Appendix C

Subsistence-Harvest Activities in Inupiat Communities In and Adjacent to the Beaufort and Chukchi Seas Proposed Action Area.

C.1. INTRODUCTION.

This section describes the subsistence-harvest patterns of the Inupiat communities in Kaktovik, Nuiqsut, Barrow, Atqasuk, Wainwright, Point Lay, and Point Hope. This community-by-community description provides general information on subsistence-harvest patterns, harvest information by resource and community, timing of the subsistence-harvest cycles, and harvest-area concentrations by resource and by community. This summary also includes any new Native stakeholder concerns as they relate to these topics, as well as traditional knowledge updates. The entire marine subsistence-harvest areas of each of these communities are included in the planning area.

Fundamentally, long-term subsistence-harvest practices and subsistence cycles have not changed since the assessment provided in the Beaufort Sea multiple-sale final EIS (USDOI, MMS, 2003a); nevertheless, harvest areas can be fluid and change from season to season, and there is increasing concern over the onset of global climate change and its effects on subsistence seasons and practices. The BLM's Alpine Satellite Development Plan draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004) has provided new information on contemporary harvest areas in some communities, particularly Nuiqsut. Some examples of the many other references used include: North Slope Borough Contract Staff (1979); ACI, Courtnage, and Braund (1984); Hoffman, Libbey, and Spearman (1988); Impact Assessment (1989a,b); S.R. Braund and Assocs. and UAA, ISER (1993a,b); Alaska Natives Commission (1994); State of Alaska, Department of Fish and Game (ADF&G) (1995); City of Nuiqsut (1995); Fuller and George (1997); Moulton (1997); North Slope Borough (1998); Brower, Olemaun, and Hepa (2000); Kassam and Wainwright Traditional Council (2001); and the Community Profile Database [CPDB] ADF&G (2004).

Maps for the primary subsistence-harvest areas for Kaktovik, Nuiqsut, Barrow, Wainwright, Point Lay, and Point Hope are shown on Map C-1. The primary subsistence-harvest areas for Point Hope are shown on Figures C-1 (all resources), C-2 (bowhead whales), C-3 (seals), C-4 (walrus), and C-5 (beluga whales).

C.2. COMMUNITY SUBSISTENCE PROFILES.

C.2.a. Kaktovik. Kaktovik is situated on Barter Island off the Beaufort Sea coast with a 2004 population of 284 (State of Alaska, Dept. of Community and Economic Development (DCED), 2005). Major subsistence resources include bowhead and beluga whales, seals, polar bears, caribou, fishes, and marine and coastal birds. Kaktovik's subsistence-harvest areas are depicted in detail in maps included in MMS' Liberty final EIS (USDOI, MMS, 2002), the Bureau of Land Management's (BLM's) Northwest National Petroleum Reserve-Alaska (NPR-A) final EIS (USDOI, BLM and MMS, 2003), and BLM's Alpine Satellite Development Plan draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004). Subsistence resources used by Kaktovik are listed in tables provided in these same documents. No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the MMS' 2003 Beaufort Sea multiple-sale EIS, the 2004 Beaufort Sea Lease Sale 195 Environmental Assessment, and the subsequent analyses mentioned herein. All of Kaktovik's marine subsistence-harvest area is within the Beaufort Sea portion of the proposed Arctic Seismic Programmatic Environmental Assessment (PEA) area.

Fuller and George (1997) harvest estimates for the 1992 harvest season in Kaktovik include:

- Three bowhead whales were harvested, representing 110,000 pounds (lb) of meat. Bearded seals and beluga whales were other important marine mammals taken. Also, five walruses were harvested, a rare occurrence in the eastern Beaufort Sea. Marine mammals represented 66.2% of the total edible pounds harvested.
- For terrestrial mammals, 136 caribou, 53 Dall sheep, and 6 muskoxen were harvested in 1992, 13.9 % of the total edible pounds harvested.
- For fish resources, 7, 900 arctic char (actually Dolly Varden), 7,100 arctic cisco, and 2,600 grayling were harvested, 18.3 % of the edible pounds harvested.

- Bird/waterfowl resources included 333 Pacific brant, 180 white-fronted geese, 11 snow geese, some Canada geese, and 11 Steller's eiders, 1.4 % of the edible pounds harvested.

Fifty percent of the households surveyed participated often in fall whaling, and more than 40% participated in caribou hunting, sheep hunting, and fishing (Fuller and George, 1999). Pedersen and Linn (2005) conducted surveys of the Kaktovik subsistence fishery in 2000-2001 and 2001-2002, and estimated community harvests of fish at 5,970.0 lb and 9,748.3 lb, respectively. Dolly Varden, lake trout, and arctic cisco were the only fishery resources reported to be harvested by Kaktovik households in this study. Dolly Varden was the most commonly harvested fish in terms of numbers harvested and estimated harvest weight, with arctic cisco and lake trout ranking second and third (Pedersen, 2003).

C.2.b. Nuiqsut. The Inupiat community of Nuiqsut is near the mouth of the Colville River, which drains into the Beaufort Sea, and had a 2004 population of 430 (State of Alaska, DCED, 2005). For Nuiqsut, important subsistence resources include bowhead whales, caribou, fish, waterfowl, ptarmigan and, to a lesser extent, seals, muskoxen, and Dall sheep. Polar bears, beluga whales, and walruses are seldom hunted but can be taken opportunistically while in pursuit of other subsistence species. Nuiqsut has subsistence-harvest areas in and adjacent to the Arctic Seismic PEA area. Cross Island and vicinity is a crucially important region for Nuiqsut's subsistence bowhead whale hunting. Before oil development at Prudhoe Bay, the onshore area from the Colville River Delta in the west to Flaxman Island in the east and inland to the foothills of the Brooks Range (especially up the drainages of the Colville, Itkillik, and Kuparuk rivers) was historically important to Nuiqsut for the subsistence harvests of caribou, waterfowl, furbearers, fishes, and polar bears. Offshore, in addition to bowhead whale hunting, seals historically were hunted as far east as Flaxman Island. Nuiqsut's subsistence-harvest areas are depicted in detail in maps included in the Liberty final EIS (USDOI, MMS, 2002), BLM's recent Northwest NPR-A final EIS (USDOI, BLM and MMS, 2003), and BLM's Alpine Satellite Development Plan draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004). Subsistence resources used by Nuiqsut are listed in tables provided in these same documents. See Appendix H in the Sale 195 EA, Evaluation of Potential Impacts on Subsistence Whaling from MMS Permitted Activities in the Cross Island and Smith Bay Areas (USDOI, MMS, 2004), for a discussion of subsistence-whaling activity in the Cross Island area. Also see Figures H-1 and H-2 in Appendix H that track Nuiqsut whaling crew voyages for the 2001 and 2002 whaling seasons. These data were gathered as part of the ongoing MMS Arctic Nearshore Impact Monitoring in Development Area monitoring effort in the region. No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the MMS' 2003 Beaufort Sea multiple-sale EIS, the 2004 Beaufort Sea Sale 195 EA, and the subsequent analyses mentioned herein.

For BLM's Alpine Satellite Development Plan draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004), S.R. Braund and Assocs. conducted 21 interviews in June and July 2003. These interviews included hunters of both genders and ranged in ages from young hunters to active elders. The subsistence-use area for all resources described in these interviews is similar in the most part to that described by Pedersen et al. (In prep.) for harvests conducted from 1973 thorough 1986. Some formerly used areas to the west and south were not described as presently used, although this could be due to the practices of the actual hunters interviewed. Areas in the vicinity of Prudhoe Bay are no longer used, because industrial development has rendered them inaccessible.

Interviews for BLM's Alpine draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004) also included additional traditional and local knowledge testimony. In her testimony at a 2003 public hearing for the Alpine Satellite Development Plan, Nuiqsut's Mayor Rosemary Ahtuangaruak related that villagers were seeing changes in caribou and fish that left them with tumors and lesions, and they believed this came from pollution from nearby gas flares. She also noted that helicopter activity was diverting caribou away from the community. Jimmy Nukapigak related that Alpine development had contributed to fewer arctic cisco in the Fish Creek area. Frank Long, Jr. believed that developing CD-6 would threaten fishing in Niqliq Channel and other Colville River channels.

