

SUBSISTENCE HARVEST MANAGEMENT OF COOK INLET BELUGA WHALES

FINAL ENVIRONMENTAL IMPACT STATEMENT

July 2003

Lead Agency: National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Region
Juneau, Alaska

Responsible Official: James W. Balsiger
Regional Administrator

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Abstract: The stock of beluga whales in Cook Inlet (CI), Alaska, declined by greater than 50 percent between 1994 and 1999 resulting in a depleted determination under the Marine Mammal Protection Act (MMPA). The National Marine Fisheries Service (NMFS) believes that the subsistence harvest of these whales was the principal factor in the decline. This EIS evaluates alternates to manage the subsistence harvest of beluga whales in Cook Inlet (CI), Alaska, in order to promote recovery and still provide for a limited harvest for subsistence purposes. Annual harvest levels will be specified through regulation and implemented through a co-management agreement under section 119 of the MMPA. The effects analyses describes both the direct and indirect effects of the alternatives on the environment, and the cumulative effects of the proposed action (e.g. direct and indirect effects resulting from the harvest) and past, present, or foreseeable future actions on the environment with special emphasis on the beluga whale stock and the subsistence harvest tradition in Cook Inlet. Impacts are disclosed as required by the National Environmental Policy Act (NEPA).

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EXECUTIVE SUMMARY

Final Environmental Impact Statement for Subsistence Harvest Management of Cook Inlet Beluga Whales

Description of the Proposed Action

The National Marine Fisheries Service (NMFS) is finalizing regulations to manage the subsistence hunting of the Cook Inlet (CI), Alaska, stock of beluga whales. The abundance estimates for this stock declined nearly 50 percent between 1994 and 1998, leading to the proposal by NMFS to designate the stock as depleted under the Marine Mammal Protection Act (MMPA). NMFS promulgated final regulations designating the CI beluga as depleted under the MMPA on May 31, 2000 (65 FR 34590).

Section 101(b) and section 103(d) of the MMPA require that regulations prescribed to limit the harvest of Alaska Natives be made on depleted stocks following an Agency public hearing on the record. An Administrative Law Judge (ALJ) and the seven parties reviewed the information and public testimony to determine the best possible harvest levels to allow for the recovery of CI beluga whales and for the Alaska Natives. A recommendation by the Court was provided to NMFS on March 29, 2002.

NMFS will manage and conserve this depleted stock in part by regulating the harvest. Federal authority to regulate the harvest derives from (1) Public Law 106-553, which prohibits the hunting of CI beluga whales except pursuant to a cooperative agreement between NMFS and affected Alaska Native organizations, and (2) section 101 (b) of the MMPA, which provides for the regulation of harvests of depleted species. Annual harvest levels were specified for 2001-2002 through co-management agreements between the Cook Inlet Marine Mammal Council (CIMMC) and NMFS under section 119 of the MMPA.

Any Federally-approved harvest plan is subject to the requirements of the National Environmental Policy Act (NEPA). A draft EIS was released with the proposed harvest regulations (65 FR 59164) and NMFS provided for a comment period. This Final EIS (FEIS) addresses the effects of harvest management alternatives on the environment with special emphasis on the CI beluga whale stock.

Alternatives Considered

The direct and indirect impact of differing harvest level alternatives has been evaluated through a model which examines the length of time it would take for the stock to recover under different harvest strategies. The harvest levels range from no strikes; an annual harvest level of one (1) strike per year; an annual harvest level of one (1) strike per year during 2000-2007, increasing to two (2) strikes per year from 2008 to recovery; two (2) strikes per year; a harvest level that would allow 2 percent of annual recruitment to be taken annually which provides for variable levels of harvest dependent upon the estimated population size; and the decision of the ALJ of six (6) strikes in four years between 2001-2004. A harvest plan would provide for the cultural and subsistence needs of Alaskan Natives while not significantly extending the time required for this stock to recover.

This FEIS also assesses the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions that may occur in Cook Inlet regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Summary of Environmental Impacts

Direct and Indirect Impacts of Alternatives: Alternative 1 (zero harvest) would result in the diminishment of cultural values, traditions, and nutritional needs within the local CI Native community and the Native Village of Tyonek. Alternatives 2-4 and 7, would result in the annual strikes of one to two adult beluga whales from a stock which has been significantly exploited in recent history, and which is now depleted. The level of removal under these alternatives would meet NMFS' intent to provide opportunity for continued Native participation in the subsistence hunt, while not significantly extending the time to recovery of this depleted stock of beluga whales. Allowable harvest levels under Alternative 5 are based on a percent of recruitment and, therefore, the number harvested each year would vary with the population. Alternative 5 results in a significant delay of recovery, greater than 50 years. Alternative 6 (the no-action alternative) would result in no co-management agreements and therefore no harvest of beluga whales (Public Law 106-553).

Summary of Direct Cumulative Impacts

The direct cumulative effect of activities in the inlet generally impact all of the alternatives in a similar manner whether it be under alternative 1 or alternative 7. A summary of these effects are found in Table 4.9.2.9.1.

Commercial Harvest of Beluga Whales: The level of the historic commercial harvest of beluga whales in Cook Inlet is not known. As a result the cumulative effects of this activity are difficult to quantify. Generally they are considered insignificant. However, given that the actual number of animals killed in this activity is unknown, the effect of the commercial harvests, when considered with the cumulative effects of other ongoing activities, must be considered unknown.

Subsistence Harvest of Beluga Whales: The effect of the subsistence harvest between 1994

and 1998 can account for the estimated decline of the stock during that interval. Therefore, the annual harvest estimates and rate of decline from 1994 through 1998 (15 percent per year) clearly indicate that the harvest was unsustainable, prior to the restriction in 1999. Therefore, the historical effects of this action are considered significant negative.

The effects of the subsistence harvest since protective legislation was put in place and NMFS has entered into several co-management agreements with CIMMC are considered insignificant.

Commercial Fisheries: The direct effects of state-managed fisheries on CI beluga whale incidental mortality are considered insignificant at this time. There have been no recent and verified reports of incidentally caught beluga whales in Cook Inlet. No reports of injuries or mortalities incidental to salmon drift or set gill net fishing were made during the 1990-91 logbook reporting program. There were no reports of entanglement in the observer program. Some mortalities might be expected as the population increases. The effect of the current rate of direct mortality in commercial fisheries in Cook Inlet is insignificant in that it would not result in a significant delay in recovery time to OSP.

Stranding Events, Parasites and Disease: The potential cumulative effects of stranding events on CI beluga whales, when considered with the alternatives proposed by this action, neither increase the likelihood of mortality nor increase the amount of time it would take to recover the stock of beluga whales to OSP. Therefore, the cumulative effects of this natural activity are considered insignificant.

There is no indication that the occurrence of parasites or disease has had any measurable (detrimental or adverse) impact on the survival and health of beluga whale stock despite the considerable pathology that has been done on this species. Therefore the cumulative effects of disease are considered insignificant.

Predation: Predation by killer whales on beluga whales in Cook Inlet are not thought to be a factor that would delay recovery of the stock in a significant manner. In order for killer whale predation to have an impact significant enough to result in a decline in the population trajectory, a level of predation mortality that approximates the level of recruitment in the population, would be required. No indication exists that natural mortality in the CI beluga whale population exceeds levels considered normal for other small cetacean populations. However, because of the changing prey densities available to transient killer whales in the northern Gulf of Alaska, and the potential for increased reliance by transient killer whales upon beluga whales in Cook Inlet, the effect of predation on CI beluga whales is largely unknown. Therefore, rather than state that the effects are insignificant, it is more accurate to indicate that they are unknown at this time.

Summary of Indirect Cumulative Impacts:

Commercial Fishing: Commercial salmon fishing in Cook Inlet overlaps with the occurrence of beluga whales in the Inlet. This overlap suggests that these two consumers have the potential

to demand a common resource and may, as a result, be competitors for that resource, even if there is little spacial overlap. The timing of fisheries, relative to foraging patterns of beluga whales in the Inlet represents a potential, significant and relevant management concern. The extent of this potential competition is not known and at this time it is not known whether overlap of foraging and resources demonstrates a significant interaction for this stock of marine mammal. However, the high degree of temporal overlap between these fisheries and the foraging needs of beluga whales points to the potential for competitive interactions on a number of scales or axes. Therefore, it must be assumed at this time, that future fishing for salmon, or affects to salmon spawning habitat, might result in conditionally significant adverse effects.

Vessel Traffic and Tourism: The effects of tourism or vessel traffic would potentially be mitigated by consultation with tour operators or marine boat operators, development of guidelines to avoid harassment, or development of regulations to avoid takings. The potential for impact to beluga whales as the result of increased vessel traffic, either commercially or part of the tourism trade, is generally considered to be insignificant.

Pollution and Contaminants: Pollution in the environment has the potential to be a conditionally adverse concern for this population of beluga whales. The principal sources of pollution in Cook Inlet are 1) discharges from municipal wastewater treatment systems; 2) discharges from industrial activities that do not enter municipal treatment systems (petroleum and seafood processing); 3) runoff from urban and agricultural areas; and 4) accidental spills or discharges of petroleum and other products.

Contaminated food sources and displacement from feeding areas also may occur as a result of an oil spill. Concentrations of beluga whales near the mouths of several major river systems entering Cook Inlet may represent a feeding strategy to utilize areas with the highest availability of prey. Such areas may be critical to the energetics of this stock, and spills (and response activities) which would displace whales from these areas could adversely affect their well-being. The potential effect from such a spill in the inlet could have significant adverse effects. Furthermore, given that the beluga whales forage to a great extent in the upper Inlet, the continued health of fish runs and spawning habitat in salmon natal rivers are important to beluga whales. Maintaining the health of the spawning rivers may be as significant to the beluga whale as is maintaining the health of the Inlet. Therefore, activities that occur in the upland drainage areas of the major spawning rivers, such as the Kenai and Susitna River basin, are likely as significant to beluga whales as are activities in the estuarine and saltwater portions of Inlet. These activities have, and will continue to be, monitored by NMFS, with focus being on the impact of these activities on their spawning habitat.

Generally, oil and petroleum product production, refining, and shipping in Cook Inlet present a possibility for oil and other hazardous substances to be spilled, and to impact the CI beluga whale stock. Data do not exist which describe any behavioral observations or deleterious effect of these spills to individual beluga whales. Therefore, it is difficult to accurately predict the effects of an oil spill of CI beluga whales. However, it is likely that the indirect effects of a spill on the availability of prey, or prey habitats, could have a greater impact on beluga whales than

any direct impact. However, while much of our understanding of how an oil spill affects a marine mammal is in development, it is known that CI beluga whales, their prey and habitat or both, might be affected by such an event. Therefore the potential cumulative effects of such an event are considered conditionally adverse.

Municipal Discharges: Ten communities currently discharge treated municipal wastes into Cook Inlet. Wastewater entering these plants may contain a variety of organic and inorganic pollutants, metals, nutrients, sediments, and bacteria and viruses. Of these, the Municipality of Anchorage's John M. Asplund treatment center, English Bay, Port Graham, Seldovia, and Tyonek receive only primary treatment, while Eagle River, Girdwood, Homer, Kenai, and Palmer receive secondary treatment. Determining the impact of municipal discharges on the beluga whale stock is not possible. The rivers entering Knik Arm alone carry an estimated 20 million tons of sediment annually (Gatto, 1976). Therefore, the suspended loading that naturally occurs in the extreme upper Inlet parallels that which is discharged by the Municipality of Anchorage. Therefore the additional suspended load from wastewater and the impacts of minimally treated wastewater on the beluga whales is unknown.

Noise: Upper Cook Inlet is one of the most industrialized and urbanized regions of Alaska. As such, noise levels may be high. To what extent, if any, noise production in the CI area has had an effect on the current distribution or trends of these animals is not clear. The effects of the municipal, industrial and recreational activities in Upper Cook Inlet are of concern to the management of this stock of whales.

Effects on Habitat: NEPA requires that we look at the cumulative effects of the incremental effects of the proposed action when added to the effects of past, other present, or reasonably foreseeable future actions, at levels less than the threat of extinction. Cumulative effects can result from individually minor, but collectively significant, actions taking place over time. Several activities in the inlet have the potentially to cumulative effect CI beluga whales when considered in aggregate. These activities are evaluated in different sections of this EIS and include the cumulative effects of fishing on availability of prey to beluga whales, the potential indirect effects pollutants as a result of increased municipal loading in Cook Inlet as Anchorage continues to grow, and the potential of significant effects on the physical characteristics of the inlet (water quality, noise levels, prey suitability). Therefore, while the effects of these actions might not lead to the extinction of CI beluga whales in the foreseeable future, they certainly have the capability to have an adverse cumulative effect on the habitat necessary for beluga whales and their prey.

Section 112(e) of the MMPA requires NMFS to review impacts on rookeries, mating grounds, or other areas of similar ecological significance to marine mammals that may be impeding the recovery of a strategic stocks of marine mammal. CI beluga whales are a strategic stock of marine mammal given their depleted status. If an activity affects a strategic stock in such a manner, measures can be developed and implemented after consultation with the Marine Mammal Commission and after opportunity for public comment. NMFS is in the process of developing a conservation plan that will focus, in part, on the monitoring of such activities that

could have such an effect on CI beluga whales. Until such time that the monitoring is in effect, all activities that have the capability to alter beluga whale habitat, given their seriously depleted status, are considered conditionally significant adverse.

Areas of Controversy

NMFS received several petitions to list the CI stock of beluga whales as an endangered species under the Endangered Species Act (ESA) on March 3, 1999. However, NMFS determined listing this stock under the ESA was not warranted at that time citing an unregulated harvest prior to the 1999 legislative requirement that all hunting of CI beluga whales shall occur pursuant to a co-management agreement between NMFS and an Alaska Native Organization as the principal factor in the decline of CI beluga whales (64 FR 38778). This decision has been upheld in court.

During the public comment period on the draft EIS, NMFS also received some comment letters objecting to any Federal action to authorize a continued harvest within this stock. These concerns were addressed at the ALJ hearing, and the Parties negotiated an understanding to conserve this beluga whale stock while recognizing the importance of a continued harvest. A few other Parties identified a need to examine other information on other anthropogenic factors, in addition to subsistence hunting. Many of these comments were directed at the loss of, or degradation of, habitat as a significant concern to the recovery of beluga whales. It was suggested that such factors as oil and gas development, urbanization, vessel traffic, and noise may impact this stock. While these issues had little bearing on the determination not to list beluga whales at that time, it is within the scope of this EIS to evaluate the effects of the alternatives, in combination with other, cumulative factors, that may affect the beluga whale stock in the future. Therefore, the cumulative effects of human-related activities on the habitat, and consequences, are evaluated in Chapter 4 of this EIS.

One final area of controversy was the level of certainty placed on the parameters used in modeling the potential recovery times for CI beluga whales. This was a significant issue raised during the ALJ proceedings in December 2000 and again during litigation on whether or not to list CI beluga whales under the ESA. While the Court ruled that NMFS was precautionary in its analysis and an ESA listing was not required to recover the stock, the issue still needs to be addressed in the development of the long term harvest strategy for 2005 and beyond (See Required Actions or Approvals)..

Required Actions or Approvals

Harvests since 2000 have been authorized under the provisions of Public Law 106-553 through annual agreements between NMFS and CIMMC (Appendix A and B). The harvest in 2004 will also occur through an agreement, but pursuant to these published final regulations under section 101(b) of the MMPA.

Harvests for 2005 and beyond will also be implemented through regulations or through co-

management pursuant to section 119 of the MMPA following a review of the 2001-2004 harvest results by an Administrative Law Judge (ALJ) in 2005. As part of the ALJ review, the Parties to the process agreed to defer the adoption of a long-term subsistence harvest regime pending further analyses. The analyses need provide, at a minimum, reasonable certainty that the stock will recover, within an acceptable period of time, to where the stock is no longer depleted; and need take into account the uncertainty concerning stock dynamics and vital rates of CI beluga whales in modeling the recovery trajectory. During 2003-2004, NMFS is required to convene a working group to address this issue and to provide to ALJ Judge Parlen McKenna a final recommendation for the long-term management of CI beluga whales by March 15, 2004. Prior to that date NMFS needs to develop a meeting schedule for the working group which is to include those who were Party to the hearing, and convene said group so they can move forward to resolve this issue prior to the 2004 deadline.

ABBREVIATIONS AND ACRONYMS

ABWC	Alaska Beluga Whale Committee
AEWC	Alaska Eskimo Whaling Commission
ALJ	Administrative Law Judge
ANO	Alaskan Native organization
BOD	Biochemical Oxygen Demand
CEQ	Council on Environmental Quality
CI	Cook Inlet
CIMMC	Cook Inlet Marine Mammal Council
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act, as amended
<i>K</i>	Carrying Capacity
MMPA	Marine Mammal Protection Act
MNPL	Maximum Net Productivity Level
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NOAA	National Oceanic and Atmospheric Administration
OCSEAP	Outer Continental Shelf Environmental Assessment Program
OSP	Optimum Sustainable Population
RIR	Regulatory Impact Review
RFA	Regulatory Flexibility Act
<i>R_{max}</i>	Maximum theoretical net productivity rate

Chapter 1 Purpose of and Need for Action

1.1 Introduction

The Cook Inlet (CI) beluga whale stock declined dramatically between 1994 and 1998. Results of aerial surveys conducted by the National Marine Mammal Laboratory, National Marine Fisheries Service (NMFS) indicated that the 1998 estimate of CI beluga whales (n = 347 whales) represented a decline of 47 percent from the 1994 estimate (n = 653). In response to this significant decline, NMFS initiated a status review of the CI beluga whale stock pursuant to the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) on November 11, 1998, and solicited comments on the status of these whales (63 FR 64228). The comment period lasted from November 19, 1998, through January 19, 1999. The status of CI beluga whales were reviewed, and recommendations made regarding a possible designation of the stock as depleted under the MMPA and/or endangered or threatened under the ESA.

Several workshops were convened concurrent with the comment period on the status review. The workshops were held by the Alaska Beluga Whale Committee (November 16-17, 1998) and the Alaska Scientific Review Group (November 18-20, 1998), a body established under the MMPA to provide scientific advice on NMFS marine mammal stock assessments and management. To further ensure that the status review was comprehensive and based on the best available scientific data, the public comment period on the status review was followed by a NMFS-sponsored workshop on March 8-9, 1999, in Anchorage, Alaska. Participants at this workshop reviewed relevant scientific information on this stock and NMFS received additional public comments and recommendations. The reports of the presentations from this workshop are in a special issue of the Marine Fisheries Review 2000: 62, volume 3.

The CI stock of beluga whales is genetically and geographically isolated from other Alaska populations of beluga whales (O’Corry-Crowe *et al.*, 1997). They range in upper Cook Inlet during much of the year, making them susceptible to potential effects from human interactions. The harvest of beluga whales in Cook Inlet by Alaska Natives residing in, or near, Anchorage, for subsistence purposes is believed to be the primary factor responsible for the decline. The CI beluga whale stock has traditionally been hunted by Alaska Natives who reside in communities on, or near, Cook Inlet, and some of whom are from other Alaska towns and villages. The whales concentrate off the mouths of several rivers in upper Cook Inlet, making them especially vulnerable to hunting. There are no reliable mortality estimates prior to 1995. However, during a study conducted by Alaska Native hunters between 1995 and 1996, the estimated annual harvest of CI beluga whales averaged 97 whales per year, including struck and lost whales. Applying a struck but lost rate to known harvest in 1997 and 1998 resulted in an average annual harvest from 1994 (Angliss *et al.*, 2001) through 1998 of 67 whales. Harvest at these rates could account for the 15 percent per year decline observed between 1994 and 1998.

On March 3, 1999, NMFS received two petitions to list the CI stock of beluga whales as endangered under section 4 of the ESA. This petition requested that NMFS promulgate an emergency listing under section 4 (b)(7) of the ESA, designate critical habitat for CI beluga

whales, and take immediate action to implement rulemaking to regulate the harvest of these whales. NMFS determined these petitions presented substantial information which indicated the petitioned action(s) may be warranted (64 FR 17347, April 9, 1999). At the time of the petitions, no Federal regulation existed, nor was there a co-management agreement in place under section 119 of the MMPA, to control the harvest. To address this critical issue, the following temporary moratorium was enacted (Pub. L. No. 106-31, [section] 3022, 113 Stat. 57, 100 (May 21, 1999)):

Notwithstanding any other provision of law, the taking of a Cook Inlet beluga whale under the exemption provided in Section 101(b) of the Marine Mammal Protection Act [16 U.S.C. 1371 (a)] between the date of the enactment of this Act and October 1, 2000, shall be considered a violation of such Act unless such taking occurs pursuant to a cooperative agreement between the National Marine Fisheries Service and affected Alaska Native organizations.

This moratorium was made permanent when signed by President Clinton on December 21, 2000 (Pub. L. No. 106-553, [section] 1(a)(2), 114 Stat. 2762 (December 21, 2000)). As a result, in order for a harvest to occur in Cook Inlet, NMFS and an Alaska Native organization (ANO) need to enter into a cooperative agreement which provides for the management of the beluga whale harvest.

Since the protective legislation was put in place, NMFS has entered into several co-management agreements with CIMMC (Appendices A and B) and has conducted several abundance surveys, in June 1999, June 2000, June 2001, and June 2002. The abundance estimates from these surveys were 357, 435, 386, and 313 respectively. Although not conclusive or statistically significant, these estimates suggest the significant decline from 1994-1998 has ceased as a direct result of the reduced harvests through agreements between NMFS and CIMMC. It will require approximately six years of abundance information before a statistically valid conclusion can be reached. It is certain that it will take a greater number of years to recover the CI beluga whale stock to the pre-1994 population than the five years it took to reduce the population to 50 percent of the 1994 abundance estimate.

1.1.1 Proposed Regulations and the Administrative Law Judge Hearing

The MMPA was enacted for the purpose of ensuring the long-term survival of marine mammals by establishing Federal responsibility for their conservation and management. The MMPA imposed a general moratorium, with exceptions, on the taking of marine mammals. Section 101(b) of the MMPA contains an exemption from the MMPA's take prohibition which allows Alaska Natives to harvest marine mammals for subsistence use and for purposes of traditional Native handicrafts. Section 101(b) and section 103(d) of the MMPA require that regulations prescribed to limit the harvest of Alaska Natives be made only when the stock in question is designated as depleted pursuant to the MMPA, and following an Agency administrative hearing on the record.

NMFS published a proposed rule to designate the CI stock of beluga whales as depleted under the MMPA on October 19, 1999 (64 FR 56298). The final depleted designation was published on May 31, 2000 (65 FR 34590).

Following the depleted determination, NMFS proposed regulations limiting the harvest of beluga whales in Cook Inlet, Alaska, on October 4, 2000 (65 FR 59164) (Appendix C). The objective of the proposed rule is to recover the depleted stock of CI beluga whales to its optimum sustainable population (OSP) level while allowing the traditional use of CI beluga whales by Alaska Natives to support their cultural, spiritual, social, economic, and nutritional needs. The proposed rule required that: (1) the harvest can only occur under an agreement between NMFS and an ANO pursuant to section 119 of the MMPA; (2) the harvest shall be limited to no more than two strikes annually until the stock is no longer depleted under the MMPA; (3) the sale of CI beluga whale products shall be prohibited; (4) all hunting for subsistence purposes shall occur after July 15 of each year; and (5) the harvest of newborn calves, or adult whales with maternally dependent calves, shall be prohibited. A draft Environmental Impact Statement (EIS) was released with the proposed regulations and NMFS provided for a comment period. NMFS received 15 comments on the draft EIS and the proposed rule. These are provided as Appendix E to this document.

NMFS initiated a formal administrative hearing, on-the-record, regarding the proposed regulations on May 31, 2000 (65 FR 34590). NMFS, Alaska Region, convened the hearing regarding the proposed regulations before Administrative Law Judge (ALJ), Parlen L. McKenna, on December 5-8, 2000, in Anchorage, Alaska, at the Federal Building. Seven persons or parties participated in the ALJ hearing.

On March 29, 2002, ALJ Parlen L. McKenna forwarded to NMFS, Alaska Region, a recommended decision (Docket Number 000922272-0272-01) based on the discussions at the formal hearing, the administrative record, and written records forwarded to the ALJ. The recommended decision by the ALJ (based on the hearing) is provided as Appendix D.

The Assistant Administrator for Fisheries (AA) is required (50 CFR Part 228.20(c)), immediately after receipt of the recommended decision, to give notice thereof in the FEDERAL REGISTER, send copies to all parties, and provide opportunity for submission of comments. NMFS published a FEDERAL REGISTER notice announcing the availability of the decision on May 7, 2002 (67 FR 30646) and NMFS provided for a comment period on the decision until May 27, 2002. No comments were received on the recommended decision by the Court.

Following the comment period on the receipt of the recommended decision, the AA is required to make a final decision on the proposed regulations. The AA's decision shall include 1) a statement containing a description of the history of the proceeding; 2) findings on the issues of fact with the reasons therefore; 3) rulings on the issue of law; and 4) the AA's decision shall be published in the FEDERAL REGISTER and final regulations shall be promulgated with the decision.

Based on the recommended decision of the ALJ proceedings and information received during the public comment period on the decision, NMFS is publishing final regulations to limit the harvest of CI beluga whales. These regulations will be in effect until better scientific information supports new harvest regulations, or until the presiding ALJ, in consultation with the other parties to this proceeding, changes appropriate harvest levels for 2005 and subsequent years. The parties at the ALJ hearing agreed that NMFS would submit a final recommendation on the long-term harvest regime for 2005 and subsequent years to the judge and all parties no later than March 15, 2004. See (*Joint Stipulations I*, Appendix C).

1.2 Purpose of the Action

Regulations implementing the harvest plan cannot be finalized until an assessment subject to the requirements of NEPA has been prepared and finalized. This Final EIS (FEIS) addresses management alternatives to manage the subsistence harvest through regulations and the effects of these alternatives on the affected environment and, therefore, addresses this requirement.

The primary management action proposed to recover this stock was to limit Native harvest of CI beluga whales through Federal regulation. Major issues associated with this action include the level of annual harvest, the effect of a harvest on the recovery of this stock and on those Native Alaskans who harvest the whales, and the manner in which the Native harvest may be managed. This FEIS also reviews the potential cumulative impacts of this action, in combination with other anthropogenic activities in Cook Inlet, may affect the beluga whale stock or other components of the Cook Inlet environment. It is anticipated that NEPA compliance on subsequent (annual) Federal actions taken regarding the harvest of CI beluga whales may proceed by tiering those actions, where appropriate, to this document. This final action, therefore, formulates and enacts a framework for the Federal management and recovery of the depleted CI beluga whale stock.

1.3 Need for the Action

The management objectives are twofold: to recover this depleted stock to its OSP, and to provide for a continued traditional use by Alaska Natives in the CI region in support of cultural and nutritional needs. The first objective is to recover this stock to a level where it is no longer considered depleted under the MMPA by preventing an over-harvest of this stock. Section 627 of Pub. L. 106-553 limits all harvest to that occurring under a cooperative agreement between an affected ANO and NMFS. These regulations parallel that statute, thereby providing another mechanism to both reduce the possibility of excessive harvest and to conserve the CI beluga whale stock. The Federal government, through NMFS, has a trust responsibility for CI beluga whales. While Alaska Native co-management of Alaska's marine mammals has generally proven to be very successful, reliance on strictly voluntary measures would not satisfy the Federal Government's trust responsibility for CI beluga whales. As a result, NMFS believes that the recovery of this stock requires Federal action. Therefore, NMFS will manage this depleted stock in part, by regulating the harvest of CI beluga whales by Alaska Natives. Authorities

which allow NMFS to take this action are found in section 101(b) and section 103(d) of the MMPA. Annual harvest levels are specified through regulation and implemented through a co-management agreement under section 119 of the MMPA and the “Memorandum of Agreement for Negotiation of the Marine Mammal Protection Act, section 119 Agreements” of August 1997. Section 627 of Pub. L. 106-553 requires that the taking of a CI beluga whale under the exemption provided in section 101(b) of the MMPA only occur pursuant to a cooperative agreement between NMFS and any affected ANO. Additional guidance is provided by Presidential Memorandum of April 29, 1994 “Government-to-Government Relations with Native American Tribal Governments” .

There is a need to recognize the importance of CI beluga whales to Native cultures and nutrition, and to provide for the continued opportunity to harvest these whales within the recovery phase. The harvests, and the subsistence use of beluga whales, are an important component of Alaska Native culture in the Inlet. The importance of the harvest transcends the nutritional or economic value of the whale, and provides identity to the cultures which now harvest the whales. Native hunters have stated their willingness to reduce harvest levels during the recovery period, but also express their belief that the skills, knowledge, and traditions associated with the hunting of these whales need to continue and be passed on to younger generations.

1.4 Required Actions or Approvals

The subsistence harvests since 2000 have been authorized under the provisions of Public Law 106-553 through annual agreements between NMFS and CIMMC (Appendix A and B). Harvests in 2004 will occur pursuant to published final regulations under section 101(b) of the MMPA and implemented through subsequent agreements as required under (Pub. L. No. 106-553, [section] 1(a)(2), 114 Stat. 2762 (December 21, 2000)) . Harvests for 2005 and beyond have yet to be discussed but will be implemented through regulations or through a co-management agreement pursuant to section 119 of the MMPA.

Chapter 2. Alternatives Including the Proposed Action

2.1 NEPA Guidance for Alternatives

The Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA require alternatives, or a range of alternatives, to be evaluated in addition to the proposed action (in this instance, the harvest of CI beluga whales). Seven alternatives are presented. The impacts of these alternatives are evaluated from information and analyses presented in Chapter 3 -Affected Environment, and Chapter 4 - Environmental and Socio-cultural Consequences.

2.1.1 General Considerations

The principal objectives of this FEIS is to assess the direct and indirect effects of different harvest alternatives on the recovery of this depleted stock to its OSP while providing for a continued traditional use [through subsistence] by Alaska Natives; and to analyze the incremental effects of the beluga whale management alternatives with other factors that may affect physical, biological, and socioeconomic resource components of the CI region, including beluga whales and their habitat. A cumulative effects analysis takes into account the incremental impact of the proposed action when added to other past, present, and foreseeable future actions.

The alternatives are presented in Chapter 2.2. These alternatives were developed through an iterative process which considered the known factors presently, or potentially, impacting the CI beluga whale stock and its recovery. These factors were identified in 1) the scoping process on the draft EIS released in October 2000 (NMFS, 2000), 2) through comments received during the comment period on the draft EIS, 3) through comments received during the ALJ hearing process, 4) the recommended decision received by the ALJ, and 5) from comments received during the 2002 comment period on the ALJ decision. Much of the information on the direct and indirect effects of these alternatives on the environment appeared in the draft EIS. This information has been augmented in this FEIS, with special emphasis on a more comprehensive cumulative effects analysis. Information and analyses on the effects of the alternatives also now include the recommended decision of the ALJ.

The primary factor identified in the draft EIS that would affect the recovery of the beluga whale stock was the harvest of beluga whales by Alaska Natives. This was proposed to occur through Federal regulation (NMFS, 2000). However, since completing the draft EIS, a change in legislation occurred in December 2000 which now prohibits the harvesting of CI beluga whales except through an agreement between NMFS and an affected ANO. As a result the harvest in 2001 and 2002 was managed through a series of co-management agreements with CIMMC. The harvests in 2003 and 2004 will be managed through comanagement as well as through Federal regulations as stipulated in the ALJ Recommended Decision.

2.1.2 Co-management Agreements

NMFS entered into co-management agreements with the Cook Inlet Marine Mammal Council (CIMMC) on May 23, 2000, June 25, 2001, and June 21, 2002 (see Appendix A, B and C). CIMMC is an organization consisting of Alaska Natives from the CI treaty tribes, local Native hunters, and concerned Alaska Natives who reside in the CI region. CIMMC was incorporated in 1994 and organized to protect cultural traditions and promote conservation, management, and utilization of CI marine mammals by Alaska Natives. There were no beluga whales harvested under the 2000 agreement. However, one whale was successfully taken under the 2001 and 2002 agreements. Any of the following alternatives which provide for a harvest require that a co-management agreement be signed between NMFS and an ANO.

The NMFS/CIMMC agreements represent a sharing of responsibilities and provide the necessary authorities to oversee this harvest while allowing Alaska Natives to manage many aspects of the hunt. The agreements have been signed between NMFS and CIMMC. These agreements minimize wasteful practices and improve the efficiency of the harvest. They also highlight agreed-upon stipulations considered necessary to conduct the harvest. For example, hunting is confined to certain periods, to reduce the possibility of harvesting pregnant females. The taking of calves, or females with calves, is prohibited to improve population recovery by trying not to remove reproductively active females. Other hunting conditions are required to reduce the striking of a whale in an area or manner which may result in the loss of that whale. The sale of edible portions is prohibited. These, and several other conditions to the hunt that have been agreed upon and specified in each agreement, greatly improve harvest efficiency and are contained in Federal regulations under the MMPA, while others will remain the responsibility of CIMMC.

Another important provision of the agreements is the requirement for the parties to consult whenever any unusual mortality event has occurred such as a mass stranding or oil spill, which might affect the impact of each year's harvest on recovery of this stock. The harvest would not proceed after such an event until NMFS and CIMMC had both given their approval.

In the process of negotiating these agreements, beneficial results may also be achieved through the development and adoption of guidelines or requirements intended to reduce struck and loss rates in the harvest and avoid wasteful practices. Some examples of these measures would include requiring elders or experienced whaling captains to be part of each whaling crew, timing the harvest to reduce the likelihood of pregnant females being taken, requiring whales to be first harpooned with attached floats, and requiring equipment to retrieve struck whales (e.g., come-alongs, block and tackle, rope, deadmen). The presence of an experienced hunter would increase the likelihood that a whale would be successfully taken.

2.2 Alternatives

Alternatives 1-6 were addressed in the October 2000 draft EIS. These alternatives have not changed from the draft EIS. Alternative 7 has been added since the draft EIS and is the recommended decision on harvest levels and allocation of takes that resulted from agreed upon stipulations in the ALJ Court proceedings. This alternative was not addressed in the draft EIS, but on May 7, 2002, NMFS published a FEDERAL REGISTER notice (67 FR 30646) announcing the receipt of that recommended decision and soliciting comments on the decision so that it could be incorporated in the FEIS as an alternative. The effects of this alternative on the environment are presented in Chapter 2.2.7.

2.2.1 Alternative 1 - Zero Harvest until the Stock Recovers to OSP

NMFS would issue regulations prohibiting a harvest under this alternative. NMFS would not enter into any cooperative agreements with an ANO that included provisions for the harvest of CI beluga whales under this alternative. Alternative 1 would result in no whales being harvested until such time as the stock recovers to the Maximum Net Productivity level (MNPL) which corresponds to the lower limit of OSP. This alternative maximizes the recovery potential of the CI beluga whale stock.

NMFS could establish Federal regulations controlling Native harvest under this alternative such that no whales would be harvested until the CI beluga whale stock had recovered to no less than 780 animals (OSP), or MNPL, for a stock whose carrying capacity (K) is 1,300 individuals (See Chapter 4.1 for the Biological Model).

Although NMFS would not enter into a cooperative agreement with an ANO under this alternative that allows for a harvest of CI beluga whales, NMFS could enter into an agreement under Section 119 of the MMPA that would specify the level of harvest as zero strikes annually, but would address other aspects of co-management such as education and research.

2.2.2 Alternative 2 - One strike Annually until the Stock Recovers to OSP

Alternative 2 establishes a harvest at one (1) strike annually, until the stock had recovered to a population of no less than 780 animals (MNPL for a stock with $K = 1,300$). The goal of Alternative 2 is to allow a traditional harvest of CI beluga whales by Alaska Natives to continue while recovering of this stock.

