



Alaska SeaLife Center
w i n d o w s t o t h e s e a

***An Oral History of Habitat Use by Cook Inlet Belugas
in Waters of the Kenai Peninsula Borough***

by

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FINAL REPORT

Prepared for the Kenai Peninsula Borough

May 10, 2012

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EXECUTIVE SUMMARY

This project was funded by the Kenai Peninsula Borough (KPB) in April 2011 as part of a suite of five projects designed to provide the Borough with a greater insight into the status and management needs of Cook Inlet Beluga Whales (CIBW). CIBW are the subject of much public interest and concern due both to their intrinsic cultural values, particularly for Cook Inlet natives who traditionally hunted CIBW, and for their wider non-use values. The 2008 listing of CIBW as endangered species has further stimulated interest in better understanding the factors involved in their decline and factors which may be inhibiting their recovery.

As with many endangered species, and most Alaskan marine mammals generally, relatively little is known about CIBW ecology and habitat requirements. This project therefore sought to address a critical gap in knowledge about the historical abundance, distribution and use of habitat by CIBW in waters of, and adjacent to, the KPB before 1994 when systematic surveys of CIBW first began. Using a variety of social marketing and survey methods, the project team contacted some 250 potential public informants and received usable information from 214 informants in person (or by phone) and a further 12 informants who provided inputs online. We video-taped interviews with 23 key informants. This was a far greater response rate than anticipated. Many informants who contacted the team noted that there have been relatively few opportunities to tell their story. We were particularly pleased that we were able to engage with many pioneer and native community members.

Informants provided the first comprehensive assessment of how CIBW numbers and range have changed in the waters of Kenai Peninsula Borough over the past 80 years. Many informants provided previously undocumented knowledge about CIBW behavior and interactions with humans. With relatively few exceptions, they describe a clear and unequivocal contraction of CIBW range and a dramatic reduction in the abundance of CIBW. Many lamented the fact they may never again see runs of thousands of belugas in Cook Inlet as they perceive CIBW to be a highly valued part of their quality of life in Cook Inlet. Others expressed a more direct concern for the culture of future generations of Athabascan people for whom beluga whales are a key resource. There was much speculation by informants about the causes of CIBW decline, ranging from physical changes in Cook Inlet to human influences such as coastal development and pollution. Informants also indicated that there is great confusion about the management status of CIBW and efforts being undertaken to enable their population to recover.

This report will be distributed online and throughout the KPB and results incorporated in an upcoming CIBW exhibit at the Alaska SeaLife Center. It is recommended that organizations involved in CIBW research and recovery expand the work undertaken in this project to better understand the history of CIBW habitat use in Cook Inlet outside KPB waters and engage the many “untapped” stakeholders in CIBW recovery that this study suggest exists in the Cook Inlet region.

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ACKNOWLEDGEMENTS

A project as ambitious and complex as this one involves a lot of people. The project team would like to express its sincere appreciation to everyone who contributed in so many ways from conception to completion of this report and to also give you a heads up that work on this project is ongoing – a new exhibit that is based on the findings reported in this document will be formally opened on World Oceans Day (June 8, 2012) at the Alaska SeaLife Center. All contributors to this project are invited to join that opening!

Funding and logistical support for this project was provided by the Kenai Peninsula Borough and the Alaska SeaLife Center. The team would like to thank the Mayor(s), Assembly members and staff of the Kenai Peninsula Borough for their assistance in implementing this project. The grants administration, education and human resources teams at the Alaska SeaLife Center provided sterling support to the project team throughout the project. We would especially like to acknowledge the assistance provided by Jilian Chapman, Pam Jarosz, Daniel Barth, Laurie Stuart Morrow, January Frost, Cindy Ecklund, Donna Talamantes and Nancy Anderson.

Among the many institutions we would like to acknowledge for their assistance are the Alaska Department of Fish and Game Offices- Anchorage (esp. James A. Fall) and Homer (esp. Spencer Allen); the Anchor Point Senior Citizens Inc.; the Center for Alaskan Coastal Studies; Cook Inlet Keeper (esp. Bob Shavelson); the Driftwood Inn, Homer; Homer News; Homer Senior Citizens Inc.; Homer Society of Natural History/Pratt Museum; Homer Public Library; Homer Tribune; Kachemak Bay Campus of Kenai Peninsula College (esp. Carol Swartz); Kenai Peninsula College (esp. Alan S. Boraas); Kachemak Bay Research Reserve/ADF&G (esp. Terry Thompson); Kenai Peninsula Borough; National Marine Fisheries Service, Anchorage (esp. Barbara Mahoney); Ninilchik Senior Citizens Center; Ninilchik Traditional Council; National Park Service; Lake Clark National Park & Preserve, Anchorage Office; Seldovia Village Tribe (esp. Michael Opheim); the Alaska Museum of Natural History (esp. Katch Bacheller & Cindy Schraer); Alaska Native Heritage Center; the Alaska State Video Archive (vilda.alaska.edu); the Anchorage Heritage Center; Wells Fargo (esp. Tom D. Bennett); the Anchorage Museum (esp. Aaron Leggett); Alaska Resources Library & Information Service [ARLIS], beluga whale photographs by Marlene Buccione; the Center for Biological Diversity (esp. Rebecca Noblin); Defenders of Wildlife (Karla Dutton); the Kenai Aspen Suites Hotel; Kenai Peninsula Borough River Center (esp. John J. Mohorcich); Audubon Alaska (esp. John Schoen); LGL Alaska Research Associates, Inc. (esp. Tamara McGuire); Oral History Program University of Alaska Fairbanks (esp. James Kari); Arctic Studies Center (esp. Aron Crowell); the Soldotna Public Library; the Soldotna Senior Citizen's Center; University of Alaska Anchorage (esp. Frank von Hippel); the Village of Tyonek (esp. Frank Standifer, President and Randy Standifer, Vice President); and the Z.J. Loussac Public Library, Anchorage (esp. Charlotte Pendleton).

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Most importantly, the study team would like to thank all those people who responded to our call for your stories. Informants included: Marie Aamodt (Moose Pass), Joey Alred (Anchor Point), Douglas Anderson (Kenai), Michael Armstrong (Homer), Larry Aumiller (Montana), Nathan Bagley (Kenai), Steve Baird (Homer), Chris Banas (Kenai), Sera Baxter (Seldovia), Bob Bielefeld (Kenai), Amy Bollenbach (Homer), Alan S. Boraas (Kasilof), Dave and Molly Brann (Homer), Pam Brodie (Homer), Ralph Broshes (Homer), Phil Brudie (Homer), Scott Burbank (Homer), Robert Burnside (Anchorage), Catherine Bursch (Homer), Leroy Cabana Sr. (Homer), Nelda Calhoun (Homer), Barbara Carlson (Anchorage), Ken Castner (Homer), Bill Choate (Homer), Dale Chorman and Diane Spence-Chorman (Homer), Ryjil Christensen (Homer), Lee Clendenen (Washington), Erin Cline (Maryland), Lyle Cole (Soldotna), Henry Comingas (Girdwood), Mavis Cone (Kenai), Boyd Conway (Wasilla), Diana Conway (Halibut Cove), Phyllis Cooper (Homer), Sonya Woodman Corazza (Homer), Mike Crawford (Kenai), Susan Cross (Seattle), Don Darnell (Halibut Cove), Al Davis (Washington), Chris Day (Homer), Jose DeCreeft (Homer), William (Bill) DeCreeft (Homer), Alyson Dickson (Anchorage), Jim Diehl (Anchorage), Bob Ditton (Homer), Bill Dodge (Anchorage), Willy Dunne (Homer), Fred Elvsaaas (Seldovia), Sandy Elvsaaas (Seldovia), Betty and Paul Eneboe (Homer), Jennie Engebretsen (Homer), David Erikson (Homer), Clark Fair (Soldotna), James A. Fall (Anchorage), Brad Faulkner (Homer), Donna Rae Faulkner (Homer), Don Fell (Homer), Conrad Field (Homer), James E. Fisher (Soldotna), Ethan Ford (Homer), Gay Fraker (Homer), Dan France (Soldotna), Delora Garcia and her granddaughter Lexi (Kenai), Travis (Ty) Gates (Homer), Mike Geagel (Homer), Joyce and Mike Gidden (Anchorage), Clinton Goodfellow (Homer), Linda Graham (Hope), Jay Greene (Halibut Cove), , Robert and Marianne Haeg (Kasilof), Detricia Hahn (Anchor Point), Lee Hammarstrom (Homer), Joe Hanes (Soldotna), Bertha Kaloa Hanson (Homer), Renee Henderson (Kenai), Polly Hessing (Anchorage), Ermalee Hickel (Anchorage), Donna Hinkle (Homer), Alan Hoft (Anchorage), Tia M. Holley (Kenai), McKibben Jackinsky (Homer), Walter Jackinsky Jr. (Homer), George Jackinsky (Kasilof), Don Johenning (Homer), Cari Sayre Johnston (Talkeetna), Carl and Tammy Jones (Halibut Cove), Paul Karaffa (Kenai), Karen Kastel (Homer), Peter Kaufmann (Homer), Kathryn Kennedy (Ninilchik), Jim King (Juneau), Janet R. Klein (Homer), Susan Klein (Anchorage), David Klosterman (Homer), Namoi Klouda (Homer), Joan Lahndt (Kasilof), Jack Lentfer (Homer), Mike and Sandra Lettis (Anchor Point), Nancy Lord (Homer), Deb Lowney (Homer), Terri Mach (Homer), Kathy Mackulin (Homer), Millie Marten (Homer), Michael McBride (Homer), Ben McGahan (Nikiski), Sam McLane (Soldotna), Billie Meisinger (Soldotna), Ann Miller (Hope), Bill Miller (Hope), Pete Mishou (Homer), John J. Mohorcich (Soldotna), Fran and Jack Montgomery (Homer), Kenneth and Snooks Moore (Homer), Robert Moss (Homer), John Mouw (Homer), Frank Mullen (Homer), Susan Mumma (Seldovia), Jan Needham (Homer), Beaver Nelson (Homer), Christopher Newby (Homer), Anne Nixon (Homer), Ole Olsgard (Ninilchik), Jon Osgood (Homer), Dean Osmar (Kasilof), Ted Otis (Homer), Chris Owens (Anchorage), Julia Person (Homer), Lee Post (Homer), Paul Prevost (Homer), David and Marga Raskin (Homer), Jim Rearden (Homer), Howard Reed (Homer), Henry (Jim) and Linda Reinhart (Homer), Sandy

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Rollins (Homer), John Schoen (Anchorage), David Scott (Homer), Sachiko Scott (Seldovia), Jimmy Segura (Kenai), Joe Ray Skrha (Kenai), Donita Slawson (Soldotna), George Smallwood (Homer), Larry Smith (Homer), Thetus Smith (Anchorage), Frank Standifer (Tyonek), Randy Standifer (Tyonek), Ronald T. Stanek (Anchorage), John Steckel (Kenai), Karl Stoltzfus (Homer), Derek Stonorov (Homer), Ginger Strong (Homer), Bill Sullivan (Kenai), Clare Swan (Kenai), Adrienne Sweeney (Homer), Sadi Synn (Seldovia), Carl Tauriainen (Nikiski), Alison Teague (Putney, VT), Don Tetzlaff (Anchorage), Paul Theodore (Knik), Clem Tillion (Halibut Cove), Tracy and Vince Tillion (Homer), Renn Tolman (Homer), Cynthia Toohey (Anchorage), Joe Tracy (Anchor Point), Bill Trimmingham (Hope), Laura Trimmingham (Hope), Will Troyer (Cooper Landing), Lisa Turner (Kenai), Frank von Hippel (Anchorage), Steve Walli (Homer), Joy Ward (Kenai), George West (Arizona), Lynn Whitmore (Homer), Anne Wieland (Homer), Kesler Woodward (Fairbanks), Brian Yorich (Portland, OR).

Please note that in order to protect the anonymity of those folks who wished to not be personally identified, we do not cite informants by name in the body of this report unless permission was expressly granted to do so. We thank all of you for being so willing to share your stories and experiences with us and for allowing your knowledge to inform future generations.

The names of video informants are listed in Appendix A. Those interview tapes were authorized by each interviewee and will be held as archive files by the Alaska SeaLife Center and used for parts of the CIBW exhibit. They may be accessible (subsequent to informant permission) to future researchers.

Each generation has a different experience of Alaska. Your experiences provide an insight into what is now different about Cook Inlet, about Cook Inlet beluga whales and about us. Together, they provide a unique body of knowledge that should inform decisions that current and future generations make about the future of Cook Inlet beluga whales.

1.0 INTRODUCTION

1.1 Context for Project

This project was funded by the Kenai Peninsula Borough (KPB) in April, 2011 as part of a suite of five projects designed to provide the Borough with a greater insight into the status and management needs of Cook Inlet Beluga Whales (henceforth CIBW; KPB 2011). CIBW are the subject of much public interest and concern due both to their intrinsic cultural values, particularly for Cook Inlet natives who traditionally hunted CIBW, and for their wider non-consumptive values (Dutton, Stuart and Nelson, 2010). The 2008 listing of CIBW as endangered species has further stimulated interest in better understanding the factors involved in their decline and factors which may be inhibiting their recovery.

As with many endangered species, and most marine mammals generally, relatively little is known about their ecology and habitat requirements. This project therefore sought to address a critical gap in knowledge about the historical abundance, distribution and use of habitat by Cook Inlet beluga whales in waters of, and adjacent to, the Kenai Peninsula Borough (KPB) before 1994 when systematic surveys of CIBW began. The project was designed to fill in gaps in our understanding of CIBW abundance and distribution by engaging “eye witnesses,” residents and visitors to Cook Inlet whose knowledge about CIBW has been largely untapped to date (Nelson, Stuart and Dutton, 2010). There are various published general historical accounts and anthropological studies of native settlement in, and subsistence use of, Cook Inlet (Osgood, 1976; Stanek, Fall and Holen, 2006). However, these yield little quantitative data. Even when data on CIBW harvest were recently required to be collected under various co-management agreements, those data proved unreliable. DeMaster (1995) reports that actual takes of CIBW were considered to be greater than those that were reported by the Cook Inlet Marine Mammal Council.

Equally significantly, relatively little is known about CIBW abundance, habitat use and human interactions during the early days of Russian and later American settlement of the Inlet (Fiscus, Braham and Mercer 1976; Consiglieri and Braham 1982; Calkins 1989; CIMMC 1996; Huntington 2000; Mahoney and Sheldon 2000; NMFS 2007). Similar to most regions of the Pacific Northwest, there are very few historical baseline records of marine wildlife occurrence/distribution, abundance or human exploitation.

Those gaps in knowledge are particularly evident in relation to Cook Inlet beluga whales immediately prior to 1994 when systematic annual scientific surveys first began (NMFS 2008). According to NMFS (2007), surveys actually commenced in 1993, however, analyses were not completed until 1994 and so 1994 has been established as the baseline year for population

estimates. Paradoxically, it was in this period that CIBW first became subject of public and agency concern about their long term viability (Calkins 1989; Bennett 1996).

1.2 Why a Focus on Beluga Whales?

People assign a diverse range of values to Cook Inlet beluga whales, often depending on the nature of CIBW interaction with humans. From an Alaskan native perspective, they are an important component of the food security and culture of the both Dena'ina Athabascan people and Alutiiq Eskimos (Huntington 2000). Belugas and seals were the only marine mammal species caught locally and eaten by Natives in Kachemak Bay, Kenai, Tyonek, and Upper Inlet waters. Osgood (1976) observed that sinew was used for sewing, twisting snares and fine lashings, intestines were sewn into kamleikas, and teeth were carved. Osgood (1976) and Lord (2007) also note the importance of trade between native communities within Cook Inlet.

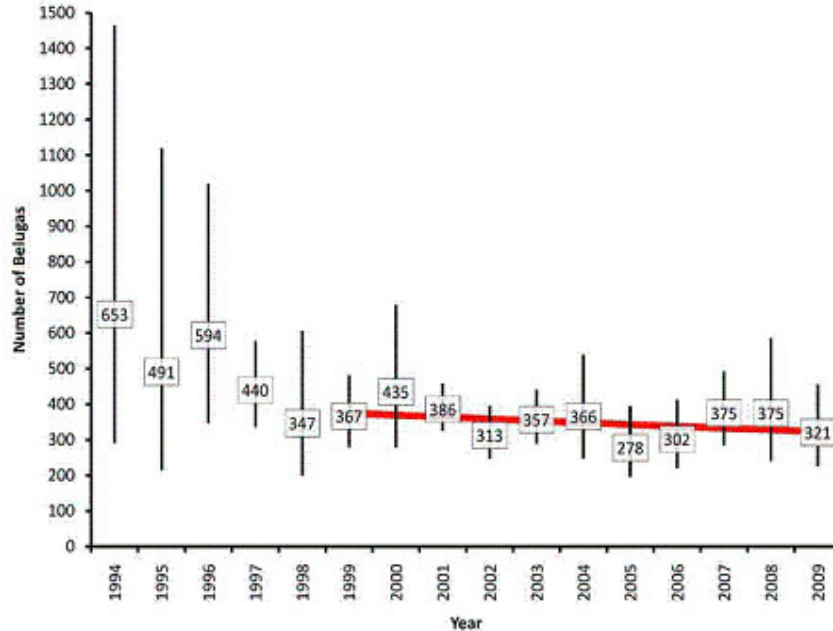
Mahoney and Sheldon (2000) provide an extensive review of the recent history of CIBW harvests. NMFS (2007, p. 3-22) notes, *“The effect of past harvest practices on the present Cook Inlet beluga population is substantial, particularly the harvests of the mid-to-late 1990s. While harvests continued at traditional, but undocumented levels for decades, NMFS believes that subsistence harvest removals increased substantially in the 1980s. Subsistence harvest estimates between 1994 and 1998 account for the stock’s sharp decline at that time.”*

For early explorers, settlers and fishers in Cook Inlet belugas were both a source of food and a perceived threat to local fisheries. There are various accounts of beluga being shot to reduce their impact of fish runs. Through the 1950s and 1960s, there were also community celebrations of beluga, with the popular “Beluga Days” culminating in beluga hunts and community feasts.

As CIBW numbers began to decline in the 1980 and 90s (Figure 1), there is evidence of greater public and management concern for their future, with increased efforts made to:

- a. Better understand population trends: various surveys were conducted including a comprehensive survey by the Alaska Department of Fish and Game in 1979 that produced an actual count of 479 belugas which was subsequently recalibrated to produce a population estimate of 1,293 belugas (Calkins 1989);
- b. Monitor and later limit subsistence harvests of CIBW as noted above; and
- c. Respond to beluga strandings: NMFS (2007) describes the considerable effort that has been made to respond to CIBW strandings and there are numerous media articles describing citizen-based efforts during that time to enable a quick and concerted response to strandings (Pratt Museum Marine Mammal Information Center records 1986-1993; Center for Alaskan Coastal Studies Coastwalk records 1984-2011).

In that same period, scientific studies of belugas increased significantly, leading to the advent of annual systematic counts and the introduction of increasingly stricter conservation management measures (NMFS 2007). Those efforts have intensified in recent years, with the development of critical habitat designation and the ongoing development of a CIBW recovery plan (NMFS, 2008). Those efforts have, not surprisingly, generated controversy and expressions of concern among the various Cook Inlet stakeholder groups.



Source: National Marine Fisheries Service, 2010

Figure 1: Cook Inlet Beluga Whale Population Trends

In developing and implementing this project it has become apparent that residents of the Cook Inlet region have a wide range of knowledge and attitudes about CIBW. Cook Inlet beluga whales have been prominent in local media since the 1960s, with numerous stories about strandings and interactions with humans (Lord 2007; Gay 1984; Loshbaugh 1992); however, the focus of media reporting has changed considerably since the mid 2000s. This is largely due to the recent process of Endangered Species listing. When CIBW were added to the Endangered Species List by the National Marine Fisheries Service in October 2008, there was a tremendous upsurge in public concern and media coverage (Armstrong 2010).

Unfortunately, historical local media coverage of this subject is not easy to access or even track due to a lack of systematic archiving of stories by local newspapers, radio and television stations. Efforts by project research staff to access media reports to identify potential informants and analyze coverage trends yielded patchy and inconclusive results. Some estimate of the intensity of coverage can be obtained from a Google analysis of terms as per Table 1.

Table 1: Beluga Whale Search Term Rankings

| Search Term | # Hits (as of October 15, 2011) |
|---|--|
| Beluga | 13,700,000 |
| Beluga Days (+ Nancy Lord) | 2,970,000 (2,360,000) |
| Beluga Whale | 1,240,000 |
| Cook Inlet Beluga Whales + Fishing | 107,000 |
| Beluga Whales in Cook Inlet | 54,100 |
| Cook Inlet Beluga Whale Research | 38,800 |
| Cook Inlet Beluga Whale | 38,700 |
| Cook Inlet Beluga Whale + Extinction | 35,500 |
| Cook Inlet Beluga Whale + Development | 29,200 |
| Cook Inlet Beluga Whale Population | 26,100 |
| Cook Inlet Beluga Whale + Endangered Species | 25,800 |
| Cook Inlet Beluga Whale Hunting | 25,300 |
| Cook Inlet Beluga Whale Facts | 18,100 |
| Cook Inlet Beluga Whale + Tourism | 16,600 |
| Cook Inlet Beluga Whale Critical Habitat | 15,800 |
| Cook Inlet Beluga Whale + Subsistence | 15,800 |
| Cook Inlet Beluga Whale + Turnagain Arm | 14,200 |
| Cook Inlet Beluga Whale + Kenai | 13,100 |
| Cook Inlet Beluga Whale Stranding | 10,300 |
| Cook Inlet Beluga Whale + Homer | 9,800 |
| Cook Inlet Beluga Whale + Tyonek | 4,100 |
| Cook Inlet Beluga Whale + Kenai Peninsula Borough | 2,210 |

1.3 Project Goals and Approach

The NMFS (2007, p. 3-14) observes, “Cook Inlet belugas have probably always numbered fewer than several thousand animals, but have critically declined from the stock’s historical abundance. It is difficult to accurately determine the magnitude of decline, because there is no available information on the beluga population that existed in Cook Inlet prior to the development of the South Central Alaska sub-region or prior to modern subsistence hunting by Alaska natives.” This project seeks to address gaps in knowledge about the historical abundance, distribution and use of habitat by Cook Inlet Beluga Whales in waters adjacent to the Kenai Peninsula Borough, by obtaining the best available information on range and habitat use from “eye witnesses.” Because there are few alternate ways to obtain such historical data, oral history projects are commonly employed in such situations and have been found to provide a range of additional benefits, including development of education materials.

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The overall goal of this project was to develop a record of historical distribution and habitat use by CIBW in waters within and immediately adjacent to the current boundaries of the Kenai Peninsula Borough prior to 1994. While there have been several efforts to characterize historical use of habitat by CIBW (Calkins 1989; Huntington 2000; NMFS 2008) none have sought to actively engage the wider community of Inlet residents and users in a systematic or deliberative manner. Our preliminary research (Dutton, Stuart and Nelson, 2010) indicates that there is a potentially significant body of oral history and even photographic information about CIBW that has not yet been contributed to the CIBW recovery process. We are also aware that there was little follow up to key observations that were undertaken previously which may have yielded key insights. For example, Huntington (2000) reported observations of CIBW use of the middle stages of the Kenai River; however, we have little understanding of when that habitat ceased to be used and whether there were any contributing factors.

Specific objectives of the project included:

1. Generate a new historical record of CIBW distribution, noting any significant shifts in CIBW range before 1994 from unpublished sources, from personal recollections and film/photo records;
2. Assemble a compilation of historical reference documents that adds new insights into CIBW abundance, habitat use, behavior, life history and human interactions from unpublished sources, from personal recollections and film/photo records;
3. Develop an oral history report complemented by published and unpublished records that will be uploaded to an agreed “end user” website (KPB, NMFS, ASLC) and shared with the CIBW Recovery Team, other scientists and the general public so that the results are widely accessible; and
4. Produce an educational exhibit and related materials that describe historical use of Cook Inlet as a means to better engage residents and the general public in understanding their history and current conservation status and encourage them to contribute knowledge and observations to any future oral history initiatives and to the CIBW recovery process generally.