C.2.c. Barrow. As with other communities adjacent to the Planning Area, Barrow residents (population 4,351 in 2004 (State of Alaska, DCED, 2005) enjoy a diverse resource base that includes both marine and terrestrial animals. Barrow's location at the demarcation point between the Chukchi and Beaufort seas is unique among North Slope subsistence communities. This location offers superb opportunities for hunting a diversity of marine and terrestrial mammals and fishes. Barrow's subsistence-harvest areas are depicted in detail in maps included in MMS' Liberty final EIS (USDOI, MMS, 2002) and BLM's recent Northwest NPR-A final EIS (USDOI, BLM and MMS, 2003) and Alpine Satellite Development Plan draft EIS for potential expansion of Alpine field production near Nuiqsut (USDOI, BLM, 2004). Subsistence resources used by Barrow are listed in tables provided in these same documents. See USDOI, BLM and MMS (2003:Map 75) for bowhead whale-harvest locations near Barrow. No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the MMS' 2003 Beaufort Sea multiple-sales EIS, the 2004 Beaufort Sea Sale 195 EA, and the subsequent analyses mentioned herein.

For BLM's Alpine draft EIS (USDOI, BLM, 2004), S.R. Braund and Assocs. conducted eight interviews in August 2003. These interviews were coordinated with the Inupiat Community of the Arctic Slope and included hunters who were known to travel to the east of Barrow for their subsistence harvests.

The use areas described in these eight interviews generally correlated with previously described subsistence land use areas to the east and southeast of Barrow. Some differences did surface with these hunters not going much farther east of the Itkillik River and many going father southeast than in the past to the Anaktuvuk River and into areas near the Titaluk and Kigalik rivers, 120 mi south of Barrow. Barrow hunters also described occasionally traveling to the Kalikpik-Kogru River areas for caribou, when animals are unavailable closer to Barrow. Winter snowmobile travel for caribou, wolf, wolverine, and fox as far east as Fish and Judy Creeks also was reported.

C.2.d. Atqasuk. Atqasuk's 2004 population was 247 (State of Alaska, DCED, 2005) and the inland Inupiat community is approximately 50 mi south of Barrow. The marine-resource areas used by Atqasuk residents include those used by Barrow residents as explained in the Barrow discussion. Only a small portion of the marine resources used by Atqasuk residents is acquired on coastal hunting trips that are initiated in Atqasuk; most resources are acquired on coastal hunting trips initiated in Barrow or Wainwright with relatives or friends (ACI, Courtnage, and Braund, 1984). Nevertheless, the local connection with the coastal and marine resources is important to the community. As one resident observed: "We use the ocean all the time, even up here; the fish come from the ocean; the whitefish as well as the salmon migrate up here" (ACI, Courtnage, and Braund, 1984). Atqasuk's subsistence-harvest areas are depicted in detail in maps included in the BLM's Northwest NPR-A final EIS (USDOI, BLM and MMS, 2003), and the BLM's Alpine draft EIS (USDOI, BLM, 2004). Subsistence resources used by Atqasuk are listed in tables provided in these same documents. No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the EIS analyses mentioned above.

C.2.e. Wainwright. The community of Wainwright, with a population of 531 in 2004 (State of Alaska, DCED, 2005), enjoys a diverse resource base that includes both terrestrial and marine resources. The city sits on the Chukchi Sea coast about 100 mi southwest of Barrow. Marine subsistence activities focus on the coastal waters from Icy Cape in the south to Point Franklin and Peard Bay in the north. The Kuk River lagoon system—a major marine estuary—is an important marine and wildlife habitat used by local hunters. Wainwright is situated near the northeastern end of a long bight that affects sea-ice conditions as well as marine-resource concentrations. Wainwright's subsistence-harvest areas are depicted in detail in maps included in the MMS' Chukchi Sea Oil and Gas Lease Sale 126 (USDOI, MMS, 1990a) and the BLM's Northwest NPR-A final EIS (USDOI, BLM and MMS, 2003). No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the 2003 Northwest NPR-A final EIS.

Lydia Agnasagga in her testimony at a local public hearing in 1987 for MMS' Chukchi Sea Sale 109 related: "We live on subsistence, and everybody knows that...especially on the Arctic Coast. We live

mainly on the animals from the sea and from the land, as well, and we can't very well live without those...our food because we didn't grow up with beef or anything like that, and I can say that everything costs so much nowadays. It's hard to try to live just by buying...store-bought food, and that's the reason why I'm concerned about this [lease sale]" (USDOI, MMS, 1987c).

At the same hearing, Jim Allen Aveoganna stated: "I was raised [by] hunting only. My dad had never been working, just hunting for a living. And I raised my family half the time just by hunting, which I can say. That's how we live. Us older people here...we have lived just for [the] hunt. We were raised just by hunting only. No money, nothing. My dad never had been employed; only time he start employ[ment] was the time he was [an] old age citizen. So, that's how we lived" (USDOI, MMS, 1987c).

C.2.f. Point Lay. With a population of 251 in 2004 (State of Alaska, DCCED, 2005), Point Lay has the smallest population of any of the communities in the North Slope Borough (NSB). About 90 mi southwest of Wainwright, the village sits on the edge of Kasegaluk Lagoon near the confluence of the Kokolik River with Kasegaluk Lagoon. As with other communities adjacent to the Chukchi portion of the Arctic Seismic PEA Planning Area, Point Lay residents enjoy a diverse resource base that includes both marine and terrestrial animals. However, Point Lay is unique among the communities; its dependence is relatively balanced between marine and terrestrial resources. Unlike the other communities discussed here, local hunters do not pursue the bowhead whale, although the community petitioned the Alaska Eskimo Whaling Commission (AEWC) for a bowhead whale quota in 2004 and a community initiative to resume its dormant bowhead hunt is continuing (Associated Press, 2004). Beluga whale is the village's preferred and pivotal marine mammal resource. Barrier island shores, and the protected and productive lagoons they form, provide prime habitat for other sea mammals and birds, both important resources in the Point Lay subsistence round (USDOI, BLM, 1978; Fuller and George, 1997). Point Lay's subsistence-harvest areas are depicted in detail in maps included in the MMS' Chukchi Sea Sale 126 EIS (USDOI, MMS, 1990a) and the BLM's Northwest NPR-A final EIS (USDOI, BLM and MMS, 2003). No substantial changes to long-term subsistence-harvest practices, subsistence cycles, and types of resources harvested have occurred since the 2003 Northwest NPR-A final EIS.

Gregg Tagarook, hunter and elder from Wainwright, had this to say about weather and hunting conditions in Kasegaluk Lagoon:

> I grew up on Barter Island for a long while. I was at Wainwright and lived in Pt. Hope for 14 years. I know a little bit about how things travel, and I've been taught by different community elders, and one elder has said something I never forgot. I'm grateful that I understand a place called Kasegaluk. Our older generation has observed Kasegaluk and said the north wind would blow hard and the current would be strong but this would never change. I understand the hard times and the older generations would take their families out there for camping. When there is nothing dangerous there, I want to say in hunting in fall and mid-winter there would be some shallow spots and the upper part of it would be good. Around there it is dangerous. When the wind is coming from the west, the shore ice would come off from the shore. That is west of Wainwright. A place called Mikigealiak. When it was a west wind, we dared not be out there hunting because it is dangerous. We were saying that the oil industry should know about these conditions that occur when the west wind is blowing in that area because the ice is very strong. North northwest wind. That's that wind 90 miles west of here. (Alaska Traditional Knowledge and Native Foods Database, Northwest Arctic Regional Meeting, Sept. 1998 [UAA, ISER, No date]).

C.2.g. Point Hope. Point Hope residents, with a population of 726 in 2004 (State of Alaska, DCED, 2005) enjoy a diverse resource base that includes both terrestrial and marine animals. The community, 330 mi southwest of Barrow, is located on a large gravel spit that forms the westernmost extension of the northwest Alaska coast. In the early 1970's, the community moved to its present location just east of the old settlement because of erosion and periodic storm-surge flooding. This spit of land juts out into the Chukchi Sea, offering superb opportunities for hunting a diversity of marine mammals, especially bowhead whales. The combination of caribou, bowhead whale, and fish has been identified as being the primary group of resources harvested; the lowest percentage for this combination occurred in Point Hope, where

residents use the greatest variety of subsistence resources, which include beluga whales, walruses, polar bears, birds, marine fish, crab, and berries. Burch (1981) listed 60 species harvest by the village; a NSB subsistence survey in 1992 listed 59 species harvested (Pedersen, 1977; USDOI, MMS, 1987a, 1990a; Fuller and George, 1997; U.S. Army Corps of Engineers, 2005). See Tables C-1 and C-2 for a summary of Point Hope's subsistence harvest resources for 1992.