NMFS would promulgate regulations that would limit the taking of CI beluga whales by Alaska Natives under this alternative. These regulations would (1) specify the level of allowable takes as described by this alternative; (2) require all hunting to occur on or after July 15 to minimize the harvest of pregnant females; (3) prohibit the taking of calves or beluga accompanied by a dependent calf; and (4) prohibit the sale of edible portions of CI beluga whales.

This harvest would be administered jointly between NMFS and Alaska Natives through a cooperative agreement under section 119 of the MMPA. The cooperative agreement would specify the level of harvest as not to exceed one (1) strike annually per calendar year. A strike

would be considered any event in which a bullet, harpoon, spear, or other device intended to take a whale comes in contact with a beluga whale. Multiple strikes on a single whale would be considered one strike.

Any harvest under this alternative would occur only after a cooperative agreement under section 119 of the MMPA had been signed.

2.2.3 Alternative 3 - One Strike Annually for Eight Consecutive Years, after which Time the Harvest would be Increased up to Two Strikes Annually until the Stock Recovers to OSP

Alternative 3 is the same as Alternative 2 except that regulations would provide for up to one (1) strike annually for eight consecutive years, after which time the harvest would be increased up to two (2) strikes annually, until the stock had recovered to a population of no less than 780 animals (MNPL for a stock with $K = 1,300$). This alternative would also allow the traditional harvest of CI beluga whales by Alaska Natives to continue while recovering this stock.

NMFS would administer this harvest jointly with Alaska Natives through a cooperative agreement under Section 119 of the MMPA that would specify the level of harvest as one (1) strike annually for eight consecutive years, after which time the harvest would be increased to two (2) strikes annually, until the stock had recovered to a population no less than 780 animals. A strike would be considered any event in which a bullet, harpoon, spear, or other device intended to take a whale comes in contact with a beluga whale. Multiple strikes on a single whale would be considered one strike.

Any harvest under this alternative would occur only after a cooperative agreement under Section 119 of the MMPA had been signed.

2.2.4 Alternative 4 - Two Strikes Annually Until the Stock Recovers to OSP

Alternative 4 would establish Federal regulations to limit the Native harvest not to exceed two (2) strikes annually, until the stock had recovered to a population of no less than 780 animals (MNPL for a stock with $K = 1,300$). This alternative would also allow the traditional harvest of CI beluga whales by Alaska Natives to continue while recovering this stock.

This harvest would be administered jointly between NMFS and Alaska Natives through a cooperative agreement under Section 119 of the MMPA. The cooperative agreement would specify the level of harvest as two (2) strikes annually per year. A strike would be considered any event in which a bullet, harpoon, spear, or other device intended to take a whale comes in contact with a beluga whale. Multiple strikes on a single whale would be considered one strike.

Any harvest under this alternative would occur only after a cooperative agreement under Section 119 of the MMPA had been signed.

This alternative was identified as the NMFS preferred alternative in the October 2000 draft EIS.

2.2.5 Alternative 5 - Annual Take Level Based on a Fixed Percentage of Stock Size until the Stock Recovers to OSP

Alternative 5 allocates a fixed-percentage of whales to be harvested based on the recruitment rate. This alternative provides a greater opportunity for the traditional harvest of the CI beluga whale stock. This alternative also allows the recovery of the stock to continue, albeit at a slower rate. Under this alternative NMFS would promulgate regulations to set an annual harvest at one half the maximum rate of recruitment (e.g., 2 percent of recruitment) until the stock had recovered to 780 animals (MNPL for a stock with $K = 1,300$). This alternative would require annual monitoring of the beluga whale stock in Cook Inlet in order to provide the most recent abundance estimate from which to obtain the annual allowable take level. Since the abundance estimates from the surveys require considerable time to determine, the harvest limit for any given year would be based on the abundance estimate from results of the previous year's surveys.

NMFS would administer this harvest jointly with Alaska Natives through a cooperative agreement under Section 119 of the MMPA.

2.2.6 Alternative 6 - The No-Action Alternative (no agreement allowing a harvest to occur) until the Stock Recovers to OSP

Under this "no action" alternative, NMFS would neither implement regulations nor enter into a cooperative agreement. Therefore, there would be neither a harvest plan nor harvest limits. NMFS would not take action to regulate the Native harvest of CI beluga whales. Therefore, by default under Public Law 106-553 which requires a co-management agreement to be in place before any CI beluga whales could be harvested, no harvest would occur.

2.2.7 Alternative 7 - ALJ Recommended Harvest Rate - The Preferred Alternative

The ALJ Decision by the Court recommended that NMFS, during 2001-2004, provided for a total of six (6) strikes, which could result in up to six landings. The ALJ further recommended that these whales would be allocated through co-management agreement(s). Four of the strikes, not to exceed one per year, would be allocated to the Native Village of Tyonek. The remaining two strikes would be allocated over the time period through a co-management agreement to other CI community hunters, with no more than one strike being allocated during every other year. The number of whales to be taken per year during 2005 and subsequent years was not specified but held in reserve at this time

This harvest would be administered jointly between NMFS and Alaska Natives through a cooperative agreement under section 119 of the MMPA. The cooperative agreement would specify the level of harvest as not to exceed six (6) strikes in any four year period, with no more than two (2) strikes per calendar year or three (3) strikes in any two consecutive calendar years. A strike would be considered any event in which a bullet, harpoon, spear, or other device

intended to take a whale comes in contact with a beluga whale. Multiple strikes on a single whale would be considered one strike.

Alternative 7 is different from Alternatives 1-6 in that Alternative 7 is specified only through 2004. Alternatives 1-6 provide for a different level of annual harvest based on a different management strategy. Under Alternatives 1-6 the strategy was to be implemented until such time that the stock had recovered to a population of no less than 780 animals (MNPL for a stock with $K = 1,300$). The Court provided no harvest recommendations for the year 2005 and beyond, therefore, a long-term management strategy for CI beluga whales was not considered by the Court. Rather, it is the intent of the Court to review the status of CI beluga whales in 2005, prior to the development of a long-term strategy. Therefore, the long-term strategy was not ignored by the Court but reserved at this time for later discussion.

NMFS believes that the implementation of the Recommended Decision by the ALJ during 2003-2004, given that the harvest strategy will be reviewed again in 2005 per stipulation, and in subsequent years as needed, is consistent with the long-term management strategy of NMFS to recover the CI beluga whale stock to OSP and still allow for a traditional harvest. This strategy allows for an increase in harvest level as the stock increases. Such an increase in harvest level (above 2 animals per year) may require a re-analysis of the effects of such a harvest on recovery time. It is the intent of NMFS to implement the take limits in Alternative 7 until such time that the stock is recovered to the lower level of OSP or take rates are changed through agreement or stipulated regulations.

The implementation of the Court recommendation as described in Alternative 7 is the NMFS Preferred Alternative. All provisions of the Recommended Decision by the Court would be implemented as stipulated.

2.3. Alternatives Considered and Rejected

In its analysis supporting a determination not to list Cook Inlet beluga whales under the ESA, NMFS considered the impacts of a variety of natural and human-caused factors on the decline and recovery of these whales. As a result of these analyses, NMFS determined that the subsistence harvest could account for the observed decline of Cook Inlet beluga whales and no other factor could be identified as having a significant impact on the stock (65 FR 38778). Therefore, recovery actions other than harvest regulation are not likely to have recovery potential. Consequently, NMFS rejected recovery actions other than harvest regulation without detailed analysis of the impacts of alternative recovery actions on the human environment.

Chapter 3 Affected Environment

Section 1502.15 of the CEQ NEPA regulations (40 CFR parts 1500-1508) direct that “an environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues. Verbose descriptions of the affected environment are themselves no measure of the adequacy of an environmental impact statement.” Therefore, the purpose of this chapter is to describe the existing environment, including conditions and trends, that may be affected by the preferred alternative. Descriptions focus on the physical features of Cook Inlet, Alaska, living marine resources, and the habitat. The following description(s) of the physical environment of Cook Inlet provides a setting for subsequent discussions on the environmental impacts of each alternative. These descriptions are necessary for understanding how the alternatives being considered may affect the marine resources of Cook Inlet.

References to original literature are made throughout this chapter to identify scientific sources and guide readers to further information. All references cited out throughout this document are listed in chapter 6 of this document. Each reference contains information necessary to find the respective paper, report, journal article or book, following standardized reference format. For example, a thorough presentation on the CI region of Alaska is presented in Alaska Regional Profiles: Southcentral Alaska (Selkregg, 1974), and the Minerals Management Service's Final Environmental Impact Statement for the Cook Inlet Planning Area Oil and Gas Sale 149 (MMS, 1996). The reader is referred to these documents for a more detailed discussion on the Region's natural and human-made environments. Much of the following discussion in this chapter is derived from the Regional Profiles (1974) and MMS (1996) and was discussed in the draft EIS (NMFS, 2000).

3.1 Physical Description of the CI Region

Cook Inlet is a large tidal estuary which flows into the Gulf of Alaska (Figure 3.1.1). This shallow estuary is approximately 220 miles long, 30 miles wide, and generally only 200 feet (60m) deep. The Inlet is surrounded by several mountain ranges (the Aleutian and Alaska Ranges, and the Kenai, Chugach, and Talkeetna Mountains). As such, Cook Inlet lies within a transition zone. The upper Inlet is characterized by a maritime climate that transitions to a continental climate in the lower reaches of Cook Inlet. The upper Inlet is also generally drier and cooler than the lower Inlet. Anchorage averages winter temperatures of 15F and a summer average of 55F. Homer (near the southern end of the Inlet) has winter and summer average temperatures of 20F and 50F, respectively. Summer temperatures for the CI region average 40 F to the mid 60's F, while winter temperatures average 4F to the low 40'sF (Selkregg, 1974).

Figure 3.1.1 Locations of the Five Beluga Whale Stocks in Alaska and Place Locations Around Cook Inlet

Cook Inlet is a seismically-active region, categorized in seismic risk zone 4, defined as areas susceptible to earthquakes with magnitudes 6.0 to 8.8, and where major structural damage will occur (USCOE, 1993). Five active volcanoes are found along the mountain ranges bordering the western side of the Inlet. All of these volcanoes are considered to be capable of major eruptions. The region is underlain by several faults, and has experienced more than 100 earthquakes of magnitude >6 since 1902 (MMS, 1996). The March 1964 earthquake caused considerable damage to the region and altered many waterways through changes in land levels. The area may be subjected to tsunamis and seiches as these events cause large-scale displacement of the Inlet's waters.

The CI region contains substantial quantities of mineral resources including coal, oil and natural gas, sand and gravels, copper, silver, gold, zinc, lead, and other minerals. The Inlet's coal is principally lignite, the largest field being the Beluga River deposit in the vicinity of the Beluga and Yentna Rivers, containing an estimated 2.3 billion tons (USCOE, 1993). Oil and gas deposits occur throughout the region, with estimated reserves of 76.9 billion barrels of petroleum and 14.6 trillion cubic feet of natural gas (USCOE, 1993). Six fields in the CI region are active; five of which are located offshore in the middle Inlet. These are the Granite Point, Trading Bay, McArthur River, Middle Ground Shoal, and Redoubt Shoal fields.

Finally, the region is the major population center in the State as well as the most agriculturally-developed area of the State.

3.1.1 Water Quality and Properties

The Inlet is a complex estuary of the Gulf of Alaska. The relatively fresh, turbid waters of the upper Inlet come from several tributaries, with some of the region's largest waterways emptying into the northern reaches of the Inlet. The three primary rivers are the Knik, Matanuska, and Susitna Rivers with a combined peak discharge of about 90,000 m³/sec in July through August (MMS, 1996). Upper Inlet waters meet and mix near mid-Inlet with more-saline waters from the northern Gulf of Alaska. This mixture then flows along the western Inlet to Shelikof Strait. The salinity, temperature, and suspended sediment levels vary significantly within the upper Inlet as freshwater input decreases in winter.

Cook Inlet has the second highest tides in North America, being exceeded only by those in the Bay of Fundy in Nova Scotia. Tidal forces may be extreme and are the main force driving surface circulations in Cook Inlet. Mean diurnal range of tides at Anchorage is 29 feet. Strong currents and swirls in the upper Inlet make navigation difficult. Mid-Inlet currents may reach 8 ft/second or more. During winter months, ice is a dominant physical force within the Inlet, forming sea ice, beach ice, stamukhi ice¹, and river ice. In the upper Inlet, sea ice generally forms in October to November, developing through February from the West Forelands to Cape

¹Stamukhi ice is formed by overhanging pieces of deposited beach ice breaking off with tidal action, to be redeposited along the shoreline and adding subsequent layers of new ice.

Douglas. The southern portion of the Inlet is generally open in winter. By January, much of the upper Inlet may experience 70-90% ice cover, although this reach rarely freezes solid because of the enormous tidal range. Ice has generally left the upper Inlet by early April, but may persist into May.

All surface waters in the region are acceptable for most uses, although they typically carry high silt and sediment loads, particularly during summer. Marine waters are well-oxygenated, with concentrations in surface waters from about 7.6 ml/l in the upper Inlet to 10 ml/l in the southwest Inlet (MMS, 1996). Mean annual freshwater input to Cook Inlet exceeds 18.5 trillion gallons. Freshwater sources often are glacially-born waters which carry high suspended sediment loads, as well as a variety of metals such as zinc, barium, mercury, and cadmium. Barium is also the major component of drilling muds. MMS (1996) conducted four studies of CI water quality. These found that levels of hydrocarbons in the water column were generally low, often less than the method detection limit. Elevated methane levels were observed in waters from Trading Bay in the upper Inlet, an area with oil and natural gas fields. Saturated hydrocarbon levels from waters collected in 1993 from the upper Inlet were below detection limits, although detected in treated production waters from Trading Bay. Polynuclear Aromatic Hydrocarbons were often less than detection or reporting limits, although treated production waters again held elevated levels. *In situ* bioassay of sand dollar fertilization rates using waters from eight sampling locations in Cook Inlet found reductions within tests using waters from the two northernmost stations, although suspended sediment material may have contributed to the toxicity. Larval survival was not significantly different from the control, except for one station in Kachemak Bay which had a survival rate less than 10 percent of the control.

3.2 Biological Resources

The CI region supports a wide variety of fish and wildlife. Prominent wildlife includes black and brown bear, wolf, moose, caribou, Dall sheep, mountain goat, waterfowl, harbor seal, and several species of whales and dolphins. Approximately 38 species of terrestrial mammals occur in the upper or lower CI region. Ten mainland species that use the marine coastal environments to some degree include the river otter, brown bear, black bear, red fox, arctic fox, wolf, coyote, mink, wolverine, and moose. None of these species should be directly affected by management actions associated with the recovery or management of CI beluga whales.

Freshwater, anadromous, and marine fish are common to the region. The following chapters are taken from the MMS, 1996 Final EIS on the Cook Inlet Oil and Gas Planning Area Sale - 149. The reader is referred to that document for a more detailed discussion of the biology of the CI region.

3.2.1 Anadromous Fish

Five species of Pacific salmon and several species of trout occur in Cook Inlet and its tributary waters: Chinook (*Oncorhynchus tshawytscha*), sockeye (*O. nerka*), pink (*O. gorbushka*), chum

(*O. keta*), and coho (*O. kisutch*) salmon spawn and rear within freshwater drainages of the Inlet, while also utilizing the marine waters of the Inlet to migrate, rear, and feed. Salmon in this region afford a high value to the commercial-fishing industry. The eulachon (*Thaleichthys pacificus*) is an important forage species which spawns in many of the streams and rivers entering Cook Inlet.

3.2.1.1 Chinook Salmon

The largest of the Pacific salmon species at maturity, chinook (king) salmon range to 57 kg (126 lb.) in weight and 147 cm (58 in) in length (McPhail and Lindsey, 1970). Spawning chinook salmon enter Cook Inlet during early May and are present in some spawning streams by the end of that month. During this same period, chinook salmon smolt are migrating downstream.

Chinook salmon spawn in late June through late July in most areas. Egg complements may be as high as 8,000; however, 4,000 to 5,000 is more common. The eggs are deposited in stream gravels, where they incubate for several months. Chinook salmon rear in freshwater for two winters before their seaward migration, and they may spend three to four years in the ocean. Chinook salmon prey on other finfish, herring, capelin, eulachon and similarly-sized fish species in the marine environment. Smaller chinook salmon consume a variety of macroscopic fauna found in pelagic waters, e.g., amphipods, euphausiids. The chinook salmon harvest totaled 16,000 fish in Cook Inlet in 2002.

3.2.1.2 Sockeye Salmon

The sockeye (red) salmon is probably the most important commercial-salmon species in the CI region. Sockeye salmon range to 84 cm (33") in length and to about 7 kg (15.5 lb.) in weight (McPhail and Lindsey, 1970). These fish migrate in large schools over much of the North Pacific Ocean and into the eastern Bering Sea. Adult sockeye salmon spawn in Cook Inlet beginning in late June and the runs continue through early August. Sockeye salmon usually spend two or three winters in the North Pacific Ocean before returning to spawn. In the ocean, sockeye salmon consume a variety of macroscopic fauna from the pelagic zone. The sockeye salmon harvest in Cook Inlet totaled 3.5 million fish in 2002.

3.2.1.3 Pink Salmon

Pink salmon, at maturity, are the smallest of the five species of Pacific salmon, averaging about 1.4 to 2.3 kg (3-5 lb.), and to 76 cm (30 in) in length. Pink salmon reach Cook Inlet in early July to spawn. Each female has an average egg complement of about 1,500 to 1,900, and the eggs hatch in late February. The yolk-sac fry remain in stream gravels until early spring, at which time they migrate to the ocean. The out-migration from upper Inlet streams begins in late May and peaks in June (Moulton, 1994). Pink salmon rear in the North Pacific Ocean for two winters before returning to the CI region to spawn.

Additionally, pink salmon exhibit cyclical population variations within Cook Inlet, with larger

numbers occurring during the even-number years. The pink salmon harvest in Cook Inlet totaled 2.4 million fish in 2002.

3.2.1.4 Chum Salmon

Chum salmon grow to 100 cm (40") in length (McPhail and Lindsey, 1970) and 1 to 6 kg (6.6-13.2 lb.) in weight. Food consists of a variety of macroscopic organisms that inhabit the pelagic marine waters where this species migrates. Chum salmon enter the lower CI region beginning in early July, and the spawning runs continue through early August. Chum salmon spawn in many streams throughout the region; with the eggs deposited in stream gravels. Egg complement is 2,000 to 4,300, and the eggs hatch in early spring. Chum salmon fry then move downstream to the ocean where they remain for three to four winters before returning to their natal streams to spawn. During 2002, chum salmon catch in Cook Inlet totaled 270,000 fish.

3.2.1.5 Coho Salmon

Coho (silver) salmon are the last of the Pacific salmon to return to Cook Inlet to spawn. Coho salmon enter the region in late July, and the runs continue into October and November. Coho salmon range to 96 cm (38 in) in length and average about 2.7 to 5.4 kg (6-12 lb.) in weight (McPhail and Lindsey, 1970). The eggs (ranging from 2,500-5,000 per fish) are deposited in stream gravels and the fry remain in the stream for two winters before migrating to the ocean. This migration usually occurs annually from March through June. Coho salmon remain in the North Pacific Ocean for two to three winters before returning to spawn in their natal stream. Coho salmon harvest in Cook Inlet totaled 240,000 in 2002.

3.2.1.6 Rainbow Trout and Steelhead

The rainbow trout was formerly classified with the genus *Salmo* (trouts) but is now assigned to the genus *Oncorhynchus* because it is more closely related to other species in this genus. The steelhead trout, an anadromous sea-run race of this species, is unevenly distributed throughout the lower CI region. Information on the steelhead in Alaska tends to be limited to those few areas where larger populations support well-known sport fisheries. The Anchor River and Deep Creek on the Kenai Peninsula support runs where sport fishing occurs. The steelhead enter freshwater, generally, from early fall into the winter months. Spawning occurs in the spring. Larger females lay as many as 7,600 eggs. Steelhead trout probably enter the ocean after a year in freshwater streams. While small numbers may be taken incidental to the commercial-salmon catch and in the commercial ocean-trawl fisheries, most of the harvest occurs by sport fishermen.

3.2.1.7 Eulachon

The eulachon, or hooligan, is a small smelt-like forage fish (up to 23 cm in length) that is seasonally found throughout much of Cook Inlet. Eulachon are anadromous and move nearshore in early May where they spawn in river drainages throughout Cook Inlet. Egg numbers depend on the size of the spawning fish but range from 17,300 to 39,600 eggs per fish, with an average

of about 25,000 eggs per fish. The eggs are deposited on stream gravel and they hatch in about 30 to 40 days (depending on water temperature). The larvae then move downstream to enter marine waters.

There are currently no biomass estimates for this species. A commercial dipnet fishery for this species occurred in the lower Susitna River in 1999 resulting in a harvest of 50 tons of fish² (ADFG, 1999a).

3.2.2 Marine Mammals

Twenty-nine species of marine mammals are known to occur in Alaskan waters. Of these, 17 species are cetaceans: whales, dolphins or porpoises; and 10 species are pinnipeds; seals, sea lions and walrus. Two other species, polar bears and sea otters, are also found in Alaskan waters.

3.2.2.1 ESA Listed Marine Mammals

Seven species of large whales that occur in Alaska are listed under the ESA including the following: the northern right whale, fin whale, sei whale, blue whale, sperm whale, bowhead whale and the humpback whale. The range and seasonal distribution of several of these species; fin whale, sei whale and the humpback whale, occur in the lower portions of the Inlet. However, they are uncommon to rare in the upper Inlet. The other species are generally found in deeper offshore waters of the Gulf of Alaska, excluding Cook Inlet; or in the Bering Sea and Beaufort Sea.

The western population of Steller sea lions also occurs in Cook Inlet, but is generally found only in the lower portion of the Inlet with any frequency of occurrence. There are no haulouts or rookeries in the upper part of Cook Inlet for this species.

3.2.2.2 Other Marine Mammals of Concern in Cook Inlet

Fifteen species of non-endangered marine mammals are residents or occur seasonally in upper or lower Cook Inlet. Of these species, only harbor seals, beluga whales, killer whales, and harbor porpoise are commonly observed in the upper Inlet. These species will be discussed in greater detail.

(i) Harbor Seals: Harbor seals are present in coastal waters throughout Cook Inlet. Although primarily a nearshore species, harbor seals have been sighted up to 100 km offshore (Fiscus *et al.*, 1976). Present in almost all nearshore marine habitats, they concentrate in estuarine and other protected waters (Pitcher and Calkins, 1979). They most frequently haul out on protected habitats including cobble and sand beaches, offshore rocks and reefs, tidal mudflats and

²Shields, P. 1999. Personal communication, via B. Smith, NMFS, Alaska Region, Anchorage, Alaska.

sandbars, and floating and shorefast ice (Pitcher, 1977; Pitcher and Calkins, 1979; Frost *et al.*, 1982). Harbor seals seasonally frequent freshwater streams and lakes during anadromous fish runs. Their presence in the upper Inlet appears to be seasonal. They are commonly observed and hunted along the Susitna River delta and other tributaries to the upper Inlet during eulachon and salmon migrations.

Harbor seals are opportunistic feeders and their diet varies with season and location. The preferred diet of harbor seals in the Gulf of Alaska consists of pollock, octopus, capelin, eulachon, and herring. Other prey species include cod, flatfishes, shrimp, salmon, and squid (Hoover, 1988).

Harbor seals have declined in some areas of the northern Gulf of Alaska by 78 percent during the past two decades (Fadely *et al.*, 1997). Causes of this decline may include natural population fluctuations or cycles, reduced environmental carrying capacity and prey availability due to natural or human causes, predation, harvests, direct fisheries related mortality, entanglement in marine debris, pollution, and emigration (Hoover-Miller, 1994). Alaska Natives report that fewer harbor seals are presently found in the Susitna River delta than were observed in the past (Huntington, 1999).

Major harbor seal-haulout sites in the CI region are found in the lower portion of the Inlet. The reproductive period (pupping and breeding) occurs at most major haulouts in the Inlet from May through July. Harbor seals molt following the reproductive period. The peak season for molting in the Gulf of Alaska occurs from July to September (Pitcher and Calkins, 1979).

(ii) Killer Whales: Killer whales (*Orcinus orca*) are found throughout the world (Leatherwood and Dahlheim, 1978). Killer whales usually occur in small pods, with typically fewer than 40 individuals. Braham and Dahlheim (1982) noted killer whale concentrations in Alaska near landmasses, along the continental shelf, in Prince William Sound, near Kodiak Island, around the Aleutian Islands, and in southeast Alaska.

Estimates of Alaska killer whale abundance are based on direct counts of individually identifiable animals (e.g., Dahlheim 1997). This approach results in a minimum population count which is considered conservative. Other estimates of the overall population size (i.e., NBEST) and associated CV (N) are not currently available. Two killer whale eco-types have been described: resident and transient whales. Resident whales generally occur in larger groups and primarily eat fish. Transient whales occur in smaller groups and primarily eat marine mammals. Differences in morphology include dorsal fin shape and saddle patch placement. A 2001 count of killer whales occurring throughout Alaska resulted in a minimum estimate of 745 animals, of which 346 were known to be transient killer whales. However, this estimate included several killer whales that have only been seen in Canadian waters but are thought to occur in Alaska.

Killer whales in Cook Inlet have not been well documented (Shelden *et al.*, 2003). However, their occurrence in the area is sporadic and not considered a daily or common event. Resident

and transient killer whales have been observed. Most sightings of resident whales occur in the lower Inlet (Shelden *et al.*, 2003). Small groups of killer whales, believed to be transient whales, have been seen in upper Cook Inlet and during the 1990s, were documented by NMFS as the result of stranding events and public reportings. Six killer whales stranded in Turnagain Arm in May 1991 and another five killer whales stranded in August 1993. Killer whales in upper Cook Inlet have been observed in Turnagain Arm, the Kenai River, and the Susitna River delta (Shelden *et al.*, 2003).

The diet of killer whales includes a variety of fish and marine mammals (Jefferson *et al.*, 1991). Killer whales have been documented feeding on beluga whales and harbor seals in upper Cook Inlet during the past few years.

(iii) Harbor Porpoise: The harbor porpoise is the smallest cetacean species in the eastern North Pacific, reaching a maximum length of five feet (Leatherwood *et al.*, 1972). It is normally found in bays, river mouths, and nearshore areas.

Three stocks are currently recognized in Alaska: one in the Bering Sea, Southeast Alaska, and another in the Gulf of Alaska (Angliss *et al.*, 2001). The current abundance estimate for the Gulf of Alaska stock is 8,497 (Angliss *et al.*, 2001). A 1991 aerial survey effort covering Cook Inlet resulted in an abundance estimate of 136 individuals (Dahlheim *et al.*, 1992). Harbor porpoises have been observed in harbors, bays, and river mouths. They have also been reported in the upper Inlet along Turnagain Arm (e.g., off the Placer and Twenty-mile Rivers) in the spring and early summer, possibly feeding on eulachon.

3.2.2.3 Beluga Whales

Beluga whales are circumpolar in distribution and occur in seasonally ice-covered arctic and subarctic waters. Beluga whales occur seasonally in much of Alaska, except the Southeast panhandle region and the Aleutian Islands. Five distinct stocks occur in Alaska: Beaufort Sea, eastern Chukchi Sea, eastern Bering Sea, Bristol Bay, and Cook Inlet (Angliss *et al.*, 2001). The CI stock is the most isolated, based on the degree of genetic differentiation between the CI beluga whale stock and the four other stocks (O’Corry-Crowe *et al.*, 1997). This suggests that the Alaska Peninsula has long been an effective barrier to genetic exchange. The lack of observations of beluga whales along the southern side of the Alaska Peninsula (Laidre *et al.*, 2000) also supports this conclusion. Murray and Fay (1979) suggested that this stock has been isolated for several thousand years, an idea which has since been corroborated by genetic data (O’Corry-Crowe *et al.*, 1997).

(i) Life History: The beluga whale is a small, toothed whale in the family Monodontidae. Beluga whales may reach a length of 16 feet, although the average adult size is more often 12-14 feet in length. Native hunters have reported that some CI beluga whales may reach 20 feet in length (Huntington, 1999). Males may weigh about 1,500 kg (3,307 pounds) and females 1,360 kg (2,998 pounds) (Nowak, 1991). Calves are born dark gray to brownish gray and become lighter with age. Adults become white to yellow-white at sexual maturity, although Burns and

Seaman (1986) report females may retain some gray coloration for as long as 21 years. Beluga whales lack a dorsal fin and do not typically produce a visible “blow” on surfacing. Native hunters report these whales often surface with only the blowhole out of the water. For these reasons they are often obscure and difficult to see.

Beluga whales typically give birth to a single calf every two to three years, after a gestation period of approximately 14 months. Most of the calving in Cook Inlet is assumed to occur from mid-May to mid-July (Calkins, 1983), although Native hunters have observed calving from April through August (Huntington, 1999). Alaska Natives described calving areas within Cook Inlet as the northern side of Kachemak Bay in April and May, off the mouths of the Beluga and Susitna Rivers in May and in Chickaloon Bay and Turnagain Arm during the summer. The warmer waters from these freshwater sources may be important to newborn calves during their first few days of life (Katona *et al.*, 1983; Calkins, 1989). Mating follows the calving period. Reports on the age of sexual maturity vary from 10 years for females to 15 for males (Suydam *et al.*, 1999), to four to seven years for females and eight to nine years for males (Nowak, 1991). Beluga whales may live more than 30 years (Burns and Seaman, 1986).

Beluga whales are covered with a thick layer of blubber that accounts for as much as 40 percent of its body mass (Sergeant and Brodie, 1969). This fat provides thermal protection and stores energy. Native hunters in Cook Inlet have stated that beluga whale blubber is thinner in the early spring than later in the summer. This suggests that feeding in the upper Inlet, principally on fat-rich fish such as eulachon and salmon, is very important to the energetics of these animals. NMFS has measured blubber thickness in excess of 10 cm on CI beluga whales.

Beluga whales have a well-developed sense of hearing and echolocation. These whales hear over a large range of frequencies, from about 40-75 Hertz (Hz) to 30-100 kilohertz (kHz) (Richardson, 1995) although it is most acute at middle frequencies between about 10 kHz and 75 kHz (Fay, 1988). Beluga whale hearing is limited at low frequencies by hearing thresholds rather than ambient noise. Above a few kilohertz ambient sound, however, ambient noise may limit hearing by these whales. Most sound reception takes place through the lower jaw which is hollow at its base and filled with fatty oil. Sounds are conducted through the lower jaw to the middle and inner ears, then to the brain. Beluga whales are reported to have acute vision both in and out of water and, as their retinas contain both rods and cones, are believed capable of seeing color (Herman, 1980).

Beluga whales are extremely social animals that typically migrate, hunt, and interact together. Nowak (1991) reports the average pod size as ten animals, although beluga whales may occasionally form larger groups, often during migrations. Groups of 10 to more than 100 beluga whales have been typically observed during the summer in Cook Inlet. It is not known whether these represent distinct social divisions. Native hunters have stated that beluga whales form family groups and suggest that there are four types of beluga whales in Cook Inlet, distinguished by their size and habits (Huntington, 1999).

(ii) Stock Abundance: Abundance surveys of CI beluga whales prior to 1994 were often

incomplete, highly variable, and involved non-systematic observations or counts only of concentrations in river mouths and along the upper Inlet. Based on aerial surveys in 1963 and 1964, Klinkhart (1966) estimated the stock at 300-400 animals, but the methodology for the survey was not described. Sergeant and Brodie (1975) presented an estimate for the CI stock as 150-300 animals, but offer no source for this figure. Murray and Fay (1979) counted 150 beluga whales in the central Inlet on three consecutive days in August 1978, and estimated the total abundance would be at least three times that figure to account for poor visibility. Calkins (1984), based on surveys of the upper Inlet between May and August of 1982, estimated that 200-300 beluga whales were seen in one area. Hazard (1988) stated that an estimate of 450 whales may be conservative because much of Cook Inlet was not surveyed in these efforts.

An aerial survey of Cook Inlet in August 1979 resulted in a minimum direct count of 479 beluga whales (Calkins 1989). Using a correction factor of 2.7 developed for estimating submerged whales under similar conditions in Bristol Bay, a minimum abundance of 1,293 whales was estimated. Since this is the most complete survey of the Inlet prior to 1994, and incorporated a correction factor for animals missed during the survey in the estimate, the Calkins summary provides the best available data for estimating historical abundance of beluga whales in the Inlet.

NMFS began systematic aerial surveys of beluga whales in Cook Inlet in 1994. Unlike previous efforts, these surveys included the upper, middle, and lower Inlet. Using both observers and videotape, this method also developed correction factors to account for whales not observed due to coloration (calves and juveniles are gray colored and do not contrast with the Inlet water), diving patterns, or because whales were missed by observers on the survey trackline. These surveys have continued annually and have documented a decline in abundance of nearly 50 percent between 1994 and 1998.

Between 1994 and 1998, the estimate of CI beluga whales declined by approximately 50 percent from an estimate of 653 whales to 347 whales. In 1999 protected legislation was enacted. Abundance surveys conducted in June 1999, June 2000, June 2001, and June 2002, have resulted in abundance estimates of 357, 435, 386, and 313 whales respectively.

(iii) Distribution and Movements of CI Beluga Whales: Beluga whales generally occur in shallow, coastal waters, often in water barely deep enough to cover their bodies (Ridgway and Harrison, 1981). Some beluga whale populations make seasonal migrations, while others remain in relatively small areas year round. Sightings from 1976 to 1979, 1997, 1999-2002³ (Calkins, 1983; MMS, 1999), and results from recent satellite tracking data during August through March, indicate that beluga whales are present in Cook Inlet year round.

The beluga whale concentrations that occur in the upper Inlet in April and May co-occur with migrations of eulachon that are returning to several streams in the northern portion of Cook Inlet. It appears that relatively few discrete sites exist within upper Cook Inlet which are very

³2002. Personal communications from B. Mahoney, NMFS, Anchorage, Alaska.

important in terms of feeding habitat for the CI stock of beluga whales. A satellite tag was placed on a beluga whale captured near the mouth of the Little Susitna River in late May of 1999. This adult male was subsequently tracked over the next three months when signals from the tag ended on September 17. This animal remained in the upper Inlet during this entire period, and was observed within a large group of about 90-100 beluga whales at the mouth of the Little Susitna River from late May to mid June. The whale remained off the Susitna River and then in Knik and Turnagain Arms, until the tag quit transmitting.

Alaska Natives attribute this early movement into the upper Inlet to whales following the whitefish migration (Huntington, 1999). Beluga whales congregate at the mouths of several larger river systems during early spring, feeding on eulachon, salmon smolt, and adult salmon. The beluga whales typically form several large groups during this period, and may reside in the Susitna Delta (mostly between the Beluga and Little Susitna Rivers), Knik Arm, and Chickaloon Bay/Turnagain Arm (Rugh *et al.*, 2000). Further, beluga whales may ascend these river systems a considerable distance. Native hunters report that beluga whales once reached Beluga Lake from the Beluga River, and that beluga whales are often seen well upstream in the Kenai and Little Susitna Rivers. By the end of June the beluga whales disperse throughout much of the upper Inlet. Important feeding and concentration areas at this time include the Eagle River estuary, the mouths of the Chickaloon River and Ship Creek, as well as the sites used earlier in the spring.