2.0 METHODS

2.1 The Value of an Oral History Approach

Oral history projects have become an important part of the toolkit for cultural and natural resource managers and there are now many examples globally that have established oral history as a valuable supplement and complement to other kinds of anthropological, ecological and interdisciplinary research (Ritchie 2003; Arctic Studies Center 2010; USDA/APHIS 2010; UAF 2010; National Parks Service 2010; Oral History Society 2011). Because there are few alternate ways to obtain such historical data, oral history projects provide important insights that may otherwise be unavailable. For example, histories collated by the New Bedford Whaling Museum (2010) have enabled biologists to reconstruct population estimates for whales in the North Atlantic. They also provide a range of benefits including engagement of stakeholders in species conservation and habitat management, collection of archived or otherwise unavailable private data and the sharing of knowledge across generations. Material derived from oral history projects also allow the general public to be involved in science and policy processes and contribute to the development of unique education materials to share knowledge with future generations. Each year that passes we lose the ability to access knowledge about CIBW history from prospective informants.

That is particularly important in Cook Inlet for two reasons. Firstly, after nearly a decade of restricted and closed Alaskan native hunting of CIBW, traditional knowledge about beluga distribution and behavior is being lost, a concern that was expressed to the study team by many native leaders. Secondly the few remaining pioneer settlers of much of the Kenai Peninsula Borough are now octogenarians. In both cases, the vast knowledge that existed about CIBW from those generations who interacted with them before the major decline in beluga numbers is being lost quickly. This project is thus both timely and culturally important.

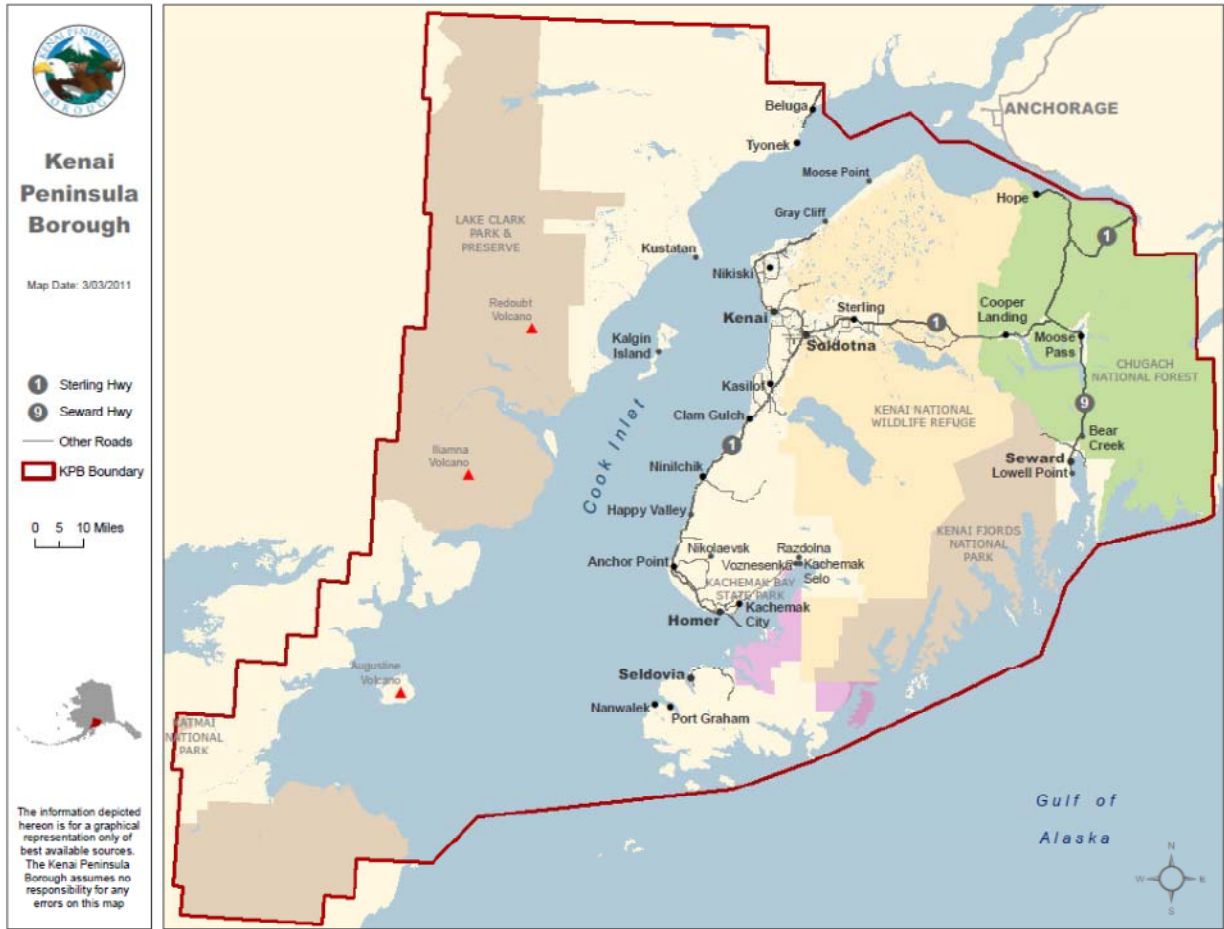
2.2 Geographic Scope

Cook Inlet beluga whales are recognized as a distinct population segment (DPS) by virtue of their genetic isolation from other beluga whale populations in the North Pacific (NMFS 2008). Although the exact extent of their range is not fully understood, they have been observed historically and relatively recently throughout those waters within the Kenai Peninsula Borough (Figure 2). Indeed, one of the reasons why this study was developed was to better understand changes in CIBW occurrence within the waters of the Borough.

This is especially important given concerns that have been expressed by the Borough about the listing of CIBW as an endangered species and the significant overlap between Borough jurisdiction and current CIBW range. In addressing that overlap, and concerns about CIBW ESA

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listing, the immediate past Mayor of the KPB noted that 38% of the total area of the KPB is included within Cook Inlet.



Source: Kenai Peninsula Borough 2011b

Figure 2: Geographic Extent of Kenai Peninsula Borough

For the purpose of this project we adopted the boundaries of the Borough as shown in Figure 2, although because potential respondents could have been either unable to accurately establish the precise location of CIBW sightings, or because they may have incidental observations on CIBW activity in Cook Inlet beyond the KPB borders, the study team did not completely exclude additional observations.

Later in this report we provide those (relatively few) observations that are clearly beyond the KPB boundaries, but which provide useful additional insight into overall CIBW historical use of habitat.

2.3 Study Approach and Schedule

2.3.1 Project Approach – Data Collection

We used two principal methods of data collection for this project:

1. Primary Data - Oral History Informants

Potential informants were identified from four main sources:

- a. Listings of stakeholders in other reports and documents. We screened the book *Beluga Days*, Pratt Museum beluga report database as well as local media articles and records of recent public meetings held by the National Marine Fisheries Service and the Kenai Peninsula Borough to identify prospective candidates for interview;
- b. Volunteers who self-identified in response to two rounds of newspaper advertisements and online advertisements and articles in early and mid-summer, 2011. As indicated in Appendix B, we advertised this project widely within the Borough, in Anchorage and online (through a variety of networks ranging from the weekly Anchorage-based “What’s Up” newsletter to the Alaska SeaLife Center website and blog). One particularly effective method of engagement that prompted a considerable response was the feature article on this project that was published in the Clarion Peninsula newspaper on October 2, 2011 (Tuttle 2011). Most voluntary informants were interviewed by project staff (either in person or by telephone), although some 12 informants also elected to provide inputs by online survey, a copy of which is included as Appendix C. Most informants contacted, or who responded online, were Alaskan residents. We interviewed five out-of-state residents who responded to newspaper advertisement/article and received input from one Lower 48 resident via the online survey;
- c. Potential candidates who were nominated by others during interview – we frequently found that informants had suggestions for additional informants within their geographic area or stakeholder networks. Several of these had an institutional link; for example, we were referred to the Kenai Peninsula College and the University of Alaska Fairbanks because of the extensive anthropological expertise there. In addition, the University of Alaska Anchorage, the Anchorage Heritage Center in the Wells Fargo building in Anchorage, the Alaska Museum of Natural History, and National Audubon Alaska provided valuable biological and anthropological data.

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- d. Scientists who had been involved in CIBW research. These included the many scientists whose research in Cook Inlet has previously been compiled or reviewed by ADF&G or the NMFS; see Appendix D for a summary of survey work undertaken prior to 1995. We were able to identify many of the scientists involved in those surveys and contacted several who still reside in South Central and Southeast Alaska.

For each of these potential informants, we developed an engagement strategy and established consistent contact and interview protocols. These included:

- a. Each lead interviewer (JK, KC and IMD) was assigned a primary interview region, but coordinated any cross posted information and contacts with the other project staff;
- b. A database of core information desired from each informant was established and used to guide conversations with informants, although we found that this became a “soft guide” and not a “hard rule” so as to ensure informants were able to tell their story in a way that was appropriate to them
- c. Any informant who was interviewed in person was asked a series of standard questions. Some respondents were recorded by audio or video. Audio interviews were used only to ensure the accuracy of note taking. Any informant who was video recorded was asked to sign a release form that enables the ASLC to obtain non-exclusive right of use of information provided. All interviews were summarized by the interviewer and key points logged for team discussion. As Appendix A notes, we selected 23 key informants for in-depth video interviews. These recordings and all related release documents are held at the Alaska SeaLife Center;
- d. Informants who had information from beyond the focal project area (e.g. from the Upper Inlet outside KPB boundaries) were invited to contribute their stories/experiences, but those data were not analyzed as comprehensively nor reported in detail.

As is always the case with such research, there were exceptions and special needs to consider and so the team also met and spoke by phone frequently to ensure we shared knowledge and adapted our approach as we proceeded. We also found it necessary to establish new protocols for certain stakeholder groups, for example, in relation to accessing traditional knowledge we found it important to coordinate carefully with native leaders. On the one occasion when the team was asked to provide payment for interview, we declined to proceed, noting that this study has no commercial value.

In total the project team were contacted by, or directed to speak with, some 250 potential informants and received usable information from 214 informants in person (or by phone) and 12 online informants (Appendix C). This was a far greater response rate than anticipated and provided a rich array of insights and information from current residents, former residents and visitors to the Cook Inlet region (see Acknowledgements). The high response rate was indicative of the widespread public interest in CIBW. Many informants who contacted the team noted that there have been relatively few opportunities to tell their story. Some had attended various public meetings related to CIBW, but felt that their observations were not as important as the data reported by scientists or would not be of interest. We were particularly pleased that we were able to engage with many pioneer and native community members.

After evaluating the information provided, we analyzed what worked, what didn't, and why. Three potential limitations were observed. The first of these relates to seasonality issues. The project was designed to be undertaken during the Alaska summer when access to informants is potentially greatest (allowing time to work around vacation and fishing/hunting activities by some potential informants). While we did experience some minor delays in engaging and filming some key informants and it did prove hard to contact some respondents, particularly those who live in Alaska only part of the year, we feel that the project was successful in sampling the broad range of Kenai Peninsula residents and visitors in 2011 who have knowledge of CIBW and that the limited seasonality of the study was therefore not a major limiting factor.

The second limitation considered was informant identification. We made considerable efforts to identify prospective informants using a wide range of methods, and seem to have quickly reached a threshold of knowledge in which relatively few new types of general observations were reported. However, we acknowledge that there are likely many potential informants who were unaware of the study and so unable to contribute specialized knowledge about an area or aspect of CIBW. Many oral history projects address this limitation by offering an ongoing mechanism for public engagement, such as a website or contact organization where further stories can be gathered and shared. We address that need in Section 5.2.

The third limitation considered relates to the level of specificity that informants were able to provide in their observations. We found considerable variability among informants. As the data reported in Section 3.0 indicate, some informants were remarkably clear about what they observed, where and when. Others were less precise. There were no discernible differences in that variability considering the different information gathering methods used. While in person and telephone interviews did enable prompting and

interactive follow up on observations made, the online survey also provided a vehicle for input that was valuable for those who elected to use that tool. Ultimately while we would have liked to receive more detailed inputs and observations on beluga numbers and locations by season in all locations, retrospective oral histories are inevitably dominated by more general recollections and so we accept the data for that they are.

2. Secondary Sources - Published Information

We hypothesized in the design of this study that local libraries and media organizations would likely provide valuable secondary information. Previous local research of this type had generated additional insights and leads for informants from published media and scholarly articles, and from local museums and library sources. Our two project interns spent a total of 15 person days in newspaper offices, museums and libraries in Homer, Soldotna, Kenai, Seward and Anchorage combing through reference materials on CIBW.

Unfortunately, apart from helping to identify some prospective informants and generating useful resources for the CIBW educational exhibit (we generated a resource log of these materials for use by the exhibit design team), these sources proved largely unhelpful in providing new secondary sources of information. This is partly due (as was noted earlier) to some newspapers no longer being in business and the lack of systematic archiving of historical media reports. For example, the “Cheechako News,” the Peninsula’s first major newspaper which began publication in 1959, carried a fascinating series of articles about Beluga Days in the early 1960s. Copies of those articles are now only available in library collections and are incomplete, as the Cheechako News closed in 1984.

2.3.2 Project Team

This project was implemented by a project team who are largely resident in the Kenai Peninsula Borough and who have extensive experience in social science and public survey. This was considered important for three reasons:

- a. Local knowledge: the team had an extensive understanding of local geography and culture and so were able to access knowledge sources and networks, efficiently allocate effort and rapidly process information provided by informants;
- b. Interact easily: a project like this requires considerable coordination of effort. By working closely throughout the project period and regularly sharing information the team avoided duplication of effort and ensured key leads were followed up in a timely manner;
- c. Adapt approach: identifying informants and following up with them expeditiously and personally are key to the success of any oral history project. On many occasions the

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project team was able to follow up new leads or change our approach with existing contacts to suit their needs better.

In addition to the budgeted 34 person weeks of staff effort that were provided for in this study budget, members of the project team provided an additional 31 person weeks of volunteer effort. That was a major factor enabling us to interview roughly three times as many informants as we had originally proposed.

2.3.3 Project Timetable

Table 2 provides a snapshot of the key project activities undertaken during the project up to the point of completing this report and preparing for the development of the subsequent exhibit.

Table 2: Project Schedule – Summary of Key Events

| Month | Week | Key Activity |
|--------------|-------------|---|
| April 2011 | 3 | Project award agreement negotiated with KPB |
| | 4 | Project staffing initiated – interns identified; equipment ordered |
| May | 1-2 | Staffing and volunteer/intern appointments completed |
| | 3 | Project administration protocols completed; literature review underway |
| | 4 | Online survey open for business; literature review continues; Prospective Informant list compiled |
| June | 1 | Initial Informant interviews begin |
| | 2 | Inaugural Full Team Meeting (Seward) |
| | 3 | Library research – Anchorage, Kenai and Soldotna and Homer |
| | 4 | First advertisement inviting public input appears in Homer News, Peninsula Clarion, Seward Phoenix Log, Anchorage Daily News (Appendix B) |
| July | 1 | Undertake library searches (ARLIS, UAA/APU Consortium, and Z.J. Loussac) |
| | 2 | Organize informant database; Media report analyses and scheduling interviews |
| | 3 | Conduct interviews Anchorage, Homer and Kenai |
| | 4 | Conduct interviews in Anchorage, Homer and Kenai |
| August | 1 | Completed compilation of scientific survey data |
| | 2 | Conduct interviews Homer and Anchorage |
| | 3 | Team meeting in Seward; Preliminary compilation of scientific data sources |
| | 4 | Conduct interviews Homer and Anchorage |

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| | | |
|--------------------------|-----|---|
| September 2011 | 1 | Conduct interviews Anchorage, Homer and Kenai and by telephone |
| | 2 | Calls to out of State respondents and continue interviews of local informants |
| | 3 | Anchorage museum visits: photo searches; Synthesis of web survey data |
| | 4 | Second team meeting (Kenai); Interviews with key informants and video interviews; interview with Peninsula Clarion |
| October | 1 | Telephone interviews of Anchorage, Cooper Landing and Kenai area residents |
| | 2 | In person interviews audio taped in Hope |
| | 3 | Data analysis and report draft; more priority video interviews in Kenai |
| | 4 | Video interviews Homer and Kenai; Final team meeting (Homer) |
| November | 1-4 | Final Interviews completed in Homer and Anchorage (for Tyonek contacts) Draft project report; complete exhibit concept |
| December | 1-3 | Review of draft by partner agencies; editing final report; |
| January to March 2012 | All | Report published, distributed and posted; Exhibit construction underway. Exhibit construction completed – “soft opening” planned for March, 2012; Potential application(s) for support to extend film interview record. |
| June 8 | 2 | Exhibit formally opened on World Oceans Day – informants, NOAA, KPB and community representatives invited! |

3.0 FINDINGS

The following sections describe the more common, significant or unusual observations reported by informants. For convenience, observations are reported by broad geographic locality within and outside the KPB. All quotes are denoted by italics and attributed to specific respondents who are identified by code and not by name as per the reporting protocols described in Section 2.3.1.

3.1 Lower Eastern Shore

KACHEMAK BAY (Nanwalek to Anchor Point)

| Area | CIBW Observation | Timeframe | Informant |
|--|-----------------------------|---|-----------|
| Port Graham _ Kachemak Bay | | | |
| Port Graham/Nanwalek | “big group of white things” | Between 1982 and 1985 | J57 |
| Seldovia Bay | 3 to 10 | Probably early 1970s | J28 |
| Halibut Cove Lagoon | 1 adult | 2006 ¹ | J46 |
| Glacier Spit | 1 adult | 2006 ¹ | J80 |
| Kachemak Bay | | | |
| Head of Kachemak Bay (also referred to as Fox River Flats, includes Bradley River, Sheep Creek, Fox River) | 30 to 40+ | Early 1970s | J18 |
| Head of Kachemak Bay | 1 to 10 | Early 1970s, several years when duck hunting, September | J22 |
| Head of Kachemak Bay | “all over the place” | 1966-1975 | J24 |
| Head of Kachemak Bay, mouth of Bradley River | About 5 | 1986, 1987, 1988, July through September | J31 |
| Head of Kachemak Bay | 4 to 5 | Early 1990s | J38 |
| Head of Kachemak Bay | 1 to 25 | 1971-1977, “winter going in to spring” | J60 |
| Head of Kachemak Bay | 20 to 40 | Until the late 1980s, late September, all of October | J67 |

¹ These may be the same animal. A single adult seen a day or two apart, by these informants.

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| | | | |
|--|---|--|-----|
| Head of Kachemak Bay | 12 to 15 | October 14, 1989 | J87 |
| Head of Kachemak Bay | 10 to 15 | Early 1990s, winter | J78 |
| Head of Kachemak Bay | many sightings over the years | 1970s and 1980s | J80 |
| North shore (area from Fox River Flats to but not including Mud Bay at the base of the Homer Spit) | 1 adult, 1 baby (and possibly a juvenile but uncertain) | Probably 2003 | J6 |
| North shore | 8 to 10 | unknown | J17 |
| North shore | Small pods of half a dozen | From 1981 to 1990s, primarily in May | J39 |
| North shore | 7 to 8 adults | Sometime between 1991 and 1993 | J91 |
| North shore, Miller's Landing | Unknown | From 1980, during eulachon run | J61 |
| North shore | Unknown | Probably 1980s, late September, all of October | J67 |
| North shore | Small groups, 5 | 1970s and early 1980s, late summers | J68 |
| North shore | 4 to 5 | 1985 or 1986, probably May | J70 |
| North shore | 25 to 30 | 1972 to early 1980s | J74 |
| North shore | 10 to 15 or more | 1980s | J73 |
| Mud Bay (base of the Homer Spit, east side) | 25 to 30 | Spring 1980 | J7 |
| Mud Bay | 25 to 30 | Spring 1981 | J7 |
| Mud Bay | 20 to 30+ | Late 1970s, probably September | J8 |
| Mud Bay | 20 to 30+ | Early 1980s, probably September | J8 |
| Mud Bay | 15 to 20 | Fall, early-late 1980s | J9 |
| Mud Bay | 30 or more | 1980s | J21 |
| Mud Bay | About 10 adults with 5 dark babies | Pre-1993, summer | J23 |
| Mud Bay | 8 to 12 adults | 1987 and 1988 | J26 |
| Mud Bay | 40 to 60 | Mid-1970s | J30 |

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| | | | |
|---|---------------------------|---|-----|
| Mud Bay | Unknown | Late 1960s and 1970s | J35 |
| Mud Bay | A half dozen | 3 times in past 20 years | J36 |
| Mud Bay | unknown | 1984 to early 1990s, spring, almost annually | J42 |
| Mud Bay | 2 | September 11,1999 | J64 |
| Mud Bay | Unknown | Probably 1980s, late September, all of October | J67 |
| Mud Bay | Pods of about 20 | Mid-1980s and early 1990s | J75 |
| Mud Bay | Unknown | Late 1970s, early 1980s | J76 |
| Mud Bay | “always at least 4” | 1973 or so | J79 |
| Mud Bay | “always at least 4” | 1979-1980 | J79 |
| Mud Bay | “no more than ½ dozen” | Early 1980s | J88 |
| Mud Bay | See Appendix-- -- | Late 1980s, early 1990s | J49 |
| Mud Bay | 20 plus or minus | Early March, 1992 | J80 |
| Inner Kachemak Bay (offshore, east of the Spit) | 12 | 1978, “cusp of spring/summer | J47 |
| Inner Kachemak Bay | 6 to 8 | Unknown | J35 |
| Homer Small Boat Harbor | 4 adults, 3 juveniles | 1992 | J90 |
| Homer Spit, near tip | No count | Seen 5 or so times since 1987 into 1990s | J92 |
| Homer Spit, east side | 50 or 60 | About 1991 | J46 |
| Homer Spit, east side | At least ½ a dozen | Autumn, about 1986 | J96 |
| Homer Spit, west side | 20+ | 1983 | J10 |
| Homer Spit, west side | 8-10 adults | Pre-1993 | J23 |
| Homer Spit, west side | Between 4 - 12 | Sept. 10, 1999 | J82 |
| Homer Spit, Beluga Slough | Unknown | 1950s and early 1960s | J84 |
| Homer Spit, nearshore waters, west of base of | 6 to 10 (a number had | 2005, autumn | J29 |

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| | | | |
|--|--|--|-----|
| the Spit | small babies) | | |
| Outer Kachemak Bay, offshore waters | Pods of 6 to 12; “once maybe 20” | 1968 to 1978, 3 to 4 times a year, in spring, summer, fall | J30 |
| Between Seldovia and Bluff Point | Half a dozen or so | Late 1990s | J4 |
| On beach north of Homer | 1 adult, 1 baby | April 1, 1988 | J7 |
| Anchor Point and North | | | |
| North of Anchor Point near Whiskey Gulch | Unknown | 1990 to “now” | J78 |
| Stariski | Some years seemed like 500 or more; some years 50 or 100 | | J86 |
| Happy Valley | 1 adult, 1 baby | Not recorded | J78 |
| Anchor Point light up to the 3 rd platform, about 60.46 N. Latitude: about a 60 mile chunk of the inlet | more belugas on the west side of the inlet than the east or middle; in groups of 8-10-20 hard to tell, probably more | 1966 to present during spring, summer, & fall | K41 |
| Same location | Don't see many | Present | K41 |

Significant additional observations included:

(O6) *“Early fall 1992. A dozen or so adults plus a few calves fed for a long time one afternoon in Mud Bay on the lee side of the Homer Spit. There were a few dozen cars parked along the road during that feeding event - a lot of people stopped to watch, so you should be able to find some photos. I don't have any pics. I saw the belugas a few more times in my early years in Homer, but that was the first time I'd seen the little white whales, so I remember it well.”*

(O11)... *“(I) Went to school at Ninilchik. 1961 through 1971. Every fall and spring from the school house windows we (the children) would watch the whales migrate up the inlet and down. Whenever they passed by and were noticed, the entire class room would stop whatever they were doing and watch as the pod went by...it usually took about 10 to 15 minutes of watching an estimated 20 or 30 belugas...always was fun.”*

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(J21) Talking about his first sightings of belugas in Mud Bay, this Kachemak Bay resident said, *“I was astounded! Belugas are so odd, comical because of their color. How can you be serious about a white whale with a bulbous head. They are by far the most exotic animal, white and with that smile that is never seen.”*

(JK) Homer News article, Aug. 3, 1978: *On a given day local [Homer] whale watchers may spy dozens of belugas frolicking no more than a hundred feet from shore, or a killer whale ‘spy-hopping’ – coming straight out of the water and spinning – a short distance from a skiff.*

(J70) In spring of May 1985 to 1986, this Homer helicopter pilot was flying from Homer to the head of Kachemak Bay. At least 2-3 times, he observed a small pod of belugas. *One whale, the lead whale, was ‘jack-knifing’ and flipping up dirt and debris with its tail in the shallow waters. It showed a lot of body movement and I believe that it was intentionally disturbing the bottom to such an extent that the 3 or 4 following it were benefiting from the activity. A visible mud plume extended out and away from the lead whale. The whales were communicating, working together. In my mind I felt that I knew what they were doing. I circled in the helicopter once or twice to watch. The lead whale was out front to kick things up off the bottom and others were going through the mud and debris to get food. A visible mud plume extended out and away from the lead whale. This was the only place that I saw them in Kachemak Bay.*

(J79) This Homer resident used to row among the belugas in Mud Bay. *“The first times I went out on my own were in 1973 or so.” Then, in 1979-1980, I would row my son and a friend among the whales. My son remembers us rowing with four white belugas. Sometimes there were orcas further out and the belugas seemed to be after salmon in shallower waters.”*

(J31) This longtime Homer resident conducted fish surveys in the Bradley River, Mondays through Fridays, during the summers of 1986, 1987, 1988. In May and June he *“never saw belugas but in July through September I did. I think [it was] a small family group of five whales which made their living at the head of Kachemak Bay. All were adults.”*

(JK) From talking with dozens of Anchor Point residents and fishermen, I found not a single person who has ever seen belugas at the mouth of the Anchor River.

