

REPORTING TEMPLATE

> **Discipline/Subject Area:** Subsistence Use

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> **What do we need to know and why regarding subjects?**

Subsistence Legal Mandates and International Agreements

- ANILCA Section 303(2)(B) sets forth the enabling purposes for Arctic National Wildlife Refuge, one of which is to: "(iii)...provide the opportunity for continued subsistence uses by local residents".
- Section 810(a) of ANILCA further states: "In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands...the head of the Federal agency...over such lands...shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands that would significantly restrict subsistence uses shall be affected until the head of such Federal agency..."
- The International Agreement for Conservation of the Porcupine Caribou Herd obligates the U.S. and Canadian governments to: "conserve the Porcupine Caribou Herd and its habitat through international co-operation and coordination so that the risk of irreversible damage or long-term adverse effects as a result of use of caribou or their habitat is minimized"; and "ensure opportunities for customary and traditional uses of the Porcupine Caribou Herd" by rural Alaska residents and members of Canadian First Nations.

Iñupiat subsistence users – Kaktovik Demographics

- Kaktovik located on Barter Island, is the only village within Arctic Refuge's the coastal plain and nearest to the 1002 area. It would be the community most significantly affected by oil and gas development. Kaktovik is an Iñupiat coastal community with a high dependence upon marine and inland resources for subsistence harvests. In order to consider effects, we need to know the nature, extent and locations of subsistence resources and the cultural and subsistence practices of local residents and evaluate these along with specific oil and gas exploration and operations proposals.
- In 2010, Kaktovik's population was 239 persons with early 90 % of the population being of Native Iñupiat decent (Alaska Census Data, 2010). Participation in subsistence activities by Kaktovik households is high with 95.7 % of households using subsistence resources (ADF&G 2010). The subsistence way of life encompasses much more than just a way of obtaining food or natural materials. It involves traditions, which are important mechanisms for maintaining cultural values, family traditions, kinships, and passing on those values to younger generations. It

involves the sharing of resources with others in need, showing respect for elders, maintaining a respectful relationship to the land, and conserving resources by harvesting only what is needed. Subsistence is regarded as a way of life, a way of being, rather than just an activity (Alaska Federation of Natives 2005).

Kaktovik's Resource Seasonality and Access

- The community's harvest of subsistence resources can fluctuate widely from year to year because of variable seasonal migration patterns of marine and land based mammals, fish and waterfowl. Subsistence harvesting techniques are extremely dependent on changing weather and surface conditions at sea and on land dramatically affecting ability to access resources. Determining when and where a subsistence resource will be harvested is a complex activity due to variations in seasonal distribution of animals, migration patterns, surface access conditions, severe weather events and often complex and changing hunting regulations. Human factors such as timing constraints (due to employment or other responsibilities), equipment (or lack thereof) to participate, and hunter preference (for one resource over another or for one sort of activity over another) are important components in determining the overall community pattern of subsistence resource harvest.

Kaktovik's Mixed Subsistence and Market Economies

- Modern mixed subsistence-market economies require cash income sufficient to allow for the purchase of this mechanical equipment (boats and motors and snow machines) as well as the operational supplies such as fuel, oil, maintenance parts and equipment, firearms, ammunition, nets and traps, etc. Subsistence is focused toward meeting the self-sustaining needs of families and small communities (ADF&G 2000). Participants in this mixed economy supplement their subsistence harvests by cash employment from construction jobs, oil and gas industry jobs, commercial fishing, Alaska Permanent Fund or Native Corporation dividends and/or wages from the public or government services sectors. In Kaktovik, major employers are the North Slope Borough, City of Kaktovik and the Kaktovik Iñupiat Corporation. There are also a few private sector jobs and business such as grocery stores, motels, air carrier services and recreational wildlife viewing and boat transportation providers. The combination of subsistence and commercial-wage activities provides the economic basis for the way of life so highly valued in rural communities (Wolfe and Walker 1987).