The winter distribution of this stock is poorly understood due to the inability of observers to detect beluga whales in ice flows of upper Cook Inlet during winter aerial surveys. Calkins (1983) postulated that the whales leave the Inlet entirely, particularly during heavy ice years. Eight dedicated aerial surveys in Cook Inlet between February 12 and March 14, 1997, resulted in only a few beluga whale sightings. The number of animals represented by these sightings has not been estimated. It is likely that the same group of whales may have been sighted repeatedly (MMS, 1999). Beluga whales were observed during monthly surveys (July-April) conducted by NMFS in upper Cook Inlet during 2001-2002. The number of whales observed ranged from 204 beluga whales (August) to 10 individual whales (January) and were observed in Knik and Turnagain Arms during all months except February, when no whales were found. In September 2000, one female and one male beluga whale were tagged in Knik Arm with satellite transmitters. These two beluga whales remained in the Knik and Turnagain Arms for most of the tracked time, venturing as far south as Redoubt Bay (October) / Kalgin Island (January), and East Foreland (December-January), respectively. Another six operating satellite tags were attached to beluga whales in August 2001, where one beluga was tagged in the Little Susitna River and the others were tagged in Knik Arm. Some of these tags lasted through the new year, with one transmitting data through March. These six beluga whales remained in upper Cook Inlet, primarily in the Knik and Turnagain Arms, throughout the entire time that the tag transmitted. A couple of whales ventured as far south as Chinitna Bay (September) and Kalgin Island (December-March), often returning to the upper Inlet. Generally, it appears that CI beluga whales remain in the inlet during the winter months but their range extends much more throughout the entire inlet, and their distribution is not as concentrated near the mouths of significant rivers in the inlet, as it is during the warmer months when forage are concentrated in

these areas.

A few beluga whale sightings have been made outside of Cook Inlet (in the northern Gulf of Alaska region). Sightings have occurred in Yakutat Bay, Aialik Bay, Shelikof Strait, Kodiak Island, and Prince William Sound (Laidre *et al.*, 2000). However, sightings in these locations are rare and involve relatively few animals. For example, a single beluga whale was observed in Aialik Bay near Seward in 1988 (Morris, 1992). Another single whale was reportedly seen near Montague Strait in 1978 (Harrison and Hall, 1978), in Uganik Bay in 1997⁴, in St. Matthew's Bay in 1998⁵, and Alitak Bay in 2000-2001⁶. An exception is a July 1983 report by Calkins (1986) of approximately 200 beluga whales observed in western Prince William Sound near Knight Island.

The Yakutat sightings seem to be a group of individual whales that remain in the Yakutat and Disenchantment Bay areas throughout the year. These sightings are approximately 640 km southeast of Cook Inlet. Twenty one adult and five juvenile beluga whales were seen near Yakutat in May of 1976 (Fiscus *et al.*, 1976). The MMS (1997) winter surveys observed 10 beluga whales off Hubbard Glacier near Yakutat. The U.S. Coast Guard reported sighting 10 to 11 beluga whales there in November 1998. The U.S. Geological Survey reported six beluga whales in August 2000⁷, and the U.S. Forest Service reported four beluga whales in June and September 2002⁸. Consiglieri and Braham (1982) also reported annual observations of these whales in Yakutat by local fishermen. Calkins (1986) believed the Yakutat sightings to be visiting beluga whales from Cook Inlet. It is not known whether they are genetically the same as the CI stock⁹, or a distinct group of whales that is completely separate from the whales in Cook Inlet. However, at this time they are considered part of the CI stock of beluga whales for management purposes.

(iv) Feeding Behavior: Beluga whales are opportunistic feeders known to prey on a wide

⁴Little, D. 1997. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

⁵Janka, D. 1998. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

⁶Wynne, K. 2001. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

⁷Herter, Michael. 2000. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

⁸Lucey, William. 2002. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

⁹2002. Personal communications from G. O'Corry-Crowe, NMFS, LaJolla, California.

variety of animals. They eat octopus, squid, crabs, shrimp, clams, mussels, snails, sandworms, and fish such as capelin, cod, herring, smelt, flounder, sole, sculpin, lamprey, lingcod and salmon (Perez, 1990; Haley, 1986; Klinkhart, 1966). Natives also report that CI beluga whales feed on freshwater fish: trout, whitefish, northern pike, and grayling (Huntington, 1999), and on tomcod during the spring (Fay *et al.*, 1984).

Beluga whales in Cook Inlet often aggregate near the mouths of rivers and streams where salmon runs occur. Calkins (1989) recovered 13 fish tags from the stomach of an adult beluga whale found dead in Turnagain Arm. These salmon had been tagged in upper Susitna River. Beluga whales in captivity may consume 2.5-3 percent of their body weight daily, or 40-60 pounds. Wild beluga whale populations, faced with an irregular supply of food, may easily exceed these amounts while feeding on concentrations of eulachon and salmon. Beluga whale hunters in Cook Inlet reported one whale having nineteen adult king salmon in its stomach (Huntington, 1999) and an adult male beluga whale had 12 adult coho salmon in its stomach at a weight of 27.8 kg (61.5 lb.)¹⁰.

The smelt-like eulachon (also named hooligan and candlefish) is a very important food source for beluga whales in Cook Inlet. Eulachon may contain as much as 21% oil (total lipids) (Payne *et al.*, 1999). These fish enter the upper Inlet in May. Two major spawning migrations of eulachon occur in the Susitna River, one in May and another in July. The early run is estimated at several hundred thousand fish and the later run at several million (Calkins, 1989). Stomachs of beluga whales harvested from the Susitna area in spring have been filled with eulachon¹¹.

Herring is also another important forage fish for beluga whales. Interestingly, a 1993 smolt survey of the upper Inlet found juvenile herring to be the second-most abundant fish species collected. These herring were primarily caught along the northwest shore, including the Susitna delta (Moulton, 1994).

Beluga whales capture and swallow their prey whole, using their teeth only to grab. These whales often feed cooperatively. At the Port of Anchorage, beluga whales have been observed positioning one whale along a rip rap dock, while a second whale herds salmon along the structure toward the stationary beluga whale¹². The concentrations of CI beluga whales offshore of several important salmon streams in the upper Inlet is assumed to be a feeding strategy which takes advantage of the bathymetry of the area. The fish are funneled into the channels formed by the river mouths and the shallow waters act as a gauntlet for salmon as they move past waiting beluga whales. Dense concentrations of prey appear essential to beluga whale feeding behavior. Hazard (1988) reported that beluga whales were more successful feeding in rivers where prey were concentrated than in bays where prey were dispersed. Frost *et al.* (1983) noted that beluga

¹⁰2002. Personal communications from B. Mahoney, NMFS, Anchorage, Alaska.

¹¹1998. Personal communications from B. Mahoney, NMFS, Anchorage, Alaska.

¹²2000. Personal communications from B. Smith, NMFS, Anchorage, Alaska.

whales in Bristol Bay feed at the mouth of the Snake River, where salmon runs are smaller than in other rivers in Bristol Bay. However, the mouth of the Snake River is shallower, and hence may concentrate the prey.

(v) **Natural Mortality:** Three sources of natural mortality are considered in this chapter, stranding events, predation and disease.

(1) **Stranding Events:** Beluga whale stranding events in upper Cook Inlet are not uncommon. NMFS estimates that more than 640 beluga whales have stranded (both individual and mass strandings) in upper Cook Inlet since 1988¹³. Mass stranding events primarily occurred along Turnagain Arm, and often coincided with extreme tidal fluctuations (“spring tides”) and/or killer whale sighting reports. These mass stranding events involve both adult and juvenile beluga whales.

A 1996 mass stranding event of approximately 60 beluga whales in Turnagain Arm resulted in the death of four adult whales. Another stranding event of approximately 70 beluga whales in August 1999 left five adult beluga whales dead. Once a whale strands, death may result from stress and/or hyperthermia from prolonged exposure. Whales which strand at higher elevations during an outgoing tide may be exposed for ten hours or more. Unless caught in an overflow channel or ponded area, the whale may have difficulty regulating body heat. An extensive network of capillaries within the flukes and flippers allows beluga whales to lose body heat to the environment. If these structures are out of the water, this mechanism cannot function properly and body heat rises. Additional stress is placed on internal organs and breathing may be difficult without the support provided by the water.

(2) **Predation:** The CI beluga whale stock is preyed upon by killer whales. NMFS has received reports of killer whales in Turnagain and Knik Arms, between Fire Island and Tyonek, and near the mouth of the Susitna River (Shelden *et al.*, 2002). Native hunters report that killer whales are usually found along the tide rip that extends from Fire Island to Tyonek (Huntington, 1999). Killer whales have stranded along Turnagain Arm on at least two occasions. Six killer whales were found alive and stranded in Turnagain Arm in May 1991. During a killer whale stranding event in August 1993, one killer whale vomited a large piece of beluga whale flesh. A NOAA Enforcement agent observed about four killer whales chasing a group of beluga whales in Turnagain Arm, September 2000. Within the next few days, two lactating females stranded with teeth marks, internal hemorrhaging, and other injuries consistent with killer whale attacks.

The number of killer whales visiting the upper Inlet appears to be small; five and six whales involved in each stranding and observation (Shelden *et al.*, 2002). This may be a single pod which has recently extended its feeding territory into Cook Inlet. Killer whales are more commonly found in lower Cook Inlet and the Gulf of Alaska (Shelden *et al.*, 2002) where they

¹³This estimate includes 44 beluga whale carcasses found along the shoreline which had been harvested for subsistence.

may feed on a variety of prey.

(3) Disease: Bacterial infection of the respiratory tract is one of the most common diseases encountered in marine mammals. Bacterial pneumonia, either alone or in conjunction with parasitic infection, is a common cause of beach stranding and death (Howard *et al.*, 1983). Thirty-three percent of stranded beluga whales in the St. Lawrence estuary (n = 45 sampled) were affected by pneumonia (Martineau *et al.*, 1994) from 1983 to 1990. One beluga whale apparently died from the rupture of an "aneurysm of the pulmonary artery associated with verminous pneumonia" (Martineau *et al.*, 1986).

Beluga whales appear relatively free of ectoparasites, although both the whale louse, *Cyamus* sp., and acorn barnacles, *Coronula reginae*, are recorded from beluga whale stocks outside of Alaska (Klinkhart, 1966). Endoparasitic infestations are more common. An acanthocephale, *Coryosoma* sp., has been identified in beluga whales, and *Pharurus oserkaiiae* has been found in Alaska beluga whales. *Anisakis simplex* is also recorded from beluga whales in eastern Canada (Klinkhart, 1966). Results of necropsies from CI beluga whales have found heavy infestations of these parasites in adult whales. Approximately 90 percent of CI beluga whales examined have had kidneys parasitized by the nematode *Crassicauda giliakiana*. This parasite also occurs in other cetaceans. Although extensive damage and replacement to tissues have been associated with this infection, it is unclear whether this results in functional damage to the kidney (Burek 1999a).

Parasites of the stomach (most likely *Contracecum* or *Anisakis*) are often present in CI beluga whales. These infestations have not, however, been considered to be extensive enough to have caused clinical signs. Also recorded within muscle tissues of CI beluga whales is *Sarcocystis* sp. The encysted (muscle) phase of this organism is thought to be benign; however, acute infections can result in tissue degeneration leading to lameness or death (Burek, 1999b).

The Arctic form of *Trichenella spiralis* (a parasitic nematode) is known to infect many northern species including polar bears, walrus, and to a lesser extent ringed seal and beluga whales (Rausch, 1970). The literature on "Arctic trichinosis" is dominated by reports of periodic outbreaks among Native people (Margolis *et al.*, 1979). The effect of the organism on the host marine mammal is not known (Geraci and St. Aubin, 1987). *Trichenella* has not been recorded within the CI stock of beluga whales.

3.3 Social, Economic, and Cultural Environment

Cook Inlet has been affected by human use for centuries. These activities represent a wide variety of features that have the potential to result in cumulative affects, to a greater or lesser extent, on the alternatives that will be considered in this document. The impacts of these features will be discussed in Chapter 4.

3.3.1 Major Communities

There are 17 communities within the CI region with populations of at least 100 individuals (Table 3.3.1.1). The Municipality of Anchorage is the largest city within the CI area, and in the State of Alaska. The population exceeds 250,000 people. This population estimate includes the communities of Girdwood, Eagle River, Bird, Indian, Birchwood, and Chugiak. Anchorage is the center of trade, finance, and transportation for Alaska.

The local economy is supported primarily by trade, services and government. Mining, agriculture, and fishing also contribute to the economy in relatively small percentages. Anchorage is also Alaska's largest Native village, with 20,000 to 24,000 Natives (ADN, 2001). In 1990, 111,000 civilians were employed in Anchorage, and an estimated 10,000 military personnel and their dependents were stationed at local military bases of Fort Richardson and Elmendorf Air Force Base.

The Kenai Peninsula Borough consists of 31 communities with a 1997 population estimate of 52,448 people. Many of the communities have fewer than 300 people. Several of these communities are primarily Alaska Native villages. The towns of Kenai, Soldotna, Sterling, and Homer are the largest in this borough. Most of their economy is supported by the private sector. Retail trade, manufacturing, oil and gas extraction, and commercial fishing are major contributors.

The Matanuska-Susitna Borough contains approximately 17 communities. The largest communities are Palmer and Wasilla. Located close to the larger Anchorage area, approximately 40 percent of the borough's work force commutes to Anchorage.

3.3.2 Oil and Gas Development

The upper Cook Inlet and the Kenai Peninsula have an association with the petroleum industry that dates back to the 1950's. A history of this association has been reviewed in MMS (1996) and the following was taken largely from that document. The first discovery of oil in the region occurred onshore in 1957 when oil was discovered on the Kenai Peninsula from the Swanson River #1 Well. The Beaver Creek Unit Well began producing oil in 1972. These are the only two wells on land, all other oil-producing fields are located in state waters. The CI region produced 80 million barrels of oil (Mmbbl) at the height of production in 1970. Production had

Table 3.3.1.1 Cook Inlet Communities and Populations

Municipality of Anchorage	258,782
Kenai Peninsula Borough	46,790
Matanuska-Susitna Borough	50,759

Kenai	6,950
Homer	4,064
Seldovia	667
Anchor Point	1,121
Clam Gulch	93
Eklutna	429
Kasilof	523
Knik	445
Nanwalek (English Bay)	167
Ninilchik	480
Nikiski	3,013
Port Graham	176
Salamatof	1,011
Tyonek	148

(ADNR, 1998)

declined to 24.7 Mmbbl by 1983 and by 1991 production had declined to just more than 15 Mmbbl annually.

Producibile quantities of natural gas were first discovered in 1959 in what is now the Kenai Gas Field. Gas production in the CI region began in 1960. In 1983 annual natural gas production had reached 196.4 billion cubic feet (Bcf). By 1992 production had fallen to approximately 125 Bcf.

At the peak of its infrastructure development, there were 15 offshore production and three onshore treatment facilities in upper Cook Inlet and approximately 230 mi of undersea pipelines (80 mi of oil pipeline, 150 mi of gas pipeline). Some of these facilities closed in 1992 as CI production continuously declined.

Existing CI production (off- as well as onshore) is handled through the Trading Bay production facility, the Tesoro Refinery, the Phillips-Marathon LNG (liquefied natural gas) plant, and the Union Chemical plant. The last three facilities are located at Nikiski, Alaska, north of the city of Kenai. The Trading Bay facility pipelines receive crude-oil production and transport it to the Drift River Terminal. The Drift River Terminal stores and loads at least 9 Mmbbl annually. Almost all of the Drift River crude is transported to Ollum, California.

The Tesoro Refinery can process up to 80,000 bbl per day. Recent refinery production has been augmented by North Slope oil tankered from Valdez. Almost all of Tesoro's output is consumed within Alaska. A products pipeline links the Nikiski refinery with the Tesoro fuel depot located at the Port of Anchorage. Tesoro's refined products include multigrades of gasoline, propane, Jet A, Diesel, No. 2 Diesel, JP4, and No.6 fuel oil.

The Phillips Marathon LNG plant was constructed in 1969 and liquefies 1 million tons of natural gas annually. It is the only natural gas liquefaction plant in the United States. Produced LNG is shipped by tanker to Japan (Tokyo Electric) by 80,000-m³ carriers on an average of once every 10 days. Natural gas produced from the Kenai Gas Field is pipelined into Anchorage for domestic consumption; gas produced from the Beluga River field is used onsite at the Beluga River power plant.

The Union Chemical company plant can process gas to produce more than 1.1 million tons of ammonia and a similar quantity of urea pills and granules (for fertilizer). Some of the produced urea is used in Alaska. The rest is shipped to the U.S. West Coast in tankers and bulk freighters.

The offshore production facilities currently operating in Cook Inlet support 238 wells. These platforms are within the middle Inlet, south of the Native Village of Tyonek. Approximately 6-7 new wells are drilled annually. The Environmental Protection Agency (EPA) regulates the discharges from these offshore platforms, which include drilling muds, drill cuttings, and production (formation) waters. Drilling fluids (muds and cuttings) discharged into Cook Inlet average 89,000 barrels annually, and contain several pollutants.

The Alaska Department of Natural Resources has held an annual Cook Inlet Areawide Oil and Gas Lease Sale since 1999, and will do so through 2009. These annual sales offer tracts throughout the state waters of the Inlet, including areas above the Forelands in the Susitna River delta. The 2001-2002 spring sales did not include the 124 "beluga tracts" that were deferred as a result of litigation on the Cook Inlet Areawide final finding. These deferred tracts were located in the Susitna River delta, mouths of the Kenai and McArthur River, and Chickaloon Bay.

A project is proposed for a 2D and 3D seismic exploration program offshore in Cook Inlet in areas north near Tyonek, the Forelands area, areas off Anchor Point, and areas west of the Clam Gulch Critical Habitat Area. Seasonal stipulations have been incorporated into the project permit to avoid beluga whales.

3.3.3 Vessel Traffic and Shipping

Much of upper Cook Inlet is unsuited to many navigational uses. Extreme tides and currents, shallow shoal areas, and the presence of sea ice place limitations on vessel traffic. Nonetheless, the Inlet is a vital navigational route between much of Alaska and the lower 48 states. The following discussion is taken from Peratrovich, Nottingham and Drage (1993) unless otherwise noted.

Port facilities in Cook Inlet are found at Anchorage, Knik, Point Mackenzie, Tyonek, Drift River, East Foreland/Nikiski, Kenai, Anchor Point, and Homer. The Port of Anchorage is a deep draft facility which is the State's largest seaport and the main port of entry for southcentral and interior regions of the state. It is 1,428 nautical miles from Seattle, Washington. The Port of Anchorage provides both containership and general cargo berthing and two petroleum product docks. A recreational boat launch facility at the mouth of Ship Creek is operated by the Municipality of Anchorage during ice-free months.

The Point MacKenzie Port was recently completed in lower Knik Arm across from the Port of Anchorage. While presently constructed as a barge port, Port MacKenzie's long range plan calls for a bulk loading facility into -50' Mean Low Low Water. Near term activities will include across-the-dock loading of construction materials for developing an industrial park and exporting modular homes, logs, wood chips, and gravel. When deepened, future use of this facility will include the export of resources such as coal, and increased export of wood chips and logs.

The Drift River facility is used primarily as a loading platform for the shipment of crude oil. The docking facility is connected to a shoreside tank farm and designed to accommodate tankers in the 150,000 deadweight-ton class. The Port of Nikiski on the east side of the Kenai Peninsula has three medium draft piers and two shallow draft wharves. Activity here includes the shipping of anhydrous ammonia, dry bulk urea, liquified natural gas, and petroleum products and the receiving of sulfuric acid, caustic soda, and crude oil as well as support for offshore oil and gas.

3.3.4 Tourism

Tourism is a growing component of the State and regional economies, and wildlife viewing is an important component of this use. Visitors highly value the opportunity to view the region's fish and wildlife, and opportunities to view the beluga whale are especially important due to their uniqueness. Many tour buses routinely stop at several wayside sites along Turnagain Arm in the summer, where beluga whales are seasonally observed. Presently there are no vessel-based commercial whale watching ventures operating in upper Cook Inlet. However, the popularity of whale watching and the close proximity of beluga whales to Anchorage, makes it probable that such operations may exist in the near future.

3.3.5 Cultural Environment: The History of Beluga Whale Hunting in Cook Inlet

The selection of an alternative is significant in terms of maintaining a subsistence heritage or link between CI beluga whales and Alaska Natives. For that reason, a traditional and contemporary overview of the harvest of beluga whales in Cook Inlet is appropriate prior to discussing each of the alternatives in the following section.

Archeological research has found items both from the Dena'ina Athabaskan and historic Eskimo cultures throughout the CI basin, and specifically in Knik Arm and the Kenai River. The Pacific

Eskimos occupied Cook Inlet as late as between 1000 - 1500 A.D. (Ackerman, 1975). The Dena'ina¹⁴, also called the Tanaina, is one of the Athabaskan peoples of Alaska who live in the CI region. The Dena'ina moved to the CI area to escape the harsher extremes of the interior (Chandonnet, 1985).

Historically the Dena'ina Indians lived in an area that extended around Cook Inlet and inland, west to Iliamna Lake and Lake Clark, north to the Devil's Canyon in the Susitna River and the Matanuska River drainage, east to the Kenai Mountains, and south to Kachemak Bay. Unique among Athabaskan people, the Dena'ina lived along the Pacific Ocean and exploited the marine resources, as well as lake, riverine, and interior environments. The good climate and constant supply of adequate food made it possible for the Dena'ina to live in semi-sedentary villages throughout the CI region.

The Dena'ina seasonally crossed the Inlet in skin covered single- or double-holed kayaks and the larger open boat, the *badi*, that resembled the Eskimo *umiak*. In Knik and Turnagain Arms, with the dangerous bore tides, the Dena'ina rarely traveled far by boat. The Dena'ina originally learned how to make and use both types of boats from their Eskimo neighbors (Ackerman, 1975).

Cook Inlet offered a rich supply of marine resources such as beluga whales, sea lions, seals, porpoise, and sea otter that fed on salmon, eulachon, herring, cod, halibut, and shellfish. The Dena'ina did not hunt the larger whales, as it was said that they lacked the proper magic to kill them (Ackerman, 1975). Instead this meat was obtained by trade. However, if they found a beached whale, it was used.

(i) Beluga whale use: Beluga whales were an important food source for the upper and outer Inlet Dena'ina, especially before the moose arrived in the Inlet region in the late 1800's (Kari and Kari, 1982). The beluga whale provided meat and oil to the hunter's family and dogs. The meat was generally cut into strips and dried. The blubber was rendered into oil and put into containers with lids for the winter. Their sinews were made into ropes and string for bow, because the beluga sinew string is strong (Pete, 1987). Their stomachs were used as oil containers. Beluga whale (and bear) intestines were made into gut parkas for wet weather gear (Ackerman, 1975). As important as the meat was, it was the whale blubber and oil that were of even greater economic importance (Fitzhugh and Crowell, 1988).

The blubber from the beluga whale was rendered into oil to store other foods or used in lamps for heat and light. Kalifornsky (1991) reported that clams were placed in a beluga stomach and covered with oil to preserve the clams over the winter. The clams were then washed in hot water

¹⁴Russian scholars recorded the word *Dena'ina* with an initial "t," often spelling it "Tnana". Cornelius Osgood used the spelling "Tanaina" in his 1937 ethnology. The spelling *Dena'ina* is the modern orthography (the apostrophe is the glottal stop). This word means 'the people' and is cognate with the Navajo term *dine'* of the same meaning (Ackerman, 1975).

and cooked during the winter months. The meat is eaten fresh, dried, roasted, boiled, and ground. The skin with a layer of fat (*kimmuq*, or *muktuk*) is eaten raw, pickled, canned, or boiled. The ivory teeth are used in a variety of functions and were important trade items (Fitzhugh and Crowell, 1988). Bones from the whales were used in Native art (e.g., masks) and handicraft.

(ii) Historical Methods of Hunting Beluga Whales in Cook Inlet: The *Susi Kaq* “sand island mouth” (the Susitna Delta area, including Big Island and the west channel of the lower Susitna) (Pete 1987) was an important spring camping area on the Inlet at the mouth of the Susitna River. Dena’ina gathered to hunt beluga, ducks, and geese, to fish for salmon and eulachon, and to trade.

Beluga whales were hunted between May and August at the mouths of the rivers and streams (Pete, 1987). It required several hunters to successfully harvest the beluga whale. The upper Inlet Dena’ina method of catching the small white beluga whale seems to be unique in North America, not borrowed from the Eskimo or Alutiiq people (Pete, 1987). The Dena’ina used the tidal flats in the Susitna Delta to hunt beluga whales. According to Pete’s (1987) description, the hunters erected a *yuyqul* (beluga spearing trees), which are dead spruce trees, root side up, in the mud during a low tide. Each spruce tree had many ropes extending from it and five or more people would pull on each rope to lift the tree up. The sinew ropes were then secured to stakes. The hunters climbed into the “nest” formed by the tree roots (Fall *et al.*, 1984) to wait for the beluga that would swim by with the incoming tide. The hunters had harpoons fitted with a toggle point and attached with braided sinew ropes (about 25 fathoms long) to floats (usually inflated sealskin). Similar gear was used to hunt Steller sea lions at Kachemak Bay. During the incoming tide, the beluga whales would chase the salmon and the hunters would strike the beluga whale many times as it came by (Pete, 1987). The struck whales with the attached floats were pursued by the hunters in boats until the whales tired and could be killed by a hunter with a boneheaded spear. The whales were then taken to shore and butchered.

Stanek (1996) reports that the residents of the Native Village of Tyonek historically used another method to hunt beluga whales. A fence or weir was constructed at the Beluga River and a movable dam made of poles was placed in “Takasitna Harbor,” which may have been Tuxedni Bay. The beluga whales and seals chased the fish upstream with the incoming tide. The movable poles were then placed to trap the animals behind these structures with the outgoing tide and they were then harvested.

With the introduction of firearms around the turn of the century, the Dena’ina abandoned the *yuyqul* and weir methods for beluga whale hunting, and used boats and firearms to shoot beluga whales at the shallow river mouths. The three-man skin kayaks and baidarkas were used on the Inlet, as late as the turn of this century, to hunt seal, beluga whales, ducks and to collect clams (Kalifornsky, 1991).

Beluga whales were hunted in Kachemak Bay, at Halibut Cove in the 1920's (Stanek, 1996). Hunters would line up along the point and shoot the beluga whales and seals as they swam in

with the tide. The animals were retrieved from the lagoon where they floated, from the beaches where they stranded, and from the shallow waters where they sank. Kalifornsky (1991) reports that beluga whales were regularly hunted at the mouth of the Kenai River before 1929.

Beluga whales were a major part of Tyonek's diet prior to the 1940s. The Native Village of Tyonek hunted six or seven whales annually in the 1930's and 1940's (Pete, 1987). Between the late 1940's and 1978 there was little interest in beluga whales or any other marine mammal hunting as a result of the growing number of moose in the area. Since 1979, however, the beluga whale hunt has been reestablished in Tyonek. The meat and blubber are shared throughout the village (Fall *et al.*, 1984).

(iii) Contemporary Beluga Whale Hunting (1990s): In the late 1700's there were about 5,000 people of Dena'ina ancestry living around the CI area (Ackerman, 1975). Today there are only about 1,000 people of Dena'ina ancestry living in the villages of Eklutna, Knik, Kenai, Seldovia, Tyonek, Pedro Bay, Nondalton, Lime Village, and Stony River, as well as in Anchorage. About 60 percent of Alaska's population lives within the traditional lands of the Dena'ina (Matanuska Valley, Anchorage Municipality, and the Kenai Peninsula). In this dynamic region, about 30,000 people are Alaska Natives.

The hunters who harvest beluga whales in Cook Inlet are either (1) the Dena'ina of Tyonek, who continue their historical hunting of beluga whales near their village; (2) hunters who have lived in other parts of Alaska, but have made the CI area their home; and (3) visitors to Cook Inlet from other parts of the state. Presently, a significant portion of the hunters is not originally from the CI area, although they hunted beluga whales in their villages, and continued to hunt beluga whales when they moved to the CI area (Anchorage, Matanuska Valley, or Kenai Peninsula). There is some development of a "community" from similar geographic areas, but most hunters are independent. Other hunters, who are not local residents but regularly visits the CI area, hunted with family or friends in Cook Inlet where beluga whales are available all season. As the participants increased in these hunter groups, the demand for CI beluga whales also increased. The actual number of CI beluga whale hunters, however, is unknown due to the dispersal of hunting "communities" and hunting locations.

Beluga whales are now hunted with high power rifles from April through October. Most of the hunting occurs between May and August at the Susitna Delta area (Little Susitna River, west to the Beluga River). Beluga whales in Kachemak Bay were usually hunted in April and May, especially if the ice has not yet left the upper Inlet. Whales in Knik Arm and Chickaloon River are occasionally hunted in late summer and early fall, through October. The hunters always collect the muktuk, and sometimes collect the meat and blubber for food, and bones and teeth for handicrafts. The hunters usually wait at camp for the whales to enter shallow water, or chase whales already in the shallow waters. The dark, murky waters of upper Cook Inlet prevent detection of submerged whales, so the hunters follow the beluga whale's "covenough," or, wake, that is created by the whale in shallow water. As the whale breaches, the hunters generally shoot. When the whale is dead, the hunters attach a line through the lower mandible or around its tail to tow it to shore.

The Native Village of Tyonek has local rules which guide their beluga whale hunters. These rules commonly guide aspects of the hunt such as seasons, hunting areas, harvest methods, the social group hunting, selection of types of animals, processing of animals, uses of parts of the animals, and distribution of products.

The flippers and tail are considered a delicacy by some people, and are generally removed first. The muktuk is taken from the whale in large strips, about 24" to 36" in length and 18' to 24" in width. The blubber is removed in square chunks. If any meat is collected, it is the back strap and ribs. The remaining skeleton, meat, and organs are left at the site, or if near a village (like Tyonek) can be used for dog food. The muktuk, blubber, and meat are shared throughout the village (Tyonek) and between family and friends. In Anchorage, portions are kept and shared with family and friends. CI beluga whale parts have been sold in Anchorage to Alaska Native food stores, sold within the Anchorage Native community, and sold to Alaska Natives who live outside the Anchorage area.

Alaska Natives continue to share the meat and blubber in traditional patterns that reaffirm social ties and provide a strong sense of ethnic identity (Fitzhugh and Crowell, 1988). With the rise of alternative means of subsistence, reliance on whales as a primary food source diminished, but the importance of whaling in economic and cultural terms never disappeared (Fitzhugh and Crowell, 1988). The use of the beluga whale and other wild resources continues to be economically, nutritionally, and culturally valuable to the Dena'ina and other Alaska Natives in the CI area.

3.3.6 Fisheries in Cook Inlet

3.3.6.1 State Managed Commercial Fisheries: State and federally-permitted commercial fisheries for shellfish, groundfish, herring and salmon occur in the waters of Cook Inlet, and have varying likelihoods of interacting with beluga whales due to differences in gear type, timing, and location of the fisheries. Incidental interactions refer to entanglements, injuries, or mortalities occurring incidental to fishing operations. Given the recent distributional trend for beluga whales to be concentrated in upper Cook Inlet during summer (Rugh *et al.*, 2000), fisheries occurring in those waters during that time could have a higher likelihood of interacting with beluga whales.

Fisheries active in the Inlet include the lower Inlet/Northern Gulf waters for groundfish and crab.

Other fisheries also occur in the lower Cook Inlet for herring sac roe, lingcod and rockfish, and salmon. The lower CI herring sac roe fishery is of extremely short duration (often minutes to hours) taking place sometime in or near April within Kamishak Bay. Landed herring biomass has fluctuated greatly since 1977, and this fishery was closed in 1999 through 2002. A mechanical/hand jig fishery for lingcod and rockfish also occurs in lower Cook Inlet state and federal waters. Salmon purse seine fisheries in the lower Cook Inlet operate south of a line drawn west from Anchor Point within two districts, Kamishak Bay and Southern (divided at 152°20' W longitude), with most of the catch coming from the Southern District. These fisheries were not participants in the logbook reporting program.

Upper CI commercial fisheries include a razor clam hand-dig fishery, a herring gill net fishery, and salmon drift and set gill net fisheries. Prior to 1998, the herring fishery had been closed for five years, and in 1998 was open briefly during April-May to gill net gear. Harvests of herring have generally been concentrated in Tuxedni and Chinitna Bay areas (Ruesch and Fox, 1999).

The largest fisheries, in terms of participant number and landed biomass in Cook Inlet, are the salmon drift and set gill net fisheries concentrated in the Central and Northern Districts of upper Cook Inlet. Times of operation change depending upon management requirements, but in general the drift fishery operates from late June through August, and the set gill net fishery during June through September. Seine nets are infrequently employed in Chinitna Bay. Salmon fishery effort varies between years, and within years effort can be temporally and spatially directed through salmon management regulations. In general, however, though the number of permits fished in CI salmon gill net fisheries has been relatively constant, the landed salmon biomass has fluctuated greatly during the past 20 years. The combined annual drift and set gill net salmon biomass landings during 1993-2002 has been less than the 20 year average.

In the southern part of the Inlet, the commercial set gill net salmon fisheries are limited to five beach areas on the southern shore of Kachemak Bay, where approximately 25 permit holders operate sites (Bucher and Hammarstrom, 1996). Salmon fisheries in lower Cook Inlet are generally in operation during May-August.

3.3.6.2 Personal-Use Fisheries: Personal-use gill net fisheries also occur in Cook Inlet and have been subjected to many changes since 1978 (Ruesch and Fox, 1999) that are summarized in Brannian and Fox (1996). The most consistent recent personal-use fishery is the use of single ten-fathom gill nets for salmon in the Tyonek Subdistrict of the Northern District (Ruesch and Fox, 1999). Personal-use gill nets have also been allowed within waters approximately 2.4 km (1.5 miles) of the Kasilof River. In 1995, personal-use gill nets were allowed in most areas open to commercial salmon set gill net fishing. Most of this area was closed to personal gill net use in 1996. Personal-use salmon set gill net fisheries are also found in the Port Graham subdistrict of lower Cook Inlet.

Chapter 4 Environmental Consequences

This chapter forms a scientific and analytic baseline for comparisons across alternatives. As such, this section evaluates the probable environmental, biological, cultural, social and economic consequences of the alternatives and reviews those activities that, in addition to authorizing a harvest, may cumulatively impact CI beluga whales and the environment.

Differences between direct and indirect effects are primarily linked to the time and place of impact. Direct Effects are those that result from the action and occur at the same time and place. Indirect effects are those reasonably foreseeable effects that are caused by the action but that may occur later and farther from the location of the direct effects (40 CFR 1508.27). For example, the effects of the harvest alternatives have a direct impact on the recovery rate of the CI beluga whales and an indirect effect on the local Alaska Native communities who have traditionally relied on the subsistence resources of Cook Inlet including the beluga whales.

Cumulative effects are the incremental effect of the proposed action when added to the effects of past, other present, or reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over time. For example, the intent of the alternatives for harvest management being evaluated is to mitigate potential long-term impacts of the subsistence harvests on the beluga whale resource in Cook Inlet. However, the effects of the alternatives must be evaluated for all relevant resources and activities within the action area.

4.1 Criteria for Thresholds and Determining Significance of Alternatives

Significance is determined by considering the context in which the action will occur and the intensity of the action. The context in which the action will occur includes the specific resources, ecosystem, and the human environment affected. The intensity of the action includes the type of impact (beneficial versus adverse), duration of impact (short versus long term), magnitude of impact (minor versus major), and degree of risk (high versus low level of probability of an impact occurring). Further tests of intensity include: (1) the potential for jeopardizing the sustainability of any target or non-target species; (2) substantial damage to ocean and coastal habitats and or essential fish habitat; (3) impacts on public health or safety; (4) impacts on endangered or threatened species, marine mammals, or critical habitat of these species; (5) cumulative adverse effects; (6) impacts on biodiversity and ecosystem function; (7) significant social or economic impacts; and (8) degree of controversy (NAO 216-6, Section 6.02).