The Point Hope annual subsistence round is shown in Figure C-6. Relative household subsistence consumption, participation, changes in subsistence activity, and expenditures on subsistence for Point Hope, as determined from the 1992 NSB subsistence survey and a NSB economic profile and census conducted in 2003 are displayed in Tables C-1, C-2, C-3, C-4, and C-5, and Figure C-3 (Pedersen, 1977; NSB, 2003; Fuller and George, 1997). The primary subsistence-harvest areas for Point Hope are shown on Figures C-1 (overall area), C-2 (bowhead whales), C-3 (seals), C-4 (walrus), and C-5 (beluga whales) included in this document.

Point Hope's strategic location close to the pack-ice lead makes it uniquely situated for hunting the bowhead. Beginning in late March or early April, the bowhead whale is available in the Point Hope area (see Figs. C-1, C-6, and C-2). Approximately 15-18 whaling camps are located along the edge of the landfast ice. The actual harvest area varies from year to year, depending on where the open leads form. Camps as far south as Cape Thompson have been reported, but in recent years the camps tended to be closer to the community. In the recent past, the camps were situated south and southeast of the point. The intensive-use area delineated in Figure C-2 indicates the harvest-concentration areas over the past few years. The distance of the lead from shore varies from year to year. The lead is rarely more than 10-11 km offshore, but hunters have had to travel over the ice as far as 16 km away from the community to find the necessary open water for spring whaling. Table C-6 shows the annual bowhead whale subsistence harvest for Point Hope (Pedersen, 1977; ACI and Braund, 1984; USDOI, MMS, 1990a; Fuller and George, 1997; Woody, 2003).

Point Hope generally has open water for the majority of the whaling season; but sometimes two narrow leads develop. This presents a problem for Point Hope hunters, because the whales may travel in the lead that is farther from shore and, thereby, become inaccessible to the whalers. The duration of the whaling season is limited by the International Whaling Commission's (IWC's) quota. Despite the limited nature of both the whaling season and the harvest area, no other marine mammal is harvested with the intensity and concentration of effort that is focused on the bowhead whale, the most important resource in Point Hope's subsistence economy. The harvest periods of all resources vary from year to year, and the bowhead season is no exception. In a 20-year period ending in 1982, the total annual number of bowheads landed varied from 0-14. In the recent memory of community residents, 1980 and 1989 were the only years in which a bowhead whale was not harvested. The last subsistence survey in the village was conducted by the NSB in 1992 and noted that two bowheads were landed that year—a poor harvest year (6.9% of the total subsistence harvest) due to onshore winds creating poor ice conditions (Pedersen, 1977; ACI and Braund, 1984; USDOI, MMS, 1990a; Fuller and George, 1997).

Point Hope hunters actively harvest the beluga whale during the offshore spring bowhead-whaling season (late March-early June) and along the coast later in summer (July-late August/early September) (Fig. C-5). The first, and larger, harvest of belugas occurs coincidentally with the spring bowhead whale harvest. Hunters often use the beluga as an indicator for the bowhead. Although not as common as the bowhead, the beluga also is harvested in open water throughout the summer. During the summer season, hunters pursue belugas primarily near the southern shore of Point Hope in the southern Chukchi Sea, in close proximity to the beach, as well as in coastal areas on the northern shore as far north as Cape Dyer. Because belugas feed on the anadromous fishes of the Kukpuk River, hunters are particularly successful near Sinuk. The beluga is harvested intensively at distances as far south as Cape Thompson (Fig. C-5). Although belugas are available in May and June, Point Hope residents generally do not pursue them because of deteriorating ice conditions along the landfast ice margins and the greater availability of bearded seal and walrus at this time (Pedersen, 1977; USDOI, MMS, 1990a; Fuller and George, 1997).

The number of belugas harvested varies (Table C-7); according to Lowenstein (1981), each whaling crew harvests at least one beluga—and usually more—during the whaling season. The average annual beluga

harvest (between 1962 and 1982) was estimated at 29, or 6.5% of the total annual marine-subsistence harvest. The 1992 NSB subsistence survey estimated a beluga harvest of 98 animals—40.3% of the total subsistence harvest (Pedersen, 1977; USDOI, MMS, 1990a; Fuller and George, 1997).

Point Hope Inupiat have traditionally used walrus; however, the increasing importance of the walrus as a subsistence resource has been directly related to its fluctuating population, which also has increased over the past decade. Walruses are harvested during the spring marine mammal hunt, which is based along the southern shore of the point (Fig. C-4). The major walrus hunting effort coincides with the spring bearded seal harvest, and both species are harvested from the same camps that stretch from Point Hope to Akoviknak Lagoon. Although the walrus is hunted primarily during late May and early June, it also is hunted by boat during the rest of the summer along the northern shore, especially along the rocky capes and other points where they tend to haul out. The walrus harvest occurs in conjunction with other subsistence activities such as egg gathering, fishing, or traveling the shores in search of caribou. An estimated 10-30 animals are harvested during June (ACI, Courtnage, and Braund, 1984). The annual average harvest (from 1962-1982) was estimated at 15 walruses, or 2.9% of the total annual marine mammal subsistence harvest. Walrus harvest totals in Point Hope from 1982 through 2005, derived from the USDOI, Fish and Wildlife Service (FWS) Marking, Tagging, and Reporting Program (MTRP) are shown in Table C-8. Reported MTRP numbers are generally lower than actual harvests. The 1992 NSB subsistence survey estimated a walrus harvest of 72 animals—16.4% of the total subsistence harvest (Pedersen, 1977; USDOI, MMS, 1990a; Fuller and George, 1997; Garlich-Miller, pers. com, 2006).

Point Hope residents hunt polar bears primarily from January to April concurrently with the winter seal-hunting season, and occasionally from late October to January. The polar bear is harvested mainly south of the community, generally in the area of intensive seal hunting (ACI, Courtnage, and Braund, 1984). The polar bear comprises a small portion of the Point Hope subsistence harvest with an annual average (from 1962-1982) of nine harvested, or only 1.1% of the total annual marine mammal subsistence harvest. The 1992 NSB subsistence survey showed that no polar bears were harvested that season but FWS data indicate 9 harvested during the 1991/92 season and 17 harvested during the 1992/93 season (Table C-9) (Pedersen, 1977; USDOI, MMS, 1990a; Fuller and George, 1997; Schliebe, pers. com., 2006).

Seals are available to Point Hope residents from October through June; however, because of the availability of bowhead, bearded seal, and caribou during various times of the year, seals are harvested primarily during the winter months, from November through March. The ringed seal is the most common hair seal species harvested, and the month of February is the most concentrated harvest period for this species. Hair seals are hunted from south of Cape Thompson to as far north as Ayugatak Lagoon (Fig. C-3). The area south of Point Hope is safer and more advantageous for hunting seals. In good weather, it is safe for a hunter to travel 10-15 mi offshore of the southern side of the point; however, it is more common for residents to hunt seals closer to shore. The area north of the point is more dangerous for seal hunting because of the poor ice conditions. Seal hunting in this area occurs closer to shore and is most successful at Sinuk, near the mouth of the Kukpuk River, and at the numerous small points between Point Hope and Cape Lisburne, where open water is found (i.e., Kilkralik Point and Cape Dyer). South of the point, ringed seal hunting generally is concentrated within 5 mi of shore on the ice pack between Point Hope and Akoviknak Lagoon. Some hair seal hunting takes place directly off the point when the ice first forms in October and early November. From 1962-1982, the average annual harvest is estimated at 1,400 seals, or 14.8% of the total annual subsistence harvest. The 1992 NSB subsistence survey estimated that 265 ringed and 50 spotted seals were harvested that season (Pedersen, 1977; ACI, Courtnage, and Braund, 1984; Fuller and George, 1997).

Hunting of the bearded seal is an important subsistence activity in Point Hope; the meat is a preferred food and the skin is used to cover whaling boats. Most bearded seals are harvested during May and June, sometimes as late as mid-July, as the landfast ice breaks up into floes. More of the bearded seal than the smaller hair seal is harvested because of the former's larger size and use for skin-boat covers. Bearded seals, like hair seals, are hunted from Cape Thompson to Ayugatak Lagoon. The average annual fur seal harvest from 1962-1982 was 200 a year, or about 8.9% of the total annual subsistence harvest (ACI, Courtnage, and Braund, 1984; USDOI, MMS, 1990a). The 1992 NSB subsistence survey showed that 160 bearded seals were harvested that season—8.3% of the total subsistence harvest (Table C-2) (Pedersen, 1977; Fuller and George, 1997).