Kaktovik's Subsistence Uses and Conflicts with other Non-local Users

- Various members of the Kaktovik community and the Native Village of Kaktovik Tribal Council (NVK) have raised the issue of low flying planes and helicopters disturbing caribou on the coastal plain and disrupting local subsistence caribou and waterfowl hunters for many years. NVK states that low flying aircraft is causing the caribou to be displaced away from the coastal areas which they access to hunt in the summer and fall seasons. They attribute much of the low flying aircraft use to non-local caribou hunters and recreational scenic and wildlife viewing visitors. They have requested Arctic Refuge for a greater law enforcement presence to prevent this type of activity from harassing wildlife and causing the displacement of local subsistence resources away from the coastal plain areas they depend upon (Native Village of Kaktovik Tribal Council Meetings).

Kaktovik's Subsistence Uses and Oil and Gas Development Conflicts

- During the January 12, 2010, Public Scoping meeting in Kaktovik for the Point Thomson Project EIS, subsistence users of the community expressed significant concerns regarding impacts from development of facilities, pipelines, roads, aircraft and operations, which could displace caribou

and other important species away from coastal areas where subsistence harvesters could access them. In citing past history regarding the original Point Thomson drilling project they said there were many restrictions to subsistence hunting around the project area and they questioned how close subsistence hunters will be allowed to hunt near the drill pads, pipeline, and other facilities, and what new restrictions will be placed upon subsistence users with this new expanding Point Thomson development project (Point Thomson EIS Kaktovik Scoping Meeting, 2010).

- Barging and fuel spills in marine waters continue to be a major concern as well as the proposed grounding of barges extending a significant distance from shore for lengthy periods of time. This they believe will affect movement of seals and various species of fish which migrate through the area. There are further concerns about the exploration, production and scale of development, and the cumulative impacts of future development over time from other off-shore and inland fields, resulting in an even larger scale of impacts upon their subsistence resources and subsistence use opportunities (Point Thomson EIS Kaktovik Scoping Meeting, 2010).
- Subsistence users stated there needs for base line studies to determine what fish, waterfowl and marine mammals are in the area, their critical habitat and population levels. This is necessary in case of a major spill or disruptions of migration patterns and timing. They say baseline information is needed in case of a major oil spill and subsequent law suits, citing the case example of the Exxon Valdez oil spill (Point Thomson EIS Kaktovik Scoping Meeting, 2010).
- The issue of noise impacts to subsistence users was raised since Kaktovik people travel, camp and harvest in the 1002 area. Commenters stated that helicopter and aircraft traffic and roads and facilities on the ground would result in combined impacts likely to drive caribou and other wildlife further away from the coastal plain areas they hunt. Questions were raised on how much aircraft traffic and vehicle traffic on winter ice and gravel roads will occur and what times of the year (Point Thomson EIS Kaktovik Scoping Meeting, 2010).
- Concerns were raised about air quality and environmental pollution caused by the burning (pilot purging and flaring) from oil and gas wells. Examples were given citing the black clouds and air pollution seen around the Prudhoe Bay oil fields. They say development of the Point Thomson oil and gas field will bring air pollution that much closure to the community of Kaktovik (Point Thomson EIS Kaktovik Scoping Meeting, 2010).
- Concerns were expressed that the Point Thomson EIS project is looking only on the small scale, not the long term impacts of future field development and expansion. The project's cumulative impacts do not take into account future development of this field over time, or that of other off-shore and inland fields. The resulting larger scale impacts to resources and our subsistence opportunities are not being fully considered. For example they cite, Prudhoe Bay and all the other surrounding oil and gas field developments and their combined cumulative impacts upon subsistence opportunities (Point Thomson EIS Kaktovik Scoping Meeting, 2010).

Kaktovik's Subsistence Species Harvest Patterns

- Marine Mammals - In years when Kaktovik residents harvest and land a whale, marine resources have composed 59 to 68 % of their total subsistence harvest. Bowhead whaling occurs between late August and early October, with the exact timing depending on ice and weather conditions (Minerals Management Service 2003). There are at least 10 whaling crews in Kaktovik, and the community has a quota of three strikes (whether the animals are landed or not). Kaktovik has what is essentially an intercommunity agreement with Anaktuvuk Pass under which muktuk, whale meat and other marine mammal products (especially seal oil) are sent to Anaktuvuk Pass and Anaktuvuk Pass sends caribou and other land mammal products to Kaktovik (Bacon et al. 2009). Other marine mammal hunting (mainly seals) can take place year-round. Kaktovik

residents also harvest a significant number of bearded and smaller seals, and the occasional beluga whale or polar bear.