The terms “effects” and “impacts” are used interchangeably in preparing these analyses. The CEQ regulations for implementing the procedural provisions of NEPA, also state “Effects and impacts as used in these regulations are synonymous.” (40 CFR §1508.8). The terms “positive” and “beneficial”, or “negative” and “adverse” are likewise used interchangeably in this analysis to indicate direction of intensity in significance determination.

Each of the following sections contains a summary of the direct, indirect or cumulative effects of the action using criteria established to determine significance, insignificance or unknown for each resource, species, or issue being evaluated. The criteria for significance and determinations of significance are summarized in a table in each section, or when the same criteria were used to evaluate subsequent species, the reader is referred back to the appropriate table.

The following ratings for significance are used; significant (beneficial or adverse), conditionally significant (beneficial or adverse), insignificant, and unknown. Definitions of the criteria used for these rankings are included in each section. Where sufficient information is available, the discussions and rating criteria used are quantitative in nature. In other instances, where less information on the direct and indirect effects of the alternative are available, the discussions and rating criteria used are qualitative in nature. In instances where criteria do determine an aspect of significance (significant negative, insignificant, or significant positive) because that aspect is not logically describable, no criteria are noted. These situations are termed “not applicable” or NA in the criteria tables. See below for further information:

- S+ Significant beneficial effect in relation to the reference point (the reference point for effects of the harvest would be the recovery rate without a harvest, See Chapter 4.1).
- S- Significant adverse effect in relation to the reference point and based on ample information.
- CS+ Conditionally significant beneficial effect in relation to the reference point. This determination may be lacking in quantitative data and information, however, the judgement of the NMFS analysts who addressed the topic is that the alternative will cause an improvement in the reference point condition.
- CS- Conditionally significant adverse effect in relation to the reference point; it may be based on insufficient data and information, however, professional judgement is that the alternative may cause a delay in the reference point condition (delay in recovery) or loss of tradition or culture.
- I Insignificant effect in relation to the reference point; this determination is based upon information and data, along with the judgement of NMFS analysts, which suggests that the effects are small and within the “normal variability” surrounding the reference point.
- U Unknown effect in relation to the reference point; this determination is characterized by the absence of information and data, or equivocal determination. In instances where the information available is not adequate to assess the significance of the impacts on the resource, species, or issue, no significance determination was made, rather the particular resource, species, or issue was rated as unknown.

In this analysis we use the term “conditionally significant” to describe a significant impact that is informed by incomplete or unavailable information. The conditional qualifier implies that significance is assumed, based on the credible scientific information and professional judgement that are available, but more complete information is needed for certainty. In other words, we

may find that an impact has a significant adverse or a significant beneficial effect, but we do not have a high level of certainty about that finding. This approach provides a heightened sense of where information is lacking, and may guide research efforts in the future. An interesting point to make about this approach is that if an impact is rated as insignificant, there is a high level of confidence that the impact is truly insignificant, or it would have been moved to the “conditional significance” category.

4.1.1 Biological Model of the Effects of Harvest Alternatives on the Recovery Time of Beluga Whales in Cook Inlet

The criteria used to determine the significance of the direct effects or impacts of each alternative on the beluga whale stock was to compare the predicted change in the per capita population growth rate (expressed as a percentage change) to the anticipated growth rate of the population with no harvest.

This change was calculated using a model described in section 4.1. The terms “effects” and “impacts” are sometimes used interchangeably consistent with CEQ regulations (40 CFR 1508.8). It is the intent of NMFS to adopt a harvest alternative that would not significantly increase time to recovery (as compared to a no harvest scenario) yet allow for a traditional harvest

A logistic growth population model was used to project the recovery of the population (expressed in terms of years to recovery to OSP or 780 whales) under each of the alternatives. The model is based on the assumptions that (1) the population will grow to a maximum size, referred to as the carrying capacity, if no harvest occurs; (2) the per capita natural rate of increase of the population declines as the population increases in size; (3) hunting-related mortality does not affect reproduction in the year that it occurs and impacts males and females equally; and (4) immigration and emigration do not occur (see Laidre *et al.*, 2000; O’Corry-Crowe *et al.*, 1997).

Annual change in the population was then modeled as,

$$N_{y+1} = N_y + N_y R_{MAX} \left[1 - \left(\frac{N_y}{K} \right)^z \right] - H_y$$

where N_y is the abundance in year y , H_y is the total harvest-related mortality in year y , and z is a shape parameter that determines the ratio of the MNPL of the population to K . MNPL is at the lower end of the OSP range.

Comments on the Draft EIS, particularly during the ALJ hearing in December 2000, indicated that using point estimates of the original abundance (starting value for N , R_{max} , and K) would

not adequately incorporate uncertainty into assessing the impacts of the various alternatives. Furthermore, in his Recommended Decision, the ALJ found the NMFS model did not adequately take into account the uncertainty that exists concerning the Cook Inlet beluga whale stock. NMFS agreed and stipulated, along with other parties at the hearing, to conduct additional analyses with a more sophisticated model that would evaluate the impact of the harvest levels in 2005 and beyond.

The use of point estimates for model parameters results in a single time to recovery which is a single estimate in a range of possible outcomes. However, the use of point estimates rather than incorporating the entire range of feasible values for model parameters, is useful for illustrating comparisons of the various harvest management strategies. The resulting recovery periods are useful for comparative purposes rather than predicting actual time to recovery.

Two possible scenarios were considered to model the annual harvest mortality: (1) harvest remained constant (albeit at different harvest levels) from year to year ($H_y = H$); and (2) the harvest was a constant fraction of the population from year to year ($H_y = h N_y$, rounded to the nearest whole number). The model requires five parameters: N_{2001} , either H or h , R_{MAX} , K , and z . The initial population size, N_{2001} , was set to 386 whales, the estimated abundance from the 2001 aerial survey.

The following seven harvest alternatives were considered: (1) no harvest until recovery, $H_y = 0$; (2) $H_y =$ one whale per year; (3) $H_y =$ one whale for the years 2000 to 2007, then two whales in 2008 and thereafter; (4) $H_y =$ two whales per year; (5) a per capita harvest rate $h = 2$ percent per year with hN_y rounded to the nearest whole number or (6) no action, which means no harvest until Public Law 106-553 is rescinded; (7) $H_y = 1.5$ whales per year (six whales in four years). The maximum per capita growth rate, R_{MAX} , was set at 4 percent, K was set to 1,300 (the maximum estimate prior to 1994 that incorporated a correction factor to the actual number of animals observed during a survey (Calkins, 1989), and z was set to 2.4.

$$N_{y+1} = N_y + N_y(0.04) \left[1 - \left(\frac{N_y}{1300} \right)^{2.4} \right] - H_y$$

Using the model described above, the size of the population can be estimated for any year and harvest alternative, by iterative calculation of the population size in the previous year and the harvest of each year. The time to recovery can be estimated by repeating this calculation until a population of 780 whales (the lower level of OSP assuming $K = 1,300$ whales) is reached (Table 4.2.1). No harvest occurred in 1999 and 2000, while one beluga whale was harvested in 2001 and again in 2002. Each alternative harvest policy begins in 2003.

The percent increase in recovery time from 1999, due to a harvest alternative is calculated as:

$$\frac{\left(\begin{array}{c} \text{year of recovery} \\ \text{with harvest policy} \end{array} \right) - \left(\begin{array}{c} \text{year of recovery} \\ \text{with no harvest} \end{array} \right)}{\left(\begin{array}{c} \text{year of recovery} \\ \text{with no harvest} \end{array} \right) - 2001} \times 100$$

4.1.2 Social and Cultural Criteria - Whether a Traditional Harvest would Continue under the Alternative

The criteria used to determine the indirect significance of the alternatives are largely qualitative. The indirect effects of the alternatives would be recognized primarily in the consequences of having no harvest, or a limited harvest, and what it would mean to the social and cultural needs of the subsistence users. It is the intent of NMFS to adopt an alternative that would not significantly increase time to recovery (as compared to a no harvest scenario) yet allow for a traditional harvest.

4.2 Direct Effects of Alternatives on the Recovery of Beluga Whales in Cook Inlet

The estimated population sizes at ten year intervals under each of the alternatives are given in Table 4.2.2. The impacts of each alternative are also shown by comparing the predicted reduction in the per capita population growth rate (expressed as a percentage change) to the anticipated growth rate of the population with no harvest (Table 4.2.3). Note that in the first three decades the harvested populations grow at a slower rate than the unharvested population. After 30 years the harvested population is approaching the carrying capacity and its growth rate is naturally reduced. At this time harvested populations have a higher growth rate and increase at a much faster rate. Another measure of the recovery is to compare the predicted reduction in population size (expressed as a percentage reduction) under different harvest alternatives to that of the no harvest option (Table 4.2.4).

4.2.1 Evaluation of Alternative 1 - Zero Harvest until the Stock Recovers to OSP

Under Alternative 1 there would be no harvest until the CI stock was recovered to a population of 780 animals, the lower level of OSP, and the population level at which the depleted determination would be reconsidered.

Under this alternative, human caused mortalities would be eliminated or significantly reduced, until the CI beluga whale stock has recovered. The stock's recovery would be affected by natural mortality. Assuming an initial stock size equal to that of the 2001 estimate (386 whales), then applying the trajectory model, the time to recovery (when the population estimate reaches the lower end of OSP or 780 whales) would be 20 years (Table 4.2.1, recovery in Year 2022).

Table 4.2.1. Estimated Delay in Recovery Time to a Population Size of 780 Whales for

Different Alternatives

	No Harvest	1 Whale / Year	1 Whale / Year (2000-07) 2 Whales / Year (2008+)	2 Whales / Year	2% of Population / Year	1 Whale / odd year 2 Whales / even year
Year of Recovery	2022	2023	2024	2024	2050	2023
Percent Delay in Recovery Time	0	5%	9%	9%	127%	5%

Alternative 1 has few other direct biological effects. A harvest would not occur and whales would not be removed from this stock. Under this alternative, human caused mortalities would be eliminated or significantly reduced, until the CI beluga whale stock has recovered. The stock's recovery would be affected primarily by natural mortality.

Alternative 1 has few other direct biological effects. A harvest would not occur and whales would not be removed from Cook Inlet by hunting. Assuming an initial stock size equal to that of the 2001 estimate (386 whales), then applying the trajectory model, the time to recovery (when the population estimate reaches the lower end of OSP or 780 whales) would be 20 years (Table 4.2.1, recovery in Year 2022), the least amount of time for all alternatives.

4.2.2 Evaluation of Alternative 2 - One Strike Annually until the Stock Recovers to OSP

Under Alternative 2, NMFS would establish a harvest level at one (1) strike annually, until the stock had recovered to no less than 780 animals. This would require approximately 21 years ($R_{max} = 4$ percent, $K = 1,300$) (Table 4.2.1).

The increase in recovery time and decrease in population growth are not considered significant by NMFS. The remaining indirect biological effects of considering this alternative are similar to those identified for Alternative 1.

4.2.3 Evaluation of Alternative 3 - One Strike Annually for Eight Consecutive Years, after which Time the Harvest would be Increased up to Two Strikes Annually until the Stock Recovers

Under Alternative 3, NMFS would establish a harvest level at one (1) strike annually for eight consecutive years, after which the harvest would be increased to two (2) strikes annually until the stock had recovered to a population of no less than 780 animals. This would require approximately 22 years.

Table 4.2.2. Estimated Population Size by 10-Year Intervals for Different Alternatives

Year	No Harvest	1 Whale / Year	1 Whale / Year (2000-07) 2 Whales / Year (2008+)	2 Whales / Year	2% of Population / Year	1 Whale / odd year 2 Whales / even year
1999	367	367	367	367	367	367
2010	538	528	526	521	470	528
2020	744	722	709	702	549	722
2030	960	929	907	900	632	929
2040	1129	1100	1076	1071	711	1100
2050	1227	1205	1184	1181	781	1205

Table 4.2.3. The Predicted Percent Change in the Population Growth Rate for each Alternative Compared to the No-harvest Alternative in the Same 10-year Interval

Year	No Harvest	1 Whale / Year	1 Whale / Year (2000-07) 2 Whales / Year (2008+)	2 Whales / Year	2% of Population / Year	1 Whale / odd year 2 Whales / even year
1999	0%	0%	0%	0%	0%	0%
2010	0%	-2%	-2%	-3%	-13%	-2%
2020	0%	-3%	-5%	-6%	-26%	-3%
2030	0%	-3%	-5%	-6%	-34%	-3%
2040	0%	-3%	-5%	-5%	-37%	-3%
2050	0%	-2%	-4%	-4%	-36%	-2%

Table 4.2.4. Percent Reduction of Total Population Size Under Different Alternatives Compared to the Predicted Population Size in the Same Year with no Harvest.

Year	No Harvest	1 Whale / Year	1 Whale / Year (2000-07) 2 Whales / Year (2008+)	2 Whales / Year	2% of Population / Year	1 Whale / odd year 2 Whales / even year
1999	0%	0%	0%	0%	0%	0%
2010	0%	-6%	-7%	-10%	-40%	-6%
2020	0%	-6%	-9%	-11%	-52%	-6%
2030	0%	-5%	-9%	-10%	-55%	-5%
2040	0%	-4%	-7%	-8%	-55%	-4%
2050	0%	-3%	-5%	-5%	-52%	-3%

The direct biological consequence of this alternative would be similar to those considered under Alternative 2. This level of harvest requires approximately 22 years to recover the stock to 780 animals. Compared to the “no harvest” alternative, this would take two additional years, or extend the time to recovery by 9 percent (Table 4.2.1).

The projected population growth rate is reduced by approximately 7 to 8 percent during the first 20 years (Table 4.2.3) when one whale is struck annually for eight years, after which the strike increases to two whales per year. The predicted abundance level would be reduced by approximately 4 percent (average of 10-year intervals, Table 4.2.4).

The increase in recovery time and decrease in population growth are not considered significant by NMFS. The remaining indirect biological effects are similar to those identified for Alternatives 1 and 2.

4.2.4 Evaluation of Alternative 4 - Two Strikes Annually until the Stock Recovers to OSP

Under Alternative 4, NMFS would establish an annual harvest level at two (2) strikes, until the stock had recovered to a population no less than 780 animals. This would require approximately 23 years. Compared to the “no harvest” alternative, this would extend the time to recovery by three years or approximately 14 percent (Table 4.2.1).

The direct biological consequence of this alternative would be similar to Alternatives 2 and 3. This alternative would extend the time to recovery (compared to the “no harvest” alternative) by three years (from 20 years to 23 years). The projected population growth rate is reduced by approximately 12 percent in the first decade and 7 percent in the second decade (average of ten year intervals, Table 4.2.3) when two whales are harvested annually. The predicted decrease in abundance is not more than 7 percent during any ten year period (average decrease more than a 50 year period is 8 percent, Table 4.2.4). Under this alternative, neither the reductions in the population growth rate nor the decrease in abundance are considered significant by NMFS.

4.2.5 Evaluation of Alternative 5 - Annual Take Level is Based on a Fixed Percentage of Stock Size until the Stock Recovers to OSP

Alternative 5 would establish an annual harvest level (allowable strikes) at one-half the predicted annual recruitment, until the stock had recovered to a population of no less than 780 animals. This would require approximately 48 years.

Alternative 5 would significantly delay the recovery of CI beluga whales. This alternative would require 48 years to recover this stock to 780 whales. This alternative would extend the time to recovery by 127 percent compared to the number of years it would take to reach this level under the zero harvest alternative. It would initially cause a reduction in the population growth rate by greater than 50 percent (Table 4.2.3). This alternative would cause the CI beluga whale stock to remain at or near its present population size for a longer period of time than the other harvest alternatives. During this time, the viability of the stock is at risk, as it may be more vulnerable to catastrophic events. The increase in recovery time and decrease in population growth are considered significant by NMFS.

4.2.6 Evaluation of Alternative 6 - No-action Alternative (no agreement allowing a harvest to occur) until the Stock Recovers to OSP

NMFS would not take any action to establish a harvest plan for the CI beluga whale stock, and no harvest limits or guidelines would be established under this “no action” alternative. NMFS would not issue regulations to govern this harvest, nor would NMFS sign any cooperative agreement with any ANO which included provisions for the harvest of CI beluga whales. With Public Law 106-553, the moratorium on hunting CI beluga whales without a co-management agreement, in effect, no hunting would be allowed. Should NMFS not take any action under Alternative 6, then by default, there would be no harvest, like there is no harvest under Alternative 1. Alaska Natives would not be allowed to harvest beluga whales until new legislation removed Public Law 106-553.

Under this alternative, human-caused mortalities would be eliminated, or significantly reduced, until legislation removed Public Law 106-553. The stock’s recovery would be affected by natural mortality.

Under this alternative, with Public Law 106-553 the stock would require 20 years to recover, like Alternative 1, the least amount of time for all alternatives.

Alternative 6 has few other direct biological effects. A harvest would not occur and whales would not be removed from this population by hunting. Assuming an initial stock size equal to that of the 2001 estimate (386 whales), then applying the trajectory model, the time to recovery (when the population estimate reaches the lower end of OSP or 780 whales) would be 20 years.

4.2.7 Evaluation of Alternative 7 - ALJ Recommended Harvest Rate - The Preferred Alternative

Under Alternative 7, NMFS would establish a harvest level of six (6) strikes in two (2) years (1.5 beluga whales/year), from 2001 through 2004. The beluga whale and population dynamics experts and subsistence harvesting at the ALJ hearing agreed that taking up to 6 whales from the CI beluga whale stock over a 4-year period would not have a significant adverse impact on the beluga whale stock or its recovery. Analysis of the impacts of alternatives for the long-term strategy (2005 and beyond) will be conducted through a series of workshops that NMFS will initiate among representatives of the affected parties at the hearing. The results of these analyses will be included in NMFS submission to the Court by March 15, 2004, as required in the ALJ's Recommended Decision.

Generally, the effect of the long-term implementation of Alternative 7 (i.e., an annual average of 1.5 whales taken per year with no more than two whales taken in any one year, or three whales taken in any two year period) should result in a recovery period similar to that considered for Alternative 3 in the draft EIS (recovery to the lower level of OSP by the year 2024, See Chapter 4.1). Alternative 3 allows for 32 whales to be harvested gradually during a 20 year period, with no more than two whales taken in any one year. Alternative 7, if implemented for a 20 year period, would provide for 30 whales to be taken with no more than two whales taken in any one year. Therefore, the effects of Alternative 7 on the time to recovery of the beluga whale stock are not considered outside the scope of the alternatives analyzed in the draft EIS. identical to that considered in Alternative 3.

4.2.8 Summary of Direct Effects of Harvest Alternatives on CI Beluga Whales and Subsistence Users

The criteria for determining significance of the direct effects of the alternatives are presented at Chapter 4.1. A summary of direct effects are presented in Table 4.2.8.1. With the exception of Alternative 5, the effects of the harvest on recovery rates are not considered significantly different from the recovery rate of beluga whales in Cook Inlet without a subsistence harvest. Alternative 5 would significantly increase the amount of time to recovery. In all cases the effects of reducing the harvest would have conditionally significant effects on the cultural and traditional customs of the subsistence users. Some of the users would rather forego the harvest

rather than see the whales continue to decline. Other users would like a traditional harvest to be allowed to go forward while we rebuild the stock in size.

Table 4.2.8.1 Summary of direct effects of Alternatives 1 through 7 on recovery times of beluga whale stock and cultural significance to the subsistence users.

	Alt. 1-2	Alt.3-4	Alt.5	Alt. 6	Alt. 7
Delay in Recovery Time to OSP	I	I	S-	I	I
Per Capita Growth Rate to OSP	I	I	S-	I	I
Reduction in Population Size at 10 year intervals	I	I	S-	I	I
Cultural Significance	CS-	CS-	CS-	CS-	CS-

S = Significant, CS = Conditionally Significant, I = Insignificant, U = Unknown, + = Positive, - = Negative

4.3 Indirect Effects of Alternatives

4.3.1 Evaluation of Alternative 1 - Zero Harvest until the Stock Recovers to OSP

Several indirect biological effects have been identified as a possible result of selecting Alternative 1. Currently, the sale of edible portions of harvested marine mammals within Anchorage is not prohibited by Federal law, as Anchorage is classified as an Alaska Native village. Alternative 1 would change that and, through regulation, prohibit the sale of products from CI beluga whales. Some muktuk from hunters has appeared in Native food stores in the Anchorage area. Some Anchorage hunters have sold beluga meat and muktuk by word-of-mouth within the local Native community. One Native hunter said he supported his family by hunting beluga whales and selling the meat and muktuk to Native families (ADN, 1994). While the amount of CI beluga whale products sold commercially in Anchorage and elsewhere has not been determined, one local Anchorage retailer estimated selling approximately 3,000 pounds of muktuk annually. A single adult beluga may provide 400 pounds of muktuk. By this measure, this retailer may have sold the muktuk from seven beluga whales. Not all of this may have come from CI beluga whales. However, from June through November 1998, NMFS analyzed nine samples of beluga muktuk sold in Anchorage. Genetic analysis of these samples determined that they came from five (5) individual beluga whales, all of which came from the CI stock.

The unavailability of CI beluga whales for subsistence harvest by Alaska Natives might place additional hunting pressure on other marine mammal stocks in Cook Inlet. Of these other

marine mammals, only the harbor seal occurs regularly in upper Cook Inlet and increased harvest for subsistence is expected. Similarly, there may be increased pressure on the harvest of beluga whales from other stocks throughout Alaska. The stock considered most likely as an alternative source of beluga whale muktuk for those living in the CI region would be from Bristol Bay because of its proximity and ease of shipping to Anchorage.

The muktuk from one beluga whale harvested in Bristol Bay in 1999 was delivered to the Anchorage Native community. That whale had been incidentally caught in a fishing net and was sent to a local hunter who then distributed it to Alaska Natives in both Tyonek and Anchorage. In another instance, muktuk from a beluga whale taken in October 1999 on the Naknek River was subsequently sold in Anchorage¹. Interest was still high from the Bristol Bay region in 2001 and 2002, when inquiries were made on the legalities of shipping their beluga muktuk to Anchorage. Some level of importation of beluga whale products into the CI region may be expected. The four other Alaska beluga stocks are currently healthy and could support an additional small level of harvest. However, the subsistence use of these stocks is managed through an agreement between NMFS and the Alaska Beluga Whale Committee, who would address any management or tribal concerns associated with this trade.

Without a beluga whale harvest the additional subsistence take of waterfowl and fish in the region may occur. However, it is difficult to predict whether or not there would be an increased harvest of other subsistence species. Traditional Native foods consist of a variety of things that are not necessarily equivalent on a pound for pound bases, i.e., beluga muktuk would not be replaced by a pound of fish or seal. Therefore, there may be little interest among hunters in harvesting more of these other resources than they currently do. Also, the harvest of these resources is determined in part by their availability, which is not expected to change.

Despite the loss of the opportunity to harvest beluga whales, Alaska Natives would be expected to continue to use Cook Inlet for purposes of subsistence hunting, fishing, and gathering. These activities may include large game hunting (moose and bear), hunting of fur bearing animals, waterfowl hunting, marine mammal hunting (mainly harbor seals), fishing for salmon and eulachon (smelt), and plant and berry picking. The harvest and use of these foods are activities with significant social and cultural meaning as well as having economic importance.

Alternative 1 is expected to impact traditional Native culture in at least two ways. Alaska Natives who have recently participated in the hunting of CI beluga whales would not have the opportunity to harvest this resource. The cessation of traditional hunting for a period of more than 20 years would mean that a generation would pass before beluga whale hunting continued. Consequently, the knowledge and tradition of this harvest in Cook Inlet would skip a generation. Native hunters have expressed their belief that such knowledge must be passed on first-hand, and that the tradition would die if no hunting occurs for many years. Social standing

In this instance, 400 pounds of meat and muktuk from a mature female beluga whale from the Naknek River in Bristol Bay was shipped to Anchorage and sold at \$4 a pound.

within the Native community is based, in part, on the station of an individual. Whaling captains, and those who secure and distribute Native foods, are highly regarded. Those hunters who have relied on beluga whales as part of their annual Native food source, or for money through sale of edible portions, would be adversely affected by this alternative. The cultural aspects of this harvest would continue to erode under this alternative, if the traditional skills and knowledge associated with this hunt, are lost through time. Without direct experience in this harvest, these skills may not be taught and passed on. The consequence of this would be that when hunting resumed after the beluga's recovery, the low skill levels of the hunters could result in inefficient and wasteful harvest practices.

4.3.2 Evaluation of Alternative 2 - One Strike Annually until the Stock Recovers to OSP

Under Alternative 2, only a few Alaska Natives who have recently participated in the hunting of CI beluga whales would have the opportunity to harvest this resource. Additional Alaska Natives would benefit as the harvested beluga whale could be shared with others. Native hunters have expressed their belief that the skills, cultural values, and knowledge associated with this harvest must be passed on first-hand to younger generations.

Those hunters who have relied on the beluga for money would be adversely impacted by this alternative, as the agreement would prohibit such sales. The intent of this harvest is to enrich and maintain the cultural tradition of hunting. The traditional skills and knowledge associated with this hunt would not be lost, and direct experience in this harvest would continue to be taught and passed on.

The remaining indirect biological effects are similar to those identified for Alternative 1.

4.3.3 Evaluation of Alternative 3 - One Strike Annually for Eight Consecutive Years, after which Time the Harvest would be Increased to Two Strikes Annually until the Stock Recovers to OSP

Generally, the social and cultural consequences of Alternative 3 during the first eight years of implementing this alternative are similar to those identified for Alternative 2 (only one whale is struck). However, after year eight, (when two whales could be taken) the harvest of two whales would provide consequences similar to those identified for Alternative 4.

The remaining indirect biological effects are similar to those identified for Alternatives 1 and 2.

4.3.4 Evaluation of Alternative 4 - Two Strikes Annually until the Stock Recovers to OSP

Alternative 4 provides for a traditional harvest while not significantly increasing the time to recovery for the CI beluga whale stock.

Other social and cultural consequences of this alternative are similar to those in Alternatives 2 and 3. This is the alternative that most closely approached the stated objectives of NMFS and

was considered the preferred alternative in the draft EIS.

The remaining indirect biological effects are similar to those identified in previous alternatives.

4.3.5 Evaluation of Alternative 5 - Annual Take Level Based on a Fixed Percentage of Stock Size until the Stock Recovers to OSP

This increased level of harvest would allow the knowledge and tradition of the harvest to be passed on to younger generations, and would insure the cultural aspects of the harvest are maintained.

4.3.6 Evaluation of Alternative 6 - No-action Alternative (no agreement allowing a harvest to occur) until the Stock Recovers to OSP

Alternative 6 is expected to impact traditional Native culture, similar to those identified for Alternative 1. The remaining indirect biological effects are similar to those identified in previous alternatives.

4.3.7 Evaluation of Alternative 7 - ALJ Recommended Harvest Rate - The Preferred Alternative

Alternative 7 provides for a traditional harvest for both the Native Village of Tyonek and CI community hunters, while not significantly increasing the time to recovery for the CI beluga whale stock. This is the alternative that closely approaches the stated objectives of NMFS, allows for a review (2005) of the harvest as related to current abundance and status, recognizes the multiple beluga hunter communities, and is the preferred alternative in the FEIS.

Other social and cultural consequences of this alternative are similar to those in Alternatives 3 and 4.

The remaining indirect biological effects are similar to those identified in previous alternatives.

4.4 Indirect Effects of the Alternatives on Other Non-listed Marine Mammals

4.4.1 Pinnipeds

The “pinnipeds” group in Cook Inlet includes the harbor seal and the Steller sea lion. The action described in the alternatives will have little or no effect on those species. It is not anticipated that the rate of subsistence harvest on these species, especially harbor seals, will increase appreciably.

Therefore, in all cases, the direct and indirect effects of all alternatives are expected to have insignificant effects on pinnipeds in Cook Inlet.

4.4.2 Cetaceans

Ten species of whales and dolphins occur in Alaskan waters and are protected under the MMPA (but not listed under the ESA) including: the gray whale, minke whale, beluga whale, killer whale, Pacific white-sided dolphin, harbor porpoise, Dall's porpoise and beaked whales (Baird's, Cuvier's and Stejneger's). In all cases, there are no direct or indirect effects of the alternatives on cetaceans.

4.5 Indirect Effects of the Alternatives on Endangered or Threatened Species

The Endangered Species Act (ESA) establishes several levels of classification and criteria regarding the listing of wildlife species whose populations have reached levels warranting concern. Two of those levels are Threatened and Endangered. The beluga whale is not listed, or under consideration for listing, under the ESA and therefore, is not impacted by either of the alternatives considered.

Direct and indirect interactions of the subsistence harvest on listed species is most likely for Steller sea lions although remote. Steller sea lions are rarely found in the northern half of Cook Inlet (the area of the subsistence harvest for beluga whales). Therefore, an interaction between the beluga whale subsistence hunters and Steller sea lions would not likely occur as a result of these alternatives. Although Steller sea lions are occasionally taken for subsistence in Cook Inlet, there would be no difference in the level of take, either directly or indirectly, as a result of this action. Therefore the effect on Steller sea lions under either alternative is considered insignificant.

Seven species of large whales that occur in Alaskan waters are also listed under the ESA including: the North Pacific right whale, blue whale, fin whale, sei whale, humpback whale, sperm whale, and bowhead whale. Three species of Alaska marine birds are also listed under the ESA. However, none of these species regularly occur in Cook Inlet. In all cases, the direct and indirect effects of the alternatives considered in this proposed action will have no effect on listed great whales or seabirds.

4.5.1 Re-initiation of Consultation under Section 7 of the ESA

If significant or adverse effects on listed species were found as a result of the proposed action, there would be a need to reinitiate formal consultation, pursuant to Section 7 of the ESA. Neither of the alternatives were found to negatively effect ESA listed pinnipeds, cetaceans or seabirds. Similarly, these actions will not affect critical habitat for Steller sea lions or seabirds. Critical habitat has not been designated for ESA listed cetaceans. Consequently, re-initiation of ESA Section 7 consultation is not necessary as a result of this action.

4.6 Indirect Effects of Alternatives on Enforcement

This section provides information about the effects of the alternatives on enforcement of harvest regulations and/or co-management stipulations. Each of the alternatives is assessed with respect to the primary enforcement issues: (1) monitoring and enforcing compliance with stipulations in the co-management agreements with respect to the harvest; and (2) enforcing the harvest prohibitions in place for Cook Inlet. A comparison of the alternatives with respect to the two enforcement issues is provided in Chapter 4.6.1

4.6.1 Monitoring the Harvest

Five of the alternatives allow for some level of harvest. Under the co-management agreements the harvest shall be managed under certain harvest practices which include the following:

1. Only whaling boats and captains authorized under a permit issued by CIMMC may participate in the harvest allocated under this agreement. An Elder or experienced hunter shall be present and shall direct the harvest for each beluga whaling boat. This will reduce the chance of striking a calf, a female accompanied by a calf, or of striking a whale in an area or in a manner which may result in the loss of the whale.
2. Each whaling vessel must have aboard the following equipment: harpoon and attached rope/float, at least 30 feet of nylon rope or equivalent, and come-along or pulley system with deadman, to help insure against the loss of the whale.
3. All CI beluga whale hunting shall occur on or after July 13, 2002, to minimize the possibility of harvesting a pregnant female.
4. CIMMC, Native Village of Tyonek (NVT), or the person or persons holding a permit for the strike allocated to the Cook Inlet community of hunters shall notify NMFS Enforcement, Anchorage office, 48 hours prior to the hunt.
5. The intentional or negligent taking of a maternally dependent calf, or a female beluga whale accompanied by a maternally dependant calf, is prohibited.
6. Belugas whales shall be struck with a harpoon and float prior to shooting. This is intended to reduce struck and loss. Whales shall not be hunted or taken with unattended nets.
7. The sale of the beluga whale, or parts thereof, harvested under this agreement, shall not be permitted; provided that the nothing herein is intended to prohibit the use of non-edible by-products of a beluga whale taken under a permit authorized herein for use as handicrafts or clothing.
8. Upon harvesting a CI beluga whale, the whaling captain shall remove and retain the left

lower jawbone, and must make the jawbone available CIMMC or NMFS within 24 hours of the harvest. CIMMC shall thereafter provide the jawbone to NMFS Anchorage office within three days of the harvest. The whaling captain shall also provide the harvest information to CIMMC or NMFS within 30 days.

9. All hunters shall comply with the provisions of this agreement and any permit issued by CIMMC. Non-compliance with any provisions may result in the loss of hunting privileges for CI beluga whales and prosecution.
10. Any unauthorized striking of a CI beluga whale by a member of CIMMC shall be counted against the strikes allocated to CIMMC. If such a strike occurs prior to the hunt conducted legally under a CIMMC Harvest Permit, that Harvest Permit will be voided as follows. If the unauthorized strike is by a member of the Cook Inlet beluga hunting Community or a member of the Alaska Native Marine Mammal Hunters Committee (ANMMHC), the strike shall be counted against the strike allocated to the Community or to the ANMMHC, and any unused permit issued to the Community of hunters or the ANMMHC will be voided. If the unauthorized strike is by a member of the NVT, the strike shall be counted against the strike allocated to the NVT, and any unused permit issued to the NVT will be voided.
11. In the event of any loss of beluga whales through strandings or other causes, NMFS and CIMMC shall enter into consultation to determine whether to proceed with the hunt permitted by this agreement. Such determination shall be made based upon the best available information and consistent with the primary goals of the parties as set forth in this agreement. NMFS may suspend further hunting at any time if it finds unanticipated deaths within this stock are too high to permit additional removals consistent with recovery of the CI beluga whales.

The harvest is not to proceed without advance notice to NMFS and NOAA Fisheries Office for Law Enforcement, Alaska Enforcement Division(AED)present at the harvest (see #4 above). However, the more difficult enforcement issue is the monitoring of Cook Inlet for possible poaching or responding to calls from the public who believe that the illegal taking of a CI beluga whale might be taking place. This involves having man-power ready to respond and has resulted in increased costs. As a result AED contributes many hours to the protection of CI beluga whales. This task can not be performed concurrently with any other enforcement efforts, so any time for beluga whales is in addition to responsibilities for other programs.

Each year, the AED uses the Community Oriented Policing and Problem Solving (COPPS) philosophy as part of its enforcement efforts for CI beluga whales. This is a very important element in the enforcement planning. Those efforts focused on working with law enforcement agencies who have responsibilities in the geographical areas concerning suspected illegal beluga hunting. Education and joint patrols were conducted with the Alaska State Troopers, Alaska State Park Rangers, and the U.S. Fish and Wildlife Service. The AED also worked with the Protected Resources staff in the COPPS efforts by giving marine mammal presentations that

included beluga enforcement education. The presentations were conducted during the Campbell Creek summer education program for elementary school classes.

For example a total of 85 hours was dedicated to COPPS in 2002. In addition to the COPPS outreach, AED spent considerable time patrolling, conducting surveillance, and working with Protected Resources. The following is a summary of efforts from 2002. These are consistent with 2001: Vehicle patrol - 92 hours; Aircraft patrol - 110 hours; Vessel patrol - 27 hours; Surveillance operations - 12 hours; Whale sighting and reporting - 20 hours; Beluga Hotline - 45 hours; and liaison for the beluga whale hunts - 40 hours.

4.6.2 Significance Rating of the Impacts on Enforcement

Rating the significance of the alternatives with respect to their impact on enforcement is based on assessing two primary issues described in Section 4.6. These two issues are (1) monitoring and enforcing compliance with stipulations in the co-management agreements with respect to the harvest; and (2) enforcing the harvest prohibitions in place for Cook Inlet.

Table 4.6.2.1 summarizes the basis of significance ratings for these two issues. Two categories of significance were identified for each issue - “significant - adverse” or “insignificant.” “Significant - adverse” means that the alternative significantly increased the complexity of enforcing and managing the subsistence harvest for CI beluga whales under the alternatives. The significance levels of “conditionally significant” and “unknown” were determined to be inapplicable to these issues because NMFS does have the information necessary to rate the level of significance of the alternatives on enforcement.

