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# Kotzebue to Cape Blossom Road Environmental Assessment

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*Project No. 76884/NCPD-0002(204)*

## *Subsistence Report*

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## Acronyms and Abbreviations

ADF&G	Alaska Department of Fish and Game
NWAB	Northwest Artic Borough

# 1 Introduction

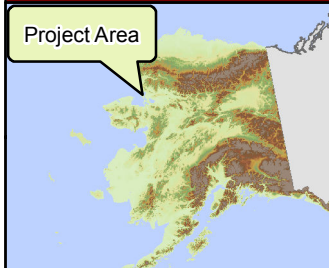
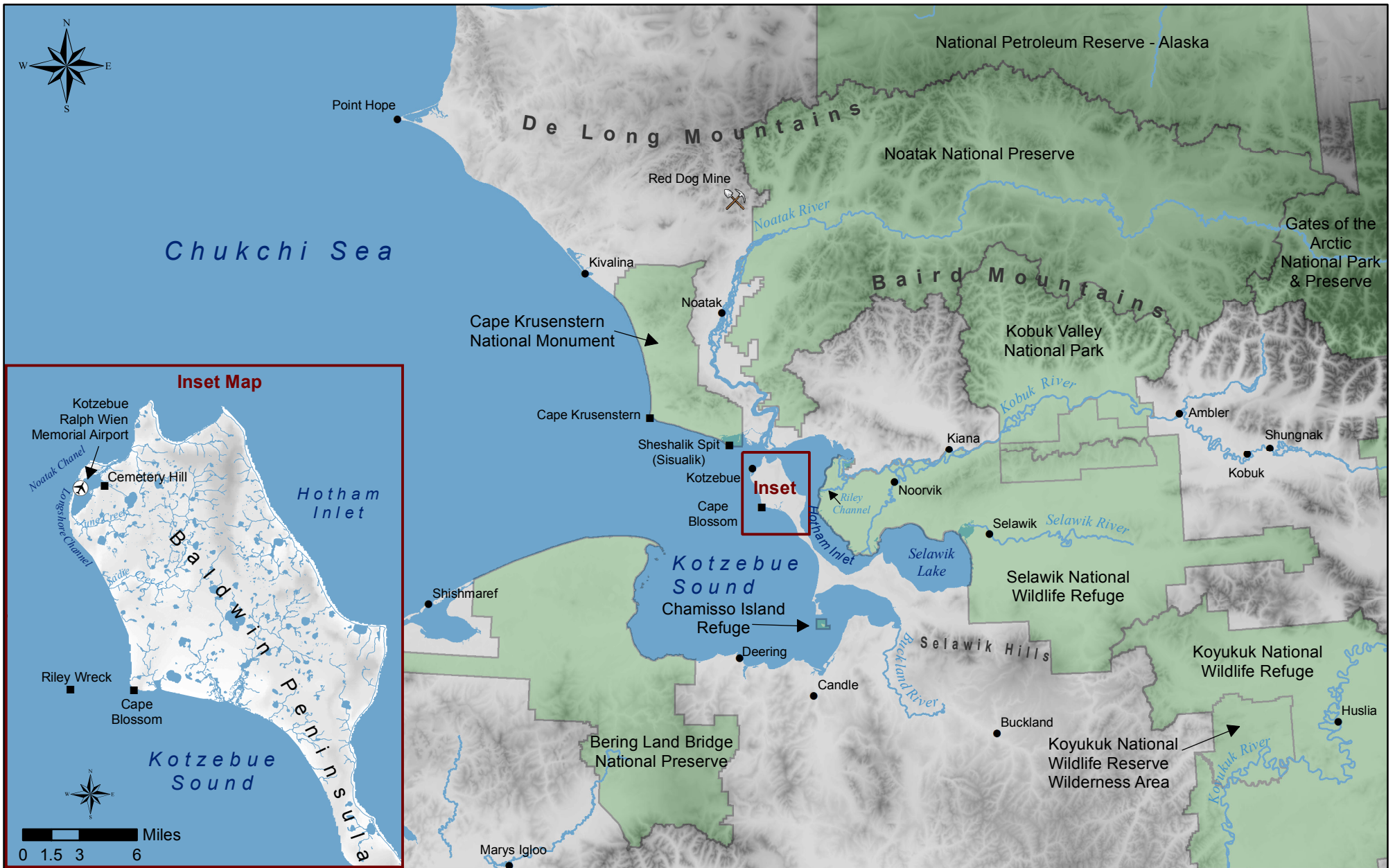
The State of Alaska Department of Transportation and Public Facilities Northern Region is preparing an Environmental Assessment evaluating the proposed development of an approximately 11 mile long, all-season road across the Baldwin Peninsula from Kotzebue to Cape Blossom. Subsistence hunting and gathering takes place in the project area and is important to the residents of Kotzebue and the Northwest Arctic Borough (NWAB) who actively practice a subsistence-based lifestyle (Chapman 2012). The majority of households in Kotzebue and in the borough rely on subsistence gathering, fishing, hunting, and trapping. Subsistence is an important avenue for passing on cultural knowledge, sustaining economic livelihood, and contributing to the diet of the local population. The undeveloped project area is within the NWAB Subsistence Conservation Zoning District and was determined to be of high importance to borough residents for subsistence resource activities (NWAB 2009). This report provides a description of subsistence resources and uses on the Baldwin Peninsula and in the NWAB region.

