as fish. Figure 34 shows the percentage of

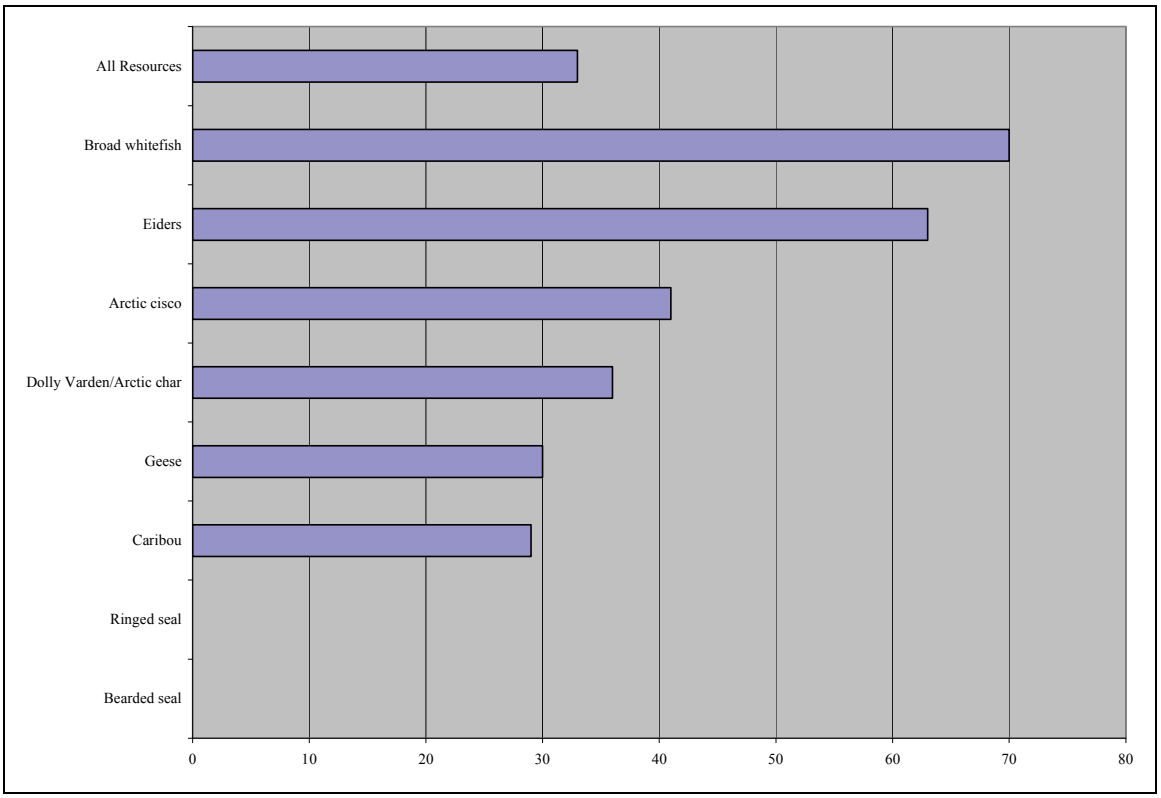
most recent harvests lasting more than one week by resource. The highest percentage of trips lasting more than one week occurred while residents harvested broad whitefish, and eiders, followed by Arctic cisco, Dolly Varden/Arctic char, geese, and caribou. No respondents reported taking trips lasting longer than one week for bearded seal or ringed seal. Marine mammals are generally harvested from boats during day trips from the community.

Table 101: Kaktovik Duration of Trips to Most Recent All Resources Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	21%
1-2 weeks	12%
2-5 nights	3%
1 night	6%
Same day	58%
Number of Most Recent Harvest Locations	161

Stephen R. Braund & Associates, 2010.

Figure 34: Percentage of Most Recent Kaktovik Harvests Lasting More than One Week



Stephen R. Braund & Associates, 2010.

Maps 89 through 92 depict most recent harvest locations in terms of duration of trip. All offshore harvests occurred during same day trips (Map 89). Same day harvests also occurred inland from Barter Island and as far as Hershchel Island to the east (while the respondent was camping at Demarcation Bay). Trips inland along Hulahula and Sadlerochit rivers generally lasted one night, two to five nights, or one to two

Maps 89, 90, 91, 92
Kaktovik Duration of Trip to Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic National Wildlife Refuge

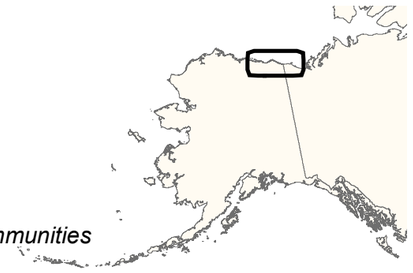
Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N



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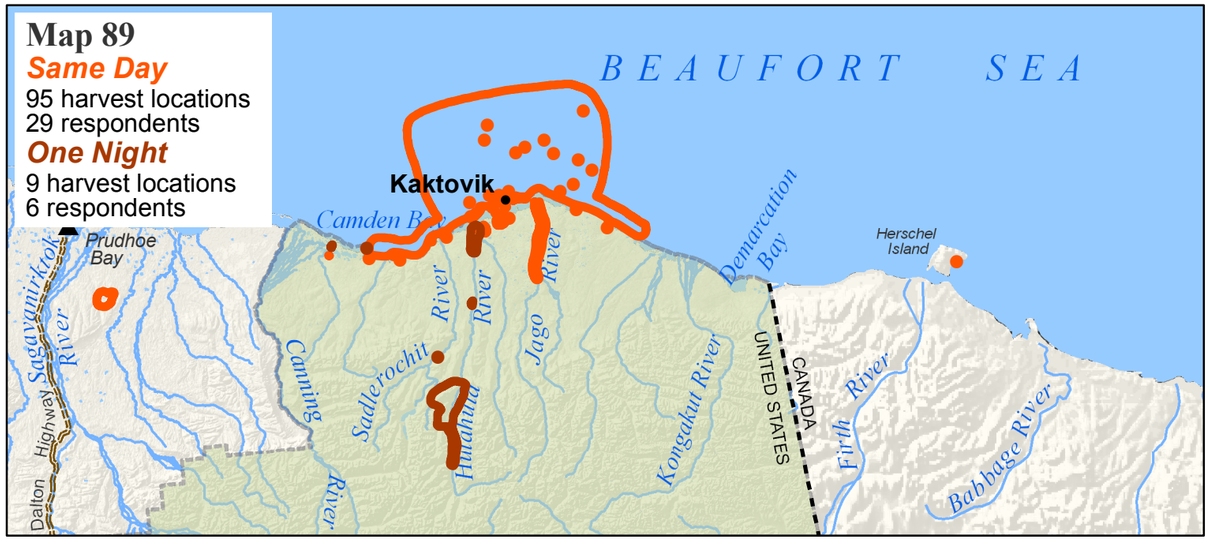
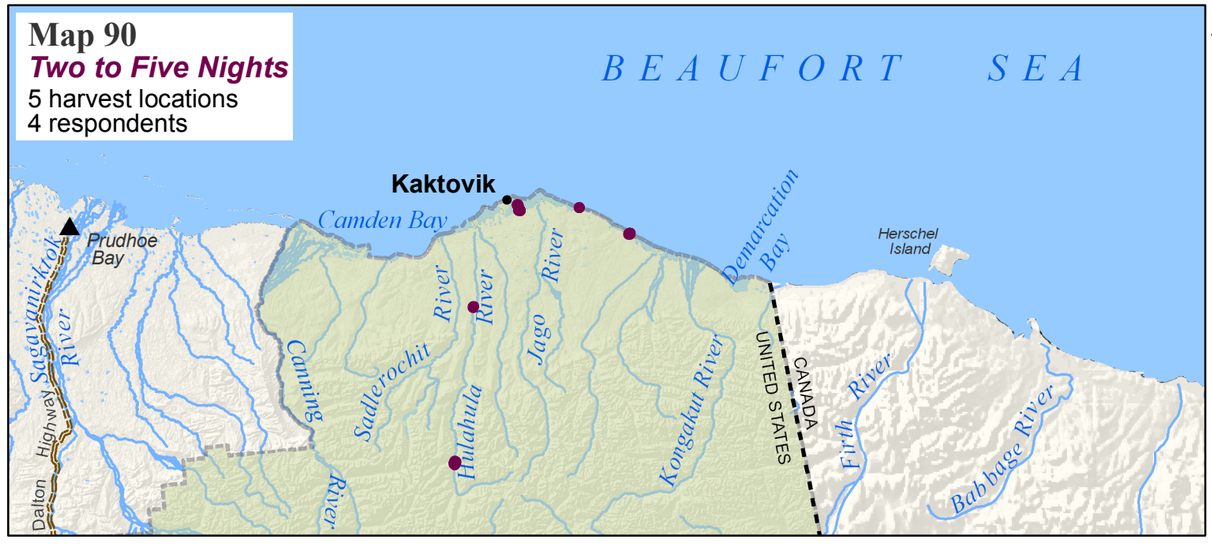
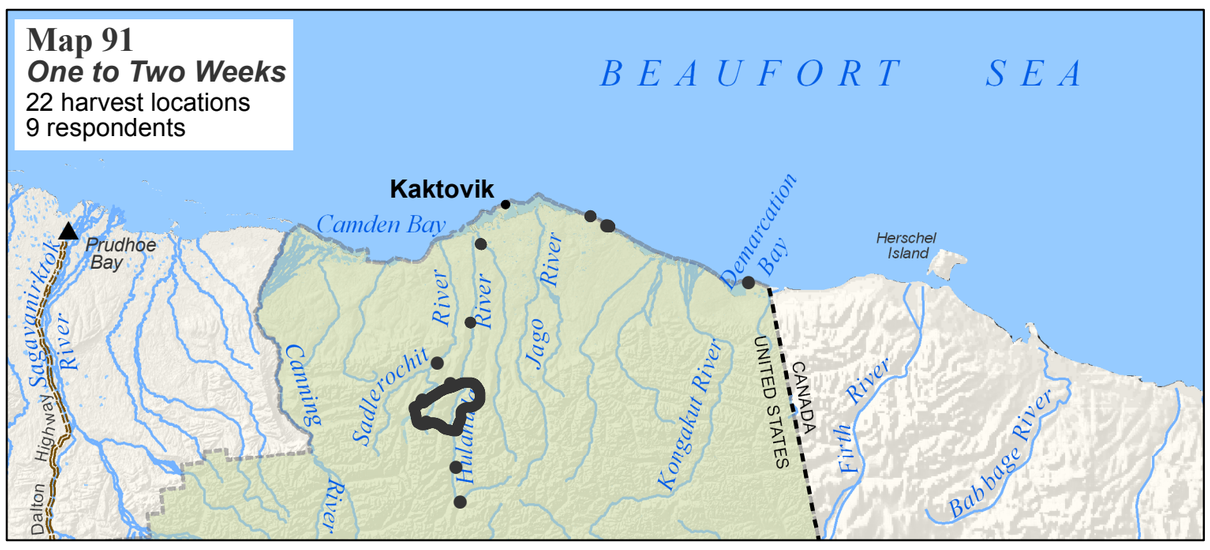
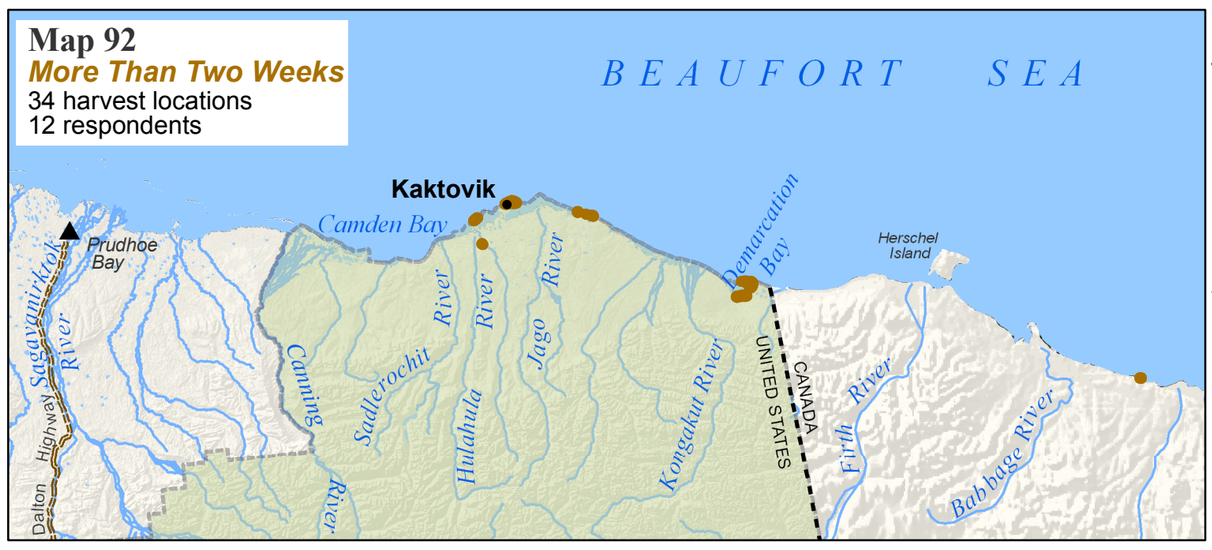








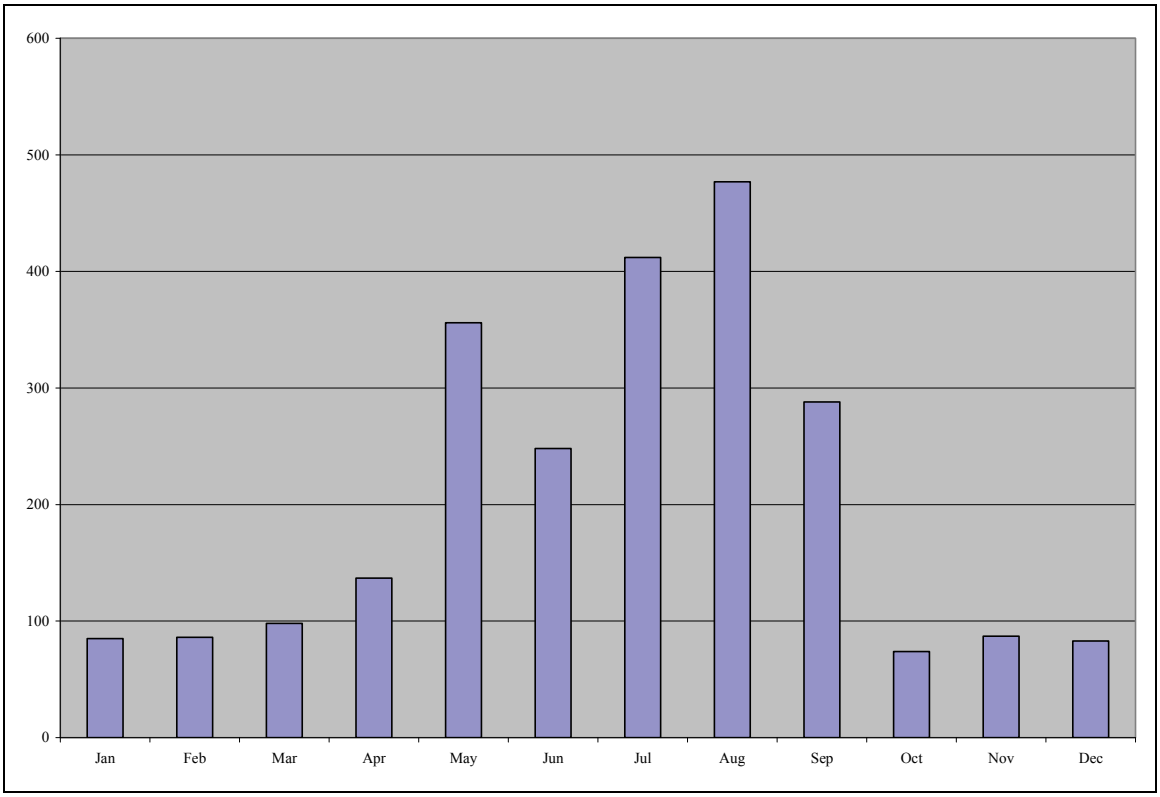
Projection: Alaska Albers Equal Area Conic, NAD 1983

weeks (Maps 89 through 91). Trips lasting more than two weeks generally occurred at camp or cabin locations on the coast between Arey Island and Shingle Point (Map 92). Residents also spent shorter periods of time at coastal locations (Maps 90 and 91).

Months of Harvest Effort

Figure 35 shows Kaktovik all resource harvest activity occurring year round with a large increase in the number of use areas reported between May and September. During these summer months, residents harvest seasonal subsistence resources such as geese, eiders, seals, and bowhead, in addition to resources available year-round, and store them in preparation for the upcoming winter months. Respondents reported over 450 use areas for the month of August. Fewer than 100 use areas were reported for any given month from October until March.

Figure 35: Kaktovik Use Areas for All Resources by Month



Stephen R. Braund & Associates, 2010.

Maps 93 through 104 depict Kaktovik last 10 year use areas for all key resources by month. Subsistence use areas visited between November and April, shown on Maps 93 through 98, primarily occur inland when residents hunt caribou and furbearers and harvest fish, with residents beginning their move to coastal activities beginning in April (Map 98). Overland subsistence activities decrease substantially in May and June (Maps 99 and 100), with residents turning their focus to coastal activities such as geese and duck hunting. Coastal subsistence activities, such as caribou hunting and fishing, expand and intensify in July and August (Maps 101 and 102). Offshore hunting of marine mammals begins in June and July and peaks in September (Maps 100 through 103). Residents return inland to harvest fish and hunt caribou and furbearers beginning in October when sufficient snow cover allows for snowmachine travel (Map 104).

Maps 93-98 - Kaktovik Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1996-2006)
November-April

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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July 2009

Map 93 — ***November***
123 use areas
25 respondents

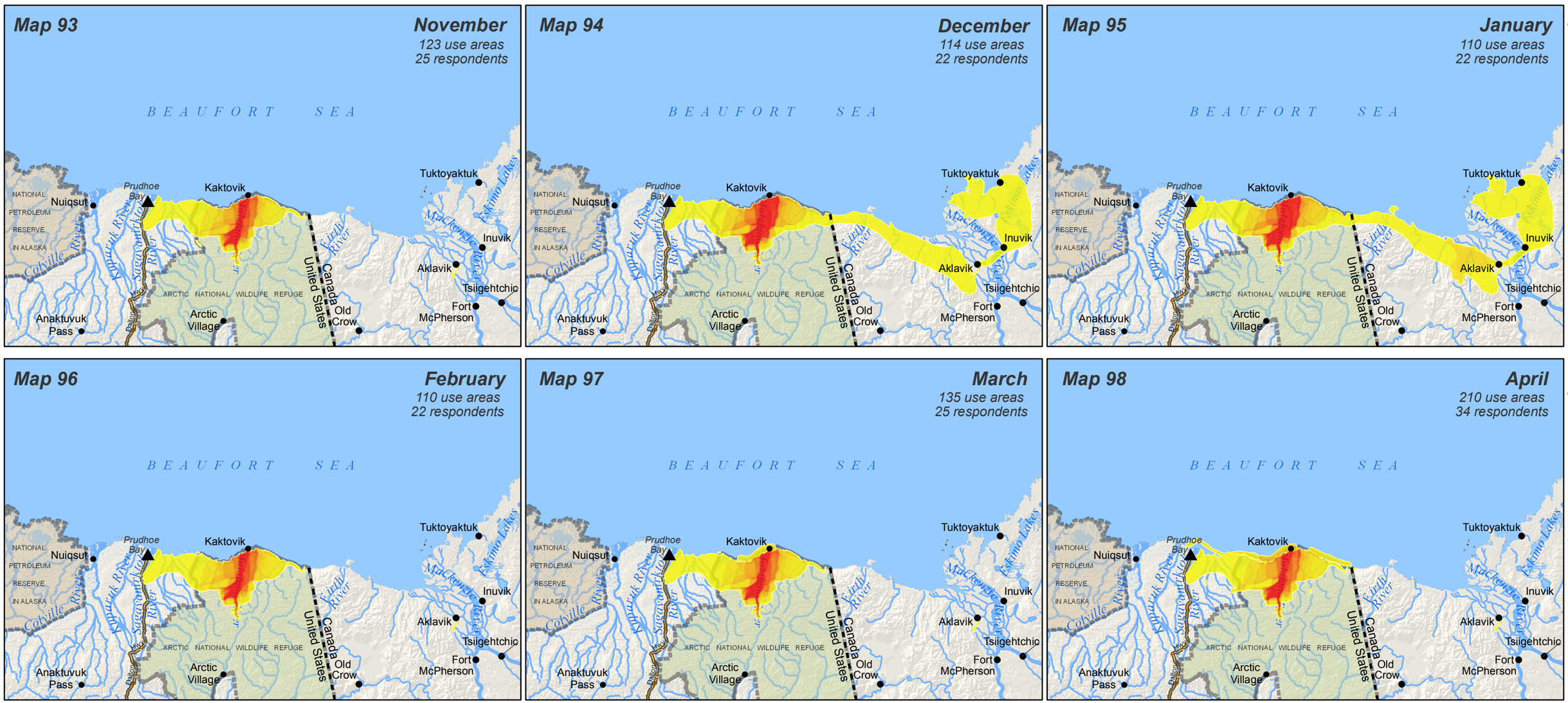
Map 94 — ***December***
114 use areas
22 respondents

Map 95 — ***January***
110 use areas
22 respondents

Map 96 — ***February***
110 use areas
22 respondents

Map 97 — ***March***
135 use areas
25 respondents

Map 98 — ***April***
210 use areas
34 respondents



Projection: Alaska Albers Equal Area Conic, NAD 1983

Maps 99-104 - Kaktovik Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1996-2006)
May-October

Subsistence use data shown on this map are based on interviews conducted in Barrow in 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

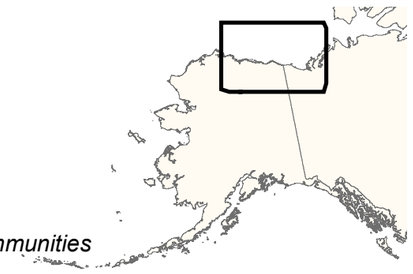
Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 45 90 180 Kilometers

N



Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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July 2009

Map 99 ***May***
388 use areas
37 respondents

Map 100 ***June***
267 use areas
26 respondents

Map 101 ***July***
472 use areas
38 respondents

Map 102 ***August***
530 use areas
36 respondents

Map 103 ***September***
324 use areas
32 respondents

Map 104 ***October***
102 use areas
20 respondents

Projection: Alaska Albers Equal Area Conic, NAD 1983

Method of Transportation

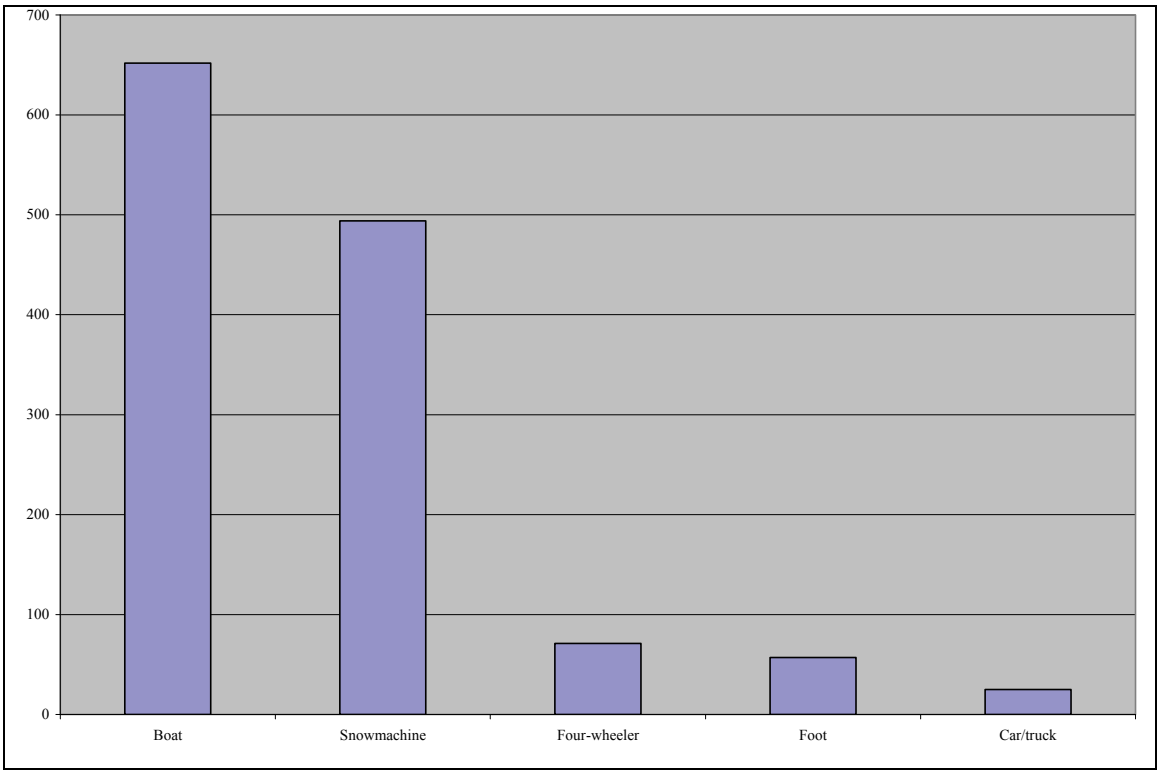
Kaktovik respondents reported taking boat to 57 percent of all resources use areas and snowmachine to 43 percent of use areas (Table 102). Six percent of use areas were accessed using four-wheelers, five percent by foot, and two percent using cars or trucks. Residents reported over 600 use areas accessed by boat and over 400 accessed by snowmachine (Figure 36). Snowmachine use by Kaktovik residents generally occurs throughout the late fall (October), winter, and spring, peaking in May when respondents travel along the coast and inland to hunt geese and eiders. Boat travel usually begins in July, after breakup, and occurs throughout the month of August and into September. Respondents reported traveling by four-wheeler, foot, and car/truck to subsistence use areas throughout the spring, summer, and early fall, before snowmachine travel begins.

Table 102: Kaktovik Method of Transportation to All Resources Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	43%
Four-wheeler	6%
Boat	57%
Foot	5%
Car/truck	2%
Number of Use Areas	1,137

Stephen R. Braund & Associates, 2010.

Figure 36: Kaktovik Travel Methods



Stephen R. Braund & Associates, 2010.

Maps 105 through 108 depict Kaktovik last 10 year use areas by method of transportation. Boat travel primarily occurs offshore from Barter Island and along the coast, with some upriver travel reported along Canning, Sagavanirktok, and Mackenzie rivers (Map 105). Residents travel inland by snowmachine but also along the coast primarily to access duck and geese hunting spots, fishing areas and to look for nearby furbearers (Map 106). Residents' four-wheeler use is generally limited to coastal locations (Map 107); other forms of transportation, including foot and truck, are used at various inland and coastal locations. Truck travel is generally limited to the road system on Barter Island.

Camps and Cabins

During interviews, Kaktovik respondents identified the locations of camps and cabins used in the last 10 years (Map 109). Some of the locations shown on Map 109 may be the same camps or cabins identified by multiple people during the interviews; the study team was not able to reconcile these duplicate camp or cabin records, and thus Map 109 likely depicts a higher number of Kaktovik camp and cabins than actually exist. These camps and cabins are depicted on Map 109 and extend along the coast between Bullen Point and Demarcation Bay, inland at various locations, and in Canada. In particular, residents commonly pointed out cabins located at First and Second Fish Holes on the Hulahula River, in addition to cabins on Okpilak River, Lake Schrader, Griffin Point, and Pokok Lagoon. While the majority of these cabins are owned privately, many residents reported either knowing or being related to cabin owners and therefore were able to utilize these cabins when needed. Some cabins are considered "shelter" or "city" cabins and are open to public use. Residents generally travel inland to stay at cabins during the winter months while hunting caribou, moose, sheep, wolf and wolverine, and other small game (e.g., ptarmigan) as well as harvesting fish. Cabins located closer to the coast are often used during the geese and eider hunting season or while hunting caribou or harvesting fish.

In addition to staying in cabins, Kaktovik residents commonly reported staying in tent camps at specific coastal locations, including Arey Island, Pokok Lagoon, Okpilak River, Griffin Point, Demarcation Bay, Konganevik, and "POW-D" (Collinson Point). A number of individuals also reported setting up tents near cabins on Hulahula River, such as those located at First and Second Fish Holes. Tent camping generally occurs during the spring and summer months during duck and geese hunting, fishing, and caribou hunting activities.

Residents commonly reported staying at camps or cabins for extended periods of time, especially during the spring, summer, and fall when subsistence activities are in full swing. Staying at camps and cabins to put up Arctic char, Arctic cisco, and other fish while also keeping a lookout for caribou and engaging in other subsistence activities is a common activity. Several people reported traveling to Shingle Point, where multiple families from Aklavik gather each year to harvest fish and hunt caribou. Residents travel inland during the winter, especially just after snow and ice conditions allow snowmachine travel, to harvest fish through the ice and to hunt various terrestrial mammals.

Travel Routes

Map 110 depicts travel routes identified by Kaktovik residents, including open water (boat) and overland (snowmachine or four-wheeler) routes. A number of residents reported traveling along the coast both by boat and snowmachine to access subsistence use areas, camps, and cabins, going as far west as Sagavanirktok River and as far east as Mackenzie River. Residents travel inland, usually by snowmachine, to camps, cabins, and hunting and fishing areas. A high number of travel routes were reported from Barter Island south along Hulahula River and sometimes crossing to Sadlerochit River or Lake Schrader. Residents generally reported traveling by four-wheeler in the vicinity of Barter Island, sometimes traveling to Arey Island. When traveling by boat along the coast, residents generally reported traveling outside the barrier islands due to shallow conditions inside the sandbars, although some lagoons are more accessible. By snowmachine, residents reported traveling both along the coast and inland. When

Maps 105-108 - Kaktovik Method of Transportation
All Resource Use Areas
Last 10 Years (1996-2006)

Subsistence use data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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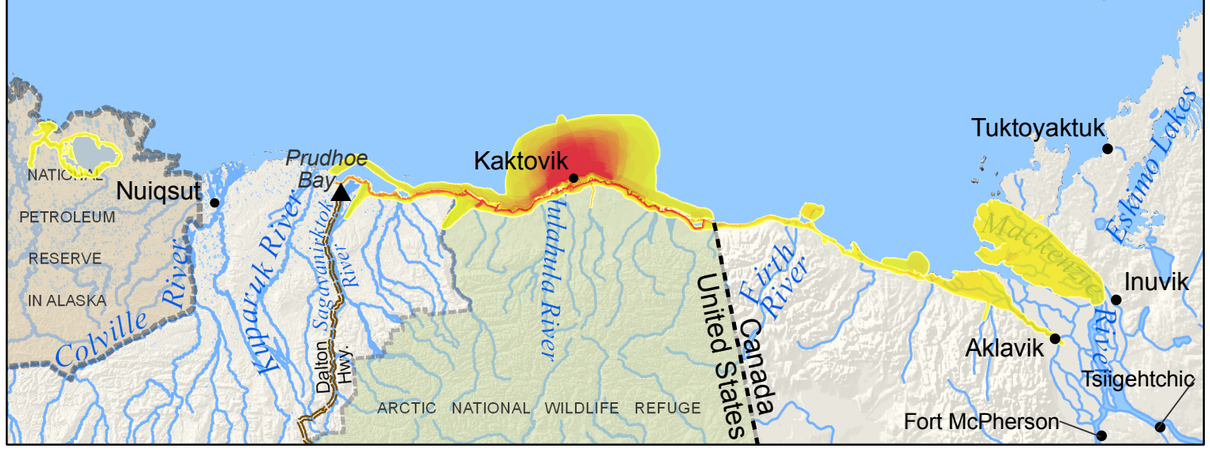
Map 105

Boat
710 use areas
38 respondents


BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
Nuiqsut
Prudhoe Bay
Kaktovik
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Colville River
Kuparuk River
Sagavanirktok River
Dalton Hwy.
Itkillik River
Utukok River
Utukok River
Utukok

Map 109 - Kaktovik Camps and Cabins

Stephen R. Braund and Associates data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Camps and cabins recorded during Stephen R. Braund and Associates interviews (including duplicate records).

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Some points on this map may have been used while respondents visited or lived in other communities.

0 25 50 100 Miles

0 25 50 100 Kilometers

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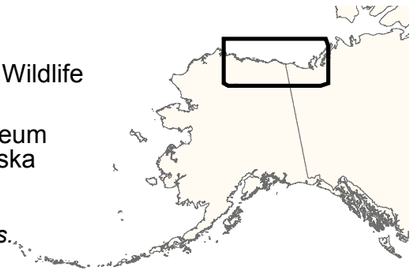

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

72°0'0"N

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

155°0'0"W

150°0'0"W

145°0'0"W

140°0'0"W

135°0'0"W

Smith Bay

Harrison Bay

Teshekpuk Lake

Ikpikpuk River

Fish Creek

Nuiqsut

Colville River

Kuparuk River

Sagavanirktok River

Prudhoe Bay

Dalton Highway

Camden Bay

Kaktovik

Canning River

Sadlerochit River

Hulahula River

Jago River

Kongakut River

Demarcation Bay

UNITED STATES

CANADA

Herschel Island

Mackenzie Bay

Firth River

Babbage River

Blow River

Tuktoyaktuk

Eskimo Lakes

Inuvik

Aklavik

Mackenzie River

Fort McPherson

Tsiigehtchic

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

Anaktuvuk River

Sheenjek River

Coleen River

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 110 - Kaktovik Travel Routes

30 Respondents
Identified Travel Routes

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Stephen R. Braund and Associates data shown on this map are based on interviews conducted in Kaktovik in 2005 and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Some routes shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

ARCTIC OCEAN
BEAUFORT SEA
Smith Bay
Harrison Bay
Teshekpuk Lake
Ikpikpuk River
Fish Creek
Nuiqsut
Colville River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Dalton Highway
Anaktuvuk River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Kaktovik
Camden Bay
Demarcation Bay
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
Sheenjek River
Coleen River
UNITED STATES
CANADA
Herschel Island
Firth River
Babbage River
Blow River
Mackenzie Bay
Tuktoyaktuk
Eskimo Lakes
Inuvik
Mackenzie River
Aklavik
Fort McPherson
Tsiigehtchic

Projection: Alaska Albers Equal Area Conic, NAD 1983

traveling inland, hunters generally follow the Hulahula river until reaching hunting destinations or until crossing to Sadlerochit Rive, Lake Schrader, or elsewhere.

Nuiqsut

The village of Nuiqsut is located on the western shore of the Colville River, along the Nigliq Channel, approximately 17 miles upriver from the Beaufort Sea. Of the three study communities (Barrow, Kaktovik, and Nuiqsut), Nuiqsut is the closest to the major oil producing fields of the North Slope. The Alpine oil field, which began operations in 2000, is located approximately eight miles north of Nuiqsut. The 2000 U.S. census shows a total population of 433 residents in Nuiqsut occupying 110 household units (U.S. Census Bureau 2002). The census listed 88 percent of Nuiqsut residents as Alaska Native. More recent estimates by ADOLWD (2006) reported the population of Nuiqsut at 417 residents. Nuiqsut residents rely on a variety of both marine and terrestrial subsistence resources throughout the year. Migratory animals such as the bowhead whale, seals, caribou, Arctic cisco, and geese comprise a significant portion of Nuiqsut residents' subsistence diet. Residents also harvest moose and fish, such as burbot and broad whitefish. Harvest data for Nuiqsut are available in Appendix D.

Caribou

Caribou (*tuttu*) is an important resource in Nuiqsut, providing a substantial amount of subsistence foods for local residents each year (Appendix D). Although caribou hunting occurs nearly year-round, the summer and fall months are a time of cooperative group hunting and extended camping trips, when residents of all ages participate. During interviews, 32 harvesters (97 percent of respondents) reported hunting caribou in the last 10 years, and 31 harvesters (94 percent) reported hunting caribou in the last 12 months (Tables 5 and 6). In addition, 27 of the 31 harvesters who attempted harvesting caribou in the last 12 months reported successful caribou harvests (Table 7).

Subsistence Use Areas

Map 111 provides data showing caribou use areas over the last 10 years as well as use areas searched within the last 12 months. Last 10 year caribou use areas extend from the Beaufort Sea coast south to the foothills of the Brooks Range and from the Sagavanirktok River and Prudhoe Bay in the east to Barrow and Atqasuk to the west. See Maps 1 and 4 for detailed placenames. Areas with high frequencies of overlapping use areas occur primarily along the Colville, Itkillik, Chandler, Anaktuvuk, and Kikiakrorak rivers; along the coast between Atigaru Point and Oliktok Point; and in an overland area surrounding Fish Creek, Judy Creek, and Colville River to the west, and Colville River and Itkillik River to the east. The total last 10 year Nuiqsut use area for caribou, as shown on Map 111, is 20,084 square miles.

Residents reported hunting caribou both by boat during the summer and fall and by snowmachine during the winter and spring. A number of residents reported hunting by snowmachine less often than by boat, indicating that they look for caribou in the winter months when low on caribou meat.

During the summer and fall, hunters reported traveling by boat both along the coast and inland along various rivers. Residents generally reported hunting along Nigliq Channel and along the coast early in the summer when the caribou congregate along the coast for relief from insects and heat. In particular, residents described traveling west toward Fish Creek, as well as along Judy and Fish creeks. Later in the summer and in the fall, residents reported traveling along local rivers, often while also hunting moose; the distance residents travel depends on water levels in the rivers and the amount of fuel a hunter is able to buy. A number of residents reported traveling as far as Sentinel Hill on Colville River during the summer and fall months, while others reported traveling as far as Umiat and sometimes into Chandler and Anaktuvuk rivers. Several individuals mentioned that the rivers and creeks had been shallower in recent years, affecting residents'ability to travel by boat. Residents provided the following descriptions of their summer and fall caribou hunting activities:

Map 111 - Nuiqsut Caribou Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

94 use areas reported by 32 respondents

Last 12 Months Dissolved Use Areas

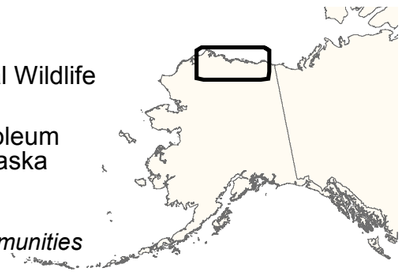
60 use areas reported by 31 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities



0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC OCEAN

BEAUFORT SEA

Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Prudhoe Bay
Mikkelsen Bay
Camden Bay
Meade River
Meade River
Teshekpuk Lake
Fish Creek
Judy Creek
Colville River
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River
Kigalik River
Awuna River
Chandler River
Anaktuvuk River
Dalton Highway
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

We usually go over to Nigliq [Channel] area; we have a camp there at Fish Creek. You can see them from Nigliq Channel, but you have to go all the way around. Since all the activity with Alpine, there has been hardly any caribou over there. Only about five or six caribou are hanging around. We go up Fish Creek a few miles, up past Judy Creek. When the tide is high enough you can go real far and you can get real close to the village; the caribou are around here. You run into caribou all the way down the creek [Colville River]. The farthest is about 20 miles past Umiat, that was during the moose hunting and caribou hunting. When you come down the channel, you run into the caribou along side the river; all the big ones are down here [Umiat south]. We went on the Chandler River. On the Anaktuvuk River, you can't go up there anymore; there is no current [shallow water]. We went about 18 miles up the Chandler. When the tides are high at Ocean Point, there are just a few places you can go into. That is where we got all of our moose this year. (SRB&A Nuiqsut Interview November 2006)

I mainly hunt caribou out in this area in the Colville river area. I go way out there up the Anaktuvuk River and the Chandler River, way back in here. [I use a] combination of boat and snowmachine. At Fish Creek we go down this way; another creek here is connected to Fish Creek. The further you go along Fish Creek, it gets shallow. Over here up the Chandler and down the mouth of the Anaktuvuk river; the farther you go up it gets shallower. (SRB&A Nuiqsut Interview November 2005)

Nigliq channel, by boat. The Kikiakrorak River and the Colville. You can go quite a ways up when the river is high. By boat you can go a few miles past Umiat, when the river is high. [I will hike] about an eighth of a mile [from the river], depending how sparse the caribou are at the time. Chandler, yeah, I haven't gone up there last year but in the last 10 years I did. I have gone up about six bends up. Just a couple of bends, by snowmachine [Kikiakrorak]. By boat it is just a little ways in. You can get in through Elaktoveach this channel here and of course the timing is when the water is high. The more places I can get, you can't get there all the time. (SRB&A Nuiqsut Interview December 2006)

During the winter residents travel by snowmachine in a large area surrounding the community. Residents most often travel west of the community toward Fish Creek and south of the community toward the foothills of the Brooks Range. One individual described,

You don't have to go that far with a snowmachine, right around the west side, right around by Fish Creek. About this whole area is what we usually use during winter time [indicating on map]. Sometimes we go past Ocean Point. Somewhere in March and April and in October and November but the only ones we catch in October are cows, [because of rutting bulls]. Sometimes in March and April we go south towards the foothills. I would say about right around the foothills. (SRB&A Nuiqsut Interview November 2006)

A few residents also reported hunting substantial distances east and west of the community, although several people commented that hunting has declined east of the community due to activities associated with oil and gas development. Respondents commonly indicated that they look for caribou while hunting wolf and wolverine by snowmachine over a large expanse. Residents generally did not travel past the Sagavanirktok River to the east in search of caribou, but one individual reported venturing as far west as Barrow in the last 10 years. A number of use areas were reported west of the community toward Teshekpuk Lake and Ikpikpuk River. Several residents provided the following descriptions of their winter caribou hunting activities:

Jeez, probably this whole map. As far as the Sag River, next to the haul road. We are going for wolves, but if I see caribou I will shoot it. Pretty much a straight line across and hit the oil well [Kuparuk]. Franklin Bluffs is the farthest I have been on snowmachine. From Nuiqsut straight over. The bluffs are straight up and down; there is no way up unless you find a valley. To the 'Pam' marker. All the way to the Ikpikpuk River. The foothills, you get up on top of them. All the way to Barrow and on the Meade River. I go different routes every other year, try something different. I follow the whole coast. Some times I cross Admiralty Bay or I cross just south of it. We have always been taught to stay off of Teshekpuk Lake, to stay on the land. They say it does not freeze all the way, it is warm underneath. It is just like the Colville because it is always flowing, there is a swift current. Every now and then we go to Oliktok Point, in the wintertime. We don't go in the oil fields. We used to go to the east of the village before 25 years ago before Kuparuk started. I have been half way to Anaktuvuk; we used to haul maktak *and meat to Anaktuvuk for the holidays. We look for caribou at the same time.* (SRB&A Nuiqsut Interview November 2006)

Way back we used to go way up here past the White Mountains [Hills]. One time we went way up here just to the mountains. Right around Happy Valley area. We were searching around here, went up to the Haul Road and went back. Sometimes we go to Ikpikpuk River. Sometimes around there. To Kogru [River], right down. When I go to Barrow, I usually get my caribous right around this area here [near Teshekpuk Lake]. Just when I start heading to Barrow for spring whaling. Close to the coastline, because it's salty on the ground. In the summertime, we go all the way along. You can go inside and go around it [Kogru Lake] and Atigaru Point, Fish Creek. Yeah [we hunt toward the delta], especially over here and to Oliktok Point. Sometimes we always have to go toward Deadhorse or Prudhoe when there's nothing over here. It depends where we see the caribous. I went to Franklin Bluff. I went up to Umiat, even up to Outpost [Mountain], for caribou, wolves. Fall time, summer time, and when we don't have any, in the winter time. [We go for caribou] whenever we need them. August, September. Fall time we always go out get a couple fresh ones. (SRB&A Nuiqsut Interview November 2005)

Several residents described favorite or preferred caribou hunting areas, citing various reasons for their preferences. Some individuals prefer hunting closer to town in recent years due to rising gas prices; others cited a preference for areas they are familiar with or where caribou are commonly present. Some individuals indicated that they do not have a preference, hunting, as one individual described, "Wherever there are caribou" (SRB&A Nuiqsut Interview November 2005). One resident described a favored caribou hunting area as follows:

It would be a little past Ocean Point, that is the main area where the caribou come in and out. All the caribou use that trail all the time, there is always caribou there. Some times they will be two or three miles from the river; we sit and wait for them. (SRB&A Nuiqsut Interview November 2006)

Last 12 month Nuiqsut caribou hunting areas are depicted on Maps 111 and 112. In the 12 months prior to their interviews, residents covered a large area in search of caribou, traveling as far west as Dease Inlet, south into the foothills of Brooks Range, east just past Itkillik River, and along the coast just past Oliktok Point. The highest numbers of overlapping last 12 month use areas were reported along Colville River from the delta (especially along Nigliq, Tamayayak, and the eastern channels of Colville delta) to beyond Chandler River; along Itkillik River and Fish Creek; and overland between Nuiqsut, Ocean Point, and Fish Creek. The total last 12 month Nuiqsut use area for caribou, as shown on Map 112, is 12,921 square miles.

Map 112 - Nuiqsut Caribou Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
60 use areas reported by 31 respondents

Most Recent Harvest Locations

31 harvest locations reported by 27 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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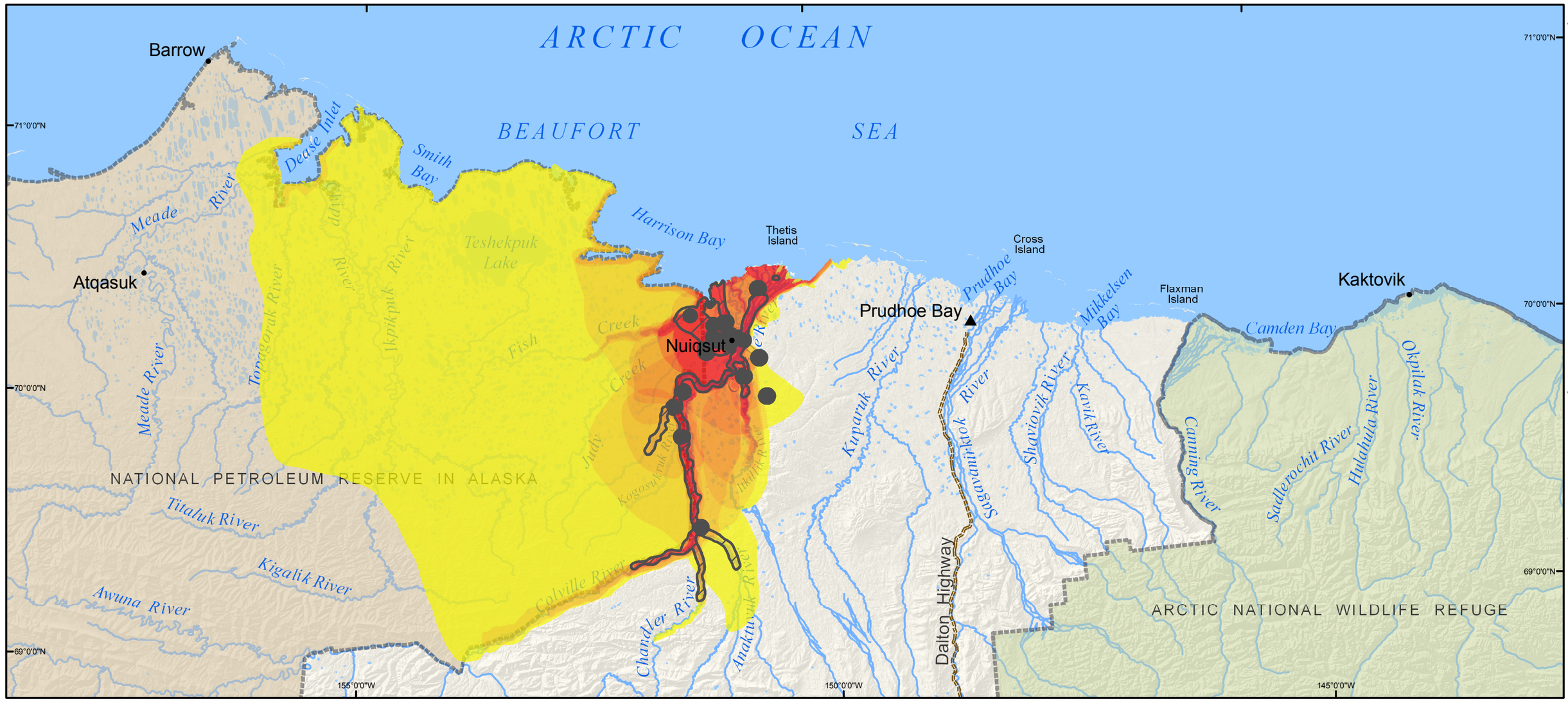


July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Several individuals described limiting their travel in the previous year due to high gas prices and hunted caribou closer to the community than usual. Two individuals described,

> *Mostly I was on just this area here, out here to my cabin [on Fish Creek]. I always stop at my cabin. I will either come around this way or go around this way. Sometimes I will come up by Ocean Point. I made it a couple times up there looking for caribou. I usually don't have to go too far; they are close, but they are few in numbers. You have to look for them; you don't have to go far sometimes. Gas isn't cheap around here. Last year it was $6.00 a gallon. [That] puts a limit on travel.* (SRB&A Nuiqsut Interview December 2006)

> *[I did] not [go to Fish Creek] this year. I looked. You can see a couple of caribous. We don't have much gas to travel that far. We have an 18 gallon tank, and we don't know how far the new outboard can go, and we try to see how far 18 gallons can go, and we probably had a little less than ¾ of tank, and I say 'We probably can't make it to Fish Creek.'* (SRB&A Nuiqsut Interview November 2006)

Other hunters reported traveling as far as or farther than they usually do to hunt caribou. One respondent explained that he has to travel farther in recent years because of changes in caribou migration related to the pipeline. This individual said,

> *There was hardly any caribou around here for the last 12 months and even on the east side, they keep saying there was a whole bunch of caribou migrating toward the Colville, but when they got to the pipeline, they divert towards another direction. Ever since that pipeline was built. I would say about, last 12 months, I went 30 miles out to get a couple of caribou. That is how far you have to travel now days to get a caribou because of the impact we are having.* (SRB&A Nuiqsut Interview November 2006)

Nuiqsut residents provided the following additional descriptions of their last 12 month caribou hunting activities:

> *I know we go past [Sentinel Hill]. We go as far as that, by boat. Then we go as far as Umiat. We are hunting along the river. Up along the cliffs we go hiking. Not too far [up Anaktuvuk]. It gets so shallow. All the way [along the Colville], and we camp here and there if we don't want to go home. Same thing with the Itkillik River [we hunt caribou]. I don't really go up too far. There's a hill where we go up looking for caribou. If there is nothing, we'll go up the Colville River, on "Lonely Island" [north of the village], and [we] go back along the main channel. I went out to Fish Creek [last year], by boat. Fish Creek, about around here I did my fishing and caribou hunting there. I went practically all these places this summer. This summer we got about six caribou. Last [caribou we got] were at Itkillik, close by here. We spent the night.* (SRB&A Nuiqsut Interview November 2005*)*

> *I just go a little ways because the Western Herd was here. The Teshekpuk Herd was here. I didn't go that far this year. Just close by. By these lakes [west of Nuiqsut].* (SRB&A Nuiqsut Interview November 2005)

> *Just over the hill, that is it. I didn't go far this year; hardly any snow. It didn't freeze the ground till…it was late freeze up this year. Freeze is getting late all the time now days, not like it use to long time ago. We use to walk across the river, 1st of October. Not this year.* (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

Nuiqsut hunters' most recent caribou harvest locations (within the 12 months prior to their interviews) are depicted on Map 112. Residents' most recent harvests occurred along Colville River between the delta and Chandalar and Anaktuvuk rivers, in an area west of Nuiqsut as far as Fish Creek, and in a couple of locations east of Itkillik and Colville rivers. Some individuals identified large areas where they harvested multiple caribou, rather than pointing out the individual locations of each harvest. Several individuals provided the following descriptions of their most recent harvests:

> *My very last caribou was southwest maybe five miles from here, about here. Not too far from the village. [I got] three caribou. Just me and my mother and my brother. Just a day [trip]. November and December. When I feel like eating caribou and there are hardly any groceries, I go out caribou hunting when I need.* (SRB&A Nuiqsut Interview November 2006)

> *Yesterday I went with [another hunter], right under these bluffs. That was yesterday's caribou I got. There was a lot there; they were scared of something. Wolverine, I was tracking a wolverine. There was a herd of musk ox. We used to cut across and hunt there.* (SRB&A Nuiqsut Interview November 2005)

> *That [most recent harveset] was in between CD4 and Drill Site 2; that is on Nanuk Lake, right in that area. There is a sandbar in between them two. That is where they mostly hang out during hot days. This summer I got maybe seven caribous. Just me and my boys, two boys. About maybe, day trip, about four to six hours. About four right there and three in different areas.* (SRB&A Nuiqsut Interview November 2006)

Number of Participants

Nuiqsut residents reported multiple participants during the majority of most recent caribou harvests. Residents reported groups of two or more people in 74 percent of their most recent harvest locations whereas unaccompanied individuals hunted at only 26 percent of most recent harvest locations (Table 103).

Table 103: Nuiqsut Number of Participants During Most Recent Caribou Harvests

Number of Participants	Percentage of Harvest Locations
1 person	26%
2-3 people	58%
4 or more people	16%
Number of Most Recent Harvest Locations	31

Stephen R. Braund & Associates, 2010.

Duration of Trip

Nuiqsut respondents reported taking day trips to 81 percent of their most recent caribou harvest locations (Table 104). Residents reported staying at remaining harvest locations anywhere from two nights to two weeks. One resident noted, "It took the whole day" (SRB&A Nuiqsut Interview November 2005) to

harvest their latest caribou, while another resident stated, "We were out for five days" (SRB&A Nuiqsut Interview November 2005). Residents did not report any trips lasting longer than two weeks. Respondents described camping or staying in cabins primarily located along local rivers, especially the Colville River and Fish Creek.

Table 104: Nuiqsut Duration of Trips to Most Recent Caribou Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	6%
2-5 nights	13%
1 night	0%
Same day	81%
Number of Most Recent Harvest Locations	31

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Nuiqsut residents harvest caribou throughout the entire year. Figure 37 shows June through September as the predominant months reported by Nuiqsut respondents at caribou use areas. During these months, residents utilize boats along the Colville River as well as along the coast. Residents also hunt for caribou by snowmachine after the snow and ice has accumulated to an appropriate depth for travel. Respondents reported frequenting fewer caribou use areas in May as this is the optimum time for geese hunting and because travel conditions begin to deteriorate. Three respondents provided the following comments regarding their caribou hunting months:

> *Whenever it's travelable, the end of June all the way until freeze up in September. September is when we go whaling.* (SRB&A Nuiqsut Interview November 2005)

> *When I am out hunting wolverines and wolves, I will sometimes get caribou out here if I see a nice healthy one. They are sometimes kind of skinny in January, actually December up to summer. You have to pick out the good ones. October through May. By then [May] it is too soft to go anywhere.* (SRB&A Nuiqsut Interview December 2006)

> *It is September. October is when it starts freezing up. They do it during geese hunting during May. About April or May, that is when you stop looking for caribou and look for geese. November is a bad time for caribou hunting because of the flavor is [bad], wait till February, that is when the bad taste goes away.* (SRB&A Nuiqsut Interview November 2006)

Method of Transportation

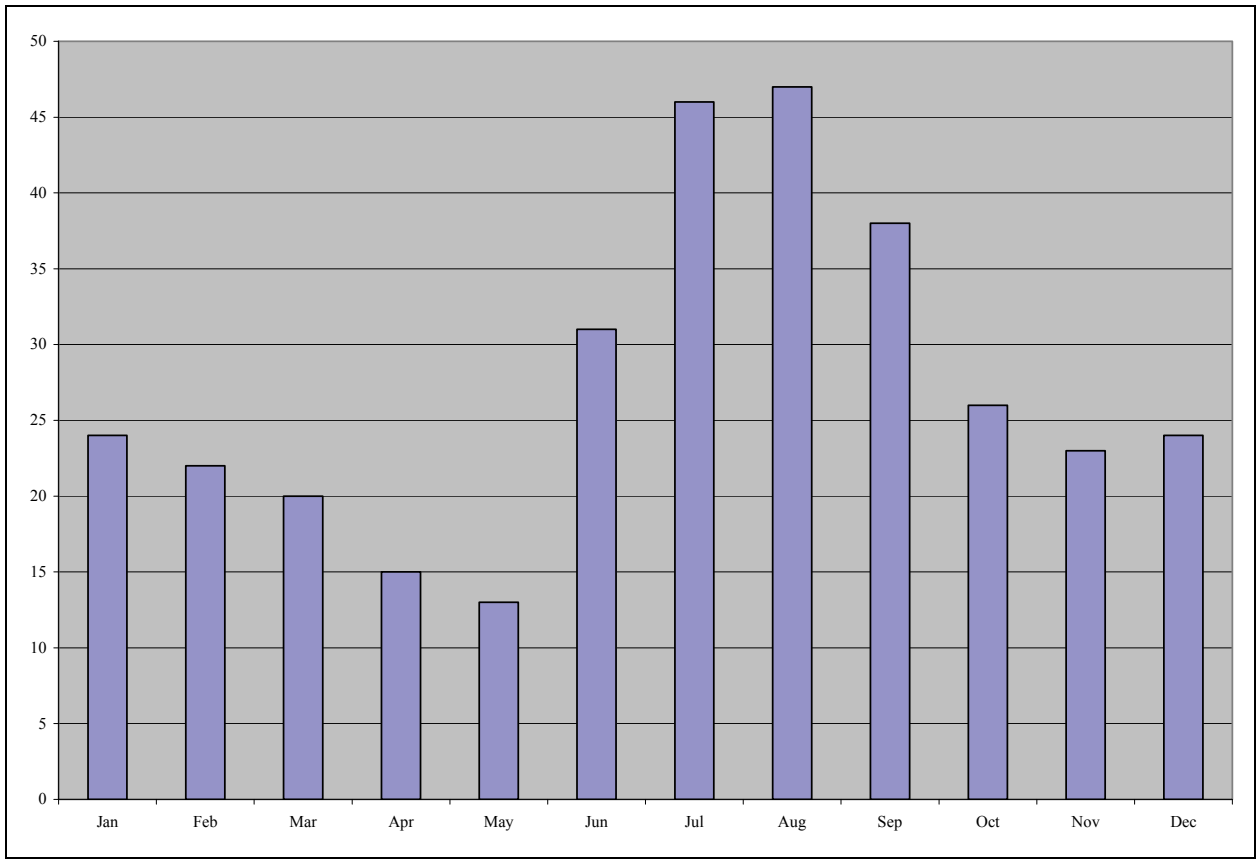
Boat and snowmachine are the two most utilized methods of transportation for caribou hunting by Nuiqsut residents (Table 105). As stated earlier, residents frequent a high number of caribou use areas (62 percent, also see Figure 37) in the summer months by boat. One respondent noted,

> *By boat is July, August, September, in June too, after break up. [I will] be looking for caribou by then, since the winter supply has been used up by then.* (SRB&A Nuiqsut Interview December 2006)

Respondents reported traveling by snowmachine to 44 percent of caribou use areas (Table 105). Traveling by snowmachine allows hunters to cover much larger areas than when traveling by boat. As one resident reported,

> *Once in a while [I go by boat], but usually I go by snowmachine. Just a ways out, I go way off the map sometimes. I've got a GPS.* (SRB&A Nuiqsut Interview November 2005)

Figure 37: Nuiqsut Use Areas for Caribou by Month



Stephen R. Braund & Associates, 2010.