Table 4.6.2.1 Explanation of criteria for rating Significance of Enforcement Impacts

Issue	Significant	Conditionally Significant (beneficial)	Conditionally Significant (adverse)	Insignificant	Unknown
Monitoring the Harvest	Creates increase COPPS workload	Not Applicable	Not Applicable	Does not create an increase in COPPS workload or complexity	Not Applicable
Monitoring for Poaching and No-Take Compliance	Creates increase in COPPS workload	Not Applicable	Not Applicable	Does not create an increase in COPPS workload or complexity	Not Applicable

4.7 Effects of Alternatives on Essential Fish Habitat (EFH)

The two issues of prime concern with respect to EFH effects are the potential for damage or removal of fragile biota that are used by fish as habitat, the potential reduction of habitat complexity, which depends on the structural components of the living and nonliving substrate; and potential reduction in benthic diversity from long-lasting changes to the species mix.

A qualitative review of the alternatives as to the significance of the effects on EFH resulted in an insignificant finding. The following criteria, grouped into five categories were used:

1. Damage to or removal of Habitat Areas of Particular Concern (HAPC) biota by trawl gear
2. Damage to or removal of HAPC biota by fixed gear
3. Modification of nonliving substrate, and/or damage to small epifauna and infauna by trawl gear
4. Modification of nonliving substrate, and/or damage to small epifauna and infauna by trawl gear
5. Reduction in benthic biodiversity

HAPC biota are taxa which form living substrate, and are identified by NMFS as meeting the criteria for special consideration in resource management. Several groups of organisms have been identified as HAPC in Alaska: coral, sponges, anemones, sea whips and sea pens. Bycatch of HAPC species in both trawl and longline gear is of concern. Concentrations of HAPC species often occur in nearshore shallow areas but also are found in offshore deep water areas with substrata of high microhabitat diversity.

EFH may be effected through modifications to the nonliving substrate in which they live have been combined, and/or damage to small epifauna and infauna by trawling. Intensive fishing in an area can result in a change in species diversity by attracting opportunistic fish species which feed on animals that have been disturbed in the wake of the tow, or by reducing the suitability of habitat used by some species.

The alternatives presented here do not in any manner have an effect on EFH or other habitat in Cook Inlet (Table 4.7.1). Furthermore, trawling is prohibited in the inlet and as a result, other, indirect effects of fishing, are therefore minimized. The effects of harvest alternatives on EFH are considered insignificant.

4.8 Safety and Health Impacts of Alternatives

Safety factors when considering subsistence harvest are considered an inherent part of the action. Implementing any of the alternatives that provide for a harvest requires that special precautions be taken prior to the harvest (See Chapter 4.6.1). To provide for the maximum in safety precaution several components of the co-management agreements focus on safety. These include the following: only whaling boats and captains authorized under a permit issued by CIMMC may participate in the harvest allocated under this agreement. An Elder or experienced hunter shall be present and shall direct the harvest for each beluga whaling boat. An

experienced hunter would minimize risks associated with the harvest; and CIMMC, the Native Village of Tyonek (NVT), or the person or persons holding a permit for the strike allocated to the Cook Inlet community of hunters shall notify NMFS Enforcement, Anchorage office, 48 hours prior to the hunt to enable them or their NMFS designates to be present at, and oversee, the harvest.

In all cases the alternatives that provide for a harvest require more safety concerns than do those alternatives that do not allow for a harvest (Table 4.7.1). Generally the effects of any alternative that provide for a harvest with regards to safety are similar. These impacts have not been evaluated quantitatively but generally if the alternative provides for the taking of one whale vs. two whales, one could argue that the potential safety and health concerns of the latter alternative were twice that of the first alternative. Based on that simple reality Alternatives 1 and 6 would be considered the safest of the alternatives with regards to human concerns. Alternative 5 provides for the most opportunities to harvest a whale; therefore represents the greatest safety concerns. The other alternatives are all similar to each other with little risk. However, given the level of experience required, and the long tradition of conducting this harvest, none of the risks associated with the alternatives are considered significant.

Table 4.7.1 Summary of effects of Alternatives 1 through 7 on EFH, other marine mammals and ESA species, Safety and Health Concerns, and effects on enforcement.

	Alt. 1-2	Alt.3-4	Alt.5	Alt. 6	Alt. 7
Enforcement (increase in COPPS workload)	S-	S-	S-	S-	S-
EFH	I	I	I	I	I
Other Marine Mammal Species and ESA Species	I	I	I	I	I
Safety and Health Impacts	I	I	I	I	I

S = Significant, CS = Conditionally Significant, I = Insignificant, U = Unknown, + = Positive, - = Negative

4.9 Summary of Indirect Effects of Harvest Alternatives on the Environment

The criteria for determining significance of effect of the alternatives are presented in Chapter 4 and the summary of effects are presented in Table 4.7.1. In all cases the alternatives increase the COPPS workload and complexity for NOAA AED and other enforcement agencies and concerns. All of the alternatives whether a harvest, occurred or not, would significantly increase the complexity of monitoring and enforcing compliance with the requirements of the harvest (or zero level harvest) as agreed to in the co-management agreements, or as stipulated to in the recommendation by the Court. Only Alternative 6 which allows for an unlimited, unregulated harvest would be considered insignificant in its effect on enforcement.

All other indirect effects on marine mammals, or listed species of marine mammals and seabirds, by any of these alternatives, are considered insignificant. Essential Fish Habitat would not be affected by any of the alternatives considered for beluga whale subsistence harvest.

4.10 Cumulative Effects

A cumulative effects analysis is a requirement of NEPA. An environmental assessment or environmental impact statement must consider cumulative effects when determining whether an action significantly affects environmental quality. The Council on Environmental Quality (CEQ) guidelines for evaluating cumulative effects state that "...the most devastating environmental effects may result not from the direct effects of a particular action but from the combination of individually minor effects of multiple actions over time." (CEQ 1997).

The CEQ regulations for implementing NEPA define cumulative effects as:

"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

A cumulative effects analysis takes into account the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7). Cumulative effects may result in significant effects even when the Federal action under review is insignificant when considered by itself. The CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action on the universe but to focus on those effects that are truly meaningful. This section analyzes beluga whale management alternatives with other factors that may affect physical, biological, and socioeconomic resource components of the CI region, and on the beluga whales and their habitat.

The methodology for conducting the cumulative effects analysis in this EIS is the same as that followed in the Steller Sea Lion Protection Measures Draft Supplemental EIS (NMFS, 2001).

4.10.1 Methodology

The intent of the cumulative effects analysis is to capture the total effects of many actions over time that would be missed by evaluating each action individually. A cumulative effects assessment describes the additive and synergistic result of the actions proposed in this SEIS as they interact with factors external those proposed actions. To avoid the piecemeal assessment of environmental impacts, cumulative effects were included in the 1978 CEQ regulations, which led to the development of the CEQs cumulative effects handbook (CEQ 1997) and federal agency guidelines based on that handbook (e.g., EPA 1999). Although predictions of direct

effects of individual proposed actions tend to be more certain, cumulative effects may have more important consequences over the long term. The possibility of these “hidden” consequences presents a risk to decision makers, because the ultimate ramifications of an individual decision might not be obvious. The goal of identifying potential cumulative effects is to provide for informed decisions that consider the total effects (direct, indirect, and cumulative) of alternative management actions.

The methodology for cumulative effects analysis in this EA is taken from the Steller Sea Lion Protection Measures Final SEIS (2001). It consists of the following steps:

- *Identify characteristics and trends within the affected environment that are relevant to assessing cumulative effects of the action alternatives.*
- *Describe the potential direct and indirect effects* - The alternatives reviewed in this EIS would be similar in their effects on the environment and are treated together. For example, each of the alternatives would have a similar additive effect if considered with the potential effects of habitat loss on beluga whales in Cook Inlet. The effect of the proposed actions (alternatives) is largely a null effect or “sum-zero”. Therefore, the potential cumulative effect on beluga whales is largely the result of the effect of the external activity when considered with the alternatives, not the effect of the alternatives themselves.
- *Identify past, present and reasonably foreseeable external factors such as other fisheries, other types of human activities, and natural phenomena that could have additive or synergistic effects* - Past actions must be evaluated to determine whether there are lingering effects that may still result in synergistic or incremental impacts when combined with the proposed action alternatives. The CEQ guidelines require that cumulative effects analysis assess reasonably foreseeable future actions. In these analyses the most significant past action was the commercial harvest; the most significant current actions evaluated were the commercial fisheries (human related) and the changing environment (natural).
- *Evaluate the significance of the potential cumulative effects using criteria established for direct and indirect effects and the relative contribution of the action alternatives to cumulative effects*- Of particular concern are situations where insignificant direct and indirect effects lead to significant cumulative effects or where significant external effects accentuate significant direct and indirect effects; and
- *Discuss the reasoning that led to the evaluation of significance, or lack of significance, citing evidence from quantitative information where available.*

The advantages of this approach are that it (1) closely follows CEQ guidance, (2) employs an orderly and explicit procedure, and (3) provides the reader with the information necessary to

make an informed and independent judgment concerning the validity of the conclusions. Further this approach was used in the analysis of effects of the groundfish fishery on Steller sea lions in the BSAI at NMFS (2001).

4.10.1.1 External Factors and Effects

For the purposes of this EA, the definition of other or “external” actions includes both human controlled events such as industrial development, and natural events such as disease, natural mortality or predation, and short and long term climate change.

The following external actions which could be considered human controlled and which are important to these analyses are: the past commercial harvest; prey availability in Cook Inlet (indirect effects of competition with state managed fisheries; potential interactions with state fisheries in Cook Inlet; oil and gas development in the Inlet and adjacent lands; municipal activities; commercial vessel traffic; impacts from noise; and potential impacts from NMFS research activities.

4.10.1.2 Criteria and Thresholds for Determining Significance

The criteria for significance and determinations of cumulative effects significance are the same as those used to analyze the direct and indirect effects of the alternatives on the environment.

The following ratings for significance are used; significant (beneficial or adverse), conditionally significant (beneficial or adverse), insignificant, and unknown. Definitions of the criteria used for these rankings are included in each section. Where sufficient information is available, the discussions and rating criteria used are quantitative in nature. In other instances, where less information on the direct and indirect effects of the alternative are available, the discussions and rating criteria used are qualitative in nature. In instances where criteria do determine an aspect of significance (significant negative, insignificant, or significant positive) because that aspect is not logically describable, no criteria are noted. These situations are termed “not applicable” or NA in the criteria tables. See below for further information:

- S+ Significant beneficial effect in relation to the reference point (the reference point for effects of the harvest would be the recovery rate without a harvest, See Chapter 4.1).
- S- Significant adverse effect in relation to the reference point and based on ample information.
- CS+ Conditionally significant beneficial effect in relation to the reference point. This determination may be lacking in quantitative data and information, however, the judgement of the NMFS analysts who addressed the topic is that the alternative will cause an improvement in the reference point condition.
- CS- Conditionally significant adverse effect in relation to the reference point; it may be based on insufficient data and information, however, professional judgement is that the alternative may cause a delay in the reference point condition (delay in recovery) or loss

of tradition or culture.

- I Insignificant effect in relation to the reference point; this determination is based upon information and data, along with the judgement of NMFS analysts, which suggests that the effects are small and within the “normal variability” surrounding the reference point.
- U Unknown effect in relation to the reference point; this determination is characterized by the absence of information and data, or equivocal determination. In instances where the information available is not adequate to assess the significance of the impacts on the resource, species, or issue, no significance determination was made, rather the particular resource, species, or issue was rated as unknown.

4.10.2 Direct Cumulative Effects

4.10.2.1 Effects of the Commercial Harvest

Commercial whaling has occurred periodically in Cook Inlet during the last 100 years (Mahoney and Sheldon, 2000). The Beluga Whaling Company operated for five years at the Beluga River in upper Cook Inlet where the company harvested 151 beluga whales before going bankrupt in 1921 (Bower, 1919, 1920, 1921). Longtime residents interviewed by ADFG personnel recalled a commercial hunt of 100 beluga whales on the Beluga River in the 1930's (Klinkhart, 1966; Fall *et al.*, 1984; Lowry, 1985; Stanek 1994); however, no record of this hunt exists in the Alaska Fishery and Fur-seal Industries documents for this time period.

Alaska Natives and other residents living in the lower Susitna Basin and the villages of Knik and Eklutna sold beluga products in Anchorage during the 1940's and 1950's (Stanek, 1994). Some of these products (such as muktuk and meat) were sold to the Alaska Native Medical Center, which opened in 1953, in an effort to supply traditional foods to the patients (Stanek, 1994).

Guided sport hunting for beluga whales out of Anchorage and Kenai enjoyed some popularity during the 1960's (ADT, 1965), however, no information exists on the level of this harvest.

It is doubtful whether the trends in CI beluga whales can be attributed to the cumulative, long term or residual effects of the past commercial hunts. However, the actual level of the commercial harvest of beluga whales in Cook Inlet is not known. Therefore, any possible cumulative effects of this activity might be considered insignificant at this time, but cannot be stated as such. Therefore the effect of the commercial harvests, when considered with other cumulative effects of the environment on the alternatives, is considered unknown.

4.10.2.2 Effects of the Subsistence Harvest Prior to 1999

The CI beluga whale stock was subjected to annual unregulated hunts by Alaska Natives from

outside the CI treaty tribes prior to 1999. The hunters may be broadly divided into two groups; a small group of hunters from CI-area tribes and villages (of Athabascan descent) and hunters living in or visiting the CI region from northern tribes and villages (these hunters are of Eskimo descent). The number of Eskimo, or non-area, hunters greatly exceed that of the CI tribal hunters, although no detailed estimates exist. NMFS believes there were approximately 16 Eskimo whaling crews in 1997, consisting of two to four hunters in each crew. CIMMC estimated that approximately 50 people were hunting beluga whales. It is common for whalers to be accompanied by friends and relatives while on hunting trips. Of the six CI treaty tribes and villages, only the Native Village of Tyonek has harvested beluga whales in recent history. Tyonek's harvest of beluga whales has been modest; residents there report about six to seven whales were taken annually during the 1930's and 1940's, but very little beluga hunting occurred between the 1940's and the late 1970's (Stanek, 1994). About three were taken in 1979, and one whale was harvested annually between 1981 and 1983 (ADFG, undated). Recently, Tyonek's harvest has averaged one to two beluga whales each year. The Beluga and Theodore Rivers are major hunting areas for this village.

The primary hunting areas for beluga whales are within upper Cook Inlet, off the mouths of a few river systems. Traditional Native hunting camps exist on two islands in the delta of the Susitna River. Beginning in April, hunters used small motorboats launched from Anchorage to access these camps and hunt in or near the river mouths. Crews are often small, consisting of only two to four hunters, although several crews may hunt together. A common hunting technique is to isolate a whale from a group and pursue it into shallow waters (DeMaster *et al.*, 1999). Whales are shot with high powered rifles and may be harpooned to aid in retrieval of the whale. Most of the products obtained from these whales are used for human consumption. The type and quantity of portions retained by the hunters are largely determined by the customs and practices of the hunter, which maybe culturally determined. While some Alaska Native villages typically remove both muktuk (skin and underlying fat layer) and muscle, others do not like the taste of the meat and retain only the muktuk. The flukes and flippers are highly-valued and are kept. The muktuk is most often retained and is desired above other portions. Muktuk is dried and/or frozen and is eaten raw or cooked (usually by boiling). The muscle tissues of beluga are sometimes retained, and the meat preserved by drying. Teeth may be used for carving and the creation of traditional handicrafts.

The Native Village of Tyonek describes their customary use of the beluga whale (ADFG, undated): "The flippers and tail were removed and discarded. The skin and blubber were removed by making parallel cuts the length of the carcass about 16 inches apart. As these strips of blubber were fleshed from the animal, they were cut into blocks approximately 24" in length. After the blubber was removed exposing the flesh, the backstrap was cut from the backbone. The ribs with the meat remaining on them were then separated from the backbone, exposing the internal organs. The liver, heart, and inner tenderloins were then removed. The remaining skeleton and internal organs were either used for dog food or returned to the Inlet. The blubber and meat were cut into smaller portions and shared throughout the village.

Historically, harvest levels of CI beluga whales have been largely unreported. There are no

reliable estimates of harvest prior to 1994. Estimated harvests for the years 1987-2002 are presented in Figure 1. The sources of these figures include estimates by Alaska Department of Fish and Game (ADFG), hunter reports at Alaska Beluga Whale Committee meetings, reports from CIMMC, data compiled by NMFS based on reports from Anchorage hunters and direct observations of harvested whales, and harvests under co-management agreements. The large difference in the number of beluga whales harvested before and after 1995 is due, in large part, to improved efforts in reporting by hunters, and their application of a correction factor for struck and lost whales.

The 1996-1998 estimates include animals struck, but lost, using a ratio of 1.5 beluga whales lost for each landed (1996) and one beluga whale lost for each landed (1997 and 1998). Data compiled from hunter interviews by CIMMC for the 1995 harvest, identified 44 CI beluga whales landed and 26 struck and lost (CIMMC, 1996). Data compiled for the 1996 harvest could only estimate that between one and two whales were lost for each beluga landed. In 1997 and 1998, hunter reports to NMFS estimated that one whale was lost for each beluga landed. It is common for beluga harvest efficiencies to be low, and struck and loss estimates are variable, depending on the weather conditions and individual hunters. Native hunters, themselves, reported an increase in the number of struck and lost beluga whales, evidenced by whales observed washed up on shore along the west side of the Inlet (Huntington, 1999). An efficient harvest in Cook Inlet is confounded by the turbidity of the water, large tidal fluctuations and currents, and changing mudflats.

Based on this information, NMFS estimated that the average annual takes in this harvest, including whales that were struck and lost, was 67 whales per year from 1994 through 1998. The estimated annual average harvest from 1995 thru 1996 (including struck and lost) was 97 whales (CIMMC, 1996 and 1997). Annual harvest estimates for 1994 thru 1998 are 21 whales (1994), 70 whales (1995), 123 whales (1996), 70 whales (1997) and 50 whales (1998). The harvest, which was as high as 20 percent of the stock in 1996, was sufficiently high to account for the 14 percent annual rate of decline in the stock during the period from 1994 through 1998. In 1999 and 2000, there was no harvest as a result of this legislation, and in combination with the voluntary moratorium by the hunters in spring 1999.

Since 1999, a moratorium was enacted (Pub. L. No. 106-31, [section] 3022, 113 Stat. 57, 100 (May 21, 1999)) to prohibit the harvest of CI beluga whales except through a co-management agreement between NMFS and an ANO. This moratorium was made permanent when signed by President Clinton on December 21, 2000 (Pub. L. No. 106-553, [section] 1(a)(2), 114 Stat. 2762 (December 21, 2000)). As a result, no harvest has occurred since 1999 unless it has been through a cooperative agreement which provides for the management of the beluga whale harvest.

Since the protective legislation was put in place, NMFS has entered into several co-management agreements with CIMMC to allow for one or two whales to be taken annually. The effects of this strategy are considered insignificant and the preferred alternative evaluated in this EIS provides for such a harvest strategy.

(i) Summary of the Effects of the Subsistence Harvest Prior to 1999

The numbers of animals harvested between 1994 and 1998 can account for the estimated decline of the stock during that interval. Therefore, the annual harvest estimates and rate of decline from 1994 through 1998 (15 percent per year) clearly indicate that the harvest was unsustainable, prior to the restriction in 1999. At such a level of harvest, this stock was reduced by 50 percent within five years and considered depleted under the MMPA. Therefore, the historical effects of this action are considered significant negative.

4.10.2.3 Effects of Stranding Events

Stranding events are not uncommon to the CI beluga whale stock. NMFS estimates that more than 640 whales have stranded (both individual and en masse) in upper Cook Inlet since 1988², although most of these were live strandings and the whales swam away after the tide returned (Moore *et al.*, 2000). Mass stranding events have most commonly occurred along Turnagain Arm and have often coincided with extreme tidal fluctuations (“spring tides”) and/or killer whale reports. These mass strandings involve both adult and juvenile beluga whales.

Beluga whale mortalities have been observed during some of these stranding events. A 1996 mass stranding of approximately 60 beluga whales in Turnagain Arm resulted in the death of four adult whales. Another stranding of approximately 70 whales in August 1999 left five adult beluga whales dead. The causes for these deaths are unknown, but may have to do with stress and hyperthermia from prolonged exposure. Whales which strand at higher elevations during an outgoing tide may be exposed for ten hours or more. Unless caught in an overflow channel or pooled area, the whale may have difficulty regulating body heat. An extensive network of capillaries within the flukes and flippers allows beluga whales to lose body heat to the environment. If these structures are out of the water, this mechanism cannot function properly and body heat rises. Additional stress is placed on internal organs and breathing may be difficult without the support provided by the water.

Mortalities due to individual stranding events are generally considered in the population model discussed in this Chapter as natural mortality and, therefore, considered in the *R_{max}* calculation. Mortality due to a mass stranding event is not considered in the model. A large number of mortalities due to a mass stranding event could significantly impede recovery. Such a mortality event has not occurred, and has not been a significant factor in the recent abundance trends for this stock of whales. Even the 1999 mass stranding event of 70 whales resulted in only five mortalities. Therefore, mass stranding events are not believed to be a causal factor that has reduced this stock to depleted levels.

(i) Summary of Effects of Stranding Events

²This estimate includes 44 beluga whale carcasses found along the shoreline which had been harvested for subsistence.

The potential cumulative effects of stranding events on CI beluga whales, when considered with the alternatives proposed by this action, neither increase the likelihood of mortality nor increase the amount of time it would take to recover the stock of beluga whales to OSP. Therefore, the cumulative effects of this natural activity are considered insignificant.

4.10.2.4 Effects of Predation

Killer whales are the only natural predators of beluga whales in Cook Inlet. It has been suggested that the potential for significant impacts on the CI beluga whale population by killer whales cannot be ruled out, given recent changes in prey availability to killer whales throughout the Gulf of Alaska (referring to declines in pinniped populations in the Central and Western Gulf of Alaska since the mid 1970s). It has been further suggested that even a small increase in predation could result in population decline or impede recovery of the CI beluga whales.

The number of killer whales visiting the upper Inlet appears to be small given the numbers that are reported and those that occasionally strand in the Inlet (Shelden *et al.*, 2003). However, predation by killer whales on CI beluga whales was considered by some to be a mortality factor that may have contributed to the CI beluga whale declines in recent years. NMFS has reports of killer whales in Turnagain and Knik Arms, near Fire Island, Tyonek, and the Susitna River. Native hunters report killer whales are usually found along the tide rip that extends from Fire Island to Tyonek (Huntington, 1999).

No quantitative data exist on the level of removals from this population due to killer whale predation, or its impact. However, killer whale pods are known to prey selectively on either salmon, or marine mammals, including beluga whales in Cook Inlet. During a killer whale stranding in Turnagain Arm in August 1993, one observer reported that a killer whale vomited pieces of beluga flesh. In Sept 2000, NOAA Enforcement witnessed four killer whales attacking a small pod of beluga whales in Turnagain Arm. Declines of sea lions and seals throughout the central Gulf of Alaska (including lower Cook Inlet) may have resulted in a partial dietary shift from pinnipeds to beluga whales in Cook Inlet during recent years. This result may account for some of the more recent sightings of killer whales in upper Cook Inlet. The whales may be seeking beluga whales as prey in the absence of the once plentiful harbor seals and sea lions. However, killer whales also prey on salmon, a prey species of beluga whales. Therefore, seeing killer whales in proximity to beluga whales in the upper Inlet does not necessarily imply that they are searching for beluga whales, rather they may be competing for available prey.

Quantifying the impact of predation by killer whales on CI beluga whales is difficult (Shelden *et al.*, 2003). Their sightings in upper Cook Inlet are rare and actual witness reports of attacks are few. Anecdotal reports often highlight the larger, more sensational, mortalities on beluga whales due to killer whales, thereby, overestimating their impact.

The loss of a few beluga whales could impede recovery, as suggested by the petitioners. However, in order for killer whale predation to have an impact significant enough to result in a

decline in the population trajectory, a level of predation mortality that approximates the level of recruitment in the population, would be required. No indication exists that natural mortality in the CI beluga whale population exceeds levels considered normal for other small cetacean populations.

(i) Summary of Effects of Predation

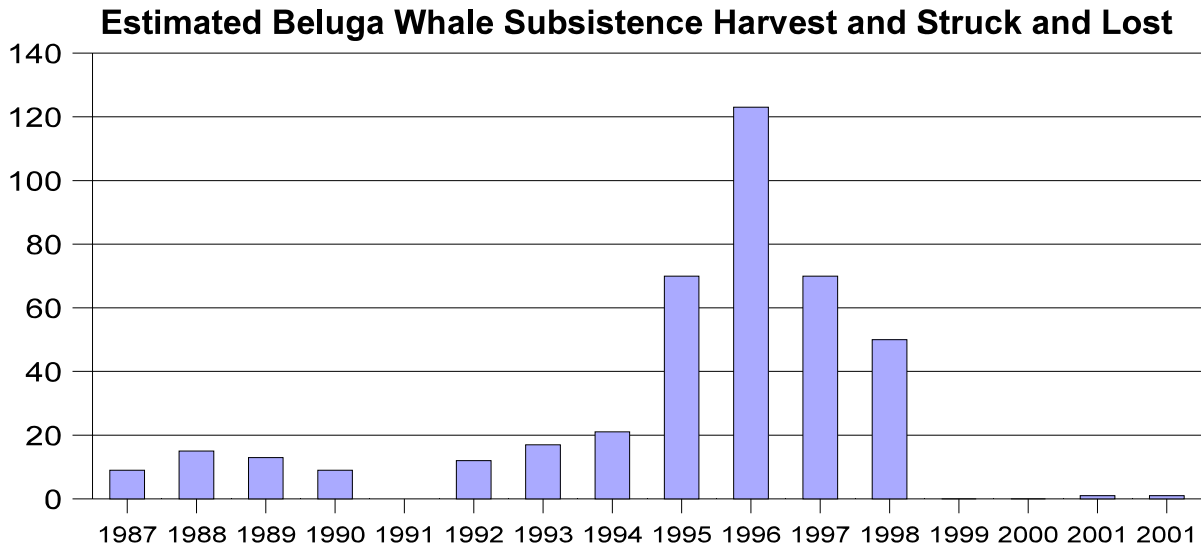
The recorded information indicates that more killer whales were present in the Inlet in the past than at present (Shelden *et al.*, 2003). However, only recently have most records been kept. The number of recent sightings in upper Cook Inlet identifies a small (4-6 killer whales) pod of animals. These whales may prey exclusively on marine mammals and are, therefore, of concern.

Mortality due to predation is not believed to be significant enough to cause the population to decline. However, because of the changing prey densities available to killer whales in the northern Gulf of Alaska, and the potential for increase reliance upon beluga whales in Cook Inlet, the effect of predation on CI beluga whales is largely unknown. Therefore, rather than state that the effects are insignificant, it is more accurate to indicate that they are unknown at this time.

4.10.2.5 Effects of Vessel Strikes on CI Beluga Whales

The presence of beluga whales in and near river mouths entering upper Cook Inlet predisposes them to strikes by high speed water craft associated with sport and commercial fishing and general recreation. The mouths of the Susitna and Little Susitna River in particular are areas where such vessel traffic and whales commonly occur. Beluga whales with propellor scars are observed in the Inlet. Most propellor injuries by small boats are thought to be nonlethal. NMFS enforcement agents investigated a report of a jet skier approaching and striking beluga whales in Knik Arm in 1994. A stranded beluga whale examined in 1999 had an injury consistent with an old propeller injury (Burek, 1999c).

It appears that the potential cumulative effects of mortality due to vessel interactions on CI beluga whales, when considered with the alternatives proposed by this action, would not increase the amount of time it would take to recover the stock of beluga whales to OSP. Therefore, the cumulative effects of this activity are considered insignificant. There are no data available to quantify this impact for the CI stock of beluga whales, but it is not believed to have had a significant impact on the stock.



4.10.2.6 Direct Effects of Commercial Fisheries on CI Beluga Whales

State and federally-permitted commercial fisheries for shellfish, groundfish, herring and salmon occur in the waters of Cook Inlet, and have varying likelihoods of interacting with beluga whales due to differences in gear type, timing, and location of the fisheries. Incidental interactions refer to entanglements, injuries, or mortalities occurring incidental to fishing operations.

(i) Incidental Mortality

(1) Commercial Fisheries: Reports of a marine mammal injuries or mortalities incidental to commercial fishing operations are obtained from observer programs, fisheries reporting programs, and reports in the literature. During 1990-93, certain fisheries were required to participate in a logbook reporting program, which provided information regarding the amount of fishing effort and interactions with marine mammals and the outcome (deterred, entangled, injured, killed). Data from this program were difficult to interpret due to sampling problems (Young *et al.*, 1993), and tended to underestimate actual incidental mortality rates (Credle *et al.*, 1994). This program was replaced by the 1994 MMPA amendments with a fisher self-reporting program, in which all commercial fishers are required to notify NMFS of injuries or mortalities to marine mammals occurring during the course of commercial fishing. This program became effective in 1995, and is currently in operation. In general, however, significantly fewer reports have been received under this program than expected based on the logbook reporting program and on results from observer programs. Thus, annual mortality rates derived from these programs should be considered minimum estimates (Angliss *et al.*, 2001).

NMFS designed a rotational observer program to identify potential interaction 'hot spots' among

eight Category II fisheries in Alaska. Because of the heightened concern in Cook Inlet, the program observed the two CI Category II fisheries (salmon drift and upper and lower CI set gill net) in 1999 and 2000.

Given the recent distributional trend for beluga whales to be concentrated in upper Cook Inlet during summer (Rugh *et al.*, 2000), fisheries occurring in those waters during that time could have a higher likelihood of interacting with beluga whales. However, the only fisheries active in the Inlet during that period are in the lower Inlet/Northern Gulf waters for groundfish and crab. No interactions between beluga whales and northern Gulf of Alaska groundfish trawl, longline or pot fisheries were reported by federal observers during 1990-2000 (Angliss *et al.*, 2001).

Other fisheries also occur in the lower Cook Inlet for herring sac roe, lingcod and rockfish, and salmon. The lower CI herring sac roe fishery is of extremely short duration (often minutes to hours) taking place sometime in or near April within Kamishak Bay. Landed herring biomass has fluctuated greatly since 1977, and this fishery was closed in 1999 through 2002. A mechanical/hand jig fishery for lingcod and rockfish also occurs in lower Cook Inlet state and federal waters. Salmon purse seine fisheries in the lower Cook Inlet operate south of a line drawn west from Anchor Point within two districts, Kamishak Bay and Southern (divided at 152°20' W longitude), with most of the catch coming from the Southern District. These fisheries were not participants in the logbook reporting program. No reports of injury or mortality to beluga whales have been received from participants in these fisheries under the fisher self-reporting program during 1995-2001.

Upper CI commercial fisheries include a razor clam hand-dig fishery, a herring gill net fishery, and salmon drift and set gill net fisheries. Prior to 1998, the herring fishery had been closed for five years, and in 1998 was open briefly during April-May to gill net gear. Harvests of herring have generally been concentrated in Tuxedni and Chinitna Bay areas (Ruesch and Fox, 1999). These fisheries were not participants in the logbook reporting program. No reports of injury or mortality to beluga whales have been received from participants in these fisheries under the fisher self-reporting program during 1995-99.

The largest fisheries, in terms of participant number and landed biomass in Cook Inlet, are the salmon drift and set gill net fisheries concentrated in the Central and Northern Districts of upper Cook Inlet. Times of operation change depending upon management requirements, but in general the drift fishery operates from late June through August, and the set gill net fishery during June through September. Seine nets are infrequently employed in Chinitna Bay. Salmon fishery effort varies between years, and within years effort can be temporally and spatially directed through salmon management regulations. In general, however, though the number of permits fished in CI salmon gill net fisheries has been relatively constant, the landed salmon biomass has fluctuated greatly during the past 20 years. The combined annual drift and set gill net salmon biomass landings during 1993-2002 has been less than the 20 year average.

In the southern part of the Inlet, the commercial set gill net salmon fisheries are limited to five

beach areas on the southern shore of Kachemak Bay, where approximately 25 permit holders operate sites (Bucher and Hammarstrom, 1996). Salmon fisheries in lower Cook Inlet are generally in operation during May-August.

For the drift gill net fishery, observers were deployed during all 12 fishing periods in 2000 and observed approximately 903 hauls among 160 vessels for a total of 1,584 hours observation time. In 1999, observations were made of 744 sets and/or hauls among 102 vessels (of 487 total permitted vessels) for 845 hours observation time. Over the two years of observation, an estimated total of 384 net-days was observed. Beluga whales were not observed to interact (approach within 10 m) with the drift gill nets in either year. For the set net fishery, observers were deployed during all fishing periods in 2000 and observed 800 hauls from 269 permits during 2,149 hours of observation time. In 1999, observations were made of 1,450 soaks and/or hauls by 275 unique permit holders (among a total of 556 fishing permits) for a total of 1,545 hours observation time. Over the two year program, an estimated 614 net days were observed.

No marine mammal mortalities were observed in either year among this fishery. Although a few marine mammals were entangled and released, beluga whales were never observed within 10 m of a net (i.e., within a distance categorized as an 'interaction') in the drift or set net fisheries.

(2) Personal-use Fisheries: Personal-use gill net fisheries also occur in Cook Inlet and have been subjected to many changes since 1978 (Ruesch and Fox, 1999) that are summarized in Brannian and Fox (1996). The most consistent recent personal-use fishery is the use of single ten-fathom gill nets for salmon in the Tyonek Subdistrict of the Northern District (Ruesch and Fox, 1999). Personal-use gill nets have also been allowed within waters approximately 2.4 km (1.5 miles) of the Kasilof River. In 1995, personal-use gill nets were allowed in most areas open to commercial salmon set gill net fishing. Most of this area was closed to personal gill net use in 1996. Personal-use salmon set gill net fisheries are also found in the Port Graham subdistrict of lower Cook Inlet. NMFS is unaware of any beluga whales injured or killed in the CI personal use/subsistence gill net fisheries.

(ii) Summary of Direct Effects of Commercial Fisheries on CI Beluga Whales

The only reports of beluga whale mortality caused incidental to commercial salmon gill net fishing in Cook Inlet are from the literature. Murray and Fay (1979) stated that salmon gill net fisheries in Cook Inlet caught five beluga whales in 1979. Incidental take rates by commercial salmon gill net fisheries in the Inlet was estimated at three to six beluga whales per year during 1981-83 (Burns and Seaman, 1986). Neither report, however, differentiated between the set and drift gill net fisheries. In contrast, there have been no recent and verified reports of incidentally caught beluga whales in Cook Inlet. No reports of injuries or mortalities incidental to salmon drift or set gill net fishing were made during the 1990-91 logbook reporting program. There were no reports of entanglement in the observer program. Some mortalities might be expected as the population increases. However, the effect of the current rate of direct mortality in commercial fisheries in Cook Inlet is insignificant in that it would not result in a significant

delay in recovery time to OSP.

4.10.2.7 Effects of Disease

Little is presently known about the effects of disease on CI beluga whales. Bacterial infection of the respiratory tract is one of the most common diseases encountered in marine mammals. However, some basic information exists on the occurrence of diseases in CI beluga whales, and a considerable amount of information exists for other beluga whale populations, and the effect(s) of these diseases on the species.

Bacterial pneumonia, either alone or in conjunction with parasitic infection, is a common cause of beach stranding and death (Howard *et al.*, 1983). From 1983 to 1990, 33 percent of stranded beluga whales in the St. Lawrence estuary (n = 45 sampled) were affected by pneumonia (Martineau *et al.*, 1994). One beluga apparently died from the rupture of an "aneurysm of the pulmonary artery associated with verminous pneumonia" (Martineau *et al.*, 1986).