- Terrestrial Mammals - Land mammals are the next largest category of harvest, ranging from 17–30 percent in those same years. The primary land mammal resource is caribou, but Kaktovik residents also harvest a significant number of Dall's sheep. Of lesser abundance and availability are muskox, moose and grizzly bears. While Kaktovik hunters have taken moose and muskox, harvest opportunities are significantly restricted due to their low population numbers. Kaktovik's annual caribou harvest fluctuates widely because of the unpredictable movements of the herds, weather-dependent hunting technology, and ice conditions. Caribou hunting occurs throughout most of the year, with a peak in the summer when open water allows hunters to use boats to access coastal and lower coastal plain areas for caribou. In the winter with snow cover snowmachines are used to hunt inland coastal plain, foothills and the north slope drainages of the Brooks Range. Both the Porcupine and Central Arctic caribou herds are hunted when seasonally available. Dahl Sheep are hunted in winter when access by snowmachine is available.
- Fishery Resources - Fish comprise 8–13 % of the total subsistence harvests. Fish may be somewhat less subject to variable surface access conditions but still exhibit large year-to-year variations. In some winter months, fish may provide the only source of fresh subsistence foods. Kaktovik's harvest effort seems to be split between Dolly Varden and Arctic Cisco, with the summer fishery at sites near Kaktovik being more productive than winter fishing on the mid and lower reaches of the Hulahula River.
- Bird Resources - Birds and eggs harvest makes up 2–3 % of the total harvest. Since the mid-1960s, subsistence use of waterfowl and coastal birds has been growing at least in seasonal importance. Most birds are taken during the spring and fall migrations. Important subsistence species are black brant, long-tailed duck, eider, snow goose, Canada goose, and pintail duck. Waterfowl hunting occurs mostly in the spring from May to early July (Minerals Management Service 2003). Ptarmigan are also a seasonally important bird.
- Furbearer Resources - Trapping of furbearers in the Kaktovik area has decreased with time. Furbearers are taken in the winter when surface travel by snowmachine is possible. Hunters pursue wolf and wolverine by searching and harvesting them with rifles primarily between March and April or in conjunction with winter sheep hunting. Some hunters may go out in the fall or early winter, but usually weather and snow conditions are poor at that time and people are more concerned with meat than with fur.

Kaktovik's Subsistence Harvests Data

- Community subsistence harvest data for Kaktovik is dated in terms of the in-depth subsistence community use surveys, which were conducted in 1985, 1986, 1992 (ADF&G). In 1995, the North Slope Borough (NSB) began to systematically collect subsistence harvest data for the eight villages in the Borough. However, the NSB was only able to collect subsistence harvest data for the village of Kaktovik in 1994-1995 and in 2002-2003.
- Subsistence harvest studies for Kaktovik in 1995 indicated that 61% of the subsistence harvest (in edible pounds of food) were from marine mammals, consisting of bowhead whales, bearded seals, ringed seals, spotted seals, polar bears, and beluga whales. Terrestrial mammals comprised another 26% of the estimated edible pounds harvested, consisting of caribou, Dall's sheep, muskox, moose, and brown bear. Fishery resources accounted for 11% of the estimated total edible pounds of harvest. Seven species of fish accounted for the 4426 fish harvested of which Arctic Cisco and Dolly Varden represented 4233 of the fish caught. The harvest of birds

accounted for the remaining 2% of edible pounds of subsistence harvest with 530 birds reported harvested (Brower et al 2000).

- In addition to the Beaufort Sea, Kaktovik residents have access to a number of rivers and lakes, which support significant subsistence fish resources. Pedersen and Linn (2005) conducted surveys of the Kaktovik subsistence fishery in 2000-2001 and 2001-2002, with estimated community harvests of fish at 5,970 pounds and 9,748 pounds, respectively. Dolly Varden, lake trout, and Arctic Cisco were the only fishery resources reported 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 and Linn, 2005).