Table 105: Nuiqsut Method of Transportation to Caribou Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	44%
Four-wheeler	2%
Boat	62%
Foot	1%
Plane	0%
Car/truck	0%
Number of Use Areas	94

Stephen R. Braund & Associates, 2010.

Harvest Gear

Nuiqsut residents hunt caribou with several different rifle calibers. The majority of residents reported using a .243 (43 percent) or a .223 (33 percent) for hunting caribou (Table 106). Ten percent of hunters also noted using other rifle calibers, such as a .22-250 (13 percent) and .222, .270, and 7mm. Residents reported several more rifle calibers but with much less frequency. Several caribou harvesters described using more than one rifle depending on the hunting situation. One hunter described the different circumstances in which he would use a particular rifle. He said,

> *We find out that small calibers don't work too good in fall time; the skin is growing and they are tougher to hit with small caliber. They don't die right away so we start using .243. Summer time [we use a] .222 or .223. If they are far, we use a heavier caliber.* (SRB&A Nuiqsut Interview November 2006)

Another resident noted his preference for the .223 caliber rifle due to the decreased damage it causes to the meat, saying,

> *I have tons of rifles. I use a .223. I like to use a .223; the bullets are faster and the holes are smaller, not as much damage.* (SRB&A Nuiqsut Interview November 2005)

Table 106: Nuiqsut Caribou Harvest Gear

Rifle Caliber	Number (%) of Harvesters[1]
.243	14 (43%)
.223	10 (33%)
.22-250	4 (13%)
.222	3 (10%)
.270	3 (10%)
7mm	3 (10%)
6mm	1 (3%)
.17	1 (3%)
.22	1 (3%)
.22 mag	1 (3%)
.250	1 (3%)
.257	1 (3%)
.30-06	1 (3%)
.300 mag	1 (3%)

Stephen R. Braund & Associates, 2010.

Bowhead Whale

Bowhead whales (*aġviq*) are fundamentally important in the lives of the Iñupiat and, as Nuiqsut is no exception, residents consider bowheads to be a vital resource for the community. While not every resident participates in the actual harvesting activity, many individuals contribute by helping prepare for the hunt at Cross Island (e.g., readying the boat and hunting gear), cooking food for the whaling crews, and butchering the whale after a successful hunt. Young boys begin their training as errand runners and slowly acquire the proper skills they will need before they can partake in the hunt. One resident described

his experiences as a child learning to hunt bowhead whales and the role of bowhead whale hunters in the community:

> *In 10 years, we got about a dozen whales for the community. We get two every year. I started whaling when I was 10 years old. I started at the bottom as coffee boy and I'll work my way up. You start learning the ropes of whaling, learning the traditional methods of whaling. It's the captain's responsibility for safety. Whaling takes preparation all year round, doing for the community, not doing for yourself.* (SRB&A Nuiqsut Interview November 2005)

A mother explained that her son participates in the hunt, while her responsibility is to butcher and prepare the whale once it returns to the community. She said, "My son does [go whaling]. I take care of it when it comes back" (SRB&A Nuiqsut Interview November 2005).

During interviews, researchers gathered bowhead harvest data only from those individuals who had actively hunted bowhead in the last 10 years. Therefore, even though much of the community participates in each whale hunt, fewer individuals actually hunt whales. Nineteen of the 33 Nuiqsut respondents reported hunting for bowheads within the last 10 years and 13 respondents reported hunting bowheads within the 12 months previous to their interview (Tables 5 and 6). Data regarding most recent bowhead harvest locations are treated differently in this report than for other resources (see explanation above under "Barrow," "Bowhead Whale"). Thus, tables, figures, and maps regarding most recent bowhead harvests, including number of participants and duration of trips, were not included in this section, but discussion of general trends remain.

Subsistence Use Areas

Unlike some other North Slope communities, Nuiqsut residents are not located directly on the coast and as a result base their bowhead whale hunting activities out of a somewhat removed location. Each year, hunters travel by boat from the community of Nuiqsut to Cross Island, near Prudhoe Bay. Whaling crews remain on Cross Island for extended periods of time until they successfully harvest their annual whale quota or until the whaling season ends.

Nuiqsut hunters' last 10 year bowhead whale use areas are shown on Map 113, in addition to last 12 month use areas. Residents reported traveling extensive distances from Cross Island in search of bowhead whales. As Map 113 shows, hunting activities over the last 10 years have occurred almost as far as Thetis Island to the west and Barter Island (Kaktovik) to the east, and offshore up to approximately 50 miles. One individual, a whaling captain in Barrow, reported traveling to Barrow each fall to hunt bowhead whales (Map 113). The highest numbers of overlapping use areas were reported offshore up to 30 miles in a radius around Cross Island and east of Cross Island as far as Flaxman Island. The total last 10 year Nuiqsut use area for bowhead whales, as shown on Map 113, is 5,211 square miles.

Hunters generally reported traveling primarily north or east of Cross Island when searching for bowhead whales; they hunt west of the island as well, but to a lesser extent. Respondents described hunting bowhead whales at varying distances from Cross Island depending on the location of the migrating bowhead whales, the location of the ice pack, and travel conditions. When the ocean is rough or there is a lot of ice, hunters may travel inside the islands; when the ice pack is far from shore and the sea is calm, crews may travel substantial distances. According to hunters the location of the whales can vary depending on the amount of industrial activity, especially seismic activity, occurring during the whaling season. A number of residents recalled years when they had to travel long distances to harvest whales due to disruption from seismic activity, although several people indicated that hunting conditions had improved since the oil and gas companies agreed to cease seismic operations during whale hunting season. Residents provided the following descriptions of their last 10 year bowhead whale hunting activities:

Map 113 - Nuiqsut Bowhead Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
21 use areas reported by 19 respondents

Last 12 Months Dissolved Use Areas

14 use areas reported by 13 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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July 2009

ARCTIC OCEAN
BEAUFORT SEA
Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Flaxman Island
Kaktovik
Atqasuk
Topagoruk River
Fish Creek
Nuiqsut
Colville River
Prudhoe Bay
Kuparuk River
Dalton Highway
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Camden Bay
Okpilak River
Hulahula River
Sadlerochit River
NATIONAL PETROLEUM RESERVE IN ALASKA
Judy Creek
Kogosukruk River
Itkillik River
Titaluk River
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Thirty miles north, northeast and straight out. It all depends on the ice. We hunt more over here [to the east of Cross Island]. Sometimes we go all the way like this, then closer to the barrier islands. It depends on the [activity]. [We got whales] about eight miles out, before seismic testing. This year, we had to go 30 miles out, all the way to Camden Bay. (SRB&A Nuiqsut Interview November 2005)

The furthest [we've hunted] since 1996, north would be about between 20 to 25 miles; sometimes we have had to go 30 miles out on the north side. Furthest [west] to about Jones Islands [includes Thetis, Spy, and Pingok islands], Pingok Island. Past Flaxman Island [to the east], right in between Flaxman and Brownlow, this fall. Depends on the weather; when it is too choppy, we look right on the inside [of the islands]. I say right in between mainland and barrier islands. All the way. About 16-18 miles out from islands. [Thirty miles out] was late 90s; that was when they were developing North Star. That is the manmade island. Sometimes we have to go northeast from Cross Island, about 16 to 18 miles. Because that is where we get most of our whales last fall, about 16 to 18 miles. (SRB&A Nuiqsut Interview November 2006)

We mostly stay at Cross Island. When there's no activities over here on the east side, we can get them about seven miles from Cross Island, but in 1990 or 1991, I think, the first whale I got was by Stockton Island [a group of islands including Pole Island]. When they started working seismic over here, and they had those Hammerhead or drill sites over here, I had to go out [further]and I finally got one 35 miles straight out. That was [the furthest] I went because there was activity down here. We don't hardly go on this [west] side because they're migrating over here [east of the island]. Last year it was real windy, and they were close by. (SRB&A Nuiqsut Interview November 2005)

One year we were 29 miles northeast of Cross Island. That was the year they were doing seismic out there before the Alaska Eskimo Whaling Commission shut them down from doing seismic activities during whaling. Furthest I have gone is to Flaxman Island. It depends on the ice conditions; if there is a lot of ice we will be on the other side [south] of islands. Usually you won't see any whales [near the islands, but in '02 we did see at Narwhal Island on the west end of it we saw a small gray whale. Like I said, mostly when we are that close to the islands the ice conditions are too bad to get out. (SRB&A Nuiqsut Interview November 2006)

Typically, since the seismic operations have ceased during whaling activities we have been catching whales anywhere from two to 15 miles north and northeast of Cross Island and anywhere from eight to 10 miles west of Cross Island. (SRB&A Nuiqsut Interview December 2006)

Nuiqsut's last 12 month bowhead whale use areas are depicted on Maps 113 and 114. In the 12 months prior to their interviews, Nuiqsut respondents reported hunting both east and west of Cross Island. Hunters traveled east as far as Flaxman Island and offshore from Cross Island over 30 miles. The total last 12 month Nuiqsut use area for bowhead whales, as shown on Map 114, is 2,466 square miles.

Those individuals interviewed in November 2005 indicated that bad weather (especially high winds) and ice had affected their hunting efforts during the previous hunt, while those interviewed in November 2006 reported that ice conditions had blocked or altered hunters' movements. In addition, several individuals interviewed in November 2005 noted that while hunters were in pursuit of a bowhead whale near the barrier islands, the whale was "spooked" by the presence of a large ship or barge, resulting in the loss of that hunting opportunity. Residents provided the following descriptions of their last 12 month bowhead whale hunting activities:

Map 114 - Nuiqsut Bowhead Use Areas, Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months
Overlapping Use Areas

High
Low

14 use areas reported by 13 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Atqasuk
Topagoruk River
Fish Creek
Nuiqsut
Colville River
Prudhoe Bay
Flaxman Island
Kaktovik
Camden Bay
Mikkelsen Bay
Kuparuk River
Highway
Dalton
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Judy Creek
Kogosukruk River
Itkillik River
Titaluk River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

All along here, out 26 miles. We got three whales. It was really windy the last time by Northstar Island. Inside the barrier island there was a barge traveling that interfered with the whaling, and we never saw that whale again. (SRB&A Nuiqsut Interview November 2005)

We were northeast of Cross Island, about seven miles out there. We were out there about a month, and we couldn't find any whales so we had to go further out. This last September we didn't go out because it was bad weather. We had two good days out of a month. And these boys were out there, and they spotted a whale and a ship was out there. There's not supposed to be any activity out there, but it spooked the whales away. It depends on the weather. When it's good weather, we can harvest one in a week. Last year we stayed out there almost two weeks. We can stay shorter than that if it's good weather. (SRB&A Nuiqsut Interview November 2005)

We were out 17 miles this year, northeast. We went further east from there. And then we had to turn back [because] there was a lot of ice. Sometimes we have to go back to our trail this year. We went…there was a lot of ice in this area this year. So we had to go way over here someplace to try to get in the ocean. First year we have to go that far. We were 17 miles from Pingok Island. We had to go around here in order to get over. We tried but couldn't make it because a lot of ice. We went twice up to by Flaxman, and we didn't see anything. We couldn't go above barrier islands because of ice. Then finally the ice moved. Then we start hunting the whales. There was a lot of ice in there [by Flaxman], mostly we went a couple of times [Pole Island] and over there [Flaxman] but we didn't see any. (SRB&A Nuiqsut Interview November 2006)

We usually go out in the open but this year there was a big wall of ice. We went all the way to Kaktovik. We just stayed north of the islands. Some people went south to Pole Island. Above and below Narwhal Island. About three or four miles, just above the islands. And this year we were only 17 miles from Oliktok. (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

The harvest sites collected during SRB&A interviews were identified by respondents on the USGS map used during interviews and without the aid of GPS data. The North Slope Borough Department of Wildlife Management collects harvest location data, often with GPS coordinates, for bowhead whales harvested each year. In addition, MMS has funded a Cross Island whaling project entitled *Annual Assessment of Subsistence Bowhead Whaling Near Cross Island* since 2001 (Applied Sociocultural Research 2004, 2005, 2006, 2008a, 2008b, 2009a, and 2009b). Among other things, the study gathers GPS tracks and waypoints (including harvest locations) from Cross Island whaling crews during the whaling season. Because more reliable bowhead whale harvest data for all three study communities are available from the North Slope Borough and Applied Sociocultural Research (2004, 2005, 2006, 2008a, 2008b, 2009a, and 2009b), most recent bowhead whale harvest locations collected by SRB&A are not included in this report. However, residents' descriptions of their most recent harvests include the following:

[We harvested the whale] 22 miles northeast [of Cross Island]. There were two boats, four people on theirs and three on ours. [The whole trip took] three weeks. That one day was a 16 hour hunt by the time we saw her until she was in our stomachs. (SRB&A Nuiqsut Interview November 2005)

I was on a different crew this year for the first time, and we did catch a whale. Probably around here, east, northeast of Cross Island 18 miles; I can't tell you to be exact. All the whales were kind of in a 10 mile radius. The farthest was 18 I believe. (SRB&A Nuiqsut Interview November 2006)

About 13 miles northeast from Cross Island. Right about that area. That is that 30-60 meter current that, right at that 60 meter current is where we got our whales. Three boats in one crew, three people per boat. (SRB&A Nuiqsut Interview November 2006)

We got [the last bowhead whale] on the eighth of September. I'm not sure [exactly when]. Right there, where you've got it marked. About 28 miles east, northeast. We had two boats out there, four in mine and three in another. We got one whale. [It took] about 18 hours. Towing [the whale] was the hardest part. About three miles an hour. It takes a long time. (SRB&A Nuiqsut Interview November 2005)

Number of Participants

As noted above, because data regarding bowhead whale most recent harvests are treated differently in this report than for other resources (see explanation above under "Barrow," "Bowhead Whale"), the tables based on most recent harvests ("Number of Participants" and "Duration of Trip") are not included in this report. Bowhead harvesters reported four or more participants at nearly all of their most recent whale harvests. Only one hunter reported two or three participants during the harvest of their most recent whale. When questioned how many people participated in the whale harvest, respondents noted either the total number of people in their whaling crew or the number of people in the boat at the time of the harvest. Some respondents also included other crews who assisted in harvesting or towing the whale when reporting the number of participants. One whaler described the number of people in his crew during the 2001 harvest saying,

I am the co-captain. There were 10 in our crew, 10 or 11, we had two boats. That was in 2001. We got three [whales] that year. (SRB&A Nuiqsut Interview November 2005)

Duration of Trip

The majority of Nuiqsut respondents reported taking extended trips to harvest whales. Cross Island, approximately 73 "direct" miles or 92 to 109 "water" miles east of Nuiqsut (Applied Sociocultural Research 2006), serves as a base for all of Nuiqsut's bowhead whale hunting activities. Thus, during the whale hunting season, whaling crews spend long periods of time away from the community at their camp on Cross Island. Residents responded to the question of duration of trip in two ways: 1) how long they spent away from the community before they had a successful harvest or 2) their time on the open water before harvesting the whale. The length of whaling crews' stay at Cross Island depends on a number of factors, such as the start date (set by the Nuiqsut Whaling Captains Association), how long it takes to successfully harvest a whale, and weather and ice conditions. Once they have arrived at Cross Island, whaling crews generally go searching for whales every day unless weather and ice conditions do not allow for boat travel or if a bowhead whale was harvested on the previous day, in which case the hunters generally stay on the island to butcher the whale (Applied Sociocultural Research 2004). Scouting trips can last many hours and may extend well into the evening if a bowhead whale is harvested.

The following quotes provide examples of respondents' comments regarding the duration of their whaling trips:

[We hunt whales] the first part of September until we get a whale in. We stayed a little over a month at Cross Island. (SRB&A Nuiqsut Interview November 2005)

It depends on the weather. When it's good weather, we can harvest one in a week. Last year we stayed out there almost two weeks. We can stay shorter than that if it's good weather. (SRB&A Nuiqsut Interview November 2005)

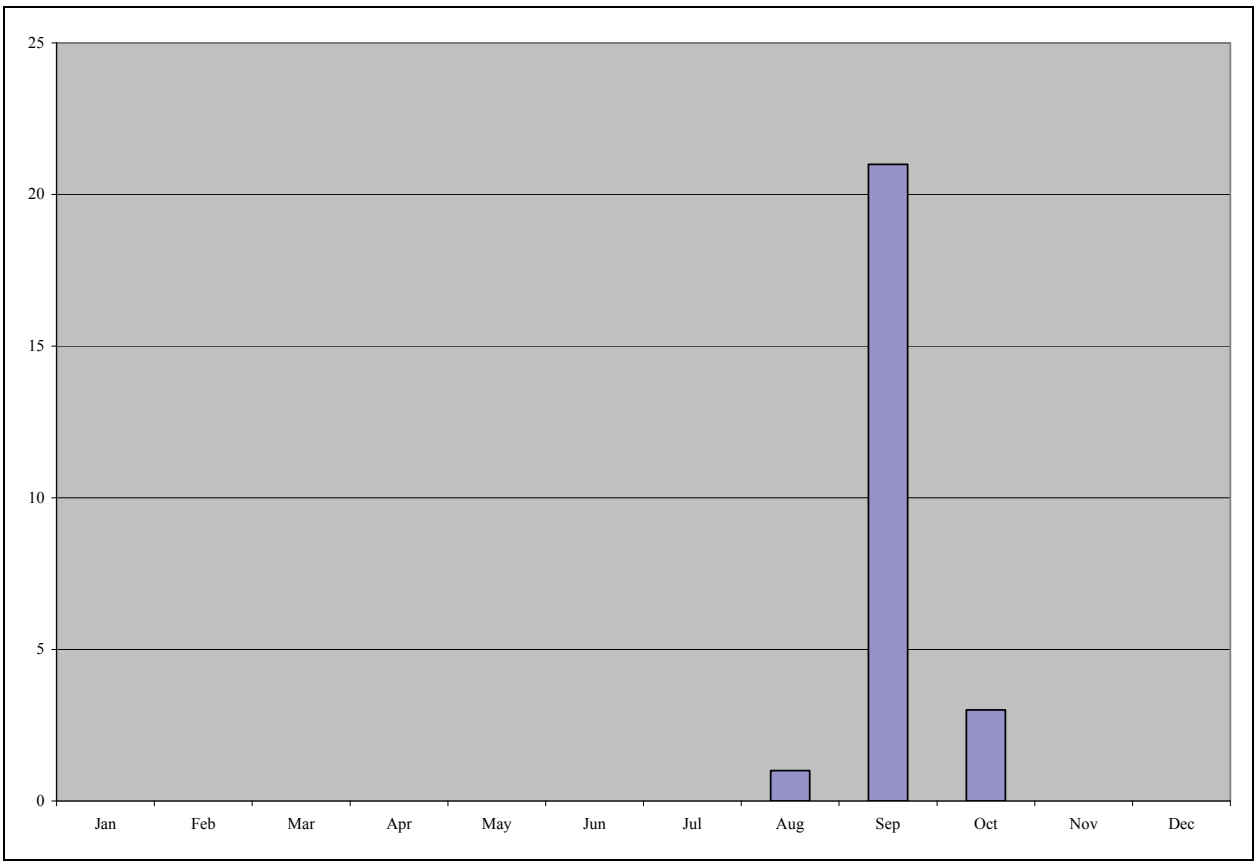
Three weeks. That one day was a 16 hour hunt by the time we saw her until she was in our stomachs. (SRB&A Nuiqsut Interview November 2005)

Months of Harvest Effort

Nuiqsut residents hunt bowhead whales in September although a small number of use areas were reported in August and extending into October (Figure 38). Whaling crews generally travel to Cross Island together once the Nuiqsut Whaling Captains Association has set a date, although some may arrive earlier or later in the season for various reasons (Applied Sociocultural Research 2004). Most residents travel to their whaling camps on Cross Island in September. However, a few individuals indicated they begin their preparations and travel in August. During years of bad weather, residents reported that the whale hunt has been delayed into October before the quota was met. One resident described the whaling season and the camp on Cross Island as follows:

In September we go out two weeks; sometimes we go out one month. We stay on the island. There are some wooden cabins and some trailers. There used to be nothing out there. Now there are trailers to give us some warmth. (SRB&A Nuiqsut Interview November 2005)

Figure 38: Nuiqsut Use Areas for Bowhead Whale by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported using boats to access 100 percent of their bowhead use areas (Table 107). Residents travel by boat through the Colville River (either along the Nigliq Channel or the East Channel), along the coast to West Dock, and then travel the open sea to their bowhead whaling grounds centralized around Cross Island. For further discussion on residents' travel to Cross Island, see "Travel Routes" below.

Table 107: Nuiqsut Method of Transportation to Bowhead Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	0%
Four-wheeler	0%
Boat	100%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	21

Stephen R. Braund & Associates, 2010.

Harvest Gear

The harvest gear used to hunt bowhead whales is similar among all North Slope whaling communities. Nuiqsut residents described their methods of harvesting bowhead whales and some cited preferences for either the traditional whale hunting bomb or the new "penthrite" bombs. One individual noted that the new penthrite bombs (referred to as "super bombs") are too damaging to the meat:

> *I use traditional [bombs]. I don't use the super bomb. We've seen ones that have super bombs, and we could hardly save any meat in that area where it had spread.* (SRB&A Nuiqsut Interview Interview November 2006)

Others observed that the traditional bombs are safer and more reliable. For a detailed discussion of bowhead whale hunting methods, see under "Barrow," "Harvest Gear."

Moose

Unlike Barrow and Kaktovik hunters, Nuiqsut residents pursue moose (*tuttuvak*) on a regular basis. Moose are generally more available in the Nuiqsut area and for some time, because of declining moose populations, hunting of moose on the North Slope was restricted to the Colville River area (U.S. Fish and Wildlife Service [USFWS] 2008). Thirty-one of the 33 Nuiqsut respondents (94 percent) reported hunting moose in the last 10 years, and 22 hunted moose in the last 12 months (Tables 5 and 6). Nine of these 22 Nuiqsut harvesters reported successful moose harvests in the last 12 months (Table 7).

Subsistence Use Areas

Nuiqsut last 10 year moose hunting areas are shown on Map 115, along with last 12 month use areas. In the last 10 years, respondents reported hunting moose primarily along the Colville River south of Nuiqsut, although a small number of use areas were reported in the Colville River delta and along Fish Creek. Residents also hunt moose along Itkillik River. The highest numbers of overlapping use areas occur along the Colville River south of the community to Umiat and along the lower portions of Itkillik and Chandler rivers. The total last 10 year Nuiqsut use area for moose, as shown on Map 115, is 1,030 square miles.

Map 115 - Nuiqsut Moose Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
36 use areas reported by 31 respondents

Last 12 Months Dissolved Use Areas

26 use areas reported by 22 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers

N

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

A number of people indicated that they hunt moose and caribou in the same general area and at the same time (in the fall), except that they don't look for moose north of the community. Residents commonly reported hunting moose near Umiat and in the mouths of Chandler and Anaktuvuk rivers; hunters sometimes hike substantial distances in search of moose. Residents provided the following descriptions of their last 10 year moose hunting areas:

> *I have never got any moose up in here past Umiat but I have looked. Anaktuvuk [River] is really shallow. We look at the same places as the caribou though we don't go up north. We start at the village, and we go around and look at the tops of the hills and at Ocean Point and all the way down the river is the same [as caribou].* (SRB&A Nuiqsut Interview November 2006)

> *Same channel of Colville River [as used for caribou hunting]. Just south [of Nuiqsut]. Always the same every year, August. That is the time moose season is open, you got 30 days to go out, and we go out and camp out and get away from village. That is when everyone feels good, because they camp and relax.* (SRB&A Nuiqsut Interview November 2006)

> *Just south of the village. I got one there and a couple of them here. One time we hiked seven miles, it took us all night; it took eight guys to hike out a moose. We used to get all females. They stopped us from getting females; I haven't gotten a moose in a while. It takes longer to get the bulls…. Boating and hiking at the same time.* (SRB&A Nuiqsut Interview November 2005)

> *Oh yeah, the farthest this year I went to was around here [Kikak Creek, drains into Colville River south of Kogosukruk and Kikiakrorak rivers]. In that area. The farthest by boat, was actually here [Umiat]. A half a mile is the farthest [I will hike] away from river. Not this year, but I have been up there [on the Chandler and the Anaktuvuk rivers] before. Just barely in it, just a few bends actually. Both channels. That is the farthest, I haven't been farther than that. All the way up to the delta [in the Nigliq Channel]. All the way up. From the main channel.* (SRB&A Nuiqsut Interview November 2006)

Several residents identified areas where moose are particularly thick, such as along the upper Colville River near Umiat and Chandler River. These residents described,

> *Umiat, that is pretty much where they are hanging out.* (SRB&A Nuiqsut Interview November 2006)

> *It would be Chandler or this whole area [around Ocean Point]. When you go into Chandler, it is nothing but moose; there is nothing else around there.* (SRB&A Nuiqsut Interview November 2006)

> *Up to Chandler River and up to this river here. That is where most everyone catches their moose.* (SRB&A Nuiqsut Interview November 2006)

One individual commented that sport hunting activities have affected residents' moose hunting success along the Colville River, saying,

> *In last 10 years I only got two moose, during moose season we get a lot of interference by sport hunters. They are scaring the moose, pushing them away. But right around Ocean Point and that cabin right around here.* (SRB&A Nuiqsut Interview November 2006)

Nuiqsut last 12 month moose hunting areas are depicted on Maps 115 and 116. In the 12 months prior to their interviews, residents reported covering an area similar to that reported for the last 10 years. Last 12 month use areas extend along the Colville River between the delta and beyond Umiat, on Fish Creek, and along Itkillik and Chandalar rivers. The highest numbers of last 12 month use areas were reported along the Colville River south of the community to the mouth of Chandler River. The total last 12 month Nuiqsut use area for moose, as shown on Map 116, is 714 square miles. Residents provided the following descriptions of their last 12 month moose hunting activities:

> *That is where I went way up here this summer [Umiat]. Yeah, we already had got one caribou and it was good and there was some caribous up there alright, but we didn't [take them]; we don't like to waste. Usually go up river. As soon as you get out in the Colville [they start looking]. [We go] south of Nuiqsut. This year the river was high and you could go all the way past Umiat. I looked last year, didn't see any moose; we saw one but it was running away.* (SRB&A Nuiqsut Interview November 2006)

> *Up in Umiat area. That was in the first week of August up by Umiat, somewhere around there. Just get a camp and look up around the cliffs. Mainly around here, we mainly walk. Our boats can't go through here. We'll camp around close by, and we'll stake out all day on the main river. We couldn't get there on the east side. We didn't get anything last time. We tried, no catch.* (SRB&A Nuiqsut Interview November 2005)

> *Farthest I went up the Colville was too Kikiakrorak [River]. Itkillik, yes. This summer [I] took the Nigliq channel; I didn't go in these channels [central channels on delta]. Oliktok Point, yes…. I did look last year, but didn't get any. I do look, always looking for animals*. (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

As noted above, nine Nuiqsut respondents reported successful harvests of moose in the 12 months prior to their interviews. A number of residents reported hunting in those 12 months, but were not successful. The locations of Nuiqsut most recent moose harvests are shown on Map 116. A number of harvests were located along the upper Colville and Chandler rivers. Residents also reported successful harvests farther north, including one near the mouth of Itkillik River. Nuiqsut hunters described their most recent harvests occurring near Sentinel Hill, Umiat, along Chandler River, on Itkillik River, and near Ocean Point:

> *[Last harvest at] Umiat, right about here, right below [Umiat]. One moose, about seven of us [hunting]. The moose that we got this year, [second respondent] was in the boat when we dropped [the caribou] right by the river. Beause we dropped by the river, we didn't have to pack it very far.* (SRB&A Nuiqsut Interview November 2006)

> *Down past Sentinel Hill. This year, the first moose I got was in August, about a mile from the river bank [Colville]. It took about 10 and a half hours to pack. There was only five of us and two moose. That was a first.* (SRB&A Nuiqsut Interview November 2005)

> *This year I got four moose. One, I got somewhere out there [pointing to map]. That was summer. We went further down, and I saw a moose. There is an old airstrip, and I spotted a moose. We kept going down by the [Colville] river, and that is were we got our first moose [near Ocean Point]. That was just with my wife and two of my boys, a day trip. Six hours total.* (SRB&A Nuiqsut Interview November 2005)

Map 116 - Nuiqsut Moose Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
26 use areas reported by 22 respondents

Most Recent Harvest Locations

10 harvest locations reported by 9 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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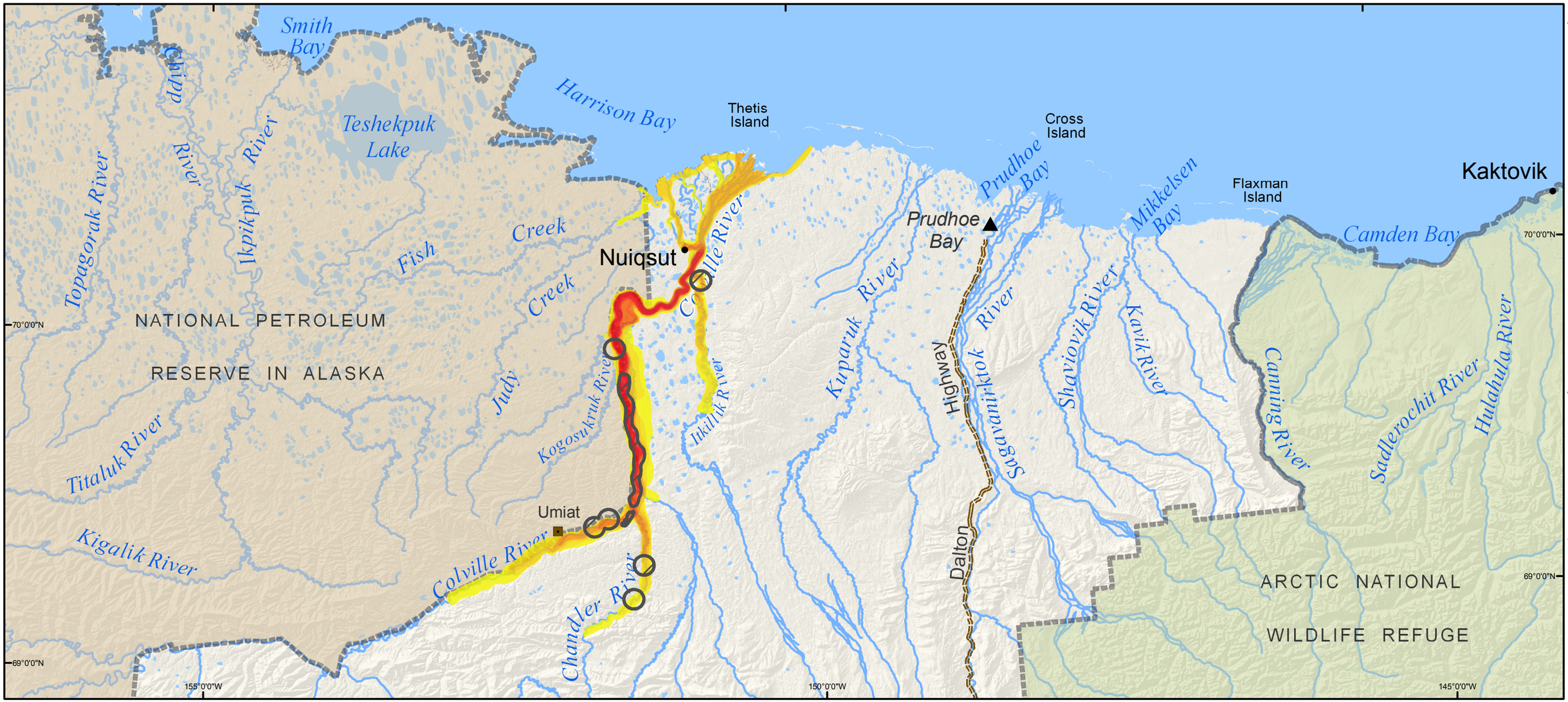


July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

We came up in here around Ocean Point, and that is where we got two young bulls. It would be along from [just above Ocean Point] south. And then our next moose we caught was up on Chandler River. That was about a week later. That was about 13, 12 ½ miles up. It was on the west side. There was six of us, three in each boat. We were camping right at the mouth of the Chandler. When we go for the big bulls, we camp right at the Chandler; we get up early in the morning. You can just stay there, and the caribou just come to you. We got one moose. We were trying to find the biggest one. (SRB&A Nuiqsut Interview November 2006)

The last moose I got was up in Chandler area. A few bends, up to the bottleneck. Last year. It was kind of a bad place for moose hunting; it is too bushy. We get a lot of rabbits in there. We see a lot of them. There were four of us, a four day trip. We got one moose. That was the time we saw 13, 14 moose in one bottleneck. It was just hard to get to them because of the willows. (SRB&A Nuiqsut Interview November 2006)

Number of Participants

As Table 108 shows, Nuiqsut respondents reported two or more participants at all most recent moose harvests. Sixty percent of most recent moose harvest locations had four or more participants and 40 percent of moose harvest locations had two to three participants. Residents did not report taking solo trips to hunt moose.

Table 108: Nuiqsut Number of Participants During Most Recent Moose Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	40%
4 or more people	60%
Number of Most Recent Harvest Locations	10

Stephen R. Braund & Associates, 2010.

Duration of Trip

Nuiqsut respondents reported that 80 percent of their most recent moose harvests occurred during trips lasting either two to five nights (40 percent) or one to two weeks (40 percent) (Table 109). A smaller percentage of most recent harvests took place during trips lasting one night (10 percent) or during same day trips (10 percent). Residents generally reported taking extending hunting and camping trips along the Colville River each fall, looking for moose and caribou along the way. A number of respondents reported focusing on moose farther upriver such as near Chandler River, a distance which requires extended stays. Describing his most recent moose hunting trip, one respondent said,

That was a day and a half trip. We went out two days travel, without sleep. The next moose we got [here], and that was just with my wife and two of my boys, a day trip. Six hours total. (SRB&A Nuiqsut Interview November 2005)

Table 109: Nuiqsut Duration of Trips to Most Recent Moose Harvest Areas

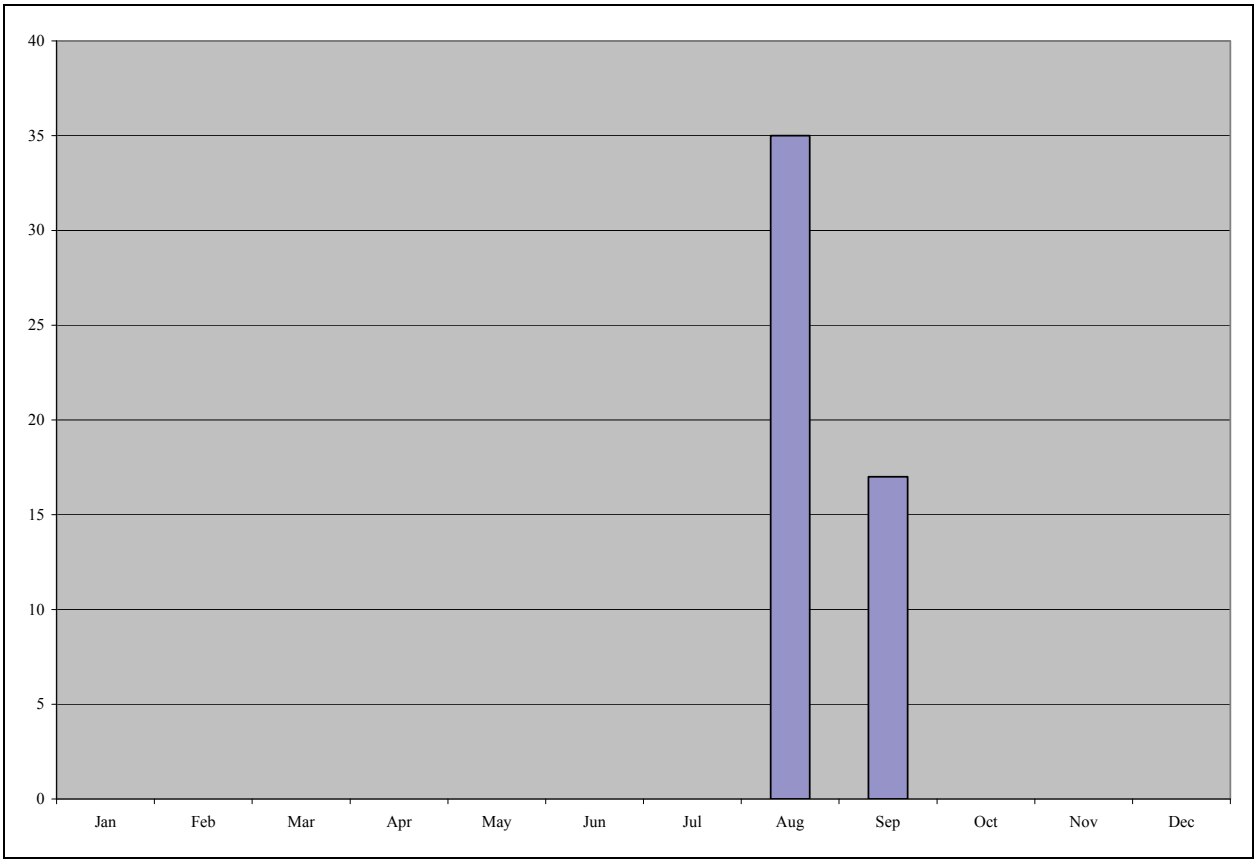
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	40%
2-5 nights	40%
1 night	10%
Same day	10%
Number of Most Recent Harvest Locations	10

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Residents reported hunting moose during the open season in the fall. Specifically, respondents reported hunting moose in the fall along the Colville River in August and September (Figure 39).

Figure 39: Nuiqsut Use Areas for Moose by Month



Stephen R. Braund & Associates, 2010.

While some residents reported accessing moose use areas in September, others reported returning to the community in time for the fall bowhead whale hunt. One individual explained that after the moose hunt was limited to the taking of bulls, the regulated hunting season was expanded. Several respondents described the moose hunting season as follows:

> *August. We only have one month for moose season. It used to be one month and now it's a month and a half, because it takes longer to get bull moose.* (SRB&A Nuiqsut Interview November 2005)

> *August we got moose and caribou. August they go out for moose. If you see a caribou and you see no moose, you have to get a caribou.* (SRB&A Nuiqsut Interview November 2006)

> *There is a season in the fall time. Usually you want to try and get them last week of August and 1st week of September; they have a lot of fat on them and they are not rutting. I did look last year, but didn't get any.* (SRB&A Nuiqsut Interview December 2006)

Method of Transportation

As moose hunting occurs exclusively during the fall months, residents travel by boat to 100 percent of moose use areas. Residents also reported hiking substantial distances inland from riversides to harvest moose. While individuals generally reported boat as the primary mode of travel to moose hunting areas, one respondent reported traveling by foot as a primary travel method in addition to boat (Table 110).

Table 110: Nuiqsut Method of Transportation to Moose Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	0%
Four-wheeler	0%
Boat	100%
Foot	3%
Plane	0%
Car/truck	0%
Number of Use Areas	36

Stephen R. Braund & Associates, 2010.

Harvest Gear

Residents reported using several different rifle calibers for hunting moose. Similar to caribou hunting, hunters use different rifles depending on the circumstances. The .243 and .30-06 were the two most frequently reported rifle calibers used for hunting moose, at 50 percent and 30 percent of harvesters, respectively (Table 111). Other rifle calibers reported for hunting moose were the .270, 7mm, .22-250, .300 magnum, and .222.

Table 111: Nuiqsut Moose Harvest Gear

Rifle Caliber	Number (%) of Harvesters
.243	10 (50%)
.30-06	6 (30%)
.270	4 (20%)
7mm	3 (15%)
.22-250	3 (15%)
.300 mag	2 (10%)
.222	2 (10%)
.223	1 (5%)
.25-06	1 (5%)
.22 mag	1 (5%)

Stephen R. Braund & Associates, 2010.

Arctic Cisco

Nuiqsut is situated in a unique location for harvesting Arctic cisco (*qaaktaq*), in that the Colville River plays an important role in the life cycle of the fish. Whereas the majority of Arctic cisco originate in the Mackenzie River, each spring a large number of young Arctic cisco travel to the Beaufort Sea; a substantial portion of these fish end up in the Colville River. These fish over-winter in the Colville River and stay in the Colville River area, traveling to the Beaufort Sea to feed during the summer months, for approximately seven years. After they have reached sexual maturity, they return to the Mackenzie River to spawn, and stay in the Mackenzie River area for the duration of their lives. The number of Arctic cisco that make it to the Colville River each year depends largely on easterly wind conditions.

Arctic cisco is an important subsistence resource for the residents of Nuiqsut and is a major source of food in the community. Harvesting Arctic cisco with nets under the ice is a regular seasonal activity in which the majority of households participate. Each of the 33 Nuiqsut respondents reported harvesting Arctic cisco in the last 10 years and in the last 12 months (Tables 5 and 6). Respondents reported more use areas for Arctic cisco than for any other fish resource. Thirty-two residents (97 percent of respondents) reported successful harvests of Arctic cisco in the 12 months previous to their interveew (Table 7).

Subsistence Use Areas

Last 10 year Arctic cisco use areas are depicted on Map 117 and show nearly all Arctic cisco harvesting activities occurring in the Colville River delta, including Nigliq, Kupigruak, and Elaktaveach channels as well as the easternmost channel of the delta. Last 10 year harvests of Arctic cisco were also reported in a lake south of Nuiqsut (Map 117). The total last 10 year Nuiqsut use area for Arctic cisco, as shown on Map 117, is 19 square miles.

Residents generally reported specific places, including designated fish camps, where they set nets for Arctic cisco and other species of fish. Nanuk Lake, near the Alpine development, was mentioned by a number of people as a primary fishing spot. Some reported harvesting Arctic cisco close to the community and checking their nets from town on a daily basis, while others described staying at fish camps complete with cabins, drying racks, and ice cellars. Residents generally reported targeting Arctic

Maps 117, 118, 119 - Nuiqsut Arctic Cisco Use Areas, Last 10 Years (1995-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Arctic Cisco Subsistence Use Areas and Harvest Locations

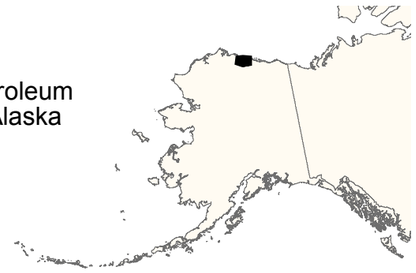
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

0 5 10 20 Miles

0 5 10 20 Kilometers

N



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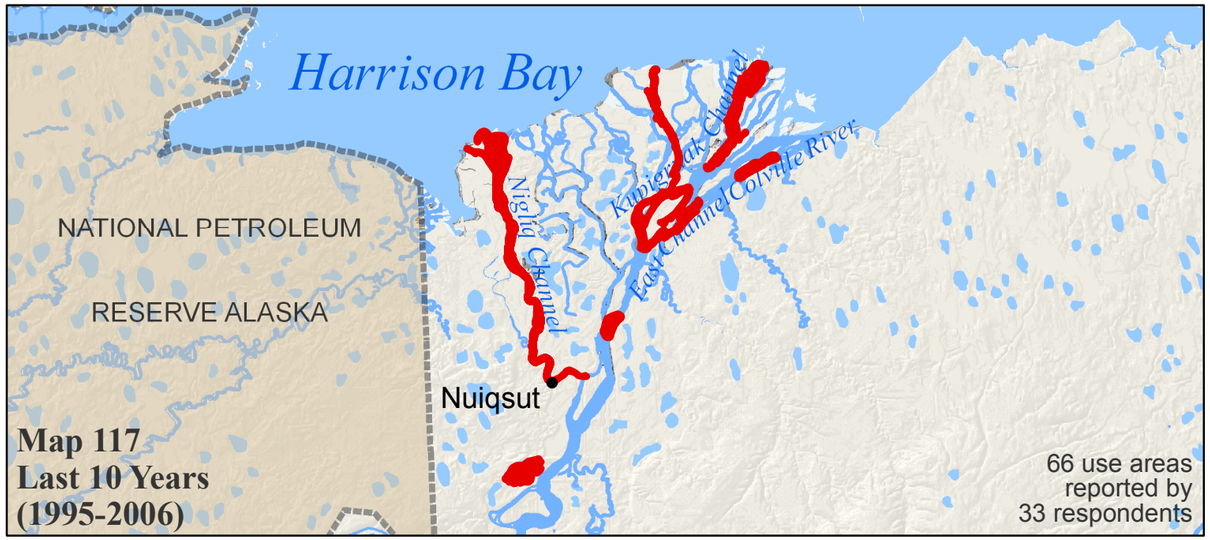
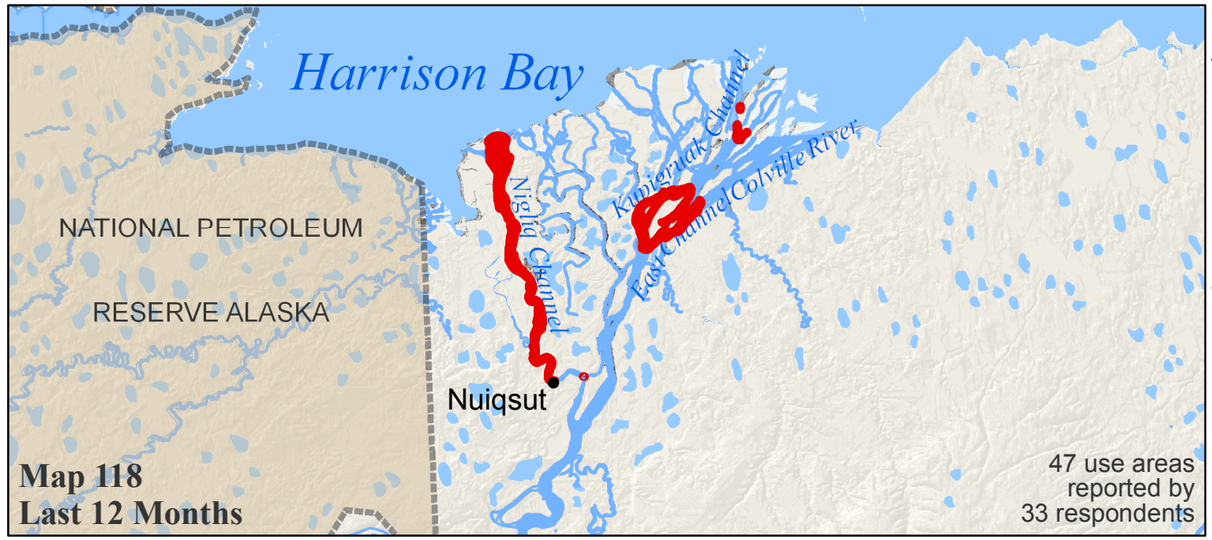
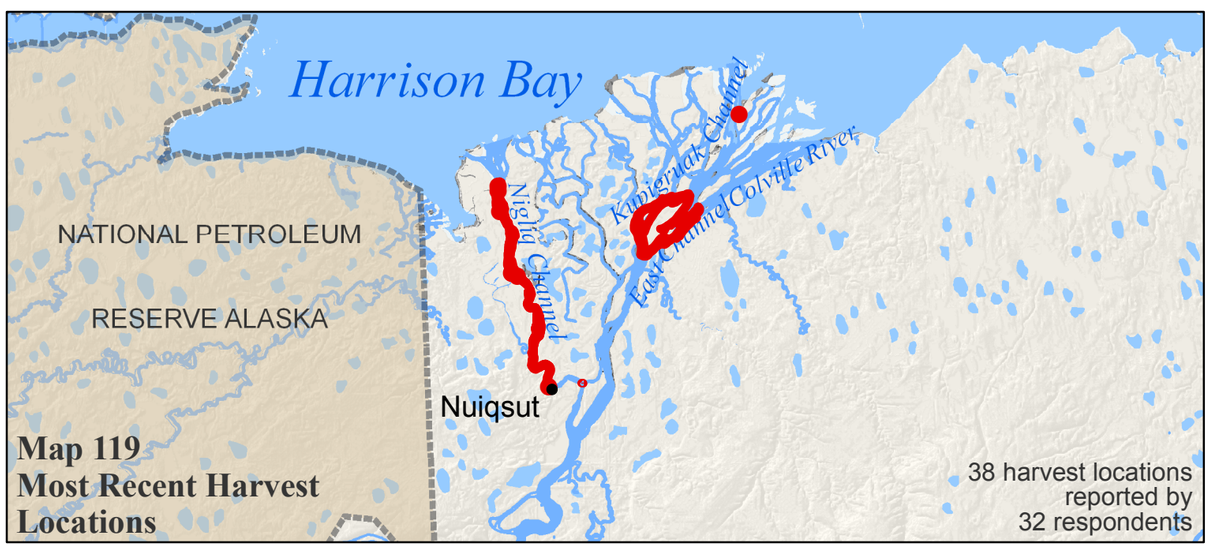






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

cisco, but harvest other species of fish that swim into their nets. A number of residents reported setting nets closer to the mouth of the Colville River early in the season, and then moving their nets closer to the community as the season proceeds. Several people also mentioned harvesting Arctic cisco closer to the community in recent years due to high gas prices. Nuiqsut respondents provided the following descriptions of their last 10 year Arctic cisco use areas:

> *[I harvest Arctic cisco] from the Colville down the Nigliq channel all the way to the mouth. And the old Nuiqsut site by the delta from right here.* (SRB&A Nuiqsut Interview November 2005)

> *After whaling, when they come early, I put a net out near the cabin at Nigliq. Down there first, then when [the ice] starts getting thicker, I move mine down here [closer to the village]. I used to have three different spots for Arctic cisco. After they slow down at the mouth, I move further up, then they slow down, and I move it further up and start catching them there.* (SRB&A Nuiqsut Interview November 2005)

> *A quarter mile away from the village. Other guys will head out in that direction, but I go there. Arctic cisco and least cisco and round whitefish and tomcods [with a] net. I walk. It's only like a 10 to 15 minute walk. [I go] as soon as the ice is thick enough to walk on.* (SRB&A Nuiqsut Interview November 2006)

> *Winter fishing I just go up the Nigliq Channel. Basically around Woods camp. Just right off the cabins, this year was straight down. [I catch]* qaaktaq*, Arctic cisco. Mostly in October and November, that is the months I go for* qaaktaq. *[I travel by] snowmachine and later on in the season by truck. Mostly snowmachine, basically.* (SRB&A Nuiqsut Interview November 2006)

> *That is nearby Alpine. They were thinking of building a bridge and putting a pipeline over or under this square where the village is putting their fishnets in the lucky spot, their favorite spot; there are always more than 10 to 20 fishnets there. That is the lucky spot [for* qaaktaq*]. We look for Arctic cisco where they travel along; we look for them. We move along either way going downstream. We don't just keep them [nets] in one spot.* (SRB&A Nuiqsut Interview November 2006)

Nuiqsut residents' last 12 month Arctic cisco use areas are depicted on Map 118 and are located along Nigliq Channel, Kupigruak Channel, and the east channel of the Colville River delta. The total last 12 month Nuiqsut use area for Arctic cisco, as shown on Map 118, is nine square miles. Residents described their last 12 month Arctic cisco use areas as follows:

> *Anywhere along here, then we passed here. We try not to go in front of these cabins; those are someone else's [cabins]. Last year we camped at my mother's cabin. This year we have five [nets here] at the first of the [season]; it was right over there, and we went over to the bank. We had five of them. We usually have so many [nets] out because we send fish to the elders in Barrow. In the end of November, we usually have two. Last year we kept them out until December. Last year we had eight nets out; we were providing for eight households last year.* (SRB&A Nuiqsut Interview November 2005)

> *Right at Nigliq area, for whitefish [Arctic cisco]. Now, we start at first freeze up, whenever it is thick enough to get on the ice…. Basically I hit every fishing spot every year. For the whitefish [Arctic cisco] it would be Nigliq Channel there. We got four nets out right now in that area. Me and my brothers take turns checking the nets. We get about 400 a day. Last week we got 385 on one net and 12 or 13 on another net.*

Whichever net is the first one gets the most and the mesh size makes a difference. [It was a] day [trip]. I think by next week our netting would be finished; we don't want to get too much. (SRB&A Nuiqsut Interview November 2006)

Last year, me and my son did [harvest cisco] by Nanuk Lake, but mainly by the village. Fall time, October. We just [take a] day trip and come back. [Last time] was five days ago. One hour, a couple hours maximum. (SRB&A Nuiqsut Interview November 2005)

I do mainly nets in the main channel; if there are too many nets I'll go here. Last year I put my nets in the river, in walking distance [from Nuiqsut]. Through September, whenever the river freezes up to early November. Right here [I use] a snowmachine, but right out here I'll use my truck. (SRB&A Nuiqsut Interview November 2005)

Most Recent Harvest

Harvest Locations

Nuiqsut respondents' most recent Arctic cisco locations are depicted on Map 119. Most recent harvests were located along the majority of Nigliq Channel and in parts of Kupigruak Channel and the east channel of the Colville River. Because the majority of interviews occurred in November of 2005 and 2006, residents often were in the midst of their most recent Arctic cisco harvest season. Individuals generally reported the current location of their nets. They provided the following descriptions of their most recent harvests:

Just the Nigliq Channel. I put my net out there. I got 96 and that was last night. [It took] about an hour and a half. (SRB&A Nuiqsut Interview November 2005)

Right by CD4, right where they are trying to make that bridge, that is the hottest spot to go across. About 84 [last harvest]. (SRB&A Nuiqsut Interview November 2006)

Fall time is qaaktaq*, the cisco, in the Nigliq channel, and at the mouth and by the cabins this year. Last year I did set my nets there and the previous years I have been setting them. Last time I got, it was good, I want to say 311. I will have to check my log book at home, to keep track of fish for LGL, they started a new program, they give us opportunity to keep track of our harvest. And I am pretty sure I got 311 and day before that I got 240. I was doing real well, well enough to pull the nets out. A lot of fish, years ago when I had a dog, I use to try to get at least 1000. About half of that was herring. Not the Arctic cisco, that is really good dog food, and they get caught in the net anyway, so you work to get them out and found out too that if you feed them a lot of fish and the dogs get really big and when you go to pet them you have a lot of fish oil.* (SRB&A Nuiqsut Interview December 2006)

Number of Participants

As Table 112 shows, the majority of Nuiqsut respondents' most recent Arctic cisco harvests involved fewer than four participants. More that half of their most recent Arctic cisco harvests were carried out by two to three people, and 34 percent of most recent harvests were carried out by one person (Table 112).

Duration of Trip

As depicted on Maps 117 through 119, Nuiqsut use areas for Arctic cisco are located relatively close to the community. Because of this close proximity of Arctic cisco harvest locations to the village, residents generally take same day trips to Arctic cisco harvest locations (Table 113). During interviews, residents

described taking day trips to more than three quarters (78 percent) of most recent harvest areas. Some residents also reported checking their cisco nets more than once in one day. One resident described,

> *I check my nets every day. Some people don't check for days; that's not good. Got to check it every day, mornings and evenings.* (SRB&A Nuiqsut Interview November 2005)

Although most residents visit their cisco harvest locations on a daily basis, there are Arctic cisco fish camps north of the village on the Colville River delta where residents spend anywhere from three days to more than two weeks fishing for cisco. As Table 113 shows, Nuiqsut residents spent extended stays of three days or more at 21 percent of their Arctic cisco harvest locations.

Table 112: Nuiqsut Number of Participants During Most Recent Arctic Cisco Harvests

Number of Participants	Percentage of Harvest Locations
1 person	34%
2-3 people	55%
4 or more people	11%
Number of Most Recent Harvest Locations	38

Stephen R. Braund & Associates, 2010.

Table 113: Nuiqsut Duration of Trips to Most Recent Arctic Cisco Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	5%
1-2 weeks	5%
2-5 nights	11%
1 night	0%
Same day	78%
Number of Most Recent Harvest Locations	37

Stephen R. Braund & Associates, 2010.

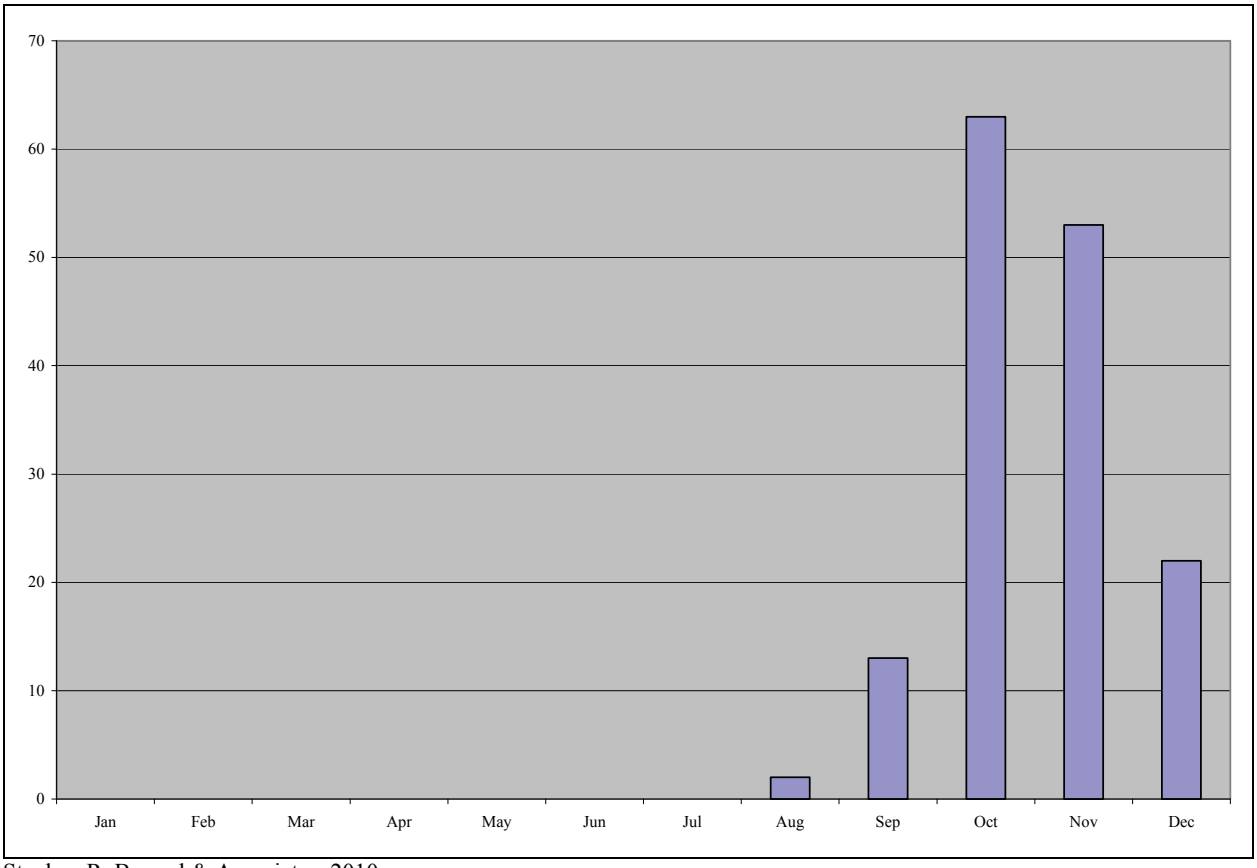
Months of Harvest Effort

Residents reported accessing Arctic cisco use areas primarily in October and November with fewer use areas reported in December and as early as August and September (Figure 40). Two residents described their Arctic cisco fishing seasons as follows:

> *When we get Arctic cisco, that is the best fish we like, we mostly like to eat* qaaktaq *because it is more tasty, more meat. Nearby Alpine, sometime October or November all the way to December, depends on how the river ice is getting thicker and thicker and when ice gets thicker we stop fishing, and some people keep fishing, and when ice gets four to five feet thick they even keep on fishing.* (SRB&A Nuiqsut Interview November 2006)

Now, we start first freeze up, whenever it is thick enough to get on the ice. It would be end of September, first week of October. Just until the end of this month, first week of December. Because the ice is too thick. (SRB&A Nuiqsut Interview November 2006)

Figure 40: Nuiqsut Use Areas for Arctic Cisco by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Residents travel to nearly all (97 percent) Arctic cisco use areas by snowmachine since the resource is harvested primarily in October and November (Table 114). A small number of respondents noted that their use areas are so close to the village they can walk to check their nets. Several residents reported that when the ice and snow is thick enough, they are able to drive vehicles (such as trucks) to their fishing locations. Twelve percent of their Arctic cisco use areas were accessed in this manner. One resident explained that he uses a snowmachine until the ice is thick enough to support his vehicle. He said,

I went down there last night with my truck. I take a snowmachine, and this time of year, when the ice is thick enough for the truck [I can go with truck]. (SRB&A Nuiqsut Interview November 2005)

Table 114: Nuiqsut Method of Transportation to Arctic Cisco Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	97%
Four-wheeler	0%
Boat	5%
Foot	2%
Plane	0%
Car/truck	12%
Number of Use Areas	66

Stephen R. Braund & Associates, 2010.