Beluga whale populations in Alaska appear relatively free of ectoparasites, although both the whale louse, *Cyamus* sp., and acorn barnacles, *Coronula reginae*, are recorded from stocks outside of Alaska (Klinkhart, 1966). Endoparasitic infestations are more common: An acanthocephale, *Coryosoma* sp., was identified in beluga whales, and *Pharurus oserkaiae* has been found in Alaska beluga whales. *Anisakis simplex* is also recorded from beluga whales in eastern Canada (Klinkhart, 1966). Necropsies conducted on CI beluga whales have found heavy infestations in adult whales. Approximately 90 percent of CI whales examined have had kidneys parasitized by the nematode *Crassicauda giliakiana*. This parasite occurs in other cetaceans, such as Cuvier's beaked whale. Although extensive damage and replacement to tissues have been associated with this infection, it is unclear whether this results in functional damage to the kidney (Burek, 1999a). Parasites of the stomach (most likely *Contracaecum* or *Anisakis*) are often present in CI beluga whales. These infestations have not, however, been considered to be extensive enough to have caused clinical signs.

Sarcocystis sp. have also been found in muscle tissue from CI beluga whales. The encysted (muscle) phase of this organism is thought to be benign. The arctic form of *Trichenella spiralis* (a parasitic nematode) is known to infect many northern species including polar bears, walrus, and to a lesser extent ringed seals and beluga whales (Rausch, 1970). The literature on "arctic trichinosis" is dominated by reports of periodic outbreaks among Native people (Margolis *et al.*, 1979). The effect of the organism on the host marine mammal is not known (Geraci and St. Aubin, 1987).

Therefore, parasites, and the potential for diseases, do occur in CI beluga whales. However, no indication exists that the occurrence of parasites or disease has had any measurable (detrimental or adverse) impact on the survival and health of beluga whale stock despite the considerable pathology that has been done on this species. Therefore the cumulative effects of disease is considered insignificant.

4.10.2.8 Effects of Research on CI Beluga Whales

Because many important aspects of the biology of CI beluga whales remain unknown, or are incompletely studied, and because management of this stock through recovery will require knowledge of annual abundance levels, NMFS anticipates continuing, and possibly expanding, their research program throughout the range of this stock. This would certainly include continuing annual abundance surveys. Other research may include: continue to satellite tag beluga whales, to investigate seasonal movements and migration patterns; biopsy individual whales to obtain tissue samples for research into the stocks' genetics; a population age and growth model; 12 month forage fish analysis; fatty acid analysis; and behavioral-telemetry studies associated with disturbance and avoidance of human activities. Research may occur at Federal, state, and private levels.

NMFS is required to ensure that these activities will not have harmful impacts to the beluga whale stock. Any research which may take a beluga whale, including a take by harassment or disturbance, will require authorization under the MMPA. Such authorization can only be granted if an activity, by itself or in combination with other activities, would not cause a significant adverse impact on the stock. NMFS conducts aerial surveys under MMPA Scientific Research Permit No. 782-1438. Satellite tagging has been conducted under MMPA Scientific Research Permit No 957 and 782-1438. The cumulative effects of research activities on CI beluga whales are considered insignificant.

4.10.2.9 Summary of Direct Cumulative Effects

The direct cumulative effect of activities in the inlet generally impact all of the alternatives in a similar manner. That is there is very little difference in the direct effect of fishing on CI beluga whales whether it be under alternative 1 or alternative 7. A summary of these effects are found in Table 4.10.2.9.1.

Commercial Harvest of Beluga Whales: The level of the commercial harvest of beluga whales in Cook Inlet is not known. As a result the cumulative effects of this activity are difficult to quantify. Generally they are considered insignificant. However, given that the actual number of animals killed in this activity is unknown, the effect of the commercial harvests, when considered with other cumulative effects, is considered unknown.

Subsistence Harvest of Beluga Whales: The effect of the subsistence harvest between 1994 and 1998 can account for the estimated decline of the stock during that interval. Therefore, the annual harvest estimates and rate of decline from 1994 through 1998 (15 percent per year) clearly indicate that the harvest was unsustainable, prior to the restriction in 1999. Therefore, the historical effects of this action are considered significant negative.

The effects of the subsistence harvest since protective legislation was put in place and NMFS has entered into several co-management agreements with CIMMC are considered insignificant.

Commercial Fisheries: The direct effects of state-managed fisheries on CI beluga whale incidental mortality considered insignificant at this time. There have been no recent and verified reports of incidentally caught beluga whales in Cook Inlet. No reports of injuries or mortalities incidental to salmon drift or set gill net fishing were made during the 1990-91 logbook reporting program. There were no reports of entanglement in the observer program. Some mortalities might be expected as the population increases. The effect of the current rate of direct mortality in commercial fisheries in Cook Inlet is insignificant in that it would not result in a significant delay in recovery time to OSP.

Stranding Events, Parasites and Disease: The potential cumulative effects of stranding events on CI beluga whales, when considered with the alternatives proposed by this action, neither increase the likelihood of mortality nor increase the amount of time it would take to recover the stock of beluga whales to OSP. Therefore, the cumulative effects of this natural activity are considered insignificant.

Table 4.10.2.9.1 Summary of Cumulative Direct Effects.

Alternatives	Alt. 1-2	Alt. 3-4	Alt.5	Alt. 6	Alt. 7
Activity					
Commercial Harvests of CI Beluga Whales	U	U	U	U	U
Subsistence Harvest Prior to 1999	CS-	CS-	CS-	CS-	CS-
Predation on CI Beluga Whales	I	I	I	I	I
Vessel Strikes on CI Beluga Whales	I	I	I	I	I
Research Activities on CI Beluga Whales	I	I	I	I	I
Fisheries					
Commercial State Managed Fisheries	I	I	I	I	I
Personal Use Fisheries	I	I	I	I	I
Stranding Events	I	I	I	I	I

S = Significant, CS = Conditionally Significant, I = Insignificant, U = Unknown, + = positive, - = negative

There is no indication that the occurrence of parasites or disease has had any measurable (detrimental or adverse) impact on the survival and health of beluga whale stock despite the considerable pathology that has been done on this species. Therefore the cumulative effects of disease are considered insignificant.

Predation: Predation by killer whales on beluga whales in Cook Inlet are not thought to have been a factor that would delay recovery of the stock in a significant manner. In order for killer whale predation to have an impact significant enough to result in a decline in the population trajectory, a level of predation mortality that approximates the level of recruitment in the population, would be required. No indication exists that natural mortality in the CI beluga whale population exceeds levels considered normal for other small cetacean populations. However, because of the changing prey densities available to transient killer whales in the northern Gulf of Alaska, and the potential for increase reliance upon beluga whales in Cook Inlet, the effect of predation on CI beluga whales is largely unknown. Therefore, rather than state that the effects are insignificant, it is more accurate to indicate that they are unknown at this time.

4.10.3 Indirect Cumulative Effects

4.10.3.1 Effects of Commercial Fishing in Cook Inlet on Beluga Whales

The indirect interactions between marine mammals and commercial fisheries are, in most cases, difficult to identify. Examples of observable interactions are generally restricted to direct mortality in fishing gear. Even then, the ecological significance of the interaction is related to the number of animals killed and subsequent population level responses. There were no reported takes of beluga whales in commercial fisheries in Cook Inlet; therefore, those interactions are not expected to have large ecosystem consequences.

More difficult to identify and potentially more serious are interactions resulting indirectly from competition for resources that represent both marine mammal prey and commercial fisheries targets. Such interactions may limit foraging success through localized depletion, disaggregation of prey, or disturbance of the predator itself. Compounding the problem of identifying competitive interactions is the fact that biological effects of fisheries may be indistinguishable from changes in community structure or prey availability that might occur naturally. The relative impact of fisheries perturbations, compared to broad, regional events such as climatic shifts, are uncertain; but given the potential importance of localized prey availability for foraging marine mammals, they warrant close consideration.

Lowry (1982) developed qualitative criteria for determining the likelihood and severity of biological interactions between fisheries and marine mammal species in the Bering Sea. His criteria were based on marine mammal diet, focusing on species consumed, prey size composition, feeding strategy, and the importance of the Bering Sea as a foraging area.

Using these criteria and applying them to this analysis, beluga whales are known to forage on salmon, eulachon and herring, and foraging areas include the upper inlet at the mouths of salmon rivers, Spring thru Fall. The winter diet and foraging area is not so well known except that it is generally believed that beluga whales remain in Cook Inlet throughout the year

As with other apex predators, ecological interactions between beluga whales and fisheries may be caused by spatial and temporal overlap between beluga whale foraging areas and salmon fisheries, and from competition by the state managed salmon fisheries. Therefore, a potential mechanism by which beluga whales may be disadvantaged by competition with commercial fisheries for food resources is through competition or localized depletion of prey.

Competition between fisheries and marine mammals has a long history and has been described from different perspectives. On one hand, fishermen have observed the numbers of target species that have been consumed by marine mammals and treated the mammals as economic competitors for their catch. On the other hand, biologists and conservationists have observed the large amount of biomass that is removed from marine ecosystems by fisheries and have been concerned that the fisheries compete with marine mammal populations. Within Cook Inlet there is a temporal overlap between the commercial salmon fisheries and the beluga whales in the Inlet. This overlap suggests that these two consumers have the potential to demand a common resource and may, as a result, be competitors for that resource, even if there is little spacial overlap.

The timing of fisheries, relative to foraging patterns of beluga whales in the Inlet represents a potential, significant and relevant management concern. Thus, the indirect effects of commercial fishing may be either an increase or decrease in the potential prey of beluga whales in a manner that may change prey availability or the harvest rate of beluga whales.

(i) Effects of Fishing on Prey Availability to CI Beluga Whales

CI beluga whales actively feed at the river mouths of the upper Inlet, where prey species would be expected to form concentrations in spring and summer. The large numbers of beluga whales that congregate during spring, also coincides with the eulachon migration, and soon afterwards with smolt out-migrations, and the first king salmon spawning runs. Hazard (1988) stated that beluga whales in the Bering Strait form dense aggregations which are dependent on concentrations of food organisms.

NMFS biologists have sampled stomachs from harvested whales, and have found a significant portion of these to contain adult salmon and eulachon. Native hunters' observations are that the occurrence of beluga whales in Cook Inlet is dependent upon fish runs. Feeding behavior is commonly observed near stream mouths, evidenced by salmon jumping in front of whales, whale "lunges" or sudden turns and acceleration, and salmon and eulachon swimming onto shores away from the beluga whales.

NMFS placed a tracking transmitter on an adult beluga whale in June 1999, and this animal

remained in and near the mouth of the Little Susitna River for several weeks between June and July 1999. This whale was observed swimming among a group of approximately 90 beluga whales. This beluga whale moved into the central region of the upper Inlet and into Knik Arm during the coho runs.

If the occurrence and distribution of these whales within Cook Inlet are assumed to be, in large part, related to prey distribution and availability, then the occurrence and distribution of these runs are extremely important to CI beluga whales. Several commenters stated their belief that the fish runs have declined dramatically within Cook Inlet during the last decade, and that this decline has caused fewer beluga whales to visit the upper Inlet. Native observations reported in Huntington (1999) suggest that severe declines in fish runs have occurred in Cook Inlet during the past few years and those changes in fish distribution create changes in beluga whale distribution.

Several anadromous waterways entering Cook Inlet are monitored by ADFG. Adult sockeye salmon escapements by years, are presented in Figure 4.9.3.1 for five such index streams: Fish Creek, Yentna River, Crescent River, Kenai River, and Kasilof River. These data were derived from the total counts for these river drainages, and normalized for consistent effort. The Fish Creek system has been enhanced since 1976. Even with the commercial fishery in Knik Arm and the personal use dip net fishery in Fish Creek being closed, often Fish Creek sockeye salmon escapements are well below the sockeye salmon based escapement goal.

The Yentna River is a major tributary to the Susitna River. Sockeye salmon returns to the Yentna have remained above average over the period of observed decline for CI beluga whales: 1994-1998.

Since 1990, the Crescent River on the west side of Cook Inlet has been producing at a lower level than is required to meet escapement goals without severe restrictions to the commercial fisheries. In 1999, the based escapement goal for this system was lowered in response to decrease productivity in Crescent Bay.

Finally, the Kenai and Kasilof Rivers sockeye escapements for the period 1968-2002 are presented. These above-average escapement rates occurred during the period of time that the decline in CI beluga whales was observed: 1994-1999. Despite these salmon escapements, NMFS has received reports of fewer beluga whales in the Kenai River, as compared to the 1970s and 1980s. However, this observation could be the result of a reduced population of beluga whales in Cook Inlet in recent years, and has little to do with fish abundance or availability.

Herring are also an important component of the beluga whales' diet, in that they are a lipid-rich fish which occurs in concentrations. During a study of salmon smolt within the upper Inlet, juvenile herring (ages 0 and 1) were the most consistently caught species, and were second in abundance of all species encountered (Moulton, 1994). Herring spawning occurs along the western side of lower Cook Inlet, and supports a local commercial fishery for sac-roe. This

commercial fishery allowed for quotas up to 3,420 short tons (1997), but was closed in 1999 through 2002 because of declining herring biomass. The ADFG estimate for the 2002 stock size was 4,000 tons and the estimate return for 2003 is 4,700 tons³.

No data are available to quantify the levels of forage fish (e.g., eulachon) present in upper Cook Inlet. A commercial venture to harvest eulachon in the lower Susitna River operated during 1999. This fishery was limited to fifty (50) tons (ADFG, 1999a) and was stopped in 2000 because of the importance of the eulachon to beluga whales.

Therefore, a preliminary review of escapement data of Pacific salmon in Cook Inlet does not suggest recent returns have suffered significant declines. Rather they suggest that the salmon runs have remained almost constant over the past decade, and should not have adversely impacted beluga whales simply due to biomass availability. To what extent herring and eulachon are significant in the diet of beluga whales is not known, but they likely are important prior to the salmon runs. However, all this information does highlight the importance of foraging areas to beluga whales

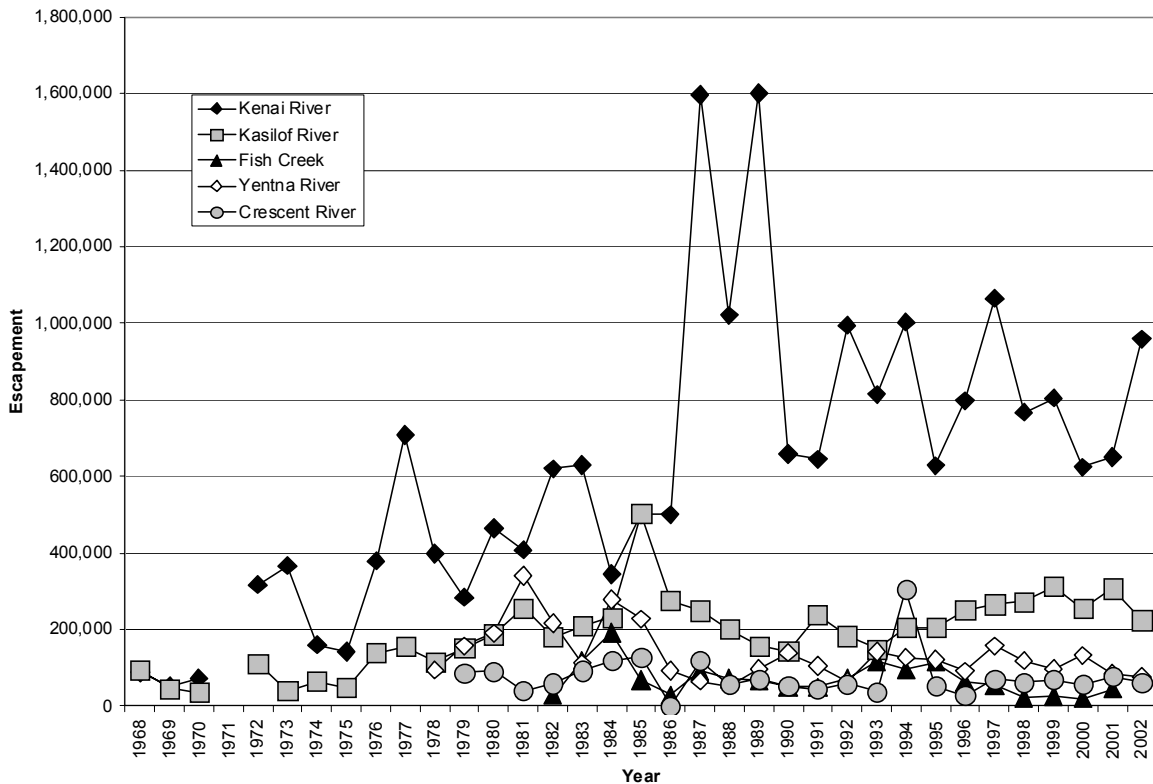
The recent satellite tag information on eight beluga whales from August through March (2000 and 2001) and the eight beluga whales tagged in August 2002, have suggested that beluga whales stay north of the Forelands, and often in the Knik and Turnagain Arms from Fall until late winter. August through October find the beluga whales as far south as the Forelands, but predominantly in the Susitna delta, Turnagain and Knik Arms. November through January, the satellite tagged beluga whales moved around the Susitna delta, Turnagain and Knik Arms and as far south as Kalgin Island. The one beluga that transmitted positions in February and March 2002 remained around Kalgin Island. The speculation as to what the beluga whales may be feeding on at this time includes late coho and chum runs, salmon carcasses that wash downriver, and whitefish. With the glaciers and rivers freezing in the autumn, less fresh water enters Cook Inlet. With the decrease in freshwater input, it is possible that more marine species travel north and become available to beluga whales.

(ii) Summary of Potential Indirect Effects of Commercial Fishing on Beluga Whales in Cook Inlet

In summary, and based on best available scientific and commercial data, the salmon fisheries may compete with beluga whales for common resources. The extent of this competition is not known and at this time it is not known whether overlap of foraging and resources demonstrates a significant interaction for this stock of marine mammal. However, fisheries and beluga whales both consume salmon in significant quantities, and other species in lesser quantities. The high degree of temporal overlap between these fisheries and the foraging needs of beluga whales points to the potential for competitive interactions on a number of scales or axes.

³Otis, E. 2002. Personal communication, via B. Mahoney, NMFS, Alaska Region, Anchorage, Alaska.

Figure 4.9.3.1 Sockeye salmon escapement estimates for the Kenai River, Kasilof River, Fish Creek, Yentna River, and Crescent River. (Fox and Shields, 2001)



Also, given that the beluga whales forage to a great extent in the upper Inlet, the continued health of these fish runs and their natal rivers are important. Maintaining the health of the spawning rivers may be as significant to the beluga whale as is maintaining the health of the Inlet. Therefore, activities that occur in the upland drainage areas of the major spawning rivers, such as the Kenai and Susitna River basin, are likely as significant to beluga whales as are activities in the estuarine and saltwater portions of Inlet. These activities have, and will continue to be, monitored by NMFS, with focus being on the impact of these activities on their spawning habitat.

Salmon fisheries do harvest prey of CI beluga whales. Changes in harvest activities or levels of salmon returning to CI may differentially impact beluga whale foraging efficiency or habitat, or both. Therefore, it must be assumed at this time, that future salmon harvest strategies, or affects to the spawning habitat that might impact fisheries harvest rates, might result in conditionally significant adverse effects.

Therefore, the harvest of CI beluga whale prey is considered to have potential cumulative impacts based on uncertainty as to the effect of harvest on beluga whale foraging needs. This cumulative effect is considered conditionally significant adverse.

4.10.3.2 Effects of Tourism

Tourism is a growing component of the State and regional economies, and wildlife viewing is an important component of this use. Visitors highly value the opportunity to view the region's fish and wildlife, and opportunities to view the beluga whale are especially important due to their uniqueness. Many tour buses routinely stop at several wayside sites along Turnagain Arm in the summer, where beluga whales are seasonally observed. Presently there are no vessel-based commercial whale watching ventures operating in upper Cook Inlet. However, the popularity of whale watching and the close proximity of beluga whales to Anchorage, makes it probable that such operations will exist in the near future. NMFS will monitor any commercial whale watching operations that may develop. Any potentially significant impacts would be mitigated by consultation with tour operators, development of guidelines to avoid harassment, or development of regulations to avoid takings. The impact of this activity, if any, is generally considered to be positive because of the educational component of whale watching. Based on studies elsewhere, NMFS does not believe that any impacts from this activity are detrimental to the population. No indication exists that land-based tourism (vehicle traffic along Turnagain Arm) has had any effect on the CI beluga whale stock. The effect of this activity is considered insignificant.

4.10.3.3 Indirect Effects of Pollutants on CI Beluga Whales

The principal sources of pollution in the marine environment are 1) discharges from municipal wastewater treatment systems; 2) discharges from industrial activities that do not enter municipal treatment systems (petroleum and seafood processing); 3) runoff from urban, mining, and agricultural areas; and 4) accidental spills or discharges of petroleum and other products. Natural and man-made pollutants entering the Inlet are diluted and dispersed by the currents associated with the tides, estuarine circulation, wind-driven waves and currents (MMS, 1996).

Pollutants may be classified as chemical, physical, and biological. Chemical pollutants include organic and inorganic substances. The decomposition of organic substances uses oxygen and, if enough organics are present, the concentration of oxygen could be reduced to levels that would threaten or harm oxygen-using inhabitants of the water column.

(i) Oil Spills

Petroleum production, refining, and shipping in Cook Inlet present a possibility for oil and other hazardous substances to be spilled, and to impact the CI beluga whale stock. The Outer Continental Shelf Environmental Assessment Program estimated 21,000 barrels of oil were spilled in the Inlet between 1965 and 1975, while 10,000 barrels were spilled from 1976 to 1979 (MMS, 1996). In July 1987, the tanker *GLACIER BAY* struck an uncharted rock near Nikiski, Alaska, discharging an estimated 1,350 to 3,800 barrels of crude oil into the Inlet (USCG, 1988). Beluga whales are found in the area where this spill occurred.

Data do not exist which describe any behavioral observations or deleterious effect of these spills to beluga whales or accurately predict the effects of an oil spill on beluga whales. Some generalizations, however, can be made regarding impacts of oil on individual whales based on present knowledge.

An oil spill that occurred while beluga whales were present in Cook Inlet could result in skin contact with the oil, ingestion of oil, respiratory distress from hydrocarbon vapors, contaminated food sources, and displacement from feeding areas (Geraci, 1990). Whales could be affected through residual oil from a spill even if they were not present during the oil spill. Most likely, the effects of oil would be irritation to the respiratory membranes and absorption of hydrocarbons into the bloodstream (Geraci, 1990).

If an oil spill were concentrated in open water (e.g., within tide rips), it might be possible for a beluga whale to inhale enough vapors from a fresh spill to affect its health. While there are no reliable data on the effects of petroleum vapor inhalation on cetaceans, inhalation of vapors in excess of 10,000 ppm is rapidly fatal to humans (Ainsworth, 1960; Wang and Irons, 1961). Inhalation of petroleum vapors can cause pneumonia in humans and animals due to large amounts of foreign material (vapors) entering the lungs (Lipscomb *et al.*, 1994). Although pneumonia was not found in sea otters that died after the *EXXON VALDEZ* oil spill, inhalation of vapors was suspected to have caused interstitial pulmonary emphysema (accumulation of bubbles of air within connective tissues of the lungs). Crude oil evaporation rates are greatest during the first few days after an oil spill (Meilke, 1990).

Whales may also contact oil as they surface to breathe, but the effects of oil contacting skin are largely speculative. Experiments in which *Tursiops* were exposed to petroleum products showed transient damage to epidermal cells, and that cetacean skin presents a formidable barrier to the toxic effects of petroleum (Bratton *et al.*, 1993). Geraci and St. Aubin's (1985) investigations found that exposure to petroleum did not make a cetacean vulnerable to disease by altering skin microflora or by removing inhibitory substances from the epidermis.

Geraci (1990) reviewed a number of studies pertaining to the physiologic and toxic impacts of oil on whales and concluded no evidence exists that oil contamination had been responsible for the death of a cetacean. Cetaceans observed during the *VALDEZ* oil spill in Prince William

Sound made no effort to alter their behavior in the presence of oil (Harvey and Dahlheim, 1994; Loughlin, 1994).

Following the *VALDEZ* oil spill, daily vessel surveys of Prince William Sound were conducted from April 1 through April 9, 1989, to determine the abundance and behavior of cetaceans in response to the oil spill (Harvey and Dahlheim, 1994). During the nine surveys, 80 Dall's porpoise, 18 killer whales, and two harbor porpoise were observed. Oil was observed on only one individual, with oil on the dorsal half of its body it appeared stressed due to its labored breathing patterns. A total of 37 cetaceans was found dead during and after the *VALDEZ* oil spill, but cause of death could not be linked to exposure to oil (Loughlin, 1994). Dalheim and Matkin (1994) reported 14 killer whales missing from a resident Prince William Sound pod over a period coincident with the *VALDEZ* oil spill. They note it is likely nearly all resident killer whales swam through heavily oiled sections of the Sound, and that the magnitude of that loss was unprecedented. That study concluded a correlation existed between the loss of these whales and the spill, but could not identify a clear cause and effect relationship.

Toxicity of crude oil decreases with time as the lighter, more harmful, aromatic hydrocarbons such as benzene, evaporates. Acute chemical toxicity (lethal effects) of the oil is greatest during the first month following a spill. Sublethal effects may be observed in surviving birds, mammals, and fish for years after the spill. Sublethal and chronic effects include reduced reproductive success, blood chemistry alteration, and weakened immunity to diseases and infections (Spies *et al.*, 1996).

(ii) Other Pollutants

The discharge of soluble inorganic substances may change the pH or the concentration of trace metals in the water, and these changes may be toxic to some marine plants and animals. Physical pollutants include suspended solids, foam, and radioactive substances. Suspended solids may inhibit photosynthesis, decrease benthic activity, and interfere with fish respiration. Foam results from surface active agents and may cause a reduction in the rate of oxygen-gas transfer from the atmosphere into the water. Biological pollutants may cause 1) waterborne disease by adding viruses, protozoa, or bacteria to the receiving waters or 2) excessive biological growth.

(1) Produced Waters: Produced waters constitute the largest source of naturally occurring and manmade substances discharged into the waters of Cook Inlet. The characteristics of the produced waters, as well as other discharges—except drilling muds and cuttings—described in this section are based on information obtained during the CI Discharge Monitoring Study that, basically, was conducted between April 10, 1988, and April 10, 1989 (EBASCO Environmental, 1990a; 1990b). These waters are part of the oil/gas/water mixture produced from the wells and contain a variety of dissolved substances. Also, chemicals are added to the fluids that are part of various activities including waterflooding; well workover, completion, and treatment; and the oil/water separation process. Before discharging into Cook Inlet, produced waters pass through separators to remove oil from the waters. The treatment

process removes suspended oil particles from the waters, but the effluent contains dissolved hydrocarbons or those held in colloidal suspension (Neff and Douglas, 1994). Although the discharge of produced waters is an issue of concern, the toxicity of produced waters, as indicated in the Monitoring Study, ranged from only slightly toxic to practically nontoxic (to shrimp) and would not, therefore, be expected to impact beluga whales.

(2) Drilling Muds and Cuttings: EPA, National Pollution Discharge Elimination System general permit, authorizes the discharge of approved generic drilling muds and additives into waters of Cook Inlet. Drilling muds consist of water and a variety of additives; 75 to 85 percent of the volume of most drilling muds currently used in Cook Inlet is water (Neff, 1991).

When released into the water column, the drilling muds and cuttings discharges tend to separate into upper and lower plumes (Menzie, 1982). The discharge of drilling muds at the surface ensures dispersion and limits the duration and amount of exposure to organisms (NRC, 1983). Most of the solids in the discharge, more than 90 percent, descend rapidly to the seafloor in the lower plume. The seafloor area in which the discharged materials are deposited depends on the water depth, currents, and material particle size and density (NRC, 1983). In most outer continental shelf areas, the particles are deposited within 152 m (500 ft) below the discharge site; however in Cook Inlet, which is considered to be a high-energy environment, the particles are deposited in an area that is >152 m (500 ft) below the discharge site (NRC, 1983). Small particles of drilling mud—several centimeters in diameter—also may settle to the seafloor immediately following a discharge but would disperse within a day. The upper plume contains the solids and water-soluble components that separate from the material of the lower plume and are kept in suspension by turbulence.

Since 1962, there were about 546 wells drilled in Cook Inlet. One Continental Offshore Stratigraphic Test Well and 11 exploration wells were drilled in Federal waters and 75 exploration and 459 development and service wells were drilled in State waters—mainly in upper Cook Inlet (State of Alaska, AOGCC, 1993). From 1962 through 1970, 292 wells were drilled (62 exploration and 230 development and service wells) (State of Alaska, AOGCC, 1993). From 1971 through 1993, the number of wells drilled per year has ranged from 3 to 20; the average number drilled per year is about 11.

The toxicity (96-hr LC₅₀) of the muds used to drill 39 production wells in Cook Inlet between August 1987 and February 1991 ranged from 1,955 to >1,000,000 ppm for a marine shrimp (Neff, 1991). Concentration levels >10,000 are considered practically nontoxic and between 1,000 and 10,000 are slightly toxic. The percentages of the wells with toxicities >10,000 was 89 percent of the total number. Therefore, 89 percent of the muds from this production were considered nonionic to shrimp. The remaining 11 percent exceeded toxic levels for the test subjects. Given the results of these studies, the toxicity level of production muds are not considered to be toxic to beluga whales and, as a result, not likely to adversely impact beluga whales.

(3) Heavy Metals and Organic Compounds: NMFS has obtained biological samples

from 28 CI beluga whales since 1992 under protocols developed for the Alaska Marine Mammal Tissue Archival Project⁴. From these collections, selected tissues have been analyzed for Polychlorinated Biphenyls (PCBs) and trace elements, including heavy metals⁵ in liver and kidneys. Similar to beluga whales from other regions in Alaska, Canada, and Greenland, the CI beluga whales were found to have relatively high concentrations of mercury, selenium, and silver in their livers. These levels are much higher than one finds in ringed seals, harbor seals, bowhead whales, and walrus in Alaska. However, as compared to other Alaska beluga whale stocks (eastern Chukchi Sea and eastern Beaufort Sea), the levels of these three metals, as well as cadmium, were much lower in the CI animals (Becker *et al.*, 2000). These elements accumulate in liver tissue and increase with age of the animal. The uptake and bioaccumulation of these elements are determined by many factors, of which the position of the beluga whale in the food web and the diet of the animal probably plays a major role (Becker *et al.*, 2000).

Concentrations of PCB congeners and chlorinated pesticides were found to be lower in the blubber of beluga whales from Cook Inlet than from beluga whales from Point Lay (eastern Chukchi Sea stock) and Point Hope (eastern Beaufort Sea stock), Alaska. Generally, CI beluga whales are “cleaner” than other beluga whale populations throughout the Arctic and the eastern United States.

A comparison of tissue concentrations of persistent organic contaminants, heavy metals, and other elements between CI beluga whales and other beluga whales in North America confirms that the CI animals are very distinct from other populations and stocks of this species. The CI animals had much lower concentrations of PCBs and chlorinated pesticides than those which have been reported from the eastern Beaufort Sea and eastern Chukchi Sea stocks. In the case of heavy metals and other elements, cadmium, mercury, selenium, vanadium, and silver were much lower in the livers of CI whales than in the other beluga whale stocks. Due to the lower concentrations of PCBs and chlorinated pesticides in CI beluga whales, their effects on the animals’ health may be less significant for CI animals than for the other beluga whale stocks.

(iii) Summary of Cumulative Indirect Effects of Oil and Other Pollutants on CI Beluga Whales and Their Habitat

(1) Effects of Oil Spills on Prey Availability: Contaminated food sources and displacement from feeding areas also may occur as a result of an oil spill. Concentrations of beluga whales near the mouths of several major river systems entering Cook Inlet may represent

⁴The Alaska Marine Mammal Tissue Archival Project began in 1987, and is now conducted by the U.S. Geological Survey, NMFS, and the National Institute of Standards and Technology. This project includes the collection, analysis, and archival of marine mammal tissues.

⁵Instrumental neutron activation analysis is routinely used to measure 37 elements (Na, Mg, Al, Cl, K, Ca, Sc, V, Mn, Fe, Co, Cu, Zn, As, Se, Br, Rb, Sr, Mo, Ag, Cd, Sn, Sb, I, Cs, Ba, La, Sm, Eu, Tb, Hf, Ta, Au, Hg, Th, and U).

a feeding strategy to utilize areas with the highest availability of prey. Such areas may be critical to the energetics of this stock, and spills (and response activities) which would displace whales from these areas could adversely affect their well-being. The potential effect from such a spill would have significant adverse effects.

(2) Summary of Effects of Oil Spills on Beluga Whales in Cook Inlet: Generally, oil and petroleum product production, refining, and shipping in Cook Inlet present a possibility for oil and other hazardous substances to be spilled, and to impact the CI beluga whale stock. Data do not exist which describe any behavioral observations or deleterious effect of these spills to individual beluga whales. Therefore, it is difficult to accurately predict the effects of an oil spill on CI beluga whales. Even a decade after the *VALDEZ* oil spill, the relationship to that event and the trends in the marine mammal populations of Prince William Sound is poorly understood. It is likely that the indirect effects of a spill on the availability of prey, or prey habitats, could have a greater impact on beluga whales than any direct impact. Whales could be affected through residual oil from a spill even if they were not present during the oil spill but the effects are largely speculative. Therefore, accurately predicting the effects of an oil spill on CI beluga whales is difficult. While much of our understanding of how an oil spill affects a marine mammal is in development, it is known that effects of CI beluga whales, their prey and habitat or both the whales and prey, might be affected by such an event. Therefore the potential cumulative effects of such an event are considered conditionally adverse.

4.10.3.4 Potential Effects of Municipal Wastes and Urban Runoff on CI Habitat for Beluga Whales

Ten communities currently discharge treated municipal wastes into Cook Inlet. Wastewater entering these plants may contain a variety of organic and inorganic pollutants, metals, nutrients, sediments, and bacteria and viruses. Of these, the Municipality of Anchorage's John M. Asplund treatment center, English Bay, Port Graham, Seldovia, and Tyonek receive only primary treatment⁶, while Eagle River, Girdwood, Homer, Kenai, and Palmer receive secondary treatment. The maximum permitted wastewater discharges for Anchorage are 44 million gallons per day (GPD), and the other communities have a range from 10 thousand to 1.6 million GPD. For Anchorage, the effluent limitations requested for the daily discharge of BOD and total suspended solids in the wastewater are 90,100 pounds per day (lb./d) and 57,000 lb./d, respectively. Based on the daily maximums presently permitted for these ten communities, they could release about 16.38 million pounds of BOD and 13.82 million pounds of suspended solids into Cook Inlet annually.

Monitoring studies performed for the Municipality of Anchorage assessed the contribution of

⁶The Clean Water Act requires all publicly owned treatment works to have secondary-level treatment by July 1977. Subsequent amendments to that act allow EPA to modify this requirement. The Municipality was granted a permit in 1985 to continue primary treatment. That permit expired in 1990, and the Municipality has applied for renewal. The EPA allows the operation of this facility to continue until a new permit is issued.

this effluent to waters of the upper Inlet using both hydrodynamic and transport modeling, and estimated the effluent contribution to be on the order of 0.01 to 1 per cent of the background concentrations. The Municipality of Anchorage has asserted that riverine discharge into the upper Inlet can easily account for most of the dissolved and virtually all of the total recoverable metals in the receiving water (AWWU, 1999). Bioassay of marine invertebrate species found the lowest observed effect concentration in echinoderms ranged from 5 to 10 percent effluent, and in molluscs ranged from 5 to 10 per cent effluent for survival and 0.5 to 10 per cent effluent for abnormalities. The Municipality reported the effluent is nontoxic at dilutions greater than 20:1 (they estimate the minimum initial dilution at 180:1).