3.2 Middle Eastern Shore

| Area | CIBW Observation | Timeframe | Informant |
|---|---|--|-----------|
| Ninilchik-Clam | Gulch-Coho | | |
| Ninilchik | Uncounted | Mid to late 1920s | J44 |
| Ninilchik | Unknown | 1947 | J63 |
| Ninilchik | 50 more or less | 1978-1982 | J7 |
| Ninilchik | Uncounted | April 14, 1990 | J7 |
| Ninilchik | Approx. ½ dozen | Late 1980s | J48 |
| Ninilchik | 3 to 4 | 1964 to about 1974, June, July, August | J72 |
| On beach between Anchor River and Clam Gulch | Groups of 3 to 4 | 1973-1989, May and July | J78 |
| Beach 3 miles north of Ninilchik | Pods of belugas all over the place, no problem spotting them | Spring 1930s – early '40s | K21 |
| Clam Gulch | 2 orcas killed 1 beluga | About 1986 | K30 |
| Clam Gulch | 300 or so | 1956 or 1957, summer | J16 |
| Clam Gulch | 1 | 1956 or 1957 | J16 |
| One mile south of Kasilof River along the coast, called Coho Bch. | Frequently saw either groups 5-10 or 30-40 about 1 to 1.5 miles off shore | May – September 1966-1990 | K30 |
| Along property sea wall on Coho Beach | 30 or more swimming south to north 6 feet from sea wall in maybe 6-8 feet of water | September 1997 or '98 at the time they began declining | K30 |
| One mile south of Kasilof River along the coast of Coho Beach | After the 1990s saw less and after 2000 a lot less | May – September 1990 – 2011 | K30 |
| In route from Ninilchik to summer camp on K Beach just out of Kasilof | Pods of belugas numbering anywhere from 20-30-40. <i>Couldn't count them</i> | Late 1930s | K21 |

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| Kasilof River | | | |
|--|--|-----------------------------------|-----|
| Kasilof River, mouth | ½ dozen plus | 1986 | J14 |
| Kasilof River | As many as 20 | Late 1980s, July | J51 |
| Kasilof River | 2 | 1935 or 1936 | J52 |
| Kasilof River | Uncounted but frequent sightings during these years | 1970s-1980s | J65 |
| Kasilof River mouth | Swarms of belugas | 1940s | K21 |
| Kasilof River mouth | Shift in locations: not see as many while fishing the inlet but belugas began <i>showing up more in river mouths & more when food was abundant (both Kenai & Kasilof Rivers)</i> | 1960 - '70s | K21 |
| 8 miles off shore of the Kasilof River; west of the east rift, not in the middle but in the shipping lanes | Estimate: 200 heading south (largest group I ever saw) | Spring early 1980s | K25 |
| Off Kasilof River | None seen | 1979 - '85 | K2 |
| In Kasilof River | Don't remember any there | Over 80 year period | K40 |
| Home overlooking Kasilof River | Don't remember seeing belugas there | Moved to home in 1962 | K6 |
| Cape Kasilof (south of the river) | No count | 1966 | J13 |
| Kalifornsky (K) Beach | | | |
| Family commercial fishing location K Beach | Ever since I can remember we would see beluga whales off the beach no count available | Early spring 1940s on, every year | K32 |

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| | | | |
|--|--|-------------------------------|-----|
| Kenaitze Educational Program beach nets on K Beach | We're on the beach daily and are not seeing belugas | present | K32 |
| Mid K Beach | Less than 10 off shore | Late June 1966 | K25 |
| 2-2.5 miles south of Kenai River mouth along K Beach | No sightings from the beach this one summer set net season | 1980 | K25 |
| Same location | Several pods along beach, no count available | May - June 1979 to late 1980s | K25 |
| Same location | Hard estimating: probably 50 or more | 1980s | K25 |
| Same location | Numbers didn't drop until the 1990s. By 2000 didn't see as many groups of whales | 1990s - 2000 | K25 |
| Same location | Not seeing whales | 2011 | K25 |
| Walking south on beach along Cannery Road | See belugas regularly, 6 - 12 at a time, offshore in inlet | 1975 - '79 | K22 |
| Walking along beach frequently | Seeing fewer belugas | Mid 1980s | K2 |
| Beach and Kenai in general | People saying there are a lot less belugas | 1992 | K2 |
| Kenai River | | | |
| Kenai River, mouth | At least a dozen | 1977, November | J89 |
| Kenai River, mouth | 10+ | 1992, July | J53 |
| Kenai River, mouth | 15 to 20 | 1982 to 1987 | J59 |
| Kenai River, mouth | 1 to 10 | 1972 OR 1973 | J66 |
| Kenai River, mouth | River full of fish and belugas | 1970s, 1980s, summers | J69 |
| Kenai River, mouth | About 12 | 1983, <i>June-ish</i> | J45 |

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| | | | |
|---|--|---|-----|
| Kenai River, mouth | Uncounted, but numerous sightings | early 1990s | J43 |
| Kenai River, mouth | Unknown | 1987, fall and about 1989 to about 1994 | J71 |
| Kenai River, banks | 1 | About 1975 | J1 |
| Kenai River | No count | Late 1950s, early 60s (sporadic sightings over these years) | J19 |
| On bluff above Kenai River, from the mouth to around the bend | Between 10-30 belugas at a time came up river on high tides; they arrived in May with the hooligan as soon as the ice went out | All summer into fall 1950s on | K23 |
| On bluff above Kenai River | No count available: belugas in mouth multiple times | Late summers 1970s to present | K38 |
| On bluff above the Kenai River | About 10-12 belugas in mouth of river were chased up river by about 5 orcas who attacked and killed some belugas | August or September 1980 | K38 |
| On bluff overlooking Kenai River from the bridge to below the Kenai River boat launch | On every high tide from ice out to ice in I always saw belugas, sometimes that was the first week of March | 1986 – '92 | K33 |
| Same area | At peak salmon runs, at least 250 belugas off the mouth. There were huge pods waiting for the fish to come in | 1986 – '88 | K33 |

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| | | | |
|---------------------------------------|--|-------------------------------|-----|
| Same area | Beginning in 1992 and every year for the next four, I saw fewer and fewer belugas. In 1996 I saw only 3 whales all year and I watch the tides daily | 1992 – '96 | K33 |
| Same area | There have been years where I've seen no whales | Since 1996 or 1997 to present | K33 |
| Same area | 3 belugas | About October 6, 2011 | K33 |
| Unnamed Cannery, mouth of Kenai River | 12 at a time swam past going up river | 1960 – '61 | K6 |
| Kenai River mouth | White with belugas every day for a half mile | 1940s - early 1950s | K21 |
| Same location | Shift in locations: not see as many while fishing the inlet but belugas began <i>showing up more in river mouths & more when food was abundant</i> | 1960 - '70s | K21 |
| Mouth of Kenai River | See belugas on most high tides, no count available | 1970s | K18 |
| Mouth of Kenai River | Took fishing clients who limited, down the river and in 1 out of 3 trips we saw belugas, no count available | Late 1970s | K18 |
| Mouth of Kenai River | Belugas were prolific, always see with September silvers, no count available | 1975 – '85 | K18 |
| Mouth of Kenai River | 15-20 swam up river on a number of occasions | 1976 | K5 |
| Mouth of Kenai River | People don't talk about seeing them | Since 1995 | K18 |

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| | | | |
|---|---|---|-----|
| Beach below bluff at mouth of Kenai River | Saw lots and lots regularly along the beach; One spring or early summer the entire inlet bobbed with belugas, as far as one could see, all the way to Tyonek, nothing but whales; many hundreds | 1971-'81 spring, summer, & fall | K19 |
| Mouth of Kenai River | Lots of whales going in and out of river up to the first curve on all flood tides (no count available) | June, July, & August 1988-'89 | K35 |
| Same location | Didn't see them | 2003 or '04 | K35 |
| Mouth of Kenai River | Saw 10, only once, sport fisherman | 1996 | K8 |
| Columbia Ward Fisheries, about 2 miles upriver from the Kenai River mouth | Saw dozens at a time moving up river | Spring, summer, fall from 1969 to early 1980s | K39 |
| Roughly same area | Have not seen belugas in Kenai River | Since 2000 | K39 |
| In the Kenai River | Large numbers of belugas in the river, 20-25 at a time, maybe more. A lot of times there were miles of them on the incoming tide | May - summer into September 1940s on | K32 |
| Sit on dock and the belugas would go by us and up river, around the bend on the high tide | Several, they were a common sight on the incoming tides | August – September in 1980s | K40 |
| Kenai River mouth | 5-6 belugas | 1990 | K45 |
| Same location | 10s of belugas | Winter 1990 | K45 |
| In Kenai River | I've not seen many at all in the Kenai. It is a rare occasion to spot them now | In the last 4-6 years | K32 |

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| | | | |
|--|--|-------------------------------|-----|
| Kenai River | Uncounted but observed often during the salmon season | 1965 through 1969 | J65 |
| Kenai River Bridge: Warren Ames | | | |
| Kenai River, near W. Ames Bridge | 4 to 5 | uncertain | J56 |
| Kenai River, below W. Ames Bridge | No numbers | Early 1980s | J4 |
| Kenai River, below W. Ames Bridge | No numbers | Early 1980s | J4 |
| Kenai River, near W. Ames Bridge | Several | 2008 or 2009 | J34 |
| From last canneries to where the bridge is now | Several belugas, several times | May, late 1960s | K44 |
| Up to Warren Ames Bridge | no count available | Mid 1970s | K18 |
| Driving across bridge | Saw a few times, never more than 6 at a time | May; mid to late 1970s | K41 |
| Up to Warren Ames Bridge | Lots of belugas, no count available | 1988-'89 | K35 |
| Warren Ames Bridge | See belugas on both sides of bridge; never thought to count them, maybe 1/2 dozen, no way of knowing | 1980s – '87 | K26 |
| Same location | Don't remember seeing them | After 1990 | K26 |
| Kenai River, above Cunningham Park | 6 to 8 | 1963 or 1964, probably summer | J83 |
| Kenai River: Cunningham Park | 10-30 at a time on the tides | 1950s on | K23 |

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| | | | |
|---|--|---------------------------------|-----|
| Cunningham Park | Frequently 15-20 belugas at a time | 1970s – '80s | K1 |
| Same location | Stopped seeing belugas | 1990s | K1 |
| Lives next to Cunningham Park | Numbers of belugas went way down from 1975 to the 1989 Exxon Valdez oil spill no counts available | 1989 | K15 |
| Home just down from Cunningham Park | Lots before 1976 when they set the 200 mile fishing limit; 15-20 per pod with spring hooligan and fall silvers - but only 4-5 at a time after the limit changed. | 1970-2008 | K7 |
| Lives next to Cunningham Park | 3-4 or maybe up to 15 at a time scattered going up river now | Present day | K15 |
| Probably at mile 9 on the Kenai River: 2.5 miles above the landing at Cunningham Park. Where there is a group of small islands in the Kenai River | Half dozen going up river, (stuck there 2-3 hours and never saw them come back down) | Between 1983-5, probably 1984-5 | K10 |
| Kenai River: Beaver Creek | Large amounts of belugas | 1940s on | K32 |
| Kenai River: Eagle Rock | Dad saw them on an extreme high tide no count available | 1975 | K18 |
| Salamatof Beach | | | |
| North of Kenai River mouth, at Humpy Point | Saw whales about 1 mile off shore no count available | 1988 | K35 |
| Same location | A couple whales, maybe 2-3 times | 2007 | K35 |

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| | | | |
|--|--|---------------------------------|-----|
| Off Colliers Dock. Didn't fish past the first platform | Never counted, but saw big numbers in the 100s | 1981 | K2 |
| Same location | Found beluga regularly, never counted | 1979 – '85 | K2 |
| Lives up the inlet north of the Kenai River mouth, overlooking the inlet | Saw groups of 8 or so several times in inlet and heading up river. There were more of them in this period than later | 1960s -'70s Spring, Fall | K47 |
| Same location | Saw only 8, one time in the early summer this year | 2011 | K47 |
| South of Captain Cook State Park | uncounted | 1991 | J51 |
| Captain Cook Recreation Area at Swanson River | One beluga near beach at high tide, watching me | Labor Day between 1984 – '89 | K5 |
| Same location; in mouth of Swanson River | Several beluga feeding on silvers | Labor Day between 1984 – '89 | K5 |
| Captain Cook Recreation Area | Saw several pods of 15-20 belugas within 25-100 yards of the beach, in shallow water at high tide. | Memorial Day 2000 or 2002 | K38 |
| Moose Point | 100 | 1980-1985, one of those winters | J77 |
| Moose Point | 4 to 5 | 1980-1985, usually early June | J77 |
| Point Possession | | | |
| Rounding the point | Rows of belugas lined up leaving Turnagain Arm, entering Cook Inlet | 1975-'80 | K40 |
| Chickaloon Bay, aerial observations | Dozens | About 1970 to 2005 | J50 |

An Oral History of Habitat Use by Cook Inlet Belugas in Waters of the Kenai Peninsula Borough

| | | | |
|--|---|--|-----|
| Chickaloon Bay, aerial observations | Unknown | No specific year | J59 |
| West of Chickaloon Bay | 20 whales | 1999 | K31 |
| Gull Rock | Heard a pod breathing below Gull Rock at night Unknown number | About July 1988 | K16 |
| Hope | | | |
| Unnamed Bay in front of their home at Hope where Resurrection Creek enters Turnagain Arm | 50-100 belugas seen at a time | April through summer into October 1960s - '70s | K43 |
| Same location | In 1980s started taking a dive and by the mid1990s we didn't see them very often. Now only see 12 at a time or occasionally 25 in a group | 1980s - present | K43 |
| Home on Bay next to previous home | It was common for belugas to come right along the shore here by the bank. Saw them a lot. We always had sightings. no count available | After 1964 quake through 1970s | K42 |
| Same Bay but a home closer to Resurrection Creek | 12-15 belugas daily, every time I fed my horses on the pasture below my house on this bay | Daily from about 1986-96 | K28 |
| Same location | We don't see them as often and there aren't as many; now it's hit or miss. | Last few years | K42 |
| An unnamed beach near Hope | 12 in one pod | 2000 | K16 |
| Sunrise | 25 + whales off Sunrise | 1999 | K31 |

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Significant additional observations included:

(J51) *“The most impressive sighting was of a single beluga with a baby seen, in 1935 or 1936, from the bank of the Kasilof River. The baby was very jet black. Mother was excited because it was unusual to see them this far up the [Kasilof] River [about 1 1/3 miles upriver].”*

(K21) *“In the spring of the year, probably the early 1940s, as soon as the herring, smolt, and kings started running you'd see belugas. They'd be all over. There was no problem spotting them. There would be pods of them. As a youngster [in the 1930s and 40s] I've seen a lot of belugas.”*

(K31) *“I grew up in Kenai. I am 71 years-old and my family had a commercial fishing location on Kalifornsky Beach. Ever since I can remember in the early spring we would see beluga whales off the mouth of the Kenai, and actually in the Kenai, from May through June and I'm assuming that they were chasing hooligan in the river beginning in mid May and then peak the last of May. And also the king salmon began running then. I've seen beluga whales in large amounts all the way up the river as far as Beaver Creek, on the upcoming tide. But not recently, not in the last twenty years, but I've seen them that high. It seems we saw them all summer long when the salmon come in after the hooligan. We have several runs of salmon. In June the early run of reds, and then the big run of sockeye in July, and the silver salmon peak in September.”*

(K22) *“I've lived on the bluff above the Kenai River all my life and what I've noticed is that there used to be an abundance of beluga and there aren't any now. I first remember them when I was a kid in the 1950s. We'd go out on the bluff and see how many we could count. There would be between 10-30 of them coming up river at a time, and we'd stand there and watch them as they went from the mouth and round the bend, going down under the water and coming up 50 yards ahead, for maybe 30 minutes. We would see them all summer and into fall. They used to go up river as far as Cunningham Park. But I haven't seen any this year. I'm retired and I go out on the bluff 2-3 times daily when the tides are coming in.”*

(K19) *“From 1971 to 1981, I lived on the bluff overlooking the mouth of the Kenai River and used to run on the beach below the bluff every day. I saw a lot of beluga whales in the spring, summer, and fall. The day I liked the best was late morning, probably on a Saturday, in the spring or early summer. The entire inlet was bobbing with beluga. They were diving for fish and it was an incredible sight. For as far as you could see, all the way across to Tyonek, there was nothing but whales. Everywhere you looked you saw belugas. There were many hundreds. It was quite a sight to see. People were coming to the bluff by the dozens to watch. It was pretty special – fantastic! I watched for 30-45 minutes as they stayed in the inlet. There were lots and lots of whales. I never saw it before or after, but I don't live on the bluff anymore.”*

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(K14) *“One spring the [Kenai] river was frozen and [here at Cunningham Park] the ice was going out and the belugas actually came in and bumped the bottom of the ice to knock off more ice chunks to clear the river. They wanted to go up the river and the ice was in the way. It was wonderful to watch. We really enjoy them. They're just a real cool whale. It was after the Exxon Valdez oil spill that their numbers went way down. There were some years we didn't see any. It was a real sad year when we didn't see them.”*

(K30) *“It was a nice September day on Coho Beach in 1997, or maybe '98, when we had the biggest tide of the year; a 24 foot tide. A Neighbor had come over and we decided to look over the bluff. I have a sea wall with posts that stick up about 9 feet and the tide was right up to the top of the wall. Since it drops off quick, there was maybe 6-8 feet of water right there. About 6 feet off the sea wall we saw a beluga roll, and then we saw another and another and then we watched and more and more came. We were just enthralled. We were amazed. There must have been 30 or more and they went by in single file. They just kept going from south to north. Maybe there would be 4-5 white ones to every gray one. Everyone said, 'go get the camera', but nobody wanted to leave because it was a once in a lifetime event to watch. It was amazing. I had never seen anything like that before. You could almost jump on their backs, they were just that close to the shore. They didn't seem to mind us at all and there were no vocalizations. They were going north, going slow. There weren't any red salmon but there were a few silvers around if they needed.”*

(K38) *“On Memorial Day about 2000 or 2002, our family and friends were on the bluff at Captain Cook Park when we saw several pods of 15 -20 belugas within 25-100 yards. It was high tide and they were swimming close, in the shallow water. They may have been feeding because that would be reason for them to be in shallow water, and if so it was likely hooligan that time of year. They were not passing through and we sat and watched them for maybe 45 minutes. Then the high tide went away and so did the beluga. That was closer than I've ever seen them. We go out every year on Memorial Day and of course the tides are different, but that was the only time we've seen them.”*

(K2) *“I never counted beluga. I remember in the early 1980s, driving [my boat] as fast as I could, 10 knots, down Salamatof Beach, and I could not get away from belugas. There were more than 100 belugas out there, but they could swim faster than I could drive. We were all going with the tide. It seemed like lots of belugas; 100's.”*

(K16) *“We were camping on Gull Rock, which is opposite Anchorage on the Kenai Peninsula side. It was a 4-H outing at least 20 years ago. It was an unusually warm July and I couldn't sleep on the hard ground. So I'd gotten up. In Alaskan summers it's pretty much daylight or twilight in the middle of the night, and the campground sits up on a bank and the tide was in and you could hear the belugas below the rock, breathing. It was so warm sitting there in the night, listening to them breathing. One of those spiritual experiences to commune with wildlife.”*

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(K6) *“I was a winter watchman for the cannery between 1960-1961 and all I remember is seeing the beluga swim by and up the river. There were about 12 at a time. I didn't pay much attention to them. I don't know what they were doing, I took them for granted. I didn't pay attention.”*

(O3) *“I lived at Wildwood Station from spring 1965 to early 1967. It was then about three miles north of Kenai and a substation of Ft. Richardson, an Army post just east of Anchorage. My husband was a private pilot who learned to fly from an instructor at Kenai Airport. After he got his license, he'd take me with him on flights in the Kenai area, especially over Cook Inlet and along the Kenai Peninsula coastline. We'd marvel at all the beluga whales we could see that were fishing at and near the mouth of the Kenai River and how we could only see them in the opaque water when they would rise above the surface. We could only guess at their numbers unseen below the surface.”*

(O9) *“I worked on the oil platforms in the early 80's – '82, '83, '84 – and I would see large pods (200 to 300) of belugas going by the platforms on almost daily basis.”*

(O12) *“Our friends saw belugas in the creek in front of Hope when they camped there in (spring) 1965 - their honeymoon - they said there was about 100 - they were amazed.”*

(J1) This former resident of Kenai and her family were walking along the bank of the Kenai River when they saw what looked like... *“a white inner tube in the water about 10' away. When it swam toward us, we realized that it was a beluga. For 5-10 minutes it swam alongside our family. It actually looked at us. I can remember it very vividly. It was watching us. It was extremely white and very shiny. That fact that it stayed with us so long made it a memorable sighting.”*

(J14) This couple was operating a fishing tender from mid-June to mid-July in 1986. *“We would anchor up in the mouth of the Kasilof River and would be surrounded by adult belugas, usually about ½ a dozen. We saw them only occasionally but the repeated sightings were memorable.”*

(J52) This daughter of Kasilof pioneers was in second grade when she and her mother were standing on the bank above the Kasilof River, about 1935 or 1936. They observed an adult beluga with a *“very jet black”* baby. The daughter was excited to see the baby; the mother was excited to see belugas about 1.5 miles up into the Kasilof River.