Harvest Gear

All Nuiqsut harvesters (100 percent) who reported harvest gear for Arctic cisco described using gill nets strung under the ice (Table 115). Residents did not report any other form of fishing gear for Arctic cisco. One respondent said,

> *I normally get 20 in a net, this net is 8 ½ foot with 2 ½ inch mesh. I use 2 ½ mesh so I get a lot of fish. Last night I got about 19.* (SRB&A Nuiqsut Interview November 2006)

One individual reported using certain methods when setting his nets to cut down on setup later in the season. He described,

> *I get enough then I pull my nets, but as I pull them out I set a rope with weights and let it down on the river but leave the string up and if I need to go back I just poke the holes and reset the nets, because when you set your nets it is quite a bit of work. It is beneficial for future if I want to set it. One time deal, but second time around you only have to make two holes instead of 12-14 holes, because when those holes were initially made the ice was four inches thick but now it is two feet thick.* (SRB&A Nuiqsut Interview December 2006)

Table 115: Nuiqsut Arctic Cisco Harvest Gear

Gear	Number (%) of Harvesters
Nets	28 (100%)
Rod and Reel	0 (0%)
Jigging	0 (0%)

Stephen R. Braund & Associates, 2010.

Arctic Char/Dolly Varden

Arctic char/Dolly Varden (*paikłuk*/*iqalukpik*) harvesting is a relatively common activity among Nuiqsut harvesters, although harvests of these fish do not contribute as much to the total subsistence harvest in the community as other species of fish such as Arctic cisco and broad whitefish. Twenty-six Nuiqsut respondents (79 percent) reported fishing for Arctic char/Dolly Varden in the last 10 years. Eighteen

respondents (55 percent) reported attempting harvests of these fish in the last 12 months (Tables 5 and 6). Sixteen of these respondents reported successful harvests (Table 7). Nuiqsut residents generally harvest Arctic char/Dolly Varden separately from Arctic cisco, targeting them in the summer and fall before freeze up. Some harvests of Arctic char/Dolly Varden occur while residents travel along local rivers by boat to hunt moose and caribou. Harvests occur during the summer when residents set nets for various species of fish including salmon and broad whitefish.

Subsistence Use Areas

As depicted in Map 120, last 10 year Arctic char/Dolly Varden use areas are located along the Colville River between the delta and beyond Chandler River, as well as along Anaktuvuk River and Fish Creek. The total last 10 year Nuiqsut use area for Arctic char/Dolly Varden, as shown on Map 120, is 39 square miles. Residents generally described traveling along the Colville River by boat during the summer, often while hunting for moose or caribou, and fishing for Arctic char/Dolly Varden with rod and reel or net. Residents commonly reported harvesting Arctic char/Dolly Varden south of Nuiqsut along the Colville River. In particular, a number of people reported fishing for Arctic char south of Ocean Point near Sentinel Hill and Chandler River. Nuiqsut residents also reported setting nets or fishing with rod and reel close to Nuiqsut and in Nigliq Channel. Respondents provided the following descriptions of their Arctic char/Dolly Varden use areas:

> *In the summer time we take the boat to Ocean Point, for the graylings at any little waterfall. And for the char it is here [south of Ocean Point]. From end of July until the end of August. Basically I hit every fishing spot every year. [Last year] there was about three to five guys per boat, camping. We go a couple days and come back home and then go again. In August we hardly get any; this year we had a lot of high water and pushed up all the sand. We use nets and the fishing pole; the current is a little too strong to put out a net.* (SRB&A Nuiqsut Interview November 2006)

> *[I fish for char in] just the main [Colville River] channel. During the time of moose season. You've got to find a spot; you've got to go looking for it. In this channel you've got to look for them. [I go] just in that channel [main Colville River channel].* (SRB&A Nuiqsut Interview November 2005)

> *[We go fishing for Arctic char] from Nuiqsut up to Sentinel Hill. I'm really only fishing for char right here where that short cut [past Ocean Point] ends; actually I pass Sentinel [Hill]. Those are fun.* (SRB&A Nuiqsut Interview November 2005)

> *Around Chandler, reel fishing. Right at the mouth of Chandler. Salmon, trout, rainbow trout, silver salmon, pike, grayling, Arctic char.* Tittaaliq [*burbot*]. *During September and August; September during moose season.* (SRB&A Nuiqsut Interview November 2006)

Nuiqsut last 12 month Arctic char/Dolly Varden use areas are depicted on Map 121. Residents reported fishing for Arctic char/Dolly Varden south along the Colville River to Sentinel Hill and near the mouth of Chandler River, and north of the community at several places along Nigliq Channel. The total last 12 month Nuiqsut use area for Arctic char/Dolly Varden, as shown on Map 121, is 15 square miles.

Most Recent Harvest

Harvest Locations

Sixteen Nuiqsut respondents reported successful harvests of Arctic char/Dolly Varden during the 12 months prior to their interviews. Map 122 depicts the locations of these harvests, which occurred south along the Colville River to Sentinel Hill and at the mouth of Chandler River and at several locations north

Maps 120, 121, 122 - Nuiqsut Arctic Char/Dolly Varden Use Areas, Last 10 Years (1995-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic Char/Dolly Varden Subsistence Use Areas and Harvest Locations

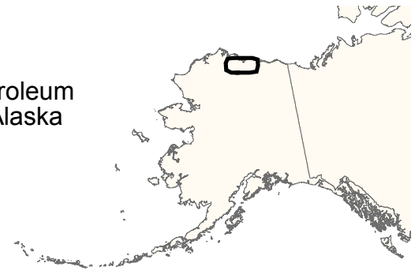
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

0 25 50 100 Miles

0 25 50 100 Kilometers

N



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Map 120
Last 10 Years (1995-2006)

Map 121
Last 12 Months

Map 122
Most Recent Harvest Locations

Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

of the community on Nigliq Channel. Residents provided the following descriptions of their most recent harvest locations:

> *I did put a net here this fall right up above the village, this first bend here. This fall I caught a couple of Arctic char. This was summer before freeze up, September, fall time.* (SRB&A Nuiqsut Interview December 2006)

> *I only go down to Chandler during moose season. Last moose season I got two Arctic char and one rainbow. There were about 12 of us. We were gone about four days. That was late September. Rod and reel.* (SRB&A Nuiqsut Interview November 2006)

> *[The last char we got was] a little further up from the Sentinel Hill. The whole family [went], five boys, my granddaughter, my wife, my sister in law and two dogs. It was a day trip, we were actually moose hunting at the same time.* (SRB&A Nuiqsut Interview November 2005)

> *We don't get char in fall time; we get it in summer. This summer maybe we get four or five [char]. We didn't get very much Arctic char this year because it varies. Right on Nigliq channel, here is Nanuk Lake, and Nigliq Channel, her camp is right close to the map.* (SRB&A Nuiqsut Interview November 2006)

Number of Participants

Eighty-eight percent of Nuiqsut residents who harvested Arctic char/Dolly Varden in the last 12 months described visiting their most recent harvest locations in groups of two or more people with 50 percent of most recent harvests having four or more participants (Table 116). Harvest trips with one participant occurred at only 13 percent of their most recent harvest areas. Harvests of Arctic char/Dolly Varden often occur during extended trips with family members. One respondent described fishing with his immediate and extended family, saying, "The whole family went: five boys, my granddaughter, my wife, my sister in law and two dogs" (SRB&A Nuiqsut Interview November 2005).

Table 116: Nuiqsut Number of Participants During Most Recent Arctic Char/Dolly Varden Harvests

Number of Participants	Percentage of Harvest Locations
1 person	13%
2-3 people	38%
4 or more people	50%
Number of Most Recent Harvest Locations	16

Stephen R. Braund & Associates, 2010.

Duration of Trip

The duration of trips reported for Nuiqsut respondents' most recent Arctic char/Dolly Varden harvests varied from same day trips (25 percent) to trips lasting longer than two weeks (25 percent). Thirteen percent of most recent harvests occurred on trips lasting between one and two weeks (Table 117). The most commonly reported trip length for Arctic char/Dolly Varden was between two and five nights, at 38 percent of most recent harvest areas. One resident reported harvesting Arctic char/Dolly Varden while

moose hunting and said, “It was a day trip. We were actually moose hunting at the same time” (SRB&A Nuiqsut Interview November 2005).

Table 117: Nuiqsut Duration of Trips to Most Recent Arctic Char/Dolly Varden Harvest Areas

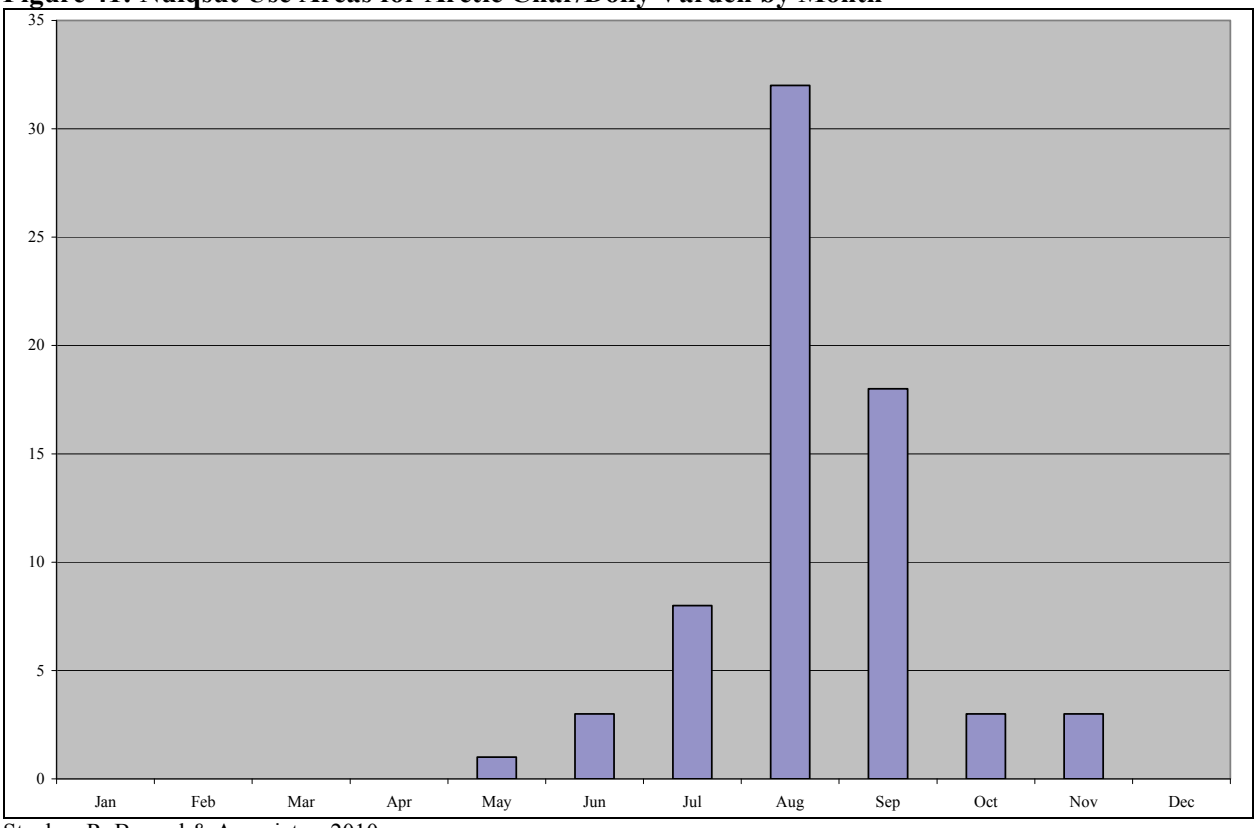
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	25%
1-2 weeks	13%
2-5 nights	38%
1 night	0%
Same day	25%
Number of Most Recent Harvest Locations	16

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

The primary months during which residents of Nuiqsut reported accessing Arctic char/Dolly Varden use areas are August and September, although residents reported nearly twice as many use areas in August than in September (Figure 41). Peripheral months for accessing Arctic char/Dolly Varden use areas include May, June, July, October, and November. Several people mentioned harvesting Arctic char/Dolly Varden during other subsistence pursuits. Two fishing partners said they fish for Arctic char in “August, September, during moose season” (SRB&A Nuiqsut Interview November 2005).

Figure 41: Nuiqsut Use Areas for Arctic Char/Dolly Varden by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Nuiqsut residents reported traveling to 95 percent of their Arctic char/Dolly Varden use areas by boat (Table 118). This is consistent with the data above showing that residents harvest Arctic char/Dolly Varden in August and September and as early as June and July. As some fishing reportedly extends into October and November, individuals reported using snowmachines to travel to seven percent of their Arctic char/Dolly Varden use areas.

Table 118: Nuiqsut Method of Transportation to Arctic Char/Dolly Varden Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	7%
Four-wheeler	0%
Boat	95%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	43

Stephen R. Braund & Associates, 2010.

Harvest Gear

Residents reported using both rod and reel and nets to harvest Arctic char/Dolly Varden. Of the respondents who reported fishing gear, 15 (71 percent) used a rod and reel (Table 119). Thirteen respondents (62 percent) reported using nets to harvest Arctic char/Dolly Varden. Several harvesters indicated that they use nets to catch the bulk of Arctic char they need and use a rod and reel for recreational fishing. One resident said, "I like the nets, rod is for fun" (SRB&A Nuiqsut Interview November 2005). Another resident noted,

> *Sometimes I'll fish with rod and reel, kind of sports fishing. Usually in the late fall, I'll set a net to see if I can find them. But rod and reel is right there [near Sentinel Hill].* (SRB&A Nuiqsut Interview November 2005)

Table 119: Nuiqsut Arctic Char/Dolly Varden Harvest Gear

Gear	Number (%) of Harvesters
Rod and Reel	15 (71%)
Nets	13 (62%)
Jigging	0 (0%)

Stephen R. Braund & Associates, 2010.

Broad Whitefish

Similar to Arctic cisco, broad whitefish (*aanaakliq*) is an important resource that contributes highly to residents' yearly subsistence harvests. Harvests of broad whitefish usually occur separately from the main Arctic cisco harvest, which generally occurs after freeze up, although some reported harvesting these two species of fish together. Residents most often fish for broad whitefish before freeze up by net, in concert

with harvests of other species of fish. Several individuals described using summer harvests of broad whitefish to make dried fish. One resident described the typical harvests and uses associated with broad whitefish, saying,

> *What we do is try to get at least 100* aanaakliqs *in July and cut and hang the racks and dry fish ¾ of that and the rest in the [ice] cellar. I like to get at least 100, sometimes a little bit more. I find that a lot of times it will be funerals and so what we do, any fish we will cut up and bring to the families, because they have a lot of people who come in for the funerals, and we try to keep that in mind, for my neighbors too.* (SRB&A Nuiqsut Interview December 2006)

During interviews, 26 of 33 Nuiqsut respondents (79 percent) reported fishing for broad whitefish in the last 10 years and 21 harvesters (64 percent) did so in the last 12 months (Tables 5 and 6). Twenty Nuiqsut residents reported successful harvests of broad whitefish at 22 most recent harvest locations (Table 7).

Subsistence Use Areas

Nuiqsut last 10 year broad whitefish use areas are shown on Map 123. In the last 10 years, residents of Nuiqsut reported harvesting broad whitefish along the Colville River between the mouth and the Sentinel Hill area, Fish Creek, Itkillik River, Chipp River, and in some area lakes. The total last 10 year Nuiqsut use area for broad whitefish, as shown on Map 123, is 33 square miles.

Residents reported fishing for broad whitefish both in Nigliq Channel and in the easternmost channel of the Colville River delta. In particular, Nuiqsut harvesters commonly reported setting nets for broad whitefish in Nigliq Channel, south of Nuiqsut along the Colville River, especially close to the mouth of Itkillik River, and in Fish Creek. Several people described staying at fish camps Fish Creek during the summer months to put up broad whitefish. Residents described,

> *Early fall, you go grayling fishing and get* aanaakliq *[broad whitefish] right there [close to Nuiqsut]. [With] snowmachine, I go straight out there in the early fall. In the summertime, down here. But I like to fish down at Fish Creek. I always go over here. When I'm working I go right there [closer to Nuiqsut], but on the weekends I go to Fish Creek. On the weekend, we go down to Fish Creek for two, three days.* (SRB&A Nuiqsut Interview November 2005)

> *This time of year we go for cisco and whitefish. We go right at Fish Creek, for* aanaakliq. *We mostly do that in summer time, July, and if we don't get enough we go around this time, October, November. If we want dry fish, we go over to Fish Creek for a week or two. We stay by the cabins but in a tent. Just right after the bend on the north side. I haven't done that in a few years; my parents did though. We don't go too far because the gas is so costly.* (SRB&A Nuiqsut Interview November 2006)

> *Also at Fish Creek. We don't go to Fish Creek in June, [go in July] because we wait for ice to flow out to ocean and we wait for river to clear up as well. [We] make dry fish at Fish Creek. We took fish home and dried them.* (SRB&A Nuiqsut Interview November 2006)

In addition to harvesting broad whitefish at Fish Creek during the summer months, a number of individuals reported setting nets for broad whitefish on Nigliq Channel during both the summer and fall, particularly near Nanuk Lake and CD2 [part of the Alpine Satellite Development]:

> *In the summer time I get them south of Nanuk [Lake] and on that sandbar near CD2. Right here around the point near Nanuk [Lake], especially near CD2. In the summer time we put one here. I had three nets with five inch mesh. I filled two buckets, 40.* (SRB&A Nuiqsut Interview November 2005)

Maps 123, 124, 125 - Nuiqsut Broad Whitefish Use Areas, Last 10 Years (1995-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Broad Whitefish Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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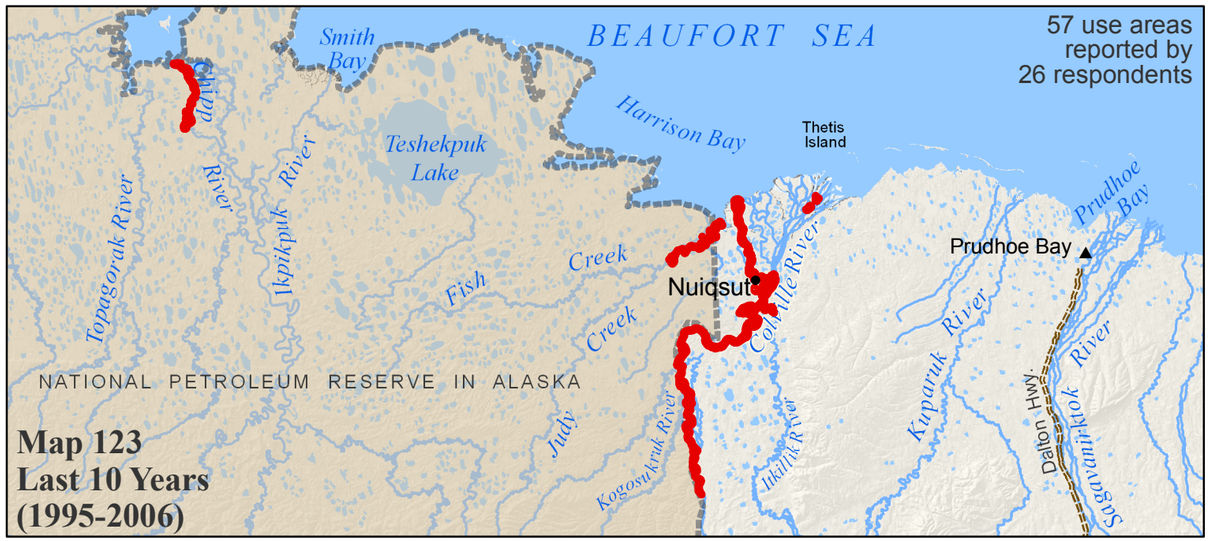
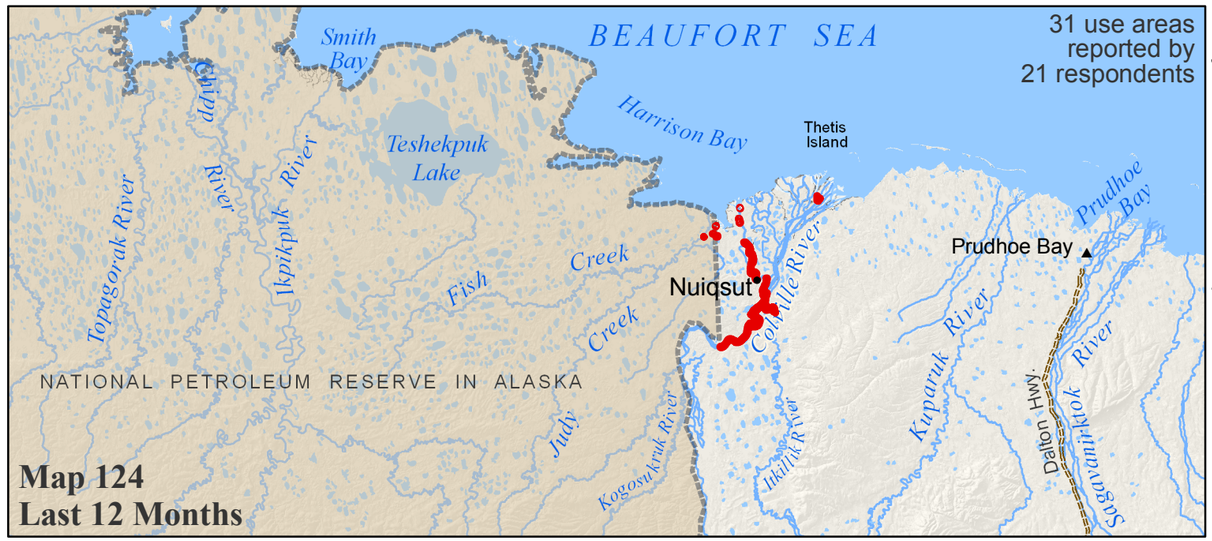
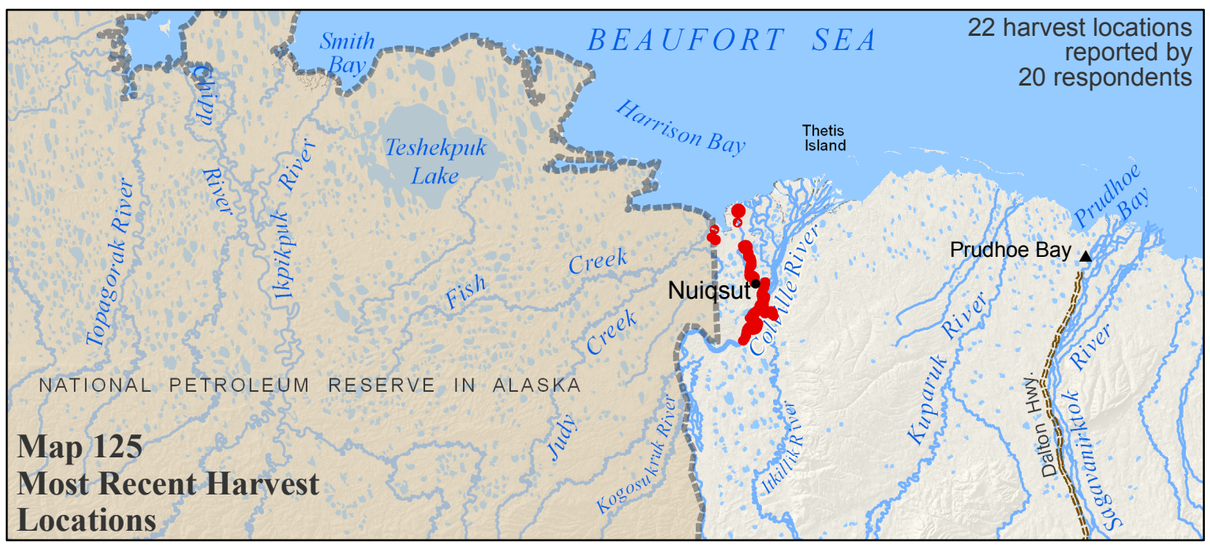






Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

All summer [we harvest whitefish] by boat, and that's in the same area at Nigliq Channel. Nanuk Lake, that's where I do all my whitefish. I haven't missed a year, as long as my Yamaha doesn't give up on me. (SRB&A Nuiqsut Interview November 2005)

And up the Nigliq Channel, about as far as Nanuk Lake a little ways. Up and down south from Nanuk. A little ways down there is a bend, and I set one net there. That is for whitefish in July and August, [by] boat. (SRB&A Nuiqsut Interview November 2006)

Another relatively common area for harvesting broad whitefish is along the Colville River close to the mouth of Itkillik River. Some local residents own cabins near Itkillik River, which serve as bases for certain subsistence activities, including the broad whitefish harvest. A few Nuiqsut harvesters also reported fishing for broad whitefish in nearby lakes. Residents provided the following additional descriptions of their broad whitefish harvest activities over the 10 year previous to interviews:

Almost the same area as the grayling but in between, Itkillik area. Late July and August, that is when they get real big, and they have a lot of eggs. (SRB&A Nuiqsut Interview November 2006)

I go about as far as there, past Itkillik. At the big sand bar there, all along there. Aanaakliq. *It varies, right at freeze up and then July and August, October. Boat [and] snowmachine, because it is all frozen by October.* (SRB&A Nuiqsut Interview November 2006)

I go [for broad whitefish] on lakes, everybody else goes on rivers. This, on Iragnikruaq, *'The Place of Clearness,' I like that. My mom has a cabin there, a small place. [We go in] September and October, September is when they have eggs. The elders like them.* (SRB&A Nuiqsut Interview November 2005)

[I catch broad whitefish in the lake], there's a big lake here [large lake on the west side of the Colville River south of the village]. There's a lot of fish here. I fish in this lake here with just a net all the time. Sometimes the fish like the lakes…. We go up the [Colville] river and then out [into the little sloughs]. There's a slough here; it's small and goes all the way to the lake [from the village]. We fish there in the summer time. (SRB&A Nuiqsut Interview November 2005)

In the 12 months prior to their interviews, Nuiqsut respondents reported fishing for broad whitefish along the Colville River between the mouth of the river and Ocean Point, in the mouth of Itkillik River, and in the lower portion of Fish Creek (Map 124). Residents did not travel as far south along Colville River as they had over the previous 10 years. The total last 12 month Nuiqsut use area for broad whitefish, as shown on Map 124, is seven square miles. Residents' descriptions of last 12 month broad whitefish harvest activities included the following:

Right around CD4 and Nigliq, that traditional camp right there. Arctic cisco and broad whitefish. Just those two. This time of year, November and October, when it first freezes up and [it is] safe to go on the ice. This year the fishing is really good, and it is really improving a lot more now than it has in the past. That is just about where I put my nets. (SRB&A Nuiqsut Interview November 2006)

It was just right off here [near Itkillik River]. Recently, too, I did that for a couple of days, and then I moved [the net]. For aanaakliq *[I travel] by boat. This year. Actually it was just June, two days, and then I moved [the net].* (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

The locations of Nuiqsut residents' most recent harvests of broad whitefish are depicted on Map 125. In the 12 months prior to their interviews, respondents' most recent harvests occurred in Fish Creek, in Nigliq Channel, along the main Colville River past Itkillik River, and in the mouth of Itkillik River. Describing their most recent harvests of broad whitefish, residents said,

> *Sometimes we put our* aanaakliq *fish net down. We got some this summer, four to five sacks. Like about 60 in a sack. August, before winter. We take turns, like me and my mother, when she wants to come along, she likes to come out boat riding; she doesn't like to sit at home and watch TV, me and my brother take turns.* (SRB&A Nuiqsut Interview November 2006)

> *Just this fall, early October, we try to catch them before they spawn their eggs. I went just with a buddy of mine. I got 31.* (SRB&A Nuiqsut Interview November 2006)

> *We were there [at Fish Creek] for four days this time. [We got] about 100. There were three [participants], my wife and my boy.* (SRB&A Nuiqsut Interview December 2006)

> *Fish camp is summer time only. I just go over here [Fish Creek].* Aanaakliq. *Lots of them. Summer. July, after July 4th, last part of June sometimes. I did go couple of weeks but we hardly catch any, high tide all summer [2006]. Last years I get maybe 100-200 on a weekend; when I set all my nets out. Just on the weekend. We only got about maybe 20-30 this last time because of the high tides. I don't over harvest the meat.* (SRB&A Nuiqsut Interview November 2006)

Number of Participants

As shown in Table 120, Nuiqsut residents reported that nearly 60 percent of their most recent harvests involved two to three participants and 18 percent of their most recent harvests involved four or more participants (Table 120). Respondents took solo trips to only 23 percent of their most recent harvest locations.

Table 120: Nuiqsut Number of Participants During Most Recent Broad Whitefish Harvests

Number of Participants	Percentage of Harvest Locations
1 person	23%
2-3 people	59%
4 or more people	18%
Number of Most Recent Harvest Locations	22

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents reported taking day trips to 59 percent of their most recent broad whitefish harvest locations (Table 121). Residents also reported taking trips lasting between two and five nights for 23 percent of their most recent harvests. Only 18 percent of most recent broad whitefish harvests occurred during trips

lasting more than two weeks. One resident described traveling to check his nets "about three days a week" (SRB&A Nuiqsut Interview November 2005).

Table 121: Nuiqsut Duration of Trips to Most Recent Broad Whitefish Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	18%
1-2 weeks	0%
2-5 nights	23%
1 night	0%
Same day	59%
Number of Most Recent Harvest Locations	22

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Nuiqsut residents reported accessing broad whitefish use areas between May and November (Figure 42). The peak fishing season for broad whitefish occurs from June through August with the highest number of use areas accessed in July. Several individuals commented that they wait until the rivers begin running clear in the summer, usually in July, before they set their nets. Respondents also described harvesting broad whitefish during the late fall, particularly in October, when their nets are set for Arctic cisco. Two individuals provided the following comments describing their fishing activities during the summer and again in October:

> *We mostly do that in summer time, July and if we don't get enough we go around this time [October, November]. (SRB&A Nuiqsut Interview November 2006)*

> *We have nets around here, all the way to just around the bend. We had like three [last year]. We had our camp in July. We usually harvest whitefish in July and early October. (SRB&A Nuiqsut Interview November 2005)*

Method of Transportation

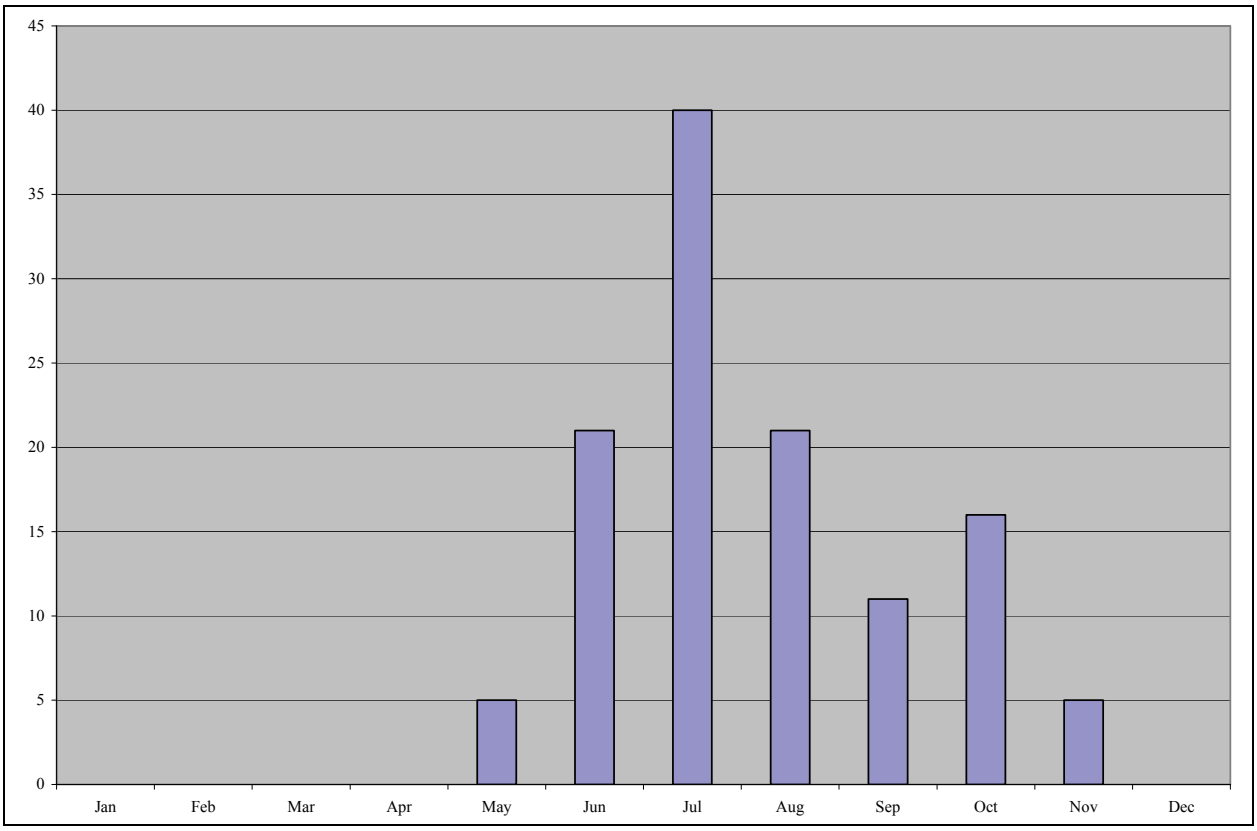
The methods of transportation used to access broad whitefish use areas closely reflect the months in which residents harvest these fish. The majority of broad whitefish harvests occur during the summer months by boat, although some individuals also reported harvesting broad whitefish after freeze up. Residents reported accessing 86 percent of their use areas by boat and 24 percent of use areas by snowmachine (Table 122).

Harvest Gear

One hundred percent of respondents reported using nets to harvest broad whitefish (Table 123). Residents generally set their nets in the open water during the summer months, although some also set nets under the ice after freeze up. Some individuals reported setting multiple nets during the season, in separate locations. As one individual described,

> *Net fishing the first week of July at the cabin, right off it. It [the cabin] is actually on the west side. Where I set my nets is the first bend downriver towards the mouth. And then the first bend up river. I set three nets, sometimes two, but the most I ever set is three.* (SRB&A Nuiqsut Interview December 2006)

Figure 42: Nuiqsut Use Areas for Broad Whitefish by Month



Stephen R. Braund & Associates, 2010.

Table 122: Nuiqsut Method of Transportation to Broad Whitefish Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	24%
Four-wheeler	0%
Boat	86%
Foot	2%
Plane	0%
Car/truck	0%
Number of Use Areas	58

Stephen R. Braund & Associates, 2010.

Table 123: Nuiqsut Broad Whitefish Harvest Gear

Gear	Number (%) of Harvesters
Nets	18 (100%)
Rod and Reel	0 (0%)
Jigging	0 (0%)

Stephen R. Braund & Associates, 2010.

Burbot

Fishing for burbot (*tittaaliq*) is a common winter time activity for Nuiqsut residents. As reported in Table 5, 30 harvesters (91 percent) reported fishing for burbot in the last 10 years. Twenty-six harvesters (79 percent) reported fishing for burbot in the last 12 months (Table 6). More respondents (30) reported last 10 year burbot use areas than any other fish resource except for Arctic cisco. Twenty-two Nuiqsut residents reported harvesting burbot in the 12 months prior to their interview (Table 7).

Subsistence Use Areas

Nuiqsut last 10 year burbot use areas, shown on Map 126, are located along the main channel of the Colville River just past the mouth of Itkillik River, along Nigliq Channel, at several locations on Fish Creek, and at the mouths of Chandler and Anaktuvuk rivers. The total last 10 year Nuiqsut use area for burbot, as shown on Map 126, is 11 square miles.

Residents generally reported jigging for burbot during the winter months or catching burbot in their nets while targeting other species of fish. Residents often travel to specific places during the winter to harvest burbot, as some areas are more successful than others. In particular, the Itkillik River was identified by numerous respondents as the primary burbot fishing area for local harvesters. Nuiqsut residents regularly reported traveling to the main Colville River channel and jigging for burbot inside the mouth of Itkillik River as well as at locations north and south of Itkillik River. Several people identified a small island north of the mouth of Itkillik River near which local subsistence users harvest burbot. Residents provided the following descriptions of burbot fishing near Itkillik River:

> *I do all that at Itkillik [River], right at the mouth there. I do it every year; that's around March, when it gets a little warmer, but by truck we go there all the time, right on the river.* (SRB&A Nuiqsut Interview November 2005)

> *Right over here and right over here, right in the mouth of the Itkillik River. The only time we go jigging for burbot is in the winter. Those are the main spots where we go for burbot; those are sites that have been identified from way back.* (SRB&A Nuiqsut Interview November 2005)

> *At our camp on Itkillik, just right on the mouth of it and further north from there right about right here. That would be January and February, the whole winter 'til late April. That is why they make a road to there – that is the best spot for burbot. Biggest one I ever got was 56 inches. That was a big one.* (SRB&A Nuiqsut Interview November 2006)

> *Right here at this point [north of Itkillik] right on that east bank, ¼ mile of that is good fishing for* tittaaliq. (SRB&A Nuiqsut Interview December 2006)

> *I go to Tuigaruak Island [north of Itkillik River] on this side. That's the only place and at the cabin, those are the only places I go. One day I got 30 burbots in five hours. I give it away, I'm a whaler, that's my job is to give it away.* (SRB&A Nuiqsut Interview November 2005)

Residents also reported harvesting burbot closer to the community, along the Nigliq Channel, at Fish Creek, and, less commonly, farther upriver near Chandler and Anaktuvuk rivers. Some harvests occur while residents set nets for Arctic cisco and other fish species. Residents provided the following additional descriptions of their last 10 year burbot harvesting activities:

Maps 126, 127, 128 - Nuiqsut Burbot Use Areas, Last 10 Years (1995-2006), Last 12 Months, and Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Burbot Subsistence Use Areas and Harvest Locations

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

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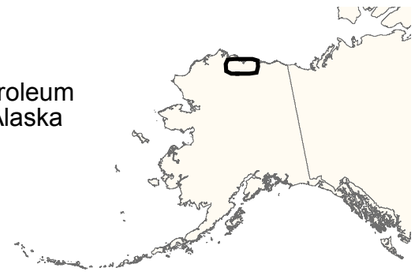

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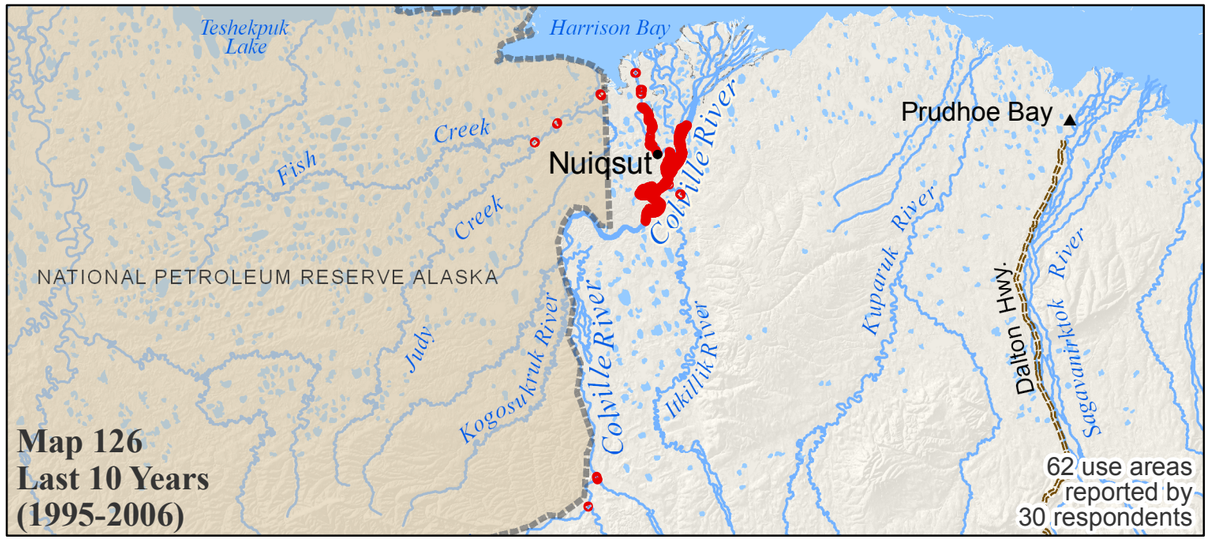
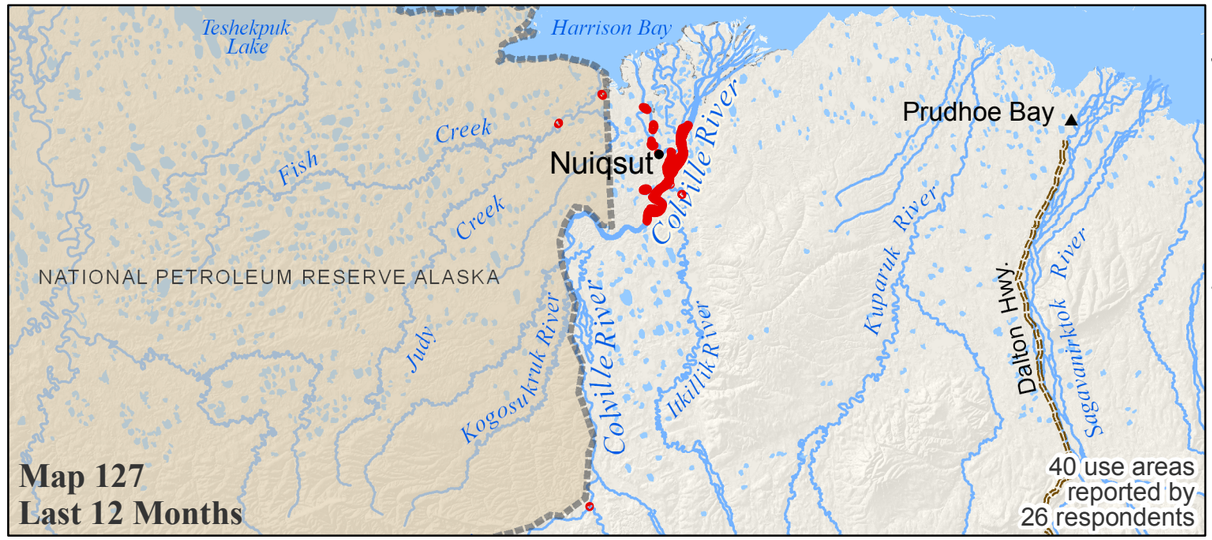




Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

I go out fishing this year I go out [he is marking] this Nigliq Channel I put my net here or going out to Nigliq Channel, put my fish net here. I get Arctic cisco, and Arctic char, least cisco, sometimes burbot. (SRB&A Nuiqsut Interview November 2006)

We always go to Fish Creek. There is one place where there is a big lake in the middle of the river. Just when you get into the river. Maybe at this small stream. Grayling and burbot. (SRB&A Nuiqsut Interview November 2006)

Around Chandler, reel fishing. Right at the mouth of Chandler. We get salmon, trout, rainbow trout, silver salmon, pike, grayling, Arctic char, tittaaliq *– burbot. During September – August, September during moose season.* (SRB&A Nuiqsut Interview November 2006)

Map 127 depicts last 12 month burbot use areas as reported by Nuiqsut respondents during interviews. During the 12 months prior to their interviews, Nuiqsut harvesters fished for burbot in Nigliq Channel, Fish Creek, along the main Colville River within 10 miles of Iktillik River, and near the mouth of Chandler River. Residents reported traveling to many of the same places described above (in the last 10 years) during the previous 12 months. The total last 12 month Nuiqsut use area for burbot, as shown on Map 127, is nine square miles. Two individuals described traveling to Itkillik River to harvest burbot in the last 12 months:

We get that all year long. Let's see, right there [north of Itkillik River] and right over there, in front of the village, right over there. Yes, I did [harvest burbot this year], at both spots. My wife likes to go. She's a fisherwoman. I think [last] time, in the same day we went to both places. My wife's been catching the most. Maybe six a day [for both of them]. (SRB&A Nuiqsut Interview November 2005)

By Itkillik. Right here at this point, lots of people go there, year around, they drive over there. Until the spring start to rise, start this time of year, November to May. Even my three year old got seven of them last winter. (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

The locations of Nuiqsut residents' most recent burbot harvests are shown on Map 128. Residents reported most recent harvests of burbot occurring near the community of Nuiqsut on Nigliq Channel, near the mouth of Fish Creek, and along the main Colville River channel north of the mouth of Itkillik River. Two respondents described their most recent burbot harvests as follows:

Yeah, [at] the same area, by Itkillik [River]. I take the kids out sometimes. I took my wife and one of our boys. We got four last time. We don't hunt them or pile them. Because if you let them sit out too long, they get old. They're not like qaaktaq *or* aanaakliq *[whitefish]. They lose their flavor.* (SRB&A Nuiqsut Interview November 2005)

Right now we are ice fishing for burbot, right in here close to the island [just north of Itkillik mouth]. Now and then all year round for the winter fishing. We always have a burbot derby every year. Basically I hit every fishing spot every year. We got a couple, they weren't very big though. It depends on who wants to come out; that one time there was only two or three of us. Usually there are a lot of people out there. We got two [in]

November. It was about a couple weeks ago. (SRB&A Nuiqsut Interview November 2005)

Number of Participants

Similar to harvesting activities for other fish resources, a higher percentage (50 percent) of most recent burbot harvests reported by Nuiqsut respondents occurred in groups of two to three participants (Table 124). Fewer residents reported harvesting burbot at these locations in groups of four or more people (21 percent) or on their own (29 percent).

Table 124: Nuiqsut Number of Participants During Most Recent Burbot Harvests

Number of Participants	Percentage of Harvest Locations
1 person	29%
2-3 people	50%
4 or more people	21%
Number of Most Recent Harvest Locations	24

Stephen R. Braund & Associates, 2010.

Duration of Trip

Respondents overwhelmingly reported taking day trips to their most recent burbot harvest areas (92 percent) (Table 125). As depicted on Map 126, Nuiqsut residents reported harvesting burbot relatively close to the community, especially near the mouth of Itkillik River on the Colville River. One resident said, "I just [go for] a few hours, three hours" (SRB&A Nuiqsut Interview November 2005). Another resident also explained that her last burbot harvest took "Not even one hour. You stay out as long as you want, until you want to get home" (SRB&A Nuiqsut Interview November 2005). Residents reported spending two to five nights at only eight percent of their most recent harvest locations.

Table 125: Nuiqsut Duration of Trips to Most Recent Burbot Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	8%
1 night	0%
Same day	92%
Number of Most Recent Harvest Locations	24

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Burbot fishing is almost exclusively a winter subsistence activity. The majority of burbot use areas were reported between October and April. A few residents reported periodically catching burbot at a small

number of use areas while harvesting other fish during the summer months (Figure 43). One resident described fishing for burbot early in the winter in October and November saying,

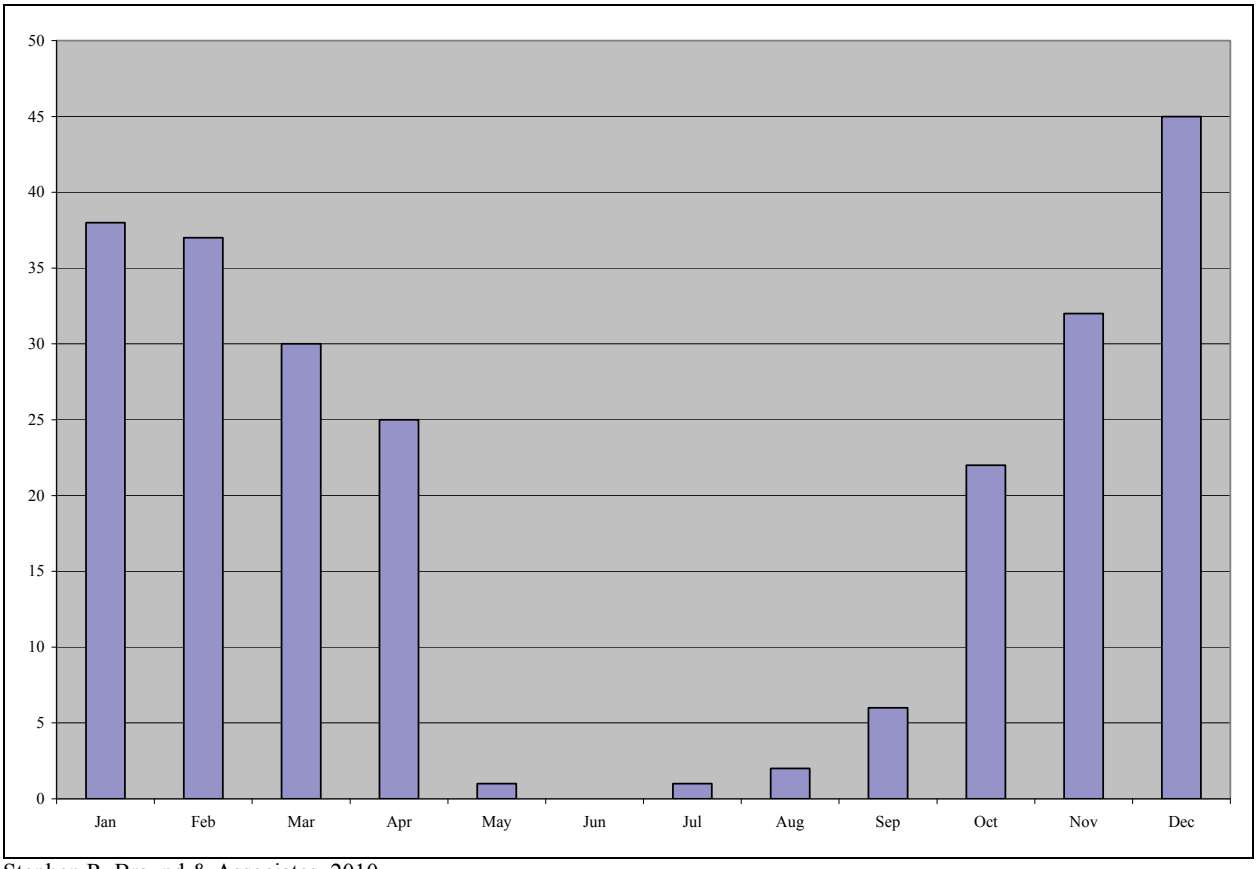
> *Grayling and burbot [in] October and November. The ice is too thick beyond that. You don't want to spend time chopping a hole.* (SRB&A Nuiqsut Interview November 2006)

Other residents described harvesting burbot later in the year, in January through April, because the prized portion of the burbot, the liver, is the largest at this time. Two individuals stated,

> *Usually the best time to get those is in later part of this month and January, February, March and April. That is when their liver becomes almost half their body weight. It is just rich, we don't even need seal oil [while eating burbot]. The way we have our fish is frozen and dipped in seal oil, and with the* tittaaliq *you don't even need seal oil [while eating it]. But if you have too much of that liver you will get sick, and if it is just right you will catch a little buzz and get tired and nice.* (SRB&A Nuiqsut Interview December 2006)

> *You can fish until April. You can start tomorrow. Their livers are smaller right now, but come March and April, their livers are getting juicy and big. That's the best part of the fish we eat, the liver.* (SRB&A Nuiqsut Interview November 2005)

Figure 43: Nuiqsut Use Areas for Burbot by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Because residents access nearly all burbot use areas during the winter months, snowmachines were the reported mode of transportation to 94 percent of burbot use areas (Table 126). Similar to Arctic cisco use areas, residents reported using trucks to access nearby burbot use areas when the thickness of ice is adequate. The following quote reflects several respondents' responses concerning their travel to burbot use areas:

> *By truck, we go there all the time, right on the river. Right now [November]. Until it blows over [with snow], then we go with snowmachine.* (SRB&A Nuiqsut Interview November 2005)

Table 126: Nuiqsut Method of Transportation to Burbot Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	94%
Four-wheeler	0%
Boat	5%
Foot	0%
Plane	0%
Car/truck	18%
Number of Use Areas	62

Stephen R. Braund & Associates, 2010.

Harvest Gear

Of the 24 harvesters who reported their burbot harvest gear, 100 percent reported jigging for burbot (Table 127). Two individuals reported also catching burbot in their nets while fishing for other species. One individual described,

> *We get burbot in December. We go out fishing and use our fish hooks, jigging, but we mostly get them accidentally in fish nets.* (SRB&A Nuiqsut Interview November 2006)

One person reported harvesting burbot with a rod and reel.

Table 127: Nuiqsut Burbot Harvest Gear

Gear	Number (%) of Harvesters
Jigging	24 (100%)
Nets	2 (8%)
Rod and Reel	1 (4%)

Stephen R. Braund & Associates, 2010.

Geese

All 33 Nuiqsut respondents reported hunting geese in the last 10 years (Table 5). Twenty-nine respondents (88 percent) reported hunting geese in the last 12 months (Table 6). Residents reported

harvesting several species of geese, including white-fronted (*niġliq*), Canada (*iqsraġutilik*), and brant (*niġlinġaq*). White-fronted geese are the primary species harvested, followed by Canada geese, brant, and snow geese (*kaŋuq*). Two geese hunters described,

> *The white fronted, we call them Gander Geese. Brant for a while and Canadian but mostly white fronted.* (SRB&A Nuiqsut Interview November 2005)

> *Canadian geese and those white ones. We never hunted those black brants. Those are endangered.* (SRB&A Nuiqsut Interview November 2005)

Subsistence Use Areas

Last 10 year geese use areas as reported by Nuiqsut respondents are depicted on Map 129. Residents reported hunting geese in an area surrounding Colville River, Itkillik River, Fish Creek, and Judy Creek. The highest numbers of overlapping use areas are located along Fish Creek, along the Colville River at various locations south of the community (including areas north and south of Itkillik River, near Ocean Point, and near the mouths of Kikiakrorak and Kogosugruk rivers), and north of the community along Nigliq Channel. The farthest south residents described traveling in the last 10 years for geese was between Itkillik River and the mouth of Kogosugruk River. The total last 10 year Nuiqsut use area for geese, as shown on Map 129, is 705 square miles.

When describing their geese hunting areas, Nuiqsut residents commonly mentioned Fish Creek, Ocean Point, Itkillik River, and Nigliq Channel. Although some individuals identified only one area where they hunt geese, the majority of respondents identified multiple spots; these hunters either reported hunting at multiple locations each year or alternating between locations. One hunter described traveling to Ocean Point earlier in the spring, and then gradually moving north to other geese hunting locations as the snow melts:

> *I do a lot of that during May. Just right out where they first come we go to Ocean Point, right around this area. When the snow is melting we move further upstream about to where our cabin is. And when the snow is really melting again we go towards Fish Creek about middle of May. About right around this area. White front geese, Canadian or snow geese. No brant.* (SRB&a Nuiqsut Interview November 2006)

Another individual explained that he hunts in different areas every year depending on where other hunters are located, saying,

> *[I go to] Fish Creek, right near [where] the Judy Creek and Fish Creek separate, a little ways down. Just by the river. Sometimes we go upriver, right there in that area [south of Itkillik River]. It's never the same every year. When someone else is there, you don't go there because if someone beats you to that spot [you have to go elsewhere].* (SRB&A Nuiqsut Interview November 2005)

Respondents generally indicated that there are certain areas where Nuiqsut residents currently hunt and have historically hunted geese. One resident described hunting at Ocean Point and Fish Creek, where his father and grandmother taught him to hunt geese. He said,

> *When I go geese hunting I go to Ocean Point and at Fish Creek. My father goes mostly here geese hunting, where my grandma taught me. When my grandma was alive we took her out boating; we had nothing else to do beside stay here and enjoy boating and take her to her brother's property and she talked and she said to me and my other nephew, 'This is where I go geese hunting when I was young girl.' That was early 1980s, and she went in the 1920s before I was born. She was already there in that area [in the 1920s], and she was ptarmigan trapping and fishing and geese hunting. I mostly camp there in spring time and summer time. She only had one bullet, and she got three geese out of one bullet, shotgun shell. Fish Creek and Ocean Point.* (SRB&A Nuiqsut Interview November 2006)

Map 129 - Nuiqsut Geese Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

179 use areas reported by 33 respondents

Last 12 Months Dissolved Use Areas

103 use areas reported by 29 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

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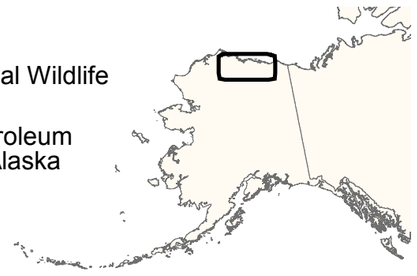

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

While some residents described hunting geese at specific locations, others travel over larger areas and hunt geese when they spot them. Nuiqsut residents provided the following additional descriptions of their geese hunting areas:

> *I've broadened my horizon with geese. [I hunt] across from CD3 and CD4. Right here I am hunting in this area, that's one area. Another area is right by my mom's place. There's three spots where I go. I go to Ocean Point and Itkillik River. It's actually right around here. I've covered a lot of ground. (SRB&A Nuiqsut Interview November 2005)*

> *We pretty much stay at Nigliq [Channel] and Fish Creek [while waterfowl hunting]. They nest right in here right off one of these creeks, and there is a creek that is full of geese.* (SRB&A Nuiqsut Interview November 2006)

> *Wow, there's a lot of places for that [geese hunting]. Fish Creek area, pretty much the whole section, yeah, from the lake and that little small creek. This whole section. I'd say around that section and the Itkillik River around there. (SRB&A Nuiqsut Interview November 2005)*

> *Kikiakrorak and then crossing the Itkillik. Mostly in the Fish Creek area. They are all over; you find a good spot by watching the geese and their pattern. You see them going in one area and you go find a good spot. All in that area and up the Colville. We don't go very far up north. And then we go towards Fish Creek. As far as that second fishing hole. I don't really go anywhere else.* (SRB&A Nuiqsut Interview November 2006)

> *Nanuk, on the west side of Nanuk Lake. That is where I got all of my geese this year. And then right by home in that channel there. One of my favorite spots is at Fish Creek but I didn't go this last year. It is past this creek. It is a big area. In the past 10 years I used to go around this area [south of Ocean Point on Colville River]. I stopped going over there because you get very few of them there, but I used to go there a lot. [I go in] May, [by] snowmachine. We get the Canadian, greater Canadian and the black ones with the ring around their necks, black brants and the white-fronted and the snow geese.* (SRB&A Nuiqsut Interview November 2006)

Nuiqsut last 12 month use areas, depicted on Maps 129 and 130, are nearly identical to the last 10 year use areas shown on Map 129 but do not extend as far east. The highest numbers of overlapping last 12 month use areas are located at Fish Creek, north of the community along Nigliq Channel, and along the Colville River at several locations between Itkillik River and Ocean Point. The total last 12 month Nuiqsut use area for geese, as shown on Map 130, is 566 square miles. Two residents described their last 12 month use areas as follows:

> *I didn't go down to the cabin this year because I was working, and when I did decide to go it was too warm, the early break up, and there was already water on the cabin. I tried [to go], but couldn't. So I just did my hunting right here by the village. We only got nine this year. Out of nine only two were lesser Canadian; the rest were white-fronted.* (SRB&A Nuiqsut Interview December 2006)

> *Here mostly right around in this island, on the island, few spots here and there, and Ocean Point. Mostly this side of the river. Just right before on the east side. Mostly white-fronted, snow geese here and there, Canadian, mostly speckled too. I don't hunt them [brant] any more. I did before. That [Ocean Point] is where I got practically all my geese.* (SRB&A Nuiqsut Interview November 2006)

Map 130 - Nuiqsut Geese Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

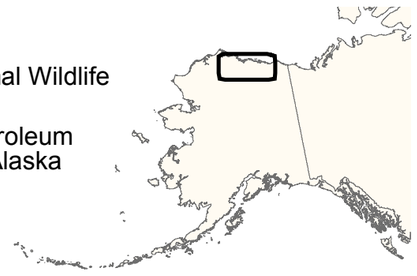
High
Low
103 use areas reported by 29 respondents

Most Recent Harvest Locations

46 harvest locations reported by 29 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.