Gwich'in Subsistence Users of interior Alaska and Canada

- Gwich'in people of northeastern Alaska and northwestern Canada have opposed drilling and development on the Refuge's coastal plain (1002 area) because its importance as a primary calving and post-calving habitat for the Porcupine Caribou Herd. These communities are heavily dependent upon subsistence uses of caribou from this herd even though they live a considerable distance from the Alaska's coast plain. Oil and gas development is seen as a threat to the safety or success of calving season and therefore, a potential impact to the health and population of the Porcupine Caribou herd to which they are dependent upon.
- Porcupine caribou are the primary subsistence resource of the Gwich'in people. In Alaska, Arctic Village and Venetie are located strategically along the herd's migration paths and they depend on the herd for their physical, cultural, social, economic and spiritual needs. In Arctic Village, caribou and moose constitute more than 90% of their subsistence harvest in weight in most years. And in Venetie, caribou constitute up to 71% of their subsistence harvest in some years (ADF&G Community Subsistence Information System).
- To the Gwich'in people the Refuge's coastal plain including the 1002 area where the Porcupine herd calves is considered a "sacred place where all life begins". Opening the 1002 area to oil and gas exploration and development threatens both the porcupine caribou and the Gwich'in way of life (Gwich'in Steering Committee, 2012).
- Any significant reduction or loss of the Porcupine Caribou Herd would have a substantial impact upon the Gwich'in communities. There is a need for an analysis of the economic value of caribou to subsistence users, and the potential economic impacts that might result if the herd is negatively affected by oil and gas exploration and development on the 1002 area.

> **What information is currently available to address the information needs for subjects?**

- Kaktovik's subsistence Use: The most recent and thorough publication regarding Kaktovik's subsistence and traditional land/marine water use patterns were prepared for the US Army Corps of Engineers Point Thomson Project EIS and published in July 2012. Appendix Q of the final EIS and Environmental Impact Statement contains the information on the "Subsistence and Traditional Land Use Patterns for Kaktovik and Nuiqsut" which was prepared by Stephen Braund and Associates at the request of HDR Alaska for the US Army Engineer District Alaska Regulatory Division.
- The Point Thomson Project is located adjacent to Arctic National Wildlife Refuge on coastal plain approximately 60 miles west of Kaktovik. In describing the affected environment for subsistence, the study team reviewed the Point Thomson Environmental Report (ER) (ExxonMobil 2009), as well as other sources of subsistence data including harvest amount data obtained from the

Alaska Department of Fish and Game (ADF&G) Division of Subsistence and North Slope Borough (NSB) Department of Wildlife Management subsistence publications. The ER included harvest data for the majority of available study years. Appendix Q includes additional harvest amount and harvest location data, including unpublished subsistence harvest data from the ADF&G Division of Subsistence and the NSB Department of Wildlife Management acquired in 2002 and unpublished subsistence harvest data acquired from the NSB in 2010. It incorporates additional data from previous Environmental Impact Statement (EIS) efforts, including issues raised during a Point Thomson EIS meeting on caribou in 2002 and subsistence use area data collected in Kaktovik in 2003. Finally, this affected environment incorporates 1995-2006 subsistence use areas collected during a Minerals Management Service (MMS) funded subsistence mapping project in Kaktovik and Nuiqsut (SRB&A 2010a).

- There is a significant lack of current and contemporary subsistence and harvest information for the villages of Arctic Village and Venetie. Ethnographic and socio-economic information is not available to assess subsistence uses and impacts to these communities if substantial declines to the Porcupine Caribou Herd occur as a result of oil and gas development and production.