Subsistence is of great value to the economy, not in dollars, but in food harvests and in the byproducts of the harvest, which supply materials for clothing, arts and crafts. Byproducts such as antlers, tusks, bones, and skins are used for jewelry, clothing, carvings, toys, and artwork. These items can be sold for cash, but the greatest benefit of the subsistence economy is in the nutritional value the food provides for the community (Simpson 1999).

Subsistence harvesting is a year-round occupation, and a way of life embedded in the seasons and occurs throughout the Baldwin Peninsula. Residents of Kotzebue, Kivalina, Noatak, and Noorvik frequent the peninsula for subsistence hunting. Other NWAB villagers take advantage of Kotzebue Sound, Noatak and Kobuk Rivers, and other waters bordering the peninsula for subsistence purposes (Schroeder et al. 1987). A general overview map of subsistence areas is shown in Figure 1.

Kotzebue residents rely on a combination of subsistence resources including birds and eggs, terrestrial mammals, plants and berries, fish, and marine mammals. The introduction of snow machines in the 1960s and 1970s brought sweeping changes to the subsistence way of life. The use of snow machines and other mechanized equipment increased subsistence harvest in shortened time periods (Chapman 2012). Snow machines, boats, all-terrain vehicles, and dog sled teams are mainly used as transportation to subsistence harvest areas. Fish nets, firearms, sleds, drying racks, and freezers are also essential tools needed for resource harvesting.

Subsistence harvests provide materials for family use and sharing to maintain important traditional Inupiat family organizations. Meat and fish from subsistence harvests are used for dog food (Georgette and Loon 1993). In 1986, an estimated 78 percent of Kotzebue households participated in subsistence harvests and 100 percent used the harvest food (Georgette and Loon 1993). From 1986 through 1991, community based harvest surveys showed caribou, salmon, sheefish and bearded seals accounted for 72 to 75 percent of the communities' subsistence harvest by weight (ADF&G 2009).



**Kotzebue to Cape Blossom Road Subsistence Overview**

0 20 40 80 Miles

The Baldwin Peninsula is designated by the Northwest Arctic Borough as a Subsistence Conservation Zoning District.

Date:	Revision:	Figure:
1/22/2013	1	1

**Legend**

- Town
- ⚒ Mine
- Point of Interest
- Major River
- Parks, Preserves, and Refuges



**Sources:**

ADNR. 2008. Large Administrative Parcels.  
 ADOT&PF. 2012. Public Airports.  
 ADOT&PF. 2012. Channels.  
 Baker. 2013. Points of Interest.  
 ESRI. 2008. Ocean Mask.  
 USGS. 2011. National Hydrography Dataset.  
 USGS. 2007. National Elevation Dataset.  
 USGS. 2009. Alaska Place Names.