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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Most Recent Harvest

Harvest Locations

Twenty-nine Nuiqsut respondents (88 percent) reported successful geese harvests in the 12 months prior to their interviews (Table 7). The locations of their most recent harvests are depicted on Map 130. Respondents' most recent harvests occurred around the Colville River near Ocean Point and the mouth of Itkillik River; along Nigliq Channel to the mouth, and in a large area around Fish and Judy creeks. Residents reported harvesting varying amounts of geese during their most recent harvests. Two individuals described,

> *[Last year] across from CD3 and CD4 [near Nanuk Lake]. At the north site, my last trip was May 20th.* (SRB&A Nuiqsut Interview November 2005)

> *[At a lake near Nigliq Channel] In a half a day trip we had enough geese to last this summer. It was a one day trip, and we were done; I said, 'No more, we have enough geese to keep us going.' And we share it. I like to share with those who don't have means to hunt.* (SRB&A Nuiqsut Interview November 2005)

Number of Participants

Hunting group size during most recent geese harvests ranged from solo hunters to groups of more than four people. Residents hunted alone at 26 percent of most recent geese harvest locations while respondents hunted in groups of two to three people at 37 percent of harvest locations (Table 128). Residents reported hunting in groups of four or more people at 37 percent of their harvest locations.

Table 128: Nuiqsut Number of Participants During Most Recent Geese Harvests

Number of Participants	Percentage of Harvest Locations
1 person	26%
2-3 people	37%
4 or more people	37%
Number of Most Recent Harvest Locations	46

Stephen R. Braund & Associates, 2010.

Duration of Trip

Residents reported taking day trips to the majority of most recent geese harvest locations. Seventy percent of residents' most recent harvests occurred during trips lasting only one day whereas 30 percent of their trips to most recent harvest locations lasted from two days to more than two weeks (Table 129).

A number of residents reported traveling to hunting locations that are farther from the community, such as Ocean Point and Fish Creek, and camping at those locations for extended periods of time. One individual described,

> *[Our tent camp] is there. Then we walk to the willows. That's our hiding site. Last time we were there about a week. (SRB&A Nuiqsut Interview November 2005)*

Table 129: Nuiqsut Duration of Trips to Most Recent Geese Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	5%
1-2 weeks	2%
2-5 nights	21%
1 night	2%
Same day	70%
Number of Most Recent Harvest Locations	43

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Nuiqsut residents reported hunting geese only during the spring. The majority of geese use areas were reported in May, with fewer residents reporting geese use areas in April and June (Figure 44). Hunters noted that travel conditions deteriorate as May progresses into June, and that they must move closer to the coast as the season wears on.

Two residents explained,

> *I do a lot of that during May. Just right out where they first come we use to go to Ocean Point. Right around this area. When the snow is melting we move further upstream about to where our cabin is. And when the snow is really melting again, we go towards Fish Creek about middle of May. About right around this area. (SRB&A Nuiqsut Interview November 2006)*

> *They are gone out of here in June. There is nothing you can really do [in June] because the snow is too soft and wet and the river, you can't go boating. From May 16th to June 10th, it is three weeks of nothing. (SRB&A Nuiqsut Interview December 2006)*

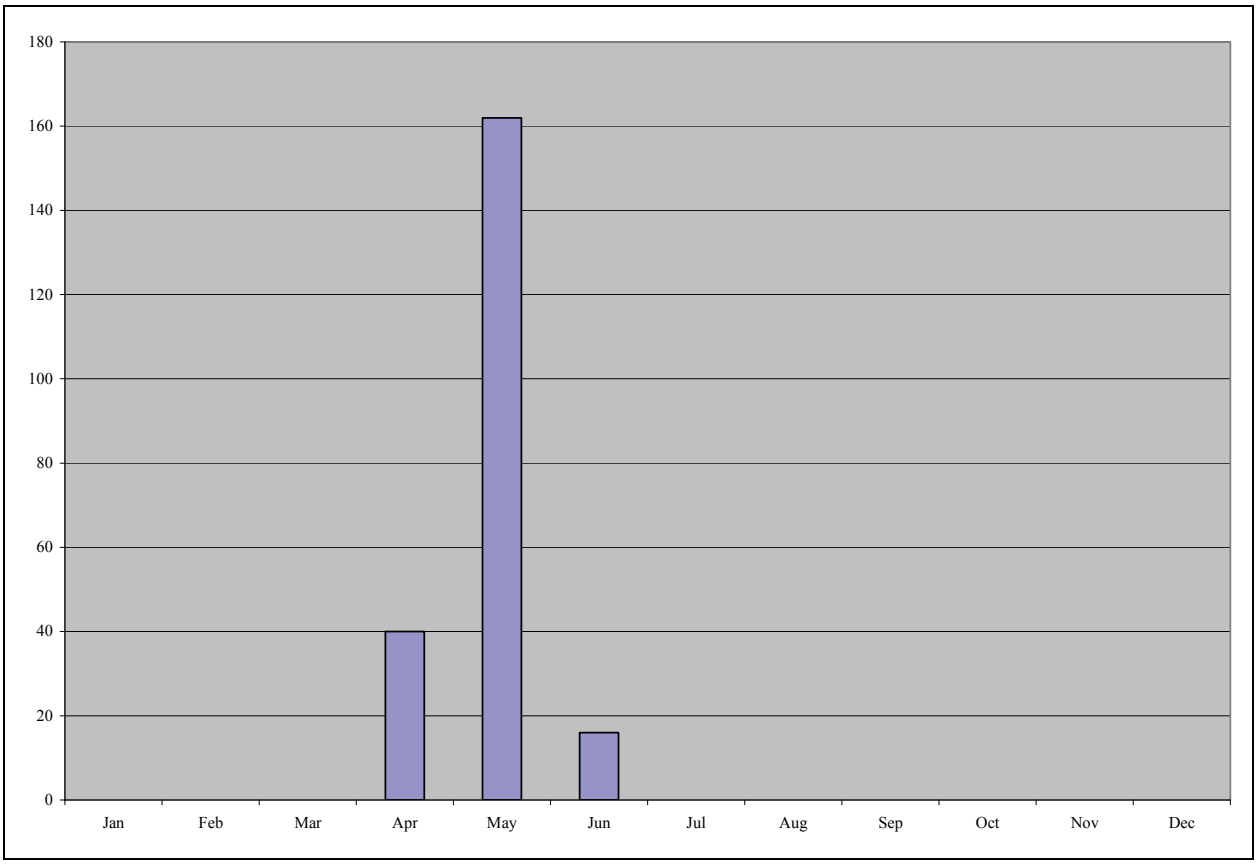
Method of Transportation

Because Nuiqsut residents hunt geese solely during the spring season, the majority of residents reported hunting by snowmachine. Hunters reported accessing 83 percent of their geese use areas by snowmachine (Table 130). Some residents described using boat to travel to use areas once the rivers break up, and respondents reported accessing 10 percent of use areas this way. Two residents described,

> *[I use a] snowmachine. There are water spots here and there. Snowmachine, just straight out. (SRB&A Nuiqsut Interview November 2005)*

> *Boat, later part of April and May. When the river melts and it is warm and it starts breaking easy. (SRB&A Nuiqsut Interview November 2006)*

Figure 44: Nuiqsut Use Areas for Geese by Month



Stephen R. Braund & Associates, 2010.

Table 130: Nuiqsut Method of Transportation to Geese Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	83%
Four-wheeler	4%
Boat	10%
Foot	8%
Plane	0%
Car/truck	1%
Number of Use Areas	179

Stephen R. Braund & Associates, 2010.

Harvest Gear

Most residents (92 percent) reported using a 12-gauge shotgun when hunting geese. Fewer respondents reported using a 20-gauge (23 percent) or other gear such as a 16 gauge or a.22 (Table 131).

Table 131: Nuiqsut Geese Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
12	24 (92%)
20	6 (23%)
16	1 (3%)
.22	1 (3%)

Stephen R. Braund & Associates, 2010.

Eider

Nuiqsut respondents hunt king (*qiŋalik*) and common (*amauligruaq*) eiders, often while hunting seals offshore from the Colville River delta, throughout the summer. Eighty-five percent of harvesters (28 respondents) reported hunting eiders in the last 10 years (Table 5). Twenty-two harvesters (67 percent) reported hunting eiders in the 12 months prior to their interview, and 20 of these individuals (61 percent) reported successful harvest locations during that time period (Tables 6 and 7).

Subsistence Use Areas

Nuiqsut last 10 year and last 12 month eider hunting areas are depicted on Map 131. In the 10 years prior to their interviews, Nuiqsut residents reported hunting eider ducks in the Beaufort Sea between Atigaru Point and the mouth of Kuparuk River and farther east in the community's bowhead whale hunting area; along the Colville River delta, along Fish Creek, and near Ocean Point in the Colville River. One individual who hunts bowhead whales out of Barrow reported harvesting eider ducks near Barrow while hunting bearded seal during the summer. Residents reported traveling offshore over 30 miles when hunting in the ocean. The highest numbers of overlapping eider use areas were reported offshore from the Colville River delta up to 10 miles and east to Thetis Island. The total last 10 year Nuiqsut use area for eiders, as shown on Map 131, is 4,027 square miles.

Nuiqsut harvesters most frequently reported targeting eiders while on the ocean hunting seals during the summer months. As one individual said, "The only time I try to catch ducks is when I try to catch seals" (SRB&A Nuiqsut Interview November 2005). Thetis Island and Atigaru Point were landmarks mentioned by many as the extent of their eider hunting areas. Several individuals commented that eiders are abundant around Thetis Island, as the island serves as a nesting ground for these birds:

> *Once in a while we go out here on the ice pack, by Thetis Island, around June and July. [We hunt eiders] above [Thetis] Island, and sometimes we go over here duck hunting at Atigaru Point. During seal hunting, we're out there duck hunting. We use Thetis Island for base camp. [There is] a lot of nesting on Thetis Island; lots of eiders. We see them (eiders) while we're hunting whales. They are nesting on Thetis Island, eider ducks.* (SRB&A Nuiqsut Interview November 2005)
>
> *When I hunt seal I go here to Thetis island. Eiders are nesting on the islands.* (SRB&A Nuiqsut Interview November 2005)

A few harvesters reported using Thetis Island as a base for their summer hunting activities, and several individuals reported setting up camps on the island and hunting marine mammals and eider ducks.

Residents generally observed that eiders are more available along the coast and less common inland. One individual said, "Eiders go on the ocean, on the coast. I don't see them in the village" (SRB&A Nuiqsut

Map 131 - Nuiqsut Eider Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

61 use areas reported by 28 respondents

Last 12 Months Dissolved Use Areas

40 use areas reported by 22 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow
Atqasuk
Nuiqsut
Kaktovik
Prudhoe Bay
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Topagoruk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Judy Creek
Kogosukruk River
Itkillik River
Colville River
Kuparuk River
Prudhoe Bay
Sagavanirktok River
Dalton Highway
Shaviovik River
Kavik River
Mikkelsen Bay
Camden Bay
Canning River
Sadlerochit River
Hulahula River
Okpilak River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Titaluk River

71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Interview November 2005). Hunters generally target eiders closer to shore, but will hunt them farther offshore in their seal hunting area if they are available and the timing is right. As one hunter described,

> *Sometimes we hunt those [eiders] when we go out boating in summer time. We get them just go out from Nigliq [Channel], just out the ocean. Like when I go out seal hunting, I look for seals or* ugruk *or anything we can see when we go out. I look around and stop the engine and look for seals. [If] there are eiders flying near us, we shoot them down and take them home for eider duck soup. (SRB&A Nuiqsut Interview November 2006)*

The distance hunters travel for eiders generally depends on the location of the ice pack. Nuiqsut respondents provided the following additional descriptions of their eider hunting areas:

> *Once in a while we go out here on the ice pack, by Thetis Island, around June and July. [We hunt eiders] above [Thetis] Island, and sometimes we go over here duck hunting at Atigaru Point. During seal hunting, we're out there duck hunting. We use Thetis Island for base camp.* (SRB&A Nuiqsut Interview November 2005)

> *Out in the ocean, when we go seal hunting, that is the only time I get eider ducks. From the mouth of the Nigliq Channel, about 40 miles straight north radius. It depends on the ice conditions. Sometimes it is far, sometimes it is closer.* (SRB&A Nuiqsut Interview November 2006)

> *Out in the ocean, at the same place we get seals [Atigaru Point to Spy Island]. Mostly we go for the ones with the big nose [king eiders]. We see common eiders, but I don't usually go for them because the meat is tough. We don't see the common eiders; we are starting to see more spectacled and Steller's [eiders]. You used to never see them.* (SRB&A Nuiqsut Interview November 2006)

Residents' last 12 month eider hunting areas, shown on Maps 131 and 132, are similar to the last 10 year use areas on Map 131, with the exception of hunting areas on Fish Creek, near Ocean Point, and offshore toward Kaktovik. The highest numbers of overlapping last 12 month use areas were reported between the mouth of Fish Creek and Thetis Island and offshore up to approximately 10 miles (Map 132). The total last 12 month Nuiqsut use area for eiders, as shown on Map 132, is 1,958 square miles.

Most Recent Harvest

Harvest Locations

The locations of Nuiqsut respondents' most recent harvests of eiders are depicted on Map 132 and occur within the majority of the last 12 month offshore use areas. Residents also reported most recent harvests along the eastern channel of the Colville River delta. Two Nuiqsut harvesters described their most recent harvests as follows:

> *Thetis Island would be the preferred area. I got about 14 during summer time. To Thetis Island. [I got] about 14 [eiders]. I camp out [and] go out there for the weekend. Right on the island.* (SRB&A Nuiqsut Interview November 2006)

> *I got some out in the ocean. I don't remember how many. There are between three and five of us, day trips. Sometimes we will be out there 23, 24, 26 hours. [There is] 24 hour daylight. The whole season we got between 10 and 15.* (SRB&A Nuiqsut Interview November 2006)

Map 132 - Nuiqsut Eider Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
40 use areas reported by 22 respondents

Most Recent Harvest Locations

30 harvest locations reported by 20 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Cross Island
Flaxman Island
Thetis Island

Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
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Harrison Bay
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Kogosukruk River
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Kuparuk River
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Mikkelsen Bay
Sagavanirktok River
Dalton Highway
Shaviovik River
Kavik River
Canning River
Camden Bay
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Number of Participants

All of the eider hunters who reported successful harvests in the 12 months prior to their interview described hunting in groups of two or more people. Residents hunted in groups of two to three people at 40 percent of their harvest locations and in groups of four or more people at 60 percent of harvest locations (Table 132). Hunting in the ocean is generally a group activity, often involving multiple boats and multiple hunters. As the majority of eider hunting occurs in concert with summer seal hunting, which requires more than one person, multiple hunters are usually present during eider harvests as well.

Table 132: Nuiqsut Number of Participants During Most Recent Eider Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	40%
4 or more people	60%
Number of Most Recent Harvest Locations	30

Stephen R. Braund & Associates, 2010.

Duration of Trip

The majority of the most recent eider harvests (78 percent) occurred during day trips while fewer harvests (22 percent) occurred over the course of two or more days (22 percent) (Table 133). Residents generally reported harvesting eiders while hunting seal, usually traveling by boat from the community and returning that same day. Eider and seal hunting generally occurs during the summer when the region gets 24 hour sunlight; a number of hunters described staying out on the ocean for more than 24 hours at a time. Two residents described their most recent eider hunting trips, saying,

> *Ten hours, we go the same time we go seal hunting. We get ringed and bearded seals and eider.* (SRB&A Nuiqsut Interview November 2005)

> *It was a long night, 24 hour shift. We can't afford to come back [without anything]; gas is too expensive.* (SRB&A Nuiqsut Interview November 2005)

Table 133: Nuiqsut Duration of Trips to Most Recent Eider Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	7%
1 night	15%
Same day	78%
Number of Most Recent Harvest Locations	27

Stephen R. Braund & Associates, 2010.

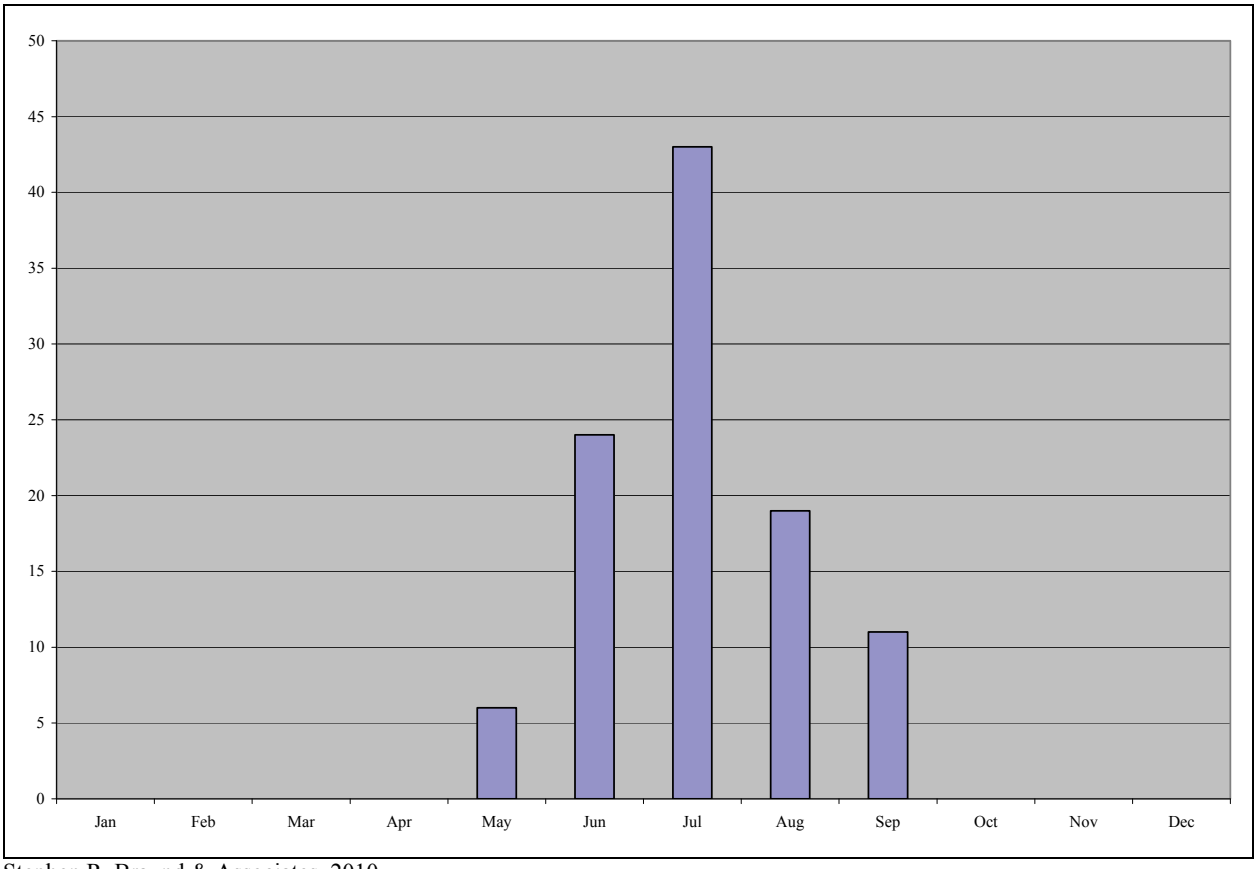
Months of Harvest Effort

Eider hunting occurs between May and September with the majority of use areas reported in July (Figure 45). Residents reported hunting eiders while pursuing bearded and ringed seal and the months in which hunters harvest eiders closely resemble the months of seal hunting. Two residents described their eider hunting months as follows:

> *In July we go out there [to the ocean] while seal hunting. Way up there, maybe about to here. Sometimes we go to Thetis Island. There are a lot of ducks flying there in July and August, and sometimes in September.* (SRB&A Nuiqsut Interview November 2005)

> *That is in June, and then in October and September they start migrating back towards Barrow, and we are out hunting seals on the ice floe. We will get some [then] too.* (SRB&A Nuiqsut Interview December 2006)

Figure 45: Nuiqsut Use Areas for Eider by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Residents reported traveling to nearly all eider use areas (95 percent) by boat (Table 134). A small number of hunters reported accessing eider use areas by snowmachine, earlier in the season. One respondent said,

> *Basically [we hunt] up and down the river and in the ocean sometimes. Wherever we run into one when we are looking for other game. King eiders, mostly that is all I get. Mostly*

it is just king. Mostly in June, sometimes July. [We hunt] by boat. (SRB&A Nuiqsut Interview November 2006)

Table 134: Method of Transportation to Eider Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	5%
Four-wheeler	0%
Boat	95%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	61

Stephen R. Braund & Associates, 2010.

Harvest Gear

Similar to geese hunting, the majority of respondents (95 percent) use a 12-gauge shotgun to hunt eiders (Table 135). Another 20 percent of harvesters reported using a 20-gauge shotgun.

Table 135: Nuiqsut Eider Harvest Gear

Shotgun Gauge	Number (%) of Harvesters
12	19 (95%)
20	4 (20%)
16	0 (0%)

Stephen R. Braund & Associates, 2010.

Ringed Seal

Nuiqsut residents commonly harvest ringed seal (usually referred to as *natchiq*), as well as bearded seal and eiders, in the Beaufort Sea during the summer months. Twenty-three harvesters (70 percent) reported hunting ringed seal in the last 10 years (Table 5). Fifteen individuals (45 percent) hunted for ringed seal in the 12 months prior to their interview (Table 6). Twelve of those 15 individuals reported successfully harvesting ringed seal in the last 12 months (Table 7). While some Nuiqsut harvesters reported only targeting bearded seal, the majority of bearded seal hunters also look for ringed seal and generally cited an equal preference for the two species. Residents described seal hunting as an enjoyable summer activity, a time to escape to cool ocean temperatures at a time when inland temperatures are at their highest, while providing an important food source to the community.

Subsistence Use Areas

As discussed above, Nuiqsut residents often engage in ringed seal, bearded seal, and eider hunting in similar areas and at the same time. Map 133 shows Nuiqsut last 10 year ringed seal use areas in an area similar to that shown on Map 131 for eiders, but with a higher number of use areas extending east and west of the Colville River delta. Residents reported traveling as far as Cape Halkett to the west and Camden Bay to the east in search of ringed seal. The highest numbers of overlapping use areas were

Map 133 - Nuiqsut Ringed Seal Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
30 use areas reported by 23 respondents

Last 12 Months Dissolved Use Areas

20 use areas reported by 15 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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ARCTIC OCEAN
BEAUFORT SEA
Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Flaxman Island
Atqasuk
Topagoruk River
Fish Creek
Nuiqsut
Colville River
Prudhoe Bay
Kaktovik
Camden Bay
Kuparuk River
Dalton Highway
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Judy Creek
Kogosukruk River
Itkillik River
Titaluk River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

reported offshore from the Colville river delta between Atigaru Point and Thetis Island and up to approximately 20 to 25 miles from shore, although a few individuals reported traveling up to 40 miles from shore when hunting seals. Residents also reported hunting ringed seal while looking for bowhead whale from Cross Island; harvested seals provide food to whale hunters who stay on the island. The total last 10 year Nuiqsut use area for ringed seal, as shown on Map 133, is 5,101 square miles.

As discussed above, under the "Eider" discussion, a number of Nuiqsut hunters reported hunting seals and eiders from Thetis Island, sometimes camping on the island for multiple days. Others reported only taking day trips from the community. As indicated by their descriptions of seal hunting areas, Thetis Island is an important landmark for many hunters during these activities:

> *Mostly [hunt seal] straight out, 25 miles out. Once in a while [to Atigaru Point]. We go in Harrison Bay, all the way to Thetis Island. That's for bearded seal and ringed seal.* (SRB&A Nuiqsut Interview November 2005)

> *Maybe out to here. Over to Pingok, but that was way back. We went to Thetis. We don't go farther than that. Not inside of Thetis, close to Thetis is okay, but where the [development] is, it is shallow. Atigaru [furthest west]. No just right about here. I have seen some small whales in here. And my father-in-law got a beluga.* (SRB&A Nuiqsut Interview November 2006)

> *In the summer, it's all the way to Thetis Island when you go seal hunting. I don't go as far as Thetis. Anywhere in front of the 30 meter mark. It depends on the ice. The farthest [offshore] was maybe 15 miles. It's to Thetis Island along the 60 and 30 meter marks; that's where the food is.* (SRB&A Nuiqsut Interview November 2005)

The distance residents travel to hunt seals depends primarily on the location of the ice pack, as the seals migrate with the ice pack, resting on the ice floes and feeding near the ice. A number of Nuiqsut hunters reported traveling farther than Thetis Island, such as to Spy or Pingok Islands, or farther toward Flaxman Island when hunting bowhead whales. Others stay closer to the mouth of the Colville River delta. Residents provided the following additional descriptions of their seal hunting area:

> *Close to three miles out. Not too far from Nigliq about two miles, sometimes we go north and sometimes southeast. Not too far from Nigliq, about here. Yeah, some people like to go out further. Summer time there is midnight sun, and they like to stay out all day night and morning. Arctic seal,* natchiq*, we don't hunt those spotted seal because they have strong taste.* (SRB&A Nuiqsut Interview November 2006)

> *Pingok Island, oh about 10, 11 miles. It depends how far out they are. Yes, it depends where they are. Some years there are lots of ringed seals and sometimes there are no bearded seal. Sometimes we get weathered out there. We don't really hunt them while we're whaling, just a couple here and there for meals. There's always bearded seals on the inside [of the islands], too. There's always seals around there. Flaxman Islands all over around there. Yes, we cover that same area when we're looking for whale. We stay out on the ice [for] a day or two. We don't camp out, but sometimes we camp out at Thetis Island.* (SRB&A Nuiqsut Interview November 2005)

> *The main area I go for seals is that big [area]. Out in the ocean, at the same place we get seals [and eiders]. Atigaru around out to 30 miles out all the way to Spy Island. That is for seal hunting. We don't go past 30, 35 miles; you never know when bad weather is going to come.* (SRB&A Nuiqsut Interview November 2006)

Last 12 month ringed seal use areas as reported by Nuiqsut respondents are depicted on Map 133 and Map 134. These use areas are similar to those reported for the last 10 years (Map 133) but do not extend

Map 134 - Nuiqsut Ringed Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
20 use areas reported by 15 respondents
Low

Most Recent Harvest Locations

12 harvest locations reported by 12 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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Flaxman Island

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Okpilak River

Hulahula River

Sadlerochit River

Canning River

Kuparuk River

Dalton Highway

Sagavanirktok River

Shaviovik River

Kavik River

Itkillik River

Kogosukruk River

Judy Creek

Titaluk River

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ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

155°0'0"W

150°0'0"W

145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

as far east or as far offshore. Residents reported traveling between Harrison Bay and Flaxman Island in the 12 months prior to interviews, and offshore and up to 30 miles from shore. The highest numbers of overlapping last 12 month use areas were reported offshore from the Colville River delta up to 10 miles. The total last 12 month Nuiqsut use area for ringed seal, as shown on Map 134, is 3,310 square miles. One individual reported traveling to Thetis Island by snowmachine in the spring and hunting seals around the island, saying,

> *In summer they always sink real fast, but we went out in springtime by snowmachine, first time, we went straight out in this area. We were going to Thetis Island to get some, lots of seals on top of the ice. Both kinds [bearded and ringed seal]; the one we got was real healthy, really healthy, fat. May, last part of May. We knew there was some driftwood down at Thetis so we went out and got it. The weather that day was good day.* (SRB&A Nuiqsut Interview November 2006)

Several individuals reported traveling north of Thetis Island during the previous summer by boat to hunt seal. Two individuals described,

> *I got about six* natchiq *on the north side of Thetis Island. Right in this area. Same thing with bearded seal. Mid-July to early September, by boat. Just north of Thetis Island. I think the farthest we went was 10-11 miles out. On north side of Nigliq channel, before fall whaling. [We hunt] the whole area.* (SRB&A Nuiqsut Interview November 2006)

> *That's when I go down to the ocean, around that area. Yeah, on top of Thetis [Island], about 20 miles. And the Colville River, through the river to here. The only time I try to catch ducks is when I try to catch seals. I know I only went out once this year. All night. We stay out there all night, nice and calm. It's nice and cool when its hot up here. We get away from the bugs.* (SRB&A Nuiqsut Interview November 2005)

One hunter commented that boating conditions had been too rough to travel to Thetis Island during the previous year:

> *We went out a little ways. Just around that area, not far, but it got windy and we had to go back. [We did] not [go to] Thetis Island. It got rough so we turned back. We turned back and went in here and got some caribou.* (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

Nuiqsut residents' most recent ringed seal harvest locations are depicted on Map 134 and depict most recent harvests occurring north of the Colville River delta and in residents' whaling areas, surrounding Cross Island. Individual harvest locations were reported near Thetis Island, the mouth of Nigliq Channel, and near Cross Island. In cases where residents were unable to identify the exact location of their ringed seal harvest, a more general area was identified. Residents provided the following descriptions of their most recent ringed seal harvests:

> *Just out from Cross Island, there were four of us in the boat. [We were gone for] 20 days, to be exact. Just one ringed seal.* (SRB&A Nuiqsut Interview November 2006)

> *One* natchiq *[near Thetis Island]. Just me and my son. We didn't even have to stalk them, there was too many. We just went through with snowmachine.* (SRB&A Nuiqsut Interview November 2006)

On north side of Nigliq Channel, before fall whaling, the whole area. About over the weekend, about three days. [We got] one. Late August, before fall whaling. (SRB&A Nuiqsut Interview November 2006)

Not bearded, but [we got] a ringed one. Maybe here in this area [near Thetis Island], not too far off the island. I believe [it was in] July. (SRB&A Nuiqsut Interview November 2006)

Number of Participants

Nuiqsut respondents described all of their most recent ringed seal harvests as group hunts. Residents reported hunting ringed seal in groups of four or more people at 58 percent of their most recent harvest locations, and in groups of two to three people at 42 percent of ringed seal harvest locations (Table 136).

Table 136: Nuiqsut Number of Participants During Most Recent Ringed Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	42%
4 or more people	58%
Number of Most Recent Harvest Locations	12

Stephen R. Braund & Associates, 2010.

Duration of Trip

Similar to eider hunting, most respondents (75 percent) traveled to and returned from their most recent ringed seal harvest locations in the same day (Table 137). Because of the relatively close proximity of most ringed seal use areas to Nuiqsut (see Map 134), residents usually return home on the same day of the hunt. Fewer respondents reported the duration of their most recent harvest as lasting more than one day (Table 137). A few respondents reported hunting seals while staying at Cross Island during the bowhead whale hunt; others reported periodically camping at Thetis Island during their seal hunts.

Table 137: Nuiqsut Duration of Trips to Most Recent Ringed Seal Harvest Areas

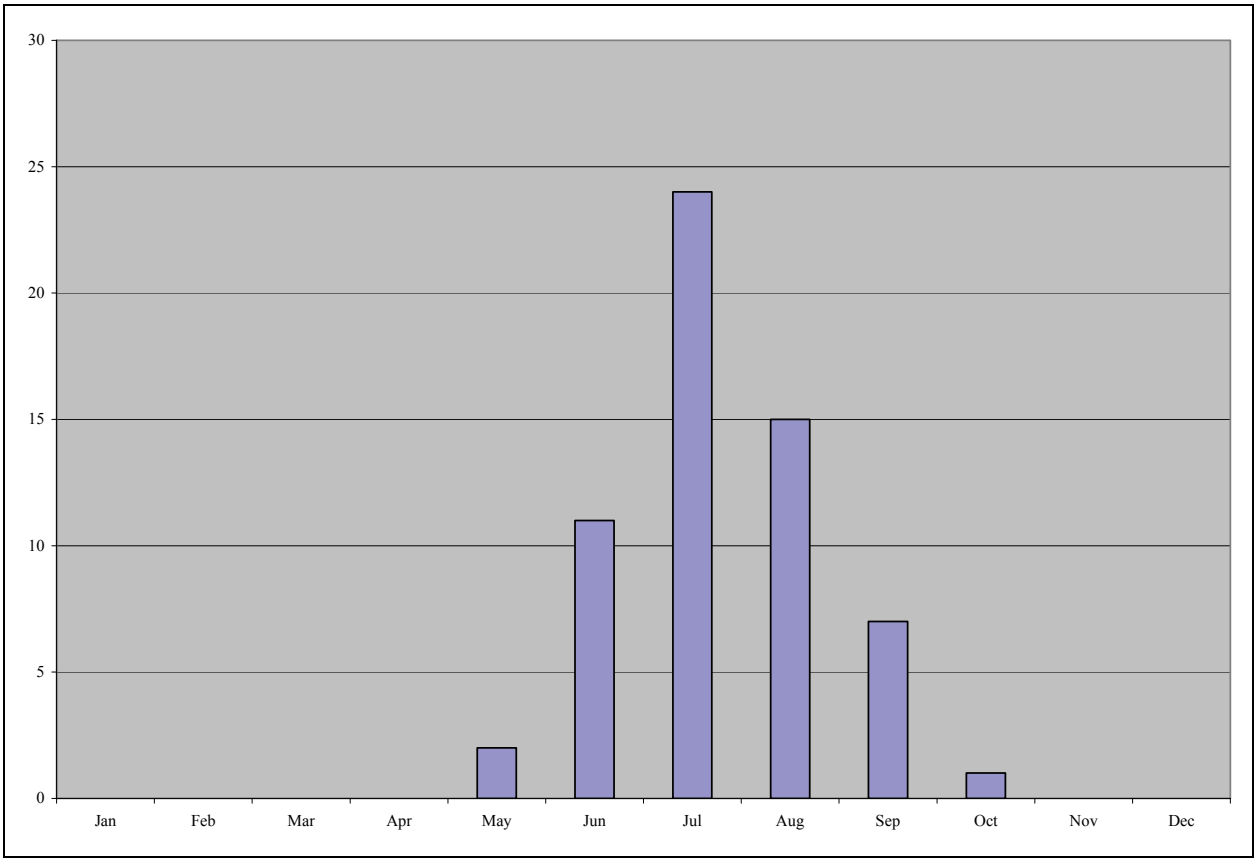
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	8%
1-2 weeks	0%
2-5 nights	8%
1 night	8%
Same day	75%
Number of Most Recent Harvest Locations	12

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Residents reported hunting ringed seals throughout the late spring, summer, and early fall with a higher number of use areas reported in June, July, and August (Figure 46). Respondents reported the highest number of ringed seal use areas for the month of July. Seal hunting diminishes in the fall when hunters begin preparing for the whaling season.

Figure 46: Nuiqsut Use Areas for Ringed Seal by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Respondents reported traveling by boat to 97 percent of ringed seal use areas (Table 138). This is consistent with the timing of seal hunting, which occurs in the summer and fall. One individual reported traveling by snowmachine in the spring to hunt ringed seal.

Harvest Gear

Five harvesters reported using a 12 gauge shotgun while hunting ringed seals (Table 139). Other commonly used rifles include the .243, .223. and .22 mag. Some harvesters indicated that they will use both a rifle and shotgun during their hunt. One hunter stressed the importance of using a small caliber rifle while hunting ringed seal, saying,

> *Use a .222 or .223. Try to use big caliber to just shoot them and not damage them, and they sink. If you use small caliber like .223 or .22 you just nick the head or shoot the head and give you a chance to get them. Some people use a shotgun.* (SRB&A Nuiqsut Interview November 2006)

Table 138: Nuiqsut Method of Transportation to Ringed Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	3%
Four-wheeler	0%
Boat	97%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	30

Stephen R. Braund & Associates, 2010.

Table 139: Nuiqsut Ringed Seal Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
12 gauge	5 (33%)
.243	4 (26%)
.223	4 (26%)
.22 mag	4 (26%)
.22	3 (20%)
.222	3 (20%)
20 gauge	1 (6%)
7.62x39	1 (6%)

Stephen R. Braund & Associates, 2010.

Bearded Seal

Twenty-seven individuals (82 percent) reported hunting bearded seal (*ugruk*) in the last 10 years (Table 5). In contrast, 17 harvesters (52 percent) hunted bearded seal in the last 12 months, and only 13 residents reported successful harvests during that time (Tables 6 and 7). Unlike residents of Barrow, Nuiqsut hunters do not use bearded seal in covering skin boats for spring whaling. Instead, residents use bearded seal for meat and seal oil. One resident explained that the community sends their bearded seal skins to Barrow for use on their skin boats, especially when Barrow has a low bearded seal harvest. He said,

> *The bearded and the ringed, those are the only two I go for. We mainly go for the bearded seal but sometimes we get the spotted seals. We send our skins to Barrow [for their skin boats]*. (SRB&A Nuiqsut Interview November 2006)

Residents generally reported hunting both bearded and ringed seals in the ocean by boat during the summer months, although some reported hunting only one species or the other. As one person said, “We just hunt bearded seal. We don’t hunt ringed seal; we don’t eat them” (SRB&A Nuiqsut Interview November 2005).

Subsistence Use Areas

As residents generally indicated that bearded seal and ringed seal hunting occur at the same time and in the same areas, Nuiqsut last 10 year use areas for bearded seal, shown on Map 135, are nearly identical to the last 10 year ringed seal use areas depicted on Map 133. Bearded seal use areas extend as far west as Cape Halkett, as far east as Camden Bay, and offshore up to 40 miles. The highest numbers of overlapping bearded seal use areas are located offshore up to 20 miles between the mouth of Fish Creek and Thetis Island. The total last 10 year Nuiqsut use area for bearded seal, as shown on Map 135, is 5,148 square miles.

As discussed above ("Ringed Seal"), residents often reported hunting seal near Thetis Island or while staying at Cross Island during the whaling season. Hunting of bearded seal usually occurs near the ice pack. One hunter described looking for bearded seal close to shore during the early summer when the ice pack is close, and traveling farther once the ice breaks up and moves offshore. Several people also reported looking for seals feeding near the mouths of rivers later in the summer. As one individual said, "And at the end of August you can go to the mouth of the Nigliq Channel because they are eating all the fish" (SRB&A Nuiqsut Interview November 2006). Many of residents' descriptions of their seal hunting activities are provided above under "Ringed Seal." One Nuiqsut hunter provided the following detailed description of seal hunting:

> *At the mouth [of Colville River] straight out, six to 10 miles depending on the ice conditions and the time of year. All the way over to Thetis Island. Sometimes we get out about five miles, all the way across, and come over here to Atigaru, keeping about a mile off [from shore]. We can go into the ice. Sometimes it will be broken up enough if you don't see any seals on the open edge you can go in and scout, and I don't try to go in more than half a mile, and if the wind changes the ice will close up on you. You have to pay attention…. Look for bearded and spotted seal,* natchiq *and* ugruk. *Spotted seal. No walrus, I look when I am out, but I never see them; they tend to be out here [farther offshore]. Most of the [seals] we catch are in the water. The only time [they are] on the ice floes is on a sunny day, June and July, August, whenever there is time. The ice, it lingers here [just outside delta] until the second week of July, and then it breaks up and moves out. It is all shallow water, and seals won't go to shallow water. They have breathing holes to stay out there, and we have fish coming through here through Colville, Fish Creek and Nigliq Channel; that is where the seals feed year around.* (SRB&A Nuiqsut Interview December 2006)

Bearded seal last 12 month use areas, shown on Maps 135 and 136, are also similar to those reported for ringed seal (Maps 133 and 134), occurring between Harrison Bay and Flaxman Island. The highest numbers of overlapping last 12 month bearded seal use areas were reported between the mouth of Fish Creek and Thetis Island and offshore up to 20 miles. The total last 12 month Nuiqsut use area for bearded seal, as shown on Map 136, is 3,344 square miles. Three residents described their last 12 month bearded seal hunting areas as follows:

> *Yeah [I went hunting for bearded seal], but I didn't have any success. I've just seen them at Thetis Island. There is no activity because of the offshore oil well there. It's weird. One time we were hunting in the fog, and we had our guns out and when the fog cleared there was a ship and they could see our guns. We pulled our boats back, and they pulled back.* (SRB&A Nuiqsut Interview November 2005)

> *I didn't get any this year, but I got some last year. [I hunted in] that same general area straight out from the Nigliq Channel. And* ugruk*, they were pretty hard to find last year.* (SRB&A Nuiqsut Interview November 2006)

Map 135 - Nuiqsut Bearded Seal Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

38 use areas reported by 27 respondents

Last 12 Months Dissolved Use Areas

25 use areas reported by 17 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow

Dease Inlet

Smith Bay

Meade River

Chipp River

Ikpikpuk River

Teshekpuk Lake

Atqasuk

Topagoruk River

Harrison Bay

Thetis Island

Cross Island

Flaxman Island

Kaktovik

Prudhoe Bay

Nuiqsut

Fish Creek

Judy Creek

Colville River

Kogosukruk River

Itkillik River

Kuparuk River

Dalton Highway

Sagavanirktok River

Shaviovik River

Kavik River

Canning River

Camden Bay

Sadlerochit River

Hulahula River

Okpilak River

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

Titaluk River

71°0'0"N

70°0'0"N

155°0'0"W

150°0'0"W

145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 136 - Nuiqsut Bearded Seal Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
25 use areas reported by 17 respondents

Most Recent Harvest Locations

14 harvest locations reported by 13 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik

Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Topagoruk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Flaxman Island
Fish Creek
Judy Creek
Kogosukruk River
Colville River
Itkillik River
Kuparuk River
Prudhoe Bay
Dalton Highway
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Camden Bay
Sadlerochit River
Hulahula River
Okpilak River

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Mostly there [north of the Colville River delta]. Not too far. That is where I basically only get ringed seal and ugruk*; I saw some inside the channel [last year], but I didn't get them. Probably here just barely inside the delta, I saw some there, but I didn't catch them. That was just for the bearded seal.* (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

The locations of residents' most recent bearded seal harvests (Map 136) are similar to those reported for ringed seal (Map 134), occurring offshore from the Colville River delta and in a large area around Cross Island. Respondents reported individual harvest locations outside the mouth of Nigliq Channel and north of Thetis Island. In cases where residents were unable to identify the exact location of their harvest, a more general area was identified. Two individuals provided the following descriptions of their most recent harvest locations for bearded seal:

Sixteen miles north of Thetis Island. It wasn't easy getting that thing in the boat. That was about a nine footer, the biggest one I saw was a 12, 14 footer. It made our boat seem small. There were three of us and there was another boat around that helped us get it in the boat. (SRB&A Nuiqsut Interview November 2006)

The closest one we got was right at the mouth of Nigliq, two, three miles. Three people. Day [trip], when we went out there was like five or six boats out there. We got two, the one we caught was right at the mouth and the other was out there somewhere [further out from the Nigliq Channel]. (SRB&A Nuiqsut Interview November 2006)

Number of Participants

Nuiqsut residents described the size of their hunting party at their most recent harvest locations to be split fairly evenly between groups of two to three people and groups of four or more people (Table 140). Respondents reported visiting 57 percent of their harvest locations in groups of four or more people and 43 percent in groups of two to three people.

Table 140: Nuiqsut Number of Participants During Most Recent Bearded Seal Harvests

Number of Participants	Percentage of Harvest Locations
1 person	0%
2-3 people	43%
4 or more people	57%
Number of Most Recent Harvest Locations	14

Stephen R. Braund & Associates, 2010.

Duration of Trip

Nearly all most recent bearded seal harvests (85 percent) took place during same day trips (Table 141). Respondents reported the duration of the remaining 15 percent of most recent harvests lasting two to five nights. In some cases, residents reported camping on Thetis Island while hunting seals and eiders.

Table 141: Nuiqsut Duration of Trips to Most Recent Bearded Seal Harvest Areas

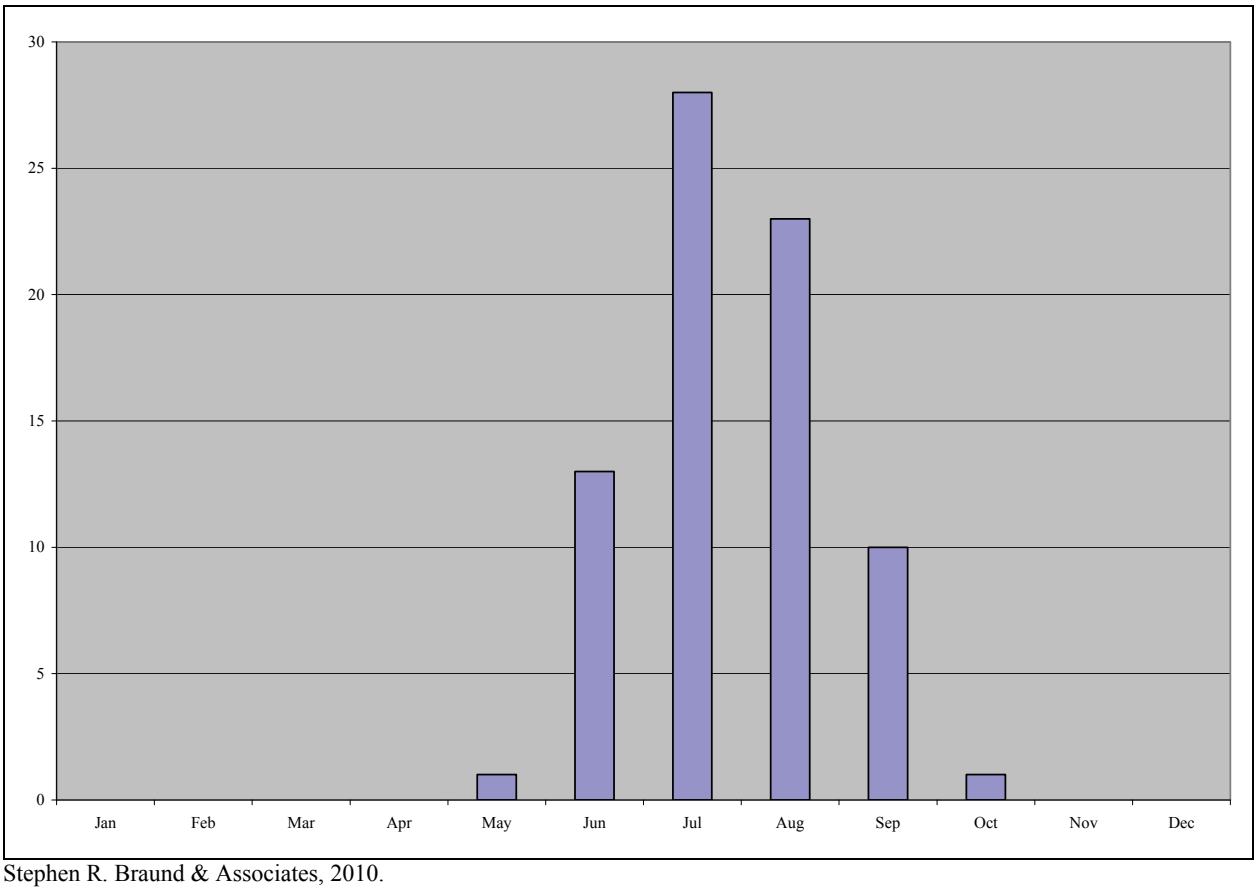
Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	15%
1 night	0%
Same day	85%
Number of Most Recent Harvest Locations	13

Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Nuiqsut hunters reported hunting bearded seal during the summer season in open water as the seals are following the ice pack. Residents reported hunting bearded seal between June and September, although a small number of use areas were reportedly used in May and October (Figure 47). The number of reported bearded seal use areas peak in July and August, when the majority of seals are available along the ice pack.

Figure 47: Nuiqsut Use Areas for Bearded Seal by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Nuiqsut bearded seal hunters hunt in the open ocean, primarily outside the mouth of the Colville River (Map 135). Bearded seals congregate in the broken and pack ice and follow the ice as it moves beyond the community. Because of the locations of the seals and the timing of the hunt, residents reported traveling by boat to the majority (97 percent) of their bearded seal use areas (Table 142). One respondent described hunting bearded seal by snowmachine when the shore-fast ice is still intact.

Table 142: Nuiqsut Method of Transportation to Bearded Seal Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	3%
Four-wheeler	0%
Boat	97%
Foot	0%
Plane	0%
Car/truck	0%
Number of Use Areas	38

Stephen R. Braund & Associates, 2010.

Harvest Gear

Nuiqsut hunters reported using a wide variety of weapons to hunt bearded seal (Table 143). The majority of hunters reported using a .243, .223, and a 12-gauge shotgun at 44 percent, 33 percent, and 27 percent of harvesters respectively. One hunter reported using a .243 in addition to several other rifles. He said, ".22 mag, .223, .243 is the biggest thing I use on the bearded seal" (SRB&A Nuiqsut Interview November 2006).

Table 143: Nuiqsut Bearded Seal Harvest Gear

Rifle Caliber or Shotgun Gauge	Number (%) of Harvesters
.243	8 (44%)
.223	6 (33%)
12 gauge	5 (27%)
.222	3 (16%)
.22	3 (16%)
.22 mag	2 (11%)
7mm	2 (11%)
300 mag	2 (11%)
20 gauge	2 (11%)
.270	1 (9%)
.25-06	1 (9%)
7.62x39	1 (9%)
Mini 14	1 (9%)

Stephen R. Braund & Associates, 2010.

Walrus

Nuiqsut residents rarely see walrus (*aiviq*) close enough to the village to hunt them. A few hunters mentioned seeing walrus only in the Barrow area and at Cross Island during whaling season. One resident said, "No, I don't hunt them; we see them at Cross Island" (SRB&A Nuiqsut Interview November 2005). Several residents described hunting walrus in the last 10 years but only when in the Barrow area. Two residents explained,

> *I used to do that in Barrow. I did it one time about eight years ago. I drove my boat to Barrow. It took about eight to 10 hours.* (SRB&A Nuiqsut Interview November 2005)
>
> *I never did touch a walrus out here, but when I go to Barrow I hunt them.* (SRB&A Nuiqsut Interview November 2005)

Hunters generally explained they do not hunt the walrus near Cross Island because the focus is on whaling and the noise made firing the weapons could frighten the whales further out to sea. Only one respondent reported hunting walrus in the Nuiqsut area in the last 10 years at one use area, yet not in the last 12 months (Tables 5 and 6). Because only aggregated information of four or more respondents is included in this report, the figures and tables related to walrus harvest activities are not included in this report.

Wolf/Wolverine

Wolf (*amaġuq*) and wolverine (*qavvik*) hunting is a relatively common activity among Nuiqsut respondents. Twenty-four of the 33 Nuiqsut respondents (73 percent) reported hunting wolf and wolverine in the last 10 years (Table 5). Fewer respondents (14) reported hunting wolf and wolverine in the last 12 months (Table 6). Only five of the 14 respondents who hunted wolf/wolverine in the last 12 months reported a successful harvest (Table 7). Residents hunt furbearers and use the skins for clothing and art.

Subsistence Use Areas

As indicated by the last 10 year wolf and wolverine use area reported by Nuiqsut respondents and shown in Map 137, hunting wolf and wolverine generally requires the use of an expansive overland area. A number of individuals reported looking for wolf and wolverine while hunting caribou, hence the similarities between last 10 year caribou and wolf and wolverine use areas (see Maps 111 and 137). However, caribou hunting is generally more focused along the main rivers of the area; by contrast, residents reported a high number of overlapping wolf and wolverine use areas in a large overland area. The total last 10 year Nuiqsut use area for wolf and wolverine, as shown on Map 137, is 20,132 square miles.

Residents reported traveling as far west as Dease Inlet near Barrow and as far east as the Jago River near Kaktovik. Although not shown on the map (base maps used during Nuiqsut interviews did not extend far enough south), a few hunters reported traveling as far as Anaktuvuk Pass to hunt furbearers. The highest numbers of overlapping wolf and wolverine use areas were reported south and west of the community in an area surrounding Fish Creek, Judy Creek, and Kikiakrorak River; and south and east of the community in an area surrounding Itkillik and Kuparuk rivers and the White Hills. Nuiqust hunters generally reported traveling closer to the community in search of furbearers and only continue farther if they are not initially successful. This is especially true in recent years due to high gas prices.

A number of respondents reported harvesting wolverine closer to the community, such as along Fish Creek, while hunters generally have to travel farther to find wolves. One individual commented, "It is pretty spendy to go out looking; the wolverines are pretty close sometimes, but for wolves you have to go out far" (SRB&A Nuiqsut Interview November 2006). Nuiqsut hunters mentioned certain areas where

Map 137 - Nuiqsut Wolf and Wolverine Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
69 use areas reported by 24 respondents

Last 12 Months Dissolved Use Areas

37 use areas reported by 14 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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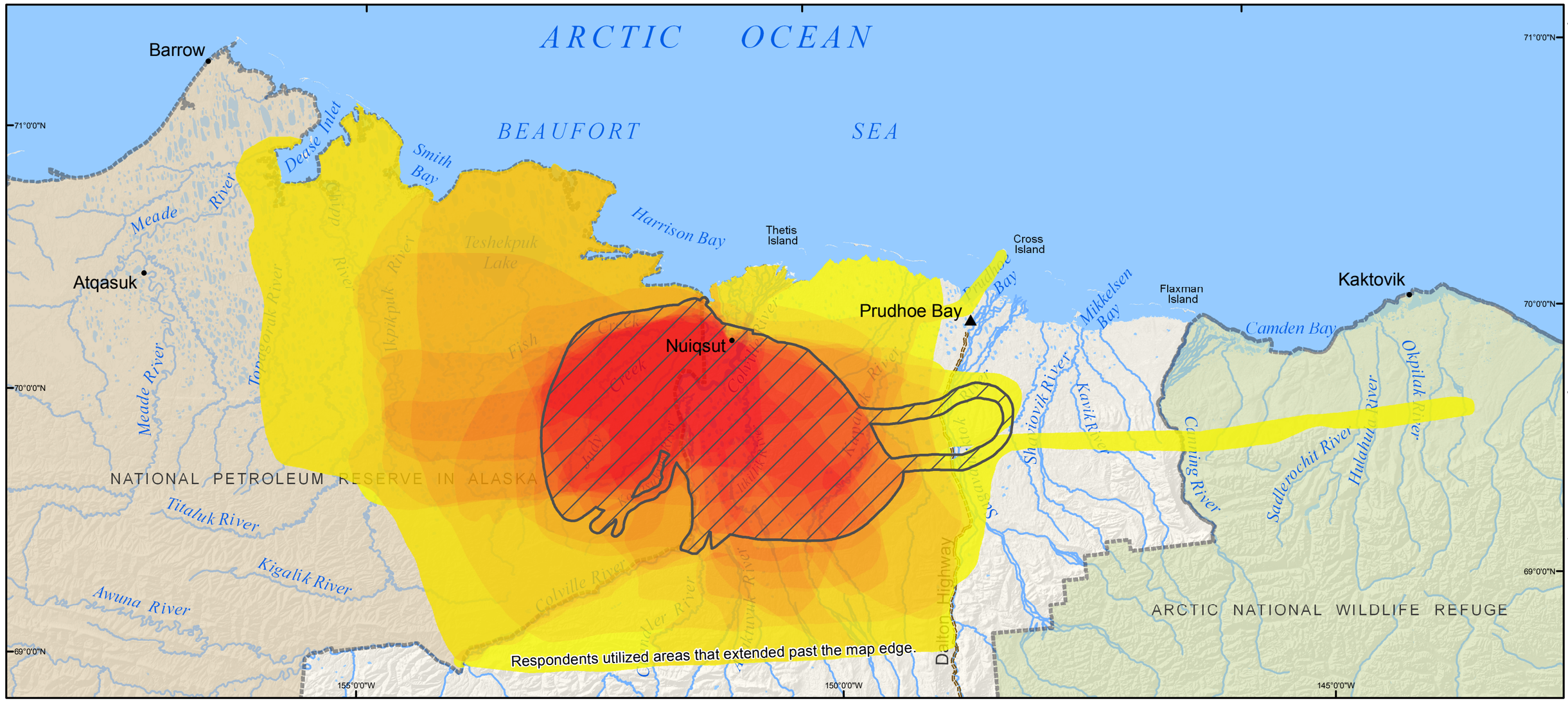

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

they hunt wolf and wolverine; in particular, residents described hunting around Fish Creek and Judy Creek (including Inigok test well); Colville, Kikiakrorak, Kogosukruk, Itkillik, Kuparuk, Chandler, and Anaktuvuk rivers; and White Hills, Franklin Bluffs, and Outpost Mountain. A number of respondents also reported traveling west of the community toward Teshekpuk Lake and Ikpikpuk River, sometimes seeing Barrow hunters in those areas. A few respondents identified "favorite" wolf and wolverine hunting areas, while others indicated that their use areas vary often depending on the location of furbearers.

A number of residents provided the following descriptions of their last 10 year wolf and wolverine hunting activities:

> *Up and down the Kikiakrorak River. When I take off that is the main place I go for wolf and wolverine. [I] just [hunt them] when I run into their tracks. We go around the Colville River because from Ocean Point that is where the high bluffs begin. Not in the village. That is the general area I do my wolf hunting. That is the only place I have gotten wolves.* (SRB&A Nuiqsut Interview November 2006)

> *We go here near the Kuparuk River and here along the Kikiakrorak and Kogosukruk rivers. That's where we go for furbearer hunting. If we don't see anything we'll go to White Hills.* (SRB&A Nuiqsut Interview November 2005)

> *I have been around the Chandler and the Anaktuvuk rivers; I haven't gotten anything there but I look. There are some high bluffs you can climb on top and scout the area. If you don't see anything you cut across to Anaktuvuk River; if you don't see anything you find another area. I have been to Outpost Mountain for wolverine and wolf.* (SRB&A Nuiqsut Interview November 2006)

> *I go everywhere, to Kuparuk [River] area, east and west. Where's Happy Valley? This must be Happy Valley here. Pump Station Two, right around here. Because from here, there's a rig on east Kuparuk [River]. Ikpikpuk [River], through this whole area. Teshekpuk Lake, that's only 75 miles away. Yeah, Judy Creek, that's the way I go home. You know the landmarks to get home. Yeah it's pretty much that way [the route home], because you can see the White Hills right there. That's pretty much a whole day's worth of snowmachining, 16 hours.* (SRB&A Nuiqsut Interview November 2005)

> *This whole area, and I go all the way up the mountains, all the way to Kuparuk [River] and Toolik [River], around that are and the White [Hills] to Franklin Bluffs and back. I go all the way into the mountains here. I followed this road [Dalton Highway] last year. I've only done that once. I go all the way to Anaktuvuk Pass. I go to refuel there. I usually go after January most of the time, until April. I mostly take that cat train trail, and wherever the tracks take me.* (SRB&A Nuiqsut Interview November 2005)

Residents' last 12 month wolf and wolverine use areas are depicted on Maps 137 and 138. Compared to the last 10 year use areas shown on Map 137, residents covered a relatively smaller area in the 12 months prior to their interviews. Last 12 month wolf and wolverine use areas reported by Nuiqsut respondents were generally located within the areas of high overlapping use shown on Map 137. The highest numbers of overlapping last 12 month use areas were located south and west of the community between Judy Creek and Kikiakrorak River. The total last 12 month Nuiqsut use area for wolf and wolverine, as shown on Map 138, is 4,496 square miles.