Caribou is the primary source of meat for Point Hope residents. From 1962-1982 the annual average of 756 caribou harvested accounted for 29.5% of the total annual subsistence harvest (ACI, Courtnage, Braund, 1984). Although caribou are available throughout the year, peak harvest times occur from February-March and from late June through mid-November. The 1992 NSB subsistence survey showed that 225 caribou were harvested that season—7.7% of the total subsistence harvest (Table C-6) (Pedersen, 1977; USDOI, MMS, 1990a; Fuller and George, 1997).

Point Hope residents harvest a variety of fish during the entire year. As the shorefast ice breaks free in mid- to late June, residents use setnets and beach seines to catch arctic char and pink, coho, and chum salmon. Fishing occurs from coastal fish camps (often converted from spring camps for hunting bearded seal and walrus) located along the shore from Cape Thompson north to Kilkralik Point. Some fishing may occur outside this area, but only in conjunction with other activities such as egg gathering or caribou hunting. The summer fishing season extends from mid- to late June through the end of August, with July the peak month. Other fishes harvested by Point Hope residents include whitefish, grayling, tomcod, and occasionally flounder. In the fall, residents harvest grayling and whitefish on the Kukpuk River during the October upriver fishing period. From December through February, residents fish for tomcod through the ice near the point (ACI, Courtnage, and Braund, 1984). From 1962-1982, an estimated annual average of 40,084 lb was harvested, accounting for 10.1% of the total subsistence harvest. The 1992 NSB subsistence survey showed that 30,589 lb of fish were harvested that season—9.0% of the total subsistence harvest (Table C-1) (Pedersen, 1977; ACI, Courtnage, and Braund, 1984; USDOI, MMS, 1990a; Fuller and George, 1997).

Throughout the year, waterfowl and other migratory birds also provide a source of food for Point Hope residents. Eiders and other ducks, murres, brant, geese, and snowy owls are harvested at various times of the year. Eiders are hunted and harvested as they fly along the open leads during the whaling season, thereby providing a fresh meat source for the whaling camps. Murre eggs are harvested from the cliffs at Capes Thompson and Lisburne. Later in the spring, Point Hope residents harvest eiders, geese, brant, and other migratory waterfowl along both the northern and southern shores of the point and in the numerous lakes and lagoons. Geese are harvested from mid-May until mid-June, while brant are harvested at this time and during September, as they migrate from their summer breeding grounds. Snowy owls occasionally are trapped later in the fall, in October, as they migrate south. From 1962-1982, an estimated annual average of 12,527 lb of birds was harvested, accounting for about 3.2% of the total annual subsistence harvest. The 1992 NSB subsistence survey showed that 9,429 lb of birds were harvested that season—2.8% of the total subsistence harvest (Table C-1) (Pedersen, 1977; ACI, Courtnage, and Braund, 1984; USDOI, MMS, 1990a; Fuller and George, 1997).

Map C-1 Subsistence Harvest Areas in the Proposed Action Area

Arctic Ocean

Chukchi Sea

Beaufort Sea

For most recent Subsistence-Harvest Area Maps for Barrow see http://www.ak.blm.gov/nwnpra/

For most recent Subsistence-Harvest Area Maps for Wainwright see https//www.ak.blm.gov/nwnpra/

For most recent Subsistence-Harvest Area Maps for Point Lay see http://www.ak.blm.gov/nwnpra/

For most recent Subsistence-Harvest Area Maps for Kaktovik see Beaufort Sea Planning Area Oil and Gas Lease Sale 170 Final EIS and http://www.mms.gov/alaska/ref/EIS%20EA/BeaufortFEIS/beaufortfeis.pdf

For most recent Subsistence-Harvest Area Maps for Nuiqsut see http://www.ak.blm.gov/nwnpra/ and http://www.mms.gov/alaska/ref/EIS%20EA/BeaufortFEIS/beaufortfeis.pdf

For most recent Subsistence-Harvest Area Maps for Point Hope see this volume

For most recent Subsistence-Harvest Area Maps for Kivalina see Navigation Improvements, DeLong Mountain Terminal, Alaska Draft EIS

Peard Bay

Barrow

Dease Inlet

Smith Bay

Teshekpuk Lake

Harrison Bay

Point Thomson

Wainwright

Kasegaluk Lagoon

Atqasuk

Icy Cape

Point Lay

National Petroleum Reserve - Alaska

Nuiqsut

Deadhorse

Kaktovik

Cape Lisburne

Point Hope

Alaska Maritime National Wildlife Refuge

Cape Thompson

Kivalina

Arctic National Wildlife Refuge

United States

Canada

LEGEND

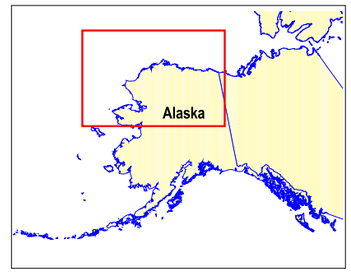
- Study Area Boundary
- Blocks Deferred from Sale Area
- Submerged Lands Act Boundary

Bathymetry

Inner Shelf (0-20 M)
Central Shelf (20-60 M)
Shelf Break (60-200 M)

20 0 20 40 Miles

20 0 20 40 Kilometers



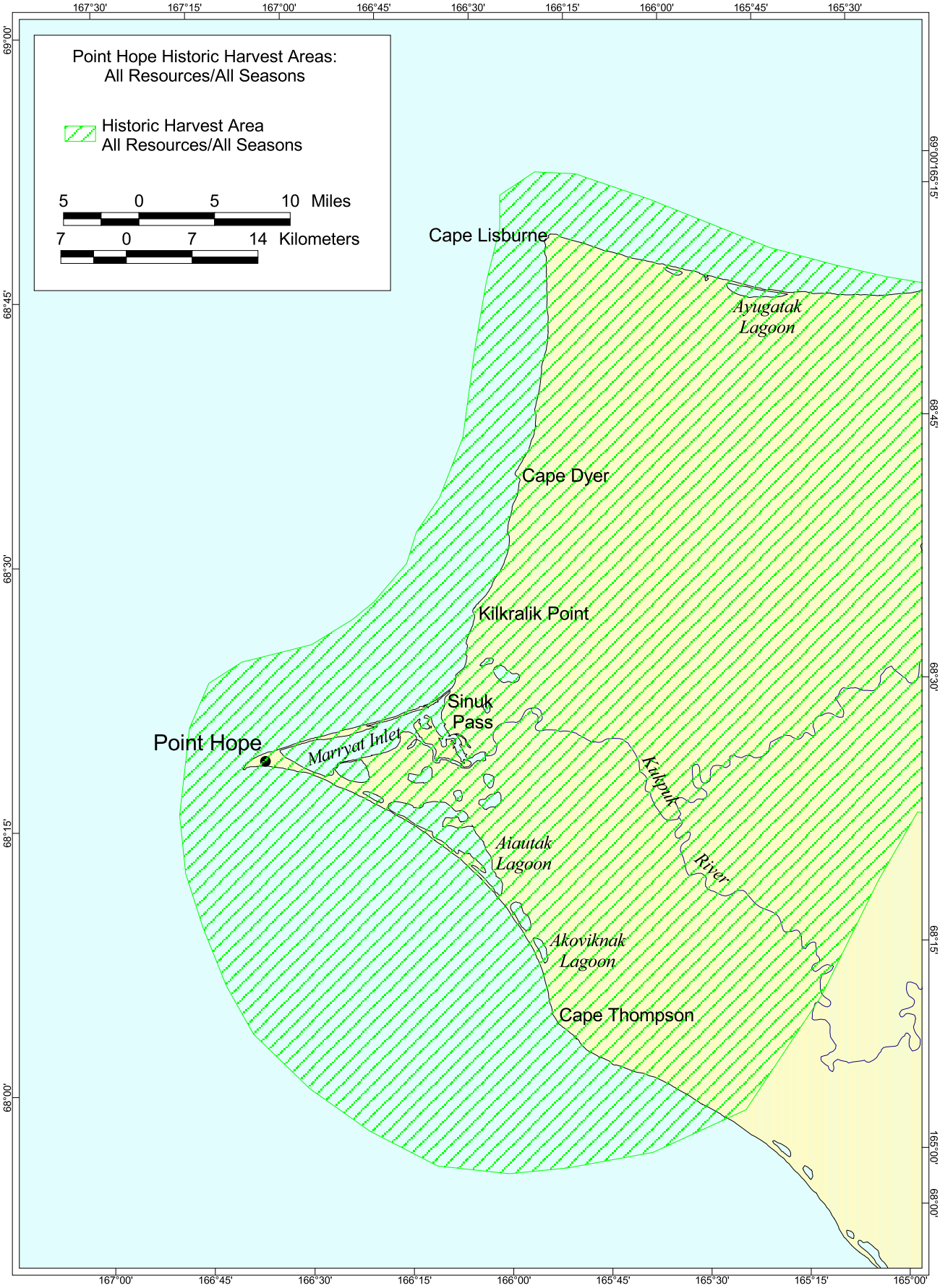


Figure C-1. Point Hope Historic Subsistence Harvest Areas: All Resources/All Seasons.
From Braund & Burnham, 1984; Pedersen, 1977.