## 2 Harvest Areas and Species

### 2.1 Wetlands and Terrestrial Area Species

Wetland areas are abundant on the Baldwin Peninsula. They provide feeding, nesting, and staging habitats for migratory birds and large mammals and are popular traditional hunting areas.

Waterfowl and other migratory birds inhabit the Baldwin Peninsula. Ptarmigan is a species commonly found near willow thickets on the peninsula (Georgette and Loon 1993). Sadie Creek is a common site used for bird hunting (oral comment from public meeting in Buckland 5/11/12). Locals hunt the waterfowl from the blinds near Sadie Creek (Barr 2012). The most extensive bird hunting takes place from Sheshalik Spit (Sisualik), located to the north of the project area across Kotzebue Sound. Numerous cabins and camps exist there. Hunting for birds also occurs from blinds on the lagoons surrounding Kotzebue (Eldridge 1982).

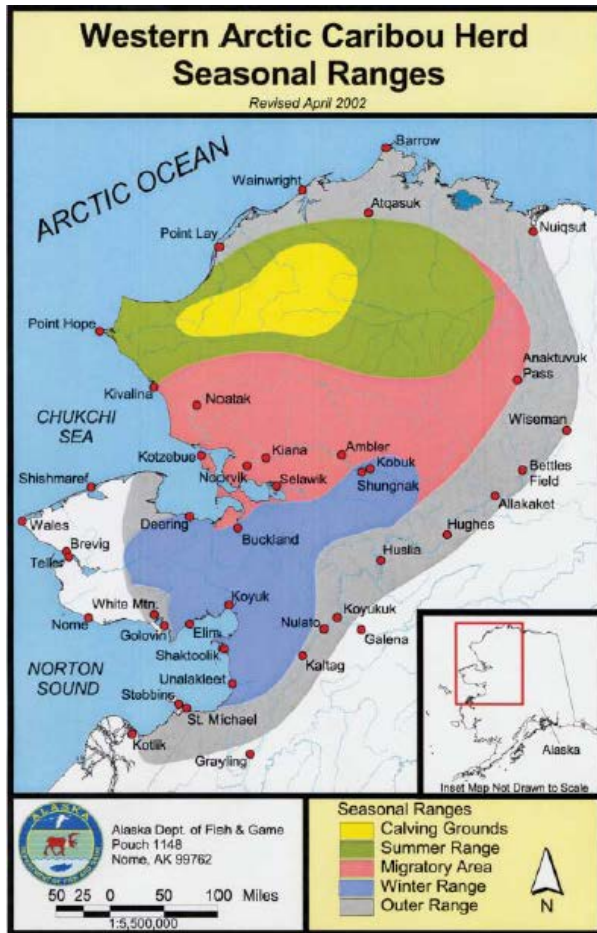
Terrestrial mammals inhabiting the Kotzebue Sound region include caribou, moose, Dall sheep, brown bear, musk oxen, beaver, muskrat, marmot, porcupine, wolf, red and arctic fox, lynx, marten, mink, land otter, and wolverine. Hare, squirrel, weasel, shrews, and voles also occur on the peninsula. Sadie Creek is a common site used for caribou hunting (oral comment from public meeting in Buckland 5/11/12). Most of the caribou hunted in the region are harvested along the Noatak, Kobuk, and Selawik Rivers outside of the project area. In an Alaska Department of Fish and Game (ADF&G) household survey for Kotzebue, residents responded that 1,917 caribou were harvested in 1986, and 3,782 caribou were harvested in 1991 (ADF&G 2009).

Information from the Western Arctic Caribou Herd radio collar satellite research program studies (1988 through 2008) show caribou are locally available on the Baldwin Peninsula. The herd passes through the Kotzebue area twice annually on its northward and southward migrations (USFWS 2011). The study tracked only one collared caribou on the peninsula (ADF&G 2003). Figures 2 and 3 show the seasonal ranges and migration patterns in the region.