Map 138 - Nuiqsut Wolf and Wolverine Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
37 use areas reported by 14 respondents
Low

Most Recent Harvest Locations

8 harvest locations reported by 5 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN

BEAUFORT SEA

Barrow

Atqasuk

Nuiqsut

Prudhoe Bay

Kaktovik

Thetis Island

Cross Island

Flaxman Island

Dease Inlet

Smith Bay

Harrison Bay

Prudhoe Bay

Mikkelsen Bay

Camden Bay

Meade River

Topagoruk River

Ikpikpuk River

Teshekpuk Lake

Fish Creek

Judy Creek

Colville River

Kuparuk River

Sagavanirktok River

Shaviovik River

Kavik River

Canning River

Sadlerochit River

Hulahula River

Okpilak River

Meade River

Titaluk River

Kigalik River

Awuna River

Chandler River

Anaktuvuk River

Dalton Highway

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

69°0'0"N

155°0'0"W

150°0'0"W

145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents described their last 12 month wolf and wolverine hunting activities as follows:

> *When I go out traveling, that was last year when I went in December, I went near the high bluffs out here. Like 50-60 foot high bluffs. Just go there. Yes, that was last year. In a day I just went out. Last two winters ago, I went out there I got two or three wolverine at the same spot. After I got there, there were two wolverines and all the sudden my village people heard that I got two wolverine and they headed southwest and there was two youngsters and they got wolverines there. I will be going out southwest, mostly going southwest.* (SRB&A Nuiqsut Interview November 2006)

> *Last year, we followed the Itkillik River right to the Anaktuvuk River, and we followed the cat train trail. Right by the Big Bend. February, March. Last year we saw fresh wolverine tracks over there [outside of town]*. (SRB&A Nuiqsut Interview November 2005)

> *I headed west of here two weeks ago, 18 miles because there is no snow. Went to the cabin, circled around, and came back. That one trip was enough to tell me 'No more. I have to wait till more snow.' Last season I went to place called Shirukak Lake. I went up that far and cut across and up to here and home this way. I leave this way and get on cat trail and there is pingos where you can drive up and glass. Always checking ground, tracking is what it is called. I didn't have any luck last winter.* (SRB&A Nuiqsut Interview December 2006)

> *Last year we got some there, by Fish Creek, and then in this place some year we had to turn back because it was late at night. That is just looking for wolves and wolverine. Not caribou. I usually go up for wolf and wolverine up there [further than caribou]. White Hills for wolf and wolverines. Sometimes we go as far as the Haul Road. And then we go just right below, Happy Valley. You can see Happy Valley, not far. I never did cross the road. Just on the weekends, so we had to get back. We went out Saturday morning and then camped there and had to head back Sunday.* (SRB&A Nuiqsut Interview November 2006)

Most Recent Harvest

Harvest Locations

Only five Nuiqsut residents reported successfully harvesting wolves or wolverine in the 12 months prior to their interviews (Table 7). The locations of these harvests are depicted on Map 138. Residents reported harvesting wolf and wolverine on Judy Creek, Kikiakrorak River, and east of Colville River to Kuparuk River. A number of resident reported hunting in the last 12 months with no success. As one individual described,

> *The last wolf I got was Christmas in 2004; I got a male 15 miles west of here. Year before that was 50 miles from Nuiqsut. Nice male, beautiful fur. The wife sews all the parkas. I didn't get any last year, not even a wolf. I saw some old tracks but never did see any fresh tracks enough to start tracking.* (SRB&A Nuiqsut Interview December 2006)

Two hunting partners who participated in the same interview workshop reported successful harvests of wolverine in the previous year. One of these individuals described catching wolverines near Kuparuk River, saying,

Last [wolverine] was on the Kuparuk River. We traveled out, and we made it out to the Kuparuk River. Where is the drill rig? [My hunting partner] and I got one each. We were on the same trip. He and I got one together. There were two together, and we got them. I don't go out towards Inigok [River]; maybe around here, down here. I don't go here. It's an eight hour trip. In this general area, I go straight and I avoid all the industry. You don't see them there [near industry]. I go the same place where [my hunting partner] goes. We travel, and we make a loop. [We go in] February March, when there's more daylight. (SRB&A Nuiqsut Interview November 2005)

Number of Participants

Two to three people participated in 88 percent of Nuiqsut's most recent wolf and wolverine harvests whereas residents hunted alone at 13 percent of their most recent harvest locations (Table 144). Residents generally reported traveling with hunting partners or with family groups, especially when targeting caribou in addition to wolf and wolverine.

Table 144: Nuiqsut Number of Participants During Most Recent Wolf/Wolverine Harvests

Number of Participants	Percentage of Harvest Locations
1 person	13%
2-3 people	88%
4 or more people	0%
Number of Most Recent Harvest Locations	8

Stephen R. Braund & Associates, 2010.

Duration of Trip

Each hunter who successfully harvested a wolf or wolverine in the 12 months prior to their interview reported that the harvest took place during a same day trip (Table 145). Respondents reported camping or staying in cabins while hunting wolf and wolverine in the past 10 years, but not in the last 12 months. One resident explained, "We camp out and look for a spot where the snow is drifted, where it is cozy and comfortable" (SRB&A Nuiqsut Interview November 2005).

Table 145: Nuiqsut Duration of Trips to Most Recent Wolf/Wolverine Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	0%
1-2 weeks	0%
2-5 nights	0%
1 night	0%
Same day	100%
Number of Most Recent Harvest Locations	8

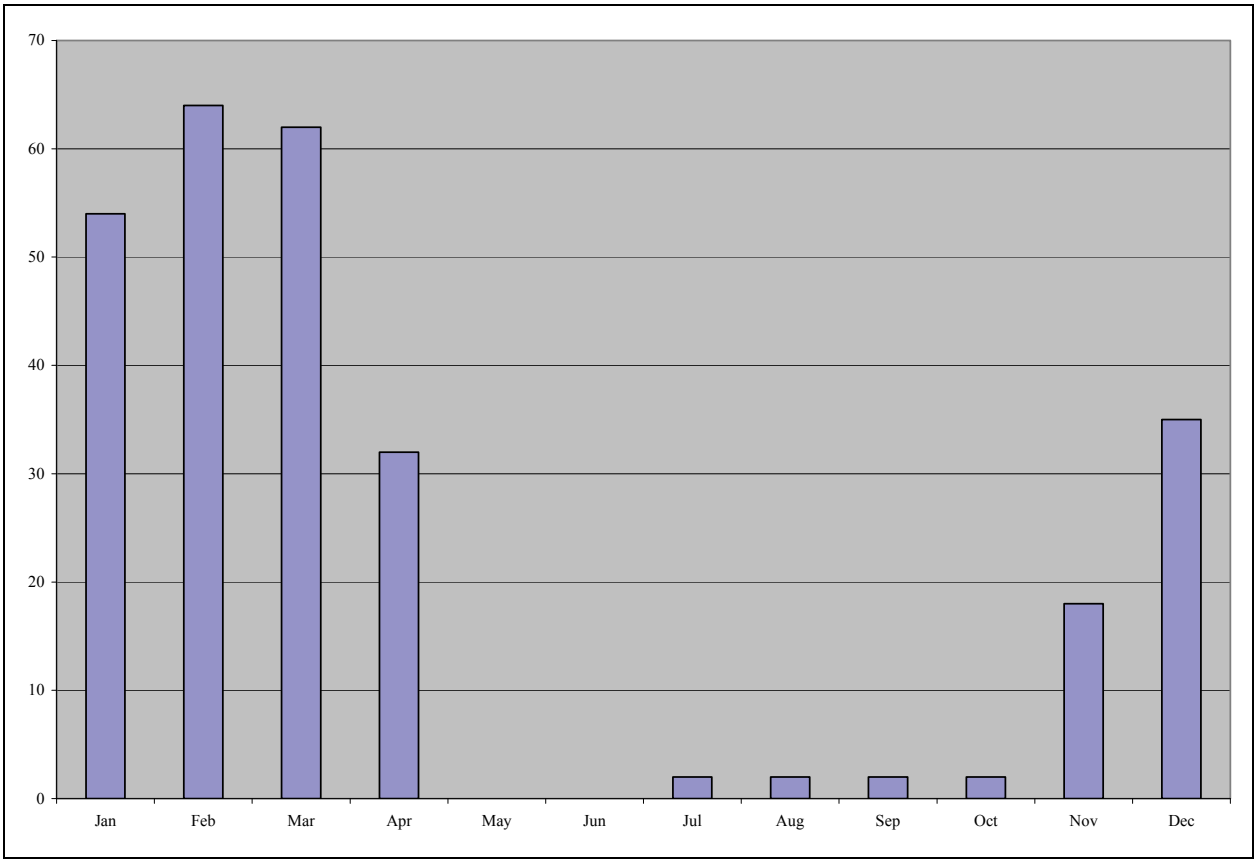
Stephen R. Braund & Associates, 2010.

Months of Harvest Effort

Wolf and wolverine hunting occurs primarily in the winter months from December until April, with the highest number of use areas reported in January, February, and March (Figure 48). Respondents explained that they hunt wolf and wolverine solely for their prized fur primarily used in making parkas. Hunters only hunt wolf and wolverine when the fur is in prime winter condition, from the end of November and tapering off in April. A number of respondents reported a preference for hunting wolf and wolverine in February and March when the days are longer. Two respondents provided the following observations regarding the months in which they hunt wolf and wolverine:

> *[I hunt wolf and wolverine] when it starts getting colder. The colder it gets, the thicker the fur. January to April. (SRB&A Nuiqsut Interview November 2005)*
>
> *December until maybe the first week of April. It depends on the furs. When the sun comes out too early, it makes the skin dull. (SRB&A Nuiqsut Interview November 2005)*

Figure 48: Nuiqsut Use Areas for Wolf/Wolverine by Month



Stephen R. Braund & Associates, 2010.

Method of Transportation

Because wolf and wolverine hunting takes place primarily in the winter months, residents reported using snowmachines to access 97 percent of their wolf and wolverine use areas (Table 146). Harvesters reported using either a boat or a plane to access a small number of hunting areas.

Table 146: Nuiqsut Method of Transportation to Wolf/Wolverine Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	97%
Four-wheeler	0%
Boat	3%
Foot	0%
Plane	3%
Car/truck	0%
Number of Use Areas	69

Stephen R. Braund & Associates, 2010.

Harvest Gear

Considerable variation exists concerning the type of gear used by Nuiqsut respondents to harvest wolf and wolverine. Table 147 shows the different types of gear used in harvesting wolf and wolverine with respective number of harvesters reporting. Thirty percent of respondents who reported wolf and wolverine harvest gear use a .222, .223, or a .243 (Table 147). One hunter described his preference for particular rifle calibers when he said, "Only pistol and rifle, 222 and 22 magnum. It makes a smaller hole" (SRB&A Nuiqsut Interview November 2005).

While Nuiqsut residents trapped wolf and wolverine in the past, hunters have changed their hunting strategies in more recent years to incorporate the use of snowmachines in tracking and hunting these animals. A few harvesters still utilize traps in harvesting wolves and wolverine (see Table 147).

Table 147: Nuiqsut Wolf/Wolverine Harvest Gear

Rifle Caliber or Trap	Number (%) of Harvesters
.222	3 (30%)
.223	3 (30%)
.243	3 (30%)
.22-250	2 (20%)
.22	2 (20%)
Trap	2 (20%)
.22 mag	1 (10%)

Stephen R. Braund & Associates, 2010.

Resource Summary

Nuiqsut respondents reported year-round subsistence activities and stressed the importance of subsistence in their lives. One individual described subsistence as "who I am," and observed that changes to subsistence are "really hard emotionally" (SRB&A Nuiqsut Interview November 2005). Thirty-three Nuiqsut respondents reported a total of 758 last 10 year subsistence use areas for key resources (Table 5). All 33 respondents also reported hunting or harvesting at least one resource in the 12 months prior to their interviews harvests (Table 6). Arctic cisco and geese were the most commonly harvested resources, with all 33 respondents reporting last 10 year use areas for those resources, followed by caribou (32

respondents), moose (31 respondents), burbot (30), eiders (28), and bearded seal (27). During interviews, residents also mentioned other resources they harvest, including Arctic grayling, humpback whitefish, salmon, musk ox, and berries.

Subsistence Use Areas

Last 10 year use areas for all resources, as reported by Nuiqsut respondents, are depicted on Map 139 and extend over a large area between Barrow and Atqasuk to the west and Kaktovik to the east. Residents reported traveling offshore over 50 miles and inland as far as Anaktuvuk Pass (not shown on the map). The highest numbers of overlapping all resources use areas occur offshore from the Colville River delta between the mouth of Fish Creek and Thetis Island; along various waterways including Colville, Itkillik, Anaktuvuk, Chandler rivers and Fish Creek; and in an overland area between Fish Creek to the west and Itkillik River to the east. A relatively high number of overlapping use areas also occur in a large offshore area surrounding Cross Island and Flaxman Island and overland between Ikpikpuk River, Kuparuk River, and south toward White Hills. The total last 10 year Nuiqsut use area for all resources, as shown on Map 139, is 28,936 square miles.

Nuiqsut hunters' offshore activities primarily occur by boat during the summer months. Residents travel offshore from the Colville River delta to hunt ringed seal, bearded seal, and eider ducks and whaling crews travel to Cross Island to hunt bowhead whales as far east as Camden Bay. Residents also hunt in the ocean by boat when caribou are abundant along the coast during the summer. Residents travel along local waterways, including Colville River, Itkillik River, and Fish Creek, to hunt moose and caribou and harvest fish; and overland by snowmachine while hunting caribou, wolf, wolverine, and setting nets or jigging for fish.

In the 12 months prior to their interviews, Nuiqsut residents reported traveling in an area similar to that reported for the last 10 years (see Maps 139 and 140). Last 12 month use areas extended from Dease Inlet in the west to Shaviovik River in the east, and offshore between Cape Halkett and Flaxman Island. The highest numbers of overlapping last 12 month use areas were reported offshore between Fish Creek and Thetis Island, along Colville (including Nigliq Channel and the east channel) and Itkillik rivers, and overland in an area surrounding Fish Creek, Judy Creek, and Colville River. The total last 12 month Nuiqsut use area for all resources, as shown on Map 140, is 18,789 square miles.

Most Recent Harvest

Harvest Locations

In the 12 months prior to their interviews, all 33 Nuiqsut respondents reported successful harvests of at least one resource. The locations of their most recent harvests are depicted on Map 140 and occurred offshore between Harrison Bay and Flaxman Island and inland around Fish Creek, Judy Creek, Kikiakrorak River, Colville River, Chandler River, Anaktuvuk River, and in a large overland area east of Colville River to Kuparuk River. Individual harvest locations were reported offshore from the community and near Cross Island, in an inland area surrounding Nuiqsut, along Fish Creek and Judy Creek, along Itkillik and Chandler rivers, and at various locations along Colville River. The highest number of most recent harvest locations were reported for geese (likely due to residents visiting multiple hunting locations in one trip), followed by Arctic cisco, caribou, eiders, burbot, and broad whitefish.

Number of Participants

Of the 261 most recent harvests reported by Nuiqsut respondents, 35 percent occurred in groups of four or more people (Table 148). Residents hunted in groups of two to three at 47 percent of most recent harvest locations and took solo trips to 18 percent of most recent harvest locations. Figure 49 shows the percentage of most recent harvests involving four or more participants, by resource. Eider hunting had the highest percentage of most recent harvests involving four or more participants, followed by ringed seal,

Map 139 - Nuiqsut All Resource Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low
756 use areas reported by 33 respondents

Last 12 Months Dissolved Use Areas

466 use areas reported by 33 respondents

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 140 - Nuiqsut All Resource Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low
466 use areas reported by 33 respondents

Most Recent Harvest Locations

261 harvest locations reported by 33 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC OCEAN

BEAUFORT SEA

Barrow

Atqasuk

Nuiqsut

Prudhoe Bay

Kaktovik

Dease Inlet

Smith Bay

Meade River

Teshekpuk Lake

Fish Creek

Judy Creek

Ikpikpuk River

Topagoruk River

Titaluk River

Kigalik River

Awuna River

Colville River

Chandler River

Anaktuvuk River

Kuparuk River

Sagavanirktok River

Dalton Highway

Shaviovik River

Kavik River

Canning River

Sadlerochit River

Hulahula River

Okpilak River

Camden Bay

Cross Island

Flaxman Island

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

71°0'0"N

70°0'0"N

69°0'0"N

155°0'0"W

150°0'0"W

145°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

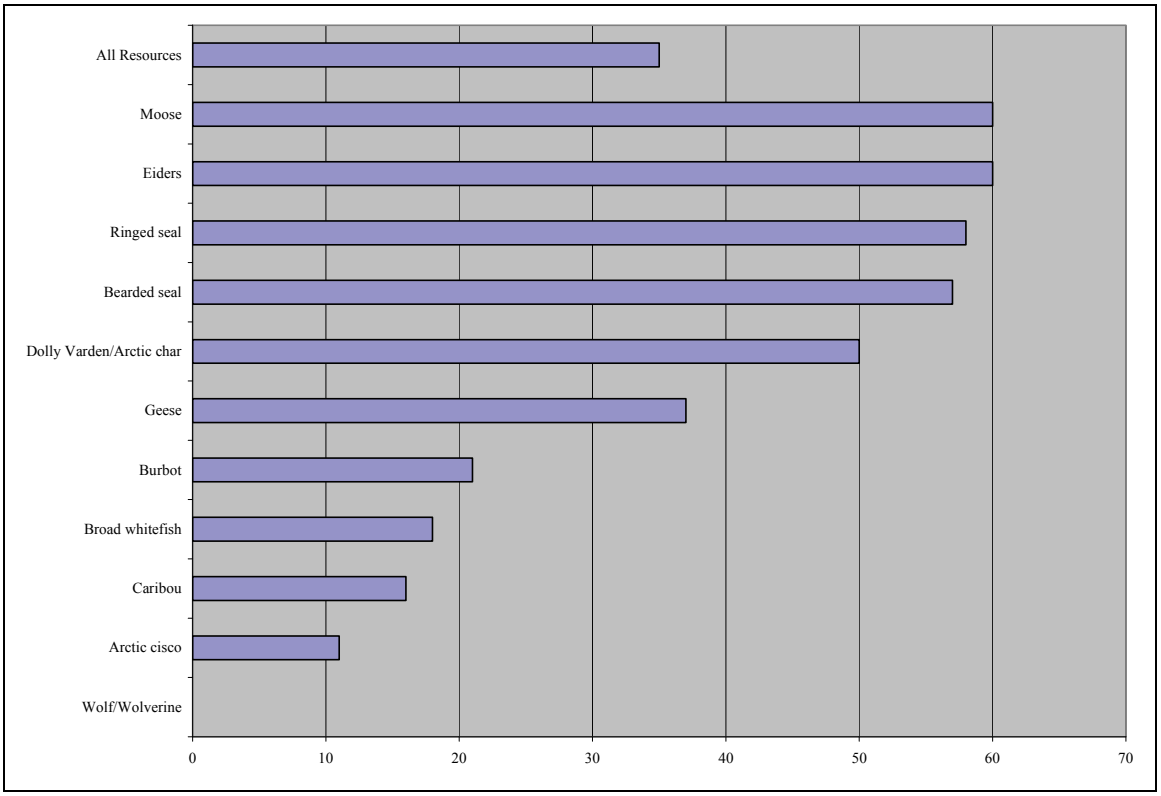
moose, and bearded seal. Wolf and wolverine hunting, arctic cisco, broad whitefish, and burbot harvests, and caribou hunting all had the lowest percentage of most recent harvests involving four or more participants. Residents commonly reported engaging in group subsistence activities, especially during the summer when residents travel offshore by boat to harvest marine mammals and along the coast and local rivers to hunt moose and caribou and harvest fish. Residents more commonly travel by themselves to check fish nets or when traveling overland by snowmachine during the winter months to hunt caribou, wolf, and wolverine.

Table 148: Nuiqsut Number of Participants During Most Recent All Resources Harvests

Number of Participants	Percentage of Harvest Locations
1 person	18%
2-3 people	47%
4 or more people	35%
Number of Most Recent Harvest Locations	261

Stephen R. Braund & Associates, 2010.

Figure 49: Percentage of Most Recent Nuiqsut Harvests with Four or More Participants



Stephen R. Braund & Associates, 2010.

Duration of Trip

The majority of Nuiqsut's most recent harvests occurred in the course of one day (Table 149). Residents reported taking day trips to 70 percent of their most recent harvests and extended stays lasting between two days and more than two weeks at the remaining 30 percent of harvests. Figure 50 depicts the

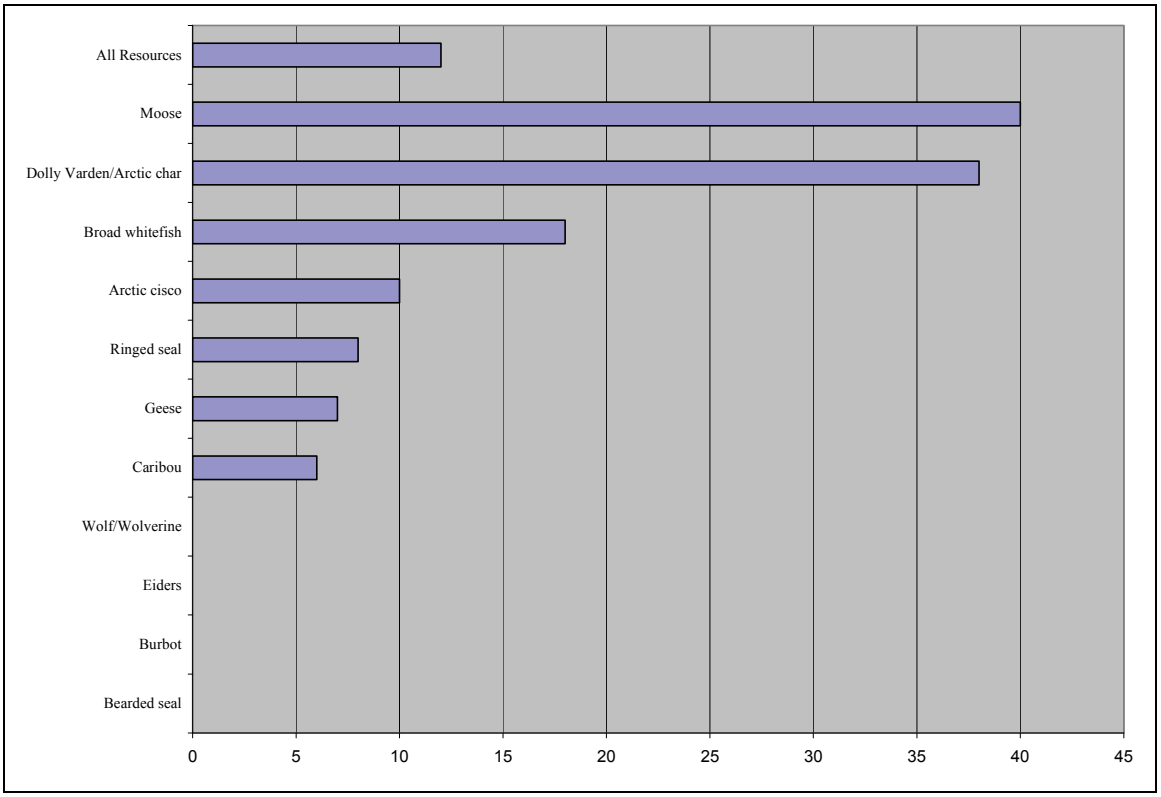
percentage of most recent harvests occurring during trips lasting more than one week, by resource. A high percentage of moose and Arctic char/Dolly Varden harvests occurred during trips lasting more than one week. Residents generally reported taking extended trips more often during the summer and fall months when families travel along local rivers to hunt caribou and moose and harvest fish.

Table 149: Nuiqsut Duration of Trips to Most Recent All Resources Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	7%
1-2 weeks	5%
2-5 nights	16%
1 night	3%
Same day	70%
Number of Most Recent Harvest Locations	253

Stephen R. Braund & Associates, 2010.

Figure 50: Percentage of Most Recent Nuiqsut Harvests Lasting More Than One Week



Stephen R. Braund & Associates, 2010.

Maps 141 through 144 depict Nuiqsut residents' most recent harvests in terms of duration of trip. Residents reported taking same day trips when hunting offshore, close to the community, and inland at various overland locations (Map 141). Residents are able to cover larger areas by snowmachine, hence the larger use areas visited on day trips.They spent one night while hunting along Fish Creek and Colville

Maps 141, 142, 143, 144
Nuiqsut Duration of Trip to Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

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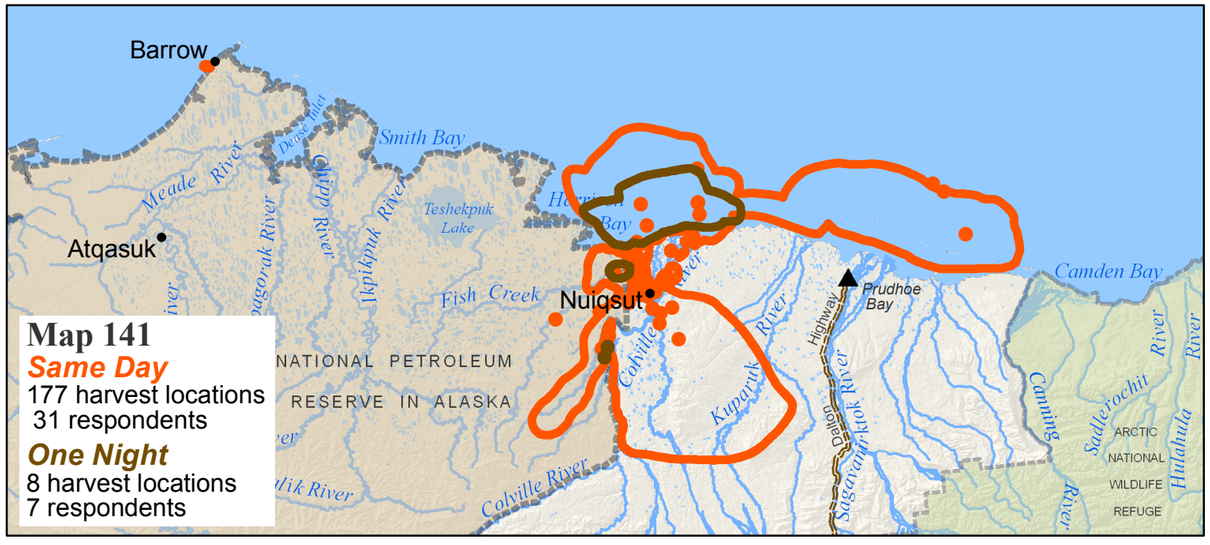
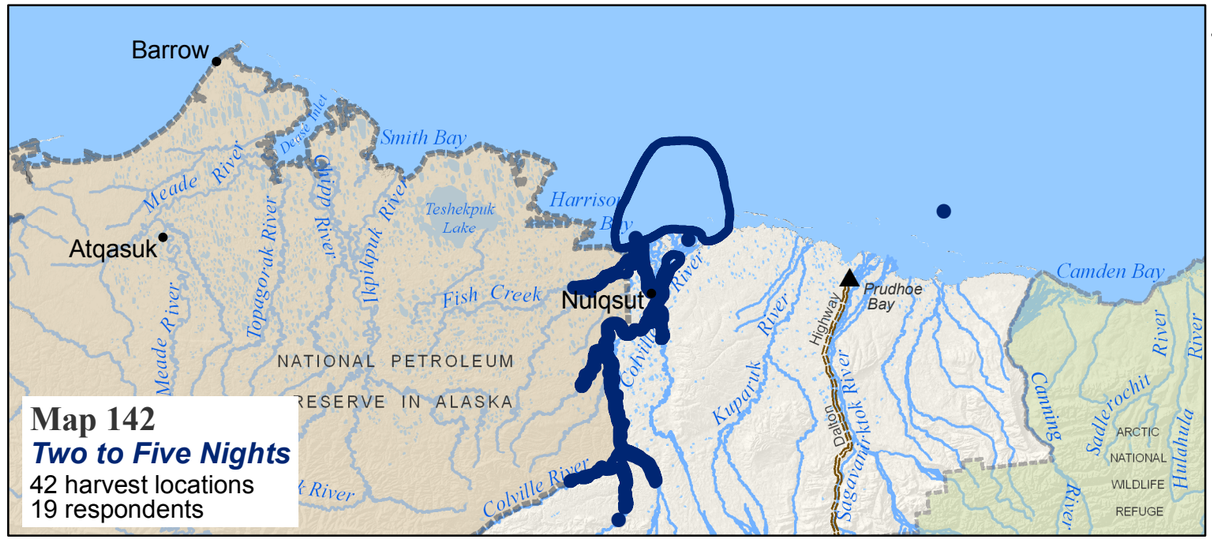
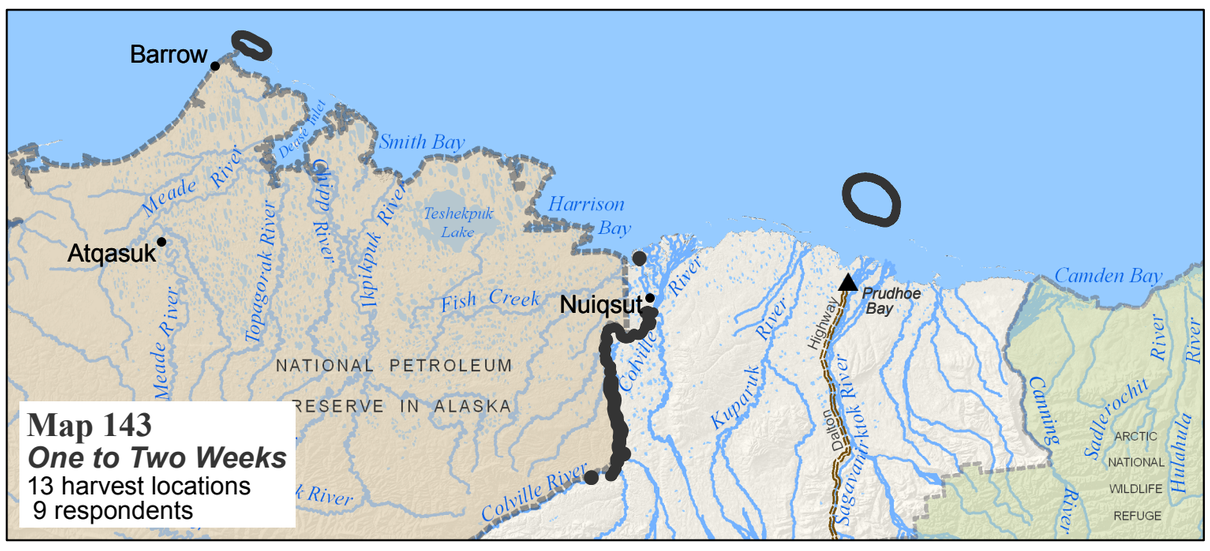


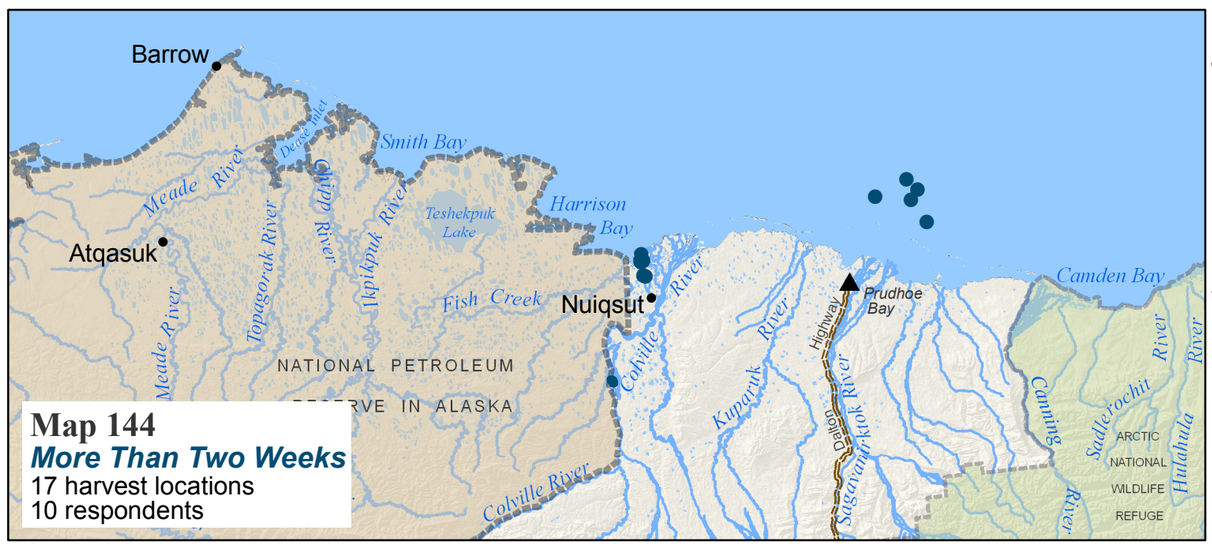
Map 141
Same Day
177 harvest locations
31 respondents
One Night
8 harvest locations
7 respondents



Map 142
Two to Five Nights
42 harvest locations
19 respondents



Map 143
One to Two Weeks
13 harvest locations
9 respondents



Map 144
More Than Two Weeks
17 harvest locations
10 respondents

July 2009

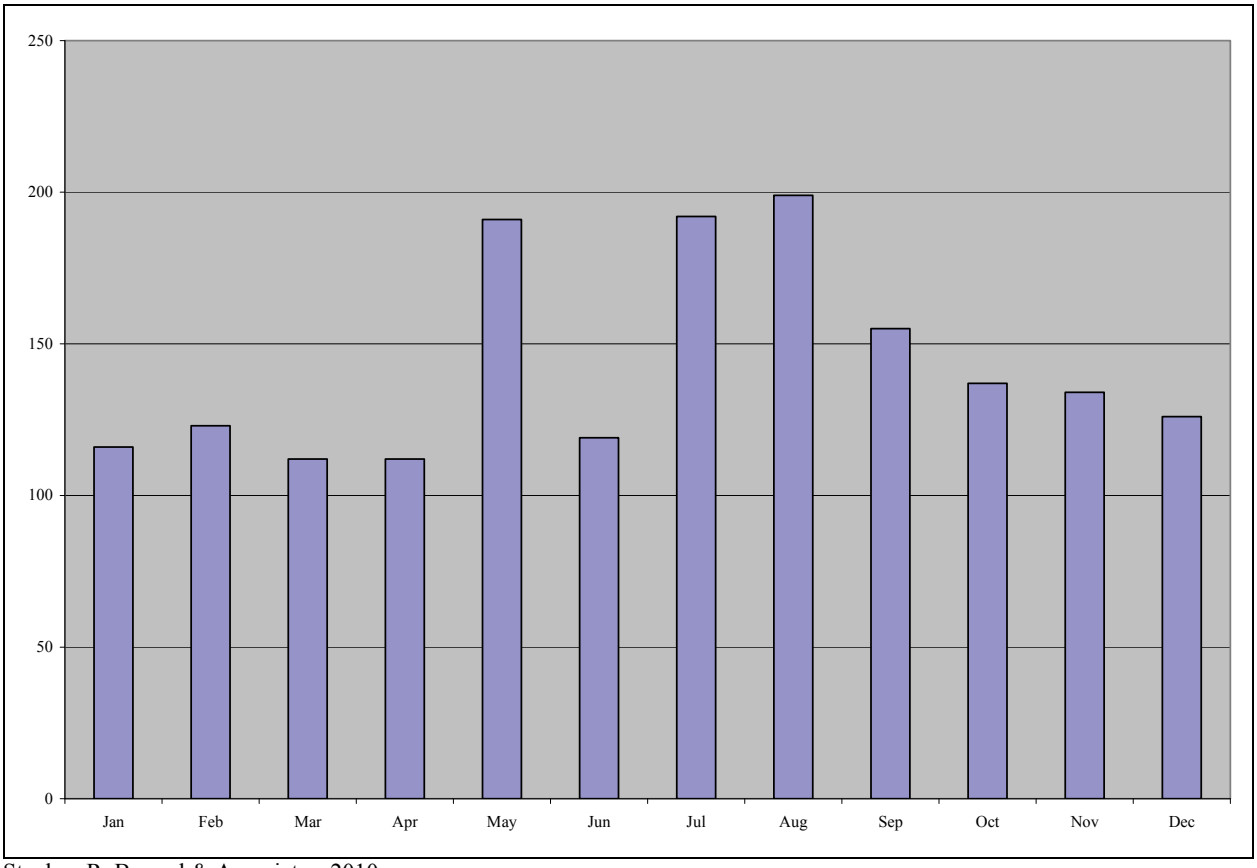
Projection: Alaska Albers Equal Area Conic, NAD 1983

River, as well as offshore (a number of respondents reported spending the night on Thetis Island while hunting marine mammals). Residents spent two to five nights and between one to two weeks primarily when traveling along the Colville River (where residents hunt caribou and moose and harvest various species of fish), although a few offshore harvests occurred (including a whaling area near Barrow) (Maps 142 and 143). Trips lasting more than two weeks generally occurred at Cross Island, the base for Nuiqsut bowhead whale hunting, and along Nigliq Channel (presumably fish camp locations) (Map 144).

Months of Harvest Effort

As shown in Figure 51, Nuiqsut subsistence users engage in subsistence activities throughout the year. The highest numbers of use areas were reported in May, when residents hunt geese, and July and August, when a variety of subsistence activities are in full swing, including fishing, caribou and moose hunting, and marine mammal hunting. During the summer and early fall months, residents travel offshore to hunt ringed seal, bearded seal, and eider ducks and inland for caribou, moose, and fish. In September, whaling crews travel to Cross Island to hunt bowhead whales. In late fall (October and November), residents set nets for Arctic cisco under the ice; they overland throughout the winter to hunt wolf, wolverine, and caribou and to jig for burbot. Geese hunting is the primary spring activity, occurring in May.

Figure 51: Nuiqsut Use Areas for All Resources by Month



Stephen R. Braund & Associates, 2010.

Maps 145 through 156 depict Nuiqsut last 10 year use areas for all resources, by month. Residents travel in a large overland area between November and April to hunt caribou, wolf, and wolverine (Maps 145 through 150). Areas with moderate to high numbers of overlapping use areas extend farther from the community between January and April, the prime time for furbearer hunting. While residents continue to travel overland in a smaller area by snowmachine to hunt geese during the month of May, the month of June marks the end of snowmachine travel and the beginning of the open water season (Maps 151 and

Maps 145-150 - Nuiqsut Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1995-2006)
November-April

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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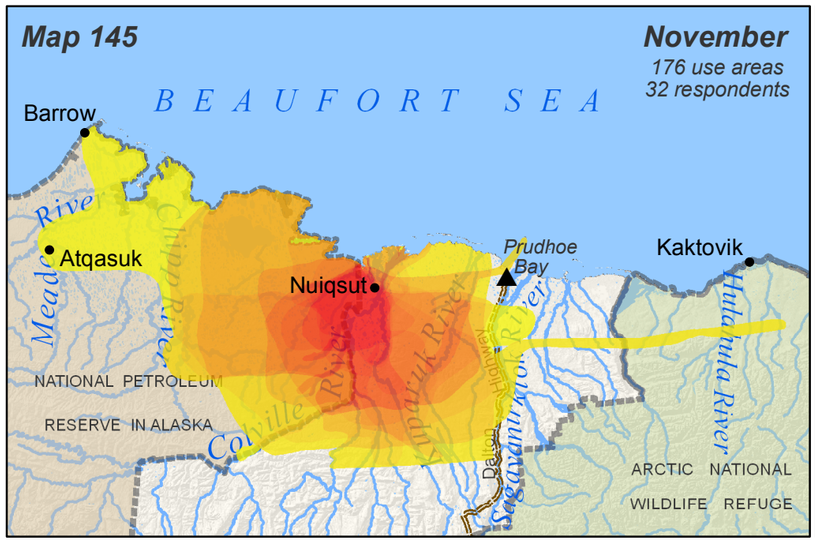

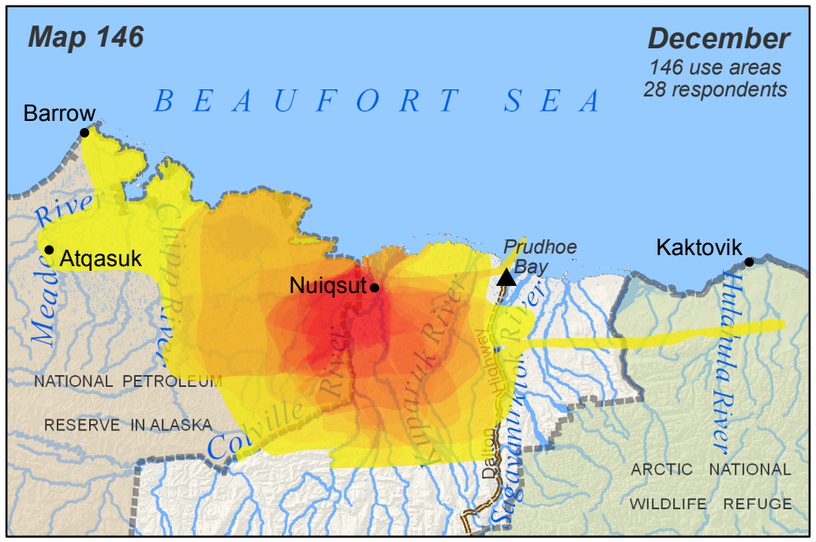

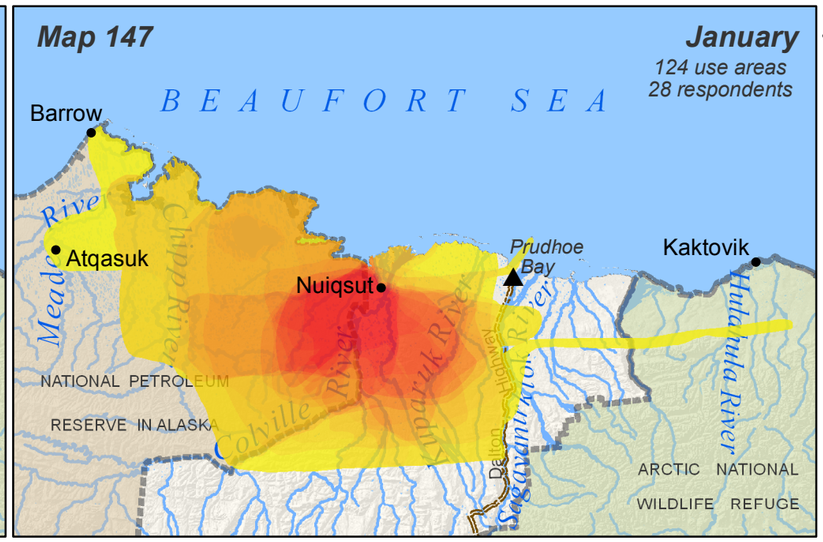

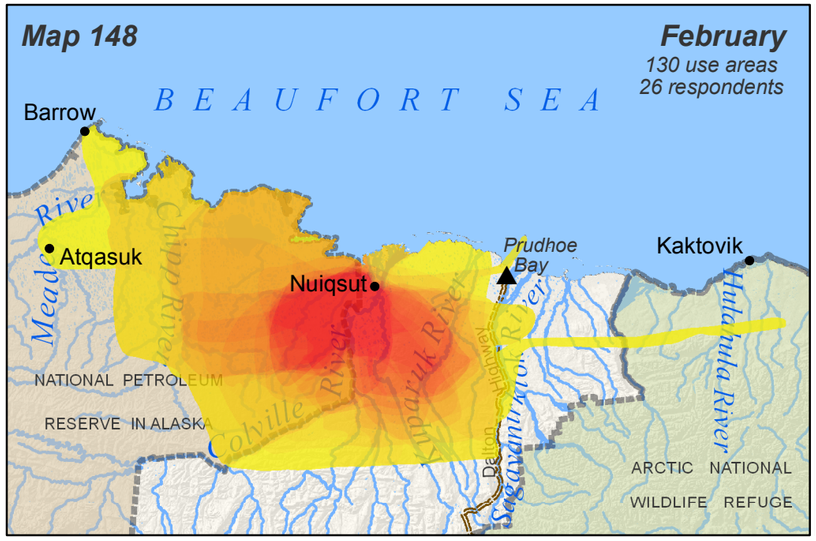

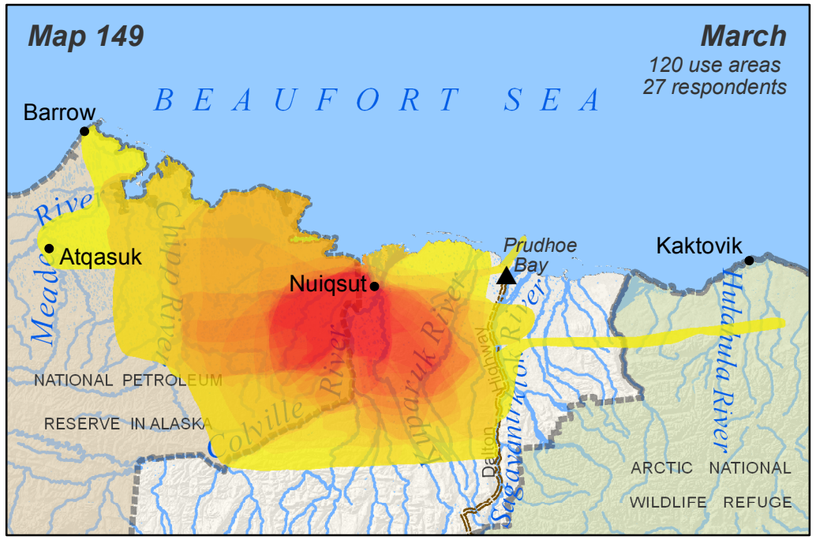

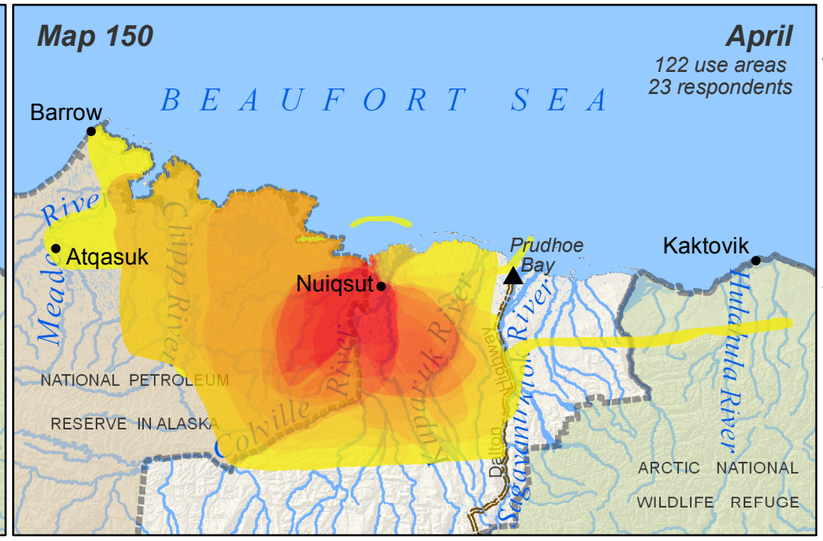

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Maps 151-156 - Nuiqsut Months of Harvest Effort
All Resource Use Areas, Last 10 Years (1995-2006)
May-October

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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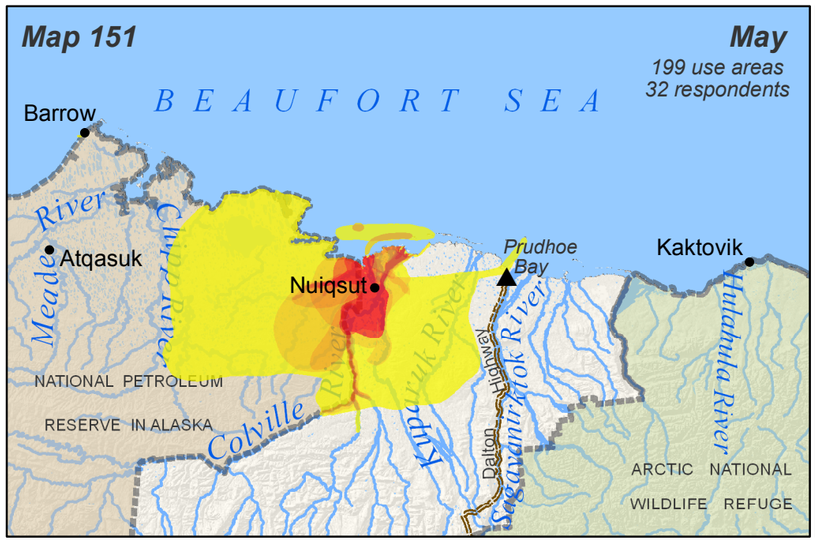
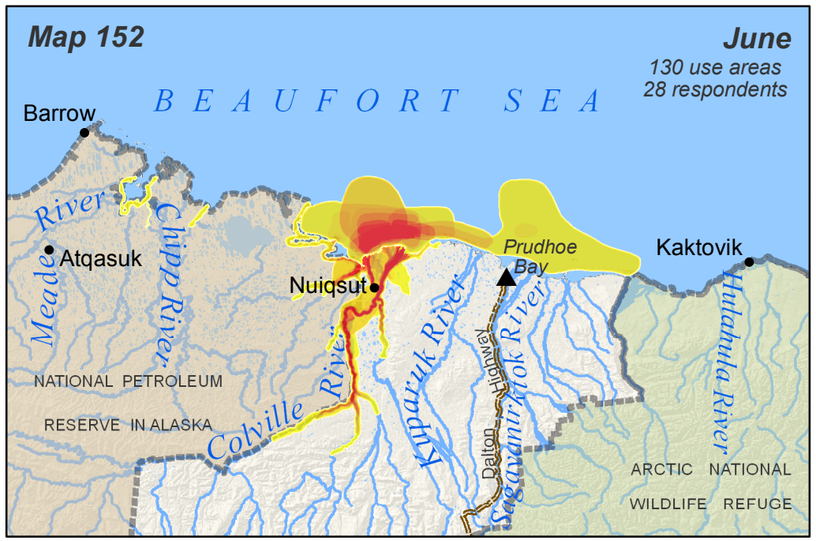
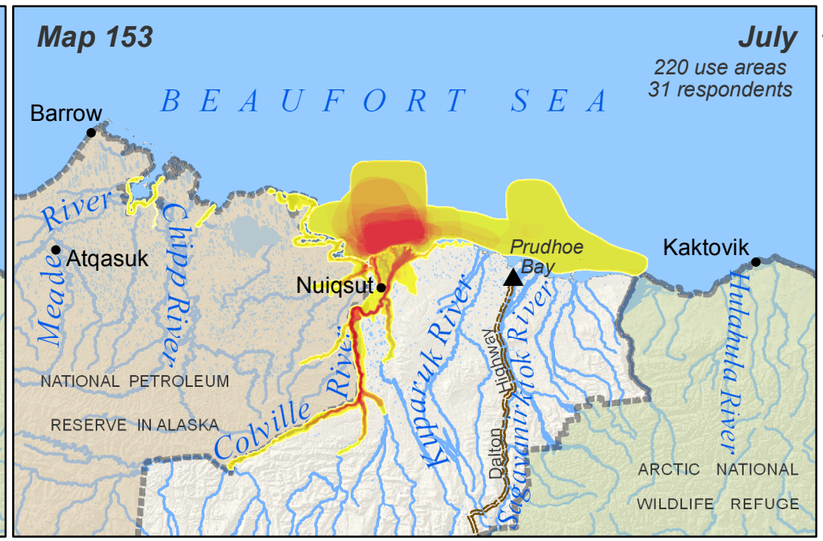
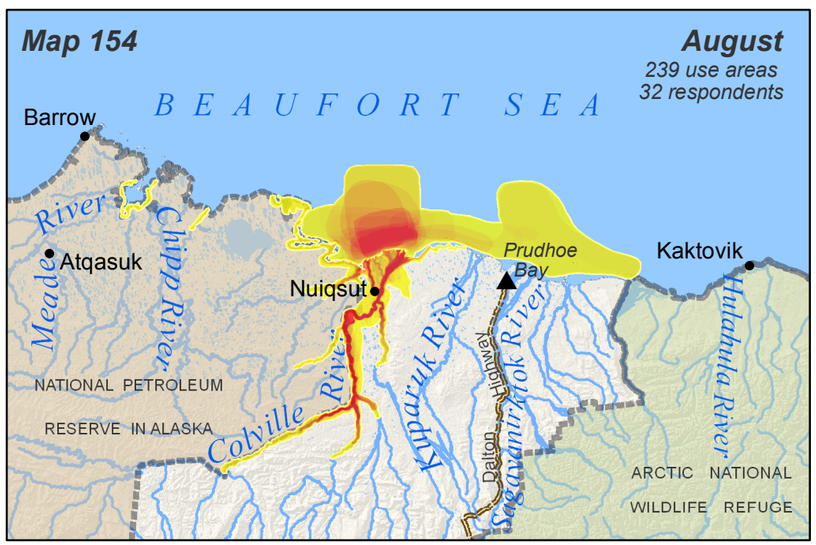
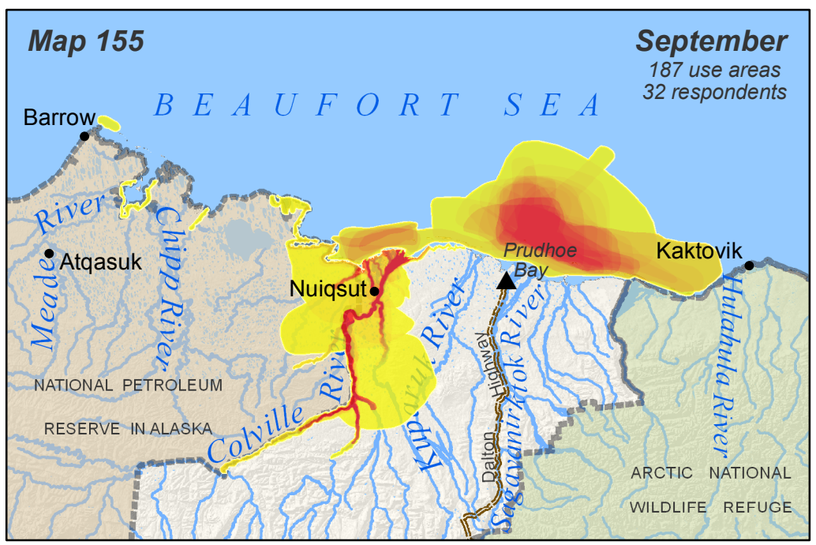
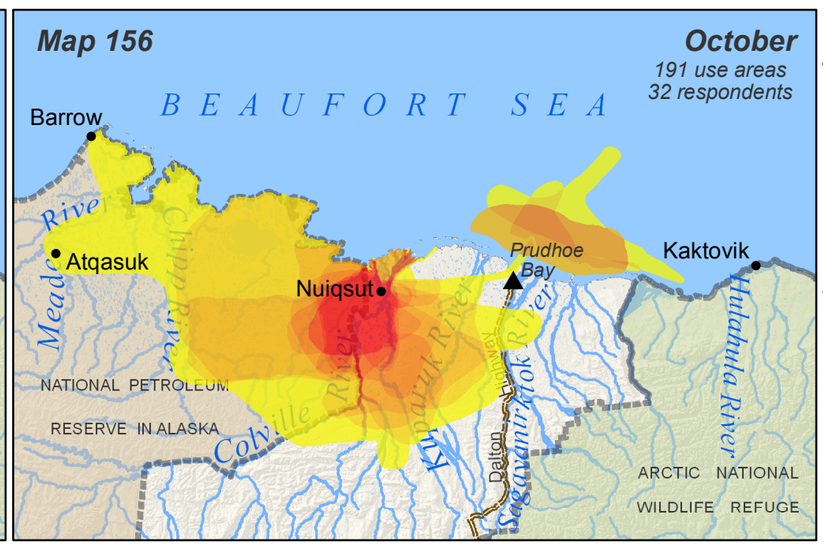












July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

152). From June through September, residents travel along local rivers to hunt caribou and moose and to harvest fish with nets and rod and reel (Maps 153 through 155). Residents also travel offshore during this time to hunt marine mammals, with a high number of overlapping use areas occurring offshore from Colville River delta between June and August and surrounding Cross Island in September (the primary month for bowhead whale hunting). A shift from ocean and riverine travel back to overland snowmachine travel occurs in October (Map 156).

Method of Transportation

Residents of Nuiqsut access more subsistence use areas by snowmachine or boat than any other mode of transportation (Figure 52). Snowmachines and boats enable hunters to travel great distances over frozen tundra and through rivers, connected lakes, and out into the Beaufort Sea. Respondents reported traveling by snowmachine to 53 percent of their subsistence use areas and by boat to 47 percent of use areas (Table 150). Significantly fewer use areas were accessed by four-wheelers, vehicles or by foot. Nuiqsut residents reported using snowmachines mainly from October to May when the tundra, rivers and lakes are frozen enough to support travel. Boat travel occurs primarily between June and September when rivers and lakes are ice free. Respondents reported hunting for bowhead, caribou, moose, seals, and eiders during this time, as well as harvesting fish with nets and rod and reel. Hunters described accessing subsistence use areas by four-wheeler or by foot mainly in May, during geese hunting season, as well as in August and September. These use areas are typically closer to the village although residents reported hiking on foot from use areas accessed by boat or snowmachine. Residents travel to use areas by cars/trucks in the winter months, between October and April, when the ground and ice covered waterways can support the weight of the heavy vehicles. Residents use cars or trucks to access Arctic cisco, burbot and a few geese hunting locations.