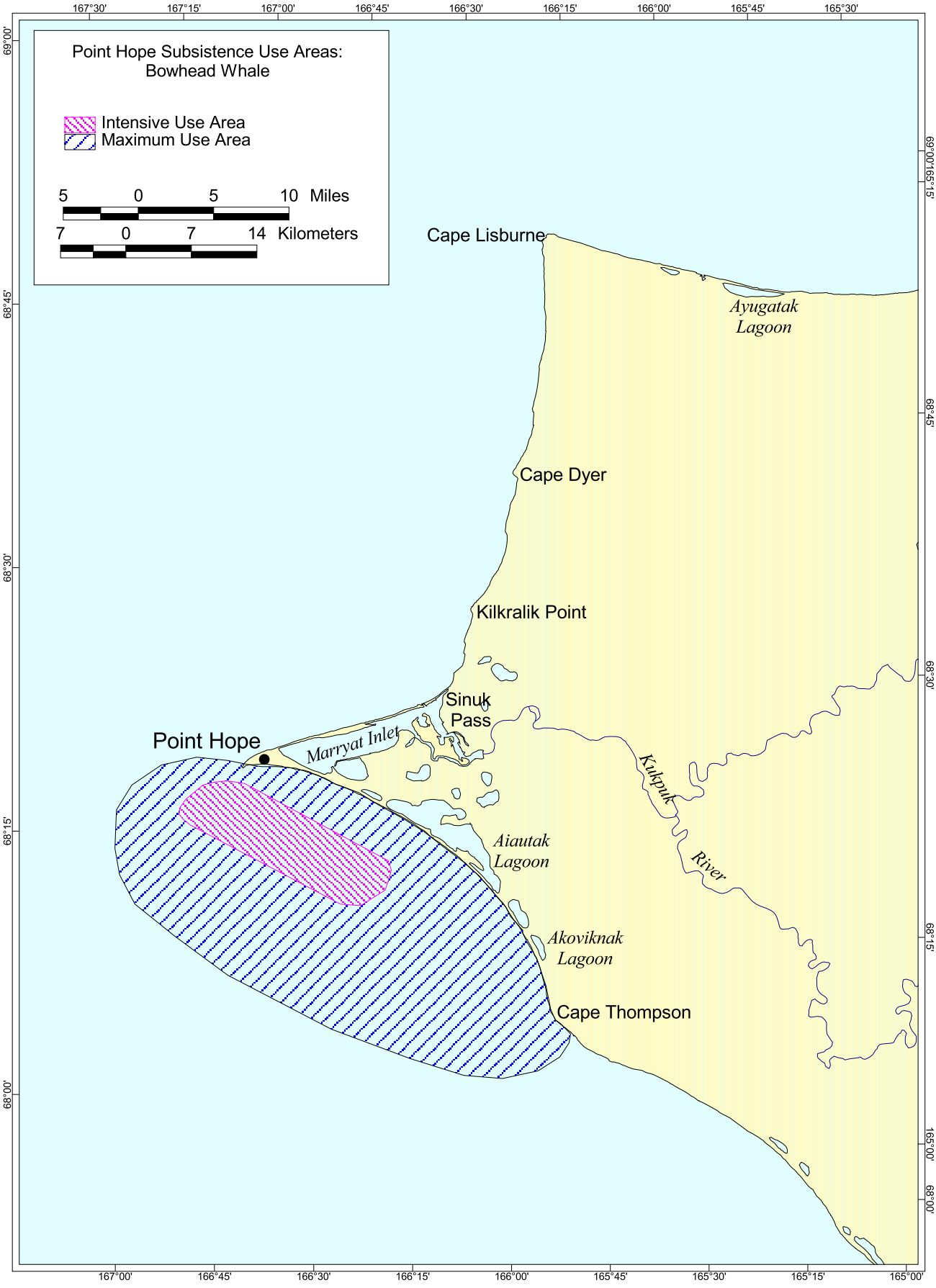


Figure C-2. Point Hope Subsistence Use Areas: Bowhead Whale. From Braund & Burnham, 1984.

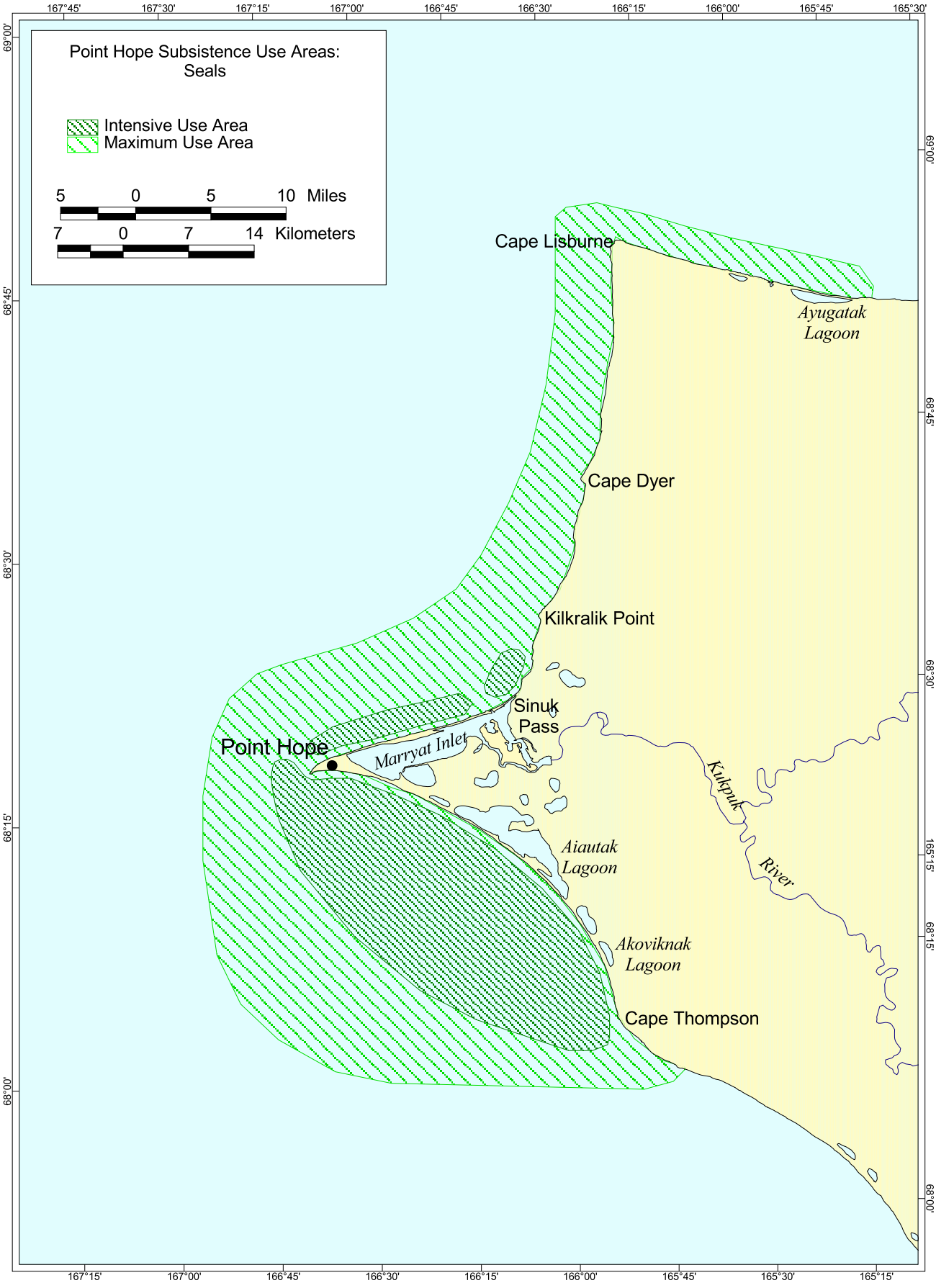


Figure C-3. Point Hope Subsistence Use Areas: Seals. From Braund & Burnham, 1984.