3.3 Western Shore

| Area | CIBW Observation | Timeframe | Informant |
|--|---|--|-----------|
| Upper Western Inlet | | | |
| Flights: Anchorage to Kalgin Island and Kenai Peninsula to oil platforms | Unreported | 1960s, 1970s | J37 |
| Shell Platform C | Hundreds seen annually | 1976 to 2004 | J85 |
| Upper Cook Inlet | Hundreds | 1963 to 1968, August 10 into early September | J20 |
| Upper Cook Inlet | “literally hundreds.” “could have been thousands” “year after year after year” | 1970s and 1980s, summers | J69 |
| Upper Cook Inlet | Unknown, “an everyday sight” | 1970s | J73 |
| Upper Cook Inlet | 50 or 60 | 1970s and 1980s | J4 |
| Upper Cook Inlet | Uncounted. “astounded” by the numbers | 1960s and 1970s | J62 |
| Inlet between Kenai and Anchorage | Flew daily. Frequently saw belugas scattered all over the upper inlet from Turnagain Arm past Anchorage <i>Sometimes 100 or more in the 1960s</i> | Late May to September 1956 ~ '80 | K13 |
| Beluga River | | | |
| Swimming up river | Belugas in the river as fly over, no count available | About 1960-'70s | K46 |
| In river | Last time saw in river, no count available | 1980 | K46 |
| In river | Used to hunt here, belugas in large numbers | June-July before 1991 | K37 |
| In river | Fewer in river, they moved to Big Su so we hunted them there | 1991-'92 | K37 |
| In river | Pods with 20+ whales | Early 1950s | J40 |

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| Tyonek | | | |
|---|---|--------------------------------------|-----|
| Tyonek area | Unknown | Prior to 1960 or 1961 | J83 |
| Tyonek | We saw them everyday throughout the summer, no count available | Early 1960s | K34 |
| Crossing inlet from Tyonek to Kenai | A lot surrounded our boat | 1960s | K34 |
| Near Tyonek, on commercial fishing boat as a teenager | I once counted 74 | About 1970s | K18 |
| Flying over Cook Inlet from Tyonek to Anchorage | This was when I first saw the beluga were declining | 1972 | K34 |
| Same activity/location | I didn't see any | 2008 | K34 |
| Tyonek | Numbers started going down | 1991-'96 | K36 |
| Old Tyonek area | Uncounted | 1948 | J84 |
| Old Tyonek | Lots of belugas came up to the beach feeding on hooligan, reds, king salmon | Late 1970s - '90s April-September | K37 |
| From the beach in Old Tyonek | Could look up inlet and down to Beshta Bay and see inlet full of belugas | Late 1970s-'90s | K37 |
| Same location | Last time I saw big numbers of belugas | Early 1990s | K37 |
| General: in Cook Inlet/Western Side | | | |
| Oil Platforms in Inlet | Lots of belugas maybe 20-30/herd | 1966-1970s | K1 |
| Inlet between Kenai and Anchorage | Flew daily. Frequently saw belugas scattered all over the upper inlet from Turnagain Arm past Anchorage | Late May to September 1956 ~ '80 | K13 |
| Cook Inlet, somewhere between Anchor | "one, just one" | 2000s | J85 |

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| | | | |
|--|---|------------------------------------|-----------|
| Point and Snug Harbor | | | |
| Cook Inlet, middle | Unknown | No specific numbers | J59 |
| Cook Inlet, middle | Unknown but “astounded” by their numbers | 1960s and 1970s | J62 |
| Commercial set net west side of inlet | Would wake up in morning and belugas were there, but saw more orcas than belugas | Mid 1980s | K38 |
| Commercial drift net fishing in inlet | Bunches | 1950s | K13 |
| Fish tender in inlet | Same number every time, didn't pay attention | After 1961 | K6 |
| North of the West Foreland, out off the McArthur River | Belugas surrounded fishing boat, no count available | 1951 between reds and king seasons | K42 |
| McArthur River | Could see 100s of belugas at McArthur River about 30 miles south of Tyonek | Up to 1991-'96 | K37 |
| North Forelands | From Tyonek could see <i>100s</i> and <i>1000s</i> of belugas in the North Forelands | 1991 | K37 |
| Trading Bay | Belugas were plentiful, saw them all the time - according to commercial fisherman grandfather | 30-40 years ago | K45 |
| Trading Bay | Uncountable, “like salmon in a stream” | About 1976 | J55 |
| Kustatan | Hundreds | Annually since 1951 | J27 |
| West Foreland & elsewhere | Well over 100 | July 1992 | J54 & J12 |
| West Foreland | Large pods during set net season | Early to mid 1960s | J65 |
| Fish camp – Trading Bay | 15 – 20 with young | Summer 1975 or '76 | K45 |
| Crossing inlet in dory from fish camp | Easily 100s | Summer late 1970s – early '80s | K45 |

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| | | | |
|--|---|--------------------------------|-----|
| Flew from Trading Bay to Beluga | Lots of beluga when hooligan arrived, hard to count, I would see six come up at a time and they were spread out in pods so there were more, they were usually along the shoreline where the fish were (<i>there are a lot less now than back then</i>) | 1961 - 2011 | K3 |
| Lower Cook Inlet, mid-inlet | 5 to 10 | Mid-1980s | J41 |
| Kalgin Island | | | |
| Middle inlet, east off Kalgin Island | Pods, lots and lots of belugas every time I went there | Early spring (April-May) 1940s | K21 |
| Kalgin Island to Moose Point | Saw belugas all along the way but after crossing Turnagain Arm heading into Anchorage I didn't see any belugas | Spring 1940s | K21 |
| Fishing north end Kalgin Island | From the West Forelands to the north end of Kalgin Island it was solid belugas. I don't know how many but it must have been 10-15 miles of solid belugas swimming south. Had to be high hundreds. (That was common sight then – I drift fished for 3 years around then) | 1953 the day Mt. Spurr blew | K42 |
| Husband duck hunted by boat by Kalgin Island | Saw many huge pods on many hunting trips | Fall of the mid 1970s | K40 |
| Fishing north end of Kalgin Island | 100-200 coming down the inlet SW to S as far as I could see, never saw again | 1977 or '78 | K39 |
| North of Harriet Point | Lot of belugas | Early spring 1940s | K21 |

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| | | | |
|---------------------------------------|---|--|------------|
| Harriet Point | Saw them there, no count available | Early -mid 1980s | K35 |
| Home on Chinitna Bay | Groups of 10 would go by every couple of weeks, no time to count or pay attention | June to October every year 1976-92 | K17 |
| Same location | No belugas | 1993 (4 years after <i>Exxon Valdez</i> oil spill) | K17 |
| Clearwater Creek (Chinitna Bay) | Lot of belugas congregated in inlet off creek mouth to get the chum carcasses that floated down the creek and into the inlet after spawning | Fall 1988 | K17 |
| Same location | Chum run wiped out by spill – fish never returned & NO BELUGAS since then | 1993 (4 years after <i>Exxon Valdez</i> oil spill in 1989) | K17 |
| Snug Harbor to below Augustine Island | Saw groups of about 15-20 belugas. Lots of sightings. | For 3 months every summer, early to mid 1970s | K24 |
| Same location | Don't see that anymore, the belugas are gone – I don't see any whales now when I go out in the inlet fishing | 2009 | K24 |
| Lower Western Inlet | | | |
| Chinitna Bay | 25-30 total with at least 5 or more juveniles | September 14, 2007 | J5 and J33 |
| Chinitna Bay | At least 150 | Mid-to-late 1980s | J2 |
| Chinitna Bay | uncounted | Late 1960s or early 1970s | J22 |
| Iniskin Bay | uncounted | Late 1980s into 1990s (he said 20+ years ago) | J25 |
| Iniskin Bay | 15 to 20+ | September 11, 2008 | J32 |
| Cottonwood Bay | Usually 15 to 20 | Mid-August & into Sept., 1955-1994 | J11 |

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|--|--|---|----------|
| Bruin Bay | Seen often on summer flights, usually uncounted, once at least 40-50 | 1966-1975 | J24 |
| Bruin Bay | At least 100 every fall | Mid-September 1975 to 1985 | J58 |
| Lower Cook Inlet, majority in Bruin Bay | Pods of "30 to 50 animals" | About 1975 to 1990, surveys were annual | J76 |
| Chenik Lagoon | 1 or 2 | June 1999 | J15 |
| Lower Cook Inlet, between Homer and McNeil River | 2-4 | June 2010 | J54, J12 |
| West of Augustine Island | Uncounted but many | December 1958 | J27 |
| Kamishak Bay, offshore waters | Usually 15 to 20 | Mid-September, 1955 to 1994 | J11 |
| Kamishak Bay, offshore waters | 40 to 50 | 1960s, 1970s, | J24 |
| Kamishak Bay, offshore waters | unknown | 1991 through 2010, summers | J39 |
| Kamishak Bay, McNeil River | 2 | 1970 or 1971 | J81 |
| Kamishak Bay, Little Kamishak River mouth | 20 plus | Late May mid-1980s (2 similar sightings) | J3 |
| Cape Douglas to Chinitna | Usually 15 to 20 | Mid-August and into September, 1955 to 1994 | J11 |
| Cook Inlet general observations 1950 to 1990s | | | |
| All over lower inlet | Slow decline began | 1950s-60s | K21 |
| Hunt/fished on tide flats across from North Kenai | saw bunches of belugas, never counted | 1950s -'60s | K38 |
| River mouths (Kasilof & Kenai) | Shift in locations: not see as many while fishing the inlet but belugas began <i>showing up more in river mouths & more when food was abundant</i> | 1960 - '70s | K21 |

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| | | | |
|------------|--|-------|-----|
| Everywhere | Decline obvious | 1980s | K21 |
| Same | Worse; weren't very many, saw 1-2 maybe 6 once in a while in river mouth (not like in the 40s when mouth was white with belugas) | 1990s | K21 |

Specific observations of note in this area of Cook Inlet included:

(K11) *“An important spring resource, the Dena'ina developed a detailed anatomy of belugas to immediately recognize [and target] the larger males for hunting. They developed special hunting techniques and kayaks to chase down [and haul to land] the wounded whale. Traditionally, beluga hunting was all along the coast south of Tyonek and down into Trading Bay. When we did our work in the 1980s beluga hunting was confined to north of Tyonek. The mouth of the Susitna River was a major area for the obvious reason because the belugas hung out there. That's where they got the hooligans and salmon. In the early twentieth century, there were traditional Dena'ina settlements on the west side of Cook Inlet. The village of Kustatan had people until 1930 when they moved up to Tyonek. They would have been hunting beluga whales. Further down there was an old village around Polly Creek, but it was gone a long time ago. People were consolidating and moving to other villages as populations dropped. There were two reasons for consolidation. One reason (for) declining populations was due to disease. The second reason was churches and stores. Over time, people would move to central locations where there was a Russian Orthodox Church or a store. For example, the population of Kustatan dropped in 1918, after the flu epidemic, when the few people left later moved up to Tyonek. Tyonek itself lost a lot of people. And people that lived up the Susitna River, such as Shem Pete, moved down to Tyonek in 1933 or '34. They utilized the entire animal; from the skin, the fat, the meat, to the guts which were used as bags for the storage of meat and fat that they traded up and down rivers.”*

(K36) *“In the past when people lived in the area of Lake Clark and Iliamna they would all come through Lake Clark pass on dog sleds [to Tyonek]. The dog sled trail still exists. They hunted beluga but they would come and trade with the Tyonek people. Back in the 1800s there were others that hunted [belugas], from Susitna Station, Knik, and Eklutna hunted some too. We traded with everybody, the Russians, Aleuts, local villages.”*

(O1) *“First week in September 1980 (not sure of the date but school was in session). We lived in Tyonek and worked at Bob Bartlett School. Walking on the beach on a very windy day with white caps on Cook Inlet I observed several hundred belugas moving down inlet (south) as my wife and I watched. We observed this for at least 10 minutes and I estimated over 400 whales mixed in amongst the whitecaps. There could easily have been 2-3 times as many since they were initially*

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indistinguishable from the white caps until we trained our eyes to observe the whales. As I said, we watched and observed for at least 10 minutes and the waters were white with belugas for just about as far as we could easily see to the east (several were only a couple hundred yards from the beach as they moved down inlet with the tide)."

(O10) *"I moved to Chinitna Bay in 1983 and stayed for 20 years. There I observed pods of 40 and more, quite often at first but as time went on there were fewer and fewer. Usually they were traveling. One magical morning my dog woke me up by barking at the bay. I ran down the beach to see why. It was approx. 20 Belugas right offshore. The air was so calm that we could hear air being expelled from their blow holes."*

(K1) *"The subsistence hunters went out in the inlet and killed large numbers of belugas. Instead of using traditional subsistence methods of paddling their boats and harpooning the whales, they were out there with outboard motors running around shooting them with firearms. We'd see them shooting them around the oil platforms."*

(K21) *"I used to drift for kings in the early spring on the west side, the other side of Kalgin Island, and up north of Harriet Point. Through that area there were a lot of belugas, they were all over, and hooligan too. I'd see them every time I was out there. The kings started earlier on the west side (April) than on the east and they would continue up to Kustatan, McArthur River, Tyonek, and the Susitna River. They may have been a different breed. When I was about 15, I loaded a 20 foot dory with spring kings and went all the way up to Anchorage to deliver the fish. It took two tides; the first to get past the Forelands and the second tide to get up to Anchorage. And you would see belugas along the way, particularly along the beach because I think they were after smolt, herring, or hooligan. You would see them at Moose Point just before they'd go into Turnagain Arm. After crossing Turnagain Arm and going into Anchorage, I didn't see any belugas."*

(K17) *"I commercial fished Chinitna Bay for thirty years, beginning in 1976. There were a lot of beluga before the Exxon Valdez oil spill. That oil spill wiped out a lot of chum runs. The belugas would go by my house in the middle of the bay every couple weeks in groups of about 10; there was no time to count, from June through October. In the fall, a lot of belugas came to the end of Clearwater Creek and congregated in the inlet to get the chum carcasses that floated down the creek and into the inlet after spawning. By 1993, four years after the Exxon Valdez oil spill in 1989, there were no chums. The fish never returned and I've seen no belugas there since then."*

(O5) *In 1956 flying between Homer and Lake Iliamna saw several hundred Belugas along western side of Cook Inlet."*

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(K46) *“I used to see them across Cook Inlet in the Beluga River. Sometimes when we would fly over going to a hiking spot, we saw belugas in the river. I don't recall how far up river they were, but I remember being surprised because it was the first time I'd seen beluga whales swimming up a river before. I would guess they were following the hooligan and feeding on them, just like they followed them in Turnagain Arm. The last time I saw them swimming up the Beluga River was in the 1980s before the population declined in the mid to late 1980s.”*

(K3) *“I began flying in 1961. I was flying over the west side from Trading Bay to Beluga and that's where I saw most of them. I used to see lots of belugas when the fish came in. When the hooligan arrived the whales were numerous. More then, than now. I used to see them every year until recently. Usually they swam along the shoreline. The fish stayed close to shore. I didn't see them much on this side [the peninsula side] going up to Anchorage because it was shallower. The other side was deeper and the fish seemed to follow that other side.”*

(K41) *“I saw them more on the west side of the inlet than on the east or middle. I saw them all over in groups of 8-10 or 20. It's hard to tell. You see white spots rolling and they don't all roll at the same time. You see 6-8 at a time which makes you think there's 2-3 times that many there. But I don't know.”*

(K42) *“The year was 1953 and it was the date that Mt. Spur blew. I remember it went to 18,000 feet, made a right angle and crossed to Kenai. I was commercial fishing, having headed to the north end of Kalgin Island. Spur blew. From West Forelands to the north end of Kalgin Island, it was solid belugas. I don't know how many, but it must have been 10-15 miles of solid belugas and they were all swimming south. It would have to be in the high hundreds because that's a long way and there was a light chop. But there's no mistaking belugas. They just shined when they surfaced – but solid from West Forelands to the north end of Kalgin Island. This was common then. I don't think it was the result of Spur. I commercial drift fished for salmon for 3 years. That was one gorgeous day.”*

(K42) *“In 1951, when I was fishing, we were coming up to Anchorage between the reds and king seasons and we were north of West Forelands, I think out by the McArthur River. We put out nets (it might have been illegal then) and there were belugas all around the boat. They were up and down. We were right in the middle of them, off the mouth of the McArthur River. They were working a school of fish (maybe that's why we put the nets out, I don't remember, but it was illegal). That happened quite regularly. They didn't bother the nets. I thought about it though. It must be their sonar because you sure couldn't see anything in that murky water. We were just drifting with the tide. They stayed around the boat for about 10-15 minutes. It was too early for silvers. Think it was between the king and red season, before changing our nets, maybe early July.”*

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(J5) *“From September 13-16, 2007, I was on a 50’ boat in Chinitna Bay. We lived on the boat and used a 16’ inflatable to access the marsh. On the 14th, we cut the motor on our inflatable, to drift while we watched the [beluga] whales. Before long we had 4 or 5 juvenile belugas ‘playing’ with our boat – rubbing against it, bumping it, spinning it, and even lifting it slightly and moving it. This went on for 15 minutes or so.”*

(J2) In the mid to late 1980s this sports fisherman was in a small boat in Chinitna Bay when he and his two passengers encountered a pod of belugas... *“at least 150. They covered acres and acres of water. I shut the boat engine off and just drifted among them, for an hour and a half.”* Of his many wildlife sightings, this was *“one of the highlights.”*

(J20) This commercial fisherman drifted in Upper Cook Inlet between 1963 and 1968. *“Every summer near the end of the salmon run, the belugas showed up. They were chasing fish and yet never ate fish in our nets. I would say we literally saw hundreds of them. They would kind of like ride atop the water, always surfacing. It was a sea of white, always traveling south to north.”*

(J76) Between 1975 and 1990, this retired ADFG biologist flew aerial fish surveys in lower Cook Inlet. *“The majority of the belugas I observed were in Bruin Bay. Usually the pods consisted of 30 to 50 animals and I saw them from early to mid-June through mid-July.”*

(J85) This Anchor Point resident worked on offshore oil platforms from 1976 to 2004. *“I saw plenty of those little guys [belugas]. They would be within 100 yards of the platform and I could see belugas on all four sides and within $\frac{3}{4}$ of a mile of the platform, especially in mid-July when the red salmon were running. It was tough to tell their numbers but I estimate literally hundreds.”*

(J27) This Peninsula resident had a commercial set net on the West Foreland for decades. He recalled... *“one very foggy day when I was sitting in the bow of my boat when a beluga rose alongside it. That son-of-a-gun had halitosis. I couldn’t get the smell off my boat for a long, long time.”*

(J81) *“About 1970 or 1971, I saw two adults in McNeil River, right off of McNeil Spit. It was high tide and I wasn’t sure what the whales were doing. I saw them only that once which was an unusual sighting for McNeil River.”*

(J24) *“Over the decades Bruin Bay was a good place to see belugas as the water is green, lacking glacial flour so they were visible. On one flight, I looked down and saw at least 40-50 whales. They went in there as a habit.”*

3.4 Observations from Areas Adjacent to KPB Waters

Some 22 informants provided observations from areas outside the waters of the KPB. Of these, 16 were unique reports (observations made by those informants only), while six were combined observations (these informants provided observations within and outside KPB waters). Because much of Turnagain Arm lies outside KPB boundaries, we did not actively solicit, nor expand our inquiries of, these additional respondents.

| Area | CIBW Observation | Timeframe | Informant |
|--|--|----------------------------|------------------|
| Turnagain Arm | 60 to 100 | Mid 1960s to 80 | K42 & K43 |
| Turnagain Arm | Large groups, more often | 1980s | K46 |
| Turnagain Arm | Population took a dive, fewer sightings now & numbers seen are lower | 1980s to 90s To present | K42 & K43 |
| Turnagain Arm | Large groups, more often | 1980s | K46 |
| Turnagain Arm | Not as numerous as they were 12 years ago and there are a lot less than 20 years ago | 1980 to present | K38 |
| Turnagain Arm | 30 | 1988 to 1993 | K9 |
| Turnagain Arm | 20 - 30 | Spring 1988 - 1993 | K9 |
| Turnagain Arm | Infrequently see a few | present | K46 |
| Turnagain Arm | 15 to 20 | Mid-1990s | I2 |
| Turnagain Arm | 50+/- | About 1991 | O9 |
| Turnagain Arm | 100 | 1992-97 | K31 |
| Turnagain Arm | Hundreds | Late 1980s (before 93) | O4 |
| Flight line crossing Turnagain Arm; Kenai to Anchorage & back, over narrowest water crossing | Look down; see pods of 20-30 belugas at least 2-3 times | Summers early 1970s | K10 |
| Turnagain Arm around Potter Section House | Est. maybe 25-30+ | 2004 | K31 |
| Eagle River | Estimate 50-100 | 1999 | K31 |
| Mouth Susitna River | Over 100 | June/July between 1974-81 | K44 |

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| | | | |
|--|--|--|-----|
| Little Susitna River | 78 | 1975 to 1985 | K18 |
| Su Flats between Little Su and Big Su Rivers | 45 45-55 | 6/13 and 6/19 in 1999 | K31 |
| Ingram Flats | About a dozen | Late summer, 2011 | J92 |
| Turnagain Arm mostly near Beluga Point | Pods and pods at different times of the year | Late 1950s and early 1960s | J19 |
| Turnagain Arm near Beluga Point | 30+ | Probably 1987 | J93 |
| Turnagain Arm | More than we could even count, estimated 50+ | Late July or early August about 2000 | J56 |
| Turnagain Arm, Beluga Point | 3 adults | August 2006 | J97 |
| Turnagain Arm, Beluga Point | 5 adults | August 2004 | J97 |
| Turnagain Arm | What seemed like hundreds | On one trip in the early 1990s | J94 |
| Anchorage, between Westchester Lagoon and Kincaid Park | Pod of about 20 adults | Every year on August 15, 1980 until the late 1980s | J95 |

The majority of all observations made outside KPB waters related to sightings of CIBW in upper Turnagain Arm from roadside vantage points. While several of these were generic in nature, with few specifics about location or an accurate count of CIBW, several provided fascinating behavioral insights.

(04) This person observed, *“One specific time we were heading back from the Kenai along Turnagain Arm when we stopped the car, got out and observed a "parade" of beluga whales surfacing as they swam out of the Arm. We must have been there for a half hour watching probably hundreds of belugas going by. Many other cars were stopped and it was an amazing sight, never seen by me before or since. This was before 1993, the year my daughter was born, but I can't remember the exact year. I think it was in the 1980s sometime.”*

(K43) *“On our trips to Anchorage through the years, we'd see huge numbers of belugas and we've seen most of them along the road. There were times you could pull over and sit along the road for 10-15 minutes and they'd keep swimming by. It seemed you could watch them forever*

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there were so many of them. Not so any more. There were anywhere from 60-100 spread out over an area of 3-4 miles of belugas and they were a quarter to a half mile deep, all scattered out. I think that's why there seemed to be so many more too, because you saw them for long periods of time then, not like now when there are a dozen and if you don't rush out, you won't see them."

(K9) *"It was in the spring when they were constructing the new road along Turnagain Arm. A friend and I went down and walked along the new dirt road bed on a Sunday, when no workmen were around. We were watching a 2 foot bore tide come in and about 30 belugas were right behind the small bore. They hung out just after the bore where the food, probably hooligan at that time, was being thrown up by the bore."*

(K46) *"I have had the opportunity to observe belugas my whole life. I grew up here in Anchorage and as a kid I remember we frequently saw them between Anchorage and the end of Turnagain Arm. Just like today, that's where they are most commonly sighted, although I remember we saw them more often and in much larger groups than we see now. I still see belugas every summer but we don't see them as often as we used to see them. Maybe the better way to quantify it would be that, as a kid, when we went down to the Kenai, we would see them sufficiently often that we didn't always stop and take a look. It's like seeing moose, we don't always stop to look at what they're doing. Now when we see belugas, we stop because it's not a common occurrence anymore."*

(K35) *"Like everyone else, I've seen lots of belugas along Turnagain Arm. It's pretty obvious that there are fewer beluga whales now."*

(K10) *"In the early 1970s, I was a kid with braces and I remember that I had to fly to Anchorage from Kenai, for my dentist appointments. I had an uncle in Anchorage so I would spend the night with him before returning. The flight line crossed the narrowest water between Anchorage and the Kenai Peninsula and I would look down and see pods of 20-30 belugas at least 2-3 times."*

(K31) *"Based on my general recollections, we frequently saw beluga whales in upper Cook Inlet and particularly around Chickaloon Flats and Turnagain Arm during April-October from 1992 through 1997. I can recall a handful of times when we would stop our car along Turnagain Arm to watch large groups of belugas traveling up or down the arm. I recall that some groups may have numbered over 100. I do not have a written record of those events, rather I have my recollections which are of a general nature only. After 1996-97, my recollection of beluga sightings substantially decreased and I rarely saw large numbers of whales, except for one incident of a significant stranding in Turnagain Arm which I observed flying over in my plane. Since 2005, I have seen very few if any belugas in the Anchorage-Turnagain-Knik area."*

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There were three additional observations made about other areas of Upper Cook Inlet. One (I2) referenced an interesting interaction between a cannery worker at Ship Creek and a pod of CIBW in the summer of 1974... *“I was taking my lunch break from the cannery and laid down on the dock to sleep, when I awoke, the tide was very high (almost at the same level as the dock) and so I was very close to the water... what woke me were a group of maybe a dozen belugas, squeaking and chatting in the way they do – it was an amazing experience and after that I used to listen for the beluga every day.”*

(I4) Another informant described observations in the Upper Knik Arm near the confluence of the Knik River and the Arm in early summer 1981. *“I was looking for a place to launch our boat near the bridge when we saw these white porpoises that I later realized must have been beluga bobbing along the river channel – they didn’t get up as far as the road bridge, but they did go back and forth as if they were chasing something. I think there were about 6 of them but it was hard to see as the river there is full of mud.”*

Several informants also made reference to flights across the Inlet between Anchorage and other areas of the Kenai Peninsula Borough (both western and eastern shores of Cook Inlet).

(K44) *“Between 1974 and the end of 1981, when I was working for the National Park Service I flew my own plane, a Super Cub. Several times a year I’d fly along the shoreline from Anchorage along up Lake Clark pass, across Iliamna Lake and over to Katmai and I remember flying over the mouth of the Susitna River. It was salmon season in late June or early July, and the beluga concentrated at the mouth of the river. I’d circle over them and one time I counted over 100 beluga whales in there. I saw concentrations there several times in the summertime, chasing and feeding on salmon. They were just white spots all over.”*

4.0 DISCUSSION

Among the many observations made by study informants, there were five core themes that we felt worth revisiting during synthesis of the observations. These provide the framework for the discussion below, although in some cases it will be noted that it is sometimes difficult to separate observations related to these themes by respondents as there is inevitable overlap.