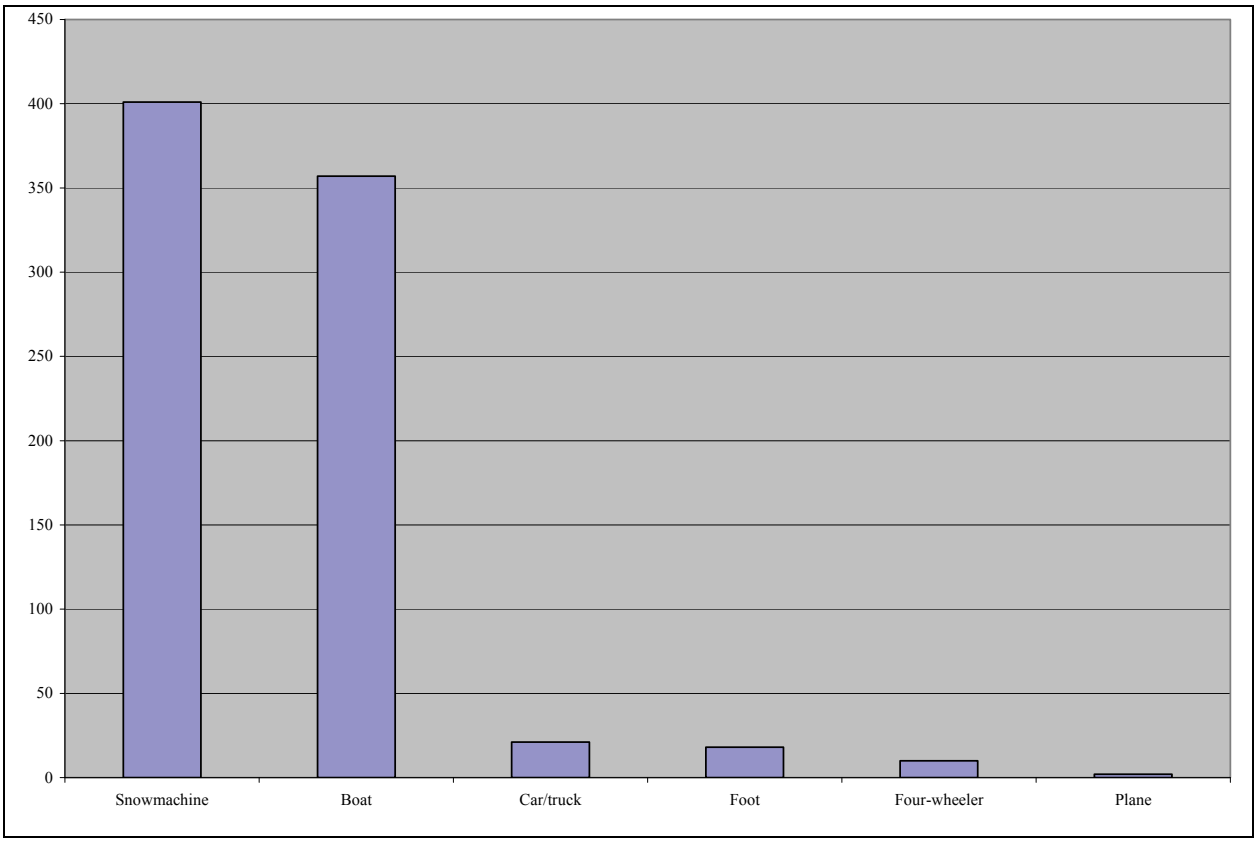
Maps 157 through 160 depict Nuiqsut last 10 year use areas for all resources, by method of transportation. These maps show the majority of riverine and offshore travel occurring by boat (Map 157); overland travel occurring by snowmachine (Map 158); four-wheeler use occurring close to the community and along Nigliq Channel (Map 159); and other modes of travel (foot, truck, and plane) occurring relatively close to Nuiqsut and along Colville River (Map 160).

Camps and Cabins

Map 161 shows camps and cabins identified by Nuiqsut respondents. Some of the locations shown on Map 161 may be the same camps or cabins identified by multiple people during the interviews; the study team was not able to reconcile these duplicate camp or cabin records, and thus Map 161 likely depicts a higher number of Nuiqsut camp and cabins than actually exist. Residents reported traveling to camp and cabin locations throughout the year during subsistence activities. The majority of these camps or cabins are located along the Colville River (especially along Nigliq Channel and the east channel, and near Itkillik River, Ocean Point, Sentinel Hill, and the mouths of Chandler and Anaktuvuk rivers) and along Fish Creek and Judy Creek. In addition to these locations, residents reported staying in camps and cabins along Chipp River, near Teshekpuk Lake, near Kuparuk River, and at a number of island and coastal locations, including Thetis Island, Cross Island, and Oliktok Point. The use of camps and cabins is important in allowing residents to take extended trips during subsistence activities, and many of these camps or cabins, such as those located on Cross Island, in the Colville River delta, or at Fish Creek, are situated in areas conducive to the harvesting of certain resources.

During the summer and fall months residents reported harvesting fish and hunting caribou, moose, and marine mammals. Marine mammal hunting, with the exception of the September bowhead whale hunt, generally occurs during same day trips. Some individuals reported camping on Thetis Island while seal and eider hunting, especially when the weather turns bad.

Figure 52: Nuiqsut Method of Transportation



Stephen R. Braund & Associates, 2010.

Table 150: Nuiqsut Method of Transportation to All Resources Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	53%
Four-wheeler	1%
Boat	47%
Foot	2%
Plane	0%
Car/truck	3%
Number of Use Areas	758

Stephen R. Braund & Associates, 2010.

Maps 157-160 - Nuiqsut Method of Transportation
All Resource Use Areas
Last 10 Years (1995-2006)

Subsistence use data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years
Overlapping Use Areas

High

Low

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

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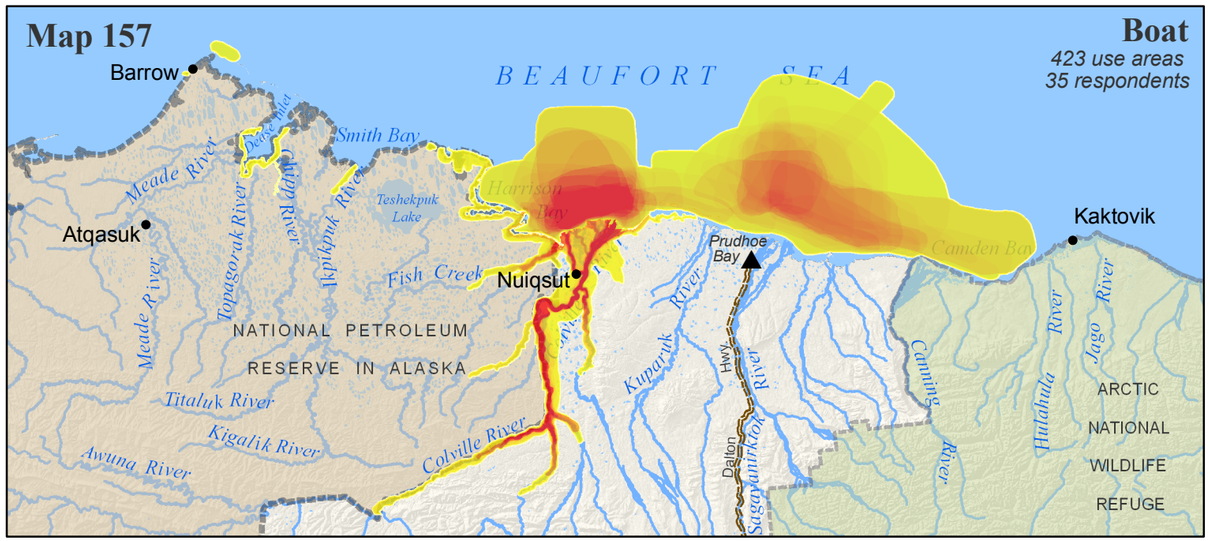

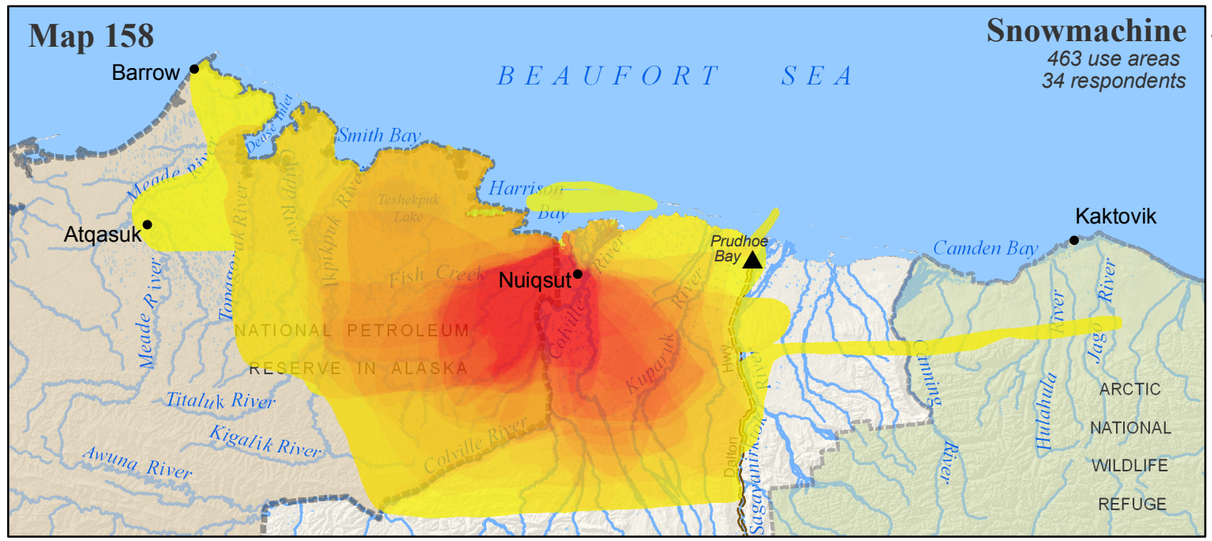

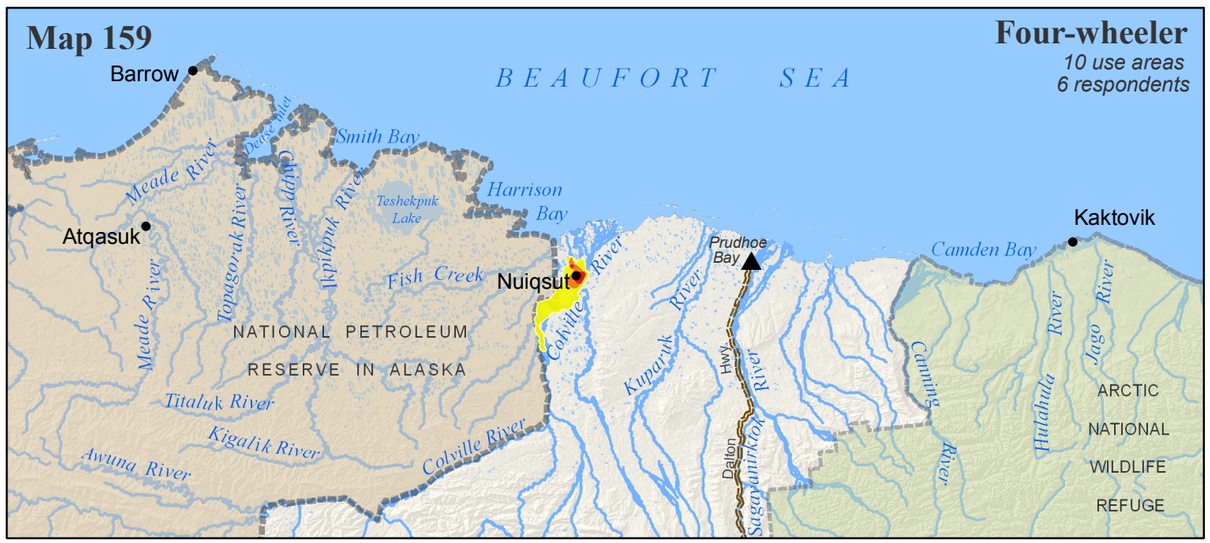

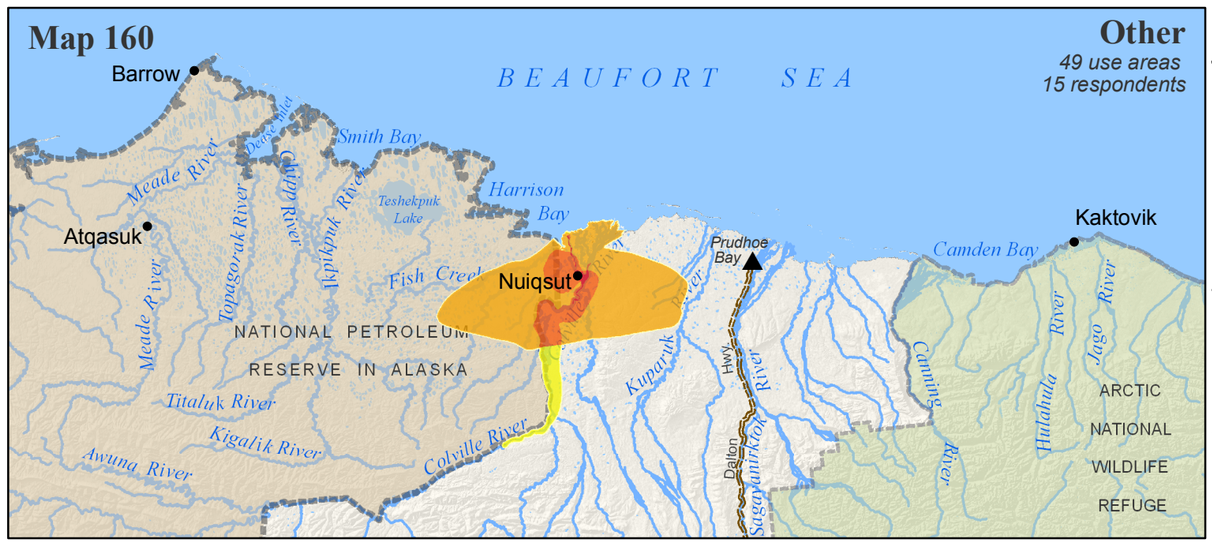

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Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 161 - Nuiqsut Camps and Cabins

Stephen R. Braund and Associates data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Camps and cabins recorded during Stephen R. Braund and Associates interviews (including duplicate records).

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Some points on this map may have been used while respondents visited or lived in other communities.

0 25 50 100 Miles

0 25 50 100 Kilometers

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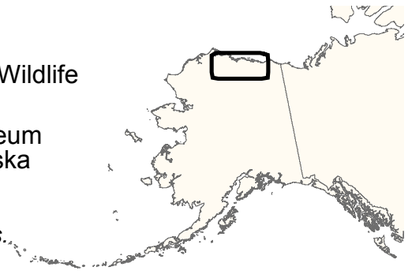

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Residents often take extended trips along the Colville River and along the coast during the summer and fall to harvest moose, caribou, and fish. Residents commonly reported staying at cabins or camps along the Colville river. In particular, residents identified both camp and cabin locations near the mouth of Itkillik River, at Ocean Point, near Sentinel Hill, and further upriver near Chandler and Anaktuvuk rivers, where subsistence users stay during the summer and fall months. A number of respondents reported either camping or staying in cabins near Sentinel Hill during the summer caribou and moose hunt. In addition to camping upriver during the summer and fall months, residents also stay at camps and cabins located in the Colville River delta or along Fish Creek, particularly to set nets for broad whitefish and other species of fish. Residents also stay at fish camps in the Colville River delta later in the year while setting nets under the ice for Arctic cisco.

During the fall month of September, Nuiqsut bowhead whaling crews travel to Cross Island for the yearly bowhead whale hunt. Camping on Cross Island is a necessity to bowhead whale hunters, as the community of Nuiqsut is not located at a convenient coastal location. Respondents indicated that they stay in cabins and trailers on the island; in the past, residents stayed in tents. Two individuals described,

> *We stay at a cabin; we have cabins at Cross Island. Home away from home. On the south side [of the island], in the bay area. Not like before; we used to stay in the tents in the 70s. That's where we have everything we need, like a winch.* (SRB&A Nuiqsut Interview November 2005)

> *Stay on the island. There are some wooden cabins and some trailers. There used to be nothing out there. Now there's trailers to give us some warmth.* (SRB&A Nuiqsut Interview November 2005)

During the winter months, residents reported staying at many of the same cabins and camps used during the summer and fall along Colville River. Residents also reported camping in farther removed locations, such as along Kuparuk and Anaktuvuk rivers and near Teshekpuk Lake, while hunting wolf, wolverine, and caribou. In the spring, residents stay at camps and cabins along Colville River (especially near Ocean Point) and at Fish Creek.

Travel Routes

During interviews, Nuiqsut respondents identified travel routes used during the last 10 years. These travel routes are shown on Map 162 and extend south toward the foothills of the Brooks Range, west to Barrow, and east to Cross Island. A number of residents described traveling by snowmachine west of the community either to Teshekpuk Lake, Smith Bay, or to the community of Barrow. Snowmachine routes were also identified east and south of the community toward Kuparuk River, the White Hills, and along Itkillik River, where residents commonly reported hunting for wolf and wolverine. Residents also reported traveling by snowmachine to Fish Creek and south toward Ocean Point and along Colville River. A number of respondents identified boat routes used to travel to the ocean for summer and fall hunting activities. Residents reported traveling either through Nigliq Channel or the east channel of the Colville River delta and then either traveling along the coast to hunt caribou, offshore to hunt seals and eiders, or east to Cross Island for the bowhead whale hunt. Several people explained that they travel through Nigliq Channel during low tide and through the east channel during high tide. When traveling east of the community toward Cross Island, residents generally described traveling inside the barrier islands and then heading farther offshore toward the island when they reach West Dock.

Summary of Current Subsistence Patterns

As depicted in Table 5, all 146 respondents interviewed in Barrow, Kaktovik, and Nuiqsut reported last 10 year use areas for at least one resource. Caribou and geese hunting had the highest rates of participation, with 141 respondents (97 percent) reporting last 10 year use areas for those resources. High

Map 162 - Nuiqsut Travel Routes

Stephen R. Braund and Associates data shown on this map are based on interviews conducted in Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

26 Respondents Identified Travel Routes

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Some routes shown on this map may have been used while respondents visited or lived in other communities

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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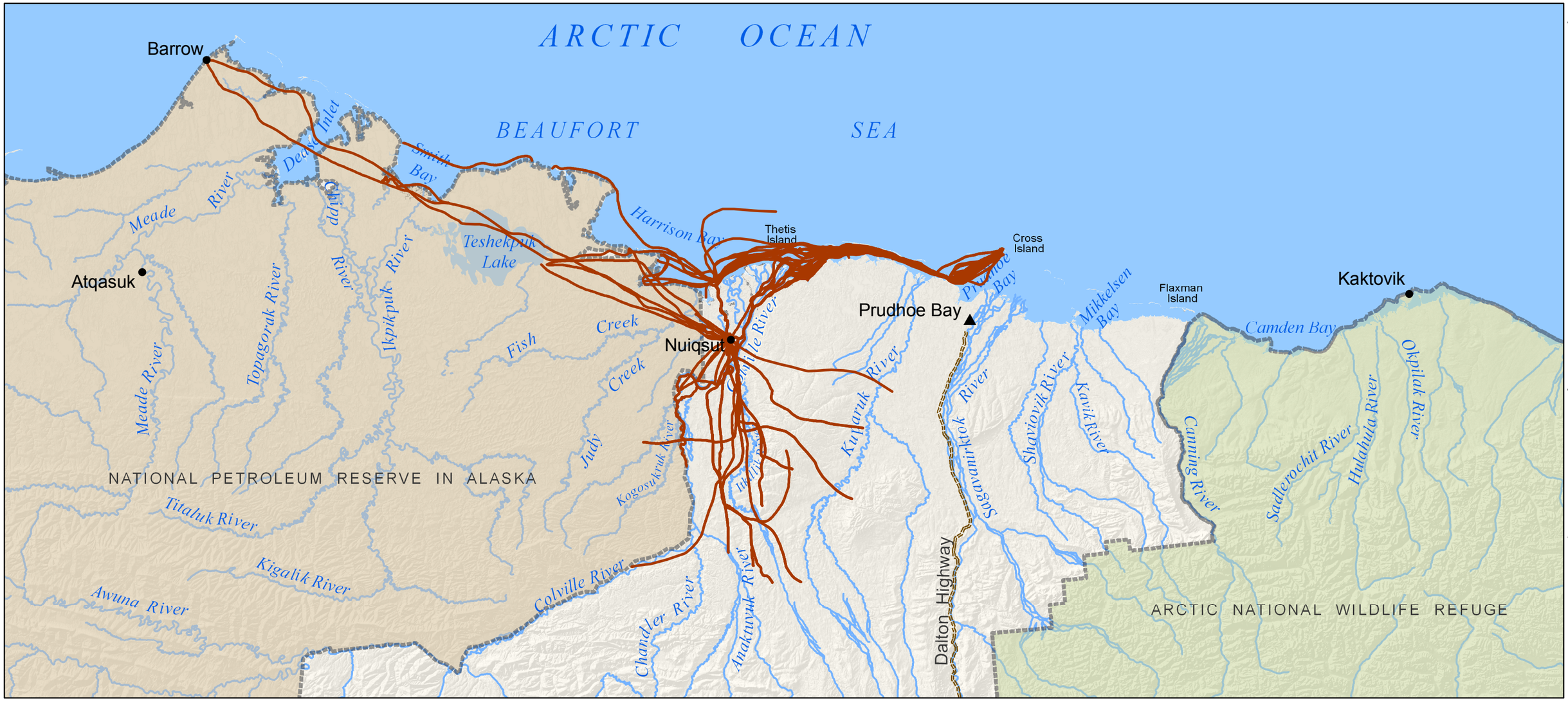

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

numbers of respondents also reported hunting or harvesting eiders (117, or 80 percent), bearded seal (116, or 79 percent), broad whitefish (113, or 77 percent), and bowhead whales (110, or 75 percent) in the last 10 years. In the 12 months prior to their interviews, 95 percent of Barrow, Kaktovik, and Nuiqsut respondents reported hunting for or harvesting at least one resource (Table 6). Again, caribou and geese hunting were the most common last 12 month activities, with 81 percent of respondents attempting harvests of caribou and 68 percent of respondents attempting harvests of geese (Table 6).

Residents of all three communities hunt and harvest land and marine mammals, fish, and birds, although the primary species harvested among resource types vary by community. Variations in species depend on the location of the community and traditional resource uses. Nuiqsut and Kaktovik, for example, are situated in places conducive to harvests of Arctic cisco, whereas Barrow is not. A large number of Arctic cisco migrate up the Colville River each year, and therefore Nuiqsut residents in particular value these fish as a traditional resource. While residents of all communities harvest both ringed and bearded seal, Barrow respondents tended to place more emphasis on the harvests of bearded seal because their skins are the primary material in skin boats used during spring whaling. Both Nuiqsut and Kaktovik participate only in fall whaling, where skin boats are not used, and therefore have less of a need for bearded seal skins.

In all communities, residents stressed the importance of being able to harvest wild resources from the surrounding land and waters. Residents also discussed concerns about potential threats to subsistence, including impacts of oil development, particularly offshore oil development, on wildlife and hunting activities and an increase in sport hunters and tourists, such as rafters and hikers, in the area.

Subsistence Use Areas

Map 163 depicts last 10 year all resources use areas for the communities of Barrow, Kaktovik, and Nuiqsut. Use of the land and ocean by residents of these three communities is extensive and spans across the North Slope from Point Lay in the west to the Mackenzie River delta in the east. Map 163 indicates that use areas for all communities extend into the foothills of the Brooks Range. These foothills are farthest from the community of the Barrow, leaving vast expanses of flat tundra for Barrow hunters to traverse by snowmachine. Although the map used during interviews did not extend far enough south, residents of Nuiqsut reported traveling as far as Anaktuvuk Pass when hunting wolf and wolverine. Kaktovik residents have a relatively small area of flat tundra between their community and the foothills of the Brooks Range. Furthermore, nearby rivers are generally not deep enough for boat travel and therefore access to inland use areas is limited to snowmachine travel. Because of the limitations to traveling extensive inland distances, many Kaktovik hunting and fishing activities are focused along the coast; this is evident in the large expanse of coastline used by Kaktovik residents, and the high number of overlapping use areas along the coast west and east of Barter Island. Map 163 illustrates a high number of overlapping use areas offshore from each community; along local rivers such as the Meade, Chipp, Colville, Itkillik, Hulahula, and Jago; and overland substantial distances, especially southeast of Barrow, west and southwest of Nuiqsut, and south of Kaktovik in an area surrounding Sadlerochit, Hulahula, and Jago rivers. The total last 10 year use area for the three communities, as depicted on Map 163, is 84,102 square miles.

Barrow, Kaktovik, and Nuiqsut last 12 month use areas for all resources are depicted on Maps 163 and 164. Residents' last 12 month hunting and harvest areas were similar to but smaller than their last 10 year use areas, extending from Icy Cape to Herschel Island. Map 164 depicts high overlapping use offshore from each community; along the Inaru, Meade, Chipp, Colville, Itkillik, and Hulahula rivers; and inland from each community. The total last 12 month use area for the three communities, as depicted on Map 164, is 37,600 square miles.

Map 163 - Barrow, Kaktovik, and Nuiqsut All Resource Use Areas, Last 10 Years (1995-2006) with Last 12 Months

Subsistence use data shown on this map are based on interviews conducted in Barrow, Kaktovik, and Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 10 Years Overlapping Use Areas

High
Low

3,920 use areas reported by 146 respondents

Last 12 Months Dissolved Use Areas

1923 use areas reported by 138 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

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July 2009

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Kaktovik
Prudhoe Bay
Cross Island
Demarcation Point
Herschel Island
Mackenzie Bay
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Arctic Village
Anaktuvuk Pass
Old Crow
Noatak
Kokolik River
Awuna River
Colville River
Meade River
Ikpikpuk River
Chipp River
Harrison Bay
Sagavanirktok River
Canning River
Hulahula River
Firth River
Anaktuvuk River
Dalton Hwy.
Sheenjek River
Porcupine River
Noatak River
Mackenzie River
ESKIMO LAKES
United States
Canada
Yukon Territory
Alaska
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 164 - Barrow, Kaktovik, and Nuiqsut All Resource Use Areas, Last 12 Months with Most Recent Harvest Locations

Subsistence use data shown on this map are based on interviews conducted in Barrow, Kaktovik, and Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

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Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Last 12 Months Overlapping Use Areas

High
Low

1923 use areas reported by 138 respondents

Most Recent Harvest Locations

900 use areas reported by 132 respondents

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Other areas may have been used for resource harvesting.

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

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ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Wainwright
Atqasuk
Point Lay
Nuiqsut
Prudhoe Bay
Kaktovik
Demarcation Point
Herschel Island
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Old Crow
Arctic Village
Anaktuvuk Pass
Noatak
Kokolik River
Kuk River
Meade River
Awuna River
Colville River
Noatak River
Anaktuvuk River
Dalton Hwy
Sagavanirktok River
Canning River
Sheenjek River
Porcupine River
Firth River
Mackenzie River
Mackenzie Bay
ESKIMO LAKES
Canada
United States
Yukon Territory
Alaska
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Most Recent Harvest

Harvest Locations

The locations of Barrow, Kaktovik, and Nuiqsut respondents' most recent harvests for all resources are depicted on Map 164. These harvest locations occur offshore and inland from each community and extend to the southern ends of residents' last 12 month use areas.

Number of Participants

As indicated in Table 151, a high percentage (46 percent) of Barrow, Kaktovik, and Nuiqsut residents' most recent harvest activities in the 12 months prior to their interviews involved four or more people, with an additional 38 percent of most recent harvest activities involving two to three people. Many hunting and harvesting activities are communal affairs involving groups made up of family and friends, where individuals participate in shared preparation, harvesting, and processing activities. This is especially common during the summer and fall months when individuals of all ages and abilities can participate, and during offshore marine mammal hunting which requires multiple participants for a safe and successful harvest.

Table 151: All Communities Number of Participants During Most Recent All Resources Harvests

Number of Participants	Percentage of Harvest Locations
1 person	16%
2-3 people	38%
4 or more people	46%
Number of Most Recent Harvest Locations	825

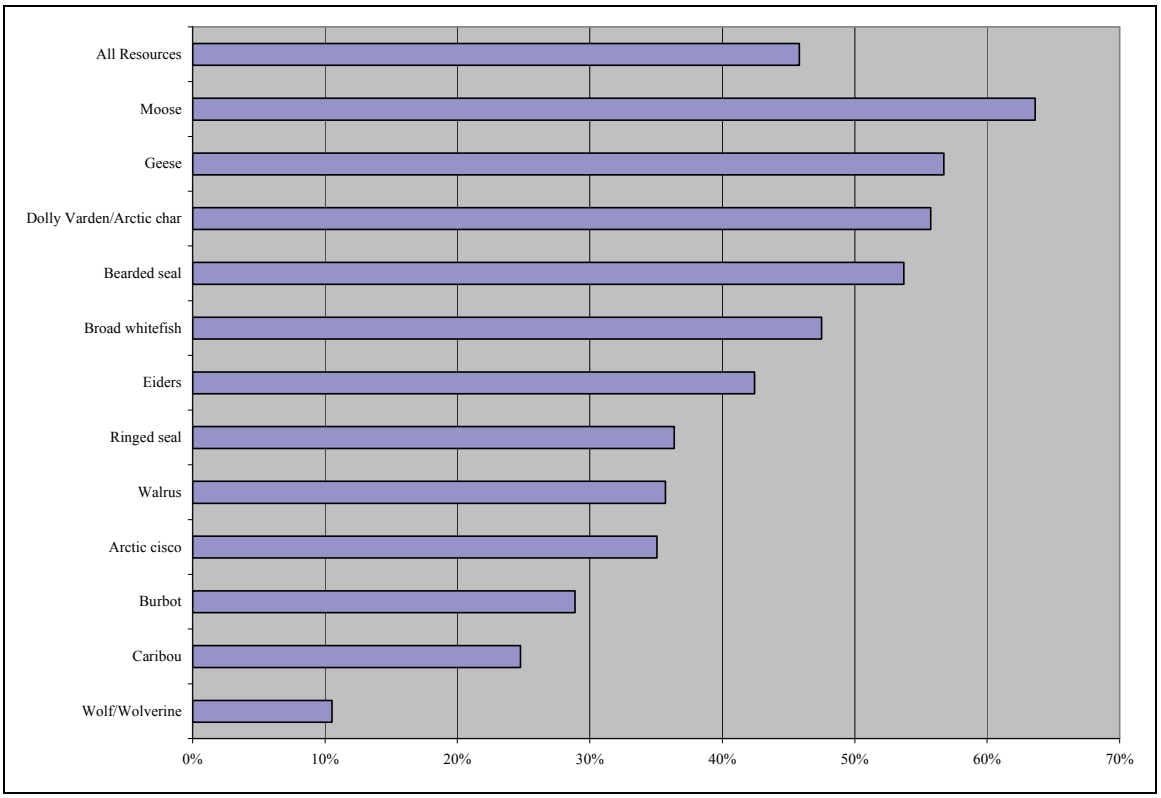
Stephen R. Braund & Associates, 2010.

Figure 53 depicts the percentage of most recent harvest activities involving four or more participants, by resource. Over 50 percent of most recent moose, geese, Arctic char/Dolly Varden, and bearded seal harvests involved the participation of four or more people. Resources with a smaller percentage of harvests involving four or more participants include wolf/wolverine, caribou, and burbot. For more detailed discussions of community harvest patterns related to participation, see the relevant discussions under individual community headings.

Duration of Trip

As depicted in Table 152, while approximately half (53 percent) of Barrow, Kaktovik, and Nuiqsut residents' most recent harvests occurred during day trips, the remaining 47 percent of most recent harvests occurred during overnight trips. Twenty-eight percent occurred on trips lasting at least one week. As shown on Figure 54, broad whitefish and Arctic char/Dolly Varden had the hightest percentage of harvests (over 40 percent) occurring during trips lasting at least one week, followed by moose, geese, wolf/wolverine, and Arctic cisco. Fewer than 20 percent of ringed seal, bearded seal, and walrus harvests occurred during trips last one week or more. Residents more often reported taking day trips to hunt marine mammals during the open water season and when traveling by snowmachine during the winter (although a number of individuals reported taking extended trips while hunting wolf and wolverine). Taking extended boating and camping trips during the summer and fall to hunt caribou and harvest fish is common among residents of all three communities. For more detailed discussions of community harvest patterns related to duration of trip, see the relevant discussions under individual community headings.

Figure 53: Percentage of Most Recent All Communities Harvests with Four or More Participants

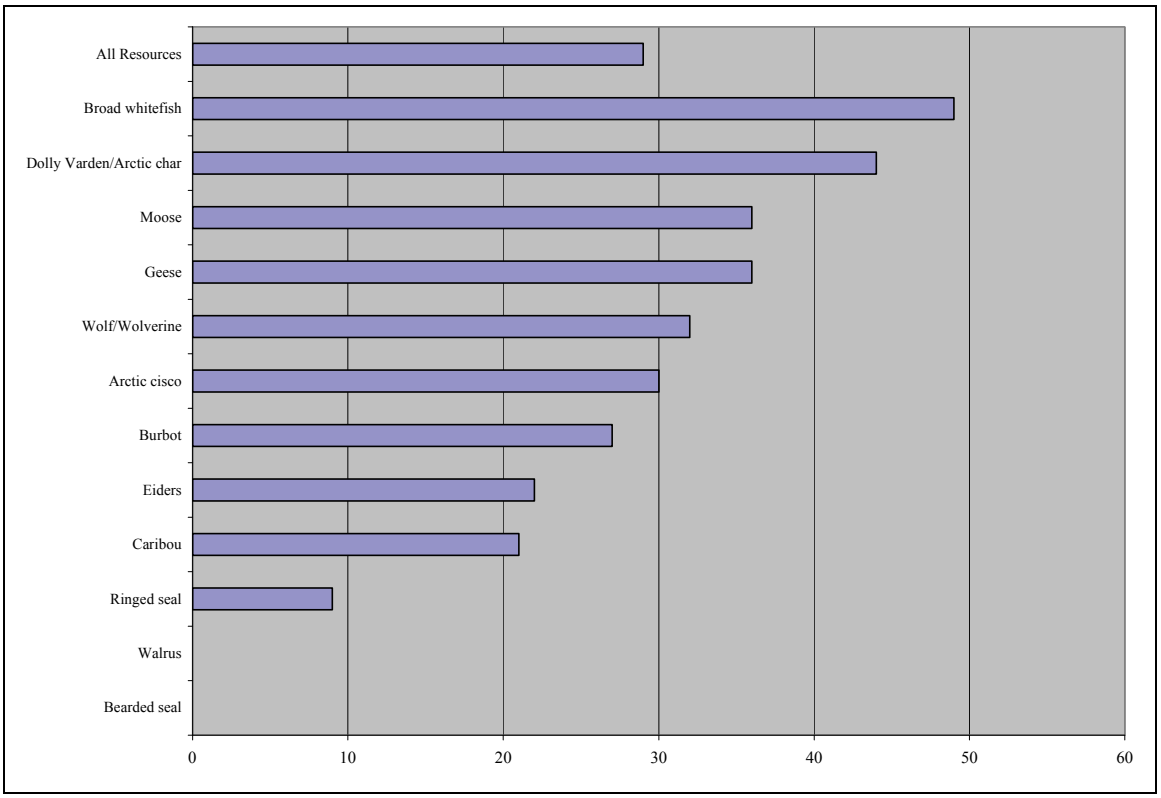


Stephen R. Braund & Associates, 2010.

Table 152: All Communities Duration of Trips to Most Recent All Resources Harvest Areas

Duration of Trips	Percentage of Harvest Locations
More than 2 weeks	13%
1-2 weeks	15%
2-5 nights	13%
1 night	6%
Same day	53%
Number of Most Recent Harvest Locations	812
Stephen R. Braund & Associates, 2010.	

Figure 54: Percentage of Most Recent All Community Harvests Lasting More Than One Week



Stephen R. Braund & Associates, 2010.

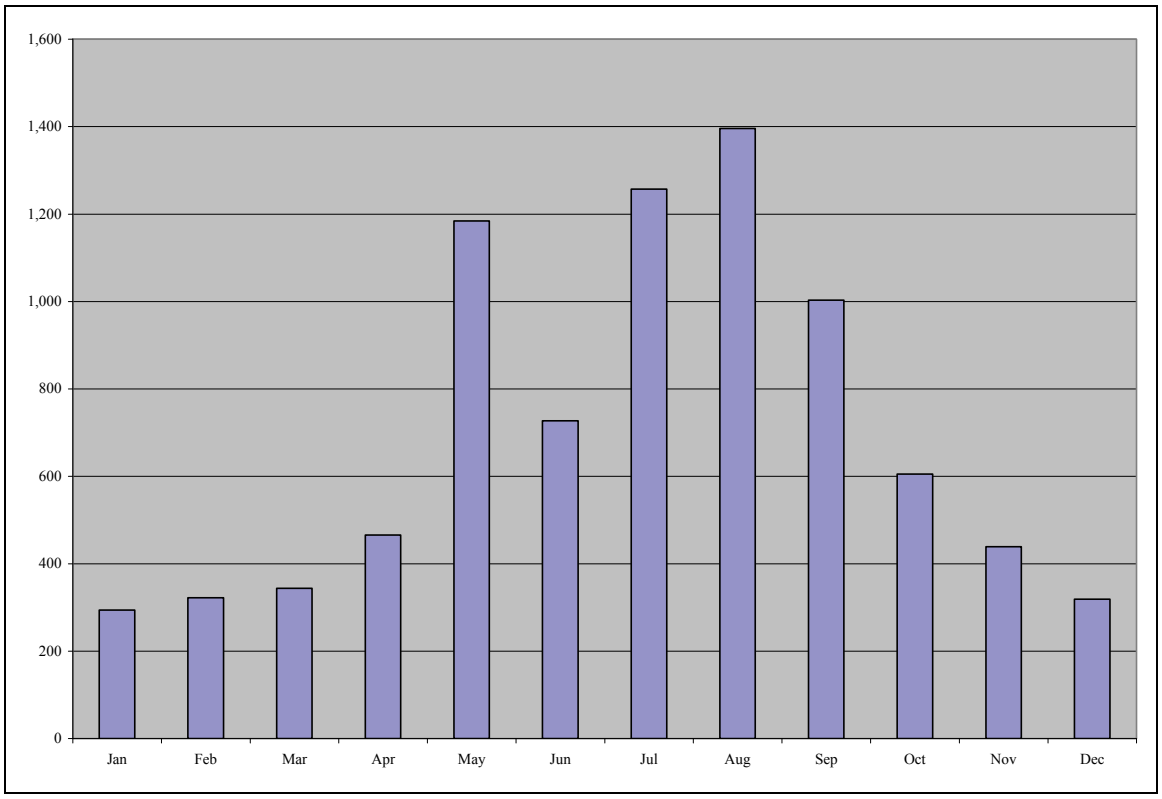
Months of Harvest Effort

Figure 55 depicts the number of reported Barrow, Kaktovik, and Nuiqsut all resources use areas by month and shows subsistence occurring year-round, with the highest numbers of use areas reported in May and from July through September. While each community has somewhat different seasonal rounds, certain seasonal activities are common among all three communities. The winter months are generally limited to the harvests of furbearers and caribou, with some harvests of fish, especially burbot, occurring during this time. The spring months are dedicated to the harvests of geese and, in the case of Barrow, bowhead whales. Fishing, caribou hunting, and seal hunting are common activities during the summer and fall months (June through September). In addition, fall whaling occurs in each of the three communities, usually in September, although Barrow residents also hunt bowhead whales in the month of October. For detailed descriptions of the months of harvest efforts, see the relevant discussions under individual community headings.

Method of Transportation

As shown in Table 153 and Figure 56, snowmachine and boat are the most common methods of transportation used by Barrow, Kaktovik, and Nuiqsut respondents to access subsistence use areas. Residents also reported accessing a small percentage of use areas using four-wheelers, cars or trucks, and by foot. Subsistence users travel by boat to travel up rivers, along the coast, and offshore when hunting marine mammals. Snowmachine travel generally occurs overland or along the coast during the winter and spring, although Barrow residents also reported traveling by snowmachine during the summer as far as Inaru River.

Figure 55: All Communities Use Areas for All Resources by Month



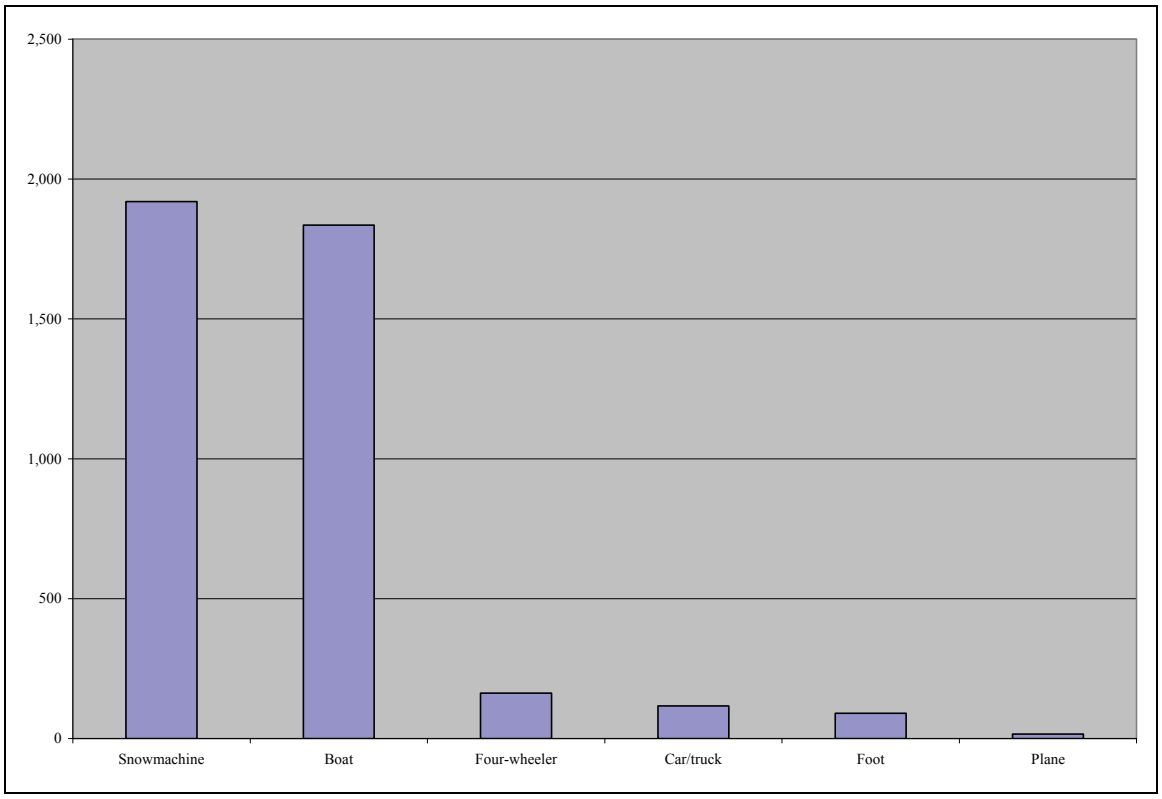
Stephen R. Braund & Associates, 2010.

Table 153: All Communities Method of Transportation to All Resources Use Areas

Method of Transportation	Percentage of Use Areas
Snowmachine	50%
Four-wheeler	4%
Boat	48%
Foot	2%
Plane	0%
Car/truck	3%
Number of Use Areas	3,812

Stephen R. Braund & Associates, 2010.

Figure 56: All Communities Method of Transportation



Stephen R. Braund & Associates, 2010.

Camps and Cabins

Camps and cabins reported by residents of Barrow, Kaktovik, and Nuiqsut during interviews with SRB&A, as well as cabins and platforms provided by the North Slope Borough on their Camps and Cabins Map (which extends east only as far as Teshekpuk Lake), are depicted on Map 165. As discussed earlier, some of locations shown on Map 165 may be the same camps or cabins identified by multiple SRB&A respondents; the study team was not able to reconcile these duplicate camp or cabin records, and thus Map 165 likely depicts a higher number of Barrow, Kaktovik, and Nuiqsut camp and cabins than actually exist. The majority of camps and cabins are located along waterways or at coastal locations. In particular, residents reported camps and cabins along the Meade, Inaru, Chipp, Ikpikpuk, Alaktak, Miguakiak, Colville, and Hulahula rivers; around Pittalukruak and Teshekpuk lakes, and along Fish Creek. A number of camp and cabin locations were also reported along the coast east and west of Kaktovik, and south of Barrow toward Peard Bay. In all three communities, respondents reported extended stays at family camps or cabins often during certain subsistence activities. In particular, the use of camps and cabins is common during fishing activities, spring geese hunting, and summer and fall caribou hunting. For additional descriptions of residents' uses of camps and cabins, see the relevant discussions under individual community headings.

Travel Routes

Map 166 depicts Barrow, Kaktovik, and Nuiqsut travel routes as reported by respondents in those communities. Residents reported riverine, coastal, and overland travel routes used to access subsistence hunting areas or to travel to camps, cabins, or other communities such as Wainwright, Atqasuk, and Aklavik. Although the map used in Nuiqsut interviews did not extend far enough south, residents of Nuiqsut reported traveling as far as Anaktuvuk Pass during the winter by snowmachine. A high number

Map 165- Barrow, Kaktovik, and Nuiqsut Camps, Cabins and Tent Platforms

Stephen R. Braund and Associates (SRB&A) data shown on this map are based on interviews conducted in Barrow, Kaktovik, and Nuiqsut in 2004, 2005, and 2006. **North Slope Borough (NSB)** data are based on the 2003 NSB camp, cabin and platform map (NSB Geographic Information Systems 2003).

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

Cabins and camps recorded only during SRB&A interviews (including duplicate records).

Cabins and camps recorded only during North Slope Borough interviews and shown on the NSB camps and cabins map.

Cabins and platforms recorded during North Slope Borough and SRB&A interviews.

Some points on this map may have been used while respondents visited or lived in other communities.

National Petroleum Reserve In Alaska

Arctic National Wildlife Refuge

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July 2009

0 25 50 100 Miles
0 25 50 100 Kilometers
N

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
ESKIMO LAKES

Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Kaktovik
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Arctic Village
Anaktuvuk Pass
Old Crow
Noatak

Peard Bay
Smith Bay
Harrison Bay
Teshekpuk Lake
Cross Island
Prudhoe Bay
Camden Bay
Demarcation Point
Herschel Island
Mackenzie Bay
Kokolik River
Kuk River
Meade River
Ikpikpuk River
Colville River
Awuna River
Sagavanirktok River
Canning River
Hulahula River
Firth River
Anaktuvuk River
Dalton Hwy.
Sheenjek River
Porcupine River
Noatak River
Mackenzie River
United States
Canada
Yukon Territory
Alaska

71°0'0"N
72°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map 166 - Barrow, Kaktovik, and Nuiqsut Travel Routes

Data shown on this map are based on interviews conducted in Barrow, Kaktovik, and Nuiqsut in 2004, 2005, and 2006.

Source: Under contract to the U.S. Department of the Interior, Minerals Management Service, Stephen R. Braund & Associates, in coordination with the North Slope Borough Department of Wildlife Management, local tribal governments and local harvesters, selected active and knowledgeable harvesters to interview in the following communities:

Barrow: 75 harvesters in February, March, April and December 2006.
Nuiqsut: 33 harvesters in November 2004, November 2005 and November, December 2006.
Kaktovik: 38 Kaktovik harvesters in June 2005, November 2005 and November 2006.

124 Respondents Identified Travel Routes

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska

Some areas shown on this map may have been used while respondents visited or lived in other communities

0 50 100 200 Miles

0 50 100 200 Kilometers

N

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July 2009

ARCTIC OCEAN

CHUKCHI SEA

BEAUFORT SEA

NATIONAL PETROLEUM RESERVE IN ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Kaktovik
Prudhoe Bay
Cross Island
Tuktoyaktuk
Inuvik
Aklavik
Tsiigehtchic
Fort McPherson
Old Crow
Arctic Village
Anaktuvuk Pass
Noatak

Peard Bay
Smith Bay
Harrison Bay
Camden Bay
Demarcation Point
Herschel Island
Mackenzie Bay
ESKIMO LAKES
Kukpuk River
Meade River
Ikpikpuk River
Kokolik River
Awuna River
Colville River
Colville River
Anaktuvuk River
Sagavanirktok River
Canning River
Hulahula River
Firth River
Mackenzie River
Dalton Hwy.
Sheenjek River
Porcupine River
Noatak River

United States
Canada
Alaska
Yukon Territory

71°0'0"N
72°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
67°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

of travel routes were reported along the coast east and west of each community, along river systems, and overland to other communities or to hunting areas located inland or along certain rivers. From Barrow, residents reported traveling overland to locations on Chipp River and to Teshekpuk Lake. For additional descriptions of each community's travel patterns, see the relevant discussions under individual community headings.

Measuring Change in Subsistence Patterns

As stated in the introduction, one goal of this study is to develop a GIS capable of describing regional subsistence patterns and measuring changes in these patterns over time. This section illustrates how changes in subsistence patterns could be compared over time, using where possible North Slope subsistence data collected around 1990. The section is organized around the baseline indicators of subsistence patterns identified in this study.

Subsistence Use Areas and Harvest Locations

Subsistence use area maps usually depict the cumulative area used by one or more harvesters, or the extent of the hunting or search area. In this study, the study team introduced maps depicting overlapping use areas based on a count of overlapping use by harvesters of small grid cells ("pixels"). Each grid cell has an associated value by resource of the number of harvesters using the cell. It is therefore possible to replicate mapping over time and print comparison maps of overlapping use areas. This method does not reflect intensity of use in terms of frequency by an individual hunter, duration of use, amount of harvest, diversity of harvest, cultural or historic importance, and other key variables that determine the importance of subsistence hunting or harvesting areas. The current study measured subsistence area use over a 12 month period and over the previous 10 years.

In the Barrow study conducted for MMS in the late 1980s (SRB&A and ISER 1993a), the scope of work developed by MMS called for the collection of harvest site data for all harvests made by a sample of Barrow residents in the years 1987, 1988, and 1989. This current study collected harvest site and area data for the most recent harvest activity in the previous 12 months. Harvest site data collected for the current study therefore cannot be assumed to represent harvest sites for an entire year (because only most recent harvests were recorded), much less a three year cumulative view. However, harvest site data are likely to be correlated with subsistence use areas and can be compared over time. Because the difference in data type (harvest kill site and subsistence use area) is confounded with differences in time periods (1987-89 compared with 1995-2006), we cannot distinguish whether the spatial differences are due to differences in data type or actual changes in subsistence patterns.

Appendix E contains maps which compare Barrow harvest site and use area data for the 36 months over the years 1987-1989 to subsistence use areas for the 10 years previous to interviews conducted in 2006. In addition, Appendix E contains maps which compare Kaktovik and Nuiqsut last 10 year use areas to previous use area data including those contained in Pedersen (1979) and Brown (1979). Overlaying subsistence mapping data from different time periods allows for comparison and a way of viewing changes in resource use areas over time.

Which type of data to collect, subsistence use areas or harvest locations, depends on the purpose of the research. If one wants to view areas with higher rates of harvest success (e.g., clusters of successful harvest locations) and compare those over time, then harvest locations would be the most useful type of data to collect. However, if one wants to view extent of use and search areas by hunters or measure the level of use (in terms of overlapping use areas), then subsistence use areas are more useful. Of the two types of data, subsistence use areas and harvest sites, subsistence use areas best represent the geographic extent of subsistence resource use. Analysis of overlapping subsistence areas best represents geographic intensity of use in terms of multiple users; however, comparison of use area extents and harvest locations are also useful ways to view changes over time. The methods applied in the current study could be

replicated in future studies to generate a comparison data set that could quantitatively measure change in geographic use in terms of extent and overlapping use areas.

Transportation Methods

No comparable quantitative data on transportation methods around 1990 exist for Barrow, Nuiqsut, and Kaktovik. The current study research design made the method of transportation an attribute of each subsistence use area. This approach worked well for harvesters and yields a quantitative measure subject to replication and comparison over time. Data can be both mapped and presented as tabular summaries, as illustrated in this report.

Duration of Trips

No comparable quantitative data on duration of trips around 1990 exist for Barrow, Nuiqsut, and Kaktovik. The current study research design made the duration of trips an attribute of each most recent harvest location. This approach worked well for harvesters and yields a quantitative measure subject to replication and comparison over time. However, the study team recommends that future studies collect duration of trips as an attribute of subsistence use areas (e.g., typical trip duration to a given use area over a certain time period such as "last 10 years") rather than most recent harvest locations. Trip duration data can be both mapped and presented as tabular summaries, as illustrated in this report.

Gear/Weapon Use

No comparable quantitative data on gear and weapon use around 1990 exist for Barrow, Nuiqsut, and Kaktovik. The current research design called for harvesters to identify the gear and weapon normally used in harvesting by key resource. Future studies can easily replicate data for this variable.

Number Harvested

As discussed in the methods section of this report, the social network sampling approach used in this study does not yield a sample of harvesters that can be used as the sole basis for generating community level estimates of harvest amounts. Social network sampling could be used in conjunction with stratified probability sampling to produce generalizable harvest amount estimates that could be compared over time. Stratified probability sampling methods were used in Barrow to generate harvest amount estimates for the community for the years 1987, 1988, and 1989 (SRB&A and ISER 1993a). Below are reproduced summary tables from that study (Tables 154 through 158). Additional harvest data for Barrow, Katkvovik, and Nuiqsut are available in Appendix D. Future studies could replicate the sampling approach or use a hybrid social network sampling/stratified probability sampling approach to compare harvest amounts over time.

Number of Participants

No comparable quantitative data on number of participants in hunting parties around 1990 exists for Barrow, Nuiqsut, and Kaktovik. The current study collected harvest site data for the most recent harvest activity in the previous 12 months. The primary measure of participation used in subsistence studies, however, is the percentage of households harvesting each resource. This traditionally used measure of participation was collected in the Barrow study (SRB&A and ISER 1993a). Tables 154 through 158 above include estimates of the percentage of Barrow households harvesting each resource. The 1987-89 study design could be replicated or revised to be a hybrid social network sample/stratified probability sample to produce comparable household participation data. Similarily, the approach used in this study could be replicated.

Table 154: Total Harvest Estimates By Major Resource Category - All Barrow Households, Three Year Average[1, 2]

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING STATISTICS SAMPLING ERROR AT 95% (lbs)	SAMPLING STATISTICS LOW ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS SAMPLING ERROR AS % OF MEAN
Marine Mammals [5]	n/a	n/a	386,153	412.1	128.0	55%	48%	18	36	376	448	9%
Terrestrial Mammals	n/a	n/a	211,861	226.1	70.2	30%	54%	31	61	166	287	27%
Fish	n/a	n/a	79,355	84.7	26.3	11%	41%	10	19	65	104	23%
Birds	n/a	n/a	24,720	26.4	8.2	4%	53%	4	8	18	34	30%
Other Resources	n/a	n/a	572	0.6	0.2	0%	7%	0	1	0	1	0%
Total [5]	n/a	n/a	702,660	749.9	233.0	100%	68%	50	99	651	848	13%

[1] Three years of study: April 1, 1987 - March 31, 1990.

[2] Estimated sampling errors do not include errors in reporting, recording, and in conversion to usable weight.

[3] See Table D-5 for sources of conversion factors.

[4] This percentage is a cumulative total for the three study years rather than an annual average.

[5] Bowhead harvest does not contribute to the sampling error for marine mammals since the bowhead harvest is based on a complete count.

** represents less than .1 percent

n/a means not applicable

Source: Stephen R. Braund & Associates and ISER, 1993

Stephen R. Braund & Associates, 2010.

Table 155: Harvest Estimates For Marine Mammals - All Barrow Households, Three Year Average[1, 2]

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING STATISTICS SAMPLING ERROR AT 95% (lbs)	SAMPLING STATISTICS LOW ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS SAMPLING ERROR AS % OF MEAN
Total Marine Mammals	n/a	n/a	386,153	412.1	128.0	55.0%	48%	18	36	376.5	447.7	9%
Bowhead [5,6]	29,466.2	9	265,196	283.0	87.9	37.7%	46%	n/a	n/a	n/a	n/a	n/a
Walrus	772.0	81	63,285	67.5	21.0	9.0%	27%	9	18	49.7	85.4	26%
Bearded Seal	176.0	174	30,696	32.8	10.2	4.4%	29%	5	11	22.2	43.3	32%
Total Ring. & Spot. Seal	42.0	397	16,688	17.8	5.5	2.4%	19%	4	8	10.0	25.6	44%
Ringed Seal	42.0	394	16,557	17.7	5.5	2.4%	19%	4	8	9.9	25.5	44%
Spotted Seal	42.0	3	131	0.1	0.0	**	1%	0	0	0.1	0.2	37%
Polar Bear	496.0	21	10,288	11.0	3.4	1.5%	6%	4	7	3.8	18.2	66%

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[1] Three years of study: April 1, 1987 - March 31, 1990.

[2] Estimated sampling errors do not include errors in reporting, recording, and in conversion to usable weight.

[3] See Table D-5 for sources of conversion factors.

[4] This percentage is a cumulative total for the three study years rather than an annual average.

[5] Bowhead harvest does not contribute to the sampling error for marine mammals since the bowhead harvest is based on a complete count.

[6] The percent of Barrow households harvesting bowhead represents the percent of Barrow households receiving crew member shares at the whale harvest site, as extrapolated from the sample households.

* represents less than .1 pound

** represents less than .1 percent

n/a means not applicable

Source: Stephen R. Braund & Associates and ISER, 1993

Stephen R. Braund & Associates, 2010.

Table 156: Harvest Estimates For Terrestrial Mammals - All Barrow Households, Three Year Average [1,2]

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING STATISTICS SAMPLING ERROR AT 95% (lbs)	SAMPLING STATISTICS LOW ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS SAMPLING ERROR AS % OF MEAN
Total Terrestrial Mammals	n/a	n/a	211,839	226.1	70.2	30.1%	54%	31	61	165.54	286.68	27%
Caribou	117.0	1,595	186,575	199.1	61.9	26.6%	54%	29	57	142.56	255.68	28%
Moose	500.0	48	24,053	25.7	8.0	3.4%	7%	14	27	0.00	52.93	106%
Brown Bear	100.0	1	84	0.1	*	**	**	0	0	0.04	0.14	53%
Dall Sheep	99.0	11	1,106	1.2	0.4	**	3%	1	2	0.00	2.90	146%
Other Terrestrial Mammals	n/a	15	21	0.0	*	**	1%	0	0	0.00	0.05	131%
Porcupine	10.0	2	16	0.0	*	**	1%	0	0	0.00	0.05	174%
Ground Squirrel	0.4	14	5	0.0	*	**	**	0	0	0.00	0.01	56%
Wolverine	n/a	2	n/a	n/a	n/a	n/a	1%	n/a	n/a	n/a	n/a	n/a
Arctic Fox (Blue)	n/a	129	n/a	n/a	n/a	n/a	5%	n/a	n/a	n/a	n/a	n/a
Red Fox (Cross, Silver)	n/a	5	n/a	n/a	n/a	n/a	**	n/a	n/a	n/a	n/a	n/a

---

[1] Three years of study: April 1, 1987 - March 31, 1990.

[2] Estimated sampling errors do not include errors in reporting, recording, and in conversion to usable weight.

[3] See Table D-5 for sources of conversion factors.

[4] This percentage is a cumulative total for the three study years rather than an annual average.

* represents less than .1 pound

** represents less than .1 percent

n/a means not applicable

Source: Stephen R. Braund & Associates and ISER, 1993

Stephen R. Braund & Associates, 2010.