Moose are found on the peninsula, but like caribou, are usually hunted in the Noatak, Kobuk and Selawik river area. Moose are taken year round when needed, but some residents choose to hunt in the fall when moose are found closer to Kotzebue (Georgette and Loon 1993). Some local residents hunt moose around Sadie Creek (Barr 2012). In 1986, an estimated 65 moose were harvested; and in 1991, 235 animals were taken (ADF&G 2009).

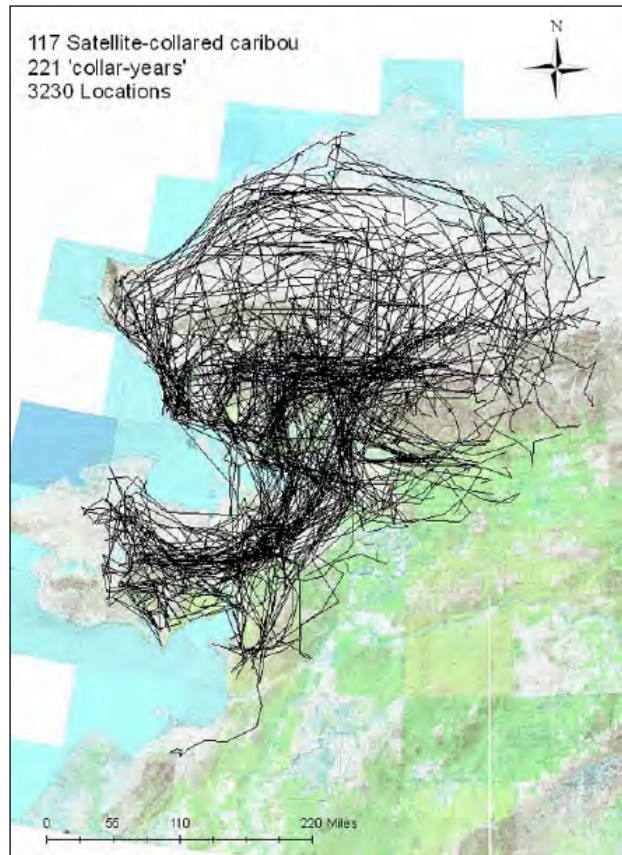
Plants and berries make up a smaller portion of the subsistence diet and are gathered throughout the Baldwin Peninsula (USDOT 2012). Greens, roots, and berries are found on the Baldwin Peninsula. Subsistence users gather willow, fireweed, wild celery, sourdock, Labrador tea, Eskimo potato, salmonberries, blueberries, cranberries, and crowberries. Common gathering areas are between Cemetery Hill and Sadie Creek and along the beach road (Georgette and Loon 1993).





**Figure 2 Western Arctic Caribou Herd Seasonal Ranges**

*Source: ADF&G 2003*



**Figure 3 Caribou Migration Pattern**

*Source: ADF&G 2003*

## 2.2 Coastal and Marine Area Species

The coastal waters near Kotzebue are a mix of fresh and salt water because of the influence of the Kobuk, Selawik and Noatak Rivers.

Subsistence hunters harvest fish in Sadie Creek, and in the marine waters surrounding the Baldwin Peninsula and Riley Wreck (oral comment from public meeting in Buckland 5/11/12).

Fish are the largest subsistence resource harvested (Georgette and Shiedt 2005). A variety of fish inhabit Kotzebue Sound including chum, chinook, sockeye, coho, and pink salmon. Sheefish, whitefish, herring, smelt, arctic and saffron cod, sucker, sculpin, and flounder are also found in marine waters off the Baldwin Peninsula.

From 2002 to 2004, fish and marine mammals from Kotzebue Sound made up approximately 70 percent of the total wild food harvest (Whiting et al. 2011). During the spring and summer, residents use small boats to traverse the shallow longshore channel west of Kotzebue, and to travel between town, camps, and fishing grounds south of the airport (USDOT 2012).