Literature Review and Citations for the FWS Resource Assessment

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> **What are key information gaps?**

- Currently there is no complete synthesis of cultural work (subsistence, historical, and archaeological) that has been conducted in the Arctic Refuge as a whole or in particular for the northern half of the Refuge. A limited number of archeological and historical resource surveys have taken place on the Refuge due to funding, logistical difficulties of working in remote locations and lack of infrastructure to support investigations in the Refuge. A more thorough and complete synthesis of what work has been completed and in what areas would help identify informational gaps and help set priorities for future work.
- Community subsistence harvest data for Kaktovik is dated in terms of the in-depth subsistence community use surveys, which were conducted in 1985, 1986, 1992 (ADF&G). In 1995, the North Slope Borough (NSB) began to systematically collect subsistence harvest data for the eight villages in the Borough. However, the NSB was only able to collect subsistence harvest data for the village of Kaktovik in 1994-1995 and in 2002-2003. There needs to be a more thorough and consistent collection of community subsistence harvest information.
- In 2010, Morgan Grover of the US Army Corps of Engineers conducted a survey of 70 known cultural sites along the coastal areas from Flaxman Island to the Canadian border (including the 1002 area) to examine the effects of environmental changes and erosion has had on these sites over the past 30 years. The study concluded that of the 69 previously reported cultural sites, 21 were found to be impacted to some extent by erosion or thermokarsting, and 20 had been completely eroded away. She concludes that many of the remaining cultural sites are in imminent threat of eroding in the next decade. Follow-up studies and research is needed to recover cultural information before it is lost to erosion. The report strongly recommended that selected threatened sites be documented and potentially excavated after consultation and agreement with Tribal leaders.
- In 1982, Ed Hall conducted an inventory and survey of archaeological and historical resources in the 1002 area examining areas of high archaeological and historical potential. The areas surveyed were focused on areas proposed for exploratory drilling for oil and gas and areas more likely to have cultural sites such as coastal areas and barrier islands, and along rivers and streams that crossed the 1002 area, and high points of land that have overlooks above the surrounding tundra. There is a need to reassess these areas since visitors and users have reported several graves, human remains and artifacts in these areas that have not been documented and record by professional cultural resource staff.
- The Porcupine Caribou Herd is of great importance as a major subsistence resource for both the Iñupiat and Gwich'in users in Alaska. Impacts to this herd could have significant ramifications on their traditional way of life and economics. There is a need for an analysis of the economic value of caribou to subsistence users, and the potential economic impacts that might result if the herd is negatively affected by oil and gas exploration and development on the 1002 area.

> **What studies/surveys need to be conducted to fill those information gaps?**

- Hire one Archeologist/Anthropologist GS-11/12: USFWS should hire an archeologist or anthropologist to oversee the agency's cultural resource management/compliance programs during the seismic, exploration and production phases of the oil and gas development associated with the 1002 area of the coastal plain.
- Manage Subsistence Use Data: Compile a complete synthesis of archaeological, ethnographic and subsistence work that has been completed for Arctic Refuge's north slope and 1002 areas and create a functional repository of existing contemporary and historical data. Multiple sources of published and unpublished subsistence use and harvest data reside with various agencies, organizations, tribal governments, and universities.
- Identify gaps in data: A comprehensive review of existing information is needed to identify gaps in the data and to identify priorities for future subsistence research and monitoring. This information is needed to ensure traditional subsistence use and knowledge is thoroughly and accurately considered in Federal and State proposals for subsistence regulations, as well as Refuge management actions including oil and gas development in the 1002 area.
- Establish a Subsistence Harvest Monitoring Program: A NSB/Kaktovik community supported harvest monitoring program with implementation protocols based on timely and accurate harvest information is needed to ensure long-term conservation of subsistence species of fish and wildlife and subsistence uses for qualified subsistence users. The majority of the ethnographic and subsistence data for Kaktovik and the 1002 area was collected in the 1980s and may not accurately portray current patterns in subsistence use, demographics, harvest amounts, hunting seasons, locations, or community needs.
- Conduct Oral Histories and Traditional Knowledge Study: Much valuable cultural, historic, and traditional ecological knowledge about the Refuge and the coastal plain (1002 area) is possessed by local elders. Oral histories and place names contain an enormous amount of information on traditional uses, culturally important places, historic camps and settlements, and other natural and cultural information. This information is an untapped archive that could potentially benefit historical site protection and guide management decisions setting priorities for surveys and research in the 1002 area.
- Need for an analysis of the economic value of caribou to subsistence users, and the potential economic impacts that might result if the herd is negatively affected by oil and gas exploration and development on the 1002 area.