(i) Summary of Effects of Municipal Wastes and Urban Runoff on CI Habitat for Beluga Whales

Determining the impact of municipal discharges on the beluga whale stock is not possible. The rivers entering Knik Arm alone carry an estimated 20 million tons of sediment annually (Gatto, 1976). Therefore, the suspended loading that naturally occurs in the extreme upper Inlet parallels that which is discharged by the Municipality of Anchorage. However, this is not wastewater and the impacts of minimally treated wastewater on the beluga whales is unknown. Given the relatively low levels of contaminants found in CI beluga whale tissues, municipal discharge levels are not believed to be having a significant impact on the beluga whale population. However, the impacts of minimally treated wastewater on the beluga whales are not known.

4.10.3.5 Potential Effects of Noise on Beluga Whales and their Habitat in Cook Inlet

Upper Cook Inlet is one of the most industrialized and urbanized regions of Alaska. As such, noise levels may be high. The common types of noises in upper Cook Inlet include sounds from vessels, aircraft, construction equipment such as diesel generators, bulldozers, and compressors, and from activities such as pile-driving.

Any sound signal in the ocean is detectable by marine mammals only if the received level of the sound exceeds a certain detection threshold (Richardson *et al.*, 1995). If the sound signal reaching a marine mammal is weaker than the background noise level, it may not be detected. This concept is important in understanding the effects of noise on whales in at least two areas: 1) the audibility of an industrial noise is dependent in part on the background (ambient) noise levels, and 2) as industrial noises add to the level of background noise, they may prevent or diminish the effectiveness of communication between whales or between whales and their environment.

Considering the depth of the animal being exposed to noise is also important. The noise level from a source when measured within a few feet of the surface is significantly lower than the noise level when measured at depths of 5 - 10 m (16.4 - 33 ft). For example, a marine mammal at the surface will experience a received noise level approximately 30 dB less than the received level for an animal at the same distance from the noise source, but at a depth of 10 m (33 ft).

(i) Aircraft Noise

Richardson *et al.* (1995) and Richardson and Malme (1993) provided summaries on aircraft sound in water. When reporting a source level for an aircraft, the standard range of 300 m (984 ft), rather than 1 m (3.2 ft), is assumed, because “the concept of a 1-m source level for underwater noise from an aircraft is not very meaningful” (Richardson *et al.*, 1995). The surface area of sound transmission from air to water is described by a cone where the apex of the cone is the aircraft, and the cone has an aperture of 26 degrees. In general, underwater noise from aircraft is loudest directly beneath the aircraft and just below the water’s surface, and sound levels from the same aircraft are much lower underwater than the sound levels in air. The duration of the noise is short, because noise is generally reflected off the water surface at angles greater than 13 degrees from the vertical. Helicopters tend to be noisier than a fixed-wing aircraft. The amount of noise entering the water depends primarily on aircraft altitudes and the resultant 26 degree cone, sea surface conditions, water depth, and bottom conditions (Richardson *et al.*, 1995).

Monitoring results of aircraft noise levels are complicated due to variables that are inherent in such analyses, including monitoring equipment averaging times, aircraft types and operations (i.e., power setting, propeller pitch, altitude changes), meteorological conditions, and aircraft altitudes. There are no data on the level of received sound that do and do not disturb toothed whales (Richardson *et al.*, 1995). The response of beluga whales to airplanes and helicopters vary with social context, distance from the aircraft, and aircraft altitude. Because the underwater noise generated by an aircraft is greatest within the 26 degree cone directly beneath the craft, whales often react to an aircraft as though startled, turning or diving abruptly when the aircraft is overhead. Richardson *et al.* (1995) report beluga whales not reacting to aircraft flying at 500 m (1,640 ft), but at lower altitudes of 150-200 m (492 - 656 ft) these animals dove for longer periods and sometimes swam away. Feeding beluga whales were less prone to disturbance. NMFS aerial surveys are normally flown at an altitude of 244 m (800 feet), using fixed-wing twin engine aircrafts. Beluga whales are rarely observed to react to even repeated overflights at this altitude. The main approaches to the Anchorage International Airport, Elmendorf Airforce Base, and Merrill Field are at least partially over the upper Inlet, including Knik Arm. Commercial and military jet airplanes often overfly these waters at relatively low altitudes. An acoustic measurement study in Cook Inlet, conducted by Blackwell and Greene (2002), identified peak sound levels at 2.5 (dB) higher at 3 m than 18 m depth. At this level, both mid-frequency sound components and visual clues could play a role in eliciting reactions by the whales. Despite this traffic, beluga whales are common in these waters and are often observed directly under the approach corridors off the north end of International Airport and the west end of Elmendorf Air Force Base.

(ii) Ship and Boat Noise

Ships and boats create high levels of noise both in frequency content and intensity level. Ship traffic noise can be detected at great distances. High speed diesel-driven vessels tend to be much noisier than slow speed diesel or gasoline engines. Small commercial ships are generally

diesel-driven, and the highest 1/3-octave band is in the 500 to 2,000 Hz range. Tugs can emit high levels of underwater noise at low frequencies. An acoustic study by Blackwell and Greene (2002) suggested that beluga whales may not hear sounds produced by large ships at lower frequencies (i.e., below about 300 Hz based on data collected by Ridgway *et al.*, 2001, but below 4 kHz based on previous studies), and that at high frequencies the sounds may not be sufficiently above their hearing threshold to be bothersome.

Small outboard motor driven watercraft, such as those commonly used for recreational purposes in the upper Inlet, typically produces noise at much higher frequencies (e.g., 6300 Hz) and may, therefore, have the highest potential to interfere with beluga whales.

(iii) Noise from Offshore Drilling and Production

Sound produced by oil and gas drilling may be a significant component to the noise in the local marine environment, but underwater noise from the drilling platforms is expected to be relatively weak because of the small surface area in contact with the water, namely the four legs (Richardson *et al.*, 1995). However, vibrations from the machinery through the columns and into the bottom may be notable, accounting in part for the high levels observed at low frequencies (<30 Hz) (Blackwell and Greene, 2002). Gales (1982) summarized noise from eleven production platforms. The strongest tones from four production platforms were at very low frequencies, between ~4.5 and 38 Hz, at ranges of 6-31 meters.

Various studies and observations suggest that beluga whales are relatively unaffected by these activities. Beluga whales are regularly seen near drill sites in Cook Inlet (Richardson *et al.*, 1995; McCarty, 1981). Stewart *et al.* (1982) reported that beluga whales in Snake River, Alaska, did not appear to react strongly to playbacks of oil industry-related noise at levels up to 60 dB above ambient. Stewart *et al.* (1983) conducted similar playback experiments in Nushagak Bay, Alaska in 1983 and found that beluga whale movement and general activity were not greatly affected, especially when the source of the noise was constant.

Beluga whales did swim faster and respiration rates sometimes increased within 1.5 km of the sound projector. During playback experiments in the Beaufort Sea, migrating beluga whales approached the sound projector and showed no overt reactions until within 200-400 meters, even though the noise was detectable by hydrophone up to 5km away (Richardson *et al.*, 1990, 1991). Richardson *et al.*, (1995) observed these results may be an example of the degree to which beluga whales can adapt to repeated or ongoing man-made noise when it is not associated with negative consequences.

(iv) Noise from Seismic Geophysical Exploration

Geophysical explorations of Cook Inlet for oil and gas deposits are often accomplished using boat-based seismic surveys. Seismic surveys produce some of the loudest noises in the marine environment caused by intense bursts of underwater compressed air which may propagate energy for great distances. The noise produced by these surveys is at very low frequencies,

often below 100 Hz. This is below the optimum hearing range of beluga whales. Higher frequencies are absorbed in water more than lower frequencies, with the energy loss being proportional to the square of the frequency. Seismic sound propagation is also dependent on bottom structure, and soft substrates such as found in the upper Inlet absorbs sound better than hard, reflective material. Finally, seismic sound is poorly transmitted through shallow waters, such as exists near the mouths of the Susitna and Little Susitna Rivers.

Therefore, sounds from seismic exploration in the upper Inlet may be poorly transmitted through the water and may have little direct impact on beluga whales. However, seismic sound may be very loud, with some sound energy at higher frequencies overlapping that of the beluga whale. Therefore, it is possible that beluga whales might hear, and may react, to an active seismic vessel in certain areas and under certain conditions. Presently no data exists to characterize the noise from seismic exploration in Cook Inlet. NMFS observed beluga whales in Cook Inlet approximately 20 nmi from an active seismic vessel in June 1995, and reported no reactions (Moore *et al.*, 2000).

(v) Summary of the Impacts of Noise on Beluga Whales in Cook Inlet

Because sound is a critical sense to beluga whales, high levels of noise may have significant and adverse effects. However, evaluation and prediction of human-made noise impacts on marine mammals are difficult. This situation is partially a result of complications introduced by the natural variability in the animals' behavioral responses. Estimating acoustic environmental impact on animals requires interpretation and integration of results from many disciplines including, but not necessarily limited to, the study of how sound waves interact with the environment (physical acoustics), how animals hear sounds with their ears (anatomy and physiology), and how animals use sounds for such things as communicating, navigating, and finding food (bioacoustics, psychoacoustics, and behavioral ecology).

One of the most obvious behavioral responses to industrial noise is to avoid the area by swimming away from or detouring around the noise source. Two other behavioral responses, habituation and sensitization, also are important when discussing the potential reactions of beluga whales to multiple exposures to a noise stimulus. Richardson *et al.* (1995) provided examples of beluga whales becoming habituated to noise from frequent vessel traffic in the St. Lawrence River and to salmon fishing boats in Bristol Bay. Habituation refers to the condition in which repeated experiences with a stimulus that has no important consequence for the animal leads to a gradual decrease in response. Sensitization refers to the situation in which the animal shows an increased behavioral response over time to a stimulus associated with something that has an important consequence for the animal.

Whales tend to show little response to vessels that move slowly and are not heading toward them (Richardson *et al.*, 1995). However, beluga whales will often leave an area in which vessel noise is related to hunting (Sergeant and Brodie, 1975; Huntington, 1999). Native hunters in Cook Inlet report beluga whales actively avoid approaching skiffs powered by outboard motors, particularly during the summer and fall. Many researchers report that beluga

whales commonly flee from fast and erratically moving small boats. Elsewhere, beluga whales have been observed to tolerate large vessel traffic (e.g., in the St. Lawrence River), and intensive commercial fishing vessel activity (in Bristol Bay). Beluga whales are commonly found immediately adjacent to the Port of Anchorage during summer months, often near containerships and tugs, which are docking, maneuvering, or underway.

This information may indicate that these whales are 1) not disturbed by such activity, 2) habituate to such activity, or 3) the continued use of some high vessel-use areas by feeding and traveling beluga whales reflects the value of these areas to the whales, and should not be interpreted as meaning that the whales were undisturbed (Blane, 1990). This conclusion would seem to be supported by the observation that beluga whales did not abandon an area within upper Cook Inlet even when they were being hunted and pursued (Shelden, 1995). A large group of beluga whales remained in or near the mouth of the Little Susitna River for several weeks during June of 1999. During this period, many small motor boats sport fishing for chinook salmon move between Anchorage and the Little Susitna River.

CI beluga whales appear to display a strong fidelity to certain sites. They are similar in this respect to the Bristol Bay stock. It is generally believed in western and northern Alaska, however, that modernization of coastal communities, with its associated noise, is causing beluga whales to pass farther from shore and to abandon traditional sites (Burns and Seaman, 1986). Conclusions here are difficult, other than that the beluga whales' tolerance to vessel activity appears to be highly variable.

To what extent, if any, noise production in the CI area has had an effect on the current distribution or trends of these animals is not clear. It does not appear that noise represents an immediate threat of extinction or endangerment. Over the long-term, disturbance from noise, if it precluded beluga whales from foraging sites, could have an effect which would be expressed as a lower productivity rate due to low level, or chronic, stress symptoms that would inhibit successful foraging. However, no indication exists that this is happening. Given the fidelity of these whales to specific foraging sites in the upper Inlet, it appears that the need to prey on available forage is stronger than the possible impacts of disturbance from noise, or other factors, in those locations. This has also been witnessed in other whale populations.

4.10.3.6 Cumulative Indirect Effects of Activities on CI Habitat for Beluga Whales

A significant part of the habitat for this species has been modified by municipal, industrial and recreational activities in Upper Cook Inlet. Despite this development, the data do not support a conclusion that the range of CI beluga whales has been diminished by these activities. Cook Inlet beluga whales occupy the same range that they have always occupied. Information indicates that the summer occurrence of CI beluga whales has shifted to the upper inlet in recent decades whereas, historically, they were also found in the lower inlet during mid- to late summer. This is likely a reflection of the reduced population size focusing on the preferred locations within the inlet. This was the determination made during the ESA decision by NMFS not to list the species under the ESA. At that time, no indication existed that the range has been,

or is threatened with being, modified or curtailed to an extent that appreciably diminishes the value of the habitat for both survival and recovery of the species. The habitat of the stock has not been destroyed, modified or curtailed in sufficient extent to cause the stock to be in danger of extinction in the foreseeable future.

However, NEPA requires that we look at the cumulative effects of the incremental effects of the proposed action when added to the effects of past, other present, or reasonably foreseeable future actions, at levels less than the threat of extinction. Cumulative effects can result from individually minor, but collectively significant, actions taking place over time. Several activities in the inlet have the potential to have a cumulative effect on CI beluga whales when considered in aggregate. These activities have been evaluated in previous sections of this EIS and include the cumulative effects of fishing on availability of prey to beluga whales, the potential indirect effects of pollutants as a result of increased municipal loading in Cook Inlet as Anchorage continues to grow, and the potential of significant effects on the physical characteristics of the inlet (water quality, noise levels, prey suitability). Therefore, while the effects of these actions might not lead to the extinction of CI beluga whales in the foreseeable future, they certainly have the capability to have an adverse cumulative effect on the habitat necessary for beluga whales and their prey.

Section 112(e) of the MMPA requires NMFS to review impacts on rookeries, mating grounds, or other areas of similar ecological significance to marine mammals that may be impeding the recovery of a strategic stock of marine mammal. CI beluga whales are a strategic stock of marine mammal given their depleted status. If an activity affects a strategic stock in such a manner, measures can be developed and implemented after consultation with the Marine Mammal Commission and after opportunity for public comment. NMFS is in the process of developing a conservation plan that will focus, in part, on the monitoring of such activities that could have such an effect on CI beluga whales. Until such time that the monitoring is in effect, all activities that have the capability to alter beluga whale habitat, given their seriously depleted status, are considered conditionally significant adverse.

4.10.3.7 Summary of Indirect Cumulative Effects of Activities in Cook Inlet on Beluga Whales and their Habitat

Commercial Fishing: Commercial salmon fishing in Cook Inlet overlaps with the occurrence of beluga whales in the Inlet. This overlap suggests that these two consumers have the potential to demand a common resource and may, as a result, be competitors for that resource, even if there is little spatial overlap. The timing of fisheries, relative to foraging patterns of beluga whales in the Inlet represents a potential, significant and relevant management concern. The extent of this potential competition is not known and at this time it is not known whether overlap of foraging and resources demonstrates a significant interaction for this stock of marine mammal. However, the high degree of temporal overlap between these fisheries and the foraging needs of beluga whales points to the potential for competitive interactions on a number of scales or axes. Therefore, it must be assumed at this time, that future fishing for salmon, or effects to salmon spawning habitat, might result in conditionally significant adverse effects.

Tourism: The effects of tourism or vessel traffic would potentially be mitigated by consultation with tour operators or marine boat operators, development of guidelines to avoid harassment, or development of regulations to avoid takings. The potential for impact to beluga whales as the result of increased vessel traffic, either commercially or part of the tourism trade, is generally considered to be insignificant.

Pollution and Contaminants: Pollution in the environment has the potential to be a conditionally adverse concern for this population of beluga whales. The principal sources of pollution in Cook Inlet are 1) discharges from municipal wastewater treatment systems; 2) discharges from industrial activities that do not enter municipal treatment systems (petroleum and seafood processing); 3) runoff from urban and agricultural areas; and 4) accidental spills or discharges of petroleum and other products.

Contaminated food sources and displacement from feeding areas also may occur as a result of an oil spill. Concentrations of beluga whales near the mouths of several major river systems entering Cook Inlet may represent a feeding strategy to utilize areas with the highest availability of prey. Such areas may be critical to the energetics of this stock, and spills (and response activities) which would displace whales from these areas could adversely affect their well-being. The potential effect from such a spill in the inlet could have significant adverse effects. Furthermore, given that the beluga whales forage to a great extent in the upper Inlet, the continued health of fish runs and spawning habitat in salmon natal rivers are important to beluga whales. Maintaining the health of the spawning rivers may be as significant to the beluga whale as is maintaining the health of the Inlet. Therefore, activities that occur in the upland drainage areas of the major spawning rivers, such as the Kenai and Susitna River basin, are likely as significant to beluga whales as are activities in the estuarine and saltwater portions of Inlet. These activities have, and will continue to be, monitored by NMFS, with focus being on the impact of these activities on their spawning habitat.

Generally, oil and petroleum product production, refining, and shipping in Cook Inlet present a possibility for oil and other hazardous substances to be spilled, and to impact the CI beluga whale stock. Data do not exist which describe any behavioral observations or deleterious effect of these spills to individual beluga whales. Therefore, it is difficult to accurately predict the effects of an oil spill of CI beluga whales. However, it is likely that the indirect effects of a spill on the availability of prey, or prey habitats, could have a greater impact on beluga whales than any direct impact. However, while much of our understanding of how an oil spill affects a marine mammal is in development, it is known that CI beluga whales, their prey and habitat or both, might be affected by such an event. Therefore the potential cumulative effects of such an event are considered conditionally adverse.

Municipal Discharges: Ten communities currently discharge treated municipal wastes into Cook Inlet. Wastewater entering these plants may contain a variety of organic and inorganic pollutants, metals, nutrients, sediments, and bacteria and viruses. Of these, the Municipality of Anchorage's John M. Asplund treatment center, English Bay, Port Graham, Seldovia, and

Tyonek receive only primary treatment, while Eagle River, Girdwood, Homer, Kenai, and Palmer receive secondary treatment. Determining the impact of municipal discharges on the beluga whale stock is not possible. The rivers entering Knik Arm alone carry an estimated 20 million tons of sediment annually (Gatto, 1976). Therefore, the suspended loading that naturally occurs in the extreme upper Inlet parallels that which is discharged by the Municipality of Anchorage. Therefore the additional suspended load from wastewater and the impacts of minimally treated wastewater on the beluga whales is unknown.

Table 4.10.3.7.1 Summary of Indirect Cumulative Effects of Activities on CI Beluga Whales and their habitat.

Alternatives	Alt. 1-2	Alt. 3-4	Alt.5	Alt. 6	Alt. 7
Indirect Activity					
Effects of Commercial Fishing on Prey Availability to CI Beluga Whales	CS-	CS-	CS-	CS-	CS-
Effects of Vessel Disturbance	I	I	I	I	I
Effects of Tourism	I	I	I	I	I
Indirect Effects on Species Listed under the ESA and their Critical Habitat	I	I	I	I	I
Indirect Effects of Activities on Habitat of Significance to Beluga Whales and Their Prey					
Effects of Oil Spills	CS-	CS-	CS-	CS-	CS-
Municipal Wastes and other Pollutants	U	U	U	U	U
Effects of Noise on the Environment	U	U	U	U	U
Underwater Noise	U	U	U	U	U
Airborne Noise	I	I	I	I	I

S = Significant, CS = Conditionally Significant, I = Insignificant, U = Unknown, + = positive, - = negative

Noise Levels in Cook Inlet: Upper Cook Inlet is one of the most industrialized and urbanized regions of Alaska. As such, noise levels may be high. The common types of noises in upper Cook Inlet include sounds from vessels, aircraft, construction equipment such as diesel generators, bulldozers, and compressors, and from activities such as pile-driving. To what extent, if any, noise production in the CI area has had an effect on the current distribution or

trends of these animals is not clear.

Cumulative Effects on Habitat in Cook Inlet: The effects of the municipal, industrial and recreational activities in Upper Cook Inlet are of concern to the management of this stock of whales. At this time the data do not support a conclusion that the range of CI beluga whales has been diminished by these activities. Cook Inlet beluga whales occupy the same range that they have always occupied. Information indicates that the summer occurrence of CI beluga whales has shifted to the upper inlet in recent decades whereas, historically, they were also found in the lower inlet during mid- to late summer. This is likely a reflection of the reduced population size focusing on the preferred locations within the inlet to obtain prey. This was the determination made during the ESA decision by NMFS not to list the species under the ESA. At that time, no indication existed that the range has been, or is threatened with being, modified or curtailed to an extent that appreciably diminishes the value of the habitat for both survival and recovery of the species. The habitat of the stock has not been destroyed, modified or curtailed in sufficient extent to cause the stock to be in danger of extinction in the foreseeable future.

However, NEPA requires that we look at the cumulative effects of the incremental effects of the proposed action when added to the effects of past, other present, or reasonably foreseeable future actions, at levels less than the threat of extinction. Cumulative effects can result from individually minor, but collectively significant, actions taking place over time. Several activities in the inlet have the potential to cumulative effect CI beluga whales when considered in aggregate. These activities have been evaluated in previous sections of this EIS and include the cumulative effects of fishing on availability of prey to beluga whales, the potential indirect effects pollutants as a result of increased municipal loading in Cook Inlet as Anchorage continues to grow, and the potential of significant effects on the physical characteristics of the inlet (water quality, noise levels, prey suitability). Therefore, while the effects of these actions might not lead to the extinction of CI beluga whales in the foreseeable future, they certainly have the capability to have an adverse cumulative effect on the habitat necessary for beluga whales and their prey.

Section 112(e) of the MMPA requires NMFS to review impacts on rookeries, mating grounds, or other areas of similar ecological significance to marine mammals that may be impeding the recovery of a strategic stocks of marine mammal. CI beluga whales are a strategic stock of marine mammal given their depleted determination. If an activity affects a strategic stock in such a manner, measures can be developed and implemented after consultation with the Marine Mammal Commission and after opportunity for public comment. NMFS is in the process of developing a conservation plan that will focus, in part, on the monitoring of such activities that could have such an effect on CI beluga whales. Until such time that the monitoring is in effect, all activities that have the capability to alter beluga whale habitat, given their seriously depleted status, are considered conditionally significant adverse.

4.11 Impacts of Activities on Endangered or Threatened Species

The ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by NMFS for most marine species, and the US

Fish and Wildlife Service (FWS) for terrestrial and freshwater species. Species currently listed under the ESA and listed in Alaska waters are in Table 4.10.1.

The ESA procedure for identifying or listing imperiled species involves a two-tiered process, classifying species as either threatened or endangered, based on the biological health of a

Table 4.10.1 Species currently listed as endangered or threatened under the ESA and occurring in waters off Alaska

Common Name	Scientific Name	ESA Status
North Pacific Right Whale	<i>Balaena japonica</i>	Endangered
Bowhead Whale ¹	<i>Balaena mysticetus</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Endangered
Short-tailed Albatross	<i>Phoebastria albatrus</i>	Endangered
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered and Threatened ²
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Snake River Spring/Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Endangered
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Endangered
Snake River Basin Steelhead Lower Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Steller's Eider	<i>Polysticta stelleri</i>	Threatened

¹ The bowhead whale is present in the Bering Sea area only.

² Steller sea lions are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

species. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. The Secretary of Commerce, acting through NMFS, is authorized to list marine mammal and fish species. The Secretary of

the Interior, acting through the FWS, is authorized to list all other organisms. Species listed as threatened or endangered under the ESA that occurs in waters off Alaska are presented in Table 4.10.1.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the maximum extent prudent and determinable [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitats as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration.

The primary benefit of critical habitat designation is that it informs Federal agencies that listed species are dependent upon these areas for their continued existence, and that consultation with NMFS on any Federal action that may affect these areas is required. On March 3, 1999, NMFS received a petition from seven organizations and one individual to list the CI stock of beluga whales as “endangered” under the ESA. This petition requested emergency listing under Section 4 (b)(7) of the ESA, designation of critical habitat, and immediate action to implement regulations to regulate the harvest of these whales. NMFS determined that these petitions presented substantial information which indicated the petitioned action(s) may be warranted in April 1999 (64 FR 17347).

At this time the alternatives considered do not affect any ESA listed species.

4.11.1 Effects of Habitat Loss on ESA Determination for CI Beluga Whales

Regarding CI beluga whales, section 4(a) of the ESA states that the Secretary of Commerce (Secretary) shall, by regulation promulgated in accordance with subsection (b), determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

NMFS has determined that the CI beluga whale population declined to a level that is considered depleted under the MMPA primarily as a result of overharvest. An ESA listing was not necessary because the statute was changed that provided for adequate regulatory mechanisms to reduce the level of the harvest (64 FR 38778) and none of the other ESA criteria led to the conclusion that the beluga whale stock in Cook Inlet would become extinct in the foreseeable future throughout all or a portion of its range.

In the ESA determination NMFS stated that it remains concerned regarding the serious depleted status of the CI beluga population and will continue to monitor the abundance and population

trend of the stock, and will re-evaluate its status under the ESA if appropriate. This re-evaluation includes the effects of activities in the upper Inlet and their potential effects on CI beluga whales and their habitat. As stated in Chapter 4.9.3.7, habitat had not been destroyed, modified or curtailed in sufficient extent to cause the stock to be in danger of extinction. For that reason, ESA Listing Criteria (A), *The present or threatened destruction, modification, or curtailment of its habitat or range*, was not a factor that would have led to an ESA listing. However, the status of CI beluga whales remains of serious concern to NMFS. The cumulative effects of potential future industrial and developmental activities in upper Cook Inlet are considered to be conditionally significant adverse under this NEPA analysis. The cumulative effect of actions may adversely effect habitat for CI beluga whales or result in a loss or degradation of habitat for this seriously depleted stock or their prey in such a manner that measures provided under the critical habitat provisions of the ESA need be re-considered. Any loss and degradation of habitat of ecological importance to CI beluga whales or they prey, as the result of future commercial, industrial or recreational activities in upper Cook Inlet, will continue to be evaluated under the MMPA and under section 4(a) of the ESA.

At this time the alternatives considered do not affect critical habitat for any ESA listed species.

4.12 Coastal Zone Management Act of 1972

Implementation of the preferred alternative would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Management Program within the meaning of Section 30 (c) (1) of the Coastal Zone Management Act and its implementing regulations.

4.13 Regulatory Impact Review

The requirements for all regulatory actions specified in Executive Order (E.O.) 12866 are summarized in the following statement from the order:

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." The preferred alternative is not considered a "significant regulatory action" because it does not: (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the

economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise policy issues arising out of the President's priorities or the principles set forth in this Executive Order. Based on these criteria, NMFS determines that the preferred alternative is not significant for purposes of E.O. 12866.

The Regulatory Impact Review is also designed to provide information to determine whether the proposed regulation is likely to be "economically significant." The preferred alternative is not considered to have a significant economic effect since it does not result in any of the impacts described above.

4.13.1 Effects of Non-consumptive Resource Use

While no market exists within which CI beluga whales are "traded" (in the traditional economic sense), they nonetheless have had economic value to a few subsistence users. They also have a large cultural value to Alaska Natives, as well as a large non-consumptive value to the non-Native public. In general, it can be demonstrated that society places economic value on (relatively) unique environmental assets, even if those assets are never directly exploited. That is, for example, society places real (and measurable) economic value on simply "knowing" that, in this case, CI beluga whales are flourishing in their natural environment.

Substantial literature has developed which describes the nature of these non-use values to society. In fact, it has been demonstrated that these non-use economic values may include several dimensions, among which are "existence" value, "option" value, and "bequest" value. As the respective terms suggest, society places an economic "value" on, in this case, the continued *existence* of beluga whales in CI; society further "values" the *option* it retains through the continued existence of the resource for future access to the CI beluga whale population; and society places "value" on providing future generations the opportunity to enjoy and benefit from this resource. These estimates are additive and mutually exclusive measures of the value society places on these natural assets, and are typically calculated as "willingness-to-pay" or "willingness-to-accept" compensation (depending upon with whom the implicit ownership right resides) for non-marginal changes in the status or condition of the asset being valued.

Quantitatively measuring society's non-use value for an environmental asset (e.g., beluga whales), is a complex but technically a feasible task. However, in the current situation, an empirical estimation of these values is unnecessary, because the MMPA and the ESA implicitly assume that society automatically enjoys a "*net benefit*" from any action which protects marine mammal species (including the habitat they rely upon), and/or facilitates the recovery of populations of such species (or their habitat). Therefore, it is neither necessary nor appropriate to undertake the estimation of these benefits. It is sufficient to point out that these very real "non-use" values to society from conservation measures for CI beluga whales do exist. Therefore, the effect of implementing the preferred alternative is likely to produce an overall net

social and economic benefit.

4.14 Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, a unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file *amicus* briefs in court proceedings involving an agency's violation of the RFA.

In determining the scope, or 'universe', of the entities to be considered in an RFA, NMFS generally includes only those entities, both large and small, that can reasonably be expected to be directly or indirectly affected by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user groups, geographic area), that segment would be considered the universe for the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance. NMFS has determined that this final rulemaking does not have negative economic impacts to small entities as defined and, as such, an Initial Regulatory Flexibility Analysis, pursuant to 5 U.S.C. 603, is not required.

4.15 Consultation and Coordination with Indian Tribal Governments

This final rule is consistent with policies and guidance established in the Presidential Memorandum of April 29, 1994 "Government-to-Government Relations with Native American Tribal Governments". This final rule and EIS is consistent with policies and guidance established in this Memorandum. NMFS has taken several steps to consult and inform affected tribal governments and solicit their input including the development of a co-management

agreement with Cook Inlet Marine Mammal Council in 2000, 2001 and 2002.

Chapter 5. Consultation and Coordination

5.1 Summary of Public Involvement

A CI Beluga Whale Scoping Meeting was held in the Anchorage on December 16, 1999. This meeting was advertised in the Anchorage Daily News, and notifications of the meeting were mailed to more than 120 interested parties. Public testimony was received from attendees during the meeting and written comments were received until January 19, 2000. A summary of all comments received were addressed in the draft EIS,

NMFS published regulations proposing to limit the harvest of beluga whales in Cook Inlet, Alaska, on October 4, 2000 (65 FR 59164). NMFS also published a draft EIS “Federal Actions Associated with Management and Recovery of CI Beluga Whales on October 6, 2000 (64 FR 59834). Copies of the regulations and draft EIS, with the FEDERAL REGISTER notices were mailed to more than 120 interested parties and available on the NMFS Alaska Region web site. NMFS received 15 letters from the public during the comment period on the proposed regulations and the draft EIS.

Pursuant to section 103(d) of the MMPA and regulations at 50 CFR Part 228, NMFS initiated the formal on-the-record administrative hearing process regarding the proposed regulations on October 4, 2000 (65 FR 59164). This hearing was convened on December 5-8, 2000, before ALJ Parlen L. McKenna, in Anchorage, Alaska, at the Federal Building. Seven persons or Parties participated in the ALJ hearing.

After considering the administrative record, written records forwarded to the ALJ, and taking into account the discussion that occurred during the formal hearing, ALJ Parlen L. McKenna forwarded to the NMFS, Alaska Region, on March 29, 2002, a recommended decision. On May 7, 2002, NMFS published a FEDERAL REGISTER notice (67 FR 30646) announcing the receipt of the recommended decision and made it available for review, as required at 50 CFR 228.20(c) Further, NMFS provided a 20-day comment period for the recommended decision as required by 50 CFR 228.20 (d). NMFS did not receive any comments on the recommended decision during the comment period.

NMFS has worked with CIMMC and other ANOs to develop and implement co-management agreements that allow for a traditional subsistence harvest in 2001 and 2002.

5.2 Issues and Concerns Raised by the Public and Agencies on the draft EIS

NMFS received 15 letters from the public during the comment period on the proposed regulations and the draft EIS. The content of most of the comments received focused on the draft EIS (i.e., on alternatives to the proposed regulations identified as the preferred alternative in the draft EIS, or on the analyses contained in the draft EIS) and not specifically on the proposed regulation. NMFS has incorporated all of the comments received on both the proposed

regulation and the draft EIS during the comment period, as well as the Record of Decision from the ALJ and the seven parties into this FEIS (see Appendice C and D). The FEIS was approved prior to the publication of these regulations and is now available.

5.2.1 Summary of Comments Received and NMFS Responses

The comments received by NMFS on the draft EIS and proposed regulation could be broadly grouped into one of the following categories: the need for, and purpose of, a harvest plan; the need for a periodic review of the regulations; the need for monitoring the beluga whale abundance relative to the harvest levels; and the impacts of other anthropogenic activities on the recovery of the beluga whales. The response by NMFS to these comments is provided in the following paragraphs.

Comment 1: Nine commenters supported the proposed harvest regulations for CI beluga whales. Most of these commenters supported regulations that would limit the Native harvest at a level that would not exceed two (2) strikes annually, until such time that the stock has recovered to OSP. One commenter suggested that this level [of harvest] would have minimal effect on the time to recovery [time to OSP].

Three other commenters recommended that no harvest occur until such time that the stock recovers to the MNPL, which corresponds to the lower limit of the OSP.

One commenter recommended that the number of strikes be dependent upon the population abundance of CI beluga whales such that one (1) strike is provided annually and increased to two (2) strikes as the population increases.

And one commenter supports the additional hunting regulations: all hunting shall occur after July 15 of each year, the taking of calves or adult whales with calves is prohibited, and the protocols to maximize strike efficiency.

Response: NMFS concurs with the first set of commenters that the level of the harvest (1.5 beluga whales/year) would allow for the stock of beluga whales to increase with minimal delay in recovery time (as compared to prohibiting the harvest entirely until the stock reached OSP), and provide for a limited harvest. NMFS disagrees with the approach suggested by the second set of commenters whereby no harvest is allowed until such time that the stock reaches OSP. The management objectives of this final rule are twofold: to recover this depleted stock to its OSP level, and to provide for a continued traditional use by Alaska Natives in the CI region, in support of cultural and nutritional needs. Prohibiting a harvest entirely would not provide for the second objective.

The commenters who recommended that the number of strikes be dependent upon the population abundance of CI beluga whales have suggested an approach that is consistent with the recommended decision by the ALJ. The decision does not provide for an incremental increase but does require that NMFS reexamine the stock abundance in 2005 to determine whether the

number of strikes could be increased at that time or at some later time, dependent upon stock abundance and trends. This provides for an adaptive approach to the number of animals that might be taken each year. However, the population models (provided in the draft EIS) all suggest strongly that it will take 20-23 years for this stock of beluga whales to recover to OSP if no more than two strikes are provided for each year. Allowing more strikes than two per year may result in a significant delay in recovery. Therefore, at the time the status is reviewed again in 2005, this alternative will have to be reviewed again and any recommended change in harvest strategy will have to represent a balance between subsistence need and stock recovery.

Comment 2: One commenter believed that NMFS should have a complete moratorium on the Native harvest of CI beluga whales until their numbers return to OSP.

Response: As indicated in the response to Comment 1, this harvest strategy would not be consistent with NMFS' objective to continue a limited traditional harvest.

Comment 3: One commenter does not want the hunt to cause an additional delay in the recovery of the beluga whales.

Response: A not-to-exceed two strikes per year limit on the harvest of CI beluga whales, as compared to a "no harvest" alternative, minimally extends the estimated time of recovery to OSP. A moratorium on the harvest allows for the stock to rebuild its population to OSP in approximately 20 years. A harvest of 1.5 or two whales per year, increases that time by three years, or approximately 14 percent. This increase in recovery time is not considered significant by NMFS. Equally as important, the harvest allows for the traditional use by Alaska Natives.