Clams, crabs, and mussels are also found in the marine waters surrounding Kotzebue and the Baldwin Peninsula. One Kotzebue resident said a neighbor harvested clams washed up on the beach by Sadie Creek after a big storm with winds from the west (Whiting et al. 2011).

Marine mammals inhabiting the region include bearded, spotted, ringed, and occasionally ribbon seals (Georgette and Loon 1993). Bearded and ringed seals are harvested for subsistence throughout northern and western Alaska. The annual harvest is estimated to be about 7,000 bearded seals and 10,000 ringed seals. The bearded seal is the most important marine mammal subsistence species for hunters in Kotzebue Sound, and they are hunted extensively in spring and in the fall (Kotzebue IRA 2013). An estimated 443 bearded seal were harvested near Kotzebue in 1986, and 963 seals in 1991 (ADF&G 2009). Orca, Minke, gray, and bowhead whales, Pacific walrus, and harbor porpoise migrate through the area (Georgette and Loon 1993).

A cooperative ringed and bearded seal tagging project between the Native Village of Kotzebue, ADF&G, National Fish and Wildlife Foundation, National Marine Fisheries Service, and the Tribal Wildlife Grants Program compared seasonal movements, foraging behavior and habitat use of bearded and ringed seals in the Chukchi and Bering Seas. Other projects are the 2009 Kotzebue Sound Adult Bearded Seal Tagging, the Ringed Seal Project, and the Young Bearded Seal Project. These satellite tagging projects provide information on seasonal movements, habitat use, and dive behavior of bearded and ringed seals. Information collected will be used as a baseline for evaluating future environmental change (Kotzebue IRA 2013).

### **2.2.1 Commercial Marine Harvests**

Residents of Kotzebue also commercially harvest fish. In 2010, 67 permit holders in Kotzebue fished 270,343 chum salmon. This was the largest chum salmon harvest since 1995 (ADF&G 2010). In 2011, the number of permit holders increased to 89, and in 2012, 83 residents held commercial harvest permits. The 2012 chum salmon harvest data showed 227,965 were caught (ADF&G 2012).

### **2.3 Freshwater Species**

Freshwater fish found in area streams and lakes include northern pike, arctic grayling, blackfish, stickleback, burbot, and Dolly Varden. The slow flowing water, low gradient and fine organic substrates found in Sadie Creek suggest salmon runs are unlikely, but occasional strays may be present (Bjornn and Reiser 1991). The majority of fishing in Sadie Creek occurs at the mouth after breakup and in early summer when the subsistence harvest for whitefish occurs (Barr 2012).

## **3 Regional Harvests**

Kotzebue's residents sometimes travel to other villages to participate in subsistence hunting activities. There are spring hunting camps near the Sheshalik Spit (Sisualik) and at Cape Krustenstern. Kiana is popular for burbot fishing, and seine netting Dolly Varden occurs on the Noatak River. Some residents travel to the surrounding villages of Kivalina and Point Hope to participate in bowhead whale hunts in April, and others participate in beluga hunting in Buckland.

Upland birds are harvested near Noatak on the northern part of the Baldwin Peninsula. Dall sheep are commonly hunted in the Baird Mountains (Georgette and Loon 1993).

Many local residents depend on the wildlife, fish and plants found on Selawik National Wildlife Refuge Lands (USFWS 2011). Wildlife includes migratory and resident mammals, waterfowl, songbirds, shorebirds, and fish. The refuge provides habitat for about 160 species of birds; 129 species have been documented to nest within the boundaries (USFWS 2011). The Western Arctic Caribou Herd migrates through the refuge between calving and wintering grounds. These caribou account for the majority of the mammals harvested on refuge lands. A statewide survey, focused on travel patterns and subsistence and recreational uses conducted from 2006 to 2007, found an estimated 1,340 people participated in a subsistence harvest at the Selawik National Wildlife Refuge during the study years. Of the people who participated, about 75 percent lived in Kotzebue (Fix 2009). Travel to and from the refuge is only possible by snow machine, dogsled, and float or ski equipped airplanes (USFWS 2011).