4.1 Changes in Abundance and Distribution

(J92) *“We moved here [Homer] in 1987 and I can remember seeing them right off the Homer Spit. I just thought that they were part of the environment here.”*

(J54) *“They were so common [in Mud Bay, Homer] that I didn’t go down to see them. [And now they are never seen there.]*

(J50) *“From about 1970 to 2005 I operated an air taxi seaplane service out of Lake Hood, Anchorage. I operated a camp on the Kenai moose refuge so often flew there and also transported duck hunters and a few Native beluga hunters to Chickaloon Bay/Flats. I recall that few beluga hunters got their whales. The only way to access Chickaloon Bay was via float plane. There were no residents, no road, and no one boated there. I would fly at 1,000 – 1,500’ above sea level, low level flying, land in the terrible mud, and over the years saw dozens of belugas on a trip. They would swim up and down the channels of the bay. Later in the summer I would see fewer whales than in spring/early summer. I recall that over the years I saw a small diminishment in their numbers.”*

(J39) *“I recall that back in the early to mid-90s when we were flying herring surveys, we would see beluga in Kachemak Bay, mostly along the north shore to the head of the bay and occasionally around the Fox River and Sheep Creek. At that time it was very, very common to see beluga whales. These were pretty consistent sightings around the Homer Spit and the north shore to the head of Kachemak Bay. They would hit the shore near Fritz Creek and then stay nearshore to the head of the bay. We saw them primarily in the month of May, yet by the late 1990s it became an abnormality to see them.”*

(J27) *In 1958 I was hired by a group of 11 oil/gas companies conducting seismic studies along the West Shore of Cook Inlet searching for oil and gas fields. We ran from Cape Douglas up the West Shore setting off underwater charges. Around Christmas, that year, we were on the backside of Augustine Island where we saw many, many belugas. A major part of their feed is flounders and the flat fish congregate in that area at that time of year. On a run to that same area at the end of January the ice was thick and we saw no whales. When Kamishak ices up, the belugas move down into Shelikof Strait.”*

(J19) *“You never see them any more”* lamented this former Kenai resident who used to see the belugas in the Kenai River in the late 1950s and early 1960s.

(J3) *“I have seen belugas twice at the mouth of the Kamishak River, probably in late May, in the mid-1980s, and at high tide. The first sighting occurred when I heard their exhalations, so I turned the engine off, floated quietly, and the whales came within 10’ to 12’ of me. The pod consisted of, I’m guessing, 20*

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plus and most, if not all, were white. They were milling around. The second sighting occurred at a farther distance, was of about the same number of belugas and this pod seemed to be moving through the area.”

(J4) “The few that I’ve seen, in the late 1990s, have been down towards Seldovia, between Seldovia and the bluffs [Bluff Point area]. That would have been during salmon time [red salmon run in July] and they were all traveling north, maybe a half dozen or so at a time.”

(J75) “Seeing belugas [in Mud Bay] was quite the thing and really disappointing when they were no longer around. My impression was that they followed the silver salmon and I don’t think that silvers are here in the numbers they once were.”

(K21) “Coming into the Kenai River there were 100s of them, after the hooligan and herring and also into the Kasilof River. I’ve seen them right inside the Kasilof River, no more than one mile up, and inside the Kenai River all the way up to the bridge. In the Kasilof River, I’d anchor my boat and have belugas come right up along side of the boat, swarms of them. And just before the water was low, usually when the tide was going out, they’d migrate right out, swarm out – large swarms. There were always plenty of belugas. I don’t know why we don’t see them anymore. This was before I went in the service in the mid 1940s. Belugas were all over and they slowly deteriorated after I came back in the 1950s.”

(K21) “After the drift fleet came in and the oil industry came in, the beluga started going down, roughly in the 1950s. Starting in the 1950s and into the 60s, the belugas slowly kept going down. In the 1960s – ’70s they’d be more in the mouth of the river and more when food was abundant, like when herring were in; in the spring and fall when the hooligan and a smaller fish like hooligan, that the old timers caught in November.”

(K21) “In the 1980s, they dropped down. The 1990s was worse. There weren’t very many. Once in a while, I’d see them in the mouth of the river but I don’t think they were after salmon, mostly hooligan or herring. I’d see one or two, maybe half a dozen or so. But I remember seeing them off the mouth of the Kenai River when it would be just white. Just pods of them back in the 1940s and early 50s. We’d stand on the bank of the Kenai River and look right down and see belugas for half a mile, and young ones also. There were more younger ones then because the pods were greater. I could see them every day and the water turned white with them, there were so many.”

(K45) “I lived in Kenai from 1976 or ’77, moved to Anchorage in 1984, and back to the peninsula in 1989. I noticed a really big difference in what we see now and what we used to see. It used to be that there was never a summer that I didn’t see belugas. Now there have been entire summers go by when I’ve not seen belugas in the Kenai River or Turnagain Arm and my behaviors haven’t changed. Now it is a really special thing to see them.”

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(K23) *“I’ve lived on the bluff above the Kenai River all my life, and what I’ve noticed is that there used to be an abundance of beluga and there aren’t any now. For the last 35 years, there have been very few beluga coming in the river, and this summer not a one. I’ve been watching.”*

(K40) *“As early as 1985 and into 1988, the elder fishermen were saying that something was wrong. They were not seeing belugas in the places where they had seen them in the past and when they did see belugas, they were not appearing in the same numbers. They had begun slowly disappearing. The Elders were asking, ‘where are they?’ and ‘where have they gone?’ They knew something was happening and talked about it often. They talked about it being colder and they talked about the tides.”*

(K32) *“Ever since I can remember, I’ve seen quite a few of them, probably 20 at a time come up the Kenai River. Maybe more. A lot of times it was on the incoming tide and there were just miles of them. They always came 2-3 miles upriver and I could see them, within eyesight, up river. And then recently, I guess in the last 4-6 years, I’ve seen not very many at all in the Kenai. It is a rare occasion now for me to spot belugas out there. I drive quite often to Anchorage along Turnagain Arm and there are not many there at all now. I believe I have seen belugas in the Turnagain Arm this year, but I haven’t seen any at all in the Kenai.”*

(K47) *“In the late 60s to 70s, beluga would go up the [Kenai] River more. We would see them in the inlet [and then they would swim past, going to the river mouth]. This year we saw eight, but only once in early summer. Before, we saw maybe that number but they went past many times.”*

(K25) *“One spring in the early 1980s, we ran a boat from Homer to Nikiski and saw what looked like a squall of white caps about 3 miles ahead of us, but it turned out to be a large group of belugas about 8 miles off shore at Kasilof. They were heading south as we were going north so when we caught up with them we slowed down and put the boat in idle, until they were around us. It was the largest group I ever saw and I estimate that there were around 200. It was out west of the east rift; not in the middle, but in the shipping lanes along with us.”*

(K24) *“In the early to mid '70s, I was on a fishing boat with my grandfather all summer. We fished halibut and salmon in Cook Inlet off Kenai and the beluga would school around the boat. We could see them chasing fish for three and a half months out of the summer, every summer. There would be groups of them of about 15-20. That was when I was in junior high and high school, about 1971 or '72. We’d see one group at a time schooling, cruising around chasing fish like we were. I started fishing when I was 13 and we fished every summer until I was 18. Today I don’t see beluga any more like then. We had lots of sightings. My brother owns a boat and commercial fishes. He bought it in 2001 or 2 and I go out with him 1 or 2 times per season to keep him company and enjoy being out, because before it was work. I’ve noticed the decline of*

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beluga from before. In the '70s, compared to now, a 30 year difference, the belugas are gone. I don't see any whales now."

(K25) *"Now I'm not seeing whales. I don't spend as much time fishing but they are rare. In the 1980s, you would see good sized groups during the early spring fish runs."*

(K34) *"The Elders monitor the animals and know when they cycle. So when the beluga don't return at the time when they're cycling, the Elders notice. They noticed there were less beluga and they also noticed through the years there were less. Since the early 1970s the elders were paying attention to the cycling of the beluga and warned us to be careful of what we were doing out in the inlet; that what we might have been doing might play a part in the belugas not returning. If we overhunt them or if we take too many salmon; those were the two main things in nature that we looked at because we noticed in the year when there was less salmon there were less beluga."*

(K34) *"When my uncle prepared for hunting beluga, I remember being excited. My favorite food in this world is beluga. Everyone in the village was excited. From the banks the Elders could see the beluga going by. We saw them everyday throughout the summer, in the early 1960s. I was disappointed when we started noticing a decline in the beluga population. I asked my grandmother about it and she said some day there won't be any beluga in the inlet. I asked her why and she just pointed to the oil rig and didn't say anything. I didn't know what she meant and I thought the oil rig was killing the beluga. I was only seven."*

(K43) *"It seemed like in the 1980s that they really started taking a dive and by the mid 1990s we didn't see them very often. We'd get them right here in the bay for silvers, pinks, and chums. They would come in here regularly."*

(K42) *"The main thing is there just aren't that many belugas out in the inlet when the salmon are running. They should be with them and the hooligan also. In the past, we used to see them a lot in early April when the hooligans came in. We always had sightings. Now it's hit or miss."*

(K33) *"I have lived at mile 3 of the Kenai River since 1986. During the first 6-7 years I was here, on every high tide from ice out to ice in, I always saw belugas. At the first clearing of the river ice, I saw whales. Sometimes that was the first week of March. Between the years of 1986-1988, at peak salmon runs, I would see around 250 belugas off the mouth of the Kenai River. There were huge pods waiting for herring and salmon to come in. The average number I saw in the river was 8-20 per high tide and 2-3 at low tide. Beginning in 1992 and every year for the next four years, I saw fewer and fewer and fewer belugas. In 1996, I saw only three whales all year. Since 1996 or '97 to the present, there have been years where I've seen no whales. I watch the tides every day. One week ago I saw three belugas. Three whales compared to the more than 250 per day I would see years ago. From 1991-1996, beluga numbers dropped."*

(O7) *“I lived in Homer starting in the summer of 1985, camped and lived on the Spit in several different locations all summer each summer through 1988 before I moved up in 1989 for good. I saw Beluga pods of from 3 to 7 or 8 members cruising past Mariner Park out around the Spit end and up through to the Mud Flats just east of the old Green Timbers...at least 10 times a summer. After the oil spill in 1989, I think I might have seen them 2 or 3 times until about 1994 or 95. I didn't see them again.”*

4.2 Observations on Beluga Behavior and Human Interactions

4.2.1 Notable Behaviors

(J33) Chinitna Bay: *“Ahead of us, in the distance, were belugas lined up, pushing the salmon. They were definitely feeding cooperatively. All were adults, adults in synchronicity, all together, pushing salmon. All were rising and dropping at the same time.”*

(K19) *“Since I ran every day, I saw the belugas regularly. They were usually diving for fish. I ran along the beach below the bluff where I lived and the belugas would swim along next to me at high tide. And they would be singing while I ran. They liked to play, so they would keep pace with me for a short period of time, maybe 10 minutes, and then swim on. I remember thinking it was cool when I saw them.”*

(K16) *“One time I was on the beach along the southern shore of Turnagain Arm. I was walking along and I happened to look to my left, where the water was. The tide was in because I could hear a “whoosh” sound. There was a pod of belugas and they were keeping pace with me, at my speed. I thought it was really neat. They'd surface, first one and then another so there was this constant “whoosh” as they would surface and exhale. And then as I was walking along, glancing at them, one time I glanced over and it was silent all of a sudden and it was like, ‘they're gone’. They took off in a flash, probably after fish which were more interesting than me. I could see that little disturbance of in the muddy Turnagain Arm water, the wake and disturbance of the water and I thought something must have excited them. Then after a few minutes I saw them a half mile up the beach, where they stopped and surfaced again. But I could never catch up with them after that. They were out of sight and on up Turnagain Arm. There were at least a dozen and they kept pace with me for about 5-10 minutes.”*

(J6) *“While walking on the beach east of Homer, I was watching the ground when I heard their exhalations, looked up, and saw an adult and baby, white and gray. It's possible that there was a third one, still gray but bigger than the baby, but my sighting of it was too fleeting to be sure.”*

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(K5) *“After we had moved to Anchorage, somewhere between 1984 and 1989, we would take our sons on an extended camping trip around Labor Day. We would go down to the Captain Cook Park Recreation Area at the Swanson River. I was alone, taking my time walking down the beach, and the fog had come in. It was low to the water and the tide had come in and was high. As I was going along the beach, I kept thinking that I had heard someone and I'd look around and there was no one there, and all of a sudden I heard this big blow and I turned around again and just a few yards away was a beluga with its eye up and watching me, and walking on the beach with the fog and having the beluga right there heading towards the mouth of the Swanson River, it was just an ethereal experience. The beluga was watching me perhaps a minute before I figured out that it was there. We watched one another between the shallow dives for maybe as long as 4 minutes. So because I was taking my time, when it picked up speed, I lost it after awhile.”*

(K21) *“In the Kasilof River, I'd anchor my boat and have belugas come right up alongside of the boat, swarms of them. Then for some reason they'd be spooked and there'd be a wave of them heading out of the river just like a swarm of fish heading out of the river. And just before the water was low, usually when the tide was going out, they'd migrate right out, swarm out – large swarms.”*

(K35) *“In 1988 and in 1989, we spent a lot of time in the Kenai and there were beluga whales in the river beginning in the fishing season at the end of June, into July, and August. There were lots of whales going in and out of the river. We had our little daughter then and she'd sit in the boat and watch them and sometimes they would come right up close because we would stop and I would turn the motor off, on that first curve right by the city dock. There were belugas around that point all the time on a flood tide, even when there were boats going in and out, as far as the Warren Ames Bridge. The latest I saw them up there was in November.”*

(K14) *“One spring the [Kenai] river was frozen and [here at Cunningham Park] the ice was going out and the belugas actually came in and bumped the bottom of the ice to knock off more ice chunks to clear the river. They wanted to go up the river and the ice was in the way. It was wonderful to watch.”*

(O5) *“Two miles south of the Kenai, viewed Belugas coming into shallow water to rub on old fish trap post (sometime between 1983- '85).”*

(O2) *“The most excitement though was when one adult came in to the left of the (Columbia Wards Cannery on Kenai River) dock and swam between me and the shore. It blew just past the dock and I honestly thought my dog was going to jump in after it. The whale was about 20 yards away. Pretty neat stuff.”*

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(K40) *“In 1988, I remember sitting on the dock of the fish processors with my grandchildren, watching the fat gray baby whales swim past. It was a common sight in late August and early September when the tide came in. We would go listen to them puffing. They would come close to the dock as they fed. They would make huge circles in the [river] mouth, swim by us and go up the river and around the bend and then come back down. I remember them diving and eating and puffing. Beluga were a common sight then, coming up the river with the tide and salmon in early fall. They would go out with the tide. They are not common now.”*

(K43) *“Often we have belugas swim down in front of our house. The last time they were here was a few days ago and the water was shallow, maybe 4 feet deep, and they were fishing. You could tell they were fishing. Normally when belugas go by to or from Resurrection Creek, they travel in a straight line with purpose. They do follow the fish which swim along the contour of the bank here. But when the belugas start feeding they begin by milling around in a circle and splashing more. Or maybe I noticed it more because it was shallow right in front of my house, but their forward progress stalls and they mill in a circle. It looks like they surround the fish to bunch them up more. There were maybe a dozen and they had babies with them and they were blowing and making grunting noises.”*

(K29) *“It was late spring or early summer in 2000. Our family was walking about 1.5 miles up the south end of the beach, just about at the mouth of the Kenai River when we saw about 10 – 12 belugas about 50 yards away from us. Of the total, about 3-4 were younger gray ones. The adults were white. It was a high incoming tide, maybe a 20-footer, and there were fish coming in with that tide. I'm assuming it was reds, sockeye, because of the time of year and you could see their fins breaking the surface of the water when they were schooling up. It was a beautiful day, not too windy so the water was pretty calm with just a little chop. What started happening was very exciting. We saw some of the adult whales come closer towards us, right in front of us, about 25 yards from where we were standing at the edge of the water. They started circling or herding or schooling up the fish and as they were doing this you really couldn't see the whales very well but you could see the water currents swirl in a circular motion. Many more of the fish became apparent because [the water] started boiling, with more fins and heads popping up. Then all of a sudden the whales came through the circle [of concentrated fish] that had been created, and they were feeding and the youngsters were feeding with the adults. This process would break down fairly quickly. Probably 3-4 passes within 20-15 seconds, no more than 30, and they dispersed and it broke down. I've seen that area of beach at low tide so the water depth was not very deep where this was happening, probably 10 feet at the most. [After they had dispersed], all of a sudden the same thing starting to happen [again]. The adults would come back, school up the fish, and stir the water into that whirl pool and the fish would start boiling, and then the other whales would come in and feed right through them. Not only was the visual fun to see so close, but [there was] the noise. You could hear the fish splashing and then when the whales would surface, I think they were excited and expending a lot of energy to catch the*

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fish, and their blow holes would go off (bangs desk). It was just so exciting. The process went on 4-5 times right in front of us and then it dissipated and they kept surfacing further out in the mouth of the river. We stayed out there one hour and never saw that same activity again. It might have gone on more, but we couldn't see it. It was a very unique experience, especially to see it so close and to hear it. They're so smooth. The whales didn't make noise. The fish were going crazy but the belugas were efficient and smooth and beautiful. So neat to be that close. After feeding and dispersing, within 4-5 minutes they were feeding again. It could have been a 30 minute observation time for the entire process but it seemed quicker when watching it."

(K7) "I've lived in Kenai since 1950. But in 1970 we moved into our home along the Kenai River, down from Cunningham Park. The beluga followed fish up river past us and past Cunningham Park to the next curve. In the fall, when it was cold you could see them spouting vapor. Once they were after the salmon and 15-20 formed a line across the river and they all rose and blew at the same time, and in the cold, it looked like a fountain!"

(K40) "I remember flying between Kenai and Anchorage somewhere between 1975 and the 1980s. And one time when we were flying from Anchorage across Turnagain Arm, I was looking down into the blue water at belugas that were swimming in a pattern. There were rows of white belugas lined up as they left Point Possession to take their babies out of Turnagain Arm into Cook Inlet. Later I saw a painting or a photograph of the same thing. I haven't seen them since over the inlet. And the Elder commercial fishermen say belugas are not appearing in the numbers they were used to seeing them."

(K40) "Only on two different occasions, have I seen an exuberant young gray beluga completely breach the water, leaping into the air."

4.2.2 Comments on vocalization.

(J16) "One day I was offshore [near Clam Gulch] in an 8' pram when I found myself surrounded by a herd of 300 or so belugas. There were a few young gray calves but most animals were white adults. They were just milling around and I heard many squeaks and other noises from them."

(K14) "I only heard them calling one time and they really did sound like canaries, real big canaries! They had a lot of babies with them then and they could have been calling the babies. I was so excited!"

(K34) "Yes, you can hear them. That was the exciting thing – when you can hear the mother communicating with the calves as they're going by. It's exciting. We hear them all summer long because we don't have a lot of noise in Tyonek to disturb us."

4.2.3 Interactions with Fishermen, Boat and Fishing Equipment

(J69) *“When delivering fish to the Kenai cannery, I would stay on the boat when anchored in the Kenai River. Fishing boats of all sizes were delivering fish to canneries in and near the mouth and farther upriver. Often the river would be full of fish and belugas. White hump after white hump everywhere; feeding on salmon. Literally hundreds, could have been thousands, year after year after year swimming past in deep water.”*

(J84) *“In 20 years of fishing up the Inlet, I saw two belugas caught in nets.”*

(J84) *“There was a strong eulachon run up to the Bradley River [at the head of Kachemak Bay] and the belugas would be right there alongside eulachon fishermen.”*

(J20) *“Every summer, between 1963 and 1968, near the end of the salmon run, the belugas showed up. Their radar was very good. They were chasing fish and yet they never ate fish in our nets. We never caught a beluga which was incredible for as many as there were. The earliest we would see them would be August 10th pursuing the late run fish. My dad and I were amazed at the numbers. I would literally say hundreds of them. They would kind of like ride atop the water, definitely ran on top, always surfacing. I can safely say we saw hundreds over a few days. It was a sea of white, always traveling south to north, traveling hard, running hard.”*

(J27) *“When belugas were in the water, the fish come in shallow. The belugas drove them right up into our nets. While belugas don’t take fish from nets like seals and sea lions, they do compete with fishermen. I never liked them because they eat so many damned fish. Hundreds of belugas would come in around our running line. Belugas are very, very good at detecting nets in the water. You don’t see the gill nets catching belugas.”*

(J32) *On September 11, 2008, this Homer resident and friends got blown into Iniskin Bay. “It was seriously white-capping, frothing, tossing boats around but we anchored up and in the morning, I looked out and saw belugas around the boat. Some swam right under the boat; one almost scraped itself on the boat. I estimate 15 to 20 animals but counting beyond that was challenging due to the white caps.”*

(K40) *“In the fall of the mid 1970s, my husband would go duck hunting in a fishing boat by Kalgin Island where he saw so many huge pods of beluga that he'd shut off the boat's motor and drift among them. The pods were huge and would be bumping the boat.”*

(K32) *“I've had them come up alongside of me when I was in a boat on the river. That was a little unnerving. I went over towards the shore to get out of their way.”*

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(K13 & K18) *“In the 1950s, I commercial fished the inlet, drift netting in a boat, and I would see bunches of beluga. I didn't have any trouble with them coming around the boat.”*

(K41) *“They stayed away from boats. I never had one close by the boat. I'd see a pod off in the distance. No one had one get in a net. They stayed away.”*

(K42) *“They didn't bother the nets. I thought about it though. It must be their sonar because you sure couldn't see anything in that murky water. We were just drifting with the tide. They stayed around the boat for about 10-15 minutes.”*

(K21) *“Belugas were a good indication there were fish out there. I never caught one in a net and I never heard of anyone catching a beluga in a net. They would blow through the tightly stretched nets set on the beaches. There's no give to them and when they'd hit it they'd go right through, chasing fish. They're a big animal and fast and there's a lot of weight. I remember seeing them 15 feet from the beach.”*

(JK - Unidentified informant) This man served as a territorial stream guard during the summer of 1951 and boated the Kenai Peninsula coast from Swanson River south to Port Graham. His job was to check that fishermen were conforming to regulations at fish traps and set net sites and then he boated toward Kalgin Island to check on the drifting fleet. *“I never saw a beluga whale. I never heard of them in Cook Inlet.”*

(K41) *“The commercial drift boats were slow and didn't bother the belugas. They did not pay attention to fishermen.”*

(K39) *“One time in 1977, or more likely in 1978, I went to the north end of Kalgin Island in my wood boat. I was trying to anticipate the salmon run. I spotted a pod of beluga coming down the inlet, southwest to south, and so I shut my engine down and drifted with them just for the experience of it as I was with my girlfriend. They were rolling and passed me, paying me no notice. They were swimming with purpose. There had to have been 100s of them: probably 100-200 belugas, as far as I could see from the bottom of my wooden boat. All you could hear was their breathing. I never saw that again.”*

(K34) *“When we crossed the inlet from Tyonek to Kenai, the beluga were pretty close but they didn't come real close. We could see their heads. There were a lot of beluga coming up all around us. I was too young to count them. The Elders steered away from them because they didn't want to disturb the babies. At seven, I just wanted to jump in and swim with them. Compared to the last time I went across the inlet three years ago, I didn't see any. That was very disturbing.”*

4.3 Values Associated with Belugas

4.3.1 Traditional and Cultural Values

(J13) This Homer resident recalled, *“I used to be conflicted because when my Mother heard that belugas were in Mud Bay [Kachemak Bay], she wanted to get one for the meat. I would avoid going to Mud Bay because, at that time in my life, I didn’t want to deal with killing one.”*

(K34) *“Our lives revolve around the resources and the food we have in our area. It’s very disturbing to me not to get a beluga every year. All year I’m wanting to taste that.”*

(K34) *“Our parents warned us to be careful of what we were doing out in the inlet, so we watched when we went out fishing that there wasn’t a lot of gas that flooded our motors and came into our boats and which we bailed out of our dories. We made sure the beluga were in abundance before we went out hunting and never took a female. Since salmon were a big part of the diet of belugas, we took what we needed. Through the years we saw with the decline of the salmon, also the decline of the beluga. At Tyonek, commercial fishing is our subsistence fishing so we needed to be cognoscente of both so that they balanced out. If an animal were declining, we needed to make sure we weren’t contributing to it.”*