Table 157: Harvest Estimates For Fish - All Barrow Households, Three Year Average [1, 2]

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING ERROR AT 95% (lbs)	LOW ESTIMATE (Mean lbs/ Household)	HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING ERROR AS % OF MEAN
Total Fish	n/a	n/a	79,355	84.7	26.3	11.3%	41%	10	19	65.32	104.06	23%
Total Whitefish		28,683	61,149	65.3	20.3	8.7%	34%	9	17	48.36	82.16	26%
Whitefish(non-specific)	2.5	1,760	3,523	3.8	1.2	0.5%	4%	1	2	2.16	5.36	43%
Round whitefish	1.0	953	956	1.0	0.3	0.1%	6%	0	1	0.49	1.55	52%
Broad whitefish (river)	2.5	15,234	38,089	40.7	12.6	5.4%	29%	5	10	30.29	51.01	25%
Broad whitefish (lake)	3.4	2,118	7,206	7.7	2.4	1.0%	6%	3	6	1.34	14.04	83%
Humpback whitefish	2.5	1,840	4,601	4.9	1.5	0.7%	15%	2	5	0.25	9.57	95%
Least cisco	1.0	5,819	5,819	6.2	1.9	0.8%	9%	1	2	3.87	8.55	38%
Bering, Arctic cisco	1.0	958	956	1.0	0.3	0.1%	4%	0	0	0.67	1.37	34%
Total Other Freshwater Fish		10,824	11,478	12.3	3.8	1.6%	23%	3	5	7.03	17.47	43%
Arctic grayling	0.8	9,914	7,936	8.5	2.6	1.1%	21%	2	4	4.81	12.13	43%
Arctic char	2.8	83	234	0.3	0.1	**	5%	0	0	0.03	0.47	88%
Burbot (Ling cod)	4.0	676	2,708	2.9	0.9	0.4%	10%	1	2	1.26	4.52	56%
Northern pike	2.3	4	9	0.0	*	**	1%	0	0	0.00	0.02	51%
Lake trout	4.0	147	590	0.6	0.2	0.1%	4%	0	1	0.11	1.15	82%
Total Salmon		788	4,638	5.0	1.5	0.7%	12%	2	3	1.47	8.43	70%
Salmon (non-specified)	6.1	169	1,031	1.1	0.3	0.1%	2%	1	2	0.00	2.83	158%
Chum (Dog)	6.1	182	1,106	1.2	0.4	0.2%	6%	0	0	0.75	1.61	37%

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING STATISTICS SAMPLING ERROR AT 95% (lbs)	SAMPLING STATISTICS LOW ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS SAMPLING ERROR AS % OF MEAN
salmon												
Pink (Humpback) salmon	3.1	92	281	0.3	0.1	**	4%	0	0	0.13	0.47	55%
Silver (Coho) salmon	6.0	334	2,005	2.1	0.7	0.3%	4%	1	2	0.28	4.00	87%
King (Chinook) salmon	18.0	12	216	0.2	0.1	**	1%	0	0	0.12	0.34	50%
Total Other Coastal Fish		10,351	2,090	2.2	0.7	0.3%	14%	1	1	1.10	3.36	51%
Capelin	0.2	1,435	290	0.3	0.1	**	8%	0	1	0.00	0.81	161%
Rainbow smelt	0.2	526	66	0.1	*	**	2%	0	0	0.00	0.19	172%
Arctic cod	0.2	8,321	1,668	1.8	0.6	0.2%	2%	1	1	0.77	2.79	57%
Tomcod	1.0	65	66	0.1	*	**	1%	0	0	0.00	0.20	185%
Sculpin	0.6	4	2	0.0	*	**	**	0	0	0.00	0.00	n/a

---

[1] Three years of study: April 1, 1987 - March 31, 1990.

[2] Estimated sampling errors do not include errors in reporting, recording, and in conversion to usable weight.

[3] See Table D-5 for sources of conversion factors.

[4] This percentage is a cumulative total for the three study years rather than an annual average.

Source: Stephen R. Braund & Associates and ISER, 1993

* represents less than .1 pound; ** represents less than .1 percent

n/a means not applicable

Stephen R. Braund & Associates, 2010.

Table 158: Harvest Estimates For Birds - All Barrow Households, Three Year Average [1, 2]

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING ERROR AT 95% (lbs)	LOW ESTIMATE (Mean lbs/ Household)	HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING ERROR AS % OF MEAN
Total Birds	n/a	n/a	24,720	26.4	8.2	3.5%	53%	4	8	18.39	34.37	30%
Total Geese		3,384	14,561	15.5	4.8	2.1%	29%	3	5	10.39	20.69	33%
Geese (non-specified)	4.5	144	647	0.7	0.2	0.1%	3%	0	0	0.29	1.09	58%
Brant	3.0	440	1,321	1.4	0.4	0.2%	9%	1	1	0.04	2.78	97%
White-fronted geese	4.5	2,795	12,575	13.4	4.2	1.8%	27%	3	5	8.36	18.48	38%
Snow geese	4.5	4	19	0.0	*	**	1%	0	0	0.01	0.03	51%
Canada geese	4.5	1	4	0.0	*	**	**	0	0	0.00	0.00	n/a
Total Eider		6,087	9,136	9.8	3.0	1.3%	43%	3	5	4.79	14.71	51%
Eider (non-specified)	1.5	5,982	8,976	9.6	3.0	1.3%	42%	3	5	4.62	14.54	52%
Common eider	1.5	32	47	0.1	*	**	2%	0	0	0.00	0.11	111%
King eider	1.5	69	103	0.1	*	**	2%	0	0	0.07	0.15	35%
Stellar's eider	1.5	3	9	0.0	*	**	**	0	0	0.01	0.01	28%
Spectacled eider	1.5	1	1	0.0	*	**	**	0	0	0.00	0.00	n/a
Ptarmigan	0.7	1,378	965	1.0	0.3	0.1%	20%	0	0	0.57	1.49	44%
Other birds		30	58	0.1	*	**	1%	0	0	0.02	0.10	66%
Red-throated Loon	3.0	1	3	0.0	*	**	**	0	0	0.00	0.01	n/a
Sandhill Crane	10.0	1	9	0.0	*	**	**	0	0	0.01	0.01	48%
Tundra Swan	10.0	0.4	3	0.0	*	**	**	0	0	0.00	0.01	n/a
Other ducks (non-spec.)	1.5	26	40	0.0	*	**	**	0	0	0.04	0.04	n/a
Oldsquaw	1.5	1	1	0.0	*	**	**	0	0	0.00	0.00	n/a
Surf scoter	1.5	0.4	1	0.0	*	**	**	0	0	0.00	0.00	n/a

RESOURCE	CONVERSION FACTOR [3] (Usable Weight Per Resource in lbs)	COMMUNITY TOTALS NUMBER HRVSTD	COMMUNITY TOTALS USABLE POUNDS HRVSTD	AVERAGE POUNDS HARVESTED PER HH	AVERAGE POUNDS HARVESTED PER CAPITA	PERCENT OF TOTAL USABLE POUNDS HRVSTD	PERCENT OF ALL BARROW HSEHOLDS HRVSTING RESRCE [4]	SAMPLING STATISTICS STD DEVIATION (lbs)	SAMPLING STATISTICS SAMPLING ERROR AT 95% (lbs)	SAMPLING STATISTICS LOW ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS HIGH ESTIMATE (Mean lbs/ Household)	SAMPLING STATISTICS SAMPLING ERROR AS % OF MEAN

[1] Three years of study: April 1, 1987 - March 31, 1990.

[2] Estimated sampling errors do not include errors in reporting, recording, and in conversion to usable weight.

[3] See Table D-5 for sources of conversion factors.

[4] This percentage is a cumulative total for the three study years rather than an annual average.

Source: Stephen R. Braund & Associates, 1993

* represents less than .1 pound

** represents less than .1 percent

n/a means not applicable

Stephen R. Braund & Associates, 2010.

Active and Historically Active Hunting and Fishing Camps

The current study collected camps and cabins used by Barrow, Kaktovik, and Nuiqsut residents and also provided cabin and platform locations reported on a North Slope Borough camps and cabins map (North Slope Borough Geographic Information Systems 2003). Previous camp and cabin data are available in SRB&A and ISER (1993a); however, because neither the data collected for this study nor SRB&A and ISER (1993a) data include owner information or specific GPS locations, comparison of these data is not possible. Furthermore, SRB&A was not able to reconcile duplicate camp and cabin locations (i.e., camps and cabins reported by multiple respondents in slightly different locations) reported for this study, and therefore maps in this report likely depict a higher number of camps and cabins than actually exist. Efforts to collect accurate camp and cabin owner and locational information in the future may allow for comparison of camp and cabin uses over time. The North Slope Borough camps and cabins map provides the most accurate information for Barrow.

Travel Routes

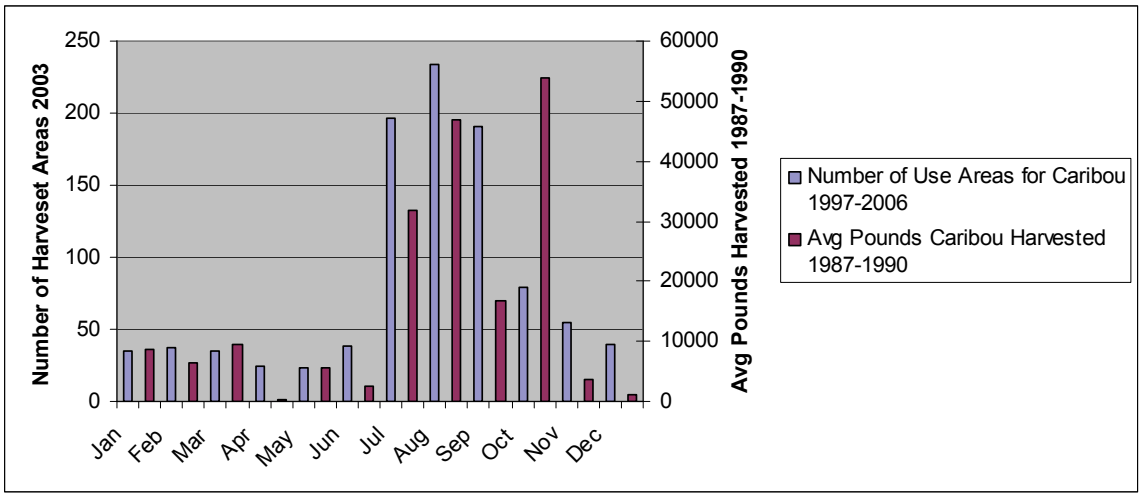
The current study collected travel routes used by respondents to travel to hunting areas, camp/cabin locations, and other communities. No comparable mapped data on travel routes around 1990 exist for Barrow, Nuiqsut, and Kaktovik. Collection of travel routes could be conducted in future studies allowing comparisons over time.

Months of Effort

The current study asks harvesters to identify the months in which they use each last 10 year subsistence use area for each key resource. While this approach was not used in any study describing subsistence use patterns around 1990, harvesters in the Barrow Subsistence Study reported the month of each harvest event. Both studies thus have a measure identifying the timing of subsistence use. It is therefore possible to compare resource harvest activity by month, although the time frames for the two data sets are different (10 years [1997-2006] versus three years [1987-1990], as well as the type of data (number of subsistence use areas versus average pounds harvested). Figures 57 through 68 compare monthly harvest activity by key resource (comparable data are not available for wolf and wolverine). Given the different units of observation (use areas and harvest amount), it is not possible to compare the absolute height of monthly bars. Rather, it is possible to compare the relative height of bars across months (i.e., the shape of the distribution).

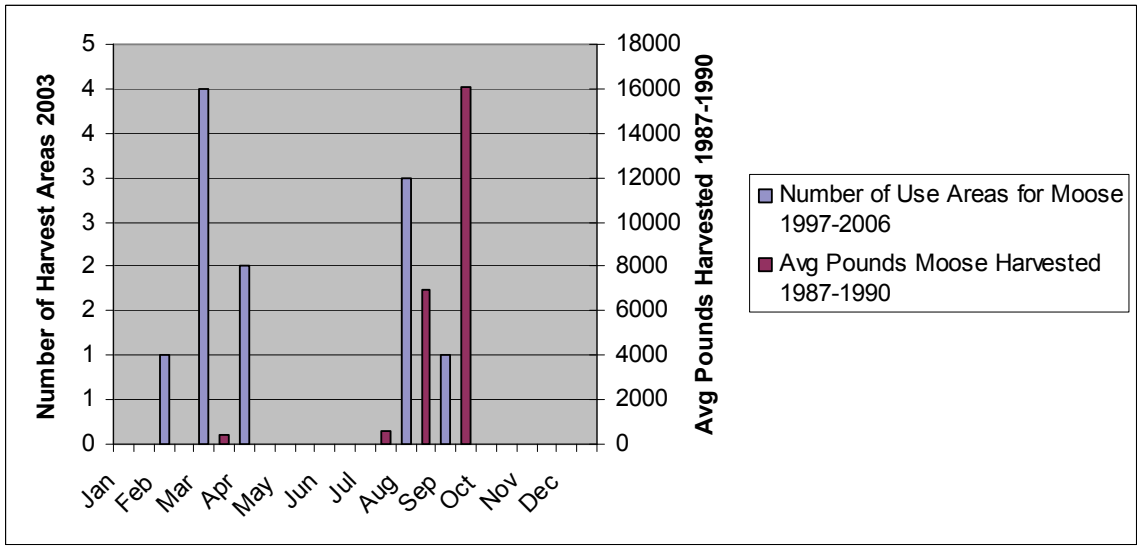
A number of resources, including bearded seal, burbot, geese, ringed seal, and walrus, show a similar distribution of months of subsistence use. Others indicate a shift in the timing of certain harvests. It is important to note that the 1987-1989 data is for a smaller time frame and therefore may depict isolated harvest spikes during abnormal times. The 1987-1989 caribou harvests, for example, show a spike in the number of caribou harvests in November, a time when the number of 1997-2006 use areas shows a decline. Other resources with contrasting months of subsistence use include Arctic cisco, bowhead whale, broad whitefish, and moose. Considering historic data on resource distribution and abundance, as well as abnormal climate events, may help contextualize some of these differences. In the future, gathering data for similar time periods (e.g., “last 10 years”) and for similar units (e.g., by use area rather than by harvest amount) would allow for more direct comparisons.

Figure 57: Barrow Caribou Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



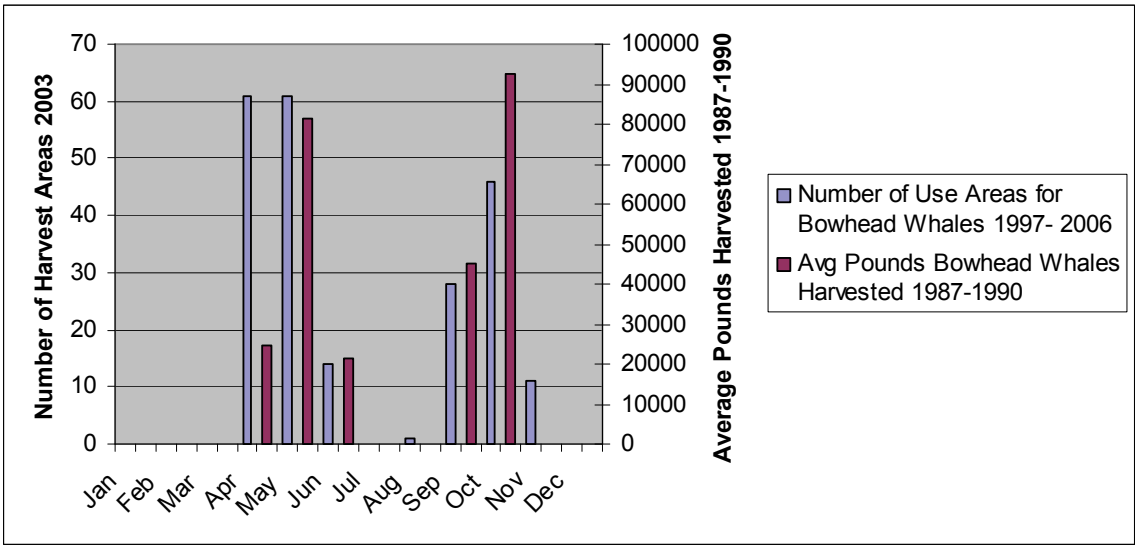
Stephen R. Braund & Associates, 2010.

Figure 58: Barrow Moose Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



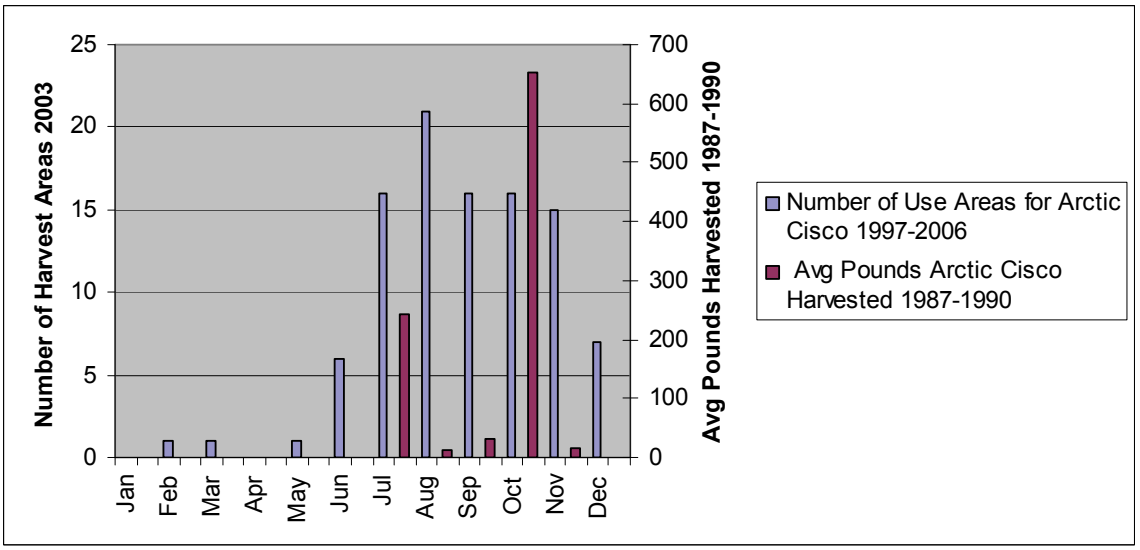
Stephen R. Braund & Associates, 2010.

Figure 59: Barrow Bowhead Whale Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



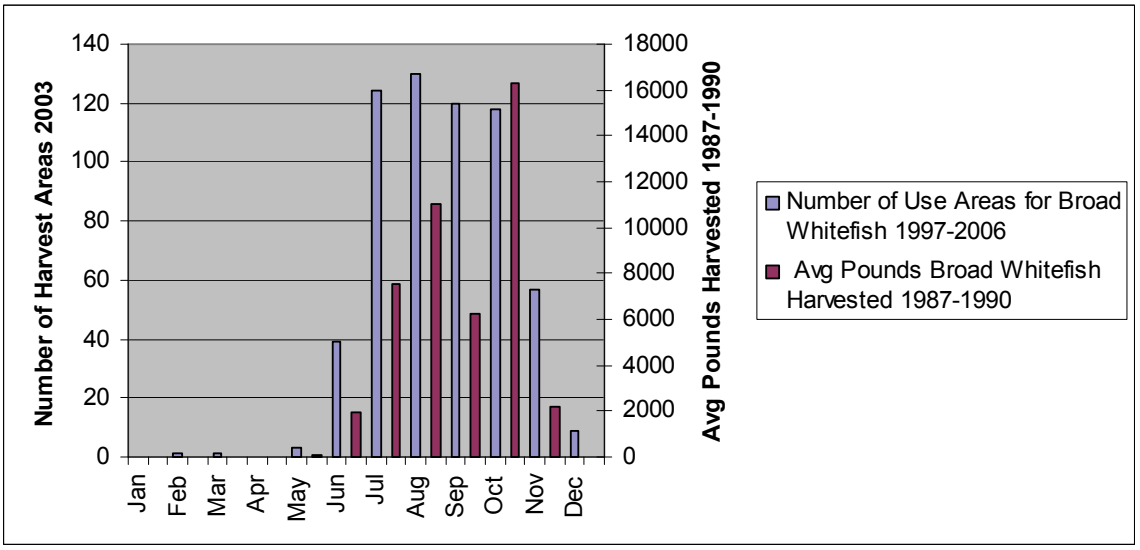
Stephen R. Braund & Associates, 2010.

Figure 60: Barrow Arctic Cisco Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



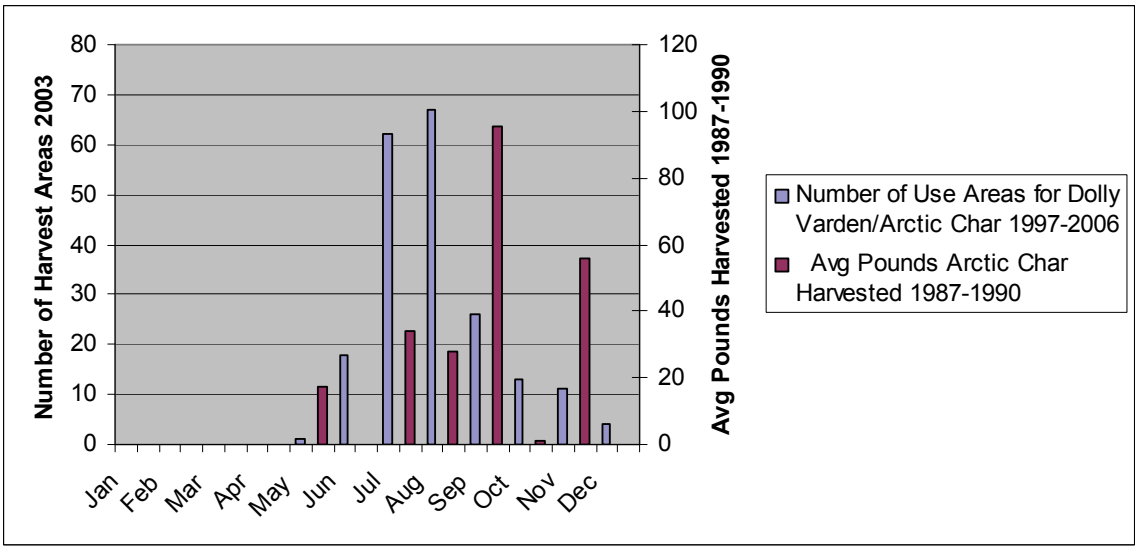
Stephen R. Braund & Associates, 2010.

Figure 61: Barrow Broad Whitefish Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



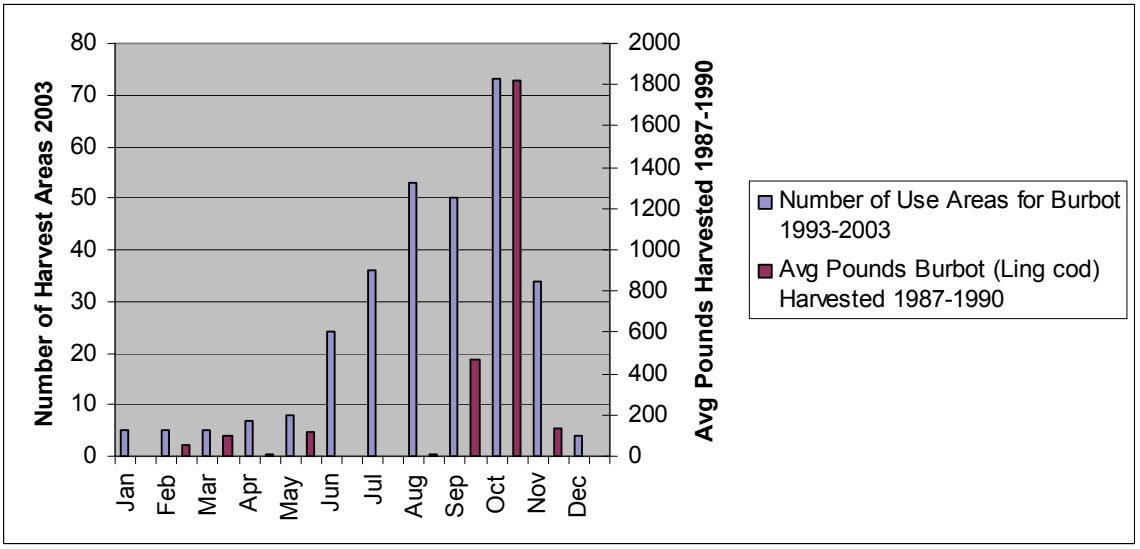
Stephen R. Braund & Associates, 2010.

Figure 62: Barrow Arctic Char/Dolly Varden Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



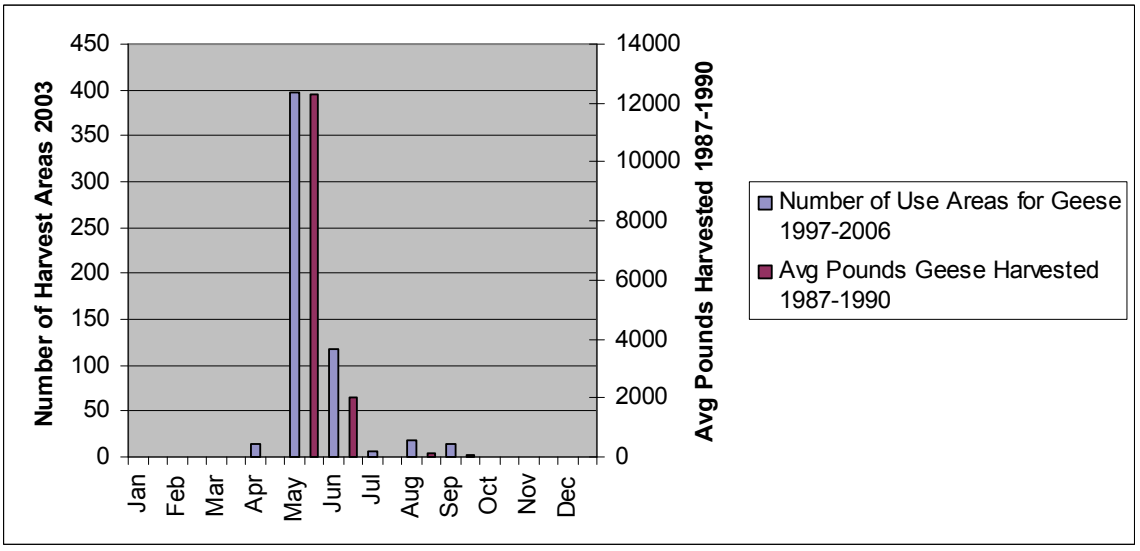
Stephen R. Braund & Associates, 2010.

Figure 63: Barrow Burbot Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



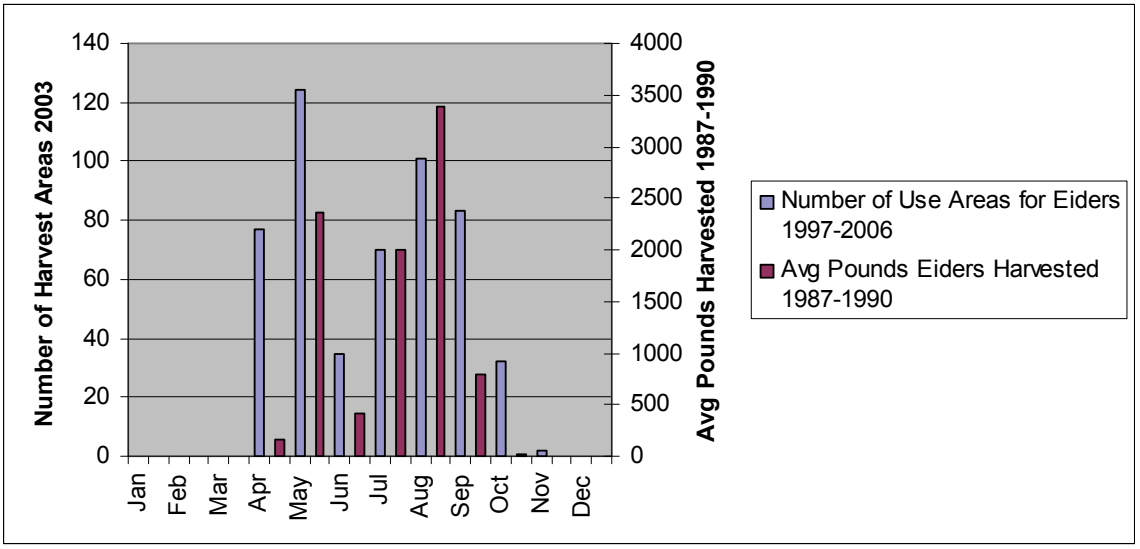
Stephen R. Braund & Associates, 2010.

Figure 64: Barrow Geese Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



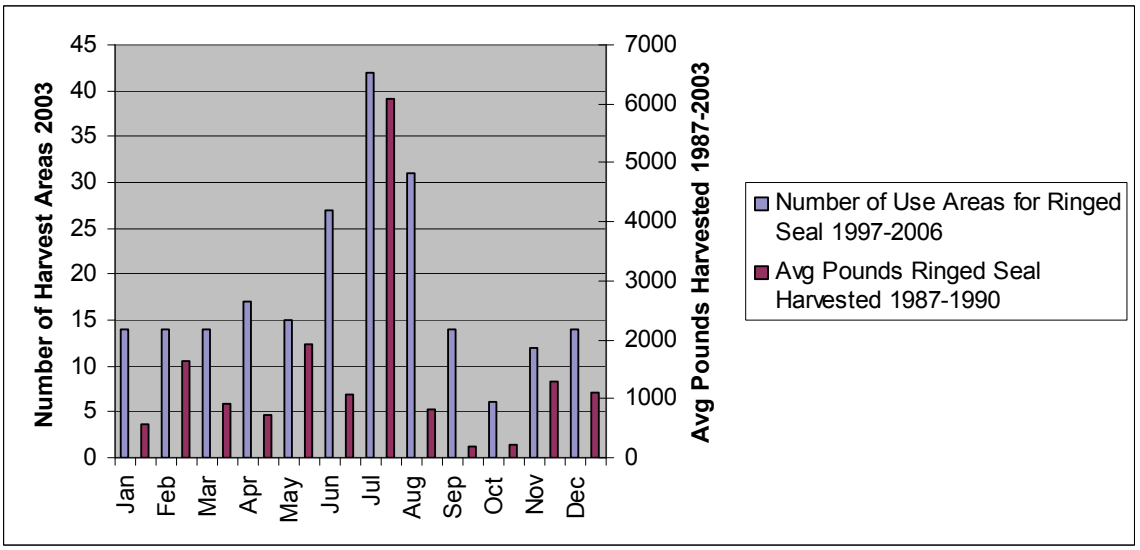
Stephen R. Braund & Associates, 2010.

Figure 65: Barrow Eiders Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



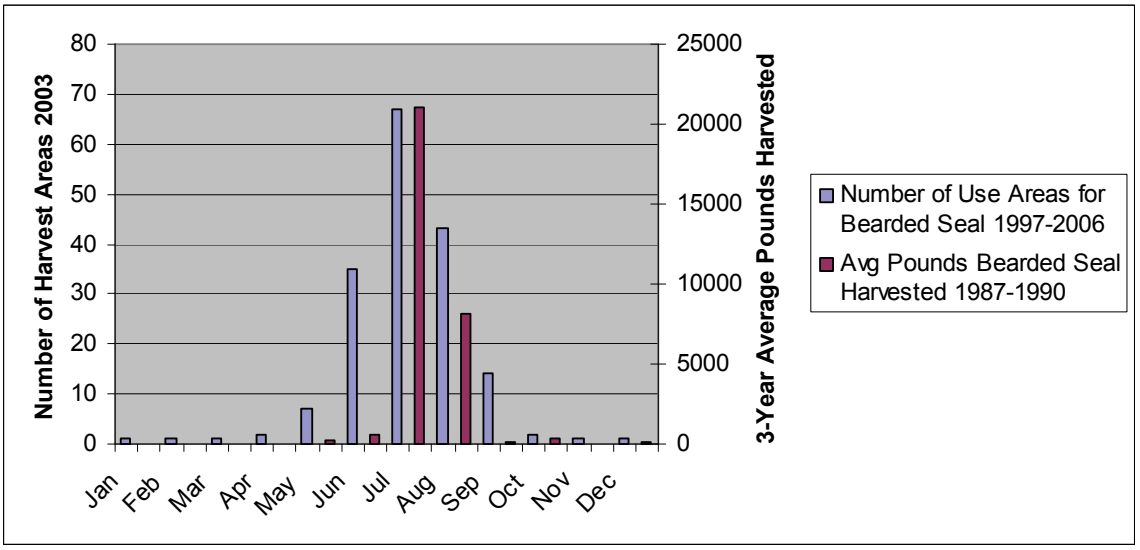
Stephen R. Braund & Associates, 2010.

Figure 66: Barrow Ringed Seal Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



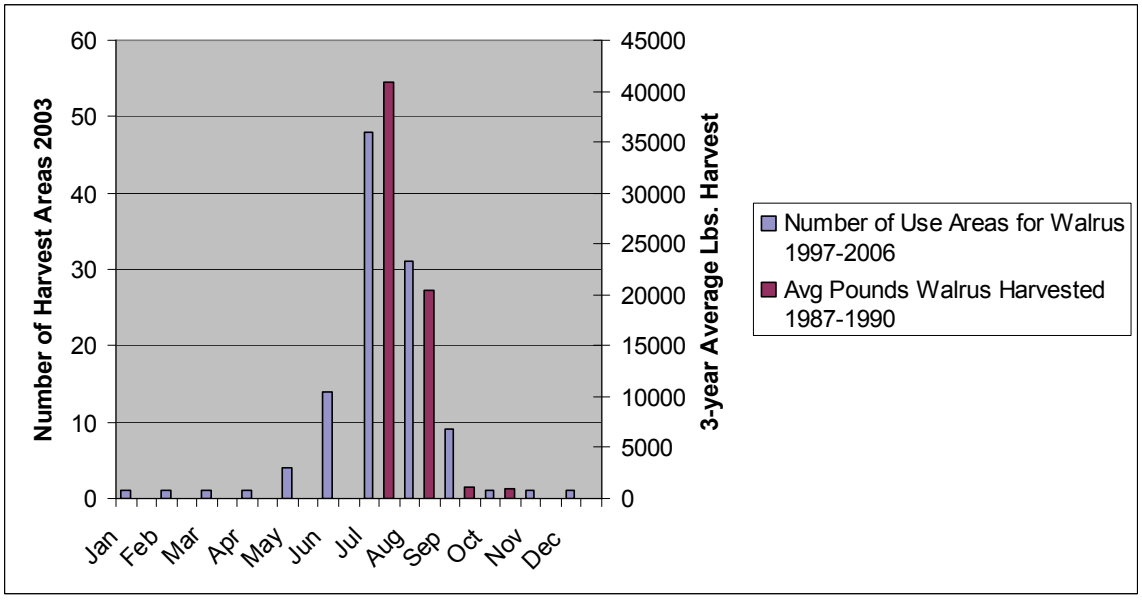
Stephen R. Braund & Associates, 2010.

Figure 67: Barrow Bearded Seal Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



Stephen R. Braund & Associates, 2010.

Figure 68: Barrow Walrus Subsistence Use Areas (1997-2006) and Harvest Months, (1987-1990)



Stephen R. Braund & Associates, 2010.

MMS Subsistence Mapping Personal Geodatabase

The MMS Subsistence Mapping Personal Geodatabase is intended to be a tool for describing subsistence use information for the study period and for measuring change in subsistence patterns of harvesters residing in Barrow, Nuiqsut, and Kaktovik. It must therefore contain data stored in a form that supports replication and measurement of change. At the same time, as a public resource, the MMS Subsistence Mapping Personal Geodatabase cannot contain individual harvester information. To do so would violate the confidentiality guaranteed to participating harvesters. The files provided in the MMS Subsistence Mapping Personal Geodatabase allow the user to replicate most of the maps in this report in the form of dissolved polygons. The MMS Subsistence Mapping Personal Geodatabase is also designed to allow the incorporation of new data files that can be used in combination with existing files to measure change in subsistence patterns. The following is a technical description of the contents of the MMS Subsistence Mapping Personal Geodatabase.

The MMS Subsistence Mapping Personal Geodatabase includes the following feature classes containing polygon or line data: subsistence use areas last 10 years, subsistence use areas last 12 months, method of transportation, travel routes, and months of harvest effort. Some of these feature classes are viewable for all resources, key resources, and by community. Accompanying the feature classes is a comprehensive metadata.

Subsistence Use Areas

The MMS Subsistence Mapping Personal Geodatabase includes the following feature classes for subsistence use areas: (1) dissolved polygons showing last 10 year use areas by community for key resources (when reported by four or more harvesters) and all resources; (2) dissolved polygons showing last 12 month use areas by community for key resources (when reported by four or more harvesters) and all resources; (3) dissolved polygons showing last 10 year and last 12 month all resources use areas for all communities combined; (4) dissolved polygons showing all resources last 10 year use areas for each community by months of harvest effort; and (5) dissolved polygons showing all resources last 10 year use areas for each community by method of transportation.

Transportation Methods

As mentioned above, the MMS North Slope Subsistence Mapping Personal Geodatabase contains feature classes representing each community's cumulative (dissolved) use area for all resources accessed in the last 10 years for each of four transportation types: snowmachine, four-wheeler, boat, and other (which includes foot, plane, and car or truck).

Travel Routes

The MMS North Slope Subsistence Mapping Personal Geodatabase contains feature classes representing each community's travel routes.

Months of Harvest Effort

The MMS North Slope Subsistence Mapping Personal Geodatabase contains feature classes identifying cumulative (dissolved) last 10 year subsistence use areas for each community by month, for all resources.

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APPENDIX A: FIELD PROTOCOL

MMS Mapping Field Protocol – Last 10 Years

Put a √ for each resource harvested in the last 12 months. Put a √ in each cell after recording information on maps for each resource. Write in normal gear type by resource. Finally, record information about interview.

	Caribou	Moose	Bowhead whale	Arctic Cisco	Arctic Char	Broad whitefish	Burbot	Geese Brant Canada Snow Whitefront	Eider Common King Steller's Spect.	Ringed Seal	Bearded Seal	Wolf/ Wolverine	Walrus
√ to right if Harvested in Prev 10 years													
Record information below on maps (√ box to indicate complete)													
Harvest areas													
Travel Routes													
Travel methods													
Associated Camps & Cabins													
Months each area used													
Preferred Loc.	**[NOT REPORTED]**												

Date of interview: **Community:**

Respondent	**1**	**2**	**3**	**4**
Name				
Experience/ Level of Activity				

Interviewers:

DATE:

MMS Mapping Field Protocol – Last 12 Months

RESPONDENT:

Put a √ for each resource harvested in the last 12 months. Put a √ in each cell after recording information on maps for each resource. Write in normal gear type by resource. Finally, record information about interview.

	Caribou	Moose	Bowhead whale	Arctic Cisco	Arctic Char	Broad whitefish	Burbot	Geese Brant Canada Snow Whitefront	Eider Common King Steller's Spect.	Ringed Seal	Bearded Seal	Wolf/ Wolverine	Walrus
√ to right if Harvested in Prev 12 mos													
Record information below on maps (√ box to indicate complete)													
Harvest areas													
Travel methods	**[ENTER DATA FOR LAST 10 YEARS]**												
Months each area used	**[ENTER DATA FOR LAST 10 YEARS]**												
Record information below on maps for most recent harvest activity (√ box to indicate complete)													
Harvest location													
Number of Participants													
Duration of hunt													
Harvest Amount	**[NOT REPORTED]**												
Harvest Units (if not individuals)	**[NOT REPORTED]**												
Write in gear type normally used													
Gear/Weapon Caliber Nmly Used													

APPENDIX B: SOCIAL NETWORKING FORM

MMS Subsistence Mapping of Nuiqsut, Kaktovik, and Barrow
Stephen R. Braund & Associates & North Slope Borough Dept. of Wildlife Management

Name of Person Interviewed:_____ **Community:** _____
Person Doing Interview: _____ **Date:** _____

Who are the most ACTIVE harvesters for each resource? We want broad age & broad geographic harvest representation. Who would be good harvesters to interview your community for each resource?

Active

Bowhead whales	Ringed Seal	Arctic cisco	Broad whitefish	Arctic char	Caribou	Geese	Eiders

Are there any persons not named above who are really knowledgeable and know a lot about each resource?

Knowledgeable

Bowhead whales	Ringed Seal	Arctic cisco	Broad whitefish	Arctic char	Caribou	Geese	Eiders

APPENDIX C: GLOSSARY

Glossary of Iñupiaq Words

Aanaakliq	Broad whitefish
Aġvik	Bowhead whale
Aiviq	Walrus
Amaġuq	Wolf
Amauligruaq	Common eider
Iqalukpik	Dolly Varden
Iqalusaaq	Least cisco
Iqsraġutilik	Canada goose
Kaŋuq	Lesser snow goose
Natchiq	Ringed seal
Niġlinġaq	Brant
Nigliq	White-fronted goose
Paikłuk	Arctic char
Pikuktuuq	Humpback whitefish
Qaaktaq	Arctic cisco
Qaavik	Wolverine
Qiŋalik	King Eider
Sulukpaugaq	Arctic grayling
Tittaaliq	Burbot
Tuttu	Caribou
Tuttuvak	Moose
Ugruk	Bearded seal

APPENDIX D: BARROW, KAKTOVIK, AND NUIQSUT HARVEST DATA

Table D-1: Barrow Harvest Estimates by Resource Cagetories Addressed in this Report

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
1987											
	All Resources[1]			58				621,067	63	206	100.0%
	Caribou			26			1,595	186,669	199	62	30.1%
	Bowhead			31			7	184,629	197	61	29.7%
	Moose			6			52	25,786	28	9	4.2%
	Arctic Cisco										
	Arctic Char/Dolly Varden			3			38	105	0	0	0.0%
	Broad Whitefish			11			10,579	27,519	29	9	4.4%
	Burbot			7			1,086	4,346	5	1	0.7%
	Geese			20			2,873	12,740	14	4	2.1%
	Eider			22			5,173	7,759	8	3	1.2%
	Ringed Seal			14			466	19,574	21	6	3.2%
	Bearded Seal			25			236	41,518	44	14	6.7%
	Walrus			11			84	64,663	69	21	10.4%
	Wolf and Wolverine						4	0	0	0	0.0%
1988											
	All Resources			50				614,669	656	204	100.0%
	Caribou			27			1,533	179,314	191	59	29.2%
	Bowhead			35			11	233,313	249	77	38.0%
	Moose			4			53	26,367	28	9	4.3%
	Arctic Cisco										
	Arctic Char/Dolly Varden						76	213	0	0	0.0%
	Broad Whitefish			11			11,432	29,423	31	10	4.8%
	Burbot			7			392	1,566	2	1	0.3%
	Geese			19			3,334	14,672	16	5	2.4%
	Eider			20			4,498	6,747	7	2	1.1%

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Ringed Seal			10			388	16,304	17	5	2.7%
	Bearded Seal			11			179	31,436	34	10	5.1%
	Walrus			6			61	47,215	50	16	7.7%
	Wolf and Wolverine						2	0	0	0	0.0%
1989											
	All Resources			61				872,092	931	289	100.0%
	Caribou			39			1,656	193,744	207	64	22.2%
	Bowhead			45			10	377,647	403	125	43.3%
	Moose			6			40	20,014	21	7	2.3%
	Arctic Cisco										
	Arctic Char/Dolly Varden			5			135	377	0	0	0.0%
	Broad Whitefish						30,047	78,921	84	26	9.0%
	Burbot			7			550	2,202	2	1	0.3%
	Geese			13			3,944	16,289	17	5	1.9%
	Eider			37			8,585	12,877	14	4	1.5%
	Ringed Seal			11			328	13,774	15	5	1.6%
	Bearded Seal			11			109	19,152	20	6	2.2%
	Walrus			13			101	77,987	83	26	8.9%
	Wolf and Wolverine						1	0	0	0	0.0%
1992											
	All Resources							1,363,736	1,190	349	100.0%
	Caribou						1,993	233,206	203	60	17.1%
	Bowhead						22	729,952	637	187	53.5%
	Moose						34	17,115	21		1.3%
	Arctic Cisco						1,838	1,838	2		0.1%
	Arctic Char/Dolly Varden						1,490	4,171	5		0.3%
	Broad Whitefish						23,997	59,993	74	15	4.4%

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Burbot						811	3,245	4		0.2%
	Geese[2]						2,796	11,740	14		0.9%
	Eider[2]						7,191	10,787	13		0.8%
	Ringed Seal						300	12,612	16		0.9%
	Bearded Seal						463	81,471	100	21	6.0%
	Walrus						206	159,236	196	41	11.7%
	Wolf and Wolverine						22	0	0	0	0.0%
1995-96											
	All Resources										
	Caribou						2,155				
	Bowhead						27				
	Moose										
	Arctic Cisco						3,615				
	Arctic Char/Dolly Varden						38				
	Broad Whitefish						5,130				
	Burbot						126				
	Geese						2,605				
	Eider						12,114				
	Ringed Seal						345				
	Bearded Seal						431				
	Walrus						74				
	Wolf and Wolverine						15				
1996-97											
	All Resources										
	Caribou						1,158				
	Bowhead						26				
	Moose										

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Arctic Cisco						70				
	Arctic Char/Dolly Varden						11				
	Broad Whitefish						6,684				
	Burbot						95				
	Geese						1,883				
	Eider						2,572				
	Ringed Seal						180				
	Bearded Seal						192				
	Walrus						78				
	Wolf and Wolverine						14				
2000											
	All Resources										
	Caribou						3,359				
	Bowhead						18				
	Moose										
	Arctic Cisco						9,909				
	Arctic Char/Dolly Varden						848				
	Broad Whitefish						21,318				
	Burbot						285				
	Geese						7,818				
	Eider						7,688				
	Ringed Seal						586				
	Bearded Seal						729				
	Walrus						115				
	Wolf and Wolverine						33				
2001											
	All Resources										

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Caribou						1,820				
	Bowhead						27				
	Moose										
	Arctic Cisco						91				
	Arctic Char/Dolly Varden						95				
	Broad Whitefish						2,176				
	Burbot						147				
	Geese						4,146				
	Eider						2,201				
	Ringed Seal						287				
	Bearded Seal						327				
	Walrus						123				
	Wolf and Wolverine						27				
2003											
	All Resources										
	Caribou						2,092				
	Bowhead						16				
	Moose										
	Arctic Cisco						62				
	Arctic Char/Dolly Varden						270				
	Broad Whitefish						8,207				
	Burbot						405				
	Geese						3,629				
	Eider						3,836				
	Ringed Seal						413				
	Bearded Seal						776				
	Walrus						313				

Barrow Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Wolf and Wolverine						24				
2002-03											
	Caribou[3]	92	60	54	78	80	929				
2003-04											
	Caribou	87	51	45	73	69	570				
2004-05											
	Caribou	85	51	48	64	62	654				
2005-06											
	Caribou	90	50	47	78	81	509				

Notes: Blank cells indicate data not available.
[1]All Resources includes resources not reported in resource categories shown in this table (e.g., berries, ptarmigan, ducks).
[2]SRB&A totaled geese and eider numbers from individual species numbers for study years 1992 through 2003.
[3]Number for caribou study years 2002 through 2006 is based on reported harvest rather than estimated harvest.
Sources: Stephen R. Braund & Associates (SRB&A) and ISER 1993a (for 1987, 1988, and 1989); Fuller and George 1999 (for 1992); Bacon et al. 2009 (for 1995-1996, 1996-1997, 2000, 2001, and 2003); ADF&G 2010 (for 2002-2006).

Stephen R. Braund & Associates, 2010.

Table D-2: Kaktovik Estimated Harvest by Resource Categories Addressed in this Report

Kaktovik Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
1985											
	All Resources[1]	100	93	91	83	100		61,663	1,163	328	100.0%
	Caribou	95	76	69	67	86	235	27,941	527	149	45.3%
	Bowhead	83	48	0	2	83	0	0	0	0	0.0%
	Moose	45	7	7	5	38	4	1,893	36	10	3.1%
	Cisco	79	60	55	29	62	3,546	2,482	47	13	4.0%
	Arctic Char/Dolly Varden	100	86	81	41	69	3,075	8,611	162	46	14.0%
	Broad Whitefish	48	5	0	0	48	0	0	0	0	0.0%
	Burbot	2	2	0	0	2	0	0	0	0	0.0%
	Geese	71	62	57	38	43	647	2,913	55	15	4.7%
	Eider										
	Ringed Seal	69	50	45	26	45	151	6,360	120	34	10.3%
	Bearded Seal	62	43	33	29	57	21	3,776	71	20	6.1%
	Walrus	38	2	0	0	38	0	0	0	0	0.0%
	Wolf and Wolverine	2		2	2	0	1	0	0	0	0.0%
1986											
	All Resources	100	89	87	83	100		84,060	1,501	433	100.0%
	Caribou	98	66	60	53	94	178	21,188	378	109	25.2%
	Bowhead	96	62	43	51	94		43,704	780	225	52.0%
	Moose	17	2	2	2	15	1	596	11	3	0.7%
	Cisco	85	53	53	45	79	2,402	1,682	30	9	2.0%
	Arctic Char/Dolly Varden	94	70	70	62	77	1,768	4,951	88	25	5.9%
	Broad Whitefish	21	0	0	2	21	0	0	0	0	0.0%
	Geese	83	55	51	36	70	371	1,410	25	7	1.7%
	Eider	53	36	34	19	34	105	157	3	1	0.2%

Kaktovik Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Ringed Seal	72	40	38	28	60	44	1,851	33	10	2.2%
	Bearded Seal	75	34	26	23	64	17	2,936	52	15	3.5%
	Walrus	43	2	0	0	43	0	0	0	0	0.0%
	Wolf and Wolverine	6		4	2	2	2	0	0	0	0.0%
1987											
	Caribou			55			185	22,229	383	104	
1990											
	Caribou			48			113	13,453	224	67	
1991											
	Caribou			50			181	22,113	369	94	
1992											
	All Resources	96	89	89	83	92		170,939	2,713	886	100.0%
	Caribou	96	70	55	53	75	158	19,136	304	99	11.2%
	Bowhead	87	53	6	62	85		108,160	1,717	560	63.3%
	Moose	36	11	6	9	32	4	2,011	32	10	1.2%
	Arctic Cisco	2	2	2	2	2	9	7	0	0	0.0%
	Arctic Char/Dolly Varden	92	81	79	66	45	5,523	15,463	245	80	9.0%
	Broad Whitefish	2	0	0	2	2	0	0	0	0	0.0%
	Burbot	9	0	0	6	9	0	0	0	0	0.0%
	Geese	79	60	47	40	62	601	2,135	34	11	1.2%
	Eider	60	45	38	32	43	248	372	6	2	0.2%
	Ringed Seal	47	30	26	28	36	42	1,689	27	9	1.0%
	Bearded Seal	75	47	28	32	60	24	4,246	67	22	2.5%
	Walrus	30	9	2	15	28	47	52	1	0	0.0%
	Wolf and Wolverine				6		12	0	0	0	0.0%
2001											
	Arctic Cisco			91			1,361	953	32	9	

Kaktovik Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Arctic Char/Dolly Varden			35			1,739	4,869	27	9	
2002											
	Arctic Cisco			38			2,187	1,531	19	7	
	Arctic Char/Dolly Varden			44			2,649	7,418	41	14	
2002-2003											
	All Resources										
	Caribou						112				
	Bowhead						3				
	Moose										
	Arctic Cisco						1,051				
	Arctic Char/Dolly Varden						1,162				
	Broad Whitefish						3				
	Burbot						1				
	Geese[2]						479				
	Eider[2]						38				
	Ringed Seal						17				
	Bearded Seal						8				
	Walrus										
	Wolf and Wolverine						3				

Notes: Blank cells indicate data not available.
[1]All Resources includes resources not reported in resource categories shown in this table (e.g., berries, ptarmigan, ducks).
[2]SRB&A totaled geese and eider numbers from individual species numbers for study year 2002-2003.
Sources: ADF&G 2010 (for 1985, 1986, 1987, 1990, 1991, 1992, 2001, and 2002); Bacon et al. 2009 (for 2002-2003).

Stephen R. Braund & Associates, 2010.

Table D-3: Nuiqsut Harvest Estimates by Resource Categories Addressed in this Report

Nuiqsut Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
1985											
	All Resources[1]	100	98	98	95	100		160,035	2,106	399	100.0%
	Caribou	98	90	90	80	60	513	60,021	790	150	37.5%
	Bowhead	100	23	5	8	100	-	7,458	98	19	4.7%
	Moose	40	40	18	20	25	13	6,650	88	17	4.2%
	Cisco	98	75	73	65	60	46,478	29,354	386	73	18.3%
	Arctic Char/Dolly Varden	75	63	60	33	35	1,060	2,969	39	7	1.9%
	Broad Whitefish	95	80	78	70	40	7,900	26,861	353	67	16.8%
	Burbot	75	60	60	43	33	669	2,675	35	7	1.7%
	Geese	90	90	85	55	48	1,345	6,045	80	15	3.8%
	Ringed Seal	53	25	18	23	40	40	1,676	22	4	1.0%
	Bearded Seal	48	25	15	15	35	15	2,675	35	7	1.7%
	Walrus	40	3	3	5	40	2	1,467	19	4	0.9%
	Wolf and Wolverine				0		27	0	0	0	0.0%
1992											
	All Resources							150,297	1,768		100.0%
	Caribou						278	32,551	383	78	21.7%
	Bowhead						2	48,715	464	117	32.4%
	Moose						18	8,835	104	21	5.9%
	Arctic Cisco						22,391	22,391	263	54	14.9%
	Arctic Char/Dolly Varden						1,544	4,324	51		2.9%
	Broad whitefish						6,248	15,621	184	37	10.4%
	Burbot						336	1,345	16		0.9%
	Ringed Seal						24	1,026	12		0.7%
	Bearded Seal						16	2,760	32		1.8%

Nuiqsut Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Walrus						0	0	0	0	0.0%
	Wolf and Wolverine						25	0	0	0	0.0%
1993											
	All Resources	100	94	90	92	98		267,818	2,943	742	100.0%
	Caribou	98	74	74	79	79	672	82,169	903	228	30.7%
	Bowhead	97	37	5	76	97	3	76,906	845	213	28.7%
	Moose	69	47	10	29	63	9	4,403	48	12	1.6%
	Arctic Cisco	89	69	68	81	60	45,237	31,666	348	88	11.8%
	Arctic Char/Dolly Varden	50	34	31	27	24	603	1,689	19	5	0.6%
	Broad Whitefish	90	66	66	65	66	12,193	41,455	456	115	15.5%
	Burbot	79	63	57	53	55	1,416	5,949	65	16	2.2%
	Geese	87	74	73	60	48	1,459	2,314	25	6	0.9%
	Ringed Seal	65	42	31	40	55	98	7,277	80	20	2.7%
	Bearded Seal	55	32	7	32	52	6	1,033	11	3	0.4%
	Walrus	58	11	0	26	58	0	0	0	0	0.0%
	Wolf and Wolverine						50	0	0	0	0.0%
1994-1995											
	All Resources										
	Caribou						258				
	Bowhead						0				
	Moose						5				
	Arctic Cisco						9,842				
	Arctic Char/Dolly Varden						8				
	Broad Whitefish						3,237				
	Burbot						91				
	Geese						474				

Nuiqsut Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Eider						93				
	Ringed Seal						24				
	Bearded Seal										
	Walrus										
	Wolf and Wolverine						27				
1995-1996											
	All Resources										
	Caribou						362				
	Bowhead						4				
	Moose						2				
	Arctic Cisco						5,030				
	Arctic Char/Dolly Varden										
	Broad Whitefish						2,863				
	Burbot						293				
	Geese[2]						381				
	Eider[2]						287				
	Ringed Seal						155				
	Bearded Seal						17				
	Walrus										
	Wolf and Wolverine						20				
2000-2001											
	All Resources										
	Caribou						496				
	Bowhead						4				
	Moose						6				
	Arctic Cisco						18,222				

Nuiqsut Study Year	Resource	Percentage of Households					Estimated Harvest				
		Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	Arctic Char/Dolly Varden						38				
	Broad Whitefish						2,968				
	Burbot						182				
	Geese						1,107				
	Eider						86				
	Ringed Seal						25				
	Bearded Seal						1				
	Walrus										
	Wolf and Wolverine						31				
2002-2003											
	Caribou[3]	95	48	46	80	49	170				
2003-2004											
	Caribou	97	74	70	81	81	309				
2004-2005											
	Caribou	99	62	61	96	81	362				
2005-2006											
	Caribou	100	60	59	96	97	295				

Blank cells indicate data not available.
[1]All Resources includes resources not reported in resource categories shown in this table (e.g., berries, ptarmigan, ducks).
[2]SRB&A totaled geese and eider numbers from individual species numbers for study years 1995-1996 and 2000-2001.
[3]Number for caribou study years 2002 through 2006 is based on reported harvest rather than estimated harvest.
Source: ADF&G 2010 (for 1985, 1993, and 2002-2006); Fuller and George 1999 (for 1992); Brower and Hepa 1998 (for 1994-1995); Bacon et al. 2009 (for 1995-1996 and 2000-2001).

Table D-4: ADF&G Complete Study Years by ADF&G Major Species Categories

Community	Study Year	Resource	Percentage of Households					Estimated Harvest				
			Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
Barrow	**1987**											
		All Resources			58				621,067	663	206	100%
		Fish			33			45,563	68,452	73	23	11%
		Land Mammals			30			1,893	213,835	228	71	34%
		Marine Mammals			41				316,229	337	105	51%
		Birds and Eggs			36			10,579	22,335	24	7	4%
		Vegetation			3				216	0	0	0%
	1988											
		All Resources			50				614,669	656	204	100%
		Fish			18			38,085	51,062	54	17	8%
		Land Mammals			27			1,751	207,005	221	69	34%
		Marine Mammals			39			654	334,069	357	111	54%
		Birds and Eggs			34			9,183	22,364	24	7	4%
		Vegetation			2				169	0	0	0%
	1989											
		All Resources			61				872,092	931	289	100%
		Fish			29			68,287	118,471	126	39	14%
		Land Mammals			43			1,774	214,683	229	71	25%
		Marine Mammals			45			591	508,181	542	169	58%
		Birds and Eggs			41			12,869	29,446	31	10	3%
		Vegetation							1,312	1	0	0%
Kaktovik	**1985**											
		All Resources	100	93	91	83	100		61,663	1,163	328	100%
		Fish	100	86	81	45	93	6866	11,403	215	61	18%

Community	Study Year	Resource	Percentage of Households					Estimated Harvest				
			Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
		Land Mammals	100	83	79	76	100	714	35,491	670	189	58%
		Marine Mammals	88	69	57	41	86	174	10,762	203	57	17%
		Birds and Eggs	88	81	79	62	64	1831	3,995	75	21	6%
		Vegetation	24	17	2	5	21		13	0	0	0%
	1986											
		All Resources	100	89	87	83	100		84,060	1,501	433	100%
		Fish	96	75	72	66	87	4,416	6,951	124	36	8%
		Land Mammals	98	70	64	62	98	382	24,946	445	128	30%
		Marine Mammals	96	64	60	64	96		49,723	888	256	59%
		Birds and Eggs	94	72	70	60	77	1,561	2,382	43	12	3%
		Vegetation	49	21	21	11	40		58	1	0	0%
	1992											
		All Resources	96	89	89	83	92		170,939	2,713	886	100%
		Fish	94	83	81	70	70	18,464	22,952	364	119	13%
		Land Mammals	96	77	68	66	83	425	28,867	458	150	17%
		Marine Mammals	89	64	40	70	87		115,645	1,836	599	68%
		Birds and Eggs	89	68	64	60	77	1,796	3,249	52	17	2%
		Vegetation	77	72	70	23	40		227	4	1	0%
Nuiqsut	**1985**											
		All Resources	100	98	98	95	100		160,035	2,106	399	100%
		Fish	100	93	93	83	78	68,153	70,609	929	176	44%
		Land Mammals	100	95	93	70	85	1,224	67,866	893	169	42%
		Marine Mammals	100	48	23	100	30	59	13,355	176	33	8%
		Birds and Eggs	98	95	95	60	80	3,952	8,035	106	20	5%
		Vegetation	38	50	18	20	10		169	2	0	0%

Community	Study Year	Resource	Percentage of Households					Estimated Harvest				
			Use	Try to Harvest	Harvest	Give	Receive	Number	Total Pounds	Mean HH Pounds	Per Capita Pounds	% of Total Harvest
	1993											
		All Resources	100	94	90	98	92		267,818	2,943	742	100%
		Fish	100	81	81	94	90	71,897	90,490	994	251	34%
		Land Mammals	98	77	76	94	82	1,290	87,390	960	242	33%
		Marine Mammals	97	58	37	97	79	113	85,216	936	236	32%
		Birds and Eggs	90	77	76	69	73	3,558	4,325	48	12	2%
		Vegetation	79	71	71	40	27		396	4	1	0%

Blank cells indicate data not available.
Source: Stephen R. Braund & Associates (SRB&A) and ISER 1993a (for 1987, 1988, and 1989); ADF&G 2010 (for 1985, 1986, 1992, and 1993)

Stephen R. Braund & Associates, 2010.