Local rural Alaska residents frequent Cape Krusenstern National Monument to engage in customary and traditional subsistence uses within its boundaries (NPS 2010). Subsistence hunters gain access to the area by snow machine, and occasionally by airplane, all-terrain vehicles, or dogsled. In the summer months, Kotzebue residents use small draft boats or skiffs to travel to the area to hunt, fish, trap, recreate, and harvest wood. Area residents pass through Cape Krusenstern when traveling between villages and to reach private lands (Shaver and Evison 1986).

#### **4 Transportation to Harvest Areas**

Transportation to and from subsistence use areas vary by season, species, and weather conditions. Boats are used when the waters are clear of ice. All-terrain vehicles are used during the spring, summer, and into the fall. Snow machines and dogsled teams are used during times when the land and waters are frozen. Passenger vehicles and trucks are used on the road system to access areas close to the city.

The longshore channel provides a safe, fast, and more economic route for the smaller boats than the Noatak Channel, which is deeper and further offshore. The depth of this channel can vary from year to year, and on occasion when the channel is too shallow to navigate, subsistence hunters have used the Noatak Channel to access hunting grounds. The Noatak Channel experiences strong currents and wave action, but is used to access southern areas fundamental to harvesting subsistence resources when more favorable routes are unavailable (USDOT 2012).

#### **5 Seasonal Migrations**

All major resource species are seasonal migrants and harvest windows are limited. Subsistence users work hard to take and preserve enough resources to last until the following year. Changes in seasons and weather conditions influence harvest areas, species, and modes of transportation. An occasional radical shift in abundance of resources occurs from year to year due to weather and ice conditions.

Table 1 summarizes the seasonal subsistence harvest timeframes in Kotzebue. Some subsistence species are found in the region year round and are taken as needed. The timing of subsistence hunting and gathering activities varies depending on climate, weather, and sea ice conditions. Climate change in the region has caused the ice to thin, and the thinning ice influences the migration patterns of subsistence species such as bearded seals (Chapman 2012).



**Table 1 Kotzebue Seasonal Subsistence Harvest Timeframes**

Subsistence Resource	Spring			Summer			Fall		Winter			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Beluga whale												
Bearded seal												
Berries and plants												
Brown bear												
Caribou												
Dall sheep												
Eggs												
Fish - burbot												
Fish - char or Dolly Varden												
Fish- Grayling and sheefish												
Fish - herring												
Fish - saffron cod												
Fish - smelt												
Fish -whitefish												
Furbearers (fox, lynx, hare, wolf)												
Moose												
Ptarmigan												
Ringed seal												
Salmon												
Spotted seal												
Waterfowl												

Source: Georgette and Loon 1993

### 5.1 Spring – April through June

Migrating waterfowl are hunted and eggs are gathered in spring. Ptarmigan are often taken incidentally during other subsistence hunts. Caribou cows are harvested in the spring because the bulls are lean and stringy (Georgette and Loon 1993). Bears are taken as they emerge from their dens. Muskrats are hunted on the Kobuk River delta.

Jigging for sheefish and fishing for herring and Dolly Varden also occurs in spring. Whitefish are harvested at the mouth of Sadie Creek (Barr 2012).

Bearded and ringed seals congregate and are hunted in the open waters about 10 miles south of Cape Blossom (oral comment from public meeting in Buckland 5/11/12). They are also hunted on the pack ice (Kotzebue IRA 2013). The bearded and ringed seal tagging studies support this information; the studies also substantiate the use of Kotzebue Sound (Cameron and Boveng 2011). The occasional walrus is also hunted.

## **5.2 Summer – Late June through August**

The summer season is characterized by open water when travel is unrestricted by ice. Gathering of eggs, plants, and berries occurs in summer. Many residents travel to gathering spots by boat, while others stay within the Kotzebue area. Commercial and subsistence chum salmon fishing occurs in summer, and most fish are caught in the near shore waters of Kotzebue Sound (DOT&PF 2012). Chum salmon and Dolly Varden are caught with gill nets and rods and reels off the beach in Kotzebue (Whiting et al. 2011). Broad whitefish and Bering Cisco are caught along the coast near Sadie Creek (Whiting et al. 2011).