(K34) *“During the times we crossed the inlet in boats, we saw beluga between Tyonek and Kenai. You could tell the calves and the females. The hunters could always distinguish between them and the males for hunting purposes and they would stay away from the females. Even during hunting season they were leery of disturbing the females with calves.”*

(I9) *“I guess that we thought it was ok for us to share the resources of Cook Inlet with the locals – after all there was plenty of beluga in the 80s when we moved down here (from Barrow).”*

4.3.2 Intrinsic value (in and of themselves)

(J4) *“In the late 1950s, early 1960s there was a feeling that belugas were a nuisance. They were eating fish and that was not looked upon very kindly by commercial fishermen.”*

(J21) *“I was astounded the first time I saw belugas. How can you be serious about a white whale with a bulbous head. They’re wonderful. They are by far the most exotic animal, white, and with that smile that is never seen.”*

(J55) *“About 1976, I flew in a small private plane across Cook Inlet, to Trading Bay, specifically to see belugas. There was white everywhere. The belugas were feeding and the concentration was looking like salmon in a stream.”*

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(K45) *“We seem not to appreciate what we have until it's gone. I feel a real affinity to belugas because they are our local whale and I grew up around them. They are amazing animals. It's sadly become such a precious experience.”*

(K23) *“I first remember them when I was a kid in the 1950s. We'd go out on the bluff and see how many we could count. There would be between 10-30 of them coming up river at a time, and we'd stand there and watch them as they went from the mouth and round the bend, going down under the water and coming up 50 yards ahead, for maybe 30 minutes. We would see them all summer and into fall. They used to go up river as far as Cunningham Park. But I haven't seen any this year.”*

(K23) *“When I was a kid, they arrived in May with the hooligan. In the spring after the ice went out, the hooligan came in and that's when the seals and beluga showed up. It was like a routine every year. We expected the beluga to come and when they were coming in, that was our signal to go hooligan fishing. This year there were very few hooligan. I used to fish them at Cunningham Park. Now there are only seals up there. No hooligan and no beluga.”*

(K32) *“[Belugas] just seemed to be a part of my life. I'd see them all the time. Ever since I can remember I've seen them, I've seen quite a few of them. A lot of times it was on the incoming tide and there were just miles of them. And then recently, I guess in the last 4-6 years I've seen not very many at all in the Kenai. It is a rare occasion now for me to spot belugas out there. And I drive quite often to Anchorage along Turnagain Arm and there are not many there at all now. I believe I have seen belugas in Turnagain Arm this year, but I haven't seen any at all in the Kenai. I'm retired and I go out on the bluff 2-3 times daily when the tides are coming in.”*

(K40) *“We moved to Coho in 1979, but before that we lived on the [Kenai] river and we could hear beluga "puffing" when they came up the river after the silvers in the dark. It was fun.”*

(K5) *“There were approximately 15-20 belugas; all white. We may have seen them offshore, but what I remember was learning to look on the incoming tide of the Kenai River because we lived in an apartment on the bluff above the mouth of the Kenai River. We saw them at the mouth of the river and swimming up the river for as far as we could see from our place. They were spread out over quite a wide area because it was high tide and there was a lot of water. At times we saw the belugas swimming up and down the mouth of the river. We assumed that they were feeding on the early run king salmon going up the river on the tide. Some of the time they were milling. We observed this type of [whale] behavior a number of times, but one that was the most memorable to me was right after school was out [in May 1976], as I was a teacher. We were packing up our apartment to move to Anchorage for my husband's new job up there and we were pausing for a few last looks. The gulls were having their conventions on the beach and the sun was going down. The belugas were going up the mouth of the Kenai River and it was just stunningly beautiful. I remember fighting the tears because it was so beautiful and we were*

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going to leave this place and wondering if we would ever see anything like it again. And we never did see anything quite like that again. [Since we were busy loading a trailer for a move to Anchorage, we probably only watched for about 20 minutes.]”

(K22) *“I would see belugas when I walked the beach south of the cannery along Cannery Road. I walked the beach a lot in the late afternoons during spring, summer, and fall. I was usually alone and I saw belugas regularly, usually a half dozen at a time, offshore in the inlet, spouting and swimming like porpoises. The biggest group of them that I saw was maybe a dozen, but usually I saw 3-6 at a given time. They would swim along the beach, either north toward the Kenai River or south away from it, in the inlet, not in the river mouth. They were beautiful, spectacular. I don't recall hearing any vocalizations, but they were close enough that I can remember hearing them spraying. It is distressing that they just aren't there anymore.”*

(K47) *“We live up the inlet from the Kenai River, before the mouth of the river. We look out onto the inlet. It was a real treat to see them come in with the hooligan and then again with the salmon. It would have been about May for the hooligan and June for the salmon. I don't remember much, we considered them part of the landscape.”*

(KC) *“Belugas represented a perpetual biorhythm in nature that human beings accepted as part of their life. People watched them for entertainment, kids counted them, their arrival announced the beginning of hooligan fishing season and the last of the silver salmon runs. All spring, summer and fall they came on every incoming tide and everyone thought they would be here forever because they were plentiful.”*

(I6) *“I nearly cried when we first saw these belugas on our first trip down Turnagain Arm after we moved up to help with the oil spill cleanup in '89. We wondered why there wasn't more information about them – I thought they were some kind of dolphin initially, but then I remembered seeing them on a wildlife movie about Russia. I had no idea they occurred this far south of the Arctic.”*

4.3.3 Beluga Days

The 1960s era Beluga Days events were a commonly cited measure of how attitudes towards CIBW have changed within the KPB community, a point also made by Lord (2007).

(O3) *“I also have digitized two gory photos of a bloody beluga that had been killed for butchering into beluga burgers at the Kenai Days summer fair in 1966. The whale hangs suspended from a tow truck in a parking lot at the fair. We had no appetite for eating a beluga burger, even then before a serious environmental movement had begun.”*

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(K32) *“I know back when I was a teen ager, 12-14 years old, Kenai used to have a club called, I guess the 'beluga club', and a bunch of people would get together and go out and hunt [belugas]. If I remember correctly it was non-native, I don't think there were any natives involved in that club. They were a bunch of local people doing it, business men. I can't really tell you how many they took. But I recall one 4th of July they had a big celebration in the middle of town and they made some beluga burgers. I didn't try any because one of them dropped on the ground and a dog walked up, sniffed it and walked away. Well I didn't think I needed to try it.*”

(K41) *“I know they used to hunt them back in the early '60s. They had a beluga hunting club. Dan Hulien was the president. He was a druggist and ran a drug store and soda fountain. They'd go out and hunt them and come back and sell beluga burgers for a couple days, during Kenai Days in the summer. They were good. It was great fun for the kids.”*

(K44) *“I remember when I first came to Kenai, in the fall of 1963. That spring, late May or June in 1964, they had a Kenai festival and as part of it they went out and killed a beluga whale and they had it hanging for everybody to look at in Kenai. It struck me because everyone thought there were a lot of them and they didn't pay much attention to them.”*

(K2) *“I remember the Rotary Barbeque cooking up beluga burgers; unique. My parents were appalled that we were cooking whales here. It's another world here. It was another day.”*

(K12) *“I was President of the Kenai Chamber of Commerce and somebody brought up an idea to capture a beluga whale and we decided to eat it. Some of the beluga was rendered and the fat was used on biscuits and rolls. It was a fad we tried in 1962-'63, half a century ago. We didn't do it for long. It was a fad and we moved onto something else and were not preoccupied with belugas or beluga activities.”*

(K45) *“I remember within the last 15 years when my grandfather was telling me of the Beluga Hunt Club that was started up – this big game trophy hunting thing and I just remember saying 'are you kidding me?' I was scandalized [as an adult] when I heard about the Beluga Hunt Club in Kenai because I loved the belugas and in all my years growing up, my grandfather, who was a commercial fisherman first, had never [voiced] any animosity against the belugas, although he would talk about them saying that they were competing for the same fish. He was talking about how people would pay money to come up. My uncle wrote a brochure about what people could expect on a beluga hunt, how it would operate, the skill required hunting beluga and then pulling them across the inlet, the price paid per beluga for the Kenai Days festival, and that people [participating] would get a certificate and a vial of beluga oil. I am such an outdoors person who loves nature that my husband teases me that I am a part of that horrendous thing that I can't even imagine now. The stories I've heard are my grandfather's. [On another occasion] he and my uncle were given a permit by the Fish and Game, in those days, to harvest three live belugas*

for SeaWorld in San Diego. But my uncle couldn't go through with the capture and sending young belugas to captivity and my grandfather agreed.”

(J13) *“In 1964 I was one of the hunters. We didn't get a beluga [that year] so we purchased one from Joe Mosquito.”*

4.4 Potential Causes of Decline

We asked informants to share their thoughts on why CIBW are declining. About a third of informants chose not to speculate about the decline. They felt that they did not know enough to make “educated suggestions.” Nearly half of all informants were unaware of the endangered species status of CIBW and the majority was very confused about the current management status and policies (e.g. related to Critical Habitat designation). Very few seemed to have a well-informed perspective on the basis for endangered species listing and had not seen reports that described the scientific basis for listing.

4.4.1 Physical changes in habitat:

(J20) *“The 1964 Good Friday Earthquake in Prince William Sound caused the land to rise and destroyed the salmon streams and the fishery.”*

(K42 & K43) *“The earthquake changed things. There was always a channel out front here. The earthquake caused the land to sink here and I don't know if it's coming back up, but this channel is not like it was 40-50 years ago. When we first moved out here, the beach was forested and a stream ran through it and there were water lilies and such. We had paths down through there. The 1964 earthquake dropped it about 9 feet and its raised back but I don't think even the highest tides can even hit that. It is rebounding but it's much shallower now. It's filled in. It was a lot deeper in places in my daughter's grandfather's time. Glacial silt is filling it in too. It's a change in the inlet but that doesn't account for [beluga] numbers. But right here it's getting too shallow. Between Girdwood and Portage, this side of 20 mile, there used to be pilings left over from a dock used at the turn of the century, when ships came in here during the gold rush. At low tide, ships could go in there and now high tide hardly covers it. I don't think the pilings are still there. The inlet changes. The main thing is there just aren't that many belugas out in the inlet when the salmon are running. They should be with them and the hooligan also.”*

(K26 & K12) *“The tides are high in the spring, that's when we have the extreme tides, when the snow geese [were] in. They all left too. The flats are so overgrown. There's no more marsh and not enough water for a marsh and the things that grow in them [that were feed for the snow geese].”*

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(K23) *“This year there were very few hooligan. I used to fish them at Cunningham Park. Now there are only seals up there. No hooligan and no beluga. The difference from this year to back when I was a kid is that things have changed so much in the river that the hooligan aren't coming anymore and neither are the beluga. I've noticed one thing, the sandbar at the mouth of the river has gotten bigger and now crosses the river from the north shore to the south shore, right across the mouth. You can see it blocking the mouth at low tide. I wonder if it's blocking the hooligan and the beluga from coming up the river. Maybe that's why Anchorage has more belugas this year. Something is obstructing their path.”*

(K43) *“The mud is in a constant state of change and with the glaciers melting the channels file in. Depending on what the channel formations do, that determines how often we get them here.”*

(J33) *“Off to the left in a group were 5 to 7 young belugas. All in various shades of gray. Some were very dark babies and the larger ones appeared to be light gray, dark gray. I was unsure if the mottling was the actual skin color or a result of impacted mud or some other source.”*

(K25) *“Kalifornsky Beach hasn't changed much physically. It went through a period of active erosion in the 1990s, when it lost around 15 feet of sand. I keep track of the mean high water line, being a surveyor, and it's been fairly constant. People average out the erosion to half a foot or a foot a year, but it really doesn't go like that, it's more fits and starts. If there are real big storms in the fall you'll get some beach erosion and then you'll go for a couple years with no erosion.”*

(K3) *“They talk about global warming, but I think it's the underwater volcanoes that are heating the water and changing the current in some way; just guessing. There are a lot of volcanoes underwater out in the Pacific Ocean.”*

(K32) *“There may be a change in currents. I think that always occurred. I know that when we first started fishing on the beach, sometimes we would get a lot of kings and a lot of times they'd be in the river. Their patterns changed probably with the currents. Instead of being on the beach, they were out further in the inlet.”*

(K43) *“Recently, in the last two years, the high tides are getting higher and more frequent. We are having 6-8 per year now, when we had been having 2-3 tides over 34 feet. I don't know if we are beginning to see the effects of climate change but the mud pattern changes.”*

(K37) *“The tides are higher and there are fewer fish, especially kings.”*

(J6) *“After 18 years of exploring this place, it seems like Mud Bay [at the base of Homer Spit] is getting shallower; the largest sandbar is building up.”*

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(J39) *“One of the most noticeable changes was the effect of the [spruce] bark beetle infestation. I surmise that [the infestation] could have had an impact on salmon runs. For example upper Kachemak Bay, around Bear Cove, was hit hard. The beetle kill with its resultant dead and fallen trees could have caused stream erosion, accelerate runoff, changed the course of a creek, changed the sediment load, and the dead trees could have created migrational barriers to salmon.”*

(J42) *“From about 1984 into the early 1990s, I saw beluga every year for 6 to 8 years. I would see them swimming along the west side of the [Homer] Spit and around Land’s End, following the herring. I would get into my car and drive down and watch them in Mud Bay. Their backs coming out of the water. Based on 18 years of traveling the Spit road, I believe that Mud Bay is filling up with mud.”*

4.4.2 Changes in Ecology of Cook Inlet/Competition with Other Species

(J76) When asked what changes this retired Homer biologist has seen over the decades that might have had an effect on the beluga population, he laughed and asked if I had 5 to 6 hours! His many comments focused on the changes he’s seen in fish populations such as, *“When water temperatures are higher/warmer, there are more finfish and fewer shellfish. And, conversely, when water temperatures drop/cool, shellfish species increase and finfish species decrease. Over time, entire food chains change in the big species [e.g., halibut and cod]. These up-temperature cycles used to run 18 to 24 years, now we’re cooler and shellfish are coming back, finfish declining. Such changes in fish and shellfish populations affect all animals in the food web.”*

(K38) *“Over the 30 years that I’ve been in the inlet and commercially fished, I can’t say that I’ve seen physical changes in the inlet. What I am seeing now is that the halibut are smaller and thinner and covered with sea lice, this year more than last. I call them “jelly fish” because when you open one, its meat is like jelly, they’re inedible. You can’t eat them. When anyone catches one and I identify it, I throw it back immediately. I sport fish now but the guides and everyone is noticing it. People think it’s because of food competition and depleted nutrition, no one knows. I’m also seeing a lot more sharks.”*

(K7) *“I’ve lived in Kenai since 1950. But in 1970 we moved into our home along the Kenai River, located down from the Cunningham Park. I don’t remember the year fishing limits changed [1976], but the Japanese used to be able to fish right up to the 3 mile limit off shore. Then the limit was pushed to 200 miles. Before that switch, we had lots of beluga, 15-20 per pod that came in the river with the hooligans and again in the fall with the silvers. But after the fishing limits changed and the Japanese had to stay farther out, I only saw 4-5 whales at a time come in the river. Maybe it was because the Japanese were not catching so many fish close in and the beluga found more fish elsewhere.”*

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(K46) *“They may be facing other stressors such as a changing food supply due to over fishing in the ocean or climate change shifting their prey base.”*

(K42) *“In the past we used to see them a lot in early April when the hooligans came in. We always had sightings. Now it's hit or miss.”*

(K2) *“In the same period of time that we stopped seeing belugas, we also stopped catching shrimp. People talk about a regime change in ocean temperature, I don't know, but there are fewer king salmon now.”*

(K24) *“The halibut have declined too. We used to catch half a ton per day on a long line. We caught some small ones, but the majority were big 50-60 pounders. Now there are hardly any big halibut, they're all fished out. Halibut don't live long enough to grow.”*

(K39) *“When I was a kid I didn't remember seals in the river. But now there are seals there in the spring and fall and no beluga. It used to be that there were lots of belugas 1-2 miles up the Kenai River and no seals, at least not memorable, now it's the opposite. I still go out in commercial boats and I'm seeing a greater number of seals in the fishing grounds. In 1980-'84 the seals were in the lower inlet, that is from Clam Gulch to Ninilchik and south of there. But they were never in the upper inlet or around Kenai. Now we see seals all over in the Kenai River and they are obstinate. They follow our boats.”*

(K40) *“One year, a couple of years ago, I saw seals haul out up river. I had never seen that before. Changes are occurring.”*

(K23) *“I used to fish hooligan at Cunningham Park. Now there are only seals up there. No hooligan and no beluga.”*

(K32) *“Last year a large group of seals, maybe hundreds of them, came up on the Kenai beach and stayed on the beach for about a month or two. That's a rare occurrence. We have a lot of seals up the river now with the sport fishing. I can see maybe 15-20 and they stay around a month or two. They are there for the salmon.”*

(K33) *“Elephant seals appeared in 1992-3. In the last 5 years, large salmon shark have appeared in the Kenai, but only during major salmon runs. They are 12-13 feet long. I've seen killer whales in the river and narwhals several times, along with dolphins and flounder.”*

(K43) *“We have seals here too. There are 4-5 that are present pretty much of the time. But the seals and belugas don't interact. If there is any beluga activity the seals here take off. We used to have only 1 or 2 that would show up in the mouth of the Resurrection. But now it's not*

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unusual to have 5-6 here while the fish are running. But at Six Mile there are 30 year round residents.”

(K37) *“There's seals in the McArthur River throwing kings out of the water like rag dolls. And we're seeing more sea lions and salmon sharks.”*

(J67) *“I feel killer whales got after them. It's a high risk trip for belugas to come into Kachemak Bay. I feel that orcas are way over populated now; they are incredibly abundant. I believe that there's been a slow decline from hunters but that orcas have significantly impacted beluga numbers.”*

(J74) *“I believe that there are a lot more killer whales around now. I'm sure that they prey on belugas.”*

(K38) *“I have one remarkable sighting that took place in 1980, either in August or September as school was in session. I was alone on the bluff above the Kenai River. There were about 10-12 belugas in the mouth of the river feeding on salmon. And the belugas were being chased up the river by killer whales! There were about five of them. Two appeared to be females, with shorter dorsal fins, and there was one male and two calves. It was a dominant female, or male, but it had two calves with it, and the dominate killer whale actually went into the mouth of the river and attacked the belugas and wounded them. You could tell that they were wounded, and the little guys [orca calves] finished them off. It was a training session, I think, for mama orca, but it was quite spectacular and something I will never forget.”*

(K30) *“In about 1986 there were two killer whales at Clam Gulch that had trapped a beluga close to the shoreline and killed it. It was quite a scene. There were big swirls of blood and lots of sea gulls. The beluga was about 15 feet out from shore and the two killer whales were feeding on it.(K20) I worked on the docks of the Kenai canneries from 1982 until about 2002, and we used to get herring, tons and tons of it, and the eggs would stick to everything on the docks. All of a sudden we were not getting herring anymore. I noticed the drop in the mid 1990s. They weren't catching as much herring. There were probably other food sources for the belugas. The Elders said the belugas followed the hooligan. And I have not seen hooligan.”*

(J32) *“Anecdotal evidence from fishermen I talk with indicates that the population of killer whales has exploded not only in Cook Inlet but westward... Given the pressure of orcas I don't find it surprising that beluga numbers are down.”*

(J90) *“I was eating lunch at Big Paddy's on the Homer Spit when 4 adults and 3 juvenile belugas swam slowly into the harbor, all the way to the load/launch ramp. They swam along the northeast side and out the same way. Four harbor seals moved close to the west side of the harbor and alertly watched the belugas.”*

4.4.3 Fisheries Conflicts

(J19) *“I really believe it’s an influx of people and I would think probably something to do with fishermen.”*

(K13) *“In the 1950s, I commercial fished the inlet, drift netting in a boat, and I would see bunches of beluga. I didn't have any trouble with them coming around the boat. Fishermen would shoot them all the time and now and then one would wash up on the beach. I don't know what the law was but I think it was okay to shoot them. In the '50s and early '60s nobody cared.”*

(K39) *“The mentality was different in the 1960s and 70s. As word spread about the great fishing up here, a lot of the fishermen came up from Washington and Oregon. They felt seals were a detriment to the harvest of salmon because they ripped holes in nets or bit out a salmon's stomach and left the rest. It was open season on seals and belugas then. There was a bounty and it was legal to shoot them. I never shot any. I've never hunted anything.”*

(K2) *“I was here when they were shooting belugas from the Warren Ames Bridge. It was legal then and it made the Clarion [newspaper].”*

(K2) *“Market predation was a big factor for belugas. They were offered for sale in too many places. That could be the same now for kings. They can't take the pressure. There's so many vague things. But this year was a good salmon year and there were no belugas. No salmon fishermen saw belugas when they fished this year. Even when there were a lot of things to eat, there were no beluga to eat it.”*

(K24) *“In the 1970s, other boats were out there fishing too. The fishermen had open season on beluga. People would shoot beluga and seals because they were competition for the fish in the 1960s and '70s. It happened daily. If people started to shoot, the beluga would disappear. Every summer people shot at beluga and they took off to get away from the boats. If they were a half mile away, the fishermen wouldn't know they were around. They considered beluga and seals a menace. Both whites and natives shot them. They were concerned about the fish they just lost and the five dollar bill they wouldn't get. It just came down to greed and I guess that's just human nature, isn't it? As a teen I couldn't understand it and I still don't.”*

(K41) *“I doubt the commercial salmon fleet has impacted them. I know the commercial fleet has remained constant for years. I don't think they impacted the beluga since they were out there before I came to Alaska and the fleet size has remained pretty much the same. Fishing had its*

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peak in the 1970s, and that's when limited entry was instituted with fish counts, escapements, and management. It's only in the last 20 years the belugas have tapered off."

(K32) *"Another thing that may have happened is the change in the way the canneries dispose of fish carcasses. It used to be that they just threw them over the dock and they would wash out with the tide and there would be a lot of activity out toward the mouth. We used to catch a lot of halibut out there. So now the canneries grind them up so there is just no food for halibut. I don't know if the belugas would eat those carcasses; I would imagine they would because they eat fish. That may have affected the food available there. But beluga are just not there."*

(K34) *"I can't imagine a year without eating fish and to see them decline like they are, it's no wonder the beluga aren't as prevalent as they were. It's the food source that they are missing. The beluga are starving."*

(K34) *"There are a lot of things we can speculate and analyze, but what can we do to preserve the beluga? The Ivan, Theodore, and Kroto Creeks are closed to fishing. Why is that? That was a feeding area for beluga. What can we do? One time Tyonek was looking into a hatchery so we can get the fish and beluga back. Preservation of the fish leads to preservation of the beluga."*

4.4.4 Native Hunting

(J27) When asked if he thought that hunting was a major contributing factor to declining beluga numbers, he said, *"Absolutely not. The natural attrition of belugas, which are found washed ashore every year, is more than what hunters took annually."*

(K11) *"When the moose moved into the Tyonek area in the 1930s and 40s, the beluga harvest dropped because the moose were more abundant and easier to get, considering the time and energy required to capture the belugas. When we began work in subsistence in the early 1980s, the interest in belugas was still quite high and some younger people were getting involved. They used outboard motors and wooden boats and when a beluga was taken they pulled it ashore for butchering. They asked an Elder named Tommy, who was in his 70s and no longer hunted but knew the traditional way of butchering, to help. He would supervise the butchering on the beach and the village people could come and get meat and fat and carry it home. Word got out and about half the village got meat and fat from a single whale."*

(K37) *"We hunted in the mouth of the Big Su. Since I became a whale captain we would first harpoon the whale and then shoot it. There was a 20 foot float attached to the harpoon so we wouldn't lose the whale. We used to only go to the Beluga River to hunt but the beluga moved to the Big Su so we began hunting there. They hear the boats and take off. The best place to catch them is in 4-5' of water. We were careful not to get the females with babies. We'd get the big*

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white ones. It feels real good as a whale captain, to do that. Everyone is happy when we bring in a whole whale to the beach. The whole village comes down smiling.”