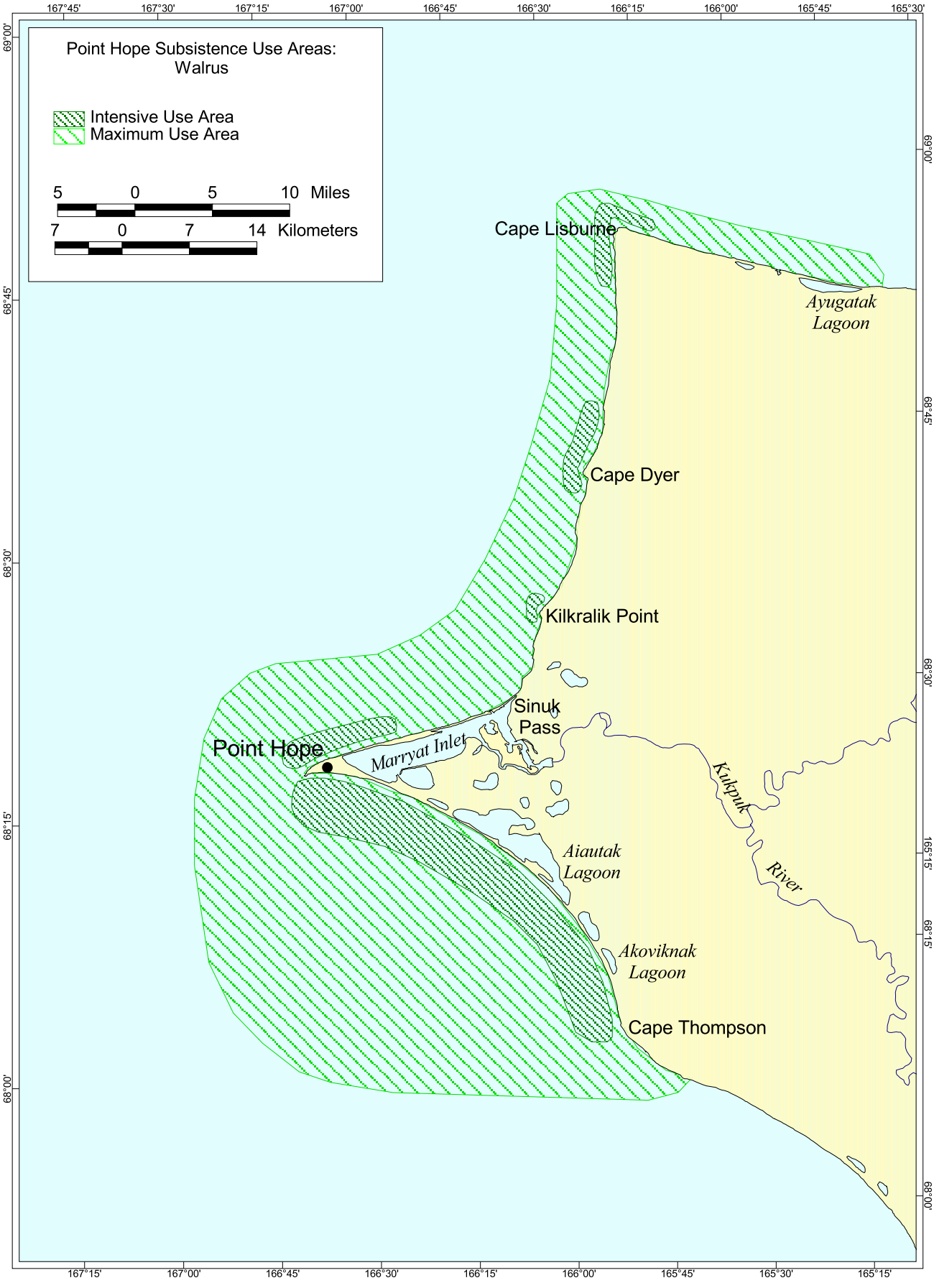


Figure C-4. Point Hope Subsistence Use Areas: Walrus. From Braund & Burnham, 1984.

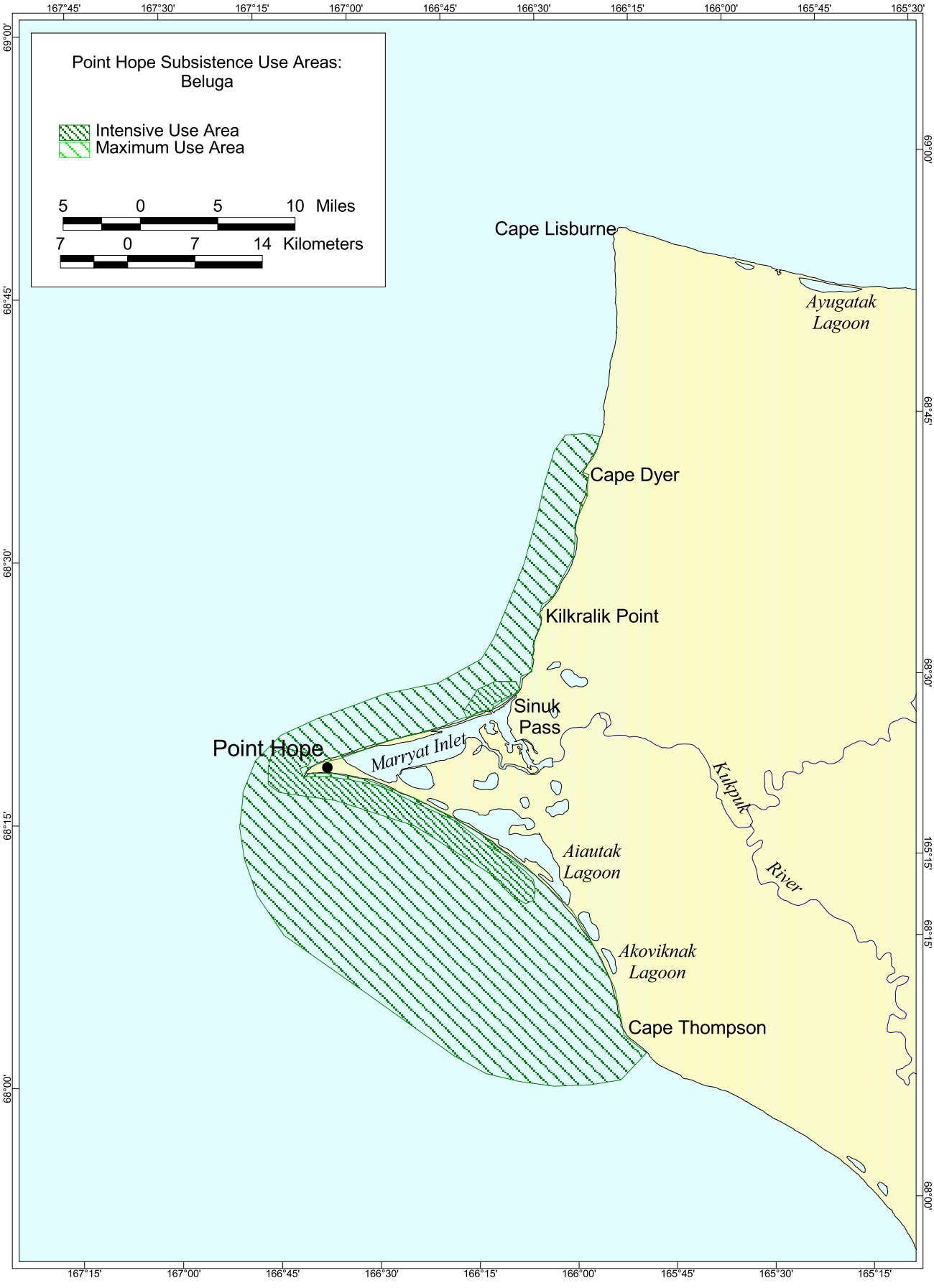
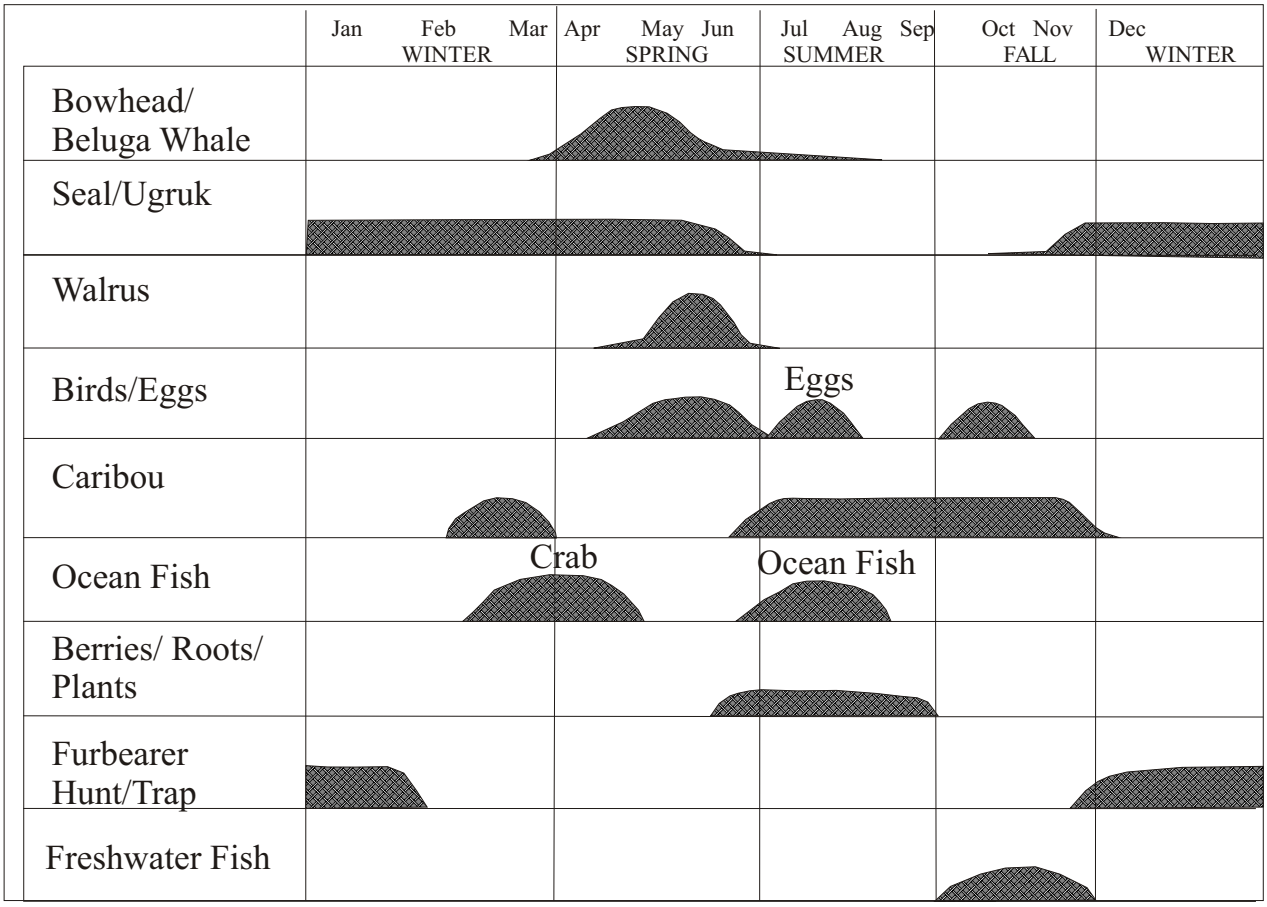