APPENDIX E: COMPARATIVE USE AREA AND HARVEST SITE MAPS – BARROW, KAKTOVIK, AND NUIQSUT

Map E - 1
Barrow Comparative Use Areas and Harvest Sites, Caribou

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1997-2006) Overlapping Use Areas

High
Low

369 use areas reported by 73 respondents

Lifetime Use Areas (Pedersen 1979)

Caribou

1987-1989 Harvest Sites

636 harvest sites reported by 85 households

1987-1989 Use Areas

86 use areas reported by 22 households

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July 2009

0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
N

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Point Lay

Meade River
Colville River
Kuparuk River
Sagavanirktok River
Canning River
Harrison Bay
Prudhoe Bay
Kokolik River
Utukok River
Kukpowruk River
Awuna River
Anaktuvuk River

71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 2
Barrow Comparative Use Areas and Harvest Sites, Bowhead

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1997-2006) Overlapping Use Areas

High
Low
114 use areas reported by 64 respondents

Lifetime Use Areas (Pedersen 1979)

Whale

1987-1989 Harvest Sites

28 harvest sites

1987-1989 Use Areas

33 use areas reported by 20 households

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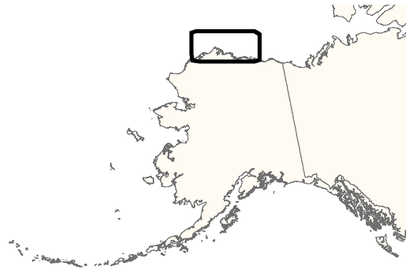

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0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
N

ARCTIC OCEAN

72°0'0"N

CHUKCHI SEA

BEAUFORT SEA

71°0'0"N

Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Thetis Island
Cross Island

Peard Bay
Inaru River
Meade River
Dease Inlet
Chipp River
Smith Bay
Topagorak River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Prudhoe Bay
Mikkelsen Bay
Kuk River

160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 3
Barrow Comparative Use Areas and Harvest Sites, Moose

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1997-2006) Overlapping Use Areas

High
Low
9 use areas reported by 9 respondents

1987-1989 Harvest Sites

18 harvest sites reported by 12 households

Lifetime Use Areas (Pedersen 1979)

Moose

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July 2009

0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
N

ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Prudhoe Bay

Peard Bay
Meade River
Dease Inlet
Smith Bay
Harrison Bay
Teshekpuk Lake
Teshekpuk River
Ikpikpuk River
Kuk River
Utukok River
Kokolik River
Kukpowruk River
Awuna River
Colville River
Nuiqsut River
Kuparuk River
Prudhoe Bay
Sagavanirktok River
Canning River
Anaktuvuk River

71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 4
Barrow Comparative Use Areas and Harvest Sites, Fish

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1997-2006) Overlapping Use Areas

526 use areas reported by 71 respondents

Lifetime Use Areas (Pedersen 1979)

Fish

1987-1989 Harvest Sites

581 harvest sites reported by 66 households

1987-1989 Use Areas

68 use areas reported by 16 households

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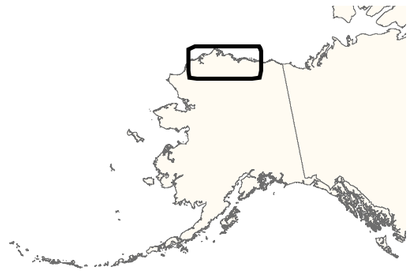

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0 10 20 40 Miles
0 10 20 40 Kilometers
N

CHUKCHI SEA
BEAUFORT SEA
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Cross Island
Peard Bay
Inaru
Meade River
Dease Inlet
Smith Bay
Harrison Bay
Teshekpuk Lake
Fish Creek
Colville River
Prudhoe Bay
Mikkelsen Bay
Kasegaluk
Utukok River
Kigalik River
Awuna River
Colville River
Chandalar River
Anaktuvuk River
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Dalton Highway
71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 5
Barrow Comparative Use Areas and Harvest Sites, Wildfowl

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1997-2006) Goose and Eider Overlapping Use Areas

High
Low
724 use areas reported by 72 respondents

Lifetime Use Areas (Pedersen 1979)

Wildfowl

1987-1989 Harvest Sites Goose and Eider

502 harvest sites reported by 80 households

1987-1989 Goose and Eider Use Areas

128 use areas reported by 21 households

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0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
N

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CHUKCHI SEA
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Wainwright
Atqasuk
Point Lay
Nuiqsut
Prudhoe Bay

Peard Bay
Dease Inlet
Smith Bay
Meade River
Harrison Bay
Teshekpuk Lake
Ikpikpuk River
Kuk River
Utukok River
Kokolik River
Kukpowruk River
Awuna River
Colville River
Itkillik River
Anaktuvuk River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Dalton Highway
Canning River

71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 6
Barrow Comparative Use Areas and Harvest Sites, Seal

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1997-2006) Ringed and Bearded Seal Overlapping Use Areas

High
Low
142 use areas reported by 64 respondents

Lifetime Use Areas (Pedersen 1979)

Seal

1987-1989 Harvest Sites Seal

504 harvest sites reported by 62 households

1987-1989 Ringed and Bearded Seal Use Areas

47 use areas reported by 21 households

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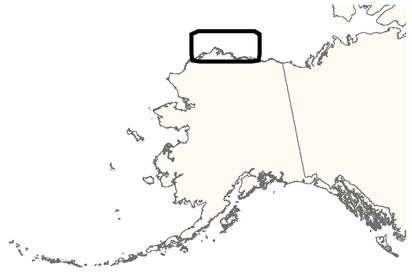

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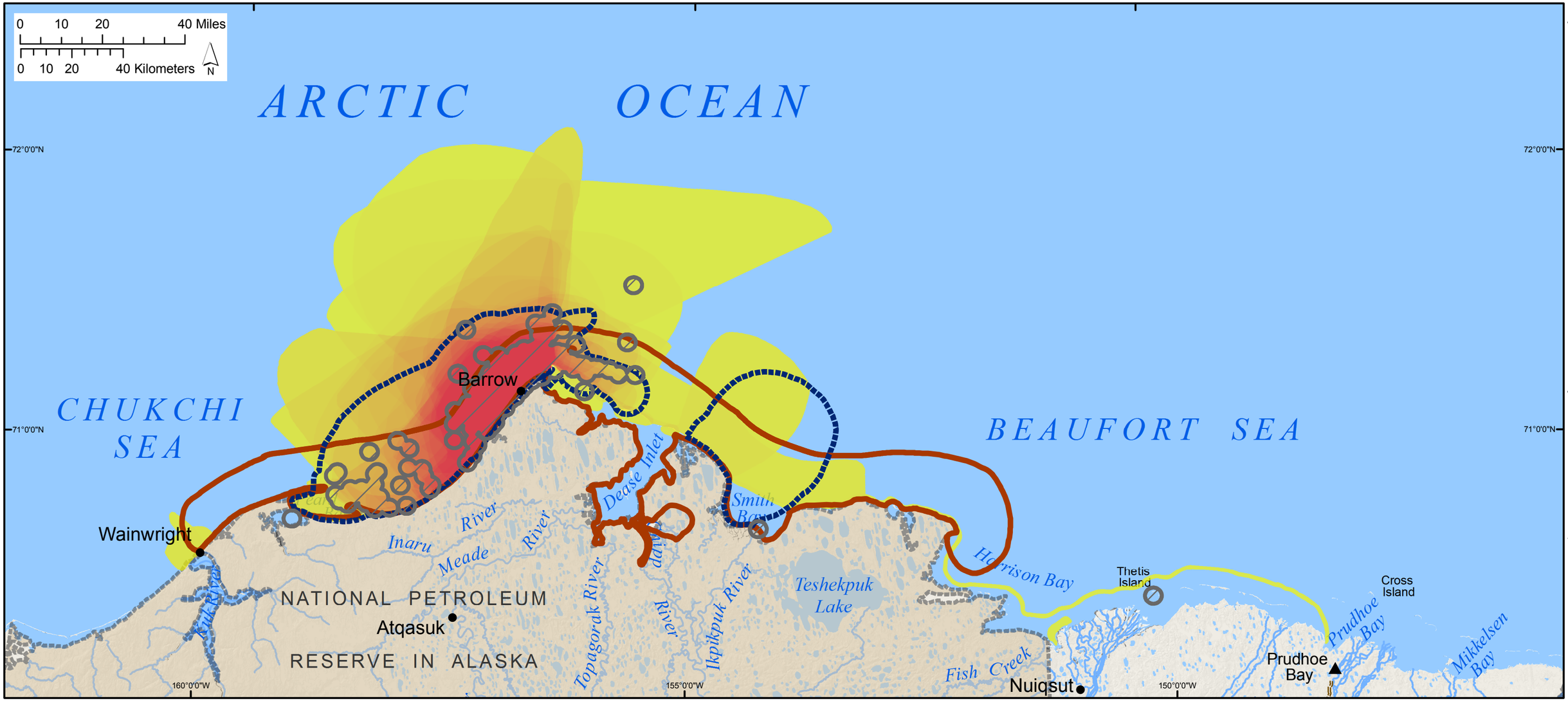

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 7
Barrow Comparative Use Areas and Harvest Sites, Walrus

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1997-2006) Overlapping Use Areas

High
Low
53 use areas reported by 50 respondents

Lifetime Use Areas (Pedersen 1979)

Walrus

1987-1989 Harvest Sites

124 harvest sites reported by 51 households

1987-1989 Use Areas

19 use areas reported by 19 households

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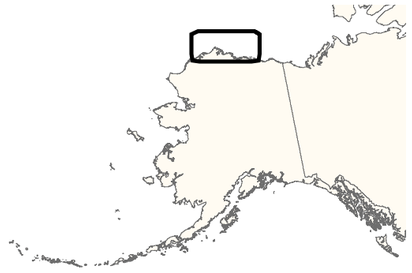

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0 10 20 40 Miles
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ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
72°0'0"N
71°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W
Barrow
Wainwright
Atqasuk
Nuiqsut
Prudhoe Bay
Peard Bay
Inaru River
Meade River
Dease Inlet
Chipp River
Smith Bay
Topagorak River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Fish Creek
Prudhoe Bay
Mikkelsen Bay
Kuk River

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 8
Barrow Comparative Use Areas and Harvest Sites, Furbearers

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1997-2006) Wolf and Wolverine Overlapping Use Areas

High
Low
92 use areas reported by 31 respondents

Lifetime Use Areas (Pedersen 1979)

Trapping
Furbearers

1987-1989 Harvest Sites Wolverine

4 harvest sites reported by 3 households

1987-1989 Wolf and Wolverine Use Areas

30 use areas reported by 12 households

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0 12.5 25 50 Miles
0 12.5 25 50 Kilometers
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ARCTIC OCEAN
CHUKCHI SEA
BEAUFORT SEA
Barrow
Wainwright
Atqasuk
Nuiqsut
Point Lay
Prudhoe Bay
Dease Inlet
Meade River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Prudhoe Bay
Colville River
Kuparuk River
Sagavanirktok River
Canning River
Kukpowruk River
Kokolik River
Utukok River
Awuna River
Anaktuvuk River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
69°0'0"N
160°0'0"W
155°0'0"W
150°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 9
Barrow Comparative Use Areas and Harvest Sites, All Resources

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
1987-1989 Harvest Sites: SRB&A and ISER 1993a
1987-1989 Use Areas: SRB&A Unpublished
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1997-2006) Overlapping Use Areas

High
Low

2,029 use areas reported by 75 respondents

Lifetime Use Areas (Pedersen 1979)

All Resources

1987-1989 Harvest Sites

2,397 harvest sites reported by 94 households

1987-1989 Use Areas

411 use areas reported by 24 households

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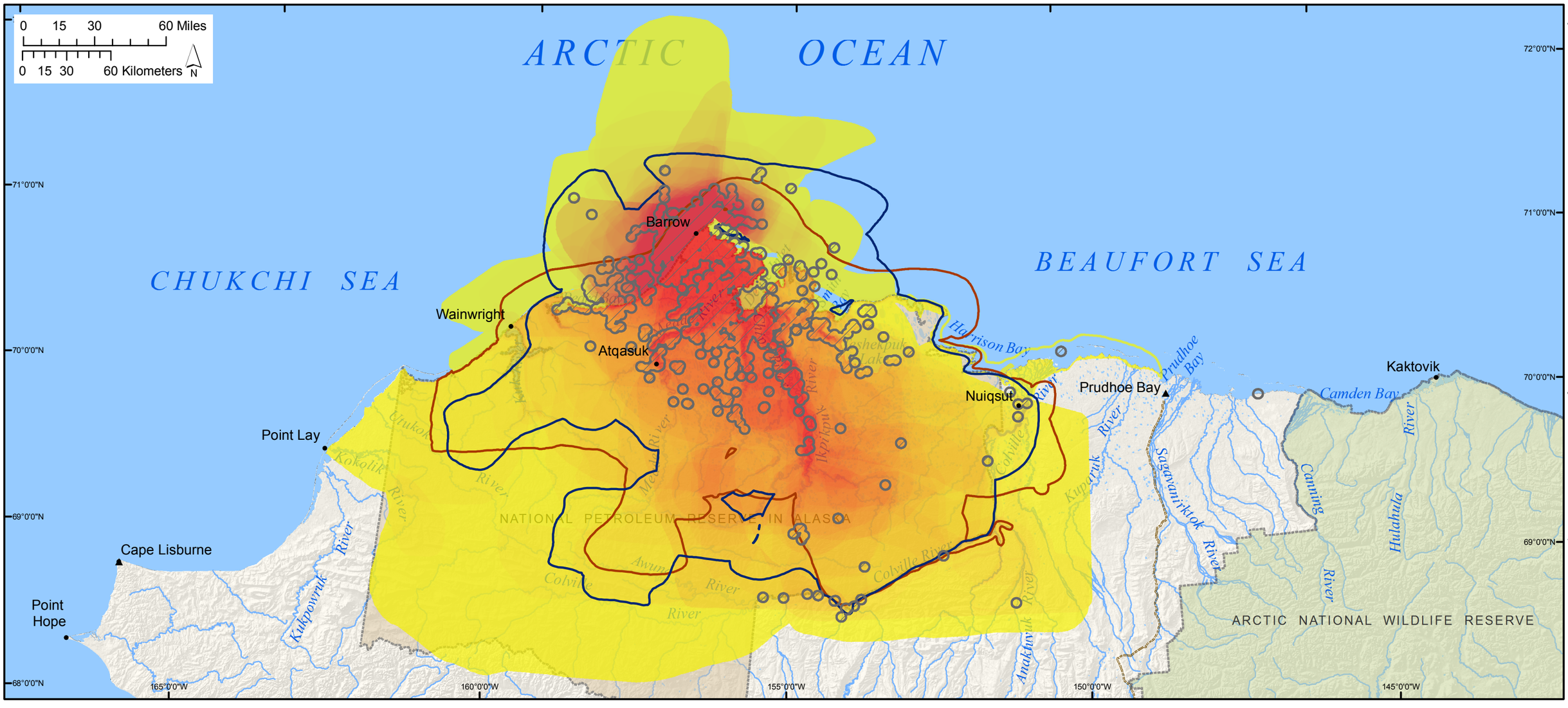

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 10
Nuiqsut Comparative Use Areas
Caribou

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Overlapping Use Areas

High
Low
94 use areas reported by 32 respondents

Lifetime Use Areas (Pedersen 1979)

Caribou

1985 Update (Pedersen 1986)

Caribou

0 25 50 100 Miles
0 25 50 100 Kilometers
N

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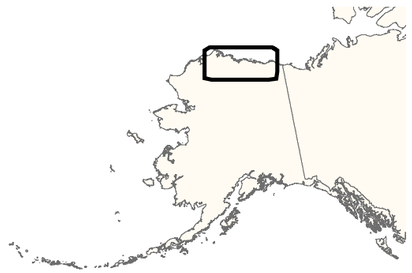

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BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Teshekpuk Lake
Meade River
Chipp River
Ikpikpuk River
Topagoruk River
Fish Creek
Judy Creek
Colville River
Itkillik River
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Mikkelsen Bay
Camden Bay
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River
Kigalik River
Awuna River
Chandalar River
Anaktuvuk River
Use area extends south along Anaktuvuk River to Anaktuvuk Pass
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 11
Nuiqsut Comparative Use Areas
Whales

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Bowhead Whale Overlapping Use Areas

High
Low

21 use areas reported by 19 respondents

Lifetime Use Areas (Pedersen 1979)

Whales

1985 Update (Pedersen 1986)

Whales

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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July 2009

ARCTIC OCEAN
BEAUFORT SEA
Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Thetis Island
Cross Island
Flaxman Island
Kaktovik
Atqasuk
Topagoruk River
Fish Creek
Judy Creek
Nuiqsut
Colville River
Prudhoe Bay
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Itkillik River
Kogosukruk River
Titaluk River
71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 12
Nuiqsut Comparative Use Areas
Moose

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Overlapping Use Areas

High
Low

36 use areas reported by 31 respondents

Lifetime Use Areas (Pedersen 1979)

Moose

1985 Update (Pedersen 1986)

Moose

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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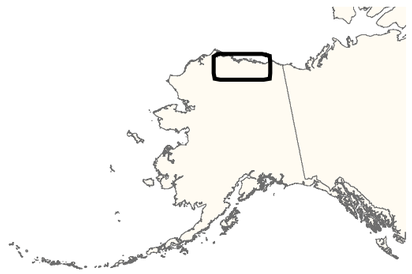

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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Smith Bay
Harrison Bay
Teshekpuk Lake
Chipp River
Ikpikpuk River
Topagoruk River
Fish Creek
Judy Creek
Kogosukruk River
Itkillik River
Colville River
Titaluk River
Kigalik River
Chandalar River
Thetis Island
Cross Island
Nuiqsut
Prudhoe Bay
Prudhoe Bay
Kuparuk River
Sagavanirktok River
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Map E - 13
Nuiqsut Comparative Use Areas
Fish

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Fish Subsistence Use Areas

0 25 50 100 Miles

0 25 50 100 Kilometers

N

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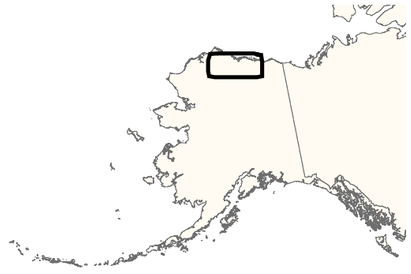

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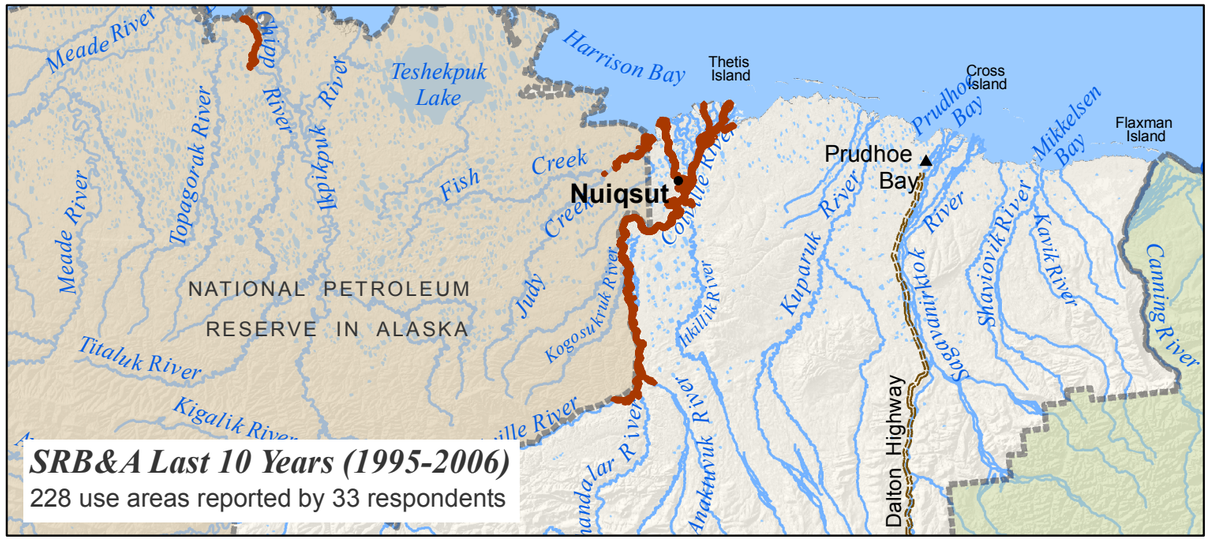
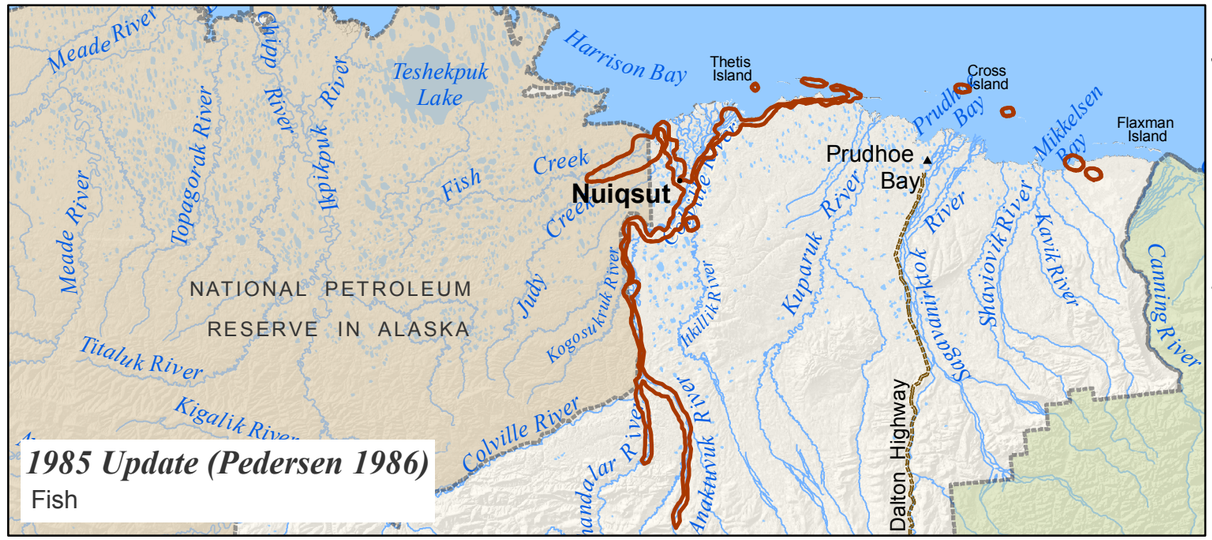
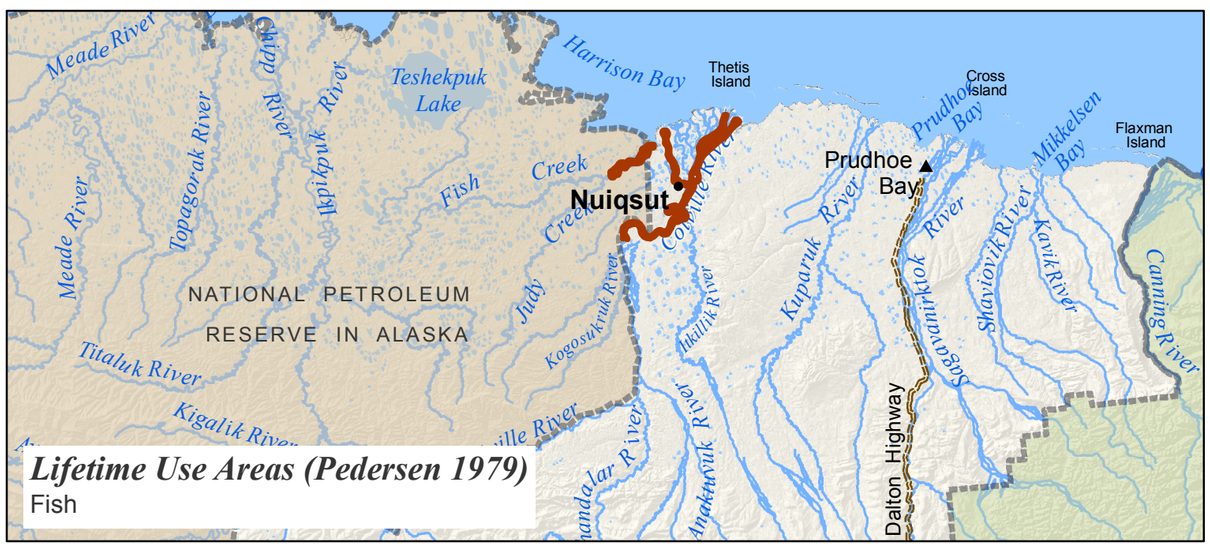


SRB&A Last 10 Years (1995-2006)
228 use areas reported by 33 respondents



1985 Update (Pedersen 1986)
Fish



Lifetime Use Areas (Pedersen 1979)
Fish

Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

Map E - 14
Nuiqsut Comparative Use Areas
Wildfowl

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Goose and Eider Overlapping Use Areas

High
Low

240 use areas reported by 33 respondents

Lifetime Use Areas (Pedersen 1979)

Wildfowl

1985 Update (Pedersen 1986)

Wildfowl

0 25 50 100 Miles

0 25 50 100 Kilometers

N

Arctic National Wildlife Refuge

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ARCTIC OCEAN

BEAUFORT SEA

Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Topagoruk River
Fish Creek
Judy Creek
Kogosukruk River
Itkillik River
Colville River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Mikkelsen Bay
Shaviovik River
Kavik River
Camden Bay
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River

71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 15
Nuiqsut Comparative Use Areas
Seal

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Ringed and Bearded Seal Overlapping Use Areas

High
Low
68 use areas reported by 27 respondents

Lifetime Use Areas (Pedersen 1979)

Seal

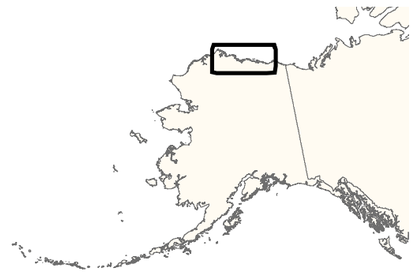
1985 Update (Pedersen 1986)

Seal

0 25 50 100 Miles
0 25 50 100 Kilometers
N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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ARCTIC OCEAN
BEAUFORT SEA
Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Atqasuk
Topagoruk River
Harrison Bay
Thetis Island
Cross Island
Flaxman Island
Kaktovik
Prudhoe Bay
Nuiqsut
Fish Creek
Judy Creek
Kogosukruk River
Colville River
Itkillik River
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River
71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 16
Nuiqsut Comparative Use Areas
Trapping and Furbearers

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1995-2006) Wolf and Wolverine Overlapping Use Areas

High
Low
69 use areas reported by 24 respondents

Lifetime Use Areas (Pedersen 1979)

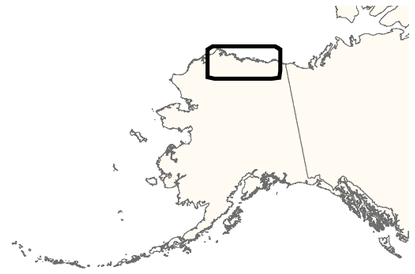
Trapping
Furbearers

1985 Update (Pedersen 1986)

Trapping
Furbearers

0 25 50 100 Miles
0 25 50 100 Kilometers
N

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska



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ARCTIC OCEAN
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE

Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island

Furbearer hunting 1979-1985
Lifetime furbearer hunting Pre 1979
Lifetime trapping Pre 1979
Furbearer trapping 1979-1985

Use area extends south along Anaktuvuk River to Anaktuvuk Pass

Dease Inlet
Smith Bay
Harrison Bay
Camden Bay
Meade River
Titaluk River
Kigalik River
Awuna River
Chipp River
Teshekpuk Lake
Fish Creek
Colville River
Judy Creek
Itkillik River
Anaktuvuk River
Chandalar River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Mikkelsen Bay

71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 17
Nuiqsut Comparative Use Areas
All Resources

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979
1985 Update: Pedersen 1986

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Overlapping Use Areas

High
Low

756 use areas reported by 33 respondents

Lifetime Use Areas (Pedersen 1979)

All Resources

1985 Update (Pedersen 1986)

All Resources

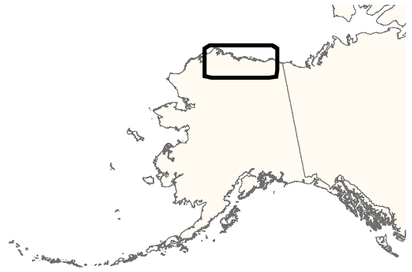
0 25 50 100 Miles

0 25 50 100 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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Projection: Alaska Albers Equal Area Conic, NAD 1983

ARCTIC OCEAN
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Harrison Bay
Dease Inlet
Smith Bay
Meade River
Teshekpuk Lake
Fish Creek
Judy Creek
Colville River
Titaluk River
Kigalik River
Awuna River
Chandalar River
Anaktuvuk River
Itkillik River
Tupaluk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Use area extends south along Anaktuvuk River to Anaktuvuk Pass
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Map E - 18
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich Caribou

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Overlapping Use Areas

High
Low
94 use areas reported by 32 respondents

Nuiqsut Paisaŋich Use Areas

- Second Hunter
- First Hunter
- Caribou, Major Food Source Map
- Third Hunter

0 25 50 100 Miles
0 25 50 100 Kilometers
N

- Arctic National Wildlife Refuge
- National Petroleum Reserve In Alaska

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ARCTIC OCEAN
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Atqasuk
Nuiqsut
Kaktovik
Prudhoe Bay
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Teshekpuk Lake
Meade River
Ikpikpuk River
Chipp River
Topagoruk River
Fish Creek
Caribou, Major Food Source
Third Hunter
Second Hunter
First Hunter
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Mikkelsen Bay
Camden Bay
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Kogosukruk River
Itkillik River
Titaluk River
Kigalik River
Awuna River
Colville River
Chandler River
Anaktuvuk River
Dalton Highway
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 19
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich Moose

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006)
Overlapping Use Areas

High
Low

36 use areas reported by 31 respondents

Nuiqsut Paisaŋich Use Areas

Moose, Major Food Source Map

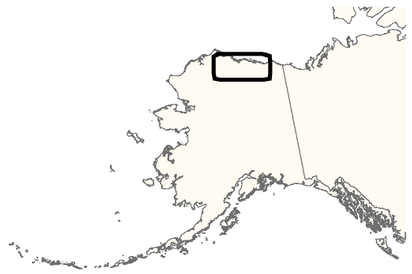
0 25 50 100 Miles

0 25 50 100 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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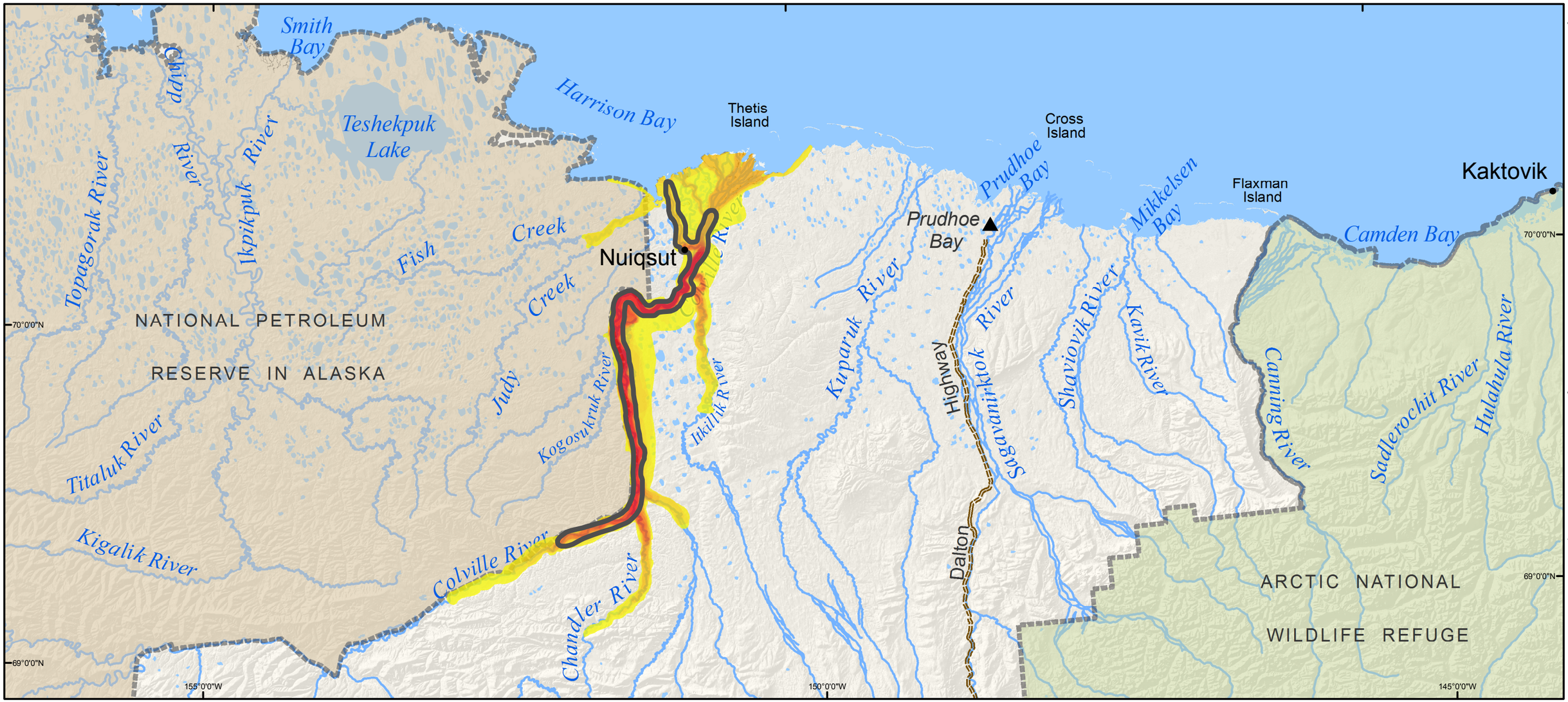

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 20
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich Fish

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

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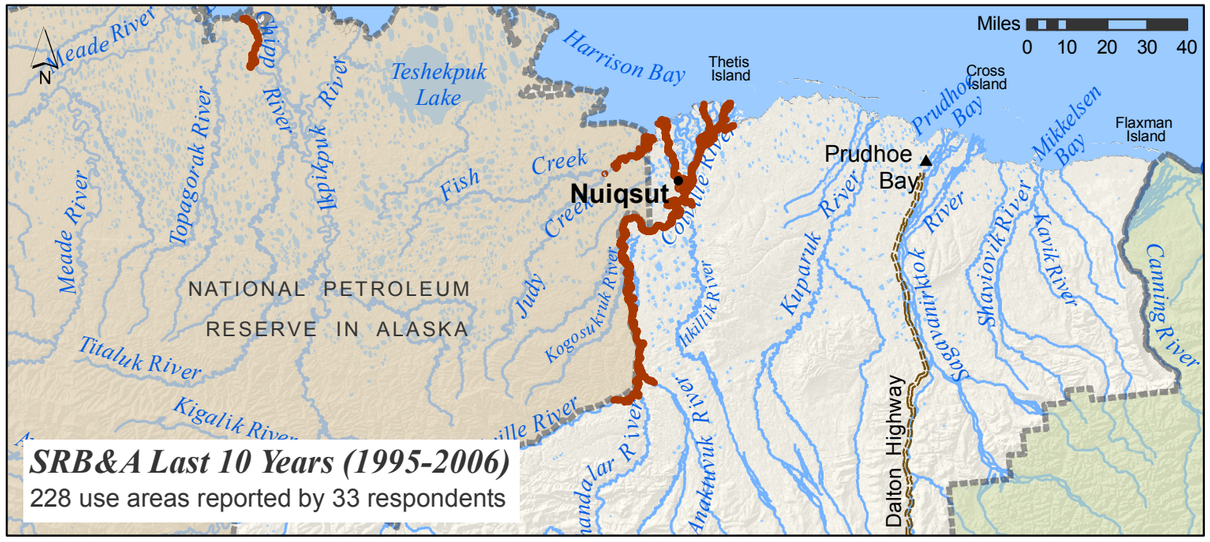
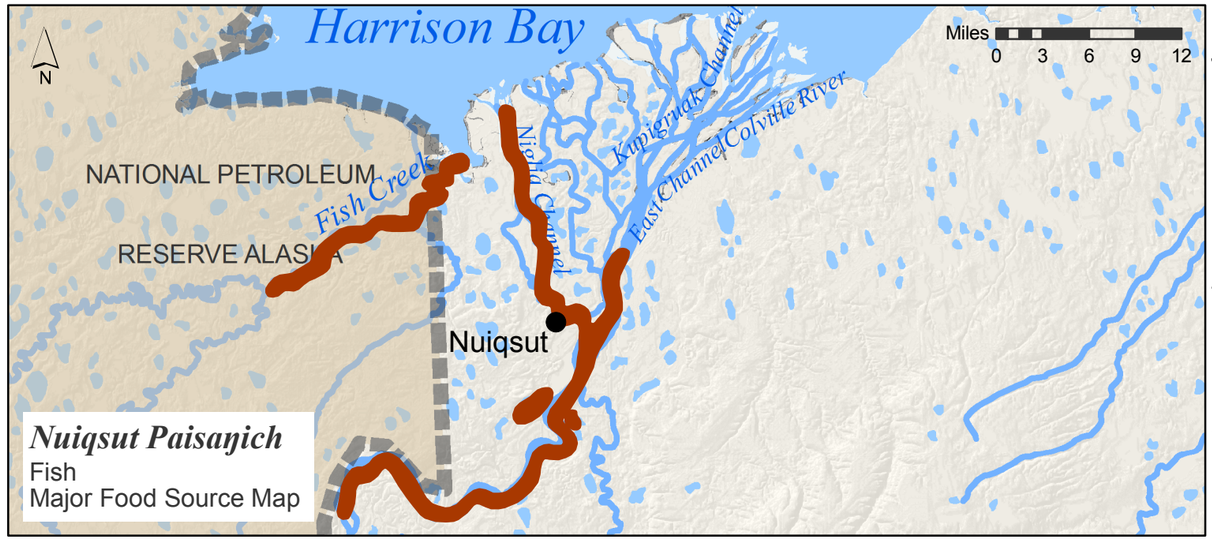
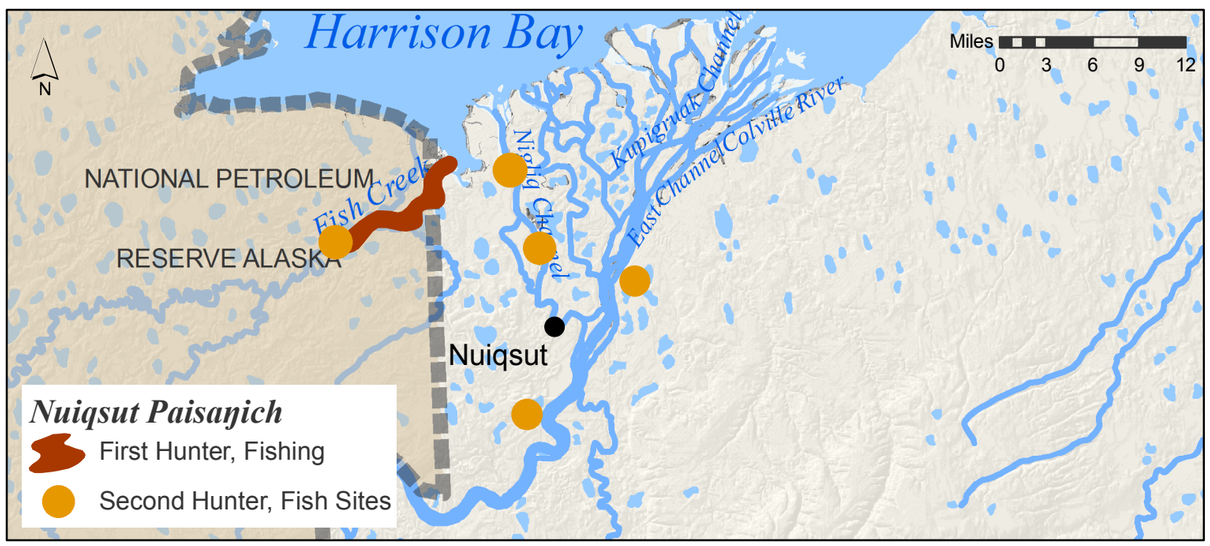
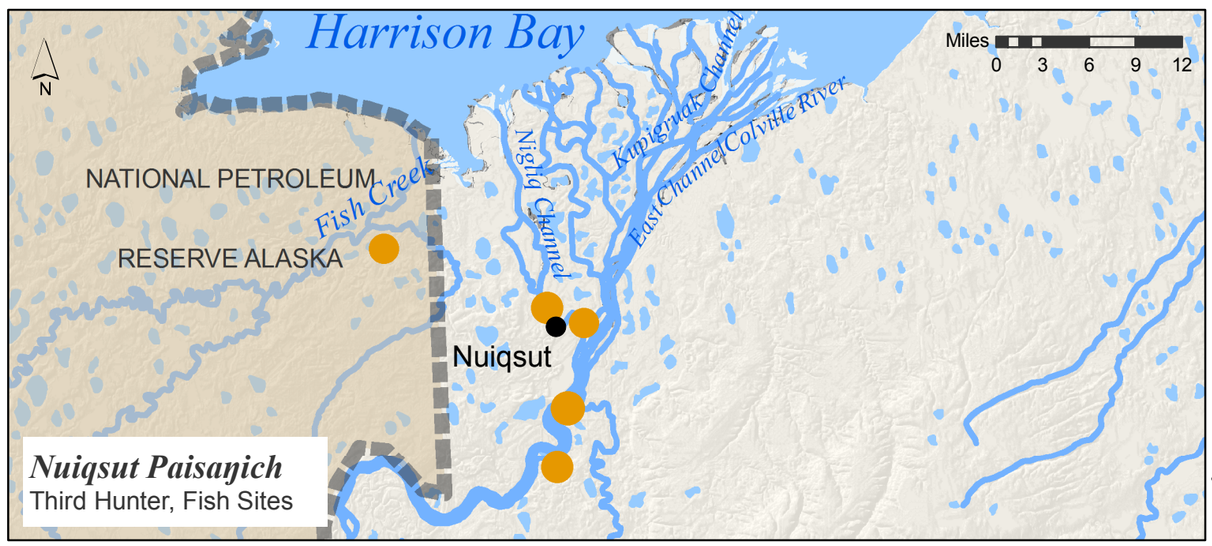








Projection: Alaska Albers Equal Area Conic, NAD 1983

July 2009

Map E - 21
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich Seal and Marine Mammals

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Ringed and Bearded Seal Overlapping Use Areas

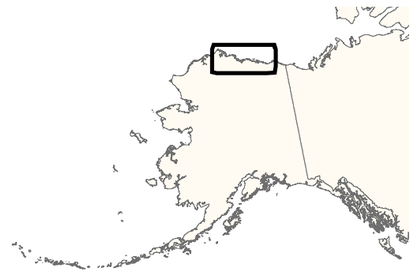
High
Low
68 use areas reported by 27 respondents

Nuiqsut Paisaŋich Use Areas

- Second Hunter, Marine Mammals
- Seal, Major Food Source Map
- First Hunter, Marine Mammals

0 25 50 100 Miles
0 25 50 100 Kilometers
N

- Arctic National Wildlife Refuge
- National Petroleum Reserve In Alaska



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ARCTIC OCEAN
BEAUFORT SEA
Barrow
Dease Inlet
Smith Bay
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Atqasuk
Topagoruk River
Harrison Bay
Seal, Major Food Source Map (Black)
First Hunter (Yellow)
Cross Island
Flaxman Island
Mikkelsen Bay
Kaktovik
Prudhoe Bay
Nuiqsut
Second Hunter (Blue)
Colville River
Fish Creek
Judy Creek
Kogosukruk River
Itkillik River
Kuparuk River
Dalton Highway
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Camden Bay
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
71°0'0"N
70°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 22
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich Hunting Furbearers

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Year (1995-2006) Wolf and Wolverine Overlapping Use Areas

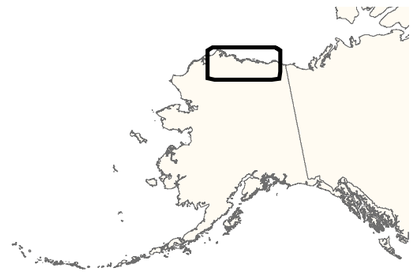
High
Low
69 use areas reported by 24 respondents

0 25 50 100 Miles
0 25 50 100 Kilometers
N

Nuiqsut Paisaŋich Use Areas

Hunting, Furbearer Map
Second Hunter
First Hunter

Arctic National Wildlife Refuge
National Petroleum Reserve In Alaska



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Projection: Alaska Albers Equal Area Conic, NAD 1983

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BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Camden Bay
Prudhoe Bay
Mikkelsen Bay
Hunting Furbearers (Black)
First Hunter (Yellow)
Second Hunter (Blue)
Meade River
Chipp River
Ikpikpuk River
Teshekpuk Lake
Titaluk River
Kigalik River
Awuna River
Colville River
Chandler River
Dalton Highway
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
145°0'0"W

Map E - 23
Nuiqsut Paisaŋich Trapping Furbearers

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

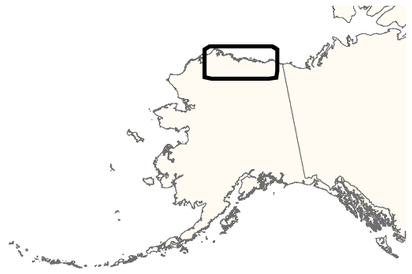
** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Nuiqsut Paisaŋich Use Areas

- First Hunter, Trapping
- Second Hunter, Trapping
- Trapping, Furbearer Map

- Arctic National Wildlife Refuge
- National Petroleum Reserve In Alaska



0 25 50 100 Miles

0 25 50 100 Kilometers

N

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ARCTIC NATIONAL WILDLIFE REFUGE
Barrow
Atqasuk
Nuiqsut
Prudhoe Bay
Kaktovik
Thetis Island
Cross Island
Flaxman Island
Dease Inlet
Smith Bay
Harrison Bay
Prudhoe Bay
Mikkelsen Bay
Camden Bay
Meade River
Topagoruk River
Ikpikpuk River
Teshekpuk Lake
Fish Creek
Judy Creek
Kogosukruk River
Ikkillik River
Kuparuk River
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Titaluk River
Kigalik River
Awuna River
Colville River
Chandler River
Anaktuvuk River
Dalton Highway
71°0'0"N
70°0'0"N
69°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W

July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 24
Nuiqsut Comparative Use Areas
Nuiqsut Paisaŋich All Resources

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Nuiqsut Paisaŋich: Brown 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1995-2006) Overlapping Use Areas

High
Low

756 use areas reported by 33 respondents

Nuiqsut Paisaŋich Use Areas

- All Resources
- Current Intensive Subsistence Use
- Historical Extended Use

0 25 50 100 Miles

0 25 50 100 Kilometers

N

- Arctic National Wildlife Refuge
- National Petroleum Reserve In Alaska

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Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 25
Kaktovik Comparative Use Areas
Caribou

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Overlapping Use Areas

High
Low

172 use areas reported by 36 respondents

Lifetime Use Areas (Pedersen 1979)

Caribou

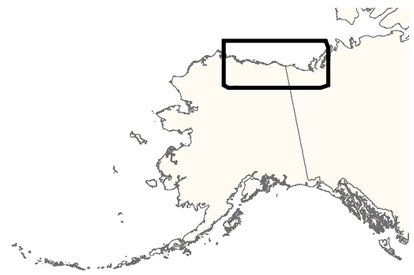
0 25 50 100 Miles

0 25 50 100 Kilometers

N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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Projection: Alaska Albers Equal Area Conic, NAD 1983

ARCTIC OCEAN

BEAUFORT SEA

Smith Bay
Ikpikpuk River
Teshekpuk Lake
Harrison Bay
Fish Creek
Nuiqsut
Colville River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Kaktovik
Camden Bay
Demarcation Bay
Canning River
Saddlerochit River
Hulahula River
Jago River
Kongakut River
Firth River
Herschel Island
Mackenzie Bay
Tuktoyaktuk
Eskimo Lakes
Babbage River
Blow River
Inuvik
Mackenzie River
Aklavik
Fort McPherson
Tsiigehtchic
Dalton Highway
Anaktuvuk River
Sheenjek River
Coleen River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA

72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Map E - 26
Kaktovik Comparative Use Areas
Whales

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Bowhead Whale Overlapping Use Areas

High
Low
4 use areas reported by 4 respondents

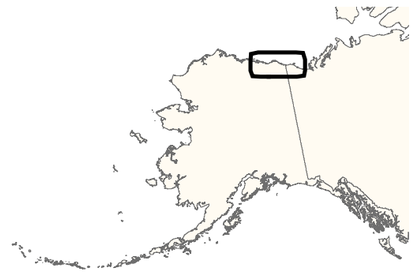
0 15 30 60 Miles
0 15 30 60 Kilometers
N

Lifetime Use Areas (Pedersen 1979)

Whales

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
Flaxman Island
Kaktovik
Camden Bay
Demarcation Bay
Herschel Island
Phillips Bay
Prudhoe Bay
Dalton Hwy.
Sagavanirktok River
Shaviovik River
Kavik River
Canning River
Sadlerochit River
Hulahula River
Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 27
Kaktovik Comparative Use Areas
Moose

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Overlapping Use Areas

High
Low
4 use areas reported by 4 respondents

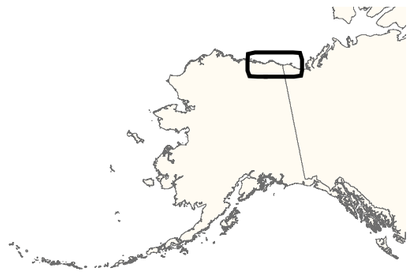
Lifetime Use Areas (Pedersen 1979)

Moose

0 15 30 60 Miles
0 15 30 60 Kilometers
N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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71°0'0"N
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ARCTIC OCEAN
Beaufort Sea
Cross Island
Prudhoe Bay
Mikkelsen Bay
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Kaktovik
Camden Bay
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Demarcation Bay
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Sagavanirktok River
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Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 28
Kaktovik Comparative Use Areas
Fish

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006)
Overlapping Use Areas

172 use areas
reported by
36 respondents

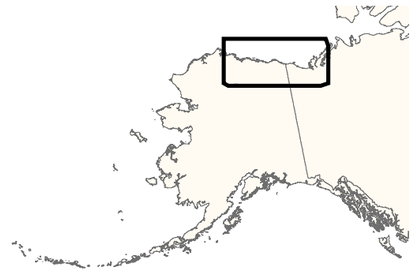
Lifetime Use Areas
(Pedersen 1979)

Fish

0 25 50 100 Miles
0 25 50 100 Kilometers
N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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July 2009

Projection: Alaska Albers Equal Area Conic, NAD 1983

ARCTIC OCEAN
BEAUFORT SEA
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA
Smith Bay
Teshekpuk Lake
Harrison Bay
Ikpikpuk River
Fish Creek
Nuiqsut
Colville River
Kuparuk River
Sagavanirktok River
Prudhoe Bay
Dalton Highway
Anaktuvuk River
Kaktovik
Camden Bay
Canning River
Sadlerochit River
Hulahula River
Jago River
Kongakut River
Demarcation Bay
Herschel Island
Firth River
Babbage River
Blow River
Mackenzie Bay
Tuktoyaktuk
Eskimo Lakes
Inuvik
Mackenzie River
Aklavik
Fort McPherson
Tsiigehtchic
Sheenjek River
Coleen River
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

Map E - 29
Kaktovik Comparative Use Areas
Wildfowl

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Goose and Eider Overlapping Use Areas

High
Low

453 use areas reported by 38 respondents

0 25 50 100 Miles

0 25 50 100 Kilometers

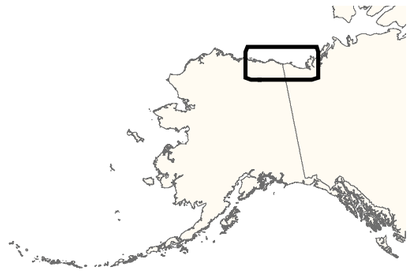
N

Lifetime Use Areas (Pedersen 1979)

Wildfowl

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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ARCTIC OCEAN

BEAUFORT SEA

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

145°0'0"W

140°0'0"W

135°0'0"W

Kaktovik

Flaxman Island

Camden Bay

Prudhoe Bay

Demarcation Bay

Herschel Island

Mackenzie Bay

Tuktoyaktuk

Inuvik

Aklavik

Sagavanirktok River

Dalton Highway

Canning River

Sadlerochit River

Hulahula River

Jago River

Kongakut River

Firth River

Babbage River

Blow River

Mackenzie River

ARCTIC NATIONAL WILDLIFE REFUGE

UNITED STATES

CANADA

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 30
Kaktovik Comparative Use Areas
Seal

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006)
Ringed and Bearded Seal
Overlapping Use Areas

High
Low
59 use areas reported by 27 respondents

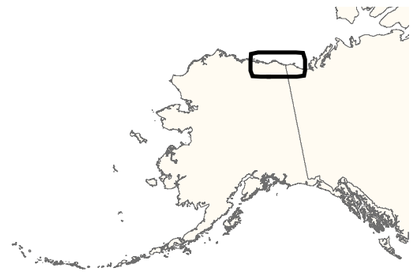
0 15 30 60 Miles
0 15 30 60 Kilometers
N

Lifetime Use Areas
(Pedersen 1979)

Seals

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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71°0'0"N
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140°0'0"W

ARCTIC OCEAN
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Herschel Island
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Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 31
Kaktovik Comparative Use Areas
Walrus

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Overlapping Use Areas

High
Low
6 use areas reported by 5 respondents

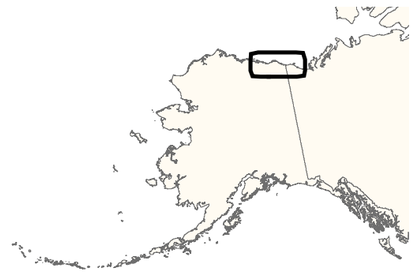
Lifetime Use Areas (Pedersen 1979)

Walrus

0 15 30 60 Miles
0 15 30 60 Kilometers
N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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July 2009

71°0'0"N
70°0'0"N
69°0'0"N
145°0'0"W
140°0'0"W

ARCTIC OCEAN
Beaufort Sea
Cross Island
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Kaktovik
Camden Bay
Demarcation Bay
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Okpilak River
Jago River
Aichilik River
Kongakut River
Firth River
Babbage River
Blow River
UNITED STATES
CANADA
ARCTIC NATIONAL WILDLIFE REFUGE

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 32
Kaktovik Comparative Use Areas
Trapping and Furbearers

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006) Wolf and Wolverine Overlapping Use Areas

High
60 use areas reported by 20 respondents
Low

0 25 50 100 Miles

0 25 50 100 Kilometers

N

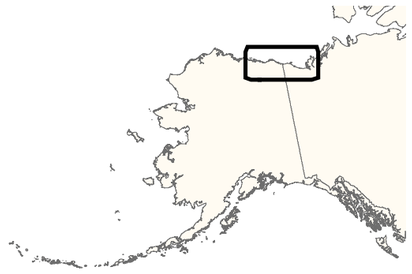
Lifetime Use Areas (Pedersen 1979)

Trapping

Furbearers

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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ARCTIC OCEAN

BEAUFORT SEA

71°0'0"N

70°0'0"N

69°0'0"N

68°0'0"N

145°0'0"W

140°0'0"W

135°0'0"W

Kaktovik

Flaxman Island

Camden Bay

Prudhoe Bay

Tuktoyaktuk

Herschel Island

Kemarcation Bay

Mackenzie Bay

Inuvik

Aklavik

Sagavanirktok River

Dalton Highway

Canning River

Sadlerochit River

Hulahula River

Jago River

Kongakut River

Firth River

Babbage River

Blow River

Mackenzie River

ARCTIC NATIONAL WILDLIFE REFUGE

UNITED STATES

CANADA

Projection: Alaska Albers Equal Area Conic, NAD 1983

Map E - 33
Kaktovik Comparative Use Areas
All Resources

Sources:
Last 10 Years: Stephen R. Braund and Associates (SRB&A) 2010
Lifetime Use Areas: Pedersen 1979

** Other areas may have been used for resource harvesting.*

** Some areas shown on this map may have been used while respondents visited or lived in other communities*

Last 10 Years (1996-2006)
Overlapping Use Areas

High
Low
1,135 use areas reported by 38 respondents

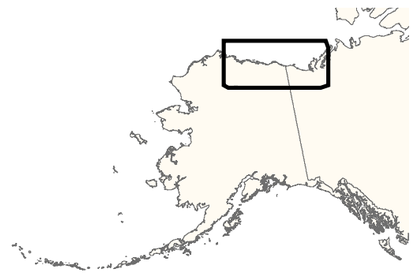
Lifetime Use Areas (Pedersen 1979)

All Resources

0 25 50 100 Miles
0 25 50 100 Kilometers
N

Arctic National Wildlife Refuge

National Petroleum Reserve In Alaska



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ARCTIC OCEAN
BEAUFORT SEA
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Kuparuk River
Sagavanirktok River
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Kaktovik
Camden Bay
Barter Island
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Eskimo Lakes
Inuvik
Aklavik
Fort McPherson
Tsiigehtchic
Canning River
Saddlerochit River
Hulahula River
Jago River
Kongakut River
Firth River
Babbage River
Blow River
Mackenzie River
Dalton Highway
Anaktuvuk River
Sheenjek River
Coleen River
NATIONAL PETROLEUM RESERVE IN ALASKA
ARCTIC NATIONAL WILDLIFE REFUGE
UNITED STATES
CANADA
72°0'0"N
71°0'0"N
70°0'0"N
69°0'0"N
68°0'0"N
155°0'0"W
150°0'0"W
145°0'0"W
140°0'0"W
135°0'0"W

The Department of the Interior Mission

As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the Offshore Minerals Management Program administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil, and other mineral resources. The MMS Royalty Management Program meets its responsibilities by ensuring the efficient, timely, and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States, and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: 1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties; and 2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.