Bearded seals are hunted throughout Kotzebue Sound, with the occasional ringed and rare ribbon seals also taken. Hunters use camps on the northern coast of the peninsula when harvesting bearded seals from boats. Spotted seals and beluga whales are abundant this time of year and often hunted off the coast in Kotzebue Sound.

## **5.3 Fall – Late August through October**

Moose and caribou are hunted along the Noatak and Kobuk river systems by boat and along the coast near Kotzebue. Bulls are preferred at this time of year (USFWS 2011). Dall sheep are hunted in the Baird and Delong Mountains. Cranberries and roots are gathered by the Noatak River. Once the rivers begin to freeze, waterfowl and brown bear are hunted. Whitefish are caught in the outlets of the lagoons near Cape Krusenstern. Once the Kotzebue Lagoon is frozen, residents jig for saffron cod (Georgette and Loon 1993). Spotted and bearded seals are abundant this time of year. Spotted seals are seen hunting and feeding off Kotzebue (Whiting et al. 2011). Bearded seals are hunted in open water and as freeze-up approaches (Kotzebue IRA 2013).

## **5.4 Winter – Late October through April**

In winter, ptarmigan, caribou, moose, and hare are hunted on the Baldwin Peninsula. Caribou cows are preferred this time of year (Georgette and Loon 1993). Trapping for wolf, wolverine, and fox occurs. Sheep are hunted in the Baird Mountains. Jigging for sheefish, burbot, and northern pike continues until the ice is no longer safe for travel (Georgette and Loon 1993). Ice fishing with hook and line for saffron cod, smelt, and sheefish occurs near Kotzebue. Nets are set under the ice to fish for sheefish. Ringed seals are hunted along open water sea ice transitions and in open water near Cape Blossom, and spotted seals are hunted in the open water of Kotzebue Sound (Whiting et al. 2011).

## **6 Summary**

Subsistence activities in the region vary from year to year depending on climate, weather changes, and availability of resources. Hunting and other subsistence activities take place when resources are available. Fish and marine mammals from Kotzebue Sound make up approximately 70 percent of the total wild food harvest and subsistence diet. Moose and caribou also contribute a large proportion to the food harvest. Hundreds of moose and thousands of caribou are taken yearly in the region. The most popular location for subsistence use in the project area occurs near Sadie Creek. Moose, caribou, and migratory birds are hunted in the area, and it is also popular for berry gathering. There is also a subsistence fishery at the mouth of Sadie Creek.

Most subsistence hunting and gathering takes place in the Kotzebue Sound area, as well as the Selawik, Kobuk, and Noatak Rivers, and the surrounding national preserves and wildlife refuges. The timing of subsistence harvesting depends on the species and when they are available. The majority of households in Kotzebue participate in subsistence harvest activities and rely on the resources for food and to pass on traditional knowledge to younger generations.