Figure C-5. Point Hope Subsistence Use Areas: Beluga. From Braund & Burnham, 1984.



Source: Pedersen, 1977.

Figure C-6. Point Hope Annual Subsistence Cycle.

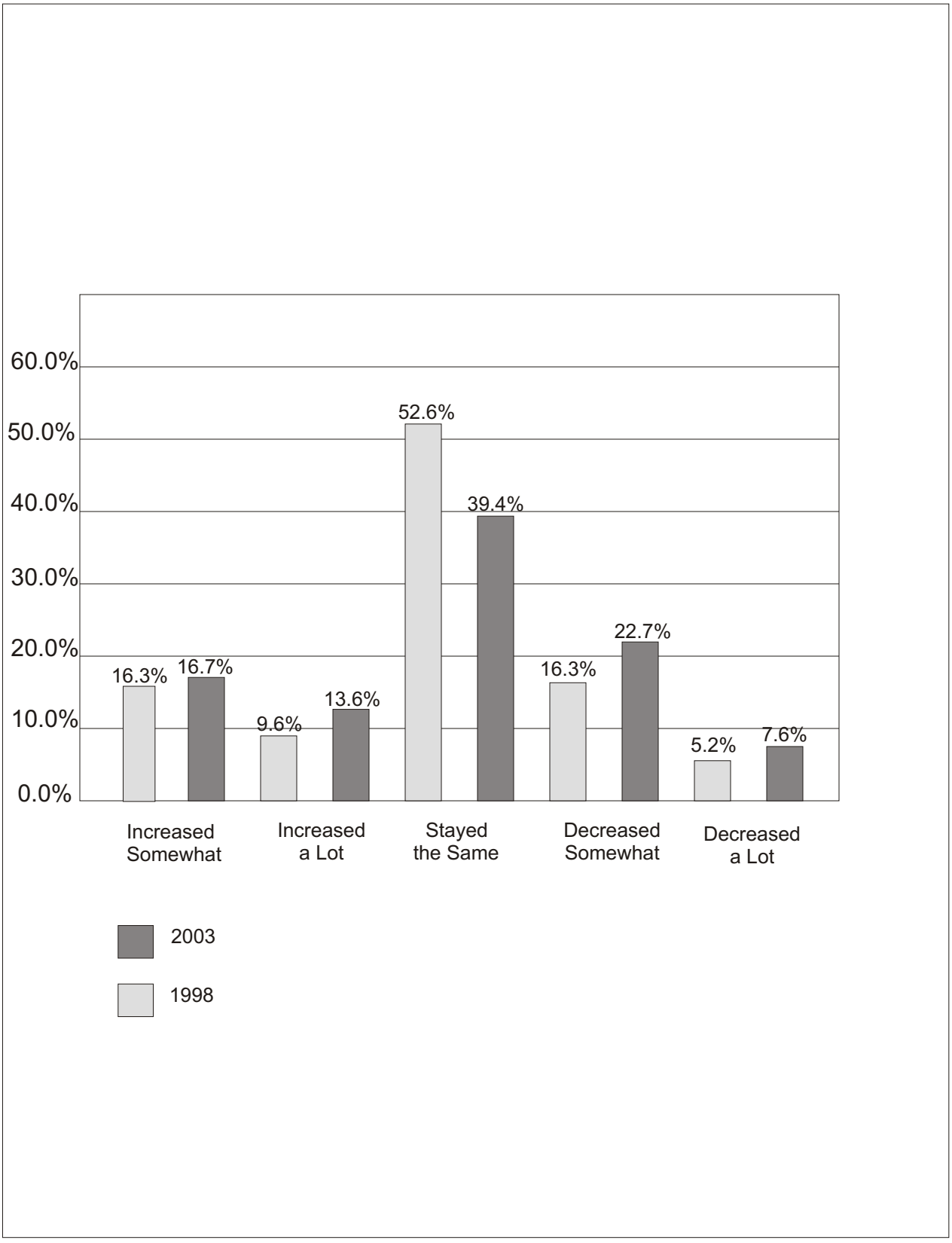


Figure C-7. Point Hope: Changes in Subsistence Activity. Fuller and George, 1997; North Slope Borough, 2004.

Table C-1.
Breakdown of Total Harvest by Subsistence-Harvest Category for Point Hope, Alaska, 1992. The 1993 Population of Point Hope was 699; The Total Number of Households was 156.

Subsistence Harvest Category	Total Weight	Pounds Per Household	Pounds Per Capital
Birds	9,429	60	13
Fish	30,589	196	44
Invertebrates	88	I	0
Marine Mammals	262,009	1,680	375
Plants	2,720	17	4
Terrestrial Mammals	35,548	228	51
Total	340,383	2,182	487

Source:
Fuller and George, 1997.

Table C-2.
Top Five Species Harvested at Point Hope, Alaska during Calendar Year, 1992.