(K34) *“During the times we crossed the inlet in boats, we saw beluga between Tyonek and Kenai. You could tell the calves and the females. The hunters could always distinguish between them and the males for hunting purposes and they would stay away from the females. Even during hunting season they were leery of disturbing the females with calves.”*

(K34) *“When my uncle prepared for hunting beluga, I remember being excited. My favorite food in this world is beluga. Everyone in the village was excited.”*

(K34) *“In the 1960s and early 70s, there were always three boats that went out at the same time. There were always three crews and all three usually came in with beluga. It was rare if they all didn't. One of the main places the hunters went was near the Susitna River. It was a birthing area and they were aware. The males were said to tend not to be as close to the mouth of the river as the females were, so the hunting took place more along the shore towards the Susitna River. And it was unheard of to get a female. It's just something that didn't happen.”*

(K36 & K37) *“It was the natives from the north that killed lots of whales. There were 28 dead at one time. They would sell it to George's meat market for \$25.00 per pound. The old people playing bingo didn't know, and people would come sell it to them. The Tyonek people never sold beluga. As fast as we could cut it up on the beach, the villagers took it.”*

(K37) *“It feels real good as a whale captain, to do that. Everyone is happy when we bring in a whole whale to the beach. The whole village comes down smiling. I want my boys to know that feeling. They ask 'Dad, why not hunt?' I tell them because it makes the village look good. We stopped hunting in 2005. Our Elders are dying without beluga to eat in their later years. We are going to AFN and say we need to hunt in our traditional way. The tribes back us and say if anyone should hunt, Tyonek should hunt first. We are losing our Elders and the young ones are losing the experience. We're losing our culture slowly, plus we're the only documented Athabascan tribe that eats beluga.”*

(K36) *“The natives from Barrow had come down to live in Anchorage and they started killing the belugas and selling the meat to George's Meat Market. George's sold it for \$40.00 to \$49.00 per pound. If we had known, we would have put a stop to it, but we didn't. It's too late now. I personally bought blubber for \$49.00/pound.”*

(K41) *“Belugas were overhunted by native hunters up in the Anchorage area. For years they allowed hunting and there was no limit, no closed season. They would go out and shoot them and that's the last they'd see of them, so they shot a lot more to harvest a few. There were a lot of belugas around until the 1980s. I haven't seen many in the last 10 years or so.”*

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(K46) *“In the 1990s they were over hunted, causing their population to crash. And now that their population is low, they are having a hard time coming back, which is typical for long lived, slow breeding animals. So even when you get rid of the hunting pressure, if you have a small population size, it is hard for animals like that to recover.”*

(K1) *“I moved here in 1966 and worked on the oil rigs in the 1970s-‘80s. One thing that happened that shocked me was how the publicity disappeared when they opened up this subsistence thing in the late 1970s and early 1980s. The subsistence hunters went out in the inlet and killed large numbers of belugas. Instead of using traditional subsistence methods of paddling their boats and harpooning the whales, they were out there with outboard motors running around shooting them with firearms. By their own admission they were only salvaging one out of 6-7 that they killed. They were killing 100s and 100s and only salvaging one out of 6-7. When you shoot them and then try to maneuver a boat to them to put a harpoon in them, they’ve dived in a reflex action to use the rest of their energy escaping. They were losing them. It was horrendously wasteful. We’d see them shooting them around the platforms. It seemed that once the information was out and people knew about it, nothing was done and it was covered up. I was aghast. How could they allow that? [I thought] there must be a lot of belugas and they’re not worried about running out of whales. But it was when this was going on that the numbers were decreasing so dramatically. As far as I’m concerned, that was the biggest factor that we saw for the decline.”*

4.4.5 Construction and Development: Oil and Gas

(J69) *“I understand that one thing that really bothers them is seismic activity, the underwater sonar pings. Commercial fishing-related activities and noise do not seem to bother the whales in the Kenai River or the inlet.”*

(K46) *“In addition, they may be facing stressors such as oil and gas development in Cook Inlet, and the Port of Anchorage development.”*

(K39) *“In 1969, there was no bridge [over the Kenai]. The area wasn’t developed or inhabited then, like it is now.”*

(J7) *“Personally, [I believe] the impact from drilling muds and all the stuff that goes in to the inlet [Cook Inlet] has got to have a huge impact on all the creatures – no matter what their sizes.”*

(K34) *“Out in the inlet, one of the things that really was disturbing to the Elders was the dredging that was going on. You could hear the blasts because Tyonek isn’t a big city with all the traffic and you can hear. Actually, if they were blasting near Kalgin Island you could hear it*

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and see the boats going by that were causing the blasts – the seismic activity. It was the Elders' second concern. The rig was the first, then the seismic activity in the inlet.”

(I4) “I just can't see how belugas and people can co-exist in Cook Inlet. I mean after all we want the same fish and surely that oil and gas exploration must have been a factor in their decline since the 1980s. Personally I'd like to see them here for my kids to enjoy, but I just don't think we can do that and keep growing the population of Anchorage.”

(I6) “Was the oil spill (Exxon Valdez) a factor in their decline? I didn't see any reports about it, but it must have affected their food supply.”

(K14) “It was after the Exxon Valdez oil spill that their numbers went way down. There were some years we didn't see any come by our house [at Cunningham Park]. It was a real sad year when we didn't see them.”

(J58) “I believe that toxic drilling muds dumped into Cook Inlet over time, are contributing to the decline of beluga numbers. It's clear to me that oil companies are the principal causative factor.”

(J57) “Once between 1982 and 1985 I was flying to Nanwalek and saw a big group of white things, at least a dozen animals. I was so stunned to see something white in the water, just milling around. I had never heard of belugas and later learned what I had seen. You have to wonder what with the shipping traffic and sewage, what is contributing to their decline.”

4.4.6 Noise and increased Boat Traffic

(J86) This lifelong resident of the Kenai Peninsula stated, “There was a lot of indiscriminate hitting of whales and not retrieving them in the Upper Inlet.”

(K23) “Noise has always been there with the commercial fishing boats. But there used to be only 100-200 boats and now there are 400. When I was a security guard for Wards Cove Packing, I would see boats come in and there would be beluga in the river too. The noise didn't seem to bother them then, but they did stay down under the water longer when the boats were running. That was awhile ago. But now there are 400 commercial boats and there are no beluga.”

(K41) “There are a lot more fast boats in the inlet. That never used to be. The commercial drift boats were slow and didn't bother the belugas. But these sport boats are fast and there's lots of them and they're out there all the time. I imagine they chase [belugas] from time to time, to try to get a photo. That may impact them.”

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(K32) *“Certainly traffic [in the river] has increased but that is only in the month of July. [In the past], from May through July we would see belugas all the time; seems like you would see them every tide. They were such a natural occurrence. I'm sure you've heard of our dip net fishery we have here in July at the peak of the red salmon and the sockeye run on the Kenai. I've watched the people down there but for years I've never seen a beluga come in there. I don't know if they would be scared off by the hordes of people on both sides of the river, and there are thousands of them. I would imagine that kind of activity would scare off belugas. The sport fishermen are in the water. Beluga don't usually get up there. But the dip net fishery now has hordes of people wading out into the middle of the river. I don't know whether, if [beluga] were chasing fish, if that would stop them or not.”*

(K29) *“I think in the past we used to see belugas more throughout the fish runs at the mouth [of the Kenai River]. I think now with all the additional activity that we have; there are more people fishing, there are more boats, the dip net fishery is strong, and there are so many more people down in that area, I haven't seen belugas. I think they still visit the Kenai because in the first week of October I was at the Kenai City Docks, a couple miles up the river, and there were 4-5 belugas there along with some seals, probably chasing silvers on the incoming tide. Usually when I see belugas, there is very little activity down there: all the commercial boats were done, the Kenai Dock was vacant, and there was no other human activity. It was a weekday.”*

(J11) *“I believe that the amount of boat traffic in the Inlet has increased so much in the last 60 years that it's contributed to their demise.”*

(J14) *“I would guess that the drop in herring numbers and increased boat activity would contribute to their demise.”*

4.4.7 Pollution

(J65) Regarding their decline, *“There was a fair amount of impact from when the oil platforms moved in the mid-1960s.”* This Upper Cook Inlet commercial fisherman continued, *“We started catching trash – cardboard boxes, plastic bags, just trash. Whatever was unusable just got dumped off the platforms. There we no oversight.”*

(K23) *“Another thing is there is a lot of pollution coming down the Kenai now.”*

(K33) *“It was not just people hunting them but the lack of adequate Anchorage sewage treatment. Politicians say that upgrading to primary sewage treatment processing is cost prohibitive.”*

(K34) *“We always knew that Anchorage had a sewage problem, there was the blasting, and the decreased salmon; all are affecting the beluga.”*

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(I2) *“Why doesn’t someone just come out and admit that Anchorage has a sewage problem? You can’t put all that shit into a shallow estuary and expect nothing to happen. I won’t even eat the fish now myself – what are the belugas eating?”*

(K42) *“I think there are too many people living here now. We are the virus. From 1950 to now the population has increased and so has the water pollution from runoff and poor sewage treatment.”*

(K46) *“They have additional stressors now. There is the potential for contamination that has grown over the decades and belugas, being fish eating mammals, are going to have those contaminants biomagnified up to their trophic level so they likely have levels of fat soluble contaminants that are much higher than their surrounding environment; things like pesticides and PCBs that are globally transported to the area and also some of the emergent contaminants of concern like flame retardants that are showing up in high levels in the Arctic today, due to the process of global distillation where contaminants settle out and become incorporated into the food web at high latitudes. So belugas probably have high levels of contaminants now for a number of these contaminant classes that would tend to suppress their immune system and their reproduction, and these are endocrine disrupting contaminants that interfere with pathways such as the production of thyroid hormones and sex steroids that make breeding less successful.”*

(K4) *“Belugas are an amazing animal with a long tradition here in Cook Inlet and if the current state of affairs continues they will become extinct on our watch. We have it within our power to make bold political and economic decisions to not let that happen. If it happens it will be one more chink in the armor of diversity of marine species that will go away. Not enough research has been done to know the cause of the demise of the beluga. It's generally attributed to three things: 1) Oil activity, particularly exploration 2) Urban native hunters have been targeted as a possible source of overhunting of beluga 3) Semi-treated sewage pumped into Cook Inlet in a massive amount from Anchorage and Kenai. The sewage treatment is to have a big pond, skim off the floaters, and pump the rest into Cook Inlet. It's not just fecal matter, it's pharmaceuticals that will go down the toilet and eventually end up in Cook Inlet. That can be stopped. We have the technology to do that. Other towns in Cook Inlet treat their sewage. Soldotna treats its sewage, other towns, Palmer treats its sewage. They don't pump that stuff into Cook Inlet. Anchorage and Kenai, especially Anchorage, pump massive amounts into Cook Inlet every day, every toilet flush. Anchorage needs to be courageous, needs to build a state of the art sewage treatment to solve this problem.”*

(JK) *“A statement that I heard on KBBI public radio station program in Homer in August 2011 said that the Kenai River was listed as having impaired waters from 2006 to 2010.”*

4.4.8 Emerging Issues

(J2) *“Just the sheer numbers of people on the planet have profound impacts regardless of where they are.”*

(K34) *“If the Chuitna mine goes through, personally I don’t think we’ll have any more beluga because as proposed now it is going to cross the Chuit River² and the salmon beds will be affected, affecting the beluga. The Chuit River, even though it has declined in the last couple years, always had so much salmon. My family fished it every year when I was growing up – rod fishing. As I’ve said before, when the salmon declined so did the beluga. It is sad to see.”*

(J84) *“They’re doomed. There’s no way to save them and, also, the problem is lack of ice and warming water.”*

(I10) *“It’s hard to imagine belugas being able to cope with everything that has gone on in the Inlet over the past 30 years and everything that the Inlet is facing. If you think about just how much Cook Inlet is changing, the deck is stacked against them. Is anyone considering how all those things – more fishing, climate change, pollution, noise, gas drilling and development– is working together to affect belugas. I think too much effort is going into trying to find just one magic bullet.”*

4.5 Suggestions for Future Research

Perhaps not surprisingly, given the context for many informant-CIBW interactions we received a diverse range of suggestions for further research. Some informants have a science background, others have a cultural motivation to maintain subsistence hunting traditions, and the controversy over causes of decline and factors limiting recovery by CIBW, .We were able to divide these into three main groups of recommendations, but did not probe which of these had a greater priority. While many of these are not new³, they are nonetheless a measure of public perception of CIBW status that could provide a useful focus for CIBW Recovery Team deliberation and for future agency communications about the application of conservation science to CIBW management.

² There is a Chuit Creek and a Chuitna River but Chuit River was a repeated reference by our respondent, therefore, out of respect for our knowledgeable informant we used her terminology, especially since she and her family lived there.

³ IMD observed that many of these questions were also raised in the two forums on the status of CIBW research held at the Marriott hotel in Anchorage in 2008 and 2010.

4.5.1 Research into factors that the public perceive may be affecting CIBW habitat quality at the local scale

These include:

- Impacts of increased motor craft on beluga feeding during summer fish runs in the Kenai River estuary. One informant who has been involved in fisheries management in the Kenai River for more than three decades observed a significant increase in sport fishing from boats that “use noisy outboards.” He expressed concern both about the impacts of that noise, which he considered to be likely more disruptive than lower pitch commercial fishing boat engines, and the physical impacts of boats crowding CIBW habitat that seems to be important for certain types of feeding and for care of juvenile belugas.
- Examine toxicology in local fish populations to indicate what toxins are in the beluga's food chain
- Compare the number of stranding events in CI compared to other habitats in Alaska. If there is a difference what is the possible reason?
- Determine the winter habitat(s) and assess what impact climate change has had over the past 30 years as well as what impact it may have in future
- Gather more oral histories from the CI Tribes, especially the Tyonek and Kenaitze about their use of CIBW and observations on habitat change

4.5.2 Research into changes in CIBW habitat at the whole Inlet scale

- Look at what was happening inlet-wide during the decade 1985-1995, not just hunting.
- Shipping and related oil and gas exploration as sources of noise.
- Climate change and impacts of fisheries/fish runs.
- Sedimentation: how accessible are key areas of potential habitat now and how is that changing?
- Sewage discharge: what effects are discharges having on CIBW?
- Land use change/runoff: are there any evident impacts of a large and rapidly expanding urban center (Anchorage) and all the new developments in the watershed?
- Changes in fisheries structure and run timing.
- Conduct literature survey of belugas utilizing the West Shore and East Shore of Cook Inlet in historic literature, e.g., Captains Cook and Vancouver, Cornelius Osgood, NPS publications related to the Dena'ina.

4.5.3 Research into aspects of CIBW biology and behavior that are inadequately understood at present

- Over winter habitat – what happens to CIBW in winter and how will milder winters affect their survival?
- Potential for interaction with Bristol Bay and Yakutat populations
- Look more closely at CIBW food demand and hence competition with fisheries
- Assess impacts of new diseases – what new threats are CIBW facing? Where are they coming from?
- Explore the possibility of belugas migrating into Bristol Bay; were there population increases noted by the local fishermen/native beluga hunters?
- Are there small populations in Prince William Sound and if so are they genetically similar to CI belugas?
- What is the reason that seals are dominating former beluga habitat around Hope, in the Kenai River, and Tyonek?
- Examine orca movements in the inlet, in relation to belugas and beluga strandings
- Explore belugas relationship with eulachon. Were the whales pursuing eulachon and not herring? Because herring and eulachon share similar habitats and at similar times, are belugas feeding on eulachon, an oilier fish, and not always herring?
- Why are salmon sharks increasing in the inlet and do they prey on beluga whales?
- Research the presence, seasonality and geographic range of orcas in Cook Inlet working closely with Craig Matkin and others. What has changed in their feeding habits, their use of habitat, and so forth.
- Continue DNA studies on beluga bones from archaeological sites in Kachemak Bay. Orca bones from the same sites could also be analyzed.
- Are there methods to restore/increase king salmon runs in their historic habitats?
- Examine birth rates of beluga whales – have they changed and if so, what does that mean for the recovery of the species?

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Review of Major Findings

This project has yielded new insight into the historical change in distribution and abundance of Cook Inlet Beluga Whales over the past 80 years. Much of the information provided predates the commencement of systematic scientific surveys of CIBW in 1994 and many observations predate the commencement of even incidental scientific studies that began in the mid-1970s. Significantly, many of the 226 informants who provided observations for this study have a long historical association with CIBW. Some have been observing CIBW in Kenai Waters for more than half a century and so know innately how things are changing. Others were able to provide only a snapshot.

Not only has the project provided data about unusual sightings (e.g., the observation of CIBW in the McNeil River), but it has also provided an unparalleled perspective on CIBW habitat use and change. For example, participants noted that habitat that might otherwise be regarded as useful to CIBW such as the Anchor River, has not been historically important, while the Kenai river estuary has been a consistently important feeding ground, especially during peak summer.

The study has unequivocally confirmed a consistent and extensive decline in CIBW abundance throughout the range in which they were observed by native communities and pioneer settlers of Cook Inlet. That decline has been particularly pronounced in the lower Inlet (especially the Kachemak Bay area) and even in areas of the Central and Upper Inlet of Turnagain Arm where they were once frequently observed. Informants who have been involved in fishing and fisheries management for more than 30 years in the middle inlet described seeing hundreds to thousands of CIBW feeding on annual fish runs. They have not seen such large beluga aggregations for more than 20 years.

Informants also provided some notable observations on the seasonality of beluga habitat use and behavior. For example, pilots who regularly transit Cook Inlet were able to provide interesting insights into winter movements of CIBW – an issue that has vexed researchers for some time. Another notable observation about seasonality relates to the many observations made about CIBW movement and the timing of early fish runs, particularly eulachon and herring. There are clearly many patterns of resource use by CIBW that have no documented frame of reference for understanding what is “normal” and what is not. Observations provided by informants thus extend our ability to understand what has happened over time and so potentially to make inferences about trends.

While many of the observations provided by informants are not as detailed nor as systematic as many scientists would desire, they nonetheless provide another series of data points and

observations which may be helpful in framing a better understanding of CIBW ecology and conservation requirements. For example, observations on the impact of different kinds of power boats point to different thresholds of human impact on CIBW habitat. Such observations, and the many perceived causes of CIBW decline summarized above, provide fertile ground for more directed future research.

Together, all these informants demonstrate the value for scientists and managers to expand their ability to engage the public in conservation science. Many of the respondents expressed disappointment that their observations had not been sought before by management authorities. All expressed a desire to know more about CIBW and what we are now learning about them through the ESA species recovery process.

Going forward, this study has confirmed that there are clearly significant opportunities for all involved in the CIBW recovery process to engage the public more actively in that process.

5.2 Next Steps

5.2.1 Dissemination of Project Findings

Three mechanisms will be employed to share the results of this study and garner further feedback on public knowledge of CIBWs:

1. CIBW Exhibit at Alaska SeaLife Center Connected with Other Museums

As per the original study design, the next major step in this project following publication of this report is the development of an educational exhibit incorporating the project findings. The exhibit will be installed in a dedicated gallery at the Alaska SeaLife Center and will form a key part of a new exhibit on Cook Inlet Beluga Whale research. The exhibit will be formally opened on June 8, 2012 (World Oceans Day). Underpinning the design concept for the exhibit are two basic design objectives that are directly related to this study:

- a. Sharing the results of this oral history project – during this project we assembled a considerable body of material related to the history of CIBWs in Cook Inlet, especially interactions with humans. In addition to compiling historical media accounts, we also generated more than 50 hours of video interviews with key informants. Those will be edited and incorporated as appropriate in the exhibit.
- b. Enabling future informants to share their observations and knowledge – part of the exhibit will incorporate a mechanism for connecting with online sources of information about CIBW. Onsite at the Alaska SeaLife center, visitors will be encouraged to submit feedback cards at the exhibit. In addition, using QR codes

and by listing website resources on the exhibit panels, participants will be able to access ASLC, NOAA and KPB sources of information about belugas. Those same codes and website details will be shared with the KPB and NOAA and with local museums such as the Pratt Museum in Homer to enrich their exhibit materials.

2. Sharing Project Findings with Informants and Sponsors

A copy of this report will be sent to all informants who requested a copy. Additional copies will also be submitted to the Kenai Peninsula Borough and the National Marine Fisheries service of NOAA.

3. Dissemination of Findings via Conferences

Project findings will be shared with the broader research community via conference publications. A poster was presented at the 2012 Alaska Marine Science Symposium in Anchorage (Dutton et al. 2012).

5.2.2 Expanding the Scope of this Study

As was noted in Section 2.0, although we felt that this study provided a good representation of the knowledge of CIBW among residents of the Kenai Peninsula Borough, there is clearly a much greater body of knowledge that should be accessed in future. We were unable to incorporate knowledge about waters outside the Kenai Peninsula Borough and so largely ignored or did not follow up observations that were offered by Anchorage, Wasilla and other upper inlet communities. We hope that this gap will be filled in the coming years by replicating/expanding this study – the project team will be available to assist with that work or could guide others.

A further suggestion that arose as we processed the results of this study relates to the desirability of providing an additional mechanism for enabling potential respondents to record their stories and observations for future generations. There are many examples locally and globally of such ongoing “living oral history projects” (e.g., UAF 2010; National Parks Service 2010; New Bedford Whaling Museum 2010). By providing a vehicle online (or via a Museum exhibit) where local residents and visitors can share their stories, both the knowledge base for CIBW decision-making and the ability to engage an informed CIBW constituency would be considerably enriched. We recommend that a consortium of Cook Inlet museums pursue that proposal further with prospective funders.

A final recommendation arising from this study relates to engaging the public more effectively in CIBW recovery. As indicated in Sections 3 and 4, we found that there is a much higher level of public concern for CIBW than may be evident from media reports or records of public meetings. Paradoxically we also found that the public is largely under-informed and even confused about the status and management of CIBW. This study provides some guidance on areas where public

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information efforts could be considerably enhanced. However, it also points to the need for a more “consumer friendly” approach to education. We encourage the CIBW Recovery Team to explicitly consider how to better engage the public in recovery efforts. As this study has demonstrated, CIBW are not merely of scientific interest and value, they represent a key part of the socio-ecological fabric of the Cook Inlet region!

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APPENDIX A: List of Informant Interviews Video-Recorded

Below is a list of the 23 interviews undertaken with key informants during the course of this research that were video-recorded.


Video recordings were undertaken by ASLC Exhibit Designer, Ricky Deel and are all stored on digital files at the ASLC.

Permissions for all interviews were pre-agreed with interviewees and a copy of the signed interview authority is also held at the ASLC.

These recordings will be used where possible in the CIBW exhibit and made available (subject to release conditions) to future researchers. We hope, over time, to add to this invaluable reference series

- Douglas E. Anderson
- Dr. Alan S. Boraas
- Ken Castner
- William DeCreeft
- Clark B. Fair
- James E. Fisher
- Delora Garcia with granddaughter Lexi
- Robert J. and Marianne Haeg
- Tia M.Holley
- George Jackinsky
- Walter Jackinsky Jr.
- McKibben Jackinsky
- Nancy Lord
- Billie Meisinger
- John J. Mohorcich
- Frank Mullen
- Dean Osmar
- Joe Ray Skrha
- Donita Slawson
- Karl Stoltzfus
- Ken Tarbox
- Lisa C. Turner
- Steve Walli

APPENDIX B: Copy of Newspaper Advertisements Inviting Public Input




**Did you see any
Cook Inlet Beluga Whales
in Kenai Waters
before 1994?**

The Alaska SeaLife Center, with the support of the Kenai Peninsula Borough, is undertaking an oral history project to document the distribution, abundance and use of habitat by Cook Inlet beluga whales over the last century. We are most interested in the period before 1994 when scientific surveys of belugas began.

If you have any recollection of seeing belugas in waters of, and adjacent to, the Kenai Peninsula before 1994 we would very much appreciate the chance to talk with you.