## 7 Works Cited

- ADF&G. 2003. Alaska Department of Fish and Game. Caribou Management Report of Survey Inventory Activities. December 2003.
- ADF&G. 2009. Alaska Department of Fish and Game. Community Subsistence information system. Alaska Department of Fish and Game, Division of Subsistence, Juneau, AK. Accessed December 28, 2012 at <http://www.adfg.alaska.gov/sb/CSIS>.
- ADF&G. 2010. Alaska Department of Fish and Game. Kotzebue Sound Salmon season summary. News Release December 14, 2010. Alaska Department of Fish and Game, Division of Commercial Fisheries, Nome, AK.
- ADF&G. 2012. Alaska Department of Fish and Game. Kotzebue Sound Salmon season summary. Date Issues October 15, 2012. Alaska Department of Fish and Game, Division of Commercial Fisheries, Nome, AK.
- Barr, Sam. 2012. Village of Kotzebue Corporation. Subsistence Advisor Personnel communication with Laura Gutierrez (ABR). July 27, 2012.
- Bjornn, T.C., and D.W.Reiser. 1991. Habitat requirements of salmonids in streams. Influences of forest and rangeland management on salmonid fishes and their habitats. W.R. Meehan, American Fisheries Society. Special Publication 19: 88-138.
- Cameron, M. and P. Boveng. 2011. Polar Ecosystems Program, Habitat Use and Seasonal Movements of Adult Bearded Seals in Kotzebue Sound, Alaska. Alaska Fisheries Science Center, NOAA Fisheries. <http://www.afsc.noaa.gov/Quarterly/ond2011/divrptsNMML3.htm>. Accessed on January 21, 2013.
- Chapman, Brandon M. 2012. "Perspectives of an Inupiaq Elder: Continuity and Change Above the Arctic Circle." Cultural Survival Issue 36-3, 2012.
- DOT&PF. 2012. Alaska Department of Transportation and Public Facilities, Northern Region. Kotzebue to Cape Blossom Road Project, 2012 Environmental Study. Draft Report. Prepared by ABR, Inc. November 2012.
- Eldridge, William. 1982. Waterfowl migration surveys of Kotzebue Sound and subsistence harvest observations. U.S. Fish and Wildlife Service. Anchorage (Alaska).
- Fix,P.J. 2009. Alaska Residents Statistics Program final report. School of Natural Resources and Agricultural Sciences, Department of Resources Management, University of Alaska Fairbanks, Fairbanks, AK. 276pp.
- Georgette, Susan and Hannah Loon. 1993. Subsistence Use of Fish and Wildlife in Kotzebue, A Northwest Alaska Regional Center. technical paper no. 167, Juneau: Alaska Department of Fish and Game, 1993.
- Georgette, Susan and Attamuk Shiedt. 2005. Whitefish: Traditional ecological knowledge and subsistence fishing in the Kotzebue Sound region, Alaska. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper no. 290. Kotzebue (AK).
- Kotzebue IRA. 2013. Native Village of Kotzebue, Kotzebue IRA. <http://kotzebueira.org/index.html> (accessed January 21, 2013). Arctic Web Publications 2013.

- Nordlum, Holly. 2009. Northwest Arctic Borough. 2009. [www.nwabor.org/kotzebue.html](http://www.nwabor.org/kotzebue.html) (accessed October 24, 2012).
- NPS. 2010. National Park Service, Department of the Interior. February 2010. Cape Krusenstern National Monument, Alaska. Foundation Statement.
- NWAB. 2009. Northwest Arctic Borough Zoning Map2009. [Online] Available <http://www.nwabor.org/forms/zoningmap08.pdf>, October 31, 2012.
- Schroeder, Robert, David B. Andersen, and Grant Hildreth. 1987. Subsistence use area mapping in ten Kotzebue Sound communities. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper no. 130: Kotzebue (Alaska).
- Shaver, C.M, and Q. Boyd Evison. 1986. Cape Krusenstern National Monument Alaska, General Management Plan, Land Protection Plan, Wilderness Suitability Review. 1986.
- Simpson, Larry. 1999. The Subsistence Economy. [Online] Available <http://www.nunavut.com/nunavut99/english/subsistence.html>, January 10, 2013.
- USDOT 2012. United States Department of Transportation, Federal Aviation Administration. "Final Environmental Assessment, Kotzebue Airport and Safety Area Improvements- Stage III." Anchorage, 2012.
- USFWS. 2011. United States Fish and Wildlife Service. Selawik National Wildlife Refuge, Revised Comprehensive Conservation Plan. June 2011.
- Whiting, A., D.Griffith, S. Jewett, L. Clough, W. Ambrose, and J. Johnson. 2011. Combining Inupiaq and Scientific Knowledge: Ecology in Northern Kotzebue Sound, Alaska. Alaska Sea Grant College Program, Fairbanks, Alaska.