Top Five Species Harvested	Edible Pounds Harvested	Number Harvested	Pounds Per Household	Pounds Per Capita	Percent of Total Harvest
Beluga	137,172	98	879	196	40.3%
Walrus	55,797	72	358	80	16.4%
Bearded Seal	28,242	160	181	40	8.3%
Caribou	26,303	225	169	38	7.7%
Bowhead	23,365	3	150	33	6.9%

Source:
Fuller and George, 1997.

Table C-3.
Participation in Subsistence Harvest Activities, Point Hope, Alaska, 1992. of 156 Households, 142 Households Participated in This Survey.

Activity	Often	Sometimes	Sometime	Not at All	% Often	% Sometime	% Vacation	% Not at All
Fall Whaling	4	5	0	133	3%	4%	0%	94%
Fish	86	29	1	26	61%	20%	1%	18%
Helped Whaling Crew	92	27	2	21	65%	19%	1%	15%
Hunt Caribou	71	27	1	43	50%	19%	1%	30%
Hunt Moose, Bear, or Sheep	35	27	2	78	25%	19%	1%	55%
Hunt Seal	78	29	0	35	55%	20%	0%	25%
Hunt Walrus	70	33	0	39	49%	23%	0%	27%
Hunt Waterfowl & Eggs	81	27	1	33	57%	19%	1%	23%
Make Sleds or Boats	53	26	0	63	37%	18%	0%	44%
Pick Berries	81	39	1	21	57%	27%	1%	15%
Sew Skins, Make Parkas	49	35	0	58	35%	25%	0%	41%
Spring Whaling	98	16	4	24	69%	11%	3%	17%
Trap	14	22	0	106	10%	15%	0%	75%

Source:
Fuller and George, 1977.

Table C-4.
Point Hope, Amount of Food Consumed Harvested from Local Sources*

Amount	1998		2003	
	Number	Percent	Number	Percent
None	4	2.9%	10	7.0%
Very Little	11	8.2%	16	11.3%
Less Than Half	23	17.2%	23	16.2%
Half	34	25.4%	28	19.7%
More Than Half	34	25.4%	30	21.1%
Nearly All	19	14.2%	15	10.6%
All	9	6.7%	20	14.1%
Total	**134**	**100%**	**142**	**100%**

Note:
* Results include only those households responding to the census survey and the query about the amount of subsistence harvested by the household.
Source:
Fuller and George, 1997.

Table C-5.
Point Hope Money Spent on Subsistence Activities, 2003.

Amount	Number	Percent
$0 to $100	27	22.5%
$200 to 400	9	7.5%
$500 to 700	10	8.3%
$800 to1,200	11	9.2%
$1,200 to $3,000	22	18.3%
$3,100 to $9,500	22	18.3%
$9,600 to $20,000	18	15.1%
$21,000	1	0.8%
Total	**120**	**100%**

Note:
Results include only those households responding to the census and the questions about money spent on subsistence.
Source:
Fuller and George, 1997.

Table C-6
Annual Bowhead Whale Subsistence Harvest for Beaufort and Chukchi Sea Villages, 1982-2005

Year	Kaktovik	Nuiqsut	Barrow	Wainwright	Point Hope	Kivalina
1982	1	1	0	2	1	0
1983	1	0	2	2	1	0
1984	1	0	4	2	2	1
1985	0	0	5	2	1	0
1986	3	1	8	3	2	0
1987	0	1	7	4	5	1
1988	1	0	11	4	5	0
1989	3	2	10	2	0	0
1990	2	0	11	5	3	0
1991	2	1	12	4	6	1
1992	3	2	22	0	2	1
1993	3	3	23	5	2	0
1994	3	0	16	4	5	2
1995	4	4	19	5	1	1
1996	1	2	24	3	3	0
1997	4	3	30	3	4	0
1998	3	4	25	3	3	0
1999	3	3	24	5	2	0
2000	3	4	18	5	3	0
2001	4	3	27	6	4	0
2002	3	4	22	1	0	0
2003	3	4	16	5	4	0
2004	3	3	21	4	3	0
2005	3	1	29	3	7	0

Sources:
S.R. Braund and Assocs., 1984; Stoker and Krupnik, 1993; AEWC, 1993, 1994, 1995; Philo et al., 1994; Suydam et al., 1995; Stephen R. Braund & Associates 2002; S.R. Braund and Assocs. and North Slope Borough, Dept. of Wildlife Management, 2006.

Table C-7.
Annual Beluga Whale Harvest for Barrow, Wainwright, Point Lay, Point Hope, and Kivalina, 1980-2005

Year	Number of Whales				
	Barrow	Wainwright	Point Lay	Point Hope	Kivalina
1980	0	0	15-18	23-35	3-5
1981	5	0	29-38	4-7	10-15
1982	3-5	0	28-33	17	4-5
1983	3	0	18	20-31	24
1984	0	0	0	30	27
1985	0	0	18	30	120-200
1986	0	5	33	30	7
1987	0	47	22-35	40	4
1988	0	3	40	59	6
1989	1	0	16	17	0
1990	0	0	62	16	1
1991	1	5	35	39	1
1992	0	20	24	15	10
1993	2	0	77	79	3
1994	5	0	56	53	3
1995	0	0	31	40	3
1996	2	0	41	15	7
1997	8	4	3	32	1
1998	1	38	48	52	0
1999	1	3	47	33	1
2000	1	0	0	16	44
2001	1	23	34	24	0
2002	1	37	47	23	3
2003	2	38	36	34	0
2004	1	0	53	29	1
2005	7	1	41	?	2

Sources:
Alaska Beluga Whale Committee, 2002, 2006, Fuller and George, 1997; Lowry et al., 1989; Burns and Frost, 1989; Impact Assessment, 1989; Burns and Seaman, 1986; Braund and Burnham, 1984.

Table C.8.
Annual Walrus Harvest for Barrow, Wainwright, Point Lay, Point Hope, and Kivalina, 1985-2005.

Harvest Season	Number of Walrus				
	Barrow	Wainwright	Point Lay	Point Hope	Kivalina
1985	--	--	--	--	--
1986	--	--	--	--	--
1987	54	--	6	--	--
1988	1-62	0-59	0	--	--
1989	14	43	0	2	46
1990	7	0	0	5	0
1991	23	32	0	0	0
1992	26	48	0	5	1
1993	27	44	1	5	12
1994	16	68	1	6	16
1995	12	83	4	0	38
1996	13	24	4	0	13
1997	48	50	0	3	2
1998	24	69	7	5	0
1999	17	48	8	5	0
2000	19	36	6	6	0
2001	37	94	3	2	0
2002	39	119	11	16	0
2003	51	29	9	12	0
2004	52	47	5	20	0
2005	5	21	5	0	4

Source:
USDOI, FWS, 1997, 2002; USDOI, FWS, MTRP Tagging Database, 1989-2005; Braund, 1993; Braund and Burnham, 1984; CPDB, 1996; Fuller and George, 1997.

Table C-9.
Annual Polar Bear Harvest for Barrow, Nuiqsut, Wainwright, Point Lay, Point Hope, and Kivalina, 1983-2005.

Harvest Season*	Number of Bears					
	Barrow	Nuiqsut	Wainwright	Point Lay	Point Hope	Kivalina
1983/84	27	0	34	8	30	3
1984/85	33	1	18	0	18	3
1985/86	14	4	8	6	17	2
1986/87	18	2	13	4	13	1
1987/88	15	4	9	2	9	5
1988/89	29	4	14	2	9	1
1989/90	14	0	9	1	23	5
1990/91	14	0	6	3	18	3
1991/92	22	2	3	0	9	2
1992/93	26	0	8	3	17	1
1993/94	30	4	10	1	8	1
1994/95	11	1	7	1	20	2
1995/96	18	1	14	1	7	0
1996/97	40	0	9	6	14	0
1997/98	18	2	6	3	12	0
1998/99	16	3	2	0	18	3
1999/00	17	7	5	4	10	0
2000/01	28	5	10	1	15	1
2001/02	25	3	2	1	9	0
2002/03	20	3	5	1	12	1
2003/04	10	2	13	3	10	0
2004/05	2	2	5	4	9	2
2005/06***	?	?	?	?	?	?

Source:
Schliebe, Amstrup, and Garner, 1995; Schliebe, 2006.
Notes:
* Harvest runs from 1 July to 30 June.
** Atqasuk harvested 2 bears during the 1988/89 season.
*** Harvest season incomplete.