

Relationship Between the Native Village of Tyonek, Alaska and Beluga Whales in Cook Inlet, Alaska



Submitted to:

NOAA Fisheries
709 W 9th Street, Room 420 • Juneau, Alaska 99801

Submitted by:

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Front Cover Photograph: Tyonek Residents with Harvested Beluga, 2005. (Pictured from Left to Right: Jane Standifer, Peter Merryman, James Ollice, Joshua Salas, Jaison Salas, Randy Standifer, Sr., Rolland Standifer, Timothy Standifer, Randy Standifer, Jr., Dustin Constantine, Brandy Standifer, Sam Standifer. Photograph provided by Janelle Baker)

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EXECUTIVE SUMMARY

This report is based on research conducted by Stephen R. Braund & Associates (SRB&A) and Henry Huntington of Huntington Consulting. The purpose of the study is to document the relationship between the residents of Tyonek, Alaska and beluga (*Delphinapterus Leucas*) whales in Cook Inlet. The study team conducted a literature review in addition to fieldwork in the community of Tyonek, during which researchers interviewed 28 residents who provided their knowledge and views about current and past beluga hunting and associated activities.

A review of the literature, including ethnographic and subsistence-related studies, first-hand historical accounts, and archaeological research, revealed documentation of the hunting and use of beluga by upper Cook Inlet Dena'ina, including the people of Tyonek, since at least the 1700s until present. Several sources also noted the high value that Cook Inlet Dena'ina placed on beluga products such as beluga meat and oil. Tyonek residents' level of beluga hunting activity has varied over the years, primarily due to changes in resource availability; however, cultural ties remained strong. After a decline in Cook Inlet beluga hunting during the 1940s through the 1960s, Tyonek residents began regularly hunting beluga again in the late 1970s. A decline in the Cook Inlet beluga population in the 1990s led to restrictions placed on beluga hunting in 1999. Since that time, residents' harvests of beluga, in addition to their harvest methods, have been regulated.

The study team interviewed Tyonek residents who either had experience with or knowledge about hunting beluga whales; this included individuals who may not have hunted beluga, but who had participated in beluga hunting related activities (including hunting preparation, butchering, processing, and other associated activities). These individuals provided descriptions of the methods of preparing for, hunting, butchering, and processing beluga, in addition to observations about the historical, social, and cultural aspects of beluga hunting. Although aspects of the beluga hunt, especially in regards to hunting technologies, have changed, much of the activities surrounding a beluga hunt have stayed the same. These include methods of butchering and distributing beluga and methods of processing beluga for consumption. Based on the literature review, there have been periods of time with few or no documented harvests of beluga by Tyonek people. This may be due either to Tyonek residents focusing on other more available resources at those times or simply a lack of documentation of beluga harvests. Regardless, Tyonek residents maintain the traditions and values associated with beluga whales and continue to pass on traditional knowledge associated with beluga whales and beluga whale hunting. Furthermore, Tyonek hunters continue to apply the knowledge passed on by their elders about beluga hunting in the Cook Inlet environment; the use of this knowledge helps ensure safe and successful hunts. Tyonek residents still regard beluga as a highly valued subsistence food and hope to continue hunting beluga in the future. Their responses indicated that the relationship between Tyonek residents and Cook Inlet beluga remains strong despite recent restrictions on their hunting activities.

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LIST OF ACRONYMS

ADF&G	Alaska Department of Fish and Game
CIMMC	Cook Inlet Marine Mammal Council
CIRI	Cook Inlet Region Inc.
ESA	Endangered Species Act
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PI	Principal Investigator
SRB&A	Stephan R. Braund & Associates

INTRODUCTION

Cook Inlet, Alaska, is home to a distinct population of beluga whales, *Delphinapterus leucas* (Hazard 1988; O’Corry-Crowe, Suydam, Rosenberg, Frost, and Dizon 1997). Alaska Native inhabitants of the Cook Inlet region have harvested beluga whales since at least the early historical period and likely long before that. In recent decades, Cook Inlet belugas have also been hunted by Alaska Natives who have moved to or have visited the Cook Inlet area from elsewhere in the state (Mahoney and Sheldon 2000, Stanek 1994). In addition to subsistence hunting of beluga whales, commercial hunting of beluga whales also took place in Cook Inlet in the early 1900s. Starting in the 1990s, the National Marine Fisheries Service (NMFS) documented a sharp population decline in the Cook Inlet beluga whale stock (Hobbs, Rugh, and DeMaster 2000; Hobbs, Sheldon, Vos, Goetz, and Rugh 2006: viii). Between 1994 and 1998, the beluga population in Cook Inlet declined nearly 50 percent. In an effort to curb this trend, NMFS, in cooperation with the Cook Inlet Marine Mammal Council (CIMMC), placed restrictions on beluga hunting in 1999 to significantly reduce the subsistence harvest of beluga whales in Cook Inlet. The Cook Inlet belugas were subsequently listed as depleted under the Marine Mammal Protection Act (MMPA) in 2000. Despite a significant curtailment of subsistence beluga harvests between 1999 and 2008, the beluga whale population failed to rebound as expected. Consequently, in October of 2008, NMFS and the National Oceanic and Atmospheric Administration (NOAA) listed the Cook Inlet beluga whales as an endangered species under the Endangered Species Act of 1973 (ESA).

The Native Village of Tyonek, located on the northwestern shore of Cook Inlet, Alaska (Map 1), seeks to document their harvest of beluga whales and activities (e.g. hunting, processing, and distributing) associated with beluga whale hunting in Cook Inlet over time. The community also seeks to document their cultural relationship with Cook Inlet beluga whales. Decisions about the allocation of Cook Inlet belugas that can be hunted will rely on the best available biological, cultural, and subsistence information. The Native Village of Tyonek recognizes that documenting their cultural relationship can provide important information for allocation decisions in the future. Stephen R. Braund & Associates (SRB&A) was contracted by NOAA to conduct research to document Tyonek’s cultural relationship with beluga whales. This report presents the results of the study team’s efforts, which included field, literature, and archival research.

SCOPE OF WORK

The goal of this project is to document Tyonek’s interactions and cultural relationship with beluga whales over time, especially throughout the twentieth century. The project has five objectives:

1. Coordinate study with the Native Village of Tyonek
2. Review past studies of human-beluga interactions in the area
3. Review other studies about Tyonek, particularly its subsistence practices
4. Seek and gather information in archives or elsewhere, as available (e.g., diaries from teachers or pastors, BIA reports, tribal records) on Tyonek subsistence practices
5. Conduct ethnographic interviews in Tyonek to document beluga hunting practices and patterns over time

SRB&A coordinated with the Native Village of Tyonek to conduct this study. In particular, the Native Village of Tyonek was involved in planning for and supporting the implementation of the fieldwork portion of the research.

Map 1 Overview

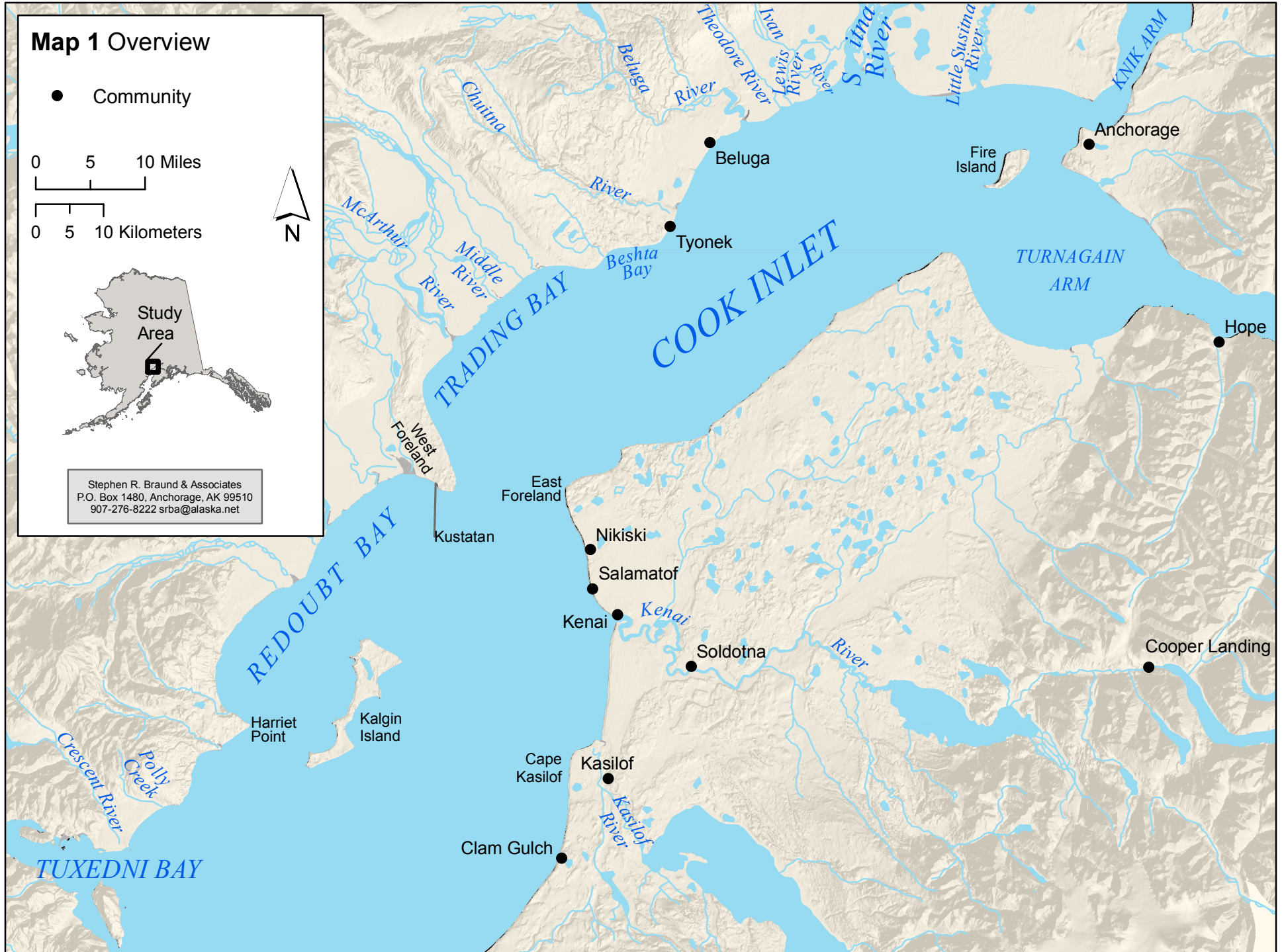
● Community

0 5 10 Miles

0 5 10 Kilometers



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To address the second, third, and fourth objectives, SRB&A, with the assistance of Henry Huntington, reviewed existing literature to describe Tyonek's historic and current relationship with beluga whales. Existing literature includes historical accounts and written first-person accounts from Tyonek residents. The study team also consulted subsistence reports related to Tyonek, including Alaska Department of Fish and Game (ADF&G) Division of Subsistence technical reports and other baseline subsistence data. Finally, the study team reviewed information regarding the past 10 years of beluga population densities and regulations on subsistence hunting.

SRB&A addressed the fifth objective, conducting ethnographic interviews in Tyonek, by interviewing 28 Tyonek residents who either have experience with or knowledge about hunting beluga whales; this included individuals who may not have hunted beluga, but who had participated in beluga hunting related activities such as preparation for the hunt, butchering, processing, distribution or other related activities. The main focus of the ethnographic interviews was to gain information about past and present beluga hunting methods, as well as local knowledge about the historic and cultural role of beluga whale hunting and associated activities in Tyonek.

METHODS

Literature Review

The SRB&A study team reviewed existing literature and compiled the relevant data for use in this report. The purpose of the literature review was to gather information that would assist in describing Tyonek's historic and cultural relationship with beluga whales through historic and archaeological accounts, as well as Tyonek's current relationship with beluga whales through relevant subsistence data and recent research.

Tyonek's historic relationship with beluga whales is evident in published works regarding the history of Cook Inlet. Several documents provide archaeological data relevant to Cook Inlet Dena'ina. De Laguna's *The Archaeology of Cook Inlet, Alaska* (1975) provided valuable information on archaeological research along Cook Inlet's western coast including sites at Kustatan, near Tyonek, and in Kachemak Bay. Cook Inlet Region Inc.'s (CIRI) Cook Inlet Historical Sites Project (1975) also provided information on the excavated site of Old Tyonek. Recent studies by SRB&A (2009a, 2009b) describe the identification of an archaeological district north of Tyonek near Ladd Landing, which adds to existing data on the history of the Dena'ina in Cook Inlet. Other sources that provided relevant historical context include VanStone (1974); Cook (1842); Wrangell (1980); and Osgood (1933); these sources include discussions about the influences of other Alaska Native groups on the Tyonek people.

A number of sources include descriptions of Cook Inlet beluga hunting methods. Osgood's *The Ethnography of the Tanaina* (1937) provided information on upper Cook Inlet Dena'ina beluga hunting, describing in detail the specific harpoons and lances used in hunting beluga. Other descriptions of beluga hunting methods and uses are available in VanStone (1974), Shem Pete's *Quyushi uqu ch'el'ani* (1980), Nelson (1983), Kari and Fall (2003), Kari and Kari (1982), and others. Firsthand accounts of beluga hunting are also available from Fall, Foster, and Stanek (1984), Shem Pete (1980), Wrangell (1970), and Steensby (1917). The traditional uses of beluga are discussed in Osgood (1937), Kari and Kari (1982), and Kalifornsky (1977, 1991).

The study team reviewed contemporary descriptions of subsistence activities in the Cook Inlet region, many of which included data on beluga hunting in recent years. Publications of studies on Tyonek subsistence patterns include Foster (1982); Fall, Foster, and Stanek (1984); Stanek (1994); Stanek, Holen, and Wassillie (2007); and SRB&A (2007). Mahoney and Shelden (2000); Hobbs et al. (2006), Hobbs, Shelden, Rugh, and Norman (2008); and several publications by NMFS all provide information about the decline of the beluga whale in Cook Inlet in the 1990s and increased regulations on hunting the whales.

Other published works reviewed by the study team include Stanek (1996), Kari and Fall (2003), Stanek, Fall, and Holen (2006), and others.

Field Data Collection

Project Planning and Approval and Fieldwork Preparation

In early 2007, the Native Village of Tyonek and NMFS met with Stephen Braund and Henry Huntington. At this meeting, the Native Village of Tyonek and NMFS expressed the need for a study to document the relationship between the community of Tyonek and beluga whales in Cook Inlet; meeting participants discussed the feasibility of such a study and a plan to proceed. SRB&A coordinated with the Native Village of Tyonek to arrange the 2009 interviews. In November 2007, SRB&A sent a letter to the Native Village of Tyonek, introducing the project and asking for the community's participation. The president of the Native Village of Tyonek contacted SRB&A and expressed support for the project and the study team agreed to contact her once fieldwork preparations began. A second letter was sent to the village administrator in April 2009, prior to planning fieldwork, to initiate and schedule fieldwork with the community. The Native Village of Tyonek supported the project and agreed to coordinate with SRB&A during the fieldwork portion of the study. Prior to traveling to Tyonek, SRB&A developed an informed consent form that described the purpose of the study and guaranteed respondent confidentiality and reporting aggregated data (Appendix A). A field protocol was also developed for use during interviews (Appendix B). SRB&A study team members conducted a pretest (or preliminary) interview with a Tyonek resident temporarily living in Anchorage on March 9, 2009 in the Anchorage office prior to conducting interviews in Tyonek. The study team made revisions to the field protocol in response to issues encountered during the pretest interview.

Identifying and Contacting Respondents

During preparation for fieldwork, SRB&A researchers met with Ron Stanek (a former employee of ADF&G Division of Subsistence with nearly 30 years of experience of conducting research in Cook Inlet communities including Tyonek) where he presented a list of names of individuals who he knew to be experienced with and knowledgeable about beluga hunting and associated activities. Upon arriving in Tyonek, the village administrator also provided a short list of beluga hunters in the community. The study team began by contacting and conducting interviews with residents on the lists provided by Ron Stanek and the village administrator. At the end of each interview, researchers also asked respondents to name other residents with beluga whaling experience or knowledge; the list of potential respondents grew based on this feedback. SRB&A focused on interviewing residents who had prior experience or knowledge in beluga whale hunting and associated activities. While not all respondents interviewed reported having hunted beluga in the past, the majority of respondents reported taking part in the processing, distribution, sharing, and consumption of beluga. A small number of respondents had not participated in any activities associated with the beluga hunt aside from consuming beluga. These individuals, along with the other respondents, provided valuable information about the social and cultural importance of beluga to the community of Tyonek.

Interview Method

SRB&A organized the field protocol for the Tyonek interviews into four sections. The first section focused on respondents' current and past beluga whaling activities, and included the following subsections:

- Participation in pre-hunt activities
- Participation in the beluga hunt
- Processing, distribution, and consumption

Subsequent sections focused on historical, social, and cultural aspects of beluga whale hunting and respondents' views regarding future or planned beluga activities by Tyonek residents. SRB&A designed the protocol to gather data that would help describe the community's current and past relationship with beluga whaling.

SRB&A researchers conducted the interviews at the Tyonek community center, which houses the tribal administrative and village council offices, or at the respondent's residence. Interviews generally lasted 30 minutes to one hour each. One interviewer conducted each interview; if available, a second interviewer took detailed notes of residents' responses on a laptop computer. If a second interviewer was not available, notes were either written on the field protocol form and later transcribed to the laptop or entered directly into the laptop computer during the interview.

Field Summary

The SRB&A study team conducted interviews in Tyonek during two separate trips in April and May, 2009. These trips occurred from April 22 through April 24, 2009 and from May 7 through May 8, 2009. Study team members also conducted three additional interviews in the SRB&A Anchorage office on May 29 and May 30, 2009. Based on the lists provided by the village administrator and Ron Stanek as well as the nominations provided by interview participants, the study team identified 43 potential respondents with some knowledge about or experience with beluga hunting (Table 1). SRB&A researchers conducted interviews with a total of 28 residents during 25 interview workshops. Not all of the respondents interviewed were on SRB&A researchers' list of potential respondents. Of the 28 Tyonek residents interviewed by SRB&A study team members, 16 residents were nominated by at least one person and 12 residents were walk-ins, meaning that they called or came by to request an interview. Four individuals nominated by Tyonek residents were either elders in nursing homes in Anchorage, deceased, or declined to participate in an interview. As discussed below, beluga hunting is a specialized skill. Of the 43 nominated Tyonek residents, 15 residents were nominated by more than two people. SRB&A interviewed seven of the top 10 nominated individuals (Table 1).

Table 1: Fieldwork Summary, 2009 Interviews

	Number of Households (2005/2006) ¹	Population (2005/2006) ¹	Number of Persons Identified for Interviews	Number of People Interviewed ²	Number of Interview Workshops	Number (%) of Top 10 Nominees Interviewed	Trips to Community to Conduct Interviews
Tyonek	66	202	43	28	25	7 (70%)	2
¹ Stanek, Holen, and Wassillie 2007 ² The number of people interviewed includes 12 residents who did not receive nominations, but who requested to participate in an interview. Fieldworkers found that these respondents were often active and/or knowledgeable residents who provided informative and thorough interviews.							

Stephen R. Braund & Associates, 2010.

Out of the 28 respondents, all respondents but one were born in the Tyonek area (Table 2). Figure 1 shows the age and sex of Tyonek respondents. Overall, researchers interviewed more men than women; the most common age range for male respondents was between 55 and 64 and for female respondents was between 45 and 54.

Post-field Data Processing

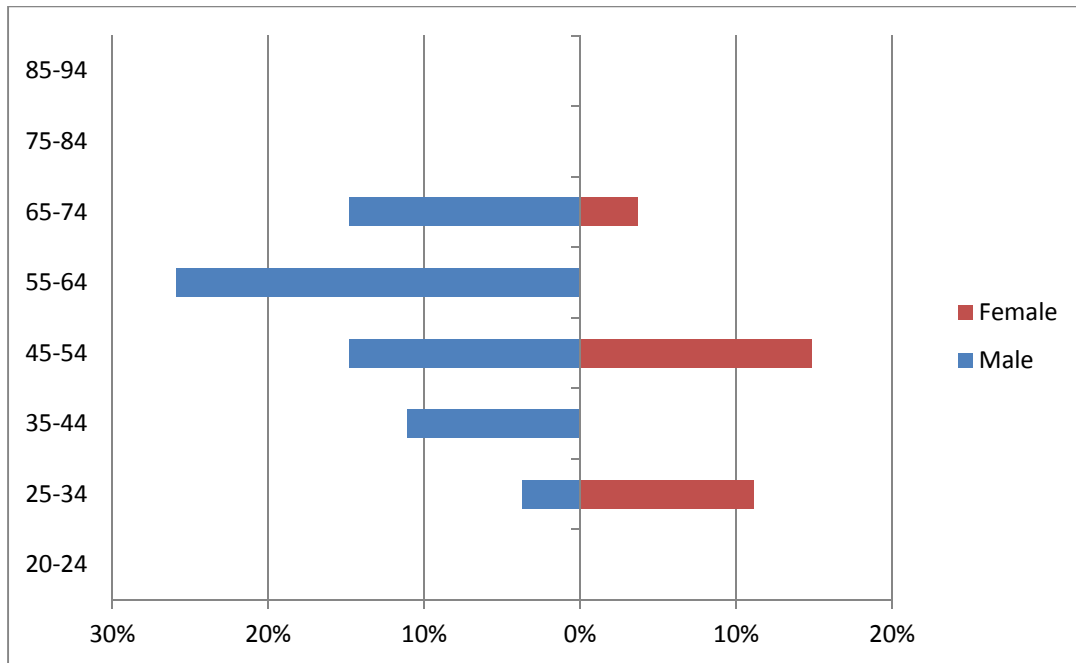
After completing fieldwork in Tyonek, researchers edited the field protocol responses and notes for each interview. The study team entered the data collected during the 2009 interviews into an Access database designed for the project. Using Stat Transfer, the data were exported from the Access Database to the Statistical Package for the Social Sciences (SPSS). Researchers used SPSS to analyze the data and develop the tables provided below under "Current Relationship to Beluga Whaling."

Table 2: Birth Place of Respondents

Birth Place of Respondents	Number of Respondents
Tyonek Area	27
Elsewhere in Alaska	1
Outside Alaska	0
Total Number of Respondents	28

Stephen R. Braund & Associates, 2010.

Figure 1: Tyonek Age-Sex of Respondents



Stephen R. Braund & Associates, 2010.

RESULTS AND DISCUSSION

Literature Review

Tyonek – A General History

According to archaeological data, Dena’ina Athabascans have occupied settlements in upper Cook Inlet for the last 1,000 to 1,500 years, displacing or moving into previously occupied areas of the Chugach and Koniag Eskimo (Reger 2003). Although it is unknown exactly how long the Dena’ina have occupied the upper west coast of Cook Inlet, some data are available that indicate Dena’ina settlements in the area for at least several hundred years. During excavations in Cook Inlet, de Laguna (1975; 138, 139) noted prehistoric Kenai and Tyonek Indian sites from Kustatan to the mouth of the Chulitna River as well as along the Susitna River and Knik Arm. Captain James Cook encountered several groups of Natives in Cook Inlet in May of 1778 (Cook 1842). Stanek, Fall, and Holen (2006) and Osgood (1937:67) noted these groups of Natives including those of Kustatan and Tyonek. Furthermore, during the summer of

2006, 33 ancestral *Tebughna* sites were discovered north of the Chuit River near Ladd Landing by SRB&A archaeological field researchers during cultural resource surveys in the area for the proposed Chuitna Coal project (SRB&A 2009a:24; SRB&A 2009b:77, 82). Within the study area, field crews found 57 house depressions dating between the 1500s and 1800s during the four field seasons between 2006 and 2009. The sites together make up the *Ch'u'itnu* Archaeological district.

Osgood (1937:15) described the “Tyonek Area” as extending “from the Susitna Area seaward to the Eskimo boundary at about Kamishak Bay.” Other accounts describe the Tyonek area as more limited. Kari and Kari (1982:33) noted that the Tyonek area stretched from the McArthur River to the Theodore River along the coast and inland towards the mountains. Kari and Fall (2003) divide the western Cook Inlet area into several distinct dialect territories: the Upper Inlet Dena’ina territory, which includes the current location of Tyonek; the Outer Inlet Dena’ina territory, including Kustatan; the Iliamna Dena’ina territory; and the Koniag Eskimo territory.

The Tyonek area is included in the region of speakers of the Upper Inlet Dena’ina dialect although some members of the community were known to speak Lower Inlet Dena’ina (or Outer Inlet Dena’ina) (Kari 1975:50, 1977:10) (Map 2). Those speakers of the Lower Inlet Dialect in Tyonek integrated from Kustatan following an epidemic in 1910 (Kari 1975:50). Osgood noted a connection between Tyonek and Kustatan, saying, “Possibly the region about Kustatan, a village below Tyonek, formerly represented a distinct subdivision but the evidence points to the direct connection of these two” (Osgood, 1937:15).

The people of Tyonek call themselves *Tebughna* meaning “Beach People” and have occupied various locations along the western shores of Cook Inlet between Granite Point and Beluga River since at least the late 1700s and possibly earlier. This area is called *Tubughnenq*, or “beach land” and includes what is referred to as “Old Tyonek”. The Tyonek people generally inhabited areas around the mouths of productive salmon streams. Old Tyonek is located at Old Tyonek Creek, locally called “Robert’s Creek,” which flows into Beshta Bay (Kari and Fall 2003:56). De Laguna (1975:139) called this settlement *Ta’naq* and considered this village to be an “old” site. According to de Laguna (1975:139), an ancient village site called *Ts’ui’tna* was located at the mouth of the Chuit River and was believed to be the northernmost village site in the Tyonek territory. Kari and Fall (2003:68) refer to this village as *Ch’u’itnu Hdakaq*. At this location, later named Ladd, C. D. Ladd operated a saltery; a cannery was later built in 1900 by the Alaska Salmon Association (Potter 1967:37; Cobb 1921:51). The saltery and cannery were abandoned after 1902 (Cobb 1921:51).

A Russian trading post was established near present day Tyonek sometime before 1794 and as early as 1790 (Fall 1981:64, 65). This trading post was later destroyed by the Dena’ina of Tyonek in 1797 after suffering mistreatments and abuse at the hands of the Russians (Tikhmenev 1978: 46). A Russian American Company trading post was established again in Tyonek in 1845 and many Cook Inlet Dena’ina participated in the fur trade with the Russians (Fall 1981:404). Interior Dena’ina traveled through the mountain passes to trade in Tyonek for commercial goods from as far as Iliamna and the Copper River (Fall 1981:83, 87). Abercrombie (1900:402) notes that during the late 1800s, ammunition could be obtained at the trading post of the Alaska Commercial Company in “Tyoonok.” After the sale of Alaska to the United States in 1867, a permanent trading post conducted business at Tyonek by at least 1875 (Fall 1987:19-20).

Russian Orthodox priests began regular proselytizing among the Cook Inlet Denai’na in 1845; by the 1870s and 1880s, orthodoxy had become a basic part of Dena’ina native religion and tradition (Znamenski 2003:14-15, 43). During this time and throughout the 1890s, several Dena’ina villages took the initiative and began building chapels and prayer houses on their own; some sought the advice and guidance from priests while others did not. Russian Orthodox clerics guided the first construction of a chapel in Tyonek in 1882; the chapel was rebuilt by the people of Tyonek between 1891 and 1894 (Znamenski 2003:39-40). Priests regularly visited Tyonek and other Cook Inlet villages to perform

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Koyukon

Holikachuk

Upper Kuskokwim

Atna

Deg Hit'an

Upper Inlet Dena'ina

Chugachmuit
Alutiiq

Inland Dena'ina

Outer
Inlet
Dena'ina

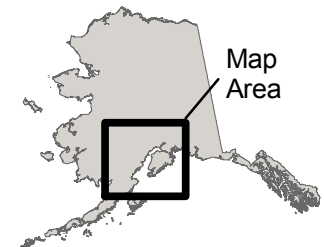
Central Yup'ik

Iliamna
Dena'ina

Koniag Alutiiq

Map 2

Southcentral Alaska Native Languages and Dena'ina Dialects



Projection: Alaska State Plane 4, NAD83 (Feet), Seward Meridian

Sources: Kari and Fall 2003.

Date: November 3, 2006

0 12.5 25 50
Miles



priestly duties such as conversion, baptisms, marriages, and confessions, and they oversaw maintenance of the chapel and church funds. Regular visits of priests to Tyonek have continued to this day.

An epidemic in 1913 killed a large portion of the population at Old Tyonek; soon after, tidal erosion in the vicinity of Old Tyonek caused the remaining residents to abandon the site (CIRI 1975:103). The village was moved to another location at Tyonek Creek, several miles south of North Foreland, and is referred to now as Tobona or “Second Tyonek” (Fall 1981). The 1913 measles epidemic also devastated the village of *Ts’ui’tna* and those who survived moved to Tobona (Fall 1981:406; Kari and Fall 2003:680). According to Kari and Fall (2003:66) the Dena’ina name of Tobona is *Tank’itnu*. In 1932, high tides at Tobona forced people to move once again, this time to the present location of Tyonek or “New Tyonek,” two miles north of “Second Tyonek,” at Indian Creek (Kari and Fall 2003:66-68). The Dena’ina name for New Tyonek is *Qaggeyshlat*. People from the Dena’ina community of Susitna Station also moved to New Tyonek after the 1918 influenza epidemic (Fall 1981:378) and again in the 1930s, after the population of non-Native people moved to other more profitable locations and supplies were harder to come by (Kari and Fall 2003:68; Fall 1981:378). In 1910, an epidemic nearly destroyed the village of Kustatan. Although the majority of Kustatan people moved to Kenai, a number of them moved to Tyonek (de Laguna 1975:14, 138). By the late 1930s, Tyonek was the only village left on the west coast of Cook Inlet (Osgood 1933:696).

Today, Tyonek is a primarily Dena’ina community that is accessible only by plane or boat. The Alaska Department of Fish and Game (ADF&G), Division of Subsistence estimated a population of 202 residents living in 66 households while conducting household surveys in 2006 (Stanek, Holen, and Wassillie). Residents of Tyonek continue to participate in traditional subsistence fishing, gathering, and hunting activities, including the hunting of beluga.

Hunting and Use of Beluga Prior to the early 1900s

The use of beluga whales in Cook Inlet began prior to contact with Europeans in the 1700s (de Laguna 1975; Osgood 1937; Wrangell 1970). A limited amount of evidence of the use of beluga by Cook Inlet inhabitants prior to the 1900s is available through archaeological data. De Laguna conducted extensive archaeological studies throughout the Cook Inlet region. One site excavated at Kustatan produced beluga bones, along with clam shells and fire cracked rock, in the two-foot-thick midden in the floor of a house pit (de Laguna 1975: 138, 139). Stone artifacts were also recovered in the house pit that suggested a Kachemak Bay Eskimo cultural occupation prior to Dena’ina occupation. Beluga bones were not found in other sites, including Dena’ina house pits in Tuxedni Bay at Polly Creek and a rock shelter in Tuxedni Bay. The large size of beluga whales and the methods of butchering the animals may indicate why no faunal remains of beluga have been found in excavation sites along the upper west coast of Cook Inlet. De Laguna (1975:31-32) explained that because of the large size of the animal, it could not be taken back to the village site whole. Instead, the whale was flensed on the beach and the meat and the blubber were taken back to the village. Only bones used for tools were brought into the village. Lobdell (1980:121) also noted this same practice in Kachemak Bay sites. The practice of leaving the carcass of the beluga on the beach has been reported in recent Tyonek subsistence studies. Fall, Foster, and Stanek (1984) noted that the carcass was left on the beach for the incoming tide to take away and Stanek (1994) noted that, in addition to the meat and blubber, the teeth, lower jaw, flippers, and tail were sometimes taken from the kill site. All remaining bony parts were left for the incoming tide.

The coastal Dena’ina of Cook Inlet, especially the people of Tyonek, are unique among Northern Athabascans as having adapted to the marine environment for subsistence while retaining their use of inland resources and extensive harvest of salmon (Stanek, Fall, and Holen 2006:16; Fall 1981:27). Petroff (1881:37) noted that the Natives of the western coast of upper Cook Inlet spent little time in the inlet except for the hunting of beluga whales while Porter (1893:71) reported that the Natives of Kustatan, relatives of the Tyonek tribe, hunted beluga whales by canoe but not in large quantities.

Wrangell (1980:57) explained that the coastal Dena'ina of Cook Inlet originally migrated to the area from the interior and used birch bark canoes for transportation along rivers and lakes but adopted the use of skin boats made from sea mammals from their Chugach or "Kadiak" (or Kodiak) Eskimo neighbors. When first encountering the Natives of Cook Inlet, Captain Cook reported that they used boats similar to those used in Prince William Sound but smaller, holding only one man instead of two and using a paddle with a blade on both ends resembling those used by the Eskimo (Cook 1842:310, 311; Osgood 1937:67). Jordan (1898:425, 426) described Cook Inlet Athabascans "purchasing" baidarkas from neighboring Eskimos for use in hunting beluga whales. Osgood (1933:696, 697) suggested that the significant contact Tyonek people had with the Eskimo gave them the advantage of learning the skills required to harvest and prepare beluga and seal.

After briefly describing a beluga hunt by the Dena'ina of Cook Inlet, Vanstone (1974:30) postulated that,

...The Indians were heavily influenced by their Eskimo neighbors. There were many opportunities for contact between the Tanaina and the Eskimos of southwestern Alaska. Since Eskimos had presumably been in the area considerably longer than the Tanaina, it is probable that they had achieved a more efficient adaptation to the inlet environment. The Tanaina appear to have moved into the southwestern coastal region in late prehistoric times. It is therefore not surprising that they borrowed material culture traits related to coast activities from the neighboring Eskimo to supplement their otherwise interior-oriented culture. (Vanstone, 1974:30)

A number of first-hand accounts of beluga hunting in Cook Inlet provide details about the methods of hunting beluga prior to the early 1900s. Osgood (1937) noted that the Upper Inlet Dena'ina used kayaks and baidarkas in hunting beluga whales. Wrangell (1980: 57) described a beluga hunt in the Kenai area in the early 1830s, noting that hunters drove stakes into the mid-river shoals where they sat awaiting belugas following fish upriver. According to his account, once a beluga swam close enough to the hunter, the hunter harpooned the whale. An inflated bladder, attached by the harpoon head and therefore attached to the wounded whale, pointed out the location of the diving animal. The hunter then pursued the beluga in his waiting boat and finished killing the beluga with a lance. The dead whale was then towed to the closest suitable shore. Steensby (1917) described the Dena'ina of Cook Inlet staging themselves on poles erected in the water from which they threw a lance with a slate blade at passing beluga whales. Once a whale was struck the hunter set out in his waiting boat and pursued the injured whale. Shem Pete, a Dena'ina man born in the late 1890s, described a similar method in *Quyushi uqu ch'el'ani: beluga hunting*. He described the use of the spruce-trunk-and-stump hunting platform or *yuyqul* in the 1880s, apparently the last time belugas were hunted that way (Pete, 1980:6-11; Kari and Fall 2003: 78-79). Below is Shem Pete's account on using the *yuyqul* for hunting beluga, as cited in Kari and Fall (2003):

Beluga Hunting by Shem Pete

Our grandfathers used to hunt beluga. Beluga come near the beach between Chuitna [Chuit] River and Old Tyonek.

They used to dig up a spruce tree with a big root structure and they hewed out the root structure [into a perch]. They carried it down to the water, and they tore off all the inner bark. They peeled it and then they dried it. At low tide, when the tide had gone quite far out, they would dig a hole and put it [tree] in. They stuck the top end of the spruce in a hole, and they stood it up. They braided three strips of moose skin and smeared it with pitch. They tied ropes onto the spruce that was standing there.

They had many ropes extending out in different directions. Five or six people held one rope. Then they stood it [tree] up when they pulled on all the ropes they held on to it.

They held on to those ropes. And then when it [tree] was sticking straight up they tied the ropes to stakes. They held on [to the ropes] on the other side while one man tied up those that were still untied. Thus he tied them to stakes very well, and it was secure when they tied it over and over.

They made a pole ladder for the spearing tree. When the tide came in, they took out [in a canoe] the ones who would sit in the spearing tree. They climbed up the spearing tree and got into the hewed out roots of the spruce tree. They passed up to them spears with bladder drags tied on to them with braided sinew ropes. It is said that drag was an inflated seal skin. They coiled the braided rope neatly. The rope was said to be twenty-five fathoms long [measured by outstretched arms].

At halftide, the beluga come after the salmon. Then they speared the beluga. They threw the drag into the water and it [beluga] pulled it away. Whenever it swam up by them, they speared it another time. They did that and they would spear it several times. Up there on shore, strong men who sat in bidarkas went out together in their boats after the beluga. They speared the beluga too as they went out. Then they caught up with it in the chase and they grabbed the drag, and it [beluga] pulled them behind it. They really tired it out. Now and then it swam back up and surfaced, and some of them would hold onto the rope and pull on it. They tired it out, and they stabbed it with the spear and they caught it.

They strung a rope through its jaw. They started to drag it to whatever beach was close by. They brought it ashore [above the tide line]. They butchered it. They cut the blubber into blocks. Then they loaded it onto bidarkas and transported it back. They divided it among the villagers. They said that Paul Chuit's father, Bidyaka'a, was the one who was the chief of beluga killing. He was the last one who sat on a beluga spearing tree [in about 1880]. (Kari and Fall, 2003:78-79)

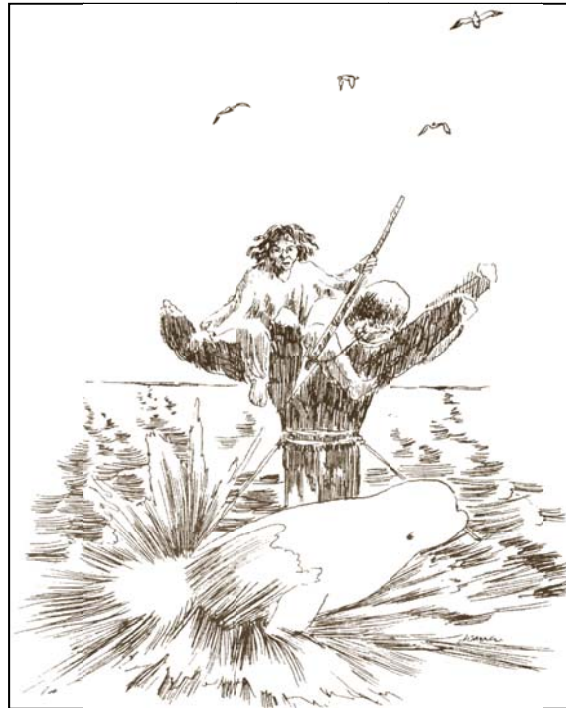
In Pete's *Quyushi uqu ch'el'ani: beluga hunting* (Pete 1980), the above story is accompanied by Leonard Savage's drawing of the *yuyqul*, shown in Figure 2.

Kari and Fall (2003:75, 76, 77), in their introductory essay to Pete's account, noted that Dena'ina were the only Athabascans who regularly hunted whales. The use of the *yuyqul* was unique in North America, and the word itself is anomalous in Dena'ina, with no obvious cognates in any neighboring languages and only a possible cognate in Navajo, a related though geographically distant language (Kari and Fall 2003:75, 76). Belugas were hunted from May to August, mainly on the western shore of Cook Inlet from the Susitna area to the Chuitna River in the mudflats where positioning a *yuyqul* was possible. Fall (1981:192) postulated that the *yuyqul* may have been derived from the game platforms (*dehq'a*) used in hunting bear and other game along salmon streams. By the 1880s, more powerful firearms made the *yuyqul* obsolete and beluga hunting was thereafter practiced from boats.

In addition to the hunting methods described above, Fall (1981) also related the story of a Tyonek man who built a weir across Beluga River, trapping several belugas upstream when the tide went out. It is not clear whether this was ever a standard practice.

Osgood (1937:27) wrote that sea mammals were of great value in those limited areas of Dena'ina territory where access was good and that beluga were harvested and eaten locally by the people of Kachemak Bay, Kenai, Tyonek, and the upper Cook Inlet. He reported that beluga were readily available only in the Kenai area and the upper Inlet, and only when the water was ice free (Osgood 1937:37).

Figure 2: Drawing of the *yuyqul* by Leonard Savage in Kari and Fall, 2003.



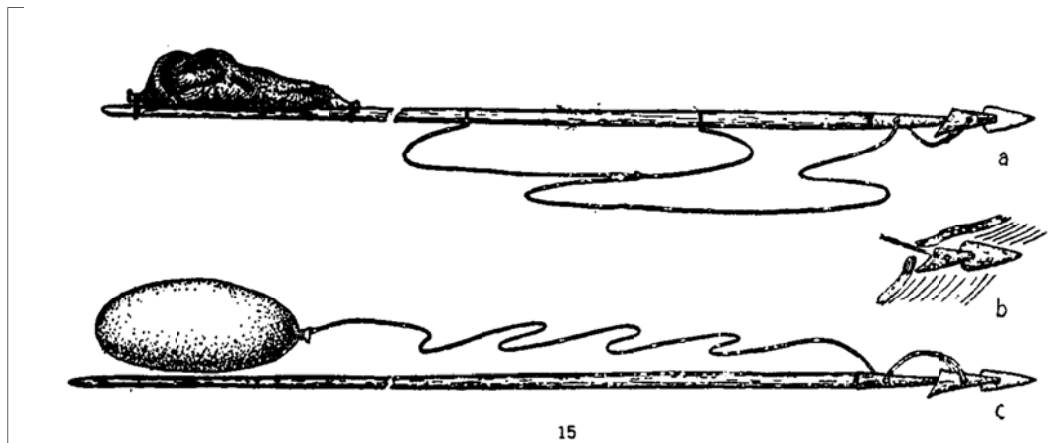
Osgood reported that, although people traveled from the Iliamna area to Kamishak Bay in lower Cook Inlet, they were generally unable to hunt marine mammals both because transporting them back to Iliamna was difficult but also because they lacked the specialized skills for marine mammal hunting. This description implies that those Dena'ina who did regularly hunt marine mammals, including beluga, had developed specialized skills and knowledge for that activity. He later provided a brief description of beluga hunting and uses:

The beluga or white whale shares the wider distribution of the hair seal. Even in the Upper Inlet they break through the ice in mild winters to feed upon the tomcod. Some people consider them even better eating than seal and they are consequently much sought after as they sport warily in the wide rivers. They are hunted with the same harpoon used for sea lions and once caught they make the end of the harpoon shaft fairly dance in the water. The beluga may carry it down three times but that is about the limit. When the beluga tires, the hunters approach and kill it with the spear. Except the sea lion, this is the only sea mammal dispatched with other than a club. To capture the beluga, sometimes a harpoon with a free float is used (Osgood, 1937:39).

Osgood (1937:85, 86) also described the harpoon styles used in hunting beluga by the Dena'ina Indians of Cook Inlet. One harpoon used for hunting sea lions and beluga has a long shaft made of spruce measuring eight to ten feet and three inches in diameter. The foreshaft and toggle were made of whale bone and the point was made of stone. A line, or rope, made of skin was attached to the foreshaft and main shaft and a bladder was attached to the shaft (Figure 3). Another harpoon, used solely in hunting beluga, measured the same length as the previously described harpoon but the diameter measured only one and a half inch thick (Figure 3). The shaft was soaked in oil to add weight to it and was also painted. The foreshaft and toggle are the same in both harpoons. A longer piece of skin line was used (approximately 90 feet long) and was not attached to the main shaft but instead attached to an inflated bladder made from a beluga stomach or seal skin which was thrown overboard after the beluga was struck.

Once struck, the main shaft detached from the animal and floated on the surface of the water. The whale soon became tired, as the bladder hindered its escape, and the hunter killed the whale with a lance.

Figure 3: “Toggle-pointed harpoon with bladder attached for beluga and sea lions; b, toggle-point in body of sea-mammal; c, toggle-pointed harpoon with free floating bladder, for belugas.” (Osgood, 1937: Figure 15)



Vanstone (1974:29, 30) wrote a similar account, indicating that beluga were hunted with a harpoon and float and that after the animal became tired from dragging the float, several hunters would spear the animal until it was killed.

Wrangell (1970) described a slightly different lance style, noting that the same shaft used in harpooning the beluga is retrieved after the animal is struck and a slate knife is inserted into the shaft and used to finish killing the whale. He explained that the hunter,

...Throws a pole with an arrow, that is to say a harpoon head attached to a pole one and a half sazhen [ten and a half feet] long and attached to a thong ten sazhen [70 feet] long with an inflated bladder on the end; the beluga, impaled with the harpoon head, quickly swims away and the bladder in the water shows the location of the animal to which the hunter, jumping into his prepared baidarka, sets out in pursuit and grasping the shaft, which in the meantime has freed itself from the harpoon head, inserts into it a slate knife, stabs the beluga a few more times, and at last brings it lifeless to the shore. (Wrangell 1970:12)

In addition to hunting beluga, Upper Inlet Dena’ina also salvaged whales that were beached during the outgoing tide for food (Pete 1977:30). The importance of beluga to the Upper Inlet Dena’ina as a source of food is evident throughout the literature. Dena’ina people had various uses for beluga meat, blubber, and oil. Fall (1981:184), writing about upper Cook Inlet Dena’ina, describes belugas as “a highly prized catch, for it provided meat, blubber, and many gallons of oil.” Browne and Parker (1913:81), two mountain climbers and explorers who lived at times with the Natives of Cook Inlet remarked that the beluga “oil is highly esteemed by the Natives of Alaska” and that they used it for cooking and to preserve berries. Various groups of Dena’ina hunted beluga from Knik Arm to Tyonek. Tyonek had better access to marine resources and, not surprisingly, greater use of marine mammals and fish. Fall (1981:191) also quoted an unpublished document entitled *Tyonek Stories* written by Nickafor Alexan of Tyonek describing the use of beluga:

The Indians in those days use to use the belugas oil and eat the meat of the belugas they kill. Also they use to eat the blubber, boil all the fat into oil, put all the meat up to dry for the winter and take all the sinew string for bow. Because the sinew string is much stronger. (Nickafor Alexan as cited in Fall 1981)

Shem Pete (1977:27) noted that beluga, fish, and other resources were harvested and preserved at the mouth of the Susitna River. Osgood (1937:44) wrote that the beluga was “cut into squares and dried, then boiled in the winter.” It is not clear whether he was referring to the meat, blubber, or both. He also noted that beluga oil was an important food. Peter Kalifornsky, a Dena’ina man born in 1911, wrote down a number of Dena’ina stories and personal experiences. One of these stories, “How they lived at Kustatan” related one of the uses of beluga:

When they lived at Kustatan, they made oil from beluga, seal, and other things. Then they went after clams. They cooked the clams. Then they put them in a beluga stomach and poured in oil to preserve it for winter. When they opened it up, they washed the clams in hot water. They cooked clam soup whenever they wanted to make it. (Kalifornsky 1991:213)

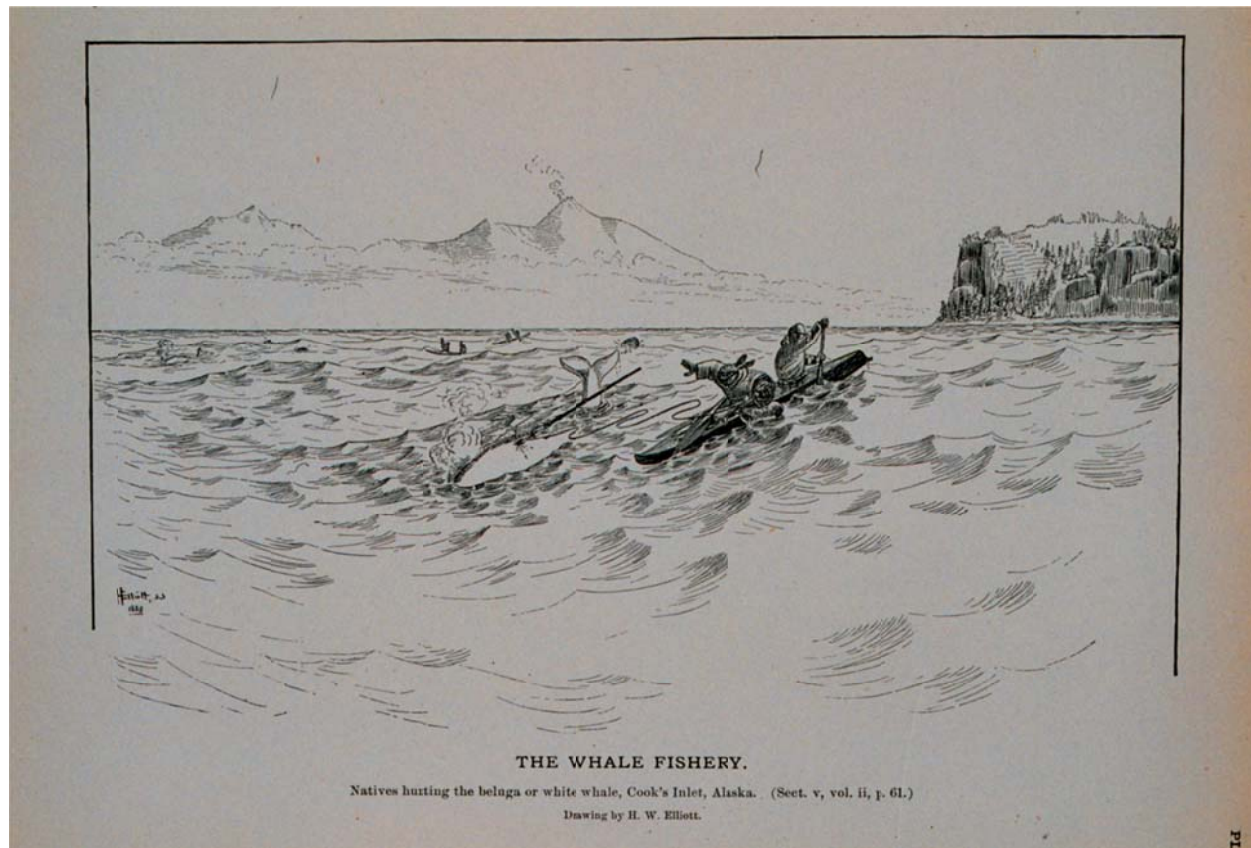
This same story, although modified slightly through translation, is also found in *Kahtnuht’ana Qenaga: The Kenai People’s Language* by Peter Kalifornsky (1977:22-23). Although the story does not provide a date, the description strongly implies a customary practice involving the use of beluga oil and stomachs.

Brock (1891:35) reported that 75 to 100 gallons of oil can be obtained from a beluga whale. He also noted that beluga oil was traded among the tribes of the area. Fall (1981:198) provided an account given by one of his informants describing the trade network between interior Dena’ina and Tyonek people prior to European contact. This informant explained that during the spring, Tyonek people kept themselves busy rendering the beluga fat into oil. The intestines of beluga were used to store oil and blubber and were traded with the villages of Alexander Creek, Susitna, Knik, Kroto, and others on the Yentna River for furs from various land mammals. He also stated that Tyonek became rich from trading beluga oil, seal meat, and dried fish and the trade route to and from Tyonek was likened to a road.

Osgood (1937:69, 78, 98) described the various uses of beluga skin and sinew. Beluga sinew, taken from the tail of the beluga, was prized for making lines or ropes for use in trapping and other activities where rope would be needed. The Upper Inlet Dena’ina used beluga skin to make lines for use in making deadfall traps for small furbearing animals. Beluga skin was also used in making cordage, a type of rope or string, used in sail boats. Osgood notes that sails may have been adopted from their experiences with “the first Englishmen to enter the country,” most likely Captain Cook in 1778 (Osgood 1937; Osgood 1933:701). Cordage was also used in tying clothing or objects to a person (Osgood 1937:48). The soles of the knee boots worn by the Dena’ina were also made from the skin of belugas (Osgood 1937:47). Osgood also explains that the beluga intestines were used in making Kamleikas (waterproof parkas) but by Katchemak Bay Natives (Osgood 1937:50). Brock (1891:35) also reported that the skin of belugas were used in making lines, straps, and boot soles. Ackerman (1975:16) mentioned clothing and boots made from beluga skin and the use of beluga sinew. Beluga and seal oil was used in maintaining the seal skin boats used by Upper Inlet Dena’ina (Pete 1977:28). The use of beluga whales by Dena’ina people is also evident in their language. Kari’s *Dena’ina Topical Dictionary* (Kari 2007) includes a number of words referring specifically to beluga whale parts and sizes, including *qunshi* (beluga whale), *quyushi q’eh* (beluga muktuk), *stq’eshi* (pounded beluga fat), and *bints’isq’a* (back fat on beluga).

Beluga hunting continued throughout much of the 1800s. H.W. Elliott’s drawing of Natives hunting belugas in Cook Inlet is dated 1883 (Figure 4). However, by the end of the 1800s, Jordan (1898:272) noted that the harvest of belugas by Natives of Cook Inlet diminished due to easier harvests of other resource species. No other explanation as to why beluga hunting decreased was given. During his expeditions through Alaska to the Copper River Valley, Abercrombie (1900:402) also noted that by 1884, the Natives of Cook Inlet hunted beluga whales less frequently than in the past. He did not indicate why this decline in beluga hunting occurred.

Figure 4: Natives Hunting the beluga, or white whale, Cook's Inlet, Alaska. Drawing by H.W. Elliott, 1883. Photo downloaded from the National Oceanic and Atmospheric Administration Photo Library (NOAA 2009).



Hunting and Use of Beluga from the Early 1900s to the Early 1940s

The Beluga Whaling Company, whose headquarters were based at the mouth of the Beluga River, trapped beluga whales at the mouths of the Beluga and Theodore rivers and at Threemile Creek in the early 1900s (Bower and Aller 1918:52) (Figure 5). Beluga whales were harvested for sale of their oil and hides (Bower 1919:39). The company also salted salmon at the mouth of the Beluga River and Threemile Creek (Cobb 1921:51; Bower and Aller 1918:42). A small number of Natives gained employment with the company processing whales. Figure 6 depicts three men, one of whom is former Tyonek resident Red Jack Bartels, with two harvested beluga at Theodore River in 1919. Red Bartels harvested beluga whales both for the community of Tyonek and for sale in Anchorage (Stanek, personal communication, 2010). According to the U.S. Bureau of Fisheries (Bower 1921:66), J.A. Magill & Company took over the whaling operations at Beluga River in 1920. During this period, beluga whaling took place for only five years. There are no further reports of commercial beluga whaling in Cook Inlet until the 1930s, when the activity started again for a short time, with 100 belugas reportedly caught at the mouth of the Beluga River (Lowry 1985:9). During the ADF&G study period of 1978 to 1984, Fall, Foster, and Stanek (1984:168) explained that Tyonek respondents recalled the commercial hunting and processing of belugas at the mouth of the Beluga River during the 1930s. The oil, rendered from the blubber of the beluga, was sold in Anchorage and the meat was sold as dog food (Fall, Foster, and Stanek 1984:168; Stanek 1996:136).

Figure 5: Beluga being hauled up at Alaska Com[mercia]l B[ui]ld[ing], Beluga River, 1919. Historical photo used with permission from the Anchorage Museum Atwood Resource Center.



Figure 6: L.D. Ellexson, A.W. Anderson, Red Jack Bartels, Theodore River, 1919. Historical photo used with permission from the Anchorage Museum Atwood Resource Center.



Cook Inlet Dena'ina continued to hunt belugas in the first half of the twentieth century. Kalifornsky, in his story "Beluga hunting," relates what appears to be a personal experience hunting beluga whales at the mouth of the Kenai River (Kalifornsky 1991: 367). On the western side of Cook Inlet, beluga hunting was a regular activity in Tyonek. Max and Nellie Chickalusion of Tyonek (1979:12, 23) gave a short description of hunting beluga at the mouth of the Beluga River. Nickafor Alexan, a Tyonek leader and lay priest born in 1900, wrote an essay in *Alaska Sportsman* in 1965 entitled "How Tyonek people use to eat." Although the article was mainly about fishing, he mentioned the use of beluga in the storage of berries:

Some time they fill the berries in beluga stomach or seal stomach and pour oil in it and put away for winter. (Alexan 1965:39)

As with Kalifornsky's account of Kustatan, the implication is that people had regular access to beluga stomachs. Alexan does not provide dates for the practices he describes, but they appear likely to have come from personal experience (i.e., the early 1900s) or perhaps from stories he heard from his parents or grandparents (i.e., from the late 1800s).

Fall, Foster, and Stanek (1984: 168) cite an elder who estimated that six or seven belugas were taken annually during the 1930s and early 1940s. Marine mammals were a major food source for the villagers at that time, and both the meat and the blubber were used. After the early 1940s, moose abundance increased in locally accessible areas and Tyonek's mammal harvest effort shifted from marine mammals to moose.

Hunting and Use of Beluga from the Early 1940s to 1978

Kari and Fall (1987: 61) reported that beluga were not harvested by Tyonek residents from the early 1940s to 1979, but by the second edition of their book (Kari and Fall 2003: 77) they changed the wording to say that beluga hunting was "rarely pursued" in this period. Fall, Foster, and Stanek (1984: 183-184) noted that harvests of marine mammals dropped in the 1950s through the 1970s due to various factors. An increase in the abundance of moose in the 1940s resulted in Tyonek residents shifting their hunting focus from beluga to moose; moose generally require less effort and are more easily retrievable than beluga whales. Fall et al. (1984: 184) also suggests that marine mammals were less abundant during this time, due to federal bounty programs and commercial harvests of these resources.

Some evidence of beluga hunting from the 1940s to the 1970s is available. Stanek, Fall, and Holen (2006:69) provide a photograph of a beluga about to be butchered by Tyonek residents "at fish camp" in 1957 (Figure 7). Significantly, one of the men in the photograph is Tommy Allowan, whose role in Tyonek beluga hunting is described further in the next section. Chief Chickalusion was born in 1880 and served as Chief of Tyonek from the 1930s until his death in 1957 (Stanek, Fall, and Holen 2006: 60). His nephew, Maxim Chickalusion Sr., is also in this photograph.

SRB&A conducted cultural landscape interviews with knowledgeable Cook Inlet Dena'ina residents from Eklutna and Knik in June 2009 (SRB&A 2009c); these interviews were associated with the Port Mackenzie Rail Extension EIS. One of the respondents described hunting belugas and seals at the mouth of Susitna River as late as 1966. He described,

We commercial fished and hunted on the mud flats between Point MacKenzie and Big Susitna. These islands here [at mouth of the Susitna River]. That has been a while back; I don't do that so much now. It is a little bit hard to. We had a beluga camp at the mouth. I was pretty young; my job was to duck, my brother harpooned. Then we set nets. We had a teepee that we set up on teepee poles at Seal Camp Slough. Just on the inside of Delta Island. Delta is a pretty big island. I think I saw it called Seal Camp Slough. Close to the mouth. That was our seal camp. We hunted until about '66, '66 was the last year. (SRB&A Knik Interview June 2009)

Figure 7: Tommy Allowan, Herman Standifer, Theodore “Chad” Chickalusion, and Maxim Chickalusion, Sr. at fish camp in 1957 harvesting a beluga whale. (Stanek, Fall, and Holen 2006. Pauline Allowan Collection).



Other sources document subsistence uses by Tyonek residents but do not specifically discuss beluga harvests. Tranter (1972), writing about economic development and infrastructure, provided a brief description of bear and moose hunting in Tyonek during this period but makes no mention of marine mammals. Braund and Behnke (1980: 218) noted that “dependence on natural food resources in the predominantly Native villages of Tyonek, English Bay, and Port Graham remains high.” While they pointed out that Tyonek had access to marine resources, they did not list the species utilized. Stickney (1980) similarly noted that subsistence was important and participation in subsistence activities was very high, but without mention of the species hunted. While Tyonek residents clearly relied heavily on wild resources from the 1940s to the 1970s, research conducted during that time was limited and did not specifically address beluga hunting. Furthermore, more than one source (Kari and Fall 2003, Stanek et al. 2006) reports that harvests were low during the 1940s through the 1970s.

Hunting and Use of Beluga from 1979 to present

Several subsistence harvest studies have taken place in Tyonek since 1982, reporting harvests of beluga whales and other subsistence resources. Foster (1982) conducted a study on the use of king salmon and other resources between 1978 and 1982 and also reported on the hunting of beluga and harbor seals. Fall, Foster, and Stanek (1984) conducted a study on the use of fish and wildlife resources, including beluga, in Tyonek between February 1983 and January 1984. Stanek (1994) reported on the subsistence use of beluga whales, both by Tyonek and Anchorage-based beluga hunters. Stanek, Holen, and Wassillie (2007) reported on subsistence use, including beluga whales, in Tyonek from 2005 to 2006, while SRB&A (2007) conducted a corresponding report on the subsistence use areas and traditional knowledge in Tyonek and Beluga from 1987 to 2006. Huntington (2000) conducted a traditional knowledge study on the ecology of the beluga whale in Cook Inlet, interviewing Tyonek residents between November 1998 and February 1999 about their knowledge of beluga whales. A later traditional knowledge study, entitled *Cook Inlet Beluga Whale Population Decline and Recovery: An Exploration through Local Ecological Knowledge* was conducted by Brian T. G. Carter (2009) and investigates potential causes of the decline of

beluga whales in Cook Inlet through the collection of traditional knowledge by Tyonek and other Cook Inlet residents.

As discussed in the previous section, the available literature indicates that beluga harvests declined starting in the 1940s. However, by the late 1970s, documented harvests of beluga whales increased. According to Fall et al. (1984: 169), Tyonek hunters resumed the regular harvest of beluga whales in 1979, taking three that year and one each year from 1981 to 1983. Figures 8 and 9 show Tyonek residents after a successful beluga hunt in November 1981. In the early 1980s, various descriptions of Tyonek make reference to beluga hunting (e.g., Darbyshire & Associates 1981). Endter-Wada, Hofmeister, Mason, McNabb, Morrison, Reynolds, Robbins, Robbins, and Takada Rooks (1993:523, 526) did not include marine mammals on a list of resources harvested in the Cook Inlet and Kenai Peninsula area, although they did note that “open water sea mammal hunting” begins in spring; this study did not provide a comprehensive description of subsistence harvests and instead focused more broadly on the social and economic effects of the Exxon-Valdez Oil Spill in multiple Cook Inlet communities.

Fall, Foster, and Stanek (1984:169, 172) reported that 20 residents participated in the 1981 and 1982 hunts, and eight households (or 11 percent) participated in 1983. They also described hunting methods, processing, and sharing, noting that in 1983, 36 percent of households received at least some of the beluga that was taken. Foster (1982) reported that 35 percent of households in Tyonek participated in the beluga harvests between 1978 and 1982. He recorded one whale harvested in 1981 and one in 1982. Describing the preparation for the hunt, Foster wrote, “Hunting party leaders plan annual hunts for belukha after several have been sighted near the village” (Foster 1982:35). After the hunt, “the belukha is towed to the village, cut up and distributed to the residents of the village from the beach” (Foster 1982:38). Fall, Foster, and Stanek (1984:71) described the distribution of beluga throughout the community, noting that only a few harvesters provide beluga to the community as a whole. These practices appear to reflect a community-oriented hunt carried out with a high degree of coordination and cooperation, typical of traditional subsistence beluga whale hunting in many locations around Alaska.

Several subsistence studies provide contemporary descriptions of beluga hunting methods and uses. According to Fall, Foster, and Stanek (1984:54, 55), during the study period of 1978-1984, Tyonek beluga hunters harvested beluga in the spring and between commercial and subsistence fishing periods. During this time, hunters harvested beluga at the mouths of rivers and in bays including the Susitna, Beluga, and Theodore rivers, Trading Bay, and Redoubt Bay (Fall, Foster, and Stanek 1984:54, 56, 169, 170). Stanek (1994:11) reported that Tyonek hunters pursue belugas from the mouth of the Susitna River to Tuxedni Bay. SRB&A (2007:Figure 14) provides a map based on interviews with Tyonek beluga hunters showing Tyonek’s beluga hunting areas from 1987 to 2006 occurring for the most part between the Susitna River and the Beluga River.

While Tyonek hunters harvested beluga on hunting trips for that purpose, they also hunted beluga while pursuing other resources. Fall, Foster, and Stanek (1984:130, 134) noted that Tyonek residents in pursuit of clams and other shellfish will sometimes try to harvest beluga while traveling to their clam harvest areas. Similarly, belugas are occasionally hunted along the travel route to moose hunting locations on the McArthur River (Fall, Foster, and Stanek 1984:56, 169, 170). Stanek (1994) described Tyonek’s hunting areas and methods along with use and exchange practices, noting that Tyonek follows typical patterns of sharing (redistribution) within a subsistence community, in contrast to his findings concerning Anchorage-based beluga hunters. He provided a table of the estimated Cook Inlet harvest from 1987-93, but did not distinguish Tyonek’s harvest from the total.

The methods of hunting beluga in Cook Inlet have changed considerably since the mid 1800s. Fall, Foster, and Stanek (1984: 170) described how the beluga hunting methods used during their study period (1978-1984) changed from the traditional methods of hunting beluga in the past. During the 1978-1984 study period, hunters traveled in open boats powered with motors to the mouths of certain rivers. As the belugas swam up the rivers in search of fish, a beluga was selected from the group and herded into

Figure 8: Tyonek Beluga Hunt, November 1981. (Pictured from Left to Right: Unknown, Peter Merryman, Thomas Allowan, Donald Standifer, Sr., Unknown, Unknown [possibly Daniel Chickalusion]. Photograph provided by Angel McCord).



Figure 9: Tyonek Beluga Hunt, November 1981. (Pictured from Left to Right: Peter Merryman, Donald Standifer, Sr., and Thomas Allowan. Photograph provided by Angel McCord).



shallow water to prevent its escape. Hunters shot the beluga while it came up for air with high powered rifles. Once the whale was killed, the hunters quickly tried to reach the whale before it sank and tied a rope around the tail or gaffed it. A rope was then tied through the lower jaw and tied to the boat and the beluga was towed back to the village. These hunting methods changed in 2000 when hunting regulations, including regulations on hunting methods, were agreed upon to curb the rapid decline in the beluga population. Further discussion on the decline in beluga whales and the harvest restrictions and regulations put in place are discussed below in this section.

By the 1980s, beluga hunters in Cook Inlet consisted of multiple groups of hunters. NMFS (2008: 3-57) divided Cook Inlet beluga hunters during that period into those of Dena'ina Athabascan descent living in Tyonek and those of Iñupiat and Yup'ik Eskimo descent living or visiting other communities in the Cook Inlet region (NMFS 2008:3-57). Stanek (1994:7) divided Cook Inlet beluga hunters into those who are full-time Cook Inlet residents (in the communities of Tyonek and Anchorage and the areas surrounding Kenai and the Matanuska and Susitna valleys), and those who visit the Cook Inlet region from other parts of the state including Kotzebue Sound, Norton Sound, Seward Peninsula, Yukon-Kuskokwim Delta, Bristol Bay, and Barrow. Mahoney and Shelden (2000:129) further divided hunters not associated with Tyonek into two groups; those who live in the Cook Inlet region and those who visit the region for only a short time. Dena'ina hunters from villages other than Tyonek, including Knik and Eklutna, historically hunted beluga in Cook Inlet but had not reported doing so within the 15 years prior to Stanek's research (Stanek 1994:9, 10; NMFS 2008:3-57).

In an important indication of the cultural continuity of beluga hunting in Tyonek, Fall and Kari (2003:77) reported that:

Tommy Allowan of Tyonek was in charge of the butchering process in the 1970s and 1980s; he had learned this skill from Chief Simeon Chickalusion. The Dena'ina have numerous technical terms for beluga as well as for seal anatomy and butchering.

Studies conducted by the Alaska Department of Fish and Game Division of Subsistence have reported that Tyonek residents followed a precise order in butchering beluga whales; butchering activities were overseen by a particular individual who was knowledgeable about the process and who guided others in specific activities (Stanek, 1996: 139). Fall, Foster, and Stanek (1984:170) described what happens after a successful beluga harvest:

After a Belukha was harvested, it was towed intact along side or behind the boat to the beach near the village, then pulled partially up the gravel beach with a motorized vehicle to the butchering site. An older village man directed the hunters and villagers during the butchering process. (Fall, Foster, and Stanek (1984:170-172).

Fall, Foster, and Stanek continued describing the butchering process:

The flippers and tail are removed and discarded. The skin and blubber were removed by making parallel cuts the length of the carcass about 16 inches apart. As these strips of blubber were fleshed from the animals they were cut into blocks approximately 24" [sic] in length. After the blubber was removed exposing the flesh, the backstraps were cut from the backbone. The ribs with the meat remaining on them were then separated from the back bone, exposing the internal organs. The liver, heart, and inner tenderloins were then removed. The remaining skeleton and internal organs were either used for dog food or returned to the inlet. The blubber and meat were cut into smaller portions and shared throughout the village (Fall, Foster, and Stanek (1984:172).

While the above excerpt suggests that the flippers and tail were not used during the time period discussed, Stanek (1994) noted use of these parts in addition to the lower jaw or teeth, indicating that these are the

only bony parts removed from the butcher site. Figure 10 depicts Tyonek residents in the process of butchering a beluga whale, with Randy Standifer holding the tail of the beluga.

Figure 10: Randy Standifer with Beluga Tail. (Photograph provided by Janelle Baker).



Members of the community who helped in the butcher process made sure the elders of the community received an appropriate share before others did (Stanek 1996:140). The beluga meat and blubber were then distributed throughout the rest of the community. The blubber was rendered into oil while the *maktak*, blubber attached to the skin, was boiled (Fall, Foster, and Stanek 1984:172). The meat was either “roasted, boiled, or ground into burger.”

Table 3 depicts known beluga harvests from the early 1900s to present. The data in the table were derived from various sources and only include harvests by Tyonek residents. While some beluga harvest data are available for the Cook Inlet region, these were not included because they are not specific to the community of Tyonek. The Tyonek data included in Table 3 are consistent with harvest data published by Mahoney and Sheldon (2000).

Table 3: Known Tyonek Beluga Harvest Summary

Period/Year	Total Harvest	Source
1930s-early 1940s	6-7	Fall, Foster, and Stanek 1984
Early 1940s-1956	Unknown	Fall, Foster, and Stanek 1984, Kari and Fall 2003
1957	1	Stanek, Fall, and Holen 2006
1958-1978	Unknown	Fall, Foster, and Stanek 1984, Kari and Fall 2003
1979	3	Fall, Foster, and Stanek 1984
1980	Unknown	
1981	1 harvested, 5 struck	Foster 1982, Fall, Foster, and Stanek 1984
1982	1 harvested, 3 struck	Foster 1982, Fall, Foster, and Stanek 1984
1983	1	Fall, Foster, and Stanek 1984
1984-1986	Unknown	
1987	0	Kathy Frost, pers. comm. 2007 (ABWC data)
1988	1	Kathy Frost, pers. comm. 2007 (ABWC data)
1989	0	Kathy Frost, pers. comm. 2007 (ABWC data)
1990-1992	Unknown	Kathy Frost, pers. comm. 2007 (ABWC data)
1993	0	Kathy Frost, pers. comm. 2007 (ABWC data)
1994	Unknown	Kathy Frost, pers. comm. 2007 (ABWC data)
1995-1998	Unknown	
1999	0	NMFS 2008
2000	0	NMFS 2008; Barbara Mahoney, pers. comm.. 2009
2001	1	Barbara Mahoney, pers. comm. 2009
2002	0	Barbara Mahoney, pers. comm. 2009
2003	1	Barbara Mahoney, pers. comm. 2009
2004	0	NMFS 2008; Barbara Mahoney, pers. comm. 2009
2005	1	Barbara Mahoney, pers. comm. 2009 (2 whales)
2006	0	Barbara Mahoney, pers. comm. 2009
2007	0	NMFS 2008; Barbara Mahoney, pers. comm. 2009
2008	0	Barbara Mahoney, pers. comm. 2009

Sources: Fall, Foster, and Stanek 1984; Foster 1982; Kari and Fall 2003; Stanek, Fall, and Holen 2006; Frost 2007; NMFS 2008; Mahoney 2009.

Beginning in the late 1990s, concerns about declining numbers of Cook Inlet beluga resulted in increased hunting regulations and a decline in Tyonek beluga harvests. After the Marine Mammal Protection Act of 1972, only Alaska Natives were allowed the harvest of marine mammals. Other than limiting beluga hunting in Cook Inlet to Alaska Natives, there were no other restrictions placed on the season in which they could be hunted, the number taken, or the methods in which they were hunted (Fall, Foster, and Stanek 1984). This changed in 1999 after population studies found that the beluga population had declined nearly 50 percent between 1994 and 1998 (Hobbs et al. 2006: viii). The number of Cook Inlet beluga dropped from an estimated 653 in 1994 to an estimated 347 in 1998. As recently as the 1970s, the population of Cook Inlet beluga whales had been estimated to be as high as 1,300 or more (NMFS 2007). Recent subsistence studies in Tyonek reflect ongoing, if limited, harvests of beluga by Tyonek residents. During their 2005-2006 study period, Stanek, Holen, and Wassillie (2007:15) stated that “Typically, one or two belugas are taken annually along with three or four harbor seals.” During this period of their study, one beluga was taken. Three households participated in the hunt, and 47 percent of households used beluga products. SRB&A (2007:44, 45) noted that Tyonek hunters reported relatively low success rates in hunting beluga during the 20 year study period. Furthermore, Tyonek hunters reported taking only periodic trips to beluga hunting areas between 1987 and 2006, often indicating that they did not hunt beluga on a yearly basis. SRB&A also reported changes in the belugas of Cook Inlet noticed by Tyonek hunters over the 20 year study period. Fifty-one percent of Tyonek respondents reported a decline in the abundance of belugas in Cook Inlet.

Since the suspension of beluga hunting in 1999, which is discussed in further detail below, Tyonek hunters’ primary subsistence activities have been directed at harvests of moose and salmon (Stanek et al., 2007). Coincidentally, during the 1990s, the moose population in the Tyonek area declined, prompting more restrictive management regulations.

As noted above, concerns about declining beluga numbers in the 1990s led to increased beluga hunting regulations and a decline in Tyonek beluga hunting efforts. The Cook Inlet Native community, including Tyonek, voluntarily suspended beluga hunts in April 1999 over concerns of the rapid decline in the Cook Inlet beluga stocks between 1994 and 1998 (Mahoney and Shelden 2000:130; Hobbs et al. 2006:viii). Legislative actions resulted in a moratorium on hunting beluga in 1999. By the spring of 2000, Cook Inlet belugas were designated as depleted under the Marine Mammal Protection Act of 1972 (MMPA) (NMFS 2000). At nearly the same time, an agreement to cooperatively manage the Cook Inlet beluga stock was reached between NMFS and the CIMMC (Mahoney and Shelden 2000:131). CIMMC is an organization made up of local Native hunters, Alaska Natives from the six Cook Inlet Treaty Tribes, and concerned Alaska Natives living in the Cook Inlet region (NMFS 2008:3-60). NMFS and CIMMC agreed that for the year 2000, only one beluga was allowed to be struck and/or taken. The allocation of one beluga for 2000 was given to Tyonek, but no whale was struck that year. Since 2001, subsistence hunting is now controlled by federal regulations and co-management agreements between NMFS and an Alaska Native organization, representing the Cook Inlet region. New agreements on the co-management of Cook Inlet beluga whales between NMFS and CIMMC resulted in three whales successfully taken between 2001 and 2003 and two whales in 2005 (NMFS 2008; Mahoney, personal communication, 2009). Tyonek harvested one whale in 2001, 2003, and 2005, while Anchorage based hunters harvested one whale in 2002 and 2005 (Mahoney, personal communication, 2009). Tyonek hunters in 2006 were unsuccessful harvesting a beluga. According to the Interim Harvest, the allowed subsistence hunt was suspended in 2004 due to the deaths of 20 whales in 2003 (not including the one whale harvested under the 2003 agreement), and the Native Village of Tyonek voluntarily agreed not to hunt belugas that year (NMFS 2003). Although two whales were to be allocated in 2007, with one whale each going to Tyonek and Anchorage hunters, the 2007 hunt was voluntarily dropped by Tyonek because the previous five year population average dipped below 350 whales (NMFS 2007; Mahoney, personal communication, 2009). Figure 11 shows residents gathering at the shore after their most recent beluga hunt in 2005.

In addition to regulating the number of beluga whale harvests, NMFS and CIMMC adopted rules regarding beluga hunting and harvesting practices (NMFS and CIMMC 2000, 2001, 2002, 2003, 2005, 2006). A whaling captain must be registered and receive a permit to hunt belugas, and an experienced hunter or elder must be present during the hunt to provide expertise to reduce the possibility of striking a calf or a female accompanying a calf or losing a struck whale. A harpoon with an attached rope and float must be utilized before the whale is shot to reduce the possibility of losing the struck whale. The harvest location is also restricted as well as the timing of the hunt. The sale of beluga parts is prohibited.

While subsistence hunters only harvested five belugas between 1999 and 2007, the population of beluga whales in Cook Inlet failed to grow as expected (Hobbs et al. 2008:ix). In fact, the population continued to decline (Hobbs et al. 2008:28). Because of the further decline in Cook Inlet belugas, Tyonek's diminished opportunity to hunt this culturally important subsistence resource will continue.

Figure 11: Tyonek Residents with Harvested Beluga, 2005. (Pictured from Left to Right: Jane Standifer, Peter Merryman, James Ollice, Joshua Salas, Jaison Salas, Randy Standifer, Sr., Rolland Standifer, Timothy Standifer, Randy Standifer, Jr., Dustin Constantine, Brandy Standifer, Sam Standifer. Photograph provided by Janelle Baker)



Current Relationship to Beluga Whaling

As described under “Methods”, SRB&A conducted interviews with Tyonek residents who had experience with or knowledge about beluga hunting; this included individuals who may not have hunted beluga, but who had participated in beluga hunting preparations, butchering, or other associated activities. SRB&A interviewed 28 Tyonek residents, 16 of whom had hunted beluga in the past. Because beluga hunting is a specialized activity, there are a small number of beluga hunters relative to the community population. SRB&A researchers did not conduct a household survey and did not interview every resident who

reportedly had beluga whaling experience. Therefore, the data below do not represent Tyonek’s beluga whaling experience as a whole.

This section presents the findings of SRB&A’s 2009 interviews with 28 Tyonek residents regarding the community’s relationship with beluga whales. Included in this section is a detailed description of the activities surrounding a Tyonek beluga hunt as provided by Tyonek residents. These activities consist of preparation for the beluga hunt; participation in the hunt including hunting experience, organization of the hunt, hunting methods, and factors that affect a beluga hunt; and the processing, distribution, and consumption of beluga whales. This section also contains residents’ knowledge and views about the historical aspects of beluga hunting; the social and cultural aspects of beluga hunting; and the future of Tyonek’s beluga hunting.

Twenty-four of the 28 respondents interviewed reported participating in activities associated with beluga hunting. In this report, these activities are organized into three categories: preparation for the hunt (i.e., before the hunt), participation in the hunt (i.e., during the hunt), and processing, distribution and consumption of beluga (i.e., after the hunt). Sixteen of 28 residents reported assisting in all three different activities. Three residents reported participating in two activities and five residents reported helping in one activity (Table 4). Respondents’ participation in these activities is described in further detail below, under “Preparation for the Beluga Hunt,” “Participation in the Beluga Hunt,” and “Processing, Distribution, and Consumption of Beluga.” Not included in Table 4 are four respondents who have not participated in any activities associated with beluga hunting aside from consuming beluga.

Table 4: Participation in Beluga Hunting Activities

Number of Activities	Number of Respondents
One activity	5
Two activities	3
Three activities	16
Total number of respondents	24

Stephen R. Braund & Associates, 2010.

Preparation for the Beluga Hunt

The majority of Tyonek respondents, 19 of 28, reported providing support or assistance in preparations for a beluga whale hunt (Table 5). The majority of these respondents (15) began doing so between the 1950s and 1970s (Table 6). Fewer residents began assisting in the preparation of beluga hunts in the 1980s and 1990s. This reflects SRB&A researchers’ goal of interviewing active and knowledgeable members of the community who had a history of hunting beluga in Cook Inlet.

Table 5: Experience Preparing for a Beluga Whale Hunt

Supported or Assisted in Preparing for a Beluga Whale Hunt	Number of Respondents
Yes	19
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 6: Decade First Started Assisting in Preparing for a Beluga Hunt

Decade	Number of Respondents
1950s	6
1960s	5
1970s	4
1980s	1
1990s	2
Do not remember	1
Total number of respondents	19

Stephen R. Braund & Associates, 2010.

There are multiple ways in which Tyonek residents assist in the preparation of a beluga hunt. Residents help by preparing boats and hunting supplies and also by providing needed supplies, money, and gas. Residents also assist in the preparation by cooking or preparing meals for the hunting crew or community members waiting onshore. Residents most commonly reported assisting in the preparation of the boats as well as providing supplies and gas for the hunting crews (Table 7). Examples of other ways in which residents assisted in the preparation of a beluga hunt include the preparation of rifles, readying other gear, providing food, and organizing the hunting crew.

Table 7: Types of Experience Preparing for a Beluga Hunt

Support or Assist Roles	Number of Respondents
Prepare boats	17
Prepare floats	6
Prepare harpoons	5
Provide supplies	11
Provide money	6
Provide gas	10
Helped cook	6
Other	3
Total number of respondents	19

Stephen R. Braund & Associates, 2010.

During the preparation for a beluga hunt, residents reported checking the boat to ensure it is in good working order and stocking the boat with safety and other gear. The types of gear needed during a beluga hunt include personal floatation devices (PFD), overnight gear in case of an unexpected stay, safely stored rifles in the boat, ammunition, gas, motors, ropes, floats or buoys, harpoons, raingear, food, and water. The safety of the hunters is a high priority. The hunters determine a plan of where they will be traveling and discuss expectations regarding their role in the hunt. One respondent described preparing for a beluga hunt as follows:

Number one is you have to make sure that your boat is in good working order, no holes, survival gear, ropes, buoys, make sure that all the weapons in the boat are unloaded and safely stowed, safety checks, what's expected of us as hunters, things like that, just preparation mode. (SRB&A Interview Tyonek April 2009)

Participation in the Beluga Hunt

This section describes Tyonek respondent's past experience hunting beluga; the organization of the hunt; hunting methods including hunting locations, timing of the hunt, and retrieving and towing the whale; and factors affecting the beluga hunt.

Hunting Experience

Sixteen of the 28 Tyonek respondents reported hunting beluga in Cook Inlet at some time in their lives (Table 8). Beluga whale hunting is a specialized activity in Tyonek. Only a small percentage of community members have learned the skills necessary to hunt beluga, although nearly the entire community participates in the activities surrounding the beluga hunt. (For further discussion of community-wide participation in beluga related activities, see below under "Processing, Distribution, and Consumption of Beluga.") As depicted in Table 9, six Tyonek beluga hunters began hunting in the 1950s, and six began hunting between the 1960s and 1980s. Three respondents began hunting in the 1990s. Because of the restrictions on beluga hunting beginning in 1999, the last beluga hunt for most hunters occurred in the 1990s or earlier (Table 10). However, four Tyonek respondents indicated they had hunted beluga in the 2000s.

Of the 16 beluga hunters interviewed, eight hunters reported hunting beluga for a total of less than 10 years and five hunters reported hunting beluga for 10 to 19 years (Table 11). As explained below under "Organizing the Hunt," residents explained that not all beluga hunters participate in the hunt every year. Hunters alternate their involvement in the hunt to allow for others to participate and younger members of the community to learn beluga hunting skills.

SRB&A research team members asked Tyonek beluga hunters which captains they have hunted with and who had taught them how to hunt belugas. In general, hunters reported learning how to hunt beluga whales by their fathers, or in some cases their uncles, who most often happened to be the captain with whom they hunt. Beluga hunters also reported learning how to hunt beluga whales by participating in the hunt and watching how it is done.

Table 8: Beluga Hunting Experience

Experience Hunting Beluga	Number of Respondents
Yes	16
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 9: Decade Tyonek Residents First Started Beluga Hunting

Decade	Number of Respondents
1950s	6
1960s	2
1970s	2
1980s	2
1990s	3
Do not remember	1
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Table 10: Decade Tyonek Residents Last Hunted Beluga

Decade	Number of Respondents
1950s	1
1960s	2
1970s	1
1980s	2
1990s	6
2000s	4
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Table 11: Number of Years Tyonek Residents Hunted Beluga

Years	Number of Respondents
Less than 10 years	8
10 to 19 years	5
20 years or more	2
Do not remember	1
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Thirteen of 16 beluga hunters who have hunted beluga reported either personally striking a beluga whale¹ or participating in a successful beluga hunt (Table 12). Most hunters (12) reported striking beluga whales with rifles; five hunters reported having struck a whale using a harpoon with an attached float (Table 13). Table 14 shows the different roles Tyonek respondents have held while hunting belugas. The majority of beluga hunters (12) held the role of shooter during a beluga whale hunt (Table 14). Other responsibilities held by beluga hunters include steersman, captain and harpooner. Hunters described other beluga hunting roles such as acting as the whale spotter and deck hand. Several hunters also described being included in the hunting crew for the sole purpose of learning the skills of beluga hunting. Most respondents reported holding either one or two roles as beluga hunters, although respondents described having held as many as four beluga hunting roles, or none at all (Table 15).

Table 12: Experience Striking Beluga or Participating in a Successful Hunt

Struck beluga or participated in a successful hunt	Number of Respondents
No	3
Yes	13
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

¹ As noted above, prior to recent regulations on hunting methods Tyonek beluga hunters often hunted belugas solely with rifles; recent hunting regulations stipulate that hunters must strike the beluga with a harpoon and float before shooting it with a rifle. Respondents' use of either a harpoon or a rifle when harvesting a beluga was considered a "strike" in the context of the interviews.

Table 13: Gear Used to Strike Beluga

Gear Used	Number of Respondents
Harpoon with float	5
Rifle	12
Other	0
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Table 14: Beluga Hunting Roles

Beluga Hunting Role	Number of Respondents
Steersman	8
Harpooner	5
Shooter	12
Captain	7
Other	6
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Table 15: Number of Roles Held by Respondents

Number of Roles	Number of Respondents
No role	2
One role	4
Two roles	5
Three roles	2
Four roles	3
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

Organizing the Hunt

SRB&A study team members asked Tyonek respondents to describe how the community decides whether a beluga hunt will take place. The majority of respondents explained that a respected elder in the community with substantial history and knowledge of belugas and beluga hunting generally decides if and when a beluga hunt will take place. Others identified a local hunter, who is the head of a beluga hunting family in Tyonek and who is usually the captain of his boat, as a person who decides when to hunt beluga. A small number of respondents noted that they generally do not wait for a leader in the community to organize a hunt but instead decide on their own when they will hunt beluga. One hunter stated,

Whoever wakes up first, basically that is it. Generally the people who hunt them most, they make the decision, like me. I get up and get the word around the village, decide and then go out the next morning. (SRB&A Interview Tyonek April 2009)

Several residents reported that in the past the village council has requested a beluga harvest and sponsored hunts by providing gas and other supplies. One resident stated, “Sometimes the village will ask and will supply support for the hunt” (SRB&A Interview Tyonek March 2009). Another resident explained,

After we talk to [name of respected elder in the community with substantial beluga hunting knowledge], someone will tell us to gather up a crew. Once we decide to go, the village [council] gets involved and helps with gas. (SRB&A Interview Tyonek April 2009)

One respondent described how beluga hunts were organized in the past. He explained that the chief of the village would decide where and when a hunt would take place and would take the experienced hunters in the community. He said,

The leader, the chief, picks out who’s the best hunter of the people. There were specific people who hunt beluga, there were specific people who hunt other game, the best hunters, who went out for hooligans, or clams down there. They were chosen. Somebody didn’t make up their mind, ‘Oh, let’s get a beluga today.’ It was already known the season before who’s going to go hunting. It’s not like they had a list of beluga hunters, it wasn’t done that way. The chief said ‘you’re going to go get this beluga.’ Modern [day]: you’re familiar with [name of the respected elder in the community with substantial beluga hunting knowledge], that’s how it was organized, a lot of people provide for the gas, and they had their own weapons and shells. It usually takes two whales to come back. (SRB&A Interview Tyonek May 2009)

Tyonek residents reported that beluga hunting groups are formed by the boat captains. The boat captains decide who will accompany them on the hunt. One prominent beluga hunter in the community stated,

Generally there are a lot of people who want to go, too many. I have to make a decision. [A beluga hunt] takes about four people at the most, that way you are safe, you can watch each other. If you harpoon a whale there is a big bunch of rope there. Three with myself, four of us in the dory. Once in a while I take the younger generation, couple of them, let them see what it is like. I started that three years ago. [Respected and knowledgeable hunter] would go out and his kids would go out. That was a family thing, me, I go out for the village. (SRB&A Interview Tyonek April 2009)

Another boat captain stated, “I don’t take gun happy people. [Just] people with knowledge of guns” (SRB&A Interview Tyonek April 2009).

Prior to the restrictions put in place in 1999, the boat captains would often take younger people along on beluga hunts to teach them how to hunt belugas. Now, since the hunt is restricted to a limited number of beluga and is allowed only during certain years, it is more important that the captain take experienced hunters to guarantee a successful harvest. Still, the need to pass on the skills of hunting beluga encourages some boat captains to take younger residents of the community who express a desire to hunt beluga. One respondent described the makeup of a beluga hunting crew as follows: “The skipper is usually the elder, couple of adults and a few young peoples. Up and coming hunters” (SRB&A Interview Tyonek April 2009).

One boat captain described how a beluga hunting group is formed and noted that he can only take so many people on the boat before it gets dangerous. He said,

Families and random community members [make up the hunting group]. People will ask you because everyone wants it. People will ask me [if they can] go but my boat is too full. You have to be a good captain. I know who are good shooters and not good shooters. Others will suggest who should go. (SRB&A Interview Tyonek April 2009)

This boat captain went on to explain that, in addition to taking experienced hunters with him on a hunt, he also takes younger people who want to learn the skills of hunting beluga. While some residents indicated that beluga hunting groups consist of both community members as well as family members, others explained that hunting groups are primarily formed from beluga hunting families. One respondent reported,

Mostly just a group of family. The [family name] usually go out; it is usually just their family. They will get other people who want to go out. If not enough people want to go out, they don't go out. (SRB&A Interview Tyonek April 2009)

Historically, only men hunted beluga while the women stayed in the village preparing for their return. More recently, there has been a shift to allow women to participate in the hunt if they show an interest. One woman stated,

Mainly guys [go]. The women stay home and watch the house and the food, make sure the dinner is ready when they get back. [Two active beluga hunters] and whoever goes. I go because my dad only had two daughters and I'm a tomboy. (SRB&A Interview Tyonek April 2009)

Another beluga hunter noted that women have been included in the beluga hunt in recent years, saying,

Men, mostly men. The last couple years there were a couple women who wanted to go out, I took them; that was a first. They are getting into a little bit of everything, that is good, no fault in that. (SRB&A Interview Tyonek April 2009)

As discussed earlier under “*Hunting Experience*,” one hunter explained that not every hunter or hunting crew hunts every year; instead, they alternate so that each crew gets a chance to keep the knowledge and experience alive, and so that more younger people have the opportunity to learn how to hunt beluga. He stated, “Sometimes, switch to different families so they can teach their kids” (SRB&A Interview Tyonek April 2009).

In general, when asked whether the organization of beluga hunting groups had changed from the past, residents reported that no change had occurred. One resident stated, “Hasn't changed. Usually we try to take younger people out for the experience” (SRB&A Interview Tyonek April 2009).

Hunting Methods

Tyonek respondents described the methods they use to hunt beluga whales in Cook Inlet. According to their descriptions, Tyonek beluga hunters travel to the mouths of rivers where beluga are expected and known to be present. These rivers include the Beluga, Susitna, Little Susitna, Theodore, Ivan, and McArthur rivers. Respondents explained that they wait until the belugas are traveling up the rivers in search of fish before they select one whale to harvest. Once the whale has been identified, Tyonek hunters herd the animal into the shallow waters where it is easier to pursue. When the beluga is within range of the hunters, the hunters harpoon and then shoot the beluga with a rifle. One beluga hunter provided this description of his beluga hunting methods:

The night before, we round up a crew. They say yes or they can't do it. We get the dory prepared early in the morning, depending on the tide, load up with gas. When the tide is low from the village we jump into the dory and head to the Susitna. They come in with the tide, the females come in first with calves, the males come in last, that is what we wait for is the big male. Once in a while we get mixed up and get a female; as long as it doesn't have a calf, it is okay. Then I kill it, harpoon it and kill it. We sit there, we know the cows and calves come in first; the bulls are way out and they are the big ones. We pick it out

and keep an eye on it. We wait 'til he comes in, and we follow him and chase him around, 'til he is coming up, running out of air, and harpoon him, same thing to shoot him. It may take five or six shots to kill him if he is big. (SRB&A Interview Tyonek April 2009)

Another beluga hunter explained his methods in hunting beluga, saying,

We'd run up to the Beluga River, Susitna River and the method is we would get up there at high tide. That is when they are in the rivers. We would come in and pick one out and get on the chase, and they follow the channel under water. Even way out, they stay in the channel. You will know where they are. The idea is to break them off and make them run into the shallow water. Number 1: it will be shallow enough, and they can't dive because it is too shallow. When you shoot them you try to shoot them in the blow hole. Sometimes you are lucky, and you get them in one shot. (SRB&A Interview Tyonek May 2009)

Table 16 provides additional responses by Tyonek beluga hunters describing their methods of hunting beluga.

Table 16: Additional Tyonek Responses on Beluga Hunting Methods

Additional Responses
<i>We know where the belugas are at, Beluga River, Theodore, Ivan, Big Su, McArthur; we go check each point until we find them. Throw the anchor out at slack tide, let them get into the river. When the tide switches that is when they feed. We attack then; drive them into the shallow waters. That is how we weed them out for a big one. It is chaos with so many belugas and trying to keep an eye on the one you pick out. Separate them and kill them. Sometimes you luck out with one bullet. (SRB&A Interview Tyonek April 2009)</i>
<i>The way I do it is I come to where they're at, you know the place, so you try to pick a good one and drive them into shallow water. It makes it easier if they are in shallow water. (SRB&A Interview Tyonek April 2009)</i>
<i>The captain is in the back. The harpoon man in the front. You see the swells coming up and when you see it coming up you shoot it. You don't have long. The harpoon has to get in or you lose it. Wait for tide to come in, wait for the herd to come in, and we take the big one. We hook through the tail and start dragging it home. (SRB&A Interview Tyonek April 2009)</i>
<i>We go to the river when the tide is coming in and wait until they are in the river and then go after them and keep them in the shallow water; you can see their wake. Once you get one you cut a hole through the jaw and tie a rope to it and to the boat and tow it home. (SRB&A Interview Tyonek April 2009)</i>
<i>When [the hunters] leave, they know the grounds where the beluga will be. They get to where they will be. If they spot a whole bunch of them, they pick one out and chase it. they catch up to it and shoot it and kill it. They run up to it and tie it up to the boat before it sinks. They sit for a couple hours, depending on the tide. An hour before high tide, they start towing towards the village. (SRB&A Interview Tyonek April 2009)</i>

Stephen R. Braund & Associates, 2010.

The above descriptions of the hunting methods used in harvesting belugas are a reflection of both the older methods of hunting belugas (prior to the 1999 hunting regulations) and new hunting methods. Prior to 1999, beluga hunters would move within range of a suitable beluga and shoot the animal with a high powered rifle. They would then attempt to retrieve the beluga before it sank out of reach (Foster 1982:35, 38; Fall, Foster, and Stanek 1984:170). During that time, a harpoon was used by only a few hunters. Starting in 2000, a hunter was required to first strike the whale with a harpoon attached to a float with a

line before shooting the animal with a rifle (NMFS 2000). This reduced the possibility of shooting more animals other than the one being pursued, and it increased the ability to retrieve the beluga, as the float indicated to the hunting party where the animal was. It is likely that when asked to describe their beluga hunting methods, respondents were recalling their hunting experiences prior to the restricted hunting methods, as the majority of hunters interviewed had not hunted since the new restrictions were put in place (see Table 9).

When asked how beluga hunters determine which beluga to harvest, respondents reported hunting for the largest white male belugas. Several respondents explained why the large white male whales are the primary target during a beluga hunt, indicating that these whales provide more meat for the community and hunting males allows the females to reproduce more whales for the future:

The biggest one in the pod, just by a custom they knew which one to get, the biggest one. I never saw them get small ones. I've never seen them kill the brown ones [young grey whales], just the white ones. The bigger they are the more meat to go around; that is why they kill the biggest one. (SRB&A Interview Tyonek April 2009)

One resident described in detail their selection of whales for harvest, saying,

There is always one that makes the wrong choice. I don't know if he is the sacrificial lamb. It is interesting. If they have calves, we usually leave those alone. If we see a little calf, we just break off and try and find a single one. That is practiced religiously. We don't even shoot in the area where the calves are. For the re-growth, make more. Kind of like when you see a moose with the calves, you know the calf will die if you kill the mother. They usually have a calf and [the calves] are dark colors and when they are older they are kind of small and they are always hanging around their mother. You can see the bulls. They are pretty big and usually by themselves. They break away by themselves from the pod. (SRB&A Interview Tyonek May 2009)

All but one Tyonek beluga hunter explained that hunters take hunting trips for the sole purpose of hunting beluga (Table 17). However, Tyonek residents also described hunting beluga while hunting other resources such as moose, seal, and ducks, as well as while fishing and harvesting clams. Beluga hunting at the McArthur River is usually associated with the fall moose hunt that occurs along the river. Respondents stated that they will harvest a beluga if the conditions are right when traveling either to or from the McArthur River. This occurs on a limited occasion. Two residents provided the following comments:

[Beluga hunting while] moose hunting, maybe one [time] out of 20. If we are going up to the McArthur [and] we see an opportunity, we'd take it. (SRB&A Interview Tyonek April 2009)

We got one at McArthur River after setting up camp for moose hunting. (SRB&A Interview Tyonek April 2009)

Table 17: Do Hunters Take Hunting Trips for the Sole Purpose of Hunting Beluga

Take Hunting Trips Solely for Beluga Whales	Number of Respondents
No	1
Yes	15
Total number of respondents	16

Stephen R. Braund & Associates, 2010.

While Tyonek hunters are in pursuit of beluga, occasionally they will harvest seals if the conditions are right, if no belugas are in the area, or if they have room in the boat for the added weight. One resident observed, “When we go out [beluga hunting], that’s what it’s for. That’s a different hunt, seal hunt. If you have the room, then we’ll get them” (SRB&A Interview Tyonek April 2009). Another resident stated that hunters will also take other resources if they are available while beluga hunting. He said,

If there was other game in the area, of course you would get the other game. When they went out to hunt the seals, they would come back with clams, roots, and berries. It’s opportunity. If it’s there, the opportunity is there, you take advantage. If they went up the Beluga, they [the beluga] were hunting the hooligans in the river, you also got the hooligans, too. (SRB&A Interview Tyonek May 2009)

When asked whether beluga hunting methods had changed from the past, few respondents reported any changes in the beluga hunt. However, several respondents commented on the change in the use of weapons since the 1999 restrictions required the use of harpoons in addition to rifles. One respondent indicated that modern weapons have made hunting belugas easier, saying, “Just a little bit easier I guess. In the older days it used to be harpoon mostly, in grandfathers days. Now we use powerful rifles, anything bigger than a .30-06” (SRB&A Interview Tyonek April 2009). Other respondents commented on the effect of modern technologies on beluga hunting methods. Two residents noted the faster motors and boats used in harvesting beluga today. One resident stated,

Bigger motors and faster boats, bigger guns. Now we have to harpoon them first before we shoot, before we used to shoot them and harvest them. That was the law since the law changed back eight years ago. I heard stories, activity of the old people, Shem Pete’s book. They mentioned harpooning from the tree, then they dropped off and started shooting them. Since the new law we have to harpoon them and shoot after. (SRB&A Interview Tyonek April 2009)

One resident noted that one past hunting strategy of staying extremely still and quiet during a beluga hunt is no longer practiced by beluga hunters:

Remains the same from when I remember. Only thing different I notice, not everyone has to be so quiet. Long time ago there were so many of them you stop the motor and don’t move, no talking, one will come by and [the hunters] shoot it and chase it. (SRB&A Interview Tyonek May 2009)

Hunting Locations. Tyonek residents reported hunting beluga near the mouths of several rivers to the north and south of the village. Beluga hunters travel to the Beluga, Susitna and Susitna Flats, and Little Susitna rivers as well as the McArthur River. Two respondents also reported hunting beluga near the mouths of the Ivan, Theodore, and Middle rivers as well. One resident described Tyonek’s current and traditional hunting area occurring anywhere between the McArthur River and the Susitna River, saying, “From the McArthur River to the Susitna and anywhere in between. Been that way for centuries” (SRB&A Interview Tyonek April 2009).

The Beluga River was the most commonly reported river in which residents hunt beluga whales. Respondents also frequently reported hunting at the McArthur River but much less often than the Beluga River. Residents also reported visiting the Susitna River and Susitna Flats often when hunting beluga. The Susitna River has very broad, shallow mud flats extending beyond the mouth of the river, which provide Tyonek hunters with an ideal beluga hunting area. One hunter noted:

Beluga River, Susitna flats, McArthur River. Usually go up Beluga River, Susitna Flats, that way you can chase them into shallow water. Usually if you go out and stay out for a while, they come up and follow the hooligans and that's an easy place to get them because they have no place to go. (SRB&A Interview Tyonek April 2009)

While describing his more current beluga hunting areas, one respondent also discussed historical beluga hunting areas in Cook Inlet including Beshta Bay, Polly Creek, and Kustatan, saying,

In the spring time they would go north of Tyonek around Beluga [River] area, they caught one in the bay, Beshta Bay. Mostly the hunting was around Beluga River, all the [hunts] I was on. On occasion they would kill one down at McArthur; that was on occasion. That is not our hunting grounds, our hunting grounds are around the Beluga [River]. I think maybe when he [father], before we were around, they used that whole Cook Inlet to hunt, the west side anyways, Polly Creek all the way to Tyonek. Because they know the migration, with the fish, that was the only place I've seen them hunt was at the Beluga [River]. I know my dad told stories about hunting them down at Polly Creek and Kustatan. (SRB&A Interview Tyonek April 2009)

Available use area data indicate that beluga hunting locations have changed slightly from the past. Foster (1982:39) and Fall, Foster, and Stanek (1984) show beluga and seal hunting areas between 1978 and 1984 spanning the coast between the Susitna River and Harriet Point at the southern end of Redoubt Bay. Between 1987 and 2006 Tyonek's beluga hunting areas extend farther north to the mouth of the Little Susitna River but not as far south as the previous data show (Map 3). Instead, during the 1987-2006 study period, beluga use areas extended south only to Granite Point and in an isolated area at the mouth of the McArthur River.

When asked to describe places associated with belugas and beluga hunting, nearly all respondents pointed to their hunting areas including the Susitna River and Flats, the McArthur River, Beluga River and the Little Susitna River. One resident explained, "Hunting areas, the reason why that is they are feeding on the rivers" (SRB&A Interview Tyonek April 2009), and another stated, "Susitna, McArthur is another. Just because of the fish that goes up the rivers. It's their rendezvous I guess" (SRB&A Interview Tyonek April 2009).

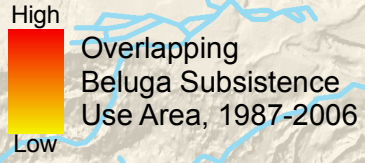
Although the majority of respondents immediately identified hunting areas as places associated with beluga hunting, one resident noted that the beach in front of the village was an important place. He noted that the beach is the place where the whole village comes together to participate in the beluga harvest, saying, "Gather everyone together and go get it and have butchering on the beach time when we get back" (SRB&A Interview Tyonek April 2009).

Timing of Hunt. In general, residents described hunting beluga whales in the spring and summer. Several residents also reported hunting beluga in the fall. Beluga hunting coincides with the particular fish that are returning to the rivers to spawn. Respondents reported hunting beluga in late April and May and into June when the hooligan and king salmon are returning to the rivers and in June, July, and August when the red and silver salmon are moving up Cook Inlet. One resident described hunting in June, saying, "Generally in June. Back in June they are usually following the fish. We wait until they get up here in June; they are up here by that time" (SRB&A Interview Tyonek April 2009).

Another resident described hunting from May until August when the beluga are following the salmon, and observed,

Beginning of May, June, sometimes July when the reds are in. If we are unsuccessful, we go in August when the silvers are running. Lately there have been no more belugas. (SRB&A Interview Tyonek April 2009)

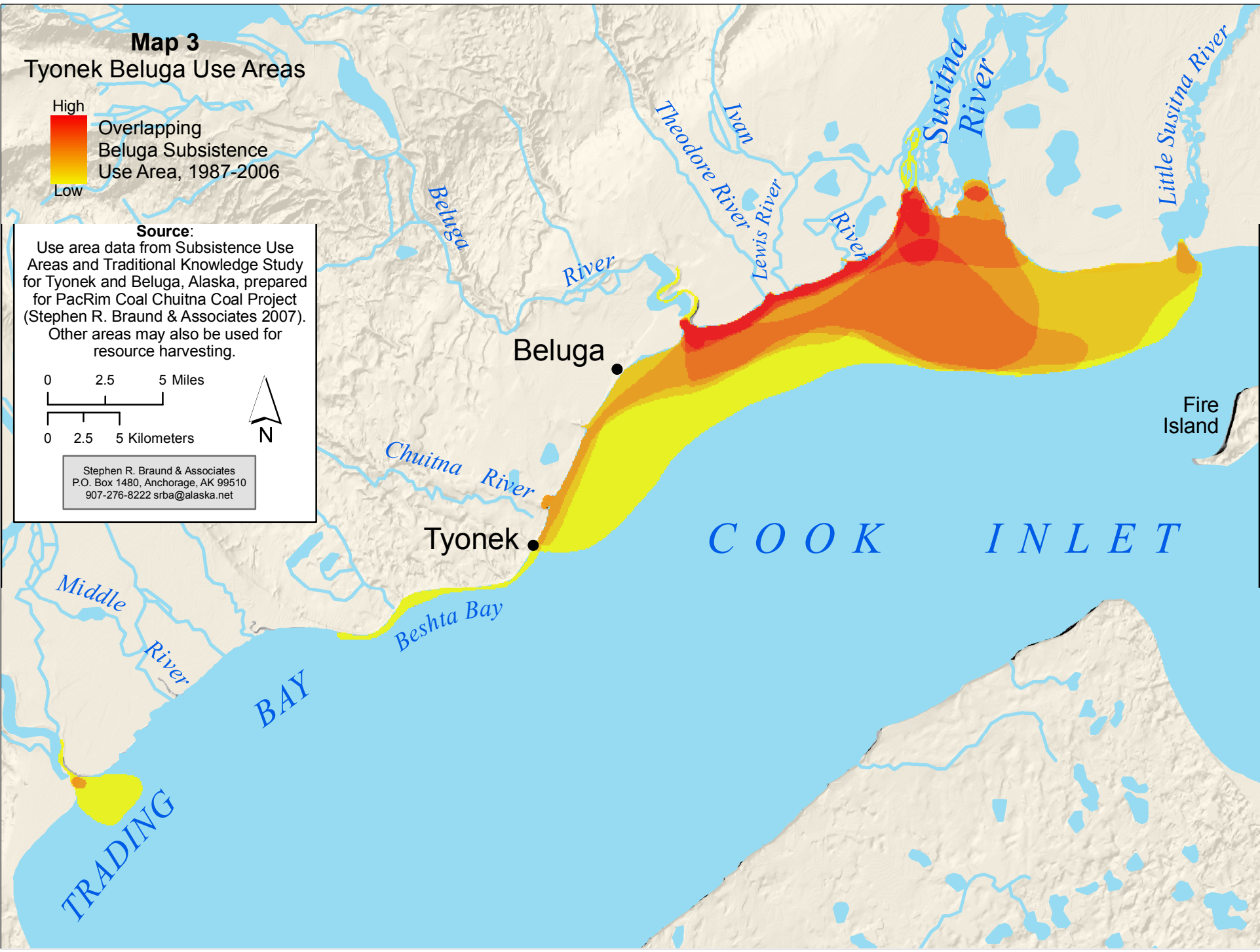
Map 3 Tyonek Beluga Use Areas



Source:
Use area data from Subsistence Use Areas and Traditional Knowledge Study for Tyonek and Beluga, Alaska, prepared for PacRim Coal Chuitna Coal Project (Stephen R. Braund & Associates 2007). Other areas may also be used for resource harvesting.

0 2.5 5 Miles
0 2.5 5 Kilometers

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Although most beluga hunters described hunting in the spring and summer, several residents reported hunting in the fall, in late August and September. The timing of hunting beluga in the fall corresponds with the moose hunting residents partake in along the McArthur River. Beluga hunting occurs in the shallows near the mouth of the McArthur River if the whales are seen during their travels between the village and their hunting area on the river. Respondents noted that hunting moose is the primary focus of these trips to McArthur River.

When asked if the timing of beluga hunting had changed, one respondent indicated that the timing had changed now that the hunt is regulated, saying,

Quite a bit, yeah, [I would] say in my lifetime they could always get one, two, three; now it's down to a set schedule. They are saying that their population is changing, declining. To me it's the big ships making noise and the sonar is messing up their tracking. Also the decline of salmon. (SRB&A Interview Tyonek April 2009)

Retrieving and Towing the Beluga. Tyonek hunters indicated that after a beluga is killed, there are only a few minutes before the animal will sink. The hunting group will pull alongside of the floating beluga and attach a rope around the tail to keep a firm hold on the beluga. They will then cut a hole under the lower jaw of the animal and string a rope through and secure the rope to the jaw. The beluga is then towed alongside or behind the boat. One beluga captain described the process of securing and towing the whale as follows:

Then after we kill it, it will float for a few minutes, run along it and grab a hold of it, I always grab the head and cut a hole in the jaw and wrap a rope through it, I like to have a safety line on the tail, and the harpoon. Roughly four or five hours to tow home. (SRB&A Interview Tyonek April 2009)

Another beluga hunter explained that towing the whale back by the head instead of by the tail creates less friction through the water and makes the towing easier. He said,

You take it and grab on before it sinks. You have a rope ready, grab his tail and tie a noose around it and get to the front of him and cut a hole in his jaw and slide a rope through and tow him to the village. It is like he is swimming. You pull him close to the stern. His jaw bone is tough, it doesn't break. Then you get to the village. (SRB&A Interview Tyonek May 2009)

All respondents who reported hunting belugas described towing the harvested beluga from the harvest site to the beach in front of the village. When asked what the typical towing distance to the butcher site was, respondents generally stated that the distance was the distance of the harvest site from Tyonek or, as one harvester simply stated, "Between Beluga River and Tyonek" (SRB&A Interview Tyonek March 2009). Butchering the beluga is a community-wide event and a time for everyone to gather, and therefore bringing the beluga back to the village to butcher allows the community to participate in this culturally important activity. As one resident described, "We always tow it home to the villagers. That is the funnest thing, the whole village is there, we eat again. Then wait for the tide to go out and butcher" (SRB&A Interview Tyonek April 2009). Another resident noted that the beaches other than the one in front of the village are muddy and unsuitable for butchering a whale. He said,

The whole village will be standing on the beach by the time we get back. [Always tow back to Tyonek beach] It is too muddy to tow them to the beach at the rivers, plus it is a community thing and everyone will start cutting and grabbing. (SRB&A Interview Tyonek April 2009)

In the past, belugas were towed to the closest suitable shore where the animal was butchered (de Laguna 1975:124). This practice changed once motorized boats became available and the beluga could be towed

back to the village in a timely manner so that the community could be involved with the butchering process. Fall, Foster, and Stanek (1984:170) note that beluga were towed to the village during their study years between 1978 and 1984.

Factors Affecting the Beluga Hunt

Nearly all Tyonek beluga hunters consider weather to be a primary determining factor affecting the beluga hunt. According to Tyonek respondents, weather can affect both the safety of the hunters and their success in harvesting a beluga. A number of residents stated that if the water is choppy or rough it is difficult to follow the beluga through the water as the whitecaps and waves obscure the waves made by the beluga. Each Tyonek beluga hunter reported that weather has a significant effect on their hunting. One hunter stated, “If it is bad weather, you can’t go. Nobody goes out when it is too choppy; you waste gas, and it’s hard on the boat. You can’t find the beluga in choppy weather” (SRB&A Interview Tyonek April 2009). Another hunter described the difficulties of tracking a beluga in rough water, saying,

We have to consider weather, first and foremost. You want a nice smooth tide where it is real calm and glassy. If they slow down, you can watch their waves. If it is real choppy, they can hide from you. You can’t track them. You don’t want to go when it is rough. The Susitna area, Beluga area, Beluga isn’t bad there. You usually can herd them there too. (SRB&A Interview Tyonek May 2009)

One resident described how hunters consider weather when hunting beluga, especially in regards to safety. He stated, “Weather is a big factor; we don’t want to go out there and get swamped. Too dangerous to fool around in rough weather” (SRB&A Interview Tyonek April 2009).

Another factor that can affect a beluga hunt is the ability to afford the necessary equipment and supplies needed to hunt beluga. One Tyonek resident said, “Well, we watch the weather all the time, so the weather is one. Finances too. We have to have money to buy gas [so] when it’s hunting season we can go” (SRB&A Interview Tyonek April 2009).

Tyonek hunters also consider geographic features when choosing where to hunt belugas, such as shallows and channels at the mouths of certain rivers. The Beluga River and the Susitna River have extensive shallows and offer better opportunities for success. One resident stated,

Weather is the number one factor. Where? Preferably Big Su [Big Susitna River]. There are shallow waters for miles [for a better chance of success]. Beluga River and Big Su [Big Susitna]. I hardly ever see them around the Beluga anymore. I think it is because of the fish; they go where the fish are. (SRB&A Interview Tyonek April 2009)

Another hunter stated that the knowledge of where hunters should pursue belugas has been passed from the elders, saying, “It was passed down; they knew where they would go. Beluga [River] because they knew the belugas would be there” (SRB&A Interview Tyonek April 2009).

The movements of beluga also affect residents’ hunting activities. One resident described how the beluga travel in large groups, making it easier to spot them as they hunt, saying, “Well, they travel in a big herd. Easier to hunt. They stand out” (SRB&A Interview Tyonek April 2009). Another resident indicated that the beluga’s patterns of following fish as they migrate to the various rivers to spawn, makes it easy to predict where they will be at certain times of the year, saying,

Back in June they are usually following the fish. We wait until they get up here in June; they are up here by that time. That is a big area. They go to Turnagain Arm, Knik Arm. They are fishing [in the flats]. Depends on the tide too. (SRB&A Interview Tyonek April 2009)

While residents reported seeing beluga traveling in the inlet in front of the village, they do not hunt them at that time and pay little attention to them. Tyonek hunters understand that the belugas will be at the rivers pursuing salmon or hooligan at particular times of the year and therefore do not need to watch for or follow them when they see them from the village. However, seeing beluga in the inlet is a signal to local hunters that they will be in their expected places soon. Two respondents said,

From what I know, even though you see them go back and forth in front of the village you don't just hunt them. Going towards Kenai, it doesn't have an effect on them [people in the community]. If you see a big bunch of belugas going up, we didn't pay attention to them. They are going to be there [at the Beluga River] anyways; we know that. (SRB&A Interview Tyonek April 2009)

Back in the day when you see endless amounts of belugas, you sit on the beach and watch them go by never ending, coming for the kings. You'd think the river should be full of belugas by now. You can see them migrating back too. That kind of was based on our decision to go hunting because we knew they were going to be there. (SRB&A Interview Tyonek May 2009)

SRB&A research team members asked Tyonek beluga hunters if anything had ever hindered beluga hunting or led to an unsuccessful harvest year. Tyonek residents reported several issues that have led to either having an unsuccessful harvest or not being able to hunt at all. Rough weather, changes in beluga movements through Cook Inlet, legal restrictions on hunting, and low population numbers have all been factors leading to Tyonek residents being unable to harvest beluga. As discussed earlier in this section, Tyonek hunters reported that bad weather can affect the outcome of a beluga hunt. One respondent noted that choppy water can lead to an unsuccessful hunt, saying,

The biggest thing would be rough weather, choppy water. We have called hunts off not because it was too rough, but too choppy; we figured if we hit something we would lose it. You see how it is choppy you can't see them. (SRB&A Interview Tyonek May 2009)

The timing of the runs of fish, both hooligan and salmon, can also affect a hunt. If the fish run early or late, the belugas may not be at the rivers when residents expect them to be. One resident stated,

A late run of fish; that would have everything to do with hunting beluga. The belugas are after the fish, maybe the smelt would come up too late and the belugas wouldn't come up. The hooligans and then the salmon come next; a late run will affect whether the belugas are going to be there. (SRB&A Interview Tyonek April 2009)

Residents also noted that the restrictions on beluga hunting that have been in place since 1999 have severely affected their hunting of beluga whales. When asked if anything had hindered their beluga hunting, one resident simply stated, "The restrictions" (SRB&A Interview Tyonek April 2009). Along with the restrictions in hunting, the low numbers of beluga in Cook Inlet have also affected hunter success in harvesting beluga whales. One respondent stated, "Just that their numbers are dwindling down, and they say we can't hunt them anymore" (SRB&A Interview Tyonek April 2009). Another resident made a similar statement saying, "There have been a few hunts dropped because of the low population. We were working with Fish and Game and delaying hunts" (SRB&A Interview Tyonek April 2009). Other residents noted that hunters from elsewhere in Alaska hunting beluga in Cook Inlet have affected their beluga hunting. One resident noted that overhunting of the beluga and selling of beluga parts by Anchorage residents in the 1970s affected his ability to harvest beluga.

Processing, Distribution, and Consumption of Beluga

This section discusses Tyonek residents' involvement after a successful beluga harvest, including their participation in the processing and butchering of the whale, the distribution and sharing through the community, and the consumption of whale.

Nearly every respondent interviewed, 24 out of 28 respondents, reported providing assistance after a successful beluga whale harvest (Table 18). These individuals reported helping either tow the whale to shore, butcher, process, or distribute the whale or providing some other form of assistance (Table 19). Eighteen of the 24 respondents had helped distribute beluga meat and blubber to households in the community while 15 respondents had helped butcher and process the animal. Just over half of the 24 respondents reported assisting in the towing of the beluga from the harvest site to the village.

Table 18: Experience Assisting after a Successful Beluga Harvest

Provided Assistance after a Successful Beluga Harvest	Number of Respondents
Yes	24
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 19: Types of Experience Assisting After a Successful Beluga Harvest

Type of Experience	Number of Respondents
Towing whale to shore	13
Butchering whale	15
Processing whale	15
Distributing whale	18
Other	3
Total number of respondents	24

Stephen R. Braund & Associates, 2010.

Butchering and Processing

Tyonek residents described what happens to the beluga whale after a successful harvest. As described above, the whale is always towed to the beach below the village to be butchered. Respondents reported that the whale is towed onto the beach with a large earthmoving tractor. Someone in the community with experience butchering beluga begins the butchering process by cutting large square pieces of blubber and placing it on tarps on the beach for distribution. After the blubber is removed on one side, the meat is removed. One resident described,

When they used to use dories, they didn't have any CATS like they do now to pull it in so a bunch of them at somebody's fish camp, they would gather and pull it up by hand. Now they have CATS to pull it up on the beach and whoever knows how to butcher it will take turns cutting it. Put the beluga on tarps and someone will be putting them into trash bags and give it to people like me who are waiting for it. (SRB&A Interview Tyonek April 2009)

Once residents remove the blubber and meat from one side of the animal, they roll the beluga over to the other side and the process is repeated. The internal organs are also removed for use. One resident stated that he was told by elders in the community that the process of butchering a beluga is similar to butchering a moose, saying,

All those old timers would want the heart, the internal organs. They were telling me, they said you butcher moose; it is the same way, the ribs, heart. The fins are like the hind quarters and their front quarters. He said it is the same way. They even have that tender back strap. (SRB&A Interview Tyonek May 2009)

After the blubber, meat, and internal organs are all removed, the remaining carcass is towed back down the beach to below the tide line so that the carcass will be swept away by the next high tide.

The process of butchering and processing beluga is carried out in much the same way as in the past. During interviews, Tyonek residents described the processes almost exactly as they were described by Fall, Foster, and Stanek (1984:170-172) after a beluga harvest in 1983, illustrating a continuation of traditional practices and uses of beluga by Tyonek residents. One respondent described the importance of paying respect to the beluga during both the hunting and butchering process. He stated,

When they get back to the village, people who know about it, elders, would give instructions on how to do it. They used to know how to butcher it, the customs and how to take it apart, which part will go to whom in the tribe. Maybe the flipper, you have to respect it, you take it off and give it to the captain. There is respect to the animal. If you don't respect it, you are doing something wrong. From the time you leave the village to the time you bring it back you have respect for the animal. The intestines, when they take it apart, the elders know how to do it a certain way before they cook it. My dad knew about that. You don't see too much of that because it wasn't passed down. The ways they used to kill it, they lost that someplace. I saw that when I was growing up. It tasted so good the way they prepared it [intestines]; you don't see that anymore. They would braid the intestines with meat and blubber, and they would bake it. You have to know what to do. That is what I am talking about; respect and old ways. If you talked about it, you have to be real careful about all that stuff. When you shoot a beluga, you have to take care of it now. If it is calm out there before you know it, it can get rough out there. It will get rough if you did it wrong. I think it is the spirit of the animals [making the weather and water rough]. The people in the village now watch out for that too. I don't know why, it is the blood that comes out of it; they have to clean it real good. (SRB&A Interview Tyonek April 2009)

A small number of residents described how beluga blubber and meat are processed after the whale has been butchered. Respondents reported they jar or can the blubber and meat or cook it fresh. Some residents also said they will freeze it for use at a later date. One respondent stated, "Jar it, can it, cook it right up and eat it. Just munch it right on the spot. It's something we grew up with" (SRB&A Interview Tyonek April 2009).

Another resident described the various methods of processing beluga as follows:

There are different ways [to cook beluga], the blubber part, they fry it and boil it, can it. You have never eaten anything like that. It is a different taste. This is way different. Once you start eating it you will start hunting it on the streets of Anchorage. It is really good; people did different things with it. They make soups, fry it like moose, bake it. (SRB&A Interview Tyonek May 2009)

Distributing and Sharing Beluga

SRB&A researchers asked Tyonek residents about the methods of distributing and sharing beluga after a successful harvest. Respondents agreed that the elders in the community are the first to get a share of a harvested beluga. Residents will also deliver the beluga meat and blubber to elders who are unable to go to the butcher site and obtain their share. Two respondents described how the elders are provided for at this time, saying,

Anybody who wants some, they go down to the beach and go get some. They usually start a separate pile for the elders, and somebody would go give it to them when they were done working. Somebody who had a truck available would go give it to them. Most of the time, like me, if my dad can't come down, I take a bag to my dad. Most people give them to their elders and those who couldn't make it to the beach, their families will get some to them. (SRB&A Interview Tyonek April 2009)

Elders will be first; the traditional elder will get the best part of the beluga. The rest of it would be distributed amongst the tribe. The captain would be the first person to get something. They always say that the flippers get to the captains, but the real part, the traditional part, inside parts would go to the elders because they know how to prepare it. The intestines; cut it and make stuff out of it, that would go to the elders. (SRB&A Interview Tyonek April 2009)

Respondents reported that either the captain of the boat or the hunter who shot the beluga is given the flipper in honor of the successful hunt. One resident reported that the significance of the flipper is that the flipper is important for the survival of the beluga. He said,

Traditionally the harpooner gets the flipper. The flipper is the tender chunk of the meat, the life survival for the beluga to swim. That is why we give the harpooner the flipper. Even if you don't get a chunk of beluga fat or meat, at least you get the flipper. (SRB&A Interview Tyonek April 2009)

After the elders are given a share of beluga, every household in the community is given the chance to come down to the beach and take a family-size share. In some cases, these families then distribute some of their share to their extended families in other communities, including Anchorage and Kenai. Two respondents described the distribution of beluga to families in Tyonek as follows:

[The flippers] were given to the chief or the elders. Other than that the beluga is cut into slabs and cut into two by three or three by four sections. Maybe two feet wide, and then they break it up into sections [equal portions to everyone]. If there's some left over, then those are cut into smaller portions for redistribution. And in modern times, the intestines and the bones aren't used anymore, they discard it. It's taken back out into the inlet and discarded. They return it back to where it came from. You don't feed it to the dogs. (SRB&A Interview Tyonek May 2009)

It is cut up into a big slab and given to each household, one of those slabs, around the whole village and then that is divided among those family members, and then among the families in Kenai and Anchorage. So one beluga is not enough for over a hundred people. (SRB&A Interview Tyonek April 2009)

Similar to the butchering process, the process of distributing beluga throughout the community, with a focus on elders receiving the first portion, has continued from the past. Fall, Foster, and Stanek (1984:172), during their study on Tyonek subsistence between 1978 and 1984, found that the community participated in the butchering process and helped in distributing portions of the whale throughout the

community. Those who wanted a portion of beluga came to the beach and retrieved it, while others distributed portions to elders and others who could not come to the beach.

Twenty-four of the 28 respondents interviewed reported sharing beluga with other households when there was beluga available to give (Table 20). During the last year that respondents had beluga in their household, 19 respondents gave beluga to family members in other households in Tyonek (Table 21). Nineteen respondents also gave beluga to non-family elders in other households in Tyonek (Table 22), 17 respondents shared beluga with friends in other households in Tyonek (Table 23), and 17 respondents shared with other households in other communities (Table 24). These communities included Anchorage, Kenai, Eklutna, Wasilla, Lime Village, Nondalton, and Fort Yukon. One respondent reported sending beluga to family members out of state.

Table 20: Share Beluga with Other Tyonek Households

Share beluga with other Tyonek households	Number of Respondents
Yes	24
Total number of respondents	28
Notes: Numbers represent respondents sharing beluga in their lifetime.	

Stephen R. Braund & Associates, 2010.

Table 21: Share Beluga with Family Members in Other Tyonek Households

Share Beluga With Family Members in Other Tyonek Households	Number of Respondents
No	5
Yes	19
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Table 22: Share Beluga with Non-Family Members in Other Tyonek Households

Share Beluga With Non-Family Members in Other Tyonek Households	Number of Respondents
No	5
Yes	19
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Table 23: Share Beluga with Friends in Other Tyonek Households

Share beluga with friends in other Tyonek households	Number of Respondents
No	7
Yes	17
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Table 24: Share Beluga with Households in Other Communities

Share beluga with households in other communities	Number of Respondents
No	7
Yes	17
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Reflective of the discussion above, Tyonek residents readily share beluga throughout the community when it is available. Twenty-three of 28 respondents reported receiving beluga from other households in the community at some time in their lives (Table 25).

Table 25: Receive Beluga from Other Households

Received Beluga from Other Households	Number of Respondents
No	5
Yes	23
Total number of respondents	28
Notes: Numbers represent respondent receiving beluga from another household in their lifetime.	

Stephen R. Braund & Associates, 2010.

Consumption of Beluga Whale

All 28 respondents interviewed reported eating beluga at least once in their lives (Table 26). The majority of respondents (23) reported first eating beluga either before the age of five (12 of 28) or between the ages of five and nine (11 of 28) while only five respondents reported first eating beluga between the ages of 10 and 19 (Table 27). The majority of Tyonek respondents (21 of 28) indicated that the last time they ate beluga was in the 2000s (Table 28). A number of these respondents noted that the last time they had eaten beluga was during the year of the most recent Tyonek beluga harvest (2005). Others stated that they had eaten beluga more recently when those who had saved beluga from the last harvest provided it during

gatherings, including a recent funeral. Six respondents reported last eating beluga in the 1990s, and one reported last eating beluga in the 1960s.

Table 26: Respondents Who Have Eaten Beluga Whale

Eaten beluga whale	Number of Respondents
Yes	28
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 27: Age When First Ate Beluga Whale

Age	Number of Respondents
Under 5	12
5-9	11
10-19	5
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 28: Decade When Last Ate Beluga Whale

Decade	Number of Respondents
1960s	1
1990s	6
2000s	21
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

The majority of respondents who described eating beluga at festivals or holidays reported doing so at only a small number of events including Chief Chickalusion Day, potlatches, potlucks, powwows (a gathering of Indian tribes for drumming and dancing), the “Open Arms Gathering,” and funerals. Only for Christmas dinner did anyone mention beluga being served during a holiday event. One resident described how quickly beluga vanishes at any event where it is provided, saying,

During potlucks, powwows, lots of potlucks, we would save ours for if a powwow was coming up. It doesn't last very long. When you go to get a plate, it is all gone; it is the first thing that goes at potlucks and powwows. (SRB&A Interview Tyonek April 2009)

Tyonek residents share beluga with the community during festivals held in Tyonek. Fourteen of the 24 respondents who reported sharing beluga during the last year it was available reported providing beluga during festivals (Table 29). Festivals where residents share beluga include potlatches, powwows, funerals, and Chief Chickalusion Day. On the other hand, only one respondent reported sharing beluga during holidays (Table 30). This respondent reported sharing beluga at Christmas.

Table 29: Share Beluga during Festivals

Share beluga during festivals	Number of Respondents
No	10
Yes	14
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Table 30: Share Beluga during Holidays

Share beluga during holidays	Number of Respondents
No	23
Yes	1
Total number of respondents	24
Notes: Numbers represent respondents sharing beluga during the last year beluga was available in their household.	

Stephen R. Braund & Associates, 2010.

Historical Aspects of Beluga Whale Hunting

This section addresses the historical aspects of beluga whale hunting prior to the restrictions placed on beluga hunting in 1999. Residents were asked to provide their knowledge about the history of beluga hunting by Tyonek residents, including stories about beluga hunting told to them by their elders. The following is a description of their responses.

Sixteen respondents reported that their earliest memory of a beluga hunt occurred in the 1950s or 1960s (Table 31). For nine respondents, their earliest remembered beluga hunt occurred between the 1970s and 1990s. This reflects the age range of respondents interviewed, which was primarily between the ages 45 and 64 (Figure 1).

Table 31: Decade of Earliest Remembered Beluga Hunt

Decade	Number of Respondents
1940s	2
1950s	9
1960s	7
1970s	4
1980s	3
1990s	2
Not Ascertained	1
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Even prior to the 1999 restrictions placed on beluga hunting, Tyonek residents did not harvest beluga in large numbers. Of the 28 respondents interviewed, 18 indicated that Tyonek historically harvested two to three belugas each year (Table 32). Fewer respondents (nine of 28) described Tyonek harvesting only one beluga each year and one respondent reported a historical harvest of four to five belugas each year. Tyonek residents generally consider two to three belugas to be adequate to support the community for one year (see discussion below under “The Future of Tyonek Beluga Hunting”). According to local residents, a limit of two to three belugas was set by Chief Simeon Chickalusion many years ago; residents continue to follow the understood rule that two to three belugas is adequate for the community (SRB&A Interviews Tyonek April/May 2009; Stanek, personal communication 2010).

Table 32: Number of Yearly Beluga Harvested Historically (Prior to 1999)

Historic Yearly Beluga Harvest	Number of Respondents
1	9
2-3	18
4-5	1
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Researchers asked respondents whether they recalled a time when Tyonek residents stopped hunting beluga whales (prior to 1999). Fifteen respondents remembered a time when residents stopped hunting whales as opposed to 13 who did not (Table 33). One resident indicated that Tyonek residents have hunted beluga his entire life, saying, “There was always, even when I was a little boy, there was always beluga on the beach” (SRB&A Interview Tyonek May 2009).

Table 33: Recall a Time When Tyonek Stopped Hunting Whales Prior to 1999

Recall a Time When Tyonek Stopped Hunting Whales Prior to 1999	Number of Respondents
No	13
Yes	15
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

A number of residents described not hunting during years when left over beluga blubber and meat remained from the previous year. Respondents reported that “every two years” or “every once in a while” they would choose not to hunt beluga. One respondent stated,

Pretty sure before the restrictions they might have stopped for a little period, maybe somebody didn't go out hunting or they didn't need it, I'm not too sure. Pretty sure if they didn't do it they might have had enough food from other resources. They didn't do that because there weren't any belugas out there. They had stashes. I never heard we couldn't go out. I never heard why they can't hunt [in the past]. (SRB&A Interview Tyonek April 2009)

Several individuals stated that beluga hunting stopped for a period of time in the 1960s. During an upturn in the village economy in 1965, the village received large amounts of materials for building new houses. This occupied the time of most community members and created a temporary pause in beluga hunting. One respondent said, “In 1965, when they first built this village, everyone was too busy. The [commercial] fishing was cut down too, so it wasn't worth it” (SRB&A Interview Tyonek April 2009).

The SRB&A research team asked Tyonek residents if they could recall any stories or descriptions told of beluga hunting in the past by village elders. Seventeen out of 28 respondents described stories of past beluga hunting (Table 34).

Table 34: Recall Stories or Descriptions of Beluga Hunting in the Past

Recall Stories or Descriptions of Beluga Hunting in the Past	Number of Respondents
No	11
Yes	17
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

The majority of residents who provided stories of historic beluga hunting described how early hunters harvested belugas. The most common story relayed was similar to the descriptions of historic beluga hunting above (under “Hunting and Use of Beluga Prior to the Early 1900s”). Residents described the use of a large tree that was positioned upside down in the mud at low tide; when the tide rose, a hunter would position himself on the large roots of the tree and wait for belugas to pass, and then strike the beluga with a harpoon. One resident explained that the harpoon was attached to the tree so that after the whale was struck, the beluga would be tethered to the tree. He described,

My people have been hunting for eons and eons. There is a story of my grandfather. They put a tree in the water and so when the tides come up you can hunt from the tree. My great-grandfather was the last one to hunt off that tree. I found that one in a book, Shem Pete’s. [It was] about the ‘60s, when I first saw a beached beluga. We don’t take more than we need. Anything we take, we eat. Don’t want to offend any of the elders. (SRB&A Interview Tyonek April 2009)

This hunting practice of placing a tree upside down in the mud to be use as a platform, known as a *yuyqul*, was described in detail by Shem Pete. The full description of Shem Pete’s story can be found above in the Literature Review. One resident described another method by which beluga whales were harvested in the past. He noted that after the beluga traveled up the Beluga River chasing fish, hunters would drag large trees with long branches across the river to trap the beluga in the river. He said,

In ancient past, there was no technology for hunting belugas, like fast boats.... There was this group of people who got belugas, and this group got seals down by Kustatan. The group who got belugas, [they used] the trees with the limbs. They grow the longest limbs on the south side, and this was at Beluga River, that’s why it’s called Beluga River. When the beluga comes in to the Cook Inlet... the beluga come up into the river to get salmon and they would get all of them up there. When the belugas got up into the river, they drag this tree into [the river] with all these limbs on it and put it across the river, and when the belugas go out they can’t get past the limbs, and so that’s where they kill the belugas. (SRB&A Interview Tyonek May 2009)

Fall (1981:191) relayed a similar story when describing historic beluga hunting methods. After the beluga swam up a river in pursuit of fish, a weir was quickly built across the river, trapping the belugas in the outgoing tide. Fall was unsure if this was a common practice.

One Tyonek respondent described how people from other villages located miles away were notified of a beluga harvest in Tyonek by making signal fires on top of a nearby mountain. People as far away as Susitna River and Knik would come to trade for beluga meat and oil:

You know that hill by Susitna, by Susitna Mountain? That was our beacon hill. After they get all the belugas, they'd go out there and build a fire, and the people up there would build a fire on that hill there and tell other people in that valley there to tell them we got beluga here, and that's how we got our beluga in the ancient past is in the Beluga River, they'd block them off with that tree. They would light that fire and call in. You could see the fire from Kustatan.... They were there and they knew that we had beluga. The different fires we built told you the different kinds of things we had. The people would come in their kayaks and skin boats. And at that time we would have the skins of oil already in the process for them to take back. Sometimes it would last a month, maybe more, when they were preparing the beluga meat, and everything else, and everyone would come and get what they need and go back to where they come from. They were part of all the different clans. For your information, the Susitna River, all the way up to Knik, all the way past the mountains, past Mount Spurr, Chakachamna, Lake Clark Pass, all the way down to Tuxedni Bay, that was Tebughna land. At one time, our tribe was 15 to 25,000 strong. The people gathered with different clans. They'd all converge on that one area, mostly young men would come and prepare the beluga. The same way with our seals, they got the seals at Kustatan, they would get all the seals that the tribe need there and they would come and get their share and they get it prepared in the form of oil, dried meat, or bone. (SRB&A Interview Tyonek May 2009)

This respondent also went on to describe the various ways in which beluga parts were used, saying

They were also used for our winter sleds and tools, so nothing was wasted in ancient times. Just like you take your moose antlers back, those were tools, right now it's all decoration. The intestines of the beluga, the gut lining was used, the lining of the stomach was used for storing oil. All of it was used. Every single bit of it. And I just love the flipper. (SRB&A Interview Tyonek May 2009)

Several beluga hunters indicated that it is common knowledge among hunters that a successful beluga harvest will result in a change in weather conditions; this knowledge has been passed on to hunters by their elders. These individuals observed that although it may be a calm, clear day for hunting, after a beluga is struck and killed, weather conditions immediately become dark and windy. They stated that the elders warned beluga hunters of this happening: "They tell me when you get a beluga get home as soon as possible because it is getting rough" (SRB&A Interview Tyonek April 2009). One resident reported experiencing this first hand and described,

After you shoot them it starts blowing. I kind of believe it, after the last time they got one we were towing it back here and before we got here it was blowing. The elders say that after you shoot a beluga it will get stormy. (SRB&A Interview Tyonek May 2009)

Some respondents noted that there are stories told by elders but that they preferred not to relay those stories; as one individual said, "That is too sacred [to talk about]" (SRB&A Interview Tyonek April 2009).

Social and Cultural Aspects of Beluga Whale Hunting

This section addresses the social and cultural aspects of beluga hunting as reported by Tyonek residents during the interviews. Questions to Tyonek respondents regarding the social and cultural aspects of beluga whale hunting pertained to the importance of beluga hunting in Tyonek, rituals and festivities associated with beluga hunting, effects of beluga hunting restrictions on Tyonek residents, and other issues related to Tyonek beluga hunting.

Importance of Beluga Hunting

Tyonek respondents indicated that hunting belugas is important to Tyonek as a subsistence food source, as an opportunity to teach young people hunting skills, and for its cultural and traditional significance to the people of Tyonek. As noted above, Tyonek residents consider beluga to be an important and valued subsistence food source. Residents explained that beluga oil is an important beluga product, which they rely upon in their diet. One resident stated, “It is something we did rely on, because it wasn’t just the blubber but the oil, we used the oil” (SRB&A Interview Tyonek April 2009). Another resident noted that in the past beluga oil was their primary cooking oil. She said,

It is what we eat. Long time ago when you had nothing, no lard or anything, they used to cook with beluga oil. That is what they used to depend on; they used to make oil out of it. (SRB&A Interview Tyonek May 2009)

One resident noted that beluga is a resource that can be depended on when other resources are in short supply, saying, “I would say it is very important; we could run out of other resources, and we would have beluga to fall back on” (SRB&A Interview Tyonek April 2009).

Respondents reported preferring eating beluga as a subsistence food over store bought foods. One resident reported that beluga hunting is important “Because we like it, I guess. We’d sooner have our own food than store bought” (SRB&A Interview Tyonek April 2009). Another resident also noted that elders in the community prefer eating beluga over store bought foods, saying, “It’s important. The elders could have it; they get tired of store bought stuff. They grew up on the land” (SRB&A Interview Tyonek April 2009). One resident stated that when residents do not have beluga, they are “starving for it” (SRB&A Interview Tyonek April 2009). Two others described the enjoyment associated with eating beluga:

Every time it was hunted, everybody wanted it. It was kind of like caviar I guess. You don’t eat it every day, but when you had it you liked it. (SRB&A Interview Tyonek April 2009)

It is really important as a subsistence food because we grew up eating it and we are used to it. I am getting really hungry just talking about it. I wish I had some. (SRB&A Interview Tyonek April 2009)

Beluga hunting also provides Tyonek hunters with the opportunity to pass on a specialized skill to members of the younger generation. Several individuals stressed the importance of the beluga hunt in this respect. One resident explained, “Traditionally, it is really important to teach the younger generation about how it was done in the past. There is a lot of teaching about honor and respect too” (SRB&A Interview Tyonek April 2009).

In addition to being important as a source of food and a teaching tool, hunting beluga is culturally important to the Tyonek people and strengthens residents’ cultural identity by allowing them to participate in a traditional activity. Several residents explained that beluga is an important facet of their culture, lifestyle, and community interactions. One respondent observed that through the beluga hunt, traditional values such as respect are taught in the family, saying, “The culture is important. Trying to teach your family how to harvest and respect the animals. And how to do it once you have it in the pot” (SRB&A Interview Tyonek April 2009). Another respondent simply stated, “It is a lifestyle we were raised with. It is part of our lifestyle” (SRB&A Interview Tyonek May 2009).

Residents explained that the activities surrounding a beluga hunt unite the community at a time when there is less community interaction. Harvesting a beluga also promotes sharing among members of the community. Two individuals stated,

I know everyone craves it. We have a lack of...especially in the spring time, we have less community interaction. I think it takes away from... it took me a long time to understand

the sharing buzz words. Now I know it, you have this community interaction. It is a community spirit type of thing. Makes you feel good, like we are all Indians again. (SRB&A Interview Tyonek May 2009)

[It's] a big celebration. Everybody looks forward to it, getting the first beluga. It is an exciting day, everybody gathers up and watches them bring it to shore and butcher it; they don't fight over it. (SRB&A Interview Tyonek April 2009)

Effects of the Loss of Beluga Hunting

When asked about the effects of the 1999 beluga hunting restrictions on the community of Tyonek, respondents reported that the restrictions have had a negative effect on the community. Two individuals described the effects as follows:

Chaos, it disrupts the community. People who get beluga, all the time they ask 'when are you going hunting? Why not?' (SRB&A Interview Tyonek April 2009)

That had a big effect, they took away our supper, swimming right by, and we can't touch it. (SRB&A Interview Tyonek April 2009)

Residents indicated that they have less beluga to eat because the community is harvesting fewer belugas due to the restrictions. One individual expressed this view and added that the steps required to participate in a beluga hunt further discourage hunts, saying, "We get less of it. We have to go through a lot to get permission to hunt" (SRB&A Interview Tyonek April 2009). Another respondent noted that the lack of beluga has particularly affected the elders, who are used to eating this traditional food:

I think it kind of affected the village a little bit. Not really that much, we still got the fish and the seals. It did affect the village people, mostly the elders, for the food. Not too much, though. I do that [crave beluga meat]. That's why we can't eat it and everything, put it away and save it for a hard time. And nowadays, it's a hard time. (SRB&A Interview Tyonek April 2009)

Several residents noted that the lack of beluga has placed added stress on the community. Families can no longer rely on the beluga oil, blubber, and meat that were once readily available. One respondent described how the lack of beluga has caused stress for her family, saying,

It affected us by not having as much in our freezers. Emotionally it puts stress on us by not knowing if we would have it enough. Stress that there may not be enough to feed the family. (SRB&A Interview Tyonek April 2009)

Another source of stress is the added economic burden placed on families when there are fewer subsistence foods available. One respondent noted that purchasing food in Anchorage and having it shipped to Tyonek is very expensive and that losing beluga as a food source could have economic effects on Tyonek families. He said,

You have to go hunting at Safeway now. You stop all this subsistence; that is the only place you can go hunting. That is what bothered me is that you have to fly to Anchorage. That is more expensive than hunting the beluga that would last for months. Now I always hear that they want to go [hunting] but it is canceled. (SRB&A Interview Tyonek April 2009)

Some residents expressed frustration about having restrictions placed on their subsistence activities. One resident likened the restrictions on beluga hunting to the restrictions in place on subsistence and commercial salmon fishing, saying,

You can't do anything when you can't hunt. The state has taken our livelihood away; they take away our fishing to six hours, it's not worth it. Just about everything we do, we have to fight the state. We agreed to cut the kings off in 1958 but we never got it back. Then when we got it back it was like six hours one or two times a month in May or June. It's not worth it. (SRB&A Interview Tyonek April 2009)

Another respondent noted that the restrictions have resulted in residents no longer being able to choose the timing of their hunt based on their knowledge of the Cook Inlet environment, saying,

[It has affected us] big time, since they put in those restrictions. Now you don't know when you can hunt and if you are successful.... We know what time of year to hunt and they tell us when we can hunt and maybe there are no belugas for us to get at that time. That restriction is having a lot of effects on our hunting in the community. You grow up with the old ways and you know what the time of year is good to go hunting. There isn't much hunting in July and August. Probably when they needed it [in the past] they killed it. (SRB&A Interview Tyonek April 2009)

SRB&A study team members asked Tyonek residents particular questions about the effects of the 1999 hunting restrictions, including whether there had been a loss of knowledge or participation in hunting, processing, and sharing beluga or a loss of interest in hunting and consuming beluga since the hunting restrictions started in 1999. The majority of respondents (20 of 28) indicated that there had not been a loss of knowledge about beluga hunting, processing, and sharing since the restrictions were put in place (Table 35). A loss of participation in beluga hunting was more commonly cited by Tyonek respondents. Of the 28 respondents, 15 reported there has been a decrease in participation (Table 36). However, only four out of 28 respondents reported that there had been a loss of interest in hunting and eating beluga whale (Table 37).

Table 35: Loss of Knowledge of Beluga Hunting, Processing, and Sharing Since 1999 Restriction

Loss of knowledge of beluga hunting, processing, and sharing since 1999 restriction	Number of Respondents
No	20
Yes	8
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 36: Loss of Participation in Beluga Hunting, Processing, and Sharing Since 1999 Restrictions

Loss of participation in beluga hunting, processing, and sharing since 1999 restriction	Number of Respondents
No	13
Yes	15
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 37: Loss of Interest in Hunting and Consuming Beluga since 1999 Restrictions

Loss of interest in hunting and consuming beluga since 1999 Restrictions	Number of Respondents
No	24
Yes	4
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

As stated above, few Tyonek residents reported a loss of knowledge about hunting, processing, and sharing beluga. As one resident stated, it's "like riding a bike, comes natural" (SRB&A Interview Tyonek March 2009). Another respondent made a similar comment, and also noted that the knowledge of beluga hunting is passed on through oral traditions:

You don't forget anything like that. Burned into your mind, how to do it. There is always someone that sits and talks about how they did it and tell all their beluga hunting stories. (SRB&A Interview Tyonek April 2009)

One individual noted that although there has not been a loss of hunting knowledge, other aspects of the beluga hunt have changed with modernization, saying,

Not too much, they pretty much know how to hunt like they did way back. I don't think too much is lost, some but not much. They have more modern stuff right now. Back then they had to prepare because we weren't modern then. They have a phone now and can call home and tell them to put the tea pot on because we are coming home. You do a lot of things differently now. We used to remember as kids it would take half a day to get ready, have to wait for the tide to be right to pull the dory into the water. Now they use a truck to pull the dory down there, and we can be ready in one hour. (SRB&A Interview Tyonek April 2009)

One resident stated that they teach the young people about beluga hunting to keep the knowledge alive in the community. He said, "It's always a teaching thing. We are trying to keep it alive by teaching the younger generations. I think it's been re-energized" (SRB&A Interview Tyonek April 2009). Several people expressed concern that there will be a loss of beluga hunting knowledge – knowledge that has been passed down for generations – if the restrictions continue for too long. One resident said, "They are probably going to lose it [beluga hunting knowledge] now. They don't know how to deal with the seals. It's been passed on, the way you cut it" (SRB&A Interview Tyonek April 2009).

Others explained that the youth in the community are unable to gain the skills needed to hunt beluga because they are not able to join in the hunt. Respondents observed that the younger people learn about the hunting, butchering, processing, and sharing of beluga by watching the skilled members of the community perform those activities and joining in with them. Without the ability to perform those activities, the opportunity to teach the younger generation diminishes. One individual said,

We got knowledge but there is no way to teach your kids without the beluga. That is what [well known active beluga hunter] wants to do, is teach the kids how to go hunt and butcher it. They watch us butcher it and a lot of them join in to help. (SRB&A Interview Tyonek May 2009)

As noted above, just over half of Tyonek respondents (15 of 28) reported a loss of participation and opportunities to participate in beluga hunting, processing, and sharing since hunting restrictions started in

1999 (Table 36). One resident noted that there has been a loss of participation among the youth of the community in hunting and processing beluga whale because the hunting restrictions have limited the opportunities for young people to learn the necessary skills. He said, “You can’t teach those kids no more. Can’t teach them what I learned at that age. Preparation on canning them and jarring” (SRB&A Interview Tyonek April 2009). Another individual expressed frustration that the youth in the community are unable to learn to hunt when they are interested in doing so, saying, “The young people were just getting interested, then they shut us down anyways” (SRB&A Interview Tyonek April 2009).

Because there are fewer opportunities for beluga hunts, residents indicated that fewer residents are able to participate on a yearly basis. One respondent explained that participation in beluga hunting is limited by the number of boats going on the hunt and the limited spaces available on each boat. She said,

[It’s] only a loss when not enough boats are going, gas prices going up. Not enough room, there are so many kids who would go. There is a desire from my generation, for the younger generation to go. (SRB&A Interview Tyonek April 2009)

Several residents stated that while the numbers of hunts have been reduced, the participation during those hunts has not. One resident noted that hunters in the community are ready and willing to go on a hunt, saying, “Everybody wants to go, and they take the people that are more successful at it” (SRB&A Interview Tyonek April 2009). Others stated that in terms of butchering and processing, community participation has not diminished since the restrictions have been put in place. Two residents observed,

No, I don’t see anything change with that. If they kill a beluga, they [people in the community] will be down there as soon as they land the whale. (SRB&A Interview Tyonek April 2009)

People who want to go will go out. The whole village will go out and help out. (SRB&A Interview Tyonek April 2009)

Only four of 28 Tyonek respondents reported there had been a loss of interest in hunting and eating beluga (Table 37). Residents still anticipate hunting beluga and described missing having beluga to eat on a regular basis. When asked whether there has been a loss of interest in hunting and consuming beluga, one respondent observed, “No not really, people are still really active in it right now, we are just letting the beluga populations increase” (SRB&A Interview Tyonek April 2009). Residents reported that beluga hunters in the community are anxious to go beluga hunting. One resident noted, “They still sit around saying ‘I wish I could go’” (SRB&A Interview Tyonek April 2009). Another resident stated that since the limits on beluga hunting have been put in place, there has been even more interest in hunting, saying, “I don’t see any of that, no loss of interest. They are more eager now; if they get the opportunity they will go out there” (SRB&A Interview Tyonek April 2009).

In discussing residents’ continued interest in hunting and consuming beluga, respondents observed that Tyonek elders in particular continue to desire beluga. Several residents noted that elders ate beluga on a regular basis in the past and some do not understand why it is unavailable today. One respondent stated, “No, I still want to go, [but] we just can’t go. I want to keep my tradition alive. Most of the elders keep asking, ‘Why you don’t go out?’ They don’t understand; they are so old” (SRB&A Interview Tyonek April 2009). Another respondent reported that the community, elders in particular, are hungry for the beluga meat and blubber. She said,

That is hard to say, I would say no [loss in interest] because we are still waiting and hoping that we get the hunt. I know everyone is hungry for it, especially the elders. Those people ate it all the time. (SRB&A Interview Tyonek May 2009)

Along with the elders' continued interest in having beluga, Tyonek respondents observed that many young people in the village are interested in hunting beluga. One young woman provided this perspective on the younger generation's interest in hunting beluga:

As long as we teach the younger generation, they will keep doing it, if they don't know about it they won't want to go. My generation wants to be granted two belugas a year. I wrote a letter to Fish and Game. It showed interest. There is a desire from my generation for the younger generation to go. (SRB&A Interview Tyonek April 2009)

Only a few residents reported a loss of interest in hunting and eating beluga. Because of the limits on hunting, Tyonek residents rely on other resources and store bought foods. One respondent stated, "It's lost a lot. People eat canned stuff, because of the restrictions. If you don't keep up the wild taste you eat canned and processed stuff" (SRB&A Interview Tyonek April 2009).

In addition to asking respondents about the effects of the 1999 beluga hunting restrictions on the community of Tyonek, SRB&A researchers asked Tyonek residents how a permanent ban on beluga hunting would affect the community. Similar to their comments regarding the effects of the 1999 beluga hunting restrictions, Tyonek respondents reported that a permanent loss of the beluga hunt would affect the community in a negative way. Residents expressed that there would be a loss of culture, traditional lifestyle, social and community connectedness, health, and knowledge if they were not able to hunt beluga again. Two individuals stated,

That is taking our traditional lifestyle away. A lot of people see us as prejudiced, but we are trying to stay the way we were. We are striving.... I want my kids to come back here and be safe and it being the same as it is now. That includes beluga. They are taking a part of our lifestyle away. Once you lose it, you can't have it. (SRB&A Interview Tyonek April 2009)

I think that would eliminate one portion of our customary and traditional practices. It would also loosen our community ties to the beluga whale hunt. Of course we wouldn't have any beluga to eat. (SRB&A Interview Tyonek May 2009)

Tyonek respondents explained that people's access to a nutritious food source would be affected if beluga was no longer available. Residents consider beluga oil to be a healthy element in their diet. One individual noted that the health benefits of beluga oil would be missed if the community could no longer hunt beluga, saying, "It would affect your health, not having enough grease inside you. We call it antifreeze" (SRB&A Interview Tyonek April 2009). Other respondents noted that without beluga, residents will have to either purchase non-subsistence foods or pursue other resources to replace the missing food in their diet. One resident expressed concern that Tyonek residents will be forced to eat more store bought foods, which he views as unhealthy. He said, "I guess that it would drive everyone to [paying] higher prices and [eating] more variety of polluted foods, and it would be a loss of knowledge of hunting" (SRB&A Interview Tyonek April 2009).

A number of people referred to the craving Tyonek people have for traditional foods such as beluga. One resident noted that many community residents miss beluga when it is not available, and added that when beluga is brought to a gathering after being saved for an occasion, it disappears quickly. He said,

It affects them big time; you crave for that stuff. People are talking about it when they want some. Just like that funeral, somebody brought some beluga and it was gone like that. You don't have it and when you have it, it is like going to McDonalds, it tastes good. If you talk about our Native foods, we crave for it, our fish right now we are craving for it. In the fall time the moose taste better; we are thinking about it already. (SRB&A Interview Tyonek April 2009)

Other residents noted that when beluga is not available, they tend to crave it all the more. One resident stated, “Just makes you hungrier for it” (SRB&A Interview Tyonek April 2009) and another observed that beluga is important for “health and for your mind. If your stomach’s growling, your mind is working and you are thinking about it” (SRB&A Interview Tyonek April 2009).

One respondent reported that even though he enjoys beluga, he was resigned to the fact that beluga is unavailable. He said, “Well, you get hungry for it for one thing. But it’s just one of those things we are not able to get anymore” (SRB&A Interview Tyonek April 2009). Another resident expressed a sense of defeat regarding the loss of beluga and said, “I have it in my mind we are never going to get it back. Once you give it up you never get it back. We have to live with it; we have no choice” (SRB&A Interview Tyonek April 2009).

Table 38 provides additional responses by Tyonek residents regarding how a loss of beluga hunting would affect their community.

Table 38: Additional Tyonek Responses Regarding a Loss of Beluga Hunting

Additional Tyonek Responses
<i>If you lived on a farm and somebody took all your cattle away.... (SRB&A Interview Tyonek April 2009)</i>
<i>Most of the people were raised on it, so it would impact those that like to harvest it. (SRB&A Interview Tyonek April 2009)</i>
<i>It would bring a lot of sadness; we would miss out on good subsistence food that we won't be able to have again. (SRB&A Interview Tyonek April 2009)</i>
<i>Spiritually it will affect [the community]. One of the things I mentioned, it is passed down to us, we knew how much to take, moose, ducks, how much to take during that season. Everything is connected, the beluga is connected with the fish, the moose is connected to everything else. (SRB&A Interview Tyonek April 2009)</i>
<i>I would say it would affect us very badly because we wouldn't have that extra portion of food. (SRB&A Interview Tyonek April 2009)</i>
<i>We are going to go to war with somebody. That isn't going to happen. We see a lack of beluga. If they take it away from us permanently, they will have a fight. There were no more kings, so they asked us not to fish. They didn't give it back to us after 20 years and so we took them to court. We still don't get a big quota. We only get 70 kings per family, and we respect that. (SRB&A Interview Tyonek April 2009)</i>
<i>People would be really upset. A lot of people enjoy eating it and going after it. They would have to go find another food source. A lot of people don't care for other sources; they would rather have beluga. (SRB&A Interview Tyonek April 2009)</i>

Stephen R. Braund & Associates, 2010.

Times of Resource Scarcity

SRB&A researchers asked respondents if there have been any years when Tyonek residents had not been able to harvest enough subsistence foods. The purpose of this question was to determine how residents are able to compensate for the lack of a specific subsistence resource (e.g., beluga) during times of scarcity for that resource. Although residents generally did not refer specifically to beluga, their responses indicate that having a diversity of available resources is important to ensure sufficient subsistence harvests each year. Twelve of 28 respondents reported they had experienced shortages in subsistence foods during certain years (Table 39). Several residents stated that this occurred in the 1970s, 1980s, and 1990s, while others stated that shortages have occurred within the last 10 years and as recently as 2008.

Table 39: Years When Unable to Harvest Enough Subsistence Foods

Years when unable to harvest enough subsistence foods	Number of Respondents
No	16
Yes	12
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

These residents reported shortages of fish, mainly salmon, moose, beluga, and other resources in the past. One residents described, “Moose, we ended up having to go further and further to get moose, so we had to put up a lot more fish” (SRB&A Interview Tyonek April 2009). Another stated, “I don’t know how many years it’s been. We haven’t got our limit on subsistence. King salmon” (SRB&A Interview Tyonek April 2009). Several residents noted that both salmon and moose have been scarce at one time or another, but did not cite a specific year when this occurred. As one individual said, “Some people might say they didn’t get enough fish some years. And moose, a lot of us have been having a hard time getting moose” (SRB&A Interview Tyonek April 2009).

One Tyonek resident observed that low moose populations and hunting restrictions have affected residents’ ability to share foods with friends and family living outside of the community as well as those living within the community. The inability to share with others, especially elders, is a source of anxiety for residents. She stated,

Seems like it has been going on for years. I want to say at least back in the eighties, maybe early nineties. I remember when everyone used to get enough moose and give to people in Anchorage. The younger ones try to get some for the elders in Anchorage. Now you have restrictions. If you don’t get a permit you have to get some from others. Fishing, you usually get enough fish except when the tide is wrong or they close it down. Moose, last year we didn’t get a permit and one of my uncles did, we helped him so we could get some. My dad lives [out of state], and I wasn’t able to give some to him. My uncle had to spread it out in so many ways. He is a real big subsistence person. (SRB&A Interview Tyonek May 2009)

One resident explained that, while moose and salmon have all been scarce at one time or another in the past, these animals follow a natural cycle of increased and decreased numbers over time. Other resources, such as rabbits, ptarmigan, and grouse, also follow a natural cycle (SRB&A Interview Tyonek May 2009).

Another hunter noted that harvests of beluga, fish, moose, and ducks have been irregular in the past. He indicated that while these resources have all been scarce at some point in the past or present, the community has been able to support themselves with other resources and other means. He said,

I think the fishing was real bad in the 70s when we didn’t get enough subsistence. The beluga, when they said that the beluga weren’t coming up things got bad too. We haven’t had a hard time. Mostly the moose [and fish] sometimes the ducks too. We’ve been hearing the ducks haven’t been showing up like they were supposed to and some years the kings don’t show up or they are late. (SRB&A Interview Tyonek April 2009)

A number of respondents made the observation that when a subsistence resource is less available, Tyonek residents compensate by harvesting more of another resource. One respondent noted that

king salmon and beluga have been in short supply in the past; during these years, residents supplemented their subsistence harvests with other species of salmon. He described,

Lot of times Fish and Wildlife would say there weren't enough kings, then Tyonek stopped fishing kings, same thing with the belugas. Tyonek knew that if there weren't enough kings there wouldn't be enough next year. There were other salmon we ate; we didn't only eat the kings, all species. (SRB&A Interview Tyonek April 2009)

Another resident noted that any resource may supplement another that may be in short supply at the time. Residents may put away more moose, salmon, ducks, or hooligan if they are in abundance one year to offset a decrease in another resource. He explained,

Just like if there is more fish, you put up more fish, and same thing with the moose, if the moose are gone you put up more fish. I am still eating fish from last year and moose from last year. If someone else had more, you share with other people in the village, help each other out. Maybe we have hooligan and ducks put away, maybe you add hooligans to it if you don't have that much. I think there are enough fish going around, we are having a hard time getting moose. Belugas, because of that restriction, we don't harvest enough of that anyways. I think they have us down to one. (SRB&A Interview Tyonek April 2009)

Respondents noted that at times when salmon have been hard to come by, residents have harvested more moose; likewise, when moose have been scarce, salmon harvests increased to compensate for the lack of meat. When asked which resources increased when moose was scarce, one respondent stated, "We had to put up a lot more fish" (SRB&A Interview Tyonek April 2009). Another respondent noted that when king salmon are in low numbers, they harvest more silver (coho) and red (sockeye) salmon. He said,

Most people ate silvers and reds [when the kings were low]. They hunted moose whenever they could get it. A lot of times moose wasn't as plentiful; you hunt it when you can get it. (SRB&A Interview Tyonek April 2009)

One resident explained that porcupine and beaver supplemented people's diets when other foods were scarce in the past. He stated, "They say that the porcupine is a food of necessity. We ate porcupine, beaver, whatever was there" (SRB&A Interview Tyonek May 2009).

Residents generally indicated that resource availability fluctuates from year to year. Only five respondents out of 28 reported that occurrences of not harvesting enough subsistence resources are an ongoing trend (Table 40).

Table 40: Ongoing Trend of Insufficient Subsistence Harvests

Ongoing Trend of Insufficient Subsistence Harvests	Number of Respondents
No	23
Yes	5
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Change in Diet

SRB&A researchers asked Tyonek residents if their diet had changed in recent years. The purpose of this question was to determine to what extent a lack of certain subsistence resources, including beluga whales, had resulted in residents changing their diet. Fifty percent of respondents reported their diet having changed in recent years (Table 41).

Table 41: Respondents Reporting a Change in Diet

Change in Diet	Number of Respondents
No	14
Yes	14
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

The majority of respondents described eating more store-bought foods versus subsistence foods in recent years. As one resident stated, “We are eating a lot more store bought foods” (SRB&A Interview Tyonek April 2009). Residents cited high gas prices, convenience, and a decrease in subsistence resources as reasons for this shift to non-subsistence foods. One respondent noted that rising gas prices have affected their ability to harvest subsistence resources, saying, “You are eating more cows than you are eating moose, more chickens than ducks. That is more due to the gas prices, too” (SRB&A Interview Tyonek April 2009).

Several respondents explained that they rely more heavily on non-subsistence foods because of the difficulty of harvesting subsistence foods. One resident simply stated, “[I eat] more Western foods than subsistence foods. Subsistence foods are hard to get” (SRB&A Interview Tyonek April 2009). Other respondents noted that with smaller harvests of subsistence resources, they have had to supplement their diet with store bought foods. As one respondent described, “Try to get store bought meat. It is too costly. We tried fishing, but with my husband working seasonally this time of year we didn’t get enough fish, so we had to rely on store bought” (SRB&A Interview Tyonek May 2009).

Fifty percent of respondents reported no change in their diet in recent years, noting that they were raised on subsistence foods and continue to rely on subsistence foods. One resident noted, “It hasn’t changed because that was how I was raised” (SRB&A Interview Tyonek April 2009). Another resident acknowledged the convenience of purchasing store bought foods from Anchorage but indicated that he prefers subsistence foods. He stated, “With the store you can buy anything you want. It costs a bit but you can go to Anchorage to shop. I stick pretty much to the subsistence food” (SRB&A Interview Tyonek April 2009).

Rituals and Festivities

SRB&A researchers asked respondents about their participation in rituals or festivities associated with preparation for a beluga hunt or after a successful hunt. The most commonly mentioned ritual was that of a prayer before and/or after a hunt. Seven respondents reported participating in rituals or festivities associated with the preparation for a beluga hunt, compared to 21 respondents who had not (Table 42).

Table 42: Respondents Participating in Rituals or Festivities during Preparation for Beluga Hunt

Participation in Rituals or Festivities during Preparation for Beluga Hunt	Number of Respondents
No	21
Yes	7
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Those respondents who had participated in rituals and festivities during preparation for the hunt indicated that they participate in prayers for success and a safe return. Two individuals described,

Well, the things we've got to do before we go out on the hunt are prayers for our safety and success (SRB&A Interview Tyonek April 2009)

[There is a] normal prayer for safety, but not a festival or ritual. Just a personal thing. (SRB&A Interview Tyonek April 2009)

One resident noted that in addition to prayers given for success and safety, beluga hunters also used to take steam baths before the hunt. He described,

When I was a kid, getting prepared for the hunt, when they get ready they get themselves prepared by taking a good steam, pray for the hunt. I don't know how it is done now but when I was growing up the customs were intact. We pray for a successful hunt and that we all come back together. (SRB&A Interview Tyonek April 2009)

Eight respondents reported participating in rituals or festivities associated with a successful beluga harvest; the remaining 20 respondents had not participated in any post-hunt rituals or festivities (Table 43). Several individuals reported that a prayer of thanks is given to the whale after it is killed while others said that this practice had ceased. One individual described offering prayers after the whale has been harvested as follows: "We bring the beluga alongside the boat and give a prayer for thanks and a prayer for thanks for their safety" (SRB&A Interview Tyonek April 2009).

Table 43: Respondents Participating in Rituals or Festivities after Successful Beluga Hunt

Participation in Rituals or Festivities after Successful Beluga Hunt	Number of Respondents
No	20
Yes	8
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Another respondent indicated that the methods of butchering and distributing the beluga are rituals through which residents show respect for the beluga and bring good luck during future hunts. He said,

Respect of the animals, what parts to take off and put aside for a certain family, show the respect of the animal. If they didn't take care of the animal like they were supposed to you have bad luck. If you don't take care of it you won't get one next time. Like with everything else. (SRB&A Interview Tyonek April 2009)

One individual described rituals and festivals that occurred in the past after a successful beluga hunt, including songs, dancing, stories, and prayers:

There was always festivals, with songs and dances and stories, and giving thanks to Naq'eltani, and then once you brought it back to the community, you gave special thanks then. Then there was another celebration, giving thanks to God, singing and dancing. There was more than one celebration going on. Those that were used for a small potlatch and a big potlatch as well. A big celebration that followed afterwards. You give thanks and you sing songs, songs of lament and songs of happy stories. Or in a celebration of death, songs of death. (SRB&A Interview Tyonek May 2009)

Views on Non-Tyonek Beluga Hunters

SRB&A researchers asked Tyonek residents to express their views on non-Tyonek hunters hunting beluga in Cook Inlet, specifically addressing the following three subgroups of hunters:

1. Natives who live outside the Cook Inlet region
2. Natives who are not originally from the Cook Inlet region but who have recently moved to the area
3. Natives whose families are not originally from the Cook Inlet region but whose family has lived in the area for multiple generations

Regarding the first subgroup of Cook Inlet hunters (Natives who live outside the Cook Inlet region), a number of residents expressed concern. Much of these concerns stemmed from respondents' belief that the decline in Cook Inlet beluga is at least partially due to overhunting by non-Cook Inlet hunters in recent decades. Several individuals noted that in the recent past, non-Tyonek hunters had harvested Cook Inlet belugas for commercial purposes and sold the meat and blubber in Anchorage. One resident stated, "That's hard to answer without being discriminatory about it. [I'm] really against it. I believe it's commercial use and sales that have caused it [the decline]" (SRB&A Interview Tyonek April 2009). Several other Tyonek residents attributed the decline in beluga numbers to non-Cook Inlet hunters overharvesting the animals. Residents especially denounced the overharvesting and wasting of beluga. One respondent said,

I would like to shake them up, I think they had a lot to do with the depleting the numbers and they turn around and blame it on us. When we get a beluga we use every part of it, we don't waste it. (SRB&A Interview Tyonek April 2009)

Another resident discussed his concerns about the number of hunters that have been hunting beluga whales in Cook Inlet and indicated that the beluga population cannot sustain harvests by so many hunters. He stated,

I think they shouldn't be allowed to. I say that because there are chances of exploiting it to extinction. I knew there were hunters up there; I never knew they were up there with that magnitude. I have seen them once in a while, but it never occurred to me there were so many. (SRB&A Interview Tyonek May 2009)

Other respondents were indifferent to whether or not non-Cook Inlet hunters hunted beluga in Cook Inlet. One simply stated, "It's a free country" (SRB&A Interview Tyonek April 2009).

Tyonek respondents were generally opposed to beluga hunting by the second subgroup of Cook Inlet hunters, residents who have recently moved to Cook Inlet. While respondents did not want to seem discriminatory, they also expressed concern that allowing too many individuals to hunt Cook Inlet beluga had led to the decline in beluga numbers. One resident noted that it is not necessarily Anchorage hunters who have single-handedly caused the decline in beluga, but that they also bring others to Cook Inlet to hunt beluga. Several respondents expressed the view that hunters from other regions should have to live in the Cook Inlet region for a certain number of years before being granted permission to beluga hunt. Others simply disagreed with others hunting beluga who are not originally from the Cook Inlet region.

Regarding the third subgroup (Natives whose family has lived in the Cook Inlet region for multiple generations), many Tyonek respondents were either indifferent or supported those individual's rights to hunt beluga in Cook Inlet as long as they adhere to the same regulations that Tyonek residents do. Several Tyonek residents expressed understanding that other Natives from families who have lived in the region for multiple generations and who may have utilized the resource in the past should be able to hunt beluga in Cook Inlet. Two residents said,

I know how it is; they are probably hungry for it. For them to live in the same area as us, I think it is all right. Everyone should be treated the same. If they get to hunt then all of us should be able to hunt. (SRB&A Interview Tyonek May 2009)

I never thought about that until I heard about it on the news and saw it in the paper. As long as they are Natives, and they need it, they subsisted on it all their lives too. I know a lot of Natives in Anchorage, and they grew up on it. (SRB&A Interview Tyonek April 2009)

A few residents were less open to hunting by residents whose families are not originally from the Cook Inlet region, indicating that they should not be allowed to hunt belugas because they are either not skilled in hunting beluga, live in the city, or their ancestors did not gain permission to hunt in the Cook Inlet region. One individual disagreed with residents of Anchorage or other cities hunting beluga in Cook Inlet, explaining, “I feel that it is a subsistence way of life and that’s how it should stay. If they live in the city they should stay in the city” (SRB&A Interview Tyonek April 2009). Another respondent observed that, traditionally, one required permission from a tribe to hunt in their territory. He said,

I think if they are from different regions, if their ancestors, maybe they knew our ancestors [and had permission to hunt] and they have respect. If they don’t have that connection they shouldn’t hunt there. Way back, an outsider, the chief had to invite them to be there. That is passed down. They have to have some kind of connection. There will be conflict. (SRB&A Interview Tyonek April 2009)

Many of residents’ issues with non-Cook Inlet hunters harvesting beluga arose from their concerns about the sustainability of allowing non-Cook Inlet residents to hunt beluga, especially with the city of Anchorage in such close proximity. Tyonek respondents generally expressed concern for the Cook Inlet beluga population and stressed the need to protect and conserve this valuable resource.

Traditional Knowledge of Beluga Whales

Tyonek residents’ relationship with beluga whales is maintained and strengthened by their knowledge about and participation in beluga hunting, which requires related knowledge about beluga whales and the Cook Inlet environment. Several publications (Huntington 2000, Carter 2009, and SRB&A 2007) include traditional knowledge of the Cook Inlet environment as it relates to beluga whales, as well as knowledge about beluga whale abundance, distribution, migration, health, and habitat.

Huntington interviewed Cook Inlet beluga hunters, including two visits to Tyonek (Huntington, personal communication, 2010). Much of the knowledge provided by the interview participants was related to the environment of western Cook Inlet near Tyonek. Participants provided information regarding the timing and location of beluga whale movements in Cook Inlet, indicating that the belugas arrive in Cook Inlet in late April and generally stay until November; their movements in the upper inlet between those two months are dependent on tides and feeding grounds (i.e. locations of fish). Observed feeding grounds include the mouths of Beluga River, McArthur River, and Susitna River. Interview participants described patterns in abundance, distribution, migration, feeding behavior, and responses to boats, predators, and human hunters. Huntington found that, with some exceptions, residents’ observations were often consistent with published reports on beluga whales. Residents provided observational data that had previously not been available in the literature.

Carter’s thesis work (Carter 2009) also included interviews with Cook Inlet residents, including two group interviews in Tyonek. Fieldwork for this study took place nearly 10 years after Huntington’s 2000 traditional knowledge study and built on many of the findings of the original study. The purpose of the research was to document traditional knowledge of Cook Inlet residents (including both Alaska Natives

and non-native participants) in the context of declining beluga whale populations and to provide future directions for beluga whale research. The interviews focused on residents' observations of changes in beluga whales and beluga whale habitat. Key observations included increased shark populations, expanded northern pike distribution, more frequent killer whale sightings, and increased siltation leading to mudflat expansion. Observations were consistent with those reported in Huntington's 2000 report, and support residents' previous observations during Huntington's research that the beluga whale decline began in the mid to late 1980s.

SRB&A's 2006 subsistence and traditional knowledge research in Tyonek (SRB&A 2007) included both subsistence mapping and a traditional knowledge component that covered changes in the use, abundance, distribution, migration, and health/quality of beluga whales over the previous 20 years, as well as observations of habitat. Residents' observations were consistent with those reported in Huntington (2000) and Carter (2009). Hunters reported a decline in beluga abundance over the past 20 years, with one noting that the decline began approximately 20 years prior to their interview (in 2006). Reasons given for the decline in beluga included over-hunting of beluga by non-Tyonek Natives, declining fish populations in northern Cook Inlet, disturbance from industrial activities, and predation from killer whales. Key beluga habitats were reported near the mouths of Susitna, Little Susitna, and McArthur rivers. Residents also observed physical changes in the inlet due to erosion.

The above studies indicate that, in addition to the social, cultural, and material importance of beluga whales to the people of Tyonek, residents' traditional knowledge related to beluga whales is a valuable tool for scientists attempting to understand changes in the Cook Inlet environment. Currently, residents' knowledge about beluga whales is especially relevant in the context of declining Cook Inlet beluga whale populations.

The Future of Tyonek Beluga Hunting

This section discusses residents' views about the future of Tyonek beluga hunting. Their responses indicate that Tyonek residents have a hopeful view on the future of beluga hunting. All 28 Tyonek respondents reported that Tyonek should be allowed to continue hunting beluga whales if the population is high enough to sustain subsistence harvests (Table 44). The majority of respondents, 16 of 28, reported that two to three belugas would be adequate to support the community for one year (Table 45). As one individual said, "Two, maybe three, depends on who wants to eat it, no use in going overboard" (SRB&A Interview Tyonek April 2009). Five respondents reported that one beluga would be enough, while four respondents said four to five beluga would be needed to support the community for one year. Twenty-two of 28 respondents reported that they would hunt beluga in the future if the beluga population was high enough to support harvests (Table 46). One resident explained that he understood the need for the beluga population to increase before hunting resumes, saying, "If I thought there weren't enough out there I wouldn't go out; if there were enough I would go hunt" (SRB&A Interview Tyonek April 2009). Others noted they wanted their children to have the opportunity to hunt beluga. One hunter simply said, "I would take my kids out tomorrow morning if I could" (SRB&A Interview Tyonek April 2009). Another resident explained that while she will probably not hunt beluga in the future, she wanted the opportunity for her son. She said, "I do hope someday my son is one of those hunters. He was the first born boy in the family so my dad is teaching him. I want my son to have his moose and fish rights" (SRB&A Interview Tyonek April 2009).

Table 44: Should Tyonek be Allowed to Hunt Beluga

Should Tyonek be allowed to hunt Beluga	Number of Respondents
Yes	28
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 45: Number of Beluga Adequate to Support Tyonek for One Year

Number of Beluga	Number of Respondents
1	5
2-3	16
4-5	4
10 or more	2
Don't know	1
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Table 46: Respondents Who Would Hunt Beluga if Population Increased

Hunt beluga if population increased	Number of Respondents
No	6
Yes	22
Total number of respondents	28

Stephen R. Braund & Associates, 2010.

Conclusion

Tyonek's historic and cultural relationship with beluga whales has been well established in oral and written literature concerning the natural and human history of Cook Inlet. As evident in various historical accounts of Cook Inlet prior to the 1900s, the people of Tyonek have a long history of hunting beluga whales. Beluga meat and oil have been highly valued subsistence foods for generations.

Tyonek's ongoing relationship with beluga whales is evident in a number of members of the community who have retained the skills, knowledge, and proper equipment needed to effectively harvest the whales. Despite recent restrictions on Cook Inlet beluga hunting, residents of Tyonek have maintained their cultural connection to belugas and, as recently as 2005, have continued to hunt and consume belugas. Although some methods by which residents hunt and harvest belugas have changed with the introduction of new technologies in weapons and transportation, many residents' methods and uses, based on traditional knowledge passed on to them by their elders, have continued as before.

Due to the low numbers of beluga in Cook Inlet in recent years, hunting of Cook Inlet beluga is currently prohibited. However, the importance of beluga hunting in Tyonek as a source of food, a culturally valued traditional activity, and as a method of teaching Dena'ina values and hunting skills to the youth remains high. During interviews in Tyonek, residents expressed the importance of hunting beluga and their desire to continue hunting in the future, with all 28 respondents supporting a continuation of the hunt if the beluga population is healthy enough to support harvests. Residents also stressed the importance of having opportunities to teach their children the skills of hunting beluga; without opportunities to pass these skills onto the younger generation, many residents fear that the tradition will be lost.

Cultural continuity is evident in Tyonek's relationship with beluga whales through the continued hunting, harvesting, processing, and sharing of this resource. In addition, the continued passing on of traditional knowledge associated with belugas and beluga hunting allows for residents to maintain their cultural connection to beluga whales, even when this resource is unavailable. Knowledge about belugas is most easily imparted while beluga hunting, harvesting, processing, and sharing activities occur. Until recently,

Tyonek residents have had the opportunity to participate in these activities and thus have been able to maintain a strong cultural connection to beluga whales. The future of Tyonek's cultural relationship to beluga whales will rely on the continued opportunity to pass traditional knowledge about belugas on to the younger generations, and the continued documentation of this knowledge and of residents' beluga hunting and associated activities.

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APPENDIX A: TYONEK INFORMED CONSENT

Stephen R. Braund & Associates

P.O. Box 1480, Anchorage, Alaska 99510

907-276-8222 (Phone); 907-276-6117 (Fax)

srba@alaska.net

Tyonek Cultural and Subsistence Relationship to Beluga Whales

April-May 2009

Informed Consent Form

Description of the Study

Stephen R. Braund & Associates (SRB&A) has been contracted by the National Oceanic and Atmospheric Administration (NOAA) to conduct ethnographic beluga whale research in Tyonek. The purpose of this research is to document Tyonek's historic and current relationship with beluga whales. It is important that this analysis relies on current and accurate information from Tyonek beluga hunters. This project is designed to gather relevant information regarding Tyonek's harvest, use and interaction with beluga whales, both in the past and present

This study will use the information collected in the interviews, along with existing information, to develop a document describing the cultural relationship between Tyonek and beluga whales. Our goal is to gather information on Tyonek hunting, harvesting (including harvest areas), processing, sharing, and ceremonial aspects of beluga whales. In short, we want to document why and how beluga whales are important to Tyonek.

Risks and Benefits of Being in the Study

This study is intended to provide current and accurate information in order to document the cultural and subsistence relationship between Tyonek and beluga whales.

Implications of Tyonek's participation in this research project include:

- Providing information on Tyonek's use of and relationship to beluga whales that could be used to assist assessments of impacts to Tyonek related to future development in upper Cook Inlet
- Providing information that could aid in mitigating potential impacts on Tyonek beluga hunting and uses
- Providing information that will enable review of current beluga use compared to historic information
- Providing information that could be used to document Tyonek's cultural need for beluga whales
- Providing information developed for this project that may be available to the general public

With any project of this kind, there is no guarantee how the information will be used in the future.

Anonymity

Your name will not be used in our study without your permission. Some people wish to be acknowledged for participating in this kind of study. Others prefer that their names are not mentioned in publications

and reports. The decision is entirely up to you. Please circle the appropriate answer below, above the signature line.

Confidentiality

Individual harvester information will remain confidential and will not be included in either the maps or report.

Voluntary Nature of the Study

Your decision to take part in the study is voluntary. You are free to choose not to take part in the study or to stop taking part at any time without any penalty to you.

Honoraria

SRB&A will pay honoraria to each participant who completes the entire interview.

Contacts and Questions

If you have questions, please contact Stephen Braund during the interview or workshop, or afterwards at 907-276-8222.

Statement of Consent

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study.

My name **MAY / MAY NOT** be used in the project report (please circle one).

Signature & Date

Printed Name

APPENDIX B: TYONEK FIELD PROTOCOL

TYONEK CULTURAL AND SUBSISTENCE RELATIONSHIP TO BELUGA WHALES

Field Protocol

Stephen R. Braund & Associates
P.O. Box 1480 Anchorage, Alaska 99510
Spring 2009

DATE OF INTERVIEW _____

RESPONDENT NAME _____

YEAR OF BIRTH _____

PLACE OF BIRTH _____

PHONE _____

INTERVIEWER _____

SECTION A: Current and Past Beluga Whaling Activities

Participation in Pre-hunt Activities

- A1. Have you ever supported or assisted in preparing for a beluga whale hunt?
YES _____ NO _____ (IF NO, SKIP TO Q.A4)
- A2. What was the first year you assisted in preparing for a beluga whale hunt? _____
- A3. How have you supported or assisted in preparing for a beluga whale hunt?
- a. Prepare boats _____
 - b. Prepare floats _____
 - c. Prepare harpoons _____
 - d. Provided supplies _____
 - e. Provided money _____
 - f. Provided gas _____
 - g. Cook _____
 - h. Other (describe) _____
- A4. Please describe how Tyonek residents prepare for a beluga hunt. (PROBE ABOUT: PREPARING BOATS, FLOATS, HARPOONS, ASSEMBLING SUPPLIES, MONEY, GAS, PREPARING FOOD, HAVE THESE METHODS CHANGED? IF SO, WHEN, HOW, AND WHY?) _____
- _____
- _____

Participation in the Beluga Hunt

- A5. Have you ever hunted beluga whales from Tyonek?
YES _____ NO _____ (IF NO, SKIP TO Q. A30)

- A6. What was the first year you hunted beluga whales? _____
- A7. What was the last year you hunted beluga whales? _____
- A8. Altogether, in how many different years did you hunt beluga whales from Tyonek? _____
- A9. Have you personally ever struck a beluga whale or participated in *a successful* hunt?
 YES _____ NO _____ (IF NO, SKIP TO Q.A11)
- A10. With what whaling equipment have you struck a beluga whale:
- a. Harpoon with float _____
 - b. Rifle (specify caliber) _____
 - c. Other _____
 - d. Not applicable _____
- A11. Which of the following roles have you had:
- a. Steersman _____
 - b. Harpooner _____
 - c. Shooter _____
 - d. Captain _____
 - e. Other _____
- A12. Step by step, describe the methods Tyonek residents use to hunt beluga whales? (PROBE: HAVE THESE METHODS CHANGED? IF SO, WHEN, HOW, AND WHY?) _____

- A13. Who decides whether a beluga hunt will take place? _____

- A14. Where do Tyonek residents typically hunt belugas? (PROBE: HAVE THESE LOCATIONS CHANGED? IF SO, WHEN, HOW AND WHY?) _____

- A15. When do Tyonek residents typically hunt belugas? (PROBE: HAS THE TIMING CHANGED? IF SO, WHEN, HOW AND WHY?) _____

- A16. What factors do you consider when choosing when and where to hunt belugas? _____

A17. How do you determine which beluga to harvest? _____

A18. Are there places associated with beluga hunting? YES _____ NO _____

(IF YES, PLEASE DESCRIBE) _____

A19. How does weather affect beluga hunting? _____

A20. How do beluga movements affect beluga hunting? _____

A21. Is there anything that has hindered beluga hunting in the past or led to an unsuccessful harvest year? (IF YES, WHAT HAS HINDERED BELUGA HUNTING OR LED TO AN UNSUCCESSFUL HUNT?) _____

A22. Do hunters ever take hunting trips for the sole purpose of hunting belugas? YES _____ NO _____

A23. Is beluga whale hunting associated with other subsistence pursuits? _____

A24. Who usually participates on whale hunting groups? (PROBE: HAS THIS CHANGED FROM THE PAST? IF SO, HOW AND WHY?) _____

A25. How are beluga whale hunting groups formed or organized? (PROBE: HAS THIS CHANGED FROM THE PAST? IF SO, HOW AND WHY?) _____

A26. Who is the captain you usually hunt with? _____

A27. Who taught you how to hunt belugas (relationship)? _____

Processing, Distribution, and Consumption

A28. After a successful hunt, how do you retrieve the beluga? (Do you attach a float?) _____

A29. What is the typical towing distance to the butcher site? _____

A30. How is the beluga whale butchered and processed? _____

A31. How is beluga whale distributed among community members? (PLEASE DESCRIBE): _____

A32. Have you provided assistance after a successful beluga whale harvest?

YES ____ NO ____ (IF NO, SKIP TO Q.A34)

A33. What types of assistance have you provided?

____ Towing the whale to shore _____ Butchering
____ Processing (cooking and preserving) _____ Distributing (Sharing)
____ Other (describe) _____

A34. Have you ever eaten beluga whale? YES ____ NO ____ (IF NO, SKIP TO Q.A38)

A35. How old were you the first time you ate beluga whale? (WHAT IS YOUR BEST GUESS) _____

A36. What was the last year that you ate beluga whale? _____

A37. Thinking about the last year you ate beluga, during what, if any, festivals and holidays did you eat beluga whale? _____

A38. When you had beluga whale to give, have you given beluga to other households?

YES ____ NO ____ N/A ____ (IF NO OR N/A, SKIP TO Q. A40)

A39. Thinking about the last year that you had beluga whale in your household, in which of the following ways to did you share beluga:

- a. with family members in other households in Tyonek? _____
- b. with non-family elders in other households in Tyonek? _____
- c. with friends in other households in Tyonek? _____
- d. with households in other communities? _____
- e. During specific festivals? (PLEASE LIST): _____
- f. During specific holidays? (PLEASE LIST): _____

A40. Have you received beluga from other households? YES ____ NO ____

SECTION B: Historical Aspects of Beluga Whale Hunting

B1. When was the earliest Tyonek beluga hunt you remember? _____

B2. Historically (before limits on hunting started in 1999), how many belugas did Tyonek residents usually harvest in a year? ____

B3. Do you know of any time before the restriction of hunting beluga whales starting in 1999 when Tyonek residents stopped hunting beluga whales?

YES ____ NO ____ (IF NO, SKIP TO Q.B4)

- a. When? _____
 - b. Why did Tyonek residents stop hunting beluga whales? _____
-
-

B4. Can you recall any stories or descriptions told by Tyonek people about hunting beluga whales in the past? YES _____ NO _____ (IF NO, SKIP TO Q.B6)

B5. What stories or descriptions do you remember? _____

B6. Do you know the names of historically prominent or active beluga whale hunters associated with Tyonek? YES _____ NO _____ (IF YES, PLEASE LIST) _____

B7. Do you know of any people living who are knowledgeable about historic beluga whaling by residents of Tyonek? YES _____ NO _____ (IF NO, SKIP TO Q.C1)

B8. Could you identify these people?

<i>NAME</i>	<i>LOCATION (COMMUNITY)</i>

SECTION C: Social and Cultural Aspects of Beluga Whale Hunting

C1. Have you participated in any rituals or festivities associated with beluga hunting including;

a. during preparation for the hunt? YES _____ No _____ (IF YES, PLEASE DESCRIBE)

b. after a successful hunt? YES _____ No _____ (IF YES, PLEASE DESCRIBE) _____

C2. How did the restriction of beluga whale hunting starting in 1999 affect beluga hunting in Tyonek?

C3. Has there been a loss of knowledge about beluga hunting, processing, and sharing since the hunting restrictions starting in 1999? YES _____ NO _____ (IF YES, PLEASE DESCRIBE) _____

C4. Has there been a loss in participation and participation opportunities in beluga hunting, processing, and sharing since the hunting restrictions starting in 1999? YES _____ NO _____

(IF YES, DESCRIBE) _____

C5. Has there been a loss of interest in hunting and consuming beluga since the 1999 restrictions?

YES _____ NO _____ (IF YES, DESCRIBE) _____

C6. Have there been any years when Tyonek residents have not been able to harvest enough subsistence foods? YES _____ NO _____ (IF NO, SKIP TO Q.C7)

a. When? _____

b. What types of subsistence foods did residents need? _____

c. Was there an increase in the harvesting of other resources? YES _____ NO _____
(IF NO, SKIP TO Q.C7)

d. What harvests increased? _____

e. Is this an ongoing trend? _____

C7. Has your diet changed in recent years? YES _____ NO _____ (IF YES, HOW?) _____

C8. When you do not have beluga to eat, how does this affect you, your family, and your community?

C9. What is the importance of hunting belugas in Tyonek? (PROBE: IMPORTANCE AS A SUBSISTENCE RESOURCE) _____

C10. What are your views of Natives who live outside of the Cook Inlet region hunting beluga in Cook Inlet? _____

C11. What are your views of Natives hunting beluga who are not originally from the Cook Inlet region but...

a. Who's families have lived in the Cook Inlet region (including Anchorage) for multiple generations? _____

b. Who have recently moved to the Cook Inlet region? _____

C12. If Tyonek was not allowed to hunt beluga again, how would that affect the community? _____

SECTION D: Future/Planned Beluga Activities

D1. Do you think Tyonek should be able to continue to hunt beluga whales if the population is high enough to support subsistence harvests? YES _____ NO _____

a. (IF YES) How many beluga whales would be adequate to support the community of Tyonek for one year? _____

D2. If the Cook Inlet beluga whale population was adequate to support subsistence harvests, would you hunt belugas from Tyonek? YES _____ NO _____ (IF NO, END OF SURVEY)

D3. Will you please give the names of currently active and knowledgeable beluga hunters in Tyonek?