Please contact:
Janet Klein at (907) 235-8925 (*Homer to Ninilchik Residents*)
Casey Schulke at (907) 224-7903 or by email caseys@alaskasealife.org.
(*Kenai Peninsula Residents and Beyond*)

Or online at:
<http://www.surveymonkey.com/s/BelugaSightingsinKenaiWaters>



Alaska SeaLife Center
w i n d o w s t o t h e s e a

APPENDIX C: Online Survey Questions and Summary of Overall Responses

Details of responses are incorporated in the findings reported in the Sections 3 and 4 of the report

| Cook Inlet Beluga Whales in Kenai Waters Online Survey | | |
|---|-------------------|----------------|
| Q1. Where do you currently live? | | |
| | answered question | 12 |
| Q2. Is your information about Cook Inlet Belugas obtained from (please tick one answer)? | | |
| Answer Options | Response Percent | Response Count |
| Personal observation | 91.7% | 11 |
| Information provided by friends or family (go to question 5) | 8.3% | 1 |
| | answered question | 12 |
| Q3. What information do you have about seeing Cook Inlet Belugas in lakes, rivers or marine waters on the Kenai Peninsula before 1994? (please be as complete as possible - how many did you see, where and when, what were they doing?, etc.) | | |
| answered question | 12 | |
| Q4. Do you have any recordings of Cook Inlet Beluga Whales in Kenai waters from before 1994? (please tick all that apply or leave blank if not applicable) | | |
| Answer Options | Response Percent | Response Count |
| Photos | 100.0% | 2 |
| Video or Film | 0.0% | 0 |
| Newspaper clippings | 0.0% | 0 |
| Family diaries | 0.0% | 0 |
| Comments | | 1 |
| | answered question | 2 |
| | skipped question | 10 |
| Q5. What information do you have from others about seeing Cook Inlet Belugas in lakes, rivers or marine waters on the Kenai Peninsula before 1994? (please be as complete as possible - who told you, how many did they see, where and when, what were they doing?, etc.) | | |
| Answer Options | Response Count | |
| | 4 | |

| | | |
|---|-------------------|----------------|
| answered question | 4 | |
| skipped question | 8 | |
| Q6. Do your family or friends have any recordings of Cook Inlet Beluga Whales in Kenai waters from before 1994? (please tick all that apply or leave blank if not applicable) | | |
| Answer Options | Response Percent | Response Count |
| Photos | 100.0% | 1 |
| Video or Film | 0.0% | 0 |
| Newspaper clippings | 0.0% | 0 |
| Family diaries | 0.0% | 0 |
| Comments | | 1 |
| | answered question | 1 |
| | skipped question | 11 |
| Q7. Do you have any suggestions for others sources of information about Cook Inlet Beluga Whales in Kenai waters before 1994? | | |
| Answer Options | Response Count | |
| | 5 | |
| answered question | 5 | |
| skipped question | 7 | |
| Q8. Would you be willing to talk with one of our researchers about the information you have provided in this survey? | | |
| Answer Options | Response Percent | Response Count |
| Yes | 70.0% | 7 |
| No | 20.0% | 2 |
| Maybe (to learn more in confidence, please contact Casey Schulke on 907-224-7309) | 10.0% | 1 |
| | answered question | 10 |
| | skipped question | 2 |

| Q9. Would you like to receive a copy of the report from this project? | | |
|---|-------------------|----------------|
| Answer Options | Response Percent | Response Count |
| Yes (if so, please provide your name and contact details in the box below) | 60.0% | 6 |
| No | 30.0% | 3 |
| Maybe (you can obtain further information from Casey Schulke on 907-22407309) | 10.0% | 1 |
| Comments | | 8 |
| | answered question | 10 |
| | skipped question | 2 |

APPENDIX D: Pre-1995 Cook Inlet Beluga Observations and Survey Data

* Compiled from Alaska Department of Fish and Game and NOAA sources – considerable additional data is available from that compilation, however, these data were deemed adequate to provide some level of calibration with citizen observations during this period.

| Year | Month | Day | Year | Survey Type | Locality | Group Size |
|------|-------|-----|------|--------------------------|--|------------|
| 0 | 7 | 0 | 0 | Opportunistic-no effort | Mouth of Crescent river at Tuxedni bay | |
| 1975 | 6 | 28 | 1975 | Opportunistic-no effort | Cook Inlet | 15 |
| 1975 | 9 | 11 | 1975 | Opportunistic-no effort | Cook Inlet, Homer | 6 |
| 1976 | 6 | 1 | 1976 | Opportunistic-no effort | Cook Inlet | 100 |
| 1976 | 6 | 18 | 1976 | Opportunistic-no effort | Cook Inlet | 1 |
| 1976 | 10 | 15 | 1976 | Opportunistic-no effort | Homer, Cook Inlet | 10 |
| 1977 | 4 | 26 | 1977 | Opportunistic-no effort | Cook Inlet | 4 |
| 1977 | 5 | 3 | 1977 | Opportunistic-no effort | Cook Inlet | 30 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | Near Kustatan River South of West Foreland | 1 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | Near Big River | 2 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | Off Harriet Pt. | 1 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | Near Chisik Is. | 1 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | South of Chisik Is. | 2 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | South of Kenai | 1 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | North of Kenai River | 18 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | north of Kenai River | 4 |

| | | | | | | |
|------|----|----|------|--------------------------|--|----|
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | North of Kenai | 1 |
| 1977 | 11 | 22 | 1977 | Cetacean survey w/effort | Off of East Foreland | 10 |
| 1978 | 1 | 11 | 1978 | Cetacean survey w/effort | South of Kenai | 30 |
| 1978 | 1 | 11 | 1978 | Cetacean survey w/effort | South of Kenai | 12 |
| 1978 | 1 | 11 | 1978 | Cetacean survey w/effort | South of Kenai | 50 |
| 1978 | 3 | 1 | 1978 | Cetacean survey w/effort | North of Kenai | 1 |
| 1978 | 3 | 1 | 1978 | Cetacean survey w/effort | West of Kasilof | 6 |
| 1978 | 3 | 1 | 1978 | Cetacean survey w/effort | West of Kalgin Island | 20 |
| 1978 | 3 | 1 | 1978 | Cetacean survey w/effort | Just off Chisk Is. | 7 |
| 1978 | 3 | 1 | 1978 | Cetacean survey w/effort | Southeast of Kalgin Is. | 9 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | South of Kalgin Is. | 3 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Off of Redoubt Pt. | 1 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Kenai | 3 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | West of Kalgin Is. | 2 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | West of Kalgin Is. | 2 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Southwest Kalgin Is. | 4 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Southwest Kalgin Is. | 2 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | West of Kalgin Is. | 5 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Near Chisik Is. Outside of Tuxedni Bay | 8 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Tuxedni Bay | 1 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Tuxedni Bay | 1 |

| | | | | | | |
|------|---|----|------|--------------------------|---|-----|
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Tuxedni bay | 27 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | Near Chisik Is. | 5 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Chinita Bay | 45 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | At Contact Pt., west of Augustine Is. | 3 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Kachemak Bay | 20 |
| 1978 | 3 | 2 | 1978 | Cetacean survey w/effort | In Kachemak Bay | 14 |
| 1978 | 4 | 9 | 1978 | Cetacean survey w/effort | In Chinitna Bay | 21 |
| 1978 | 4 | 9 | 1978 | Cetacean survey w/effort | In Chinitna Bay | 4 |
| 1978 | 4 | 9 | 1978 | Cetacean survey w/effort | Iniskin Bay | 27 |
| 1978 | 4 | 9 | 1978 | Cetacean survey w/effort | South Kamishak Bay | 2 |
| 1978 | 5 | 11 | 1978 | Opportunistic-no effort | Cook Inlet | 100 |
| 1978 | 5 | 22 | 1978 | Cetacean survey w/effort | North of East Foreland | 7 |
| 1978 | 5 | 22 | 1978 | Cetacean survey w/effort | Near Beluga River | 20 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | In Trading Bay | 12 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | In Trading Bay | 25 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | In Trading Bay | 5 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | South Redoubt Bay | 3 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Between Ninilchik and Clam Gulch | 25 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Just around the first turn of Kenai River | 2 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Just west of Susitna | 2 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Heading towards the mouth of the Susitna | 20 |

| | | | | | | |
|------|----|----|------|--------------------------|----------------------|-----|
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Mouth of the Susitna | 11 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | Mouth of the Susitna | 2 |
| 1978 | 6 | 18 | 1978 | Cetacean survey w/effort | In Trading Bay | 2 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Beluga River | 55 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Trading Bay | 42 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Near Big River | 6 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Near Big River | 1 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Drift River | 18 |
| 1978 | 7 | 19 | 1978 | Cetacean survey w/effort | Drift River | 1 |
| 1978 | 8 | 15 | 1978 | Cetacean survey w/effort | South of Kenai | 150 |
| 1978 | 8 | 16 | 1978 | Cetacean survey w/effort | South of Kenai | |
| 1978 | 8 | 17 | 1978 | Cetacean survey w/effort | Near Scott Island | 3 |
| 1978 | 8 | 18 | 1978 | Cetacean survey w/effort | Tuxedni Bay | 30 |
| 1978 | 8 | 18 | 1978 | Cetacean survey w/effort | South of Kenai | 130 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | Up Kenai River | 4 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | South of Kenai River | 2 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | Near Cape Starichkof | 2 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | Oil Bay | 5 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | Iliamna Bay | 12 |
| 1978 | 10 | 15 | 1978 | Cetacean survey w/effort | Tuxedni Bay | 50 |
| 1979 | 3 | 16 | 1979 | Cetacean survey w/effort | North of Anchor Pt. | 11 |

| | | | | | | |
|------|---|----|------|--------------------------|-----------------------------|----|
| 1979 | 4 | 9 | 1979 | Opportunistic-no effort | Rainbow, Cook Inlet | 5 |
| 1979 | 4 | 16 | 1979 | Opportunistic-no effort | Indian (Creek?), Cook Inlet | 30 |
| 1979 | 4 | 17 | 1979 | Opportunistic-no effort | Cook Inlet | 10 |
| 1979 | 4 | 25 | 1979 | Opportunistic-no effort | Cook Inlet | 2 |
| 1979 | 5 | 1 | 1979 | Opportunistic-no effort | Anchorage, Cook Inlet | 4 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 4 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 1 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 4 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 8 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 1 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 6 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Redoubt Bay | 2 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Trading Bay | 5 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Trading Bay | 5 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Trading Bay | 1 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Trading Bay | 1 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | McArthur Flats | 6 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Trading Bay | 3 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | North of Tyonek | 7 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Near Beluga River | 8 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Beluga River | 10 |

| | | | | | | |
|------|---|----|------|--------------------------|-------------------------|----|
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Beluga River | 8 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Near Big Su River | 12 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Big Su River | 35 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Big Su River | 38 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Big Su River | 1 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Big Su River | 4 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Big Su River | 5 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | Mid Inlet- Beluga River | 6 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | South of Big Su River | 6 |
| 1979 | 6 | 18 | 1979 | Cetacean survey w/effort | South of Big Su River | 1 |
| 1979 | 6 | 22 | 1979 | Cetacean survey w/effort | Little Su River | 10 |
| 1979 | 6 | 22 | 1979 | Cetacean survey w/effort | Ivan River | 6 |
| 1979 | 6 | 22 | 1979 | Cetacean survey w/effort | Theodore River | 12 |
| 1979 | 6 | 81 | 1979 | Cetacean survey w/effort | S of Big Su River | 5 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Little Su | 9 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Near Big Su | 7 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Big Su | 17 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Redoubt Bay | 6 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Redoubt Bay | 1 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Redoubt Bay | 3 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Redoubt Bay | 2 |

| | | | | | | |
|------|---|----|------|--------------------------|---------------------------------|------|
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | West of Kalgin Is. | 8 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | North of Kalgin Is. | 15 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | North of Kalgin Is. | 2 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | North of Kenai | 6 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | North of Kenai | 11 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Off East Foreland | 1 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | Open Water | 30 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | SW of Fire Is. | 18 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | SW of Fire Is. | 37 |
| 1979 | 7 | 17 | 1979 | Cetacean survey w/effort | S of fire Is. | 20 |
| 1979 | 8 | 7 | 1979 | Opportunistic-no effort | Anchorage, Cook Inlet | 5 |
| 1979 | 8 | 11 | 1979 | Opportunistic-no effort | Cook Inlet | 70 |
| 1979 | 8 | 17 | 1979 | Opportunistic-no effort | Iniskin Bay | 1500 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | South of Beluga River | 32 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Near McArthur River | 9 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | McArthur Flats | 15 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Off mouth of Kuskitan River | 3 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Big River | 31 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Up the Drift River | 1 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Mouth of Drift River | 6 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | 3/4 mile from Drift River mouth | 7 |

| | | | | | | |
|------|---|----|------|--------------------------|--|-----|
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Harriet Pt. | 5 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Harriet Pt. | 56 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | South of Kenai | 5 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Mid Inlet west of Kenai | 47 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | NE Kalgin Is. | 26 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 5 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 9 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 26 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 2 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 9 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 6 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of Kenai | 2 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | North of East Foreland | 10 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Central part of upper Cook Inlet | 18 |
| 1979 | 8 | 21 | 1979 | Cetacean survey w/effort | Beluga R. | 46 |
| 1979 | 8 | 22 | 1979 | Opportunistic-no effort | Bruin Bay | 97 |
| 1980 | 4 | 9 | 1980 | Opportunistic-no effort | Cook Inlet | 60 |
| 1980 | 4 | 30 | 1980 | Opportunistic-no effort | Kenai, Cook Inlet | 6 |
| 1980 | 6 | 29 | 1980 | Opportunistic-no effort | Indian (creek?), Cook Inlet | 8 |
| 1980 | 7 | 14 | 1980 | Cetacean survey w/effort | 5 Miles West of the mouth of the Kenai River | 400 |
| 1980 | 8 | 5 | 1980 | Opportunistic-no effort | Cook Inlet | 25 |

| | | | | | | |
|------|---|----|------|--------------------------|-----------------------------------|-----|
| 1981 | 1 | 12 | 1981 | Opportunistic-no effort | Homer, Cook Inlet | 100 |
| 1981 | 1 | 28 | 1981 | Opportunistic-no effort | Cook Inlet | 3 |
| 1981 | 4 | 22 | 1981 | Opportunistic-no effort | Cook Inlet | 2 |
| 1981 | 4 | 23 | 1981 | Opportunistic-no effort | Cook Inlet | 6 |
| 1982 | 4 | 30 | 1982 | Opportunistic-no effort | Anchorage, Cook Inlet | 5 |
| 1982 | 5 | 17 | 1982 | Cetacean survey w/effort | South of Little Susitna | 15 |
| 1982 | 5 | 17 | 1982 | Cetacean survey w/effort | North Side of Beluga River | 10 |
| 1982 | 5 | 17 | 1982 | Cetacean survey w/effort | West Point Fire Island | 15 |
| 1982 | 6 | 4 | 1982 | Cetacean survey w/effort | Mouth of Lewis River | 175 |
| 1982 | 6 | 4 | 1982 | Cetacean survey w/effort | Lewis River to Beluga River | 100 |
| 1982 | 6 | 4 | 1982 | Cetacean survey w/effort | Chickaloon River Mouth | 20 |
| 1982 | 6 | 11 | 1982 | Cetacean survey w/effort | Lewis River to Beluga River | 250 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Mouth of Big Su | 33 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | North Side of Susitna River | 75 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Ivan River Mouth | 5 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Mouth of the Susitna River | 6 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Mouth of the Susitna River | 62 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Mouth of Susitna River | 6 |
| 1982 | 6 | 18 | 1982 | Cetacean survey w/effort | Tyonek Village | 8 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Between Lewis and Theodore Rivers | 62 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Beluga River | 1 |

| | | | | | | |
|------|---|----|------|--------------------------------|---|------|
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | 1/4 mile off Beluga River | 17 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | In Beluga River | 12 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Near Three-mile creek | 2 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Between Shirleyville and McArthur River | 1 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | North of McArthur River mouth | 12 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | In McArthur River | 9 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Just North of Boulder Point | 15 |
| 1982 | 6 | 22 | 1982 | Cetacean survey w/effort | Turning up the Susitna River | 4 |
| 1982 | 7 | 2 | 1982 | Cetacean survey w/effort | Theodore River | 10 |
| 1982 | 7 | 2 | 1982 | Cetacean survey w/effort | Beluga River | 33 |
| 1982 | 7 | 2 | 1982 | Cetacean survey w/effort | City of Beluga. Near Pulp Dock | 3 |
| 1982 | 7 | 8 | 1982 | Cetacean survey w/effort | Beluga River | 7 |
| 1982 | 7 | 15 | 1982 | Other wildlife survey w/effort | Head of Kalgin Island | 1000 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Trading Bay east of McArthur River | 11 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Trading Bay east of McArthur River | 16 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Trading Bay offshore and east of McArthur River | 8 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | ESE of Theodore River | 6 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Off Theodore River | 8 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Mouth of Beluga River | 7 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Between Beluga River and Beluga Airstrip | 40 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Off shore of Threemile Creek | 2 |

| | | | | | | |
|------|----|----|------|--------------------------------|---|----|
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | offshore of Nikolai Creek | 8 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Trading Bay between Nikolai Cr and McArthur River | 4 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | Trading Bay northeast of McArthur River | 15 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | South of Fire Island | 11 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | South of Fire Island | 10 |
| 1982 | 8 | 5 | 1982 | Cetacean survey w/effort | West side of Chickaloon Bay | 30 |
| 1982 | 8 | 27 | 1982 | Cetacean survey w/effort | Mouth of Beluga River | 15 |
| 1982 | 9 | 6 | 1982 | Opportunistic-no effort | Cook Inlet | 15 |
| 1982 | 11 | 5 | 1982 | Opportunistic-no effort | Kenai, Cook Inlet | 3 |
| 1982 | 11 | 12 | 1982 | Opportunistic-no effort | Kenai, Cook Inlet | 2 |
| 1983 | 3 | 4 | 1983 | Opportunistic-no effort | Kenai, Cook Inlet | |
| 1983 | 4 | 6 | 1983 | Cetacean survey w/effort | Kinik Arm near Dump Site | 1 |
| 1983 | 4 | 6 | 1983 | Cetacean survey w/effort | Chickaloon Bay | 4 |
| 1983 | 4 | 6 | 1983 | Cetacean survey w/effort | Mouth of Theodore River | 1 |
| 1983 | 4 | 6 | 1983 | Cetacean survey w/effort | Between Beluga River and Beluga Airstrip | 4 |
| 1983 | 4 | 28 | 1983 | Cetacean survey w/effort | Mouth of Little Su River | 5 |
| 1983 | 4 | 28 | 1983 | Cetacean survey w/effort | West side Big Su River | 1 |
| 1983 | 4 | 28 | 1983 | Cetacean survey w/effort | Off Pt. Possession | 26 |
| 1983 | 4 | 28 | 1983 | Cetacean survey w/effort | Mouth of Beluga River | 6 |
| 1983 | 4 | 30 | 1983 | Other wildlife survey w/effort | Iniskin Bay | 23 |

| | | | | | | |
|------|---|----|------|--------------------------------|---|-----|
| 1983 | 5 | 8 | 1983 | Opportunistic-no effort | Cook Inlet | |
| 1983 | 5 | 27 | 1983 | Cetacean survey w/effort | Mouth of Theodore River | 83 |
| 1983 | 5 | 27 | 1983 | Cetacean survey w/effort | Mouth of Beluga River | 173 |
| 1983 | 5 | 27 | 1983 | Cetacean survey w/effort | Between Beluga Airstrip and Threemile Creek | 5 |
| 1983 | 5 | 27 | 1983 | Cetacean survey w/effort | Chickaloon Bay south of Pt. Possession | 6 |
| 1983 | 6 | 4 | 1983 | Cetacean survey w/effort | Southwest side of Chickaloon Bay | 15 |
| 1983 | 6 | 24 | 1983 | Cetacean survey w/effort | SW of Fire Island | 7 |
| 1983 | 6 | 24 | 1983 | Cetacean survey w/effort | Off Pt. Possession | 1 |
| 1983 | 6 | 24 | 1983 | Cetacean survey w/effort | Knik Arm N. of Anchorage | 1 |
| 1983 | 6 | 24 | 1983 | Cetacean survey w/effort | Off mouth of Theodore River | 4 |
| 1983 | 7 | 5 | 1983 | Opportunistic-no effort | Cook Inlet | |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | SE Big Su River mouth | 20 |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | Mouth of Beluga River | 10 |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | Mouth of Lewis River | 16 |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | Mouth of Theodore River | 10 |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | 3 mi. E of West Foreland | 17 |
| 1983 | 7 | 19 | 1983 | Cetacean survey w/effort | Off E. Foreland | 100 |
| 1983 | 9 | 25 | 1983 | Opportunistic-no effort | Rainbow, Cook Inlet | 6 |
| 1985 | 9 | 7 | 1985 | Opportunistic-no effort | Cook Inlet | 30 |
| 1986 | 4 | 22 | 1986 | Other wildlife survey w/effort | Iniskin Bay | 51 |
| 1986 | 4 | 28 | 1986 | Other wildlife survey w/effort | Iniskin Bay | 60 |

| | | | | | | |
|------|---|----|------|--------------------------------|---|-----|
| 1987 | 4 | 25 | 1987 | Other wildlife survey w/effort | Douglas/Akumwarvik | 2 |
| 1987 | 4 | 26 | 1987 | Other wildlife survey w/effort | Iniskin Bay | 18 |
| 1987 | 7 | 5 | 1987 | Opportunistic-no effort | Between Kalgin Island and E. Foreland vicinity | 37 |
| 1988 | 4 | 18 | 1988 | Other wildlife survey w/effort | Amakdedulia cove, Paint River | 1 |
| 1988 | 9 | 0 | 1988 | Cetacean survey w/effort | Drainage slough northeast corner of the Eagle River flats | 0 |
| 1990 | 4 | 21 | 1990 | Other wildlife survey w/effort | Paint River. South of Amakdedulia Cove. | 5 |
| 1990 | 6 | 4 | 1990 | Other wildlife survey w/effort | Ursus Cove | 1 |
| 1991 | 6 | 8 | 1991 | Cetacean survey w/effort | Between Little Su and Big Su Rivers | 45 |
| 1991 | 6 | 8 | 1991 | Cetacean survey w/effort | West side Little Su River | 190 |
| 1991 | 6 | 10 | 1991 | Cetacean survey w/effort | Offshore of mouth of Big Su | 60 |
| 1991 | 6 | 10 | 1991 | Cetacean survey w/effort | Off mouth of Big Su River | 140 |
| 1991 | 6 | 18 | 1991 | Cetacean survey w/effort | Eagle Bay | |
| 1991 | 6 | 26 | 1991 | Cetacean survey w/effort | Knik Arm near Goose Bay | 0 |
| 1991 | 7 | 13 | 1991 | Cetacean survey w/effort | Eagle Bay and mouth of Fire Creek | |
| 1991 | 8 | 5 | 1991 | Cetacean survey w/effort | Mouth of Eagle River | |
| 1991 | 8 | 9 | 1991 | Cetacean survey w/effort | 1 km up the Eagle River | |
| 1991 | 8 | 20 | 1991 | Cetacean survey w/effort | Knik Arm near Eagle Bay | |
| 1991 | 8 | 23 | 1991 | Cetacean survey w/effort | 2 km up Eagle River and in Eagle Bay | 20 |
| 1991 | 8 | 29 | 1991 | Cetacean survey w/effort | 1 km up Eagle River and in Eagle Bay | |
| 1991 | 8 | 31 | 1991 | Cetacean survey w/effort | 2 km up Eagle River | |

| | | | | | | |
|------|----|----|------|--------------------------------|---|-----|
| 1991 | 9 | 21 | 1991 | Cetacean survey w/effort | Mouth of Eagle River | |
| 1991 | 10 | 11 | 1991 | Cetacean survey w/effort | Off the mouth of Eagle River | |
| 1991 | 10 | 21 | 1991 | Cetacean survey w/effort | 0.5 km up Eagle River | |
| 1991 | 11 | 12 | 1991 | Cetacean survey w/effort | Mouth of the Eagle River | |
| 1992 | 6 | 11 | 1992 | Cetacean survey w/effort | Little Su River | 255 |
| 1992 | 8 | 15 | 1992 | Opportunistic-no effort | Eagle River | 9 |
| 1992 | 8 | 15 | 1992 | Opportunistic-no effort | Knik arm, North of Eagle Bay, probably near Windy Point | 1 |
| 1993 | 7 | 13 | 1993 | Other wildlife survey w/effort | North side mouth of Beluga River | 30 |
| 1993 | 7 | 13 | 1993 | Other wildlife survey w/effort | Lewis River | 10 |
| 1993 | 7 | 13 | 1993 | Other wildlife survey w/effort | Ivan River | 30 |
| 1993 | 7 | 13 | 1993 | Other wildlife survey w/effort | Mouth of Little Su | 6 |
| 1993 | 7 | 13 | 1993 | Other wildlife survey w/effort | Chickaloon Flats southeast of Pt. Possession | 10 |
| 1994 | 4 | 25 | 1994 | Other wildlife survey w/effort | Contact Point | 1 |
| 1994 | 4 | 29 | 1994 | Other wildlife survey w/effort | Iniskin Bay | 48 |
| 1994 | 4 | 29 | 1994 | Other wildlife survey w/effort | Contact Point | 5 |
| 1994 | 4 | 30 | 1994 | Other wildlife survey w/effort | Iniskin Bay | 40 |
| 1994 | 5 | 1 | 1994 | Opportunistic-no effort | Iniskin Bay | 50 |