Comment 4: Four commenters agreed with the NMFS assessment that the only known cause of the decline of the beluga whale population in Cook Inlet was the harvest.

Response: NMFS concurs that, at this time, all the information suggests that harvest was the principal factor in the decline of the CI stock of beluga whales in the past decade. This is explained in more detail in the FEIS.

Comment 5: Three commenters disagreed with NMFS that harvest is the only factor to be considered in planning for the recovery and protection of these whales.

Response: NMFS agrees that harvest should not be the only factor considered in the development of a conservation or management plan for this stock. NMFS has stated that harvest was the principal factor implicated in the decline. However, the draft EIS examined many other items such as habitat needs, vessel traffic, availability of prey, disturbance, contaminant loads in CI beluga whales, disease, mass stranding and predation, as well as other factors, that need to be considered in the development of a conservation plan for this stock. The recovery of the stock will require conservation and restoration efforts by everyone.

Comment 6: One commenter requested that NMFS collect more data through observations

before placing any restrictions on the harvest. The commenter suggested that this is necessary to create appropriate harvest limits. The commenter also reminded NMFS that the beluga whale [and harvest] is an important food source [for Alaska Natives who live in the area], and this should be a priority.

Response: NMFS will continue to collect information on the CI stock of beluga whales in order to better understand their population abundance and biology. However, NMFS disagrees that we should wait to implement restrictions on the harvest. The available information indicates that the CI beluga whale stock has experienced a significant decline as a result of the harvest. Therefore, NMFS believes that harvest regulations need to be in place to ensure the recovery of this beluga whale stock. NMFS has considered the needs of Alaska Natives and supports a continued, albeit limited, harvest for subsistence.

Comment 7: Four commenters agreed with NMFS that the CI beluga whale stock should be designated as depleted under the MMPA.

Response: NMFS determined that the stock is below OSP, therefore, it meets the definition of depleted under the MMPA (65 FR 34590).

Comment 8: One commenter stated that the depleted determination and hunting restrictions are very necessary (and belated). The commenter also stated that NMFS must implement a conservation plan under the MMPA to address other issues, such as education and enforcement.

Response: NMFS recognized the need for the depleted determination and the harvest restrictions in this rule. NMFS agrees that education and enforcement are necessary components of a conservation plan.

Comment 9: Several commenters supported the management approach suggested by NMFS in the proposed rule [a combination of Federal regulations and co-management] to recover the stock of beluga whales. Two of the commenters believed that subsistence hunting needs to be managed through a co-management agreement to ensure hunter involvement.

Response: The harvest management strategy does represent a combination of Federal regulations and co-management. The Federal regulations will establish an upper limit to provide for the recovery of the stock. The annual allocation and harvest of beluga whales will be coordinated through a co-management agreement with ANOs pursuant to the recommended decision by the ALJ, and section 119 of the MMPA.

Comment 10: One commenter stated that there needs to be a substantial increase in the funding committed to co-management.

Response: NMFS agrees with this comment. During recent years, Federal appropriations have increased in response to an increased need to manage marine mammal stocks that are used for subsistence through co-management. These funds have been provided directly to Alaska Native

commissions and organizations, as well to the Federal agencies that are required to implement the co-management provisions of the MMPA.

Comment 11: Three commenters supported a limited hunt [as opposed to no harvest] only if NMFS can enforce the strike limit. Another commenter stated it would be difficult [for NMFS] to enforce the restrictions on the hunt and, that the mechanisms to enforce and monitor the hunt are not well described in the proposed rule.

Response: NMFS Enforcement has increased its efforts since 1999 to monitor the hunting activity allowed through the co-management agreements to ensure the strike limit. All the co-management agreements for CI beluga whales have included provisions for onsite observers to work with the hunters, to ensure compliance with the agreement, and to ensure an efficient, and non-wasteful harvest.

Comment 12: Two commenters wanted NMFS to be the primary authority to enforce any harvest restrictions adopted pursuant to a co-management agreement or to regulations. The commenters recommended that the enforcement plan be explained in the FEIS along with a description of NMFS' efforts to work within the Native communities to develop a system of community self-monitoring.

Response: NMFS has primary responsibility within the United States Government for the management of beluga whales. NMFS may assert its Federal authority to enforce any provisions of the MMPA that are applicable to the Native harvest of beluga whales. Such assertion of Federal authority will be preceded by consultation with the co-management partner(s) as specified in each co-management agreement. In all cases, NMFS and its co-management partner shall communicate on an as-needed basis concerning matters related to the enforcement of the agreement or the harvest. Under agreement, either party may initiate an enforcement action for a violation of a prohibition involving the Native take of the CI whale. Therefore self-policing or monitoring is already a built-in component of each agreement.

Comment 13: One commenter requested that any take by any Alaska Native in violation of the final regulations to restrict the harvest be viewed as a violation of the MMPA.

Response: Any hunting of beluga whales in Cook Inlet that occurs outside a co-management agreement, or occurs outside the limits placed on the harvest by these regulations, is considered a violation of the MMPA.

Comment 14: Three commenters agreed with NMFS that the sale of edible products from CI beluga whales should be prohibited. One commenter also recommended that the sale of all beluga whale edible parts (excluding traditional trade and barter) be prohibited to simplify enforcement.

Response: NMFS is prohibiting the sale of CI beluga whale products to eliminate any commercial incentive, while allowing for a traditional harvest. NMFS does not believe that it is

necessary with technologies currently available, including genetics testing and contaminant analysis, to expand that regulation to other beluga whale stocks that NMFS has not determined to be depleted under the MMPA (non-depleted). Further, it is not possible for NMFS to regulate the harvest of other, non-depleted beluga whale stocks under the MMPA. However, other ANOs have management plans that prohibit the sale of beluga whale edible products.

Comment 15: Three commenters requested an explanation on the proposed periodic review of the harvest, review of the population status and trends, and allowance to adjust the number of strikes. One commenter requested that NMFS consider a more restrictive alternative [no harvest] if the population decline does not stop. Two commenters want the harvest limits revised appropriately should the population increase significantly.

Response: NMFS agrees with the commenters that stock status and trends should be reviewed every five or six years. This is also consistent with the recommended decision by the ALJ. A review of the harvest and its effect on the stock trends and recovery trajectory will occur in 2004. Further, section 103(e) of the MMPA also requires that NMFS conduct a periodic review of any regulation promulgated pursuant to that section. Modifications may be made in such a manner as the Secretary deems consistent with, and necessary, to carry out purposes of the MMPA. This review will compare the results of the survey data with the management of the harvest to determine the status of the CI beluga whale population, and to determine whether changes in the harvest or level of harvest should occur to not compromise the recovery of the population.

Comment 16: One other commenter also stated that the regulation provides no provision for increasing the number of strikes if new information regarding the health of the CI beluga whale population comes to light. The regulations should make provisions for altering the number of strikes for subsistence harvest if new, valid information changes the analysis of the CI beluga whale population.

Response: See Response above.

Comment 17: One commenter suggested that NMFS placed too much blame on the Native harvest for the observed decline in CI beluga whales. The commenter stated that while Native subsistence hunting may have played a role in the decline of the whales, nobody is really sure why the population is suffering.

Response: The record indicates that the harvest of CI beluga whales between 1994 and 1998 was the principal factor responsible for the observed decline. See Responses to Comments 4 and 5.

Comment 18: One commenter questioned whether a harvest was needed to promote Native culture and tradition, and noted that hunting [for CI beluga whales] has ceased [in the past] for up to 30 years without harming the Native culture.

Response: The Native Village of Tyonek did very little hunting for CI beluga whales between the 1940's and late 1970's. However, beluga whale hunting based out of the Anchorage area did

occur, and the products were available to local communities. Generally, subsistence foods other than beluga whales, as well as non-subsistence foods, have become more prevalent in the diet of Alaska Natives who live in the CI area in recent years. As a result, the reliance on whales as a primary food source has diminished. However, the cultural importance of whaling has never disappeared. Alaska Natives continue to share the meat and blubber in traditional patterns that reaffirm social ties and provide a strong sense of ethnic identity. The use of beluga whale products, and other wild resources, continues to be economically, nutritionally, and culturally valuable to the Dena'ina and other Alaska Natives in the CI area.

Comment 19: Two commenters urged NMFS to reinstate the legislative prohibitions that expired 1 October 2000 to prevent a resumption of unregulated hunting.

Response: The legislative prohibitions initiated in May 1999 were made permanent on December 21, 2000 (Pub. L. No. 106-553, [section] 1(a)(2), 114 Stat. 2762).

Comment 20: One commenter was concerned that observed, or potential, decreases in other beluga whale stocks throughout Alaska, might result in problems similar to that observed in Cook Inlet [harvest limitations].

Response: The abundance estimates and harvest reports for other beluga whale populations indicate that they are healthy and not in danger of depletion at this time. The Alaska Beluga Whale Committee (ABWC), a statewide ANO consisting of beluga whale hunters, co-manages the remaining stocks of beluga whales in Alaska. The ABWC has been conducting aerial surveys and collecting harvest information on these beluga whale stocks to prevent problems in other parts of the State, similar to those experienced in Cook Inlet.

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- Young, N.M., S. Iudicello, K. Evans and D. Baur. 1993. The incidental capture of marine mammals in U.S. fisheries. Center for Marine Conservation, Wash. D.C. 413 p.

Chapter 7 LIST OF PRINCIPAL PREPARERS AND REVIEWERS

Barbara Mahoney, Alaska Regional Office (AKR), NMFS

Barbara Mahoney is the Beluga Whale Program Leader, Protected Resources Division, AKR, Anchorage, Alaska. Ms. Mahoney has been working for NMFS since 1989. Ms. Mahoney received a B.S. Degree in Biology from the University of Alaska, Fairbanks, in 1986. Ms. Mahoney began studying beluga whales in Cook Inlet in 1991. Since that time she has spent considerable time on the water and in the air observing and studying beluga whales throughout Alaska. Ms. Mahoney is actively involved with the hunters and tribes of Cook Inlet, and represents NMFS in all beluga co-management agreements. She has co-authored numerous field reports, journal articles and posters on belugas, particularly those found in Cook Inlet. She worked with others in writing the proposed harvest regulations, a draft EIS and continued this work on the final EIS.

Bradley K. Smith, AKR, NMFS

Mr. Smith is the Coordinator, Anchorage Field Office, AKR, NMFS, and has been working for NMFS since 1977. He received a B.S. Degree in Fisheries Biology in 1977 from Colorado State University. Mr. Smith has worked on all aspects of beluga whale conservation in Cook Inlet including initiating a status review of this species in 1998, providing (along with Ms. Mahoney) the first estimates of the level of subsistence overharvest in the mid 1990s. He has been involved in tribal consultations with tribal officials and representatives of tribally-authorized Alaskan Native Organizations (ANOs). Finally, Mr. Smith worked on the proposed and final regulations designating the stock of beluga whales as depleted and proposed regulations governing the harvest of beluga whales in Cook Inlet.

P. Michael Payne, AKR, NMFS

Mr. Payne has been the Assistant Regional Administrator, PRD, AKR, NMFS, since May 1999. He received a M.S. Degree in Fishery Biology, Iowa State University, in 1975. In this position he has worked with Mr. Smith and Ms. Mahoney, in the completion of, four co-management agreements with Alaskan Natives regarding Cook Inlet beluga whales, the designation of Cook Inlet beluga whales as depleted, and proposed regulations to limit the subsistence harvest by Alaska Natives. Mr. Payne was the Chief of the Marine Mammal Division, the Office of Protected Resources, NMFS, NOAA, in Silver Spring, Maryland, from April 1996 until May 1999; and the Marine Mammal Recovery Program Coordinator in the Marine Mammal Division, Office of Protected Resources, NMFS, 1991 thru April 1996. In that role Mr. Payne worked on many issues including, but not limited to, subsistence harvests issues in Alaska and the development of the umbrella co-management agreement.

Tamra Faris, AKR, NMFS

Tamra Faris is a Fisheries Biologist, AKR, NMFS, at Juneau, Alaska, and NEPA Coordinator. Reviewed and worked with preparers of this EIS. Ms. Faris received her B.S. Degree from the University of Alaska, Fairbanks, Alaska, and a M.S. Degree from the University of Washington, Seattle, Washington. Ms. Faris has conducted workshops on NEPA process for Alaska Region. Previous assignments with Fishery management NEPA analyses include the Alaska Groundfish Programmatic SEIS, the Steller Sea Lion Protection Measures DSEIS (2001), and numerous environmental analyses on fisheries management actions. She has been with NMFS for 25 years.

Dr. Doug DeMaster, AFSC, NMFS

Dr. DeMaster is the Director, Alaska Fisheries Science Center, Seattle, Washington. Prior to his appointment as the Director of the Science Center, he was the Director of the National Marine Mammal Laboratory (NMML), AFSC, NMFS, which is located in Seattle, Washington. Dr. DeMaster received a Ph.D. in 1978 from the Department of Ecology and Behavioral Biology, University of Minnesota. Most of his professional training has been in the fields of quantitative ecology and population dynamics and he has worked on the population dynamics of marine mammals since receiving his Ph.D. Dr. DeMaster has conducted considerable research on beluga whales since 1992 including six publications on beluga whales and he has served as a member of the Alaska Beluga Whale Committee (ABWC) since 1993. He was also a principal in the drafting of the umbrella agreement among NMFS, FWS, and IPCOM to conserve marine mammal stocks and provide for co-management of marine mammals important to Native Alaskan subsistence hunters.

Dr. Rod Hobbs, AFSC, NMML, NMFS

Dr. Hobbs is a Fisheries Biologist, with NMML, AFSC, Seattle, Washington. Dr. Hobbs received a B.S. Degree in Biology and a Ph.D. in Ecology from the University of California at Davis. He has been employed by NMFS since 1991 and has lead the Beluga Task at NMML, and conducted Cook Inlet beluga research since 1994. His current title is Operation Research Analyst and he has expertise in experimental design and analysis and population dynamics. His field projects have included aerial, vessel and land based surveys for cetaceans, aerial photography and videography of beluga and tagging of belugas and bowhead whales. Dr. Hobbs has developed the current method for estimating the abundance of Cook Inlet beluga using aerial survey and video analysis and has investigated the trends in abundance and impact of harvest using a variety of modeling and statistical methods.

Dr. Thomas Eagle, FPR, NMFS

Dr. Eagle is a Fisheries Biologist with the Marine Mammal Division, FPR, NMFS, Silver Spring, Maryland. He has worked in that position for the past 11 years. Dr. Eagle received his B.S. Degree in Animal Science and M.S. Degree in Wildlife Ecology from the University of Tennessee, Knoxville. He received his Ph.D. in Wildlife Management from the University of

Minnesota, St. Paul, Minnesota. His expertise and special skills include population dynamics of large mammals, statistical analysis, wildlife management, and the implementation of management and conservation strategies under federal conservation law. Dr. Eagle assisted in the identification of alternatives, assessing the impact of these alternatives on Cook Inlet beluga whales, drafting portions of certain sections of the of the document, and reviewing and editing the entire document.

Chapter 8 LIST OF INTERESTED PARTIES, AGENCIES, ORGANIZATIONS, AND PERSONS

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Alaska Department of Fish & Game
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Anchorage, AK 99518

Alaska Department of Fish & Game
1300 College Rd
Fairbanks, AK 99701

Alaska Department of Fish & Game
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Juneau, AK 99802-5526

ADF&G - Wildlife Conservation Division
P.O. Box 25526
Juneau, AK 99802-5526

ADNR - Division of Lands
550 West 7th Ave., #800
Anchorage, AK 99501

ADNR - Division of Oil and Gas
550 West 7th Ave., #800
Anchorage, AK 99501

ADGC - Office of Management and Budget
P.O. Box 11030
Juneau, AK 99811

Alaska Economic Development Council
900 West 5th Ave. Suite 300
Anchorage, AK 99501

3CES/CEVP
6326 Arctic Warrior Dr.
Elmendorf Airforce Base, AK
99506-3240

Environmental Protection Agency,

Region 10
1200 6th Avenue ECO-088
Seattle, WA 98101

Environmental Protection Agency,
Region 10
222 West 7th Avenue #19
Anchorage, AK 99513

Fort Richardson
Environ. Resource Dept
600 Richardson Drive #6505
Attn: APVR-RPW-EV
Fort Richardson, Alaska
99505-6505

Marine Mammal Commission
4340 East-West Hwy., Room 905
Bethesda, MD 20814

North Pacific Fishery Management
Council
605 W. 4th Ave. Room 306
Anchorage, AK 99510

USFWS - Marine Mammal Management
1011 East Tudor Road
Anchorage, AK 99501

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Kotzebue, AK 99752

Alaska Beluga Whale Committee
Box 1012
Barrow, AK 99723

Alaska Beluga Whale Committee

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Dillingham, AK 99576

Alaska Beluga Whale Committee
1550 Coyote Trail
Fairbanks, AK 99709

Alaska Beluga Whale Committee
P.O. Box 70
Elim, AK 99739

Alaska Native Marine Mammal Hunter's
Committee
c/o P.O. Box 1126
Kasilof, AK 99610

Alaska Native Harbor Seal Committee
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Anchorage, AK 99515

Alaska Sea Otter and Steller Sea Lion Com.
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Anchorage, AK 99518

Cook Inlet Marine Mammal Council
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Tyonek, AK 99682

Cook Inlet Treaty Tribes
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Chickaloon, AK 99674

Cook Inlet Tribal Council
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Inuit Circumpolar Conference
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Kenaitze Indian Tribe
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Kenai, AK 99611

Knik Tribe
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Native Village of Eklutna
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Chugiak, AK 99567

Native Village of Tyonek
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Tyonek, AK 99682

Ninilchik Traditional Council
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Ninilchik, AK 99639

Qutekcok Native Tribe
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Seward, AK 99664

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Alaska Scientific Review Group
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Sitka, AK 99835

Alaska Scientific Review Group
900 Trident Way
Kodiak, AK 99615

Alaskan Media Groups

Anchorage Daily News
1001 Northway Dr.
Anchorage, AK 99508

Associated Press
750 West 2nd Ave. Suite 102
Anchorage, AK 99501

Petroleum News - Alaska
P.O. Box 102562
Anchorage, AK 99510-2562

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Wasilla, AK 99654

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Anchorage, AK 99519-6650

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Alaska Center for the
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Alaska Community Action on
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Anchorage, AK 99501

Alaska Marine Conservation
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Alaska Wildlife Alliance
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Animal Welfare Institute
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Washington, D.C. 20007-0150

Center for Biological Diversity
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Berkeley, CA 94704-4090

Cetacean Society International
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Cook Inlet Keeper
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Juneau, AK 99801

Earthjustice Legal Defense Fund
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Washington, DC 20037

National Audubon Societ
Alaska State Office
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Anchorage, AK 99501

Native American Rights Fund

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Anchorage, AK 99501

The Ocean Conservancy
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Anchorage, AK 99501

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Cook Inlet Tug and Barge
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LGL Alaska
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Phillips Alaska Inc.
700 G St.
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List of Appendices

Appendix A: NMFS / CIMMC Co-Management Agreement for 2001

Appendix B: NMFS / CIMMC Co-Management Agreement for 2002

Appendix C: Proposed Subsistence Harvest Regulations, October 2000
(Federal Register Notice)

Appendix D: Administrative Law Judge Record of Decision: Joint Stipulations

Appendix D: Comments received by NMFS on the Draft Environmental Impact Statement and Proposed Regulations

Appendix A: AGREEMENT between the NATIONAL MARINE FISHERIES SERVICE and the COOK INLET MARINE MAMMAL COUNCIL for the CO-MANAGEMENT OF THE COOK INLET STOCK OF BELUGA WHALE for the YEAR 2001

(I) PARTIES

This document constitutes an agreement between the National Marine Fisheries Service (NMFS) and the Cook Inlet Marine Mammal Council (CIMMC), otherwise referred to as the Parties.

CIMMC is an association, chartered by the Cook Inlet Treaty Tribes, which represents these Tribes and Alaska Native marine mammal subsistence hunters within the Cook Inlet area who are registered with CIMMC.

The Cook Inlet (CI) stock of beluga whales applies to all beluga whales occurring in waters of the Gulf of Alaska north of 58 degrees North latitude including but not limited to Cook Inlet, Kamishak Bay, Chinitna Bay, Tuxedni Bay, Prince William Sound, Yakutat Bay, Shelikof Strait, and off Kodiak Island and freshwater tributaries to those waters.

II. AUTHORITIES

- (I)** NMFS has authority to enter into this agreement under section 119 (16 U.S.C. 1388) of the Marine Mammal Protection Act of 1972, as amended (MMPA). Public Law 106-553 requires that the hunting of CI beluga for subsistence uses by Alaska Natives be conducted pursuant to a cooperative agreement between NMFS and affected Alaska Native organizations. Additional guidance is provided by Executive Order #13084 of May 14, 1998 ("Consultation and Coordination with Indian Tribal Governments," 63 FR 27655), Presidential Memorandum of April 29, 1994 "Government-to-Government Relations with Native American Tribal Governments," U.S. Department of Commerce Memorandum "American Indian and Alaska Native Policy of the U.S. Department of Commerce" of March 30, 1995, and the "Memorandum of Agreement for Negotiation of Marine Mammal Protection Act, sections 119 Agreements" of August 1997.
- B.** CIMMC has authority to enter into this agreement under its charter and authorizing resolutions from Alaska

tribal governments. Further, CIMMC is recognized as an Alaska Native organization under the MMPA and, as such, may enter into this agreement to co-manage the subsistence use of marine mammals by Alaska Natives.

III. PURPOSES

The purposes of this agreement between NMFS and CIMMC are to promote the recovery of the CI stock of beluga whales, to meet the subsistence needs, customs, traditions, and culture of Alaska Natives by providing an opportunity for a limited harvest of the CI beluga whale by the Native Village of Tyonek (NVT) during 2001, and to promote scientific research on the CI beluga whale stock and its habitat.

IV. BACKGROUND

In 1972, the MMPA was passed by Congress and provided an exemption which allows the taking of marine mammals by Alaska Natives provided such taking is for subsistence purposes or done for purposes of creating and selling authentic Native articles of handicraft and clothing. Such taking may not be accomplished in a wasteful manner.

In 1994, CIMMC was established to facilitate cooperation and communication among beluga whale subsistence hunters, scientists, and the government regarding the conservation and management of CI beluga whales. CIMMC is composed of Cook Inlet village representatives and hunters who hunt CI beluga whales.

In April 1994, the MMPA was amended to include section 119 "Marine Mammal Cooperative Agreements in Alaska." Section 119 formalizes the rights of Alaska Native organizations to participate in conservation-related co-management of subsistence resources and their use. Section 119 also authorized the appropriation of funds to be transferred by NMFS to Alaska Native organizations to accomplish these activities.

On May 21, 1999, Pub. L. 106-31 required that the taking of a CI beluga whale shall occur pursuant to a cooperative agreement between NMFS and affected Alaska Native organizations. This authority expired on October 1, 2000.

On December 21, 2000, the requirement established in May 1999, for a cooperative agreement was made permanent.

V. MANAGEMENT OF COOK INLET BELUGA WHALES

The Parties agree that the Native harvest of CI beluga whales during the calendar year 2001 shall consist of one (1) strike, which is allocated to NVT. A strike is defined as hitting a whale with a harpoon, lance or bullet. Upon striking a whale, subsequent strikes on that same whale are not counted against the strike limit.

Harvest Practices

Parties agree that hunters receiving the strike allocation shall hunt in accordance with the following requirements:

- (ii) Only whaling boats and captains authorized under a permit issued by CIMMC may participate in the harvest allocated under this agreement. An Elder or experienced hunter shall be present and shall direct the harvest for each beluga whaling boat. This will reduce the chance of striking a calf, a female accompanied by a calf, or of striking a whale in an area or in a manner which may result in the loss of the whale.
- 2. Each whaling vessel must have aboard the following equipment: harpoon and attached rope/float, at least 30 feet of nylon rope or equivalent, and come-along or pulley system with deadman, to help insure against the loss of the whale.
- 3. All CI beluga whale hunting shall occur within 10 miles of the mouth of the Susitna River.
- 4. All CI beluga whale hunting shall occur after July 1, 2001 to minimize the possibility of harvesting a pregnant female.
- 5. CIMMC will notify NMFS Enforcement, Anchorage office, 24 hours prior to the hunt. NMFS Enforcement phone number is (907) 271-3021.
- 6. The taking of a calf, or a beluga accompanied by a calf, is prohibited.
- 7. Whales shall be struck with a harpoon and float prior to shooting. This is intended to reduce struck and loss. Whales shall not be hunted or

taken with nets.

8. Hunting, to the extent practical, shall occur in water shallow enough to follow the wake of a beluga whale. This is intended to reduce struck and loss.
9. Consistent with the desire of CIMMC in regards to this agreement and the current practice of NVT, the sale of the beluga whale, or parts thereof, harvested under this agreement, shall not be permitted.
10. As provided by Federal Regulation, upon harvesting a CI beluga whale, the whaling captain shall remove and retain the left lower jawbone, and must provide this jawbone to NVT within 24 hours of the harvest. NVT shall thereafter provide the jawbone to NMFS Anchorage office within three days of the harvest. The whaling captain shall also complete a beluga whale harvest report and provide it to CIMMC or NMFS within 30 days.
11. All hunters shall comply with the provisions of this agreement. Noncompliance with any provisions may result in the loss of hunting privileges for CI beluga whales and prosecution.
12. Any unauthorized striking of a CI beluga whale by a member of CIMMC shall be counted against the strike allocated to CIMMC. If such a strike occurs prior to the hunt conducted legally under the CIMMC Harvest Permit that Harvest Permit will be voided and no further hunting shall occur under this agreement.
13. In the event of any loss of beluga whales through strandings or other causes, NMFS, CIMMC, and NVT shall enter into consultation to determine whether to proceed with the hunt permitted by this agreement. Such determination shall be made based upon the best available information and consistent with the primary goals of the parties as set forth in Section III of this agreement. NMFS may suspend further hunting at any time if it finds unanticipated deaths within this stock are too high to permit additional removals

consistent with recovery of the CI beluga.

VI. RESPONSIBILITIES OF CIMMC

- (ii) CIMMC, in cooperation with NMFS, will manage the CI beluga whale subsistence harvest. The authority and responsibilities of CIMMC are specified by this agreement. CIMMC may provide for monitors to be aboard the whaling vessel to verify and report on the strike.
- (ii) CIMMC and NMFS shall communicate on an as-needed basis concerning matters related to the enforcement of this agreement or the Harvest Permit. Any party to this agreement which initiates an enforcement action for a violation of a prohibition involving Native take of the CI whale shall notify, as soon as practical, the other party to this agreement of the enforcement action.
- C. CIMMC, in consultation with NMFS, may conduct research on the biology, natural history and traditional knowledge of the CI population of beluga whales. NMFS personnel may participate in such data collection. All information collected under this section shall be shared between CIMMC and NMFS.
- (ii) No financial commitment on the part of CIMMC is authorized or required by this agreement.

VII. RESPONSIBILITIES OF NMFS

- A. NMFS has primary responsibility within the United States Government for the management of beluga whales. NMFS may assert its Federal authority to enforce any provisions of the MMPA that are applicable to the Native harvest of beluga whales. Such assertions of Federal authority will be preceded by consultation with CIMMC as specified in VII.B. below.
- (ii) NMFS and CIMMC shall communicate on an as-needed basis concerning matters related to the enforcement of this agreement or the Harvest Permit. Any party to this agreement which initiates an enforcement action for a violation of a prohibition involving Native take of the CI whale shall notify, as soon as practical, the other party to this agreement of the enforcement action.

- (ii) NMFS, in consultation with CIMMC, may conduct research on the biology, natural history and traditional knowledge of the CI population of beluga whales. CIMMC personnel may participate in such data collection. All information collected under this section shall be shared between CIMMC and NMFS.
- (ii) No financial commitment on the part of NMFS is authorized or required by this agreement.

VIII. REGULATION AND ENFORCEMENT

NMFS recognizes the existing tribal authority to regulate tribal members during the conduct of the subsistence harvest of beluga whales. CIMMC recognizes the Secretary of Commerce's authority to enforce the provisions of the MMPA applicable to the Native harvest of beluga whales.

IX. OTHER PROVISIONS

- A. Nothing herein is intended to conflict with current NOAA or NMFS directives. If the terms of this agreement are inconsistent with existing laws, regulations, or directives of either of the Parties, then those portions which are determined to be inconsistent shall be invalid, but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect. At the first opportunity for review of the agreement, all necessary changes will be accomplished by either an amendment to this agreement or a new agreement, whichever is deemed expedient to the interest of both Parties.
- B. Should disagreements arise over the provisions of this agreement, or amendments or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each Party and presented to the other Party for consideration. If agreement on interpretation cannot be reached within a reasonable time, a special meeting or teleconference shall be held to resolve the issues. This meeting shall include representatives of NMFS and CIMMC.

X. ADOPTION, DURATION, AND MODIFICATION

This agreement will become effective when signed by both Parties, may be amended at any time by written agreement of both Parties, and shall expire on December 31, 2001. Either Party may terminate this agreement by giving 45 days prior written Notice of Termination to the other Party.

XI. SIGNATORIES

The Parties hereto have executed this agreement as of the last written date below:

Peter Merryman
Chairman, CIMMC

James W. Balsiger
Administrator
Alaska Region, NMFS

Appendix B: AGREEMENT between the NATIONAL MARINE FISHERIES SERVICE and the COOK INLET MARINE MAMMAL COUNCIL for the CO-MANAGEMENT OF THE COOK INLET STOCK OF BELUGA WHALE for the YEAR 2002

(i) PARTIES

This document constitutes an agreement between the National Marine Fisheries Service (NMFS) and the Cook Inlet Marine Mammal Council (CIMMC), otherwise referred to as the Parties.

CIMMC is an association, chartered by the Cook Inlet Treaty Tribes, which represents these Tribes and Alaska Native marine mammal subsistence hunters within the Cook Inlet area who are registered with CIMMC.

The Cook Inlet (CI) stock of beluga whales applies to all beluga whales occurring in waters of the Gulf of Alaska north of 58 degrees North latitude including but not limited to, Cook Inlet, Kamishak Bay, Chinitna Bay, Tuxedni Bay, Prince William Sound, Yakutat Bay, Shelikof Strait, and off Kodiak Island and freshwater tributaries to those waters.

II. AUTHORITIES

- (i)** NMFS has the authority to enter into this agreement with CIMMC under section 119 (16 U.S.C. 1388) of the Marine Mammal Protection Act of 1972 (MMPA). Section 3022 of the 1999 Emergency Supplemental Appropriations Act (Pub. L. 106-31) provided a temporary requirement that the hunting of Cook Inlet beluga whales for subsistence uses by Alaska Natives must be conducted pursuant to a cooperative agreement between NMFS and affected Alaska Native organizations; this requirement for a cooperative agreement was subsequently made permanent by section 627 of Pub. L. 106-553. Additional guidance is provided by Executive Order #13084 of May 14, 1998 ("Consultation and

Coordination with Indian Tribal Governments," 63 FR 27655), Presidential Memorandum of April 29, 1994 "Government-to-Government Relations with Native American Tribal Governments," U.S. Department of Commerce Memorandum "American Indian and Alaska Native Policy of the U.S. Department of Commerce" of March 30, 1995, and the "Memorandum of Agreement for Negotiation of Marine Mammal Protection Act, section 119 Agreements" of August 1997.

- B.** CIMMC has the authority to enter into this agreement under its charter and authorizing resolutions from Alaska tribal governments. Further, CIMMC is recognized as an Alaska Native organization under the MMPA and, as such, may enter into this agreement to co-manage the subsistence use of marine mammals by Alaska Natives.

III. PURPOSES

The purposes of this agreement between NMFS and CIMMC are to promote the recovery of the CI stock of beluga whales; to meet the subsistence needs and customs, traditions, and culture of Alaska Natives by providing an opportunity for a limited harvest of the CI beluga whale by the Native Village of Tyonek (NVT) and the community of Cook Inlet Alaska Native marine mammal hunters during 2002; and to promote scientific research on the CI beluga whale stock and their habitat.

IV. BACKGROUND

In 1972, the MMPA was passed by Congress and provided an exemption which allows the taking of marine mammals by Alaska Natives provided such taking is for subsistence purposes or done for purposes of creating and selling authentic Native articles of handicraft and clothing. Such taking may not be accomplished in a wasteful manner.

In 1994, CIMMC was established to facilitate cooperation and communication among beluga whale subsistence hunters, scientists, and the

government regarding the conservation and management of CI beluga whales. CIMMC is composed of Cook Inlet village representatives and hunters who hunt CI beluga whales.

In April 1994, the MMPA was amended to include section 119 "Marine Mammal Cooperative Agreements in Alaska." Section 119 formalizes the rights of Alaska Native organizations to participate in conservation-related co-management of subsistence resources and their use. Section 119 also authorized the appropriation of funds to be transferred by NMFS to Alaska Native organizations to accomplish these activities.

On May 21, 1999, Pub. L. 106-31 required that the taking of a CI beluga whale shall occur pursuant to a cooperative agreement between NMFS and affected Alaska Native organizations. This authority expired on October 1, 2000.

On December 21, 2000, the requirement, established in May 1999, for a cooperative agreement was made permanent.

V. MANAGEMENT OF COOK INLET BELUGA WHALES

The Parties agree that the Native harvest of CI beluga whales during the calendar year 2002 shall consist of two (2) strikes. CIMMC shall allocate one strike to NVT and the second strike to the community of Alaska Native Cook Inlet marine mammal hunters. The allocation of the strike for the Cook Inlet community of hunters shall be made in cooperation and consultation with the ANMMHC and the community of Cook Inlet beluga hunters. A strike is defined as hitting a whale with a harpoon, lance, bullet or other object. Upon striking a whale, subsequent strikes on that same whale are not counted against the strike limit.

Harvest Practices

1. Only whaling boats and captains authorized under a permit issued by CIMMC may participate in the harvest allocated under this agreement. An Elder or experienced hunter shall be present and shall

direct the harvest for each beluga whaling boat. This will reduce the chance of striking a calf, a female accompanied by a calf, or of striking a whale in an area or in a manner which may result in the loss of the whale.

2. Each whaling vessel must have aboard the following equipment: harpoon and attached rope/float, at least 30 feet of nylon rope or equivalent, and come-along or pulley system with deadman, to help insure against the loss of the whale.
3. All CI beluga whale hunting shall occur on or after July 13, 2002 to minimize the possibility of harvesting a pregnant female.
4. CIMMC, NVT, or the person or persons holding a permit for the strike allocated to the Cook Inlet community of hunters shall notify NMFS Enforcement, Anchorage office, 48 hours prior to the hunt.
5. The intentional or negligent taking of a maternally dependent calf, or a female beluga accompanied by a maternally dependant calf, is prohibited.
6. Belugas shall be struck with a harpoon and float prior to shooting. This is intended to reduce struck and loss. Whales shall not be hunted or taken with unattended nets.
7. Consistent with the desire of CIMMC in regards to this agreement, the current practice of NVT, and the desire of the ANMMHC and the Cook Inlet hunting community, the sale of the beluga whale, or parts thereof, harvested under this agreement, shall not be permitted; provided that the nothing herein is intended to prohibit the use of non-edible by-products of a beluga taken under a permit authorized herein for use as handicrafts or clothing.
8. Upon harvesting a CI beluga whale, the whaling captain shall remove and retain the left lower jawbone, and must make the jawbone available CIMMC or NMFS within 24 hours of the harvest. CIMMC shall thereafter provide the jawbone to NMFS

Anchorage office within three days of the harvest. The whaling captain shall also provide the harvest information to CIMMC or NMFS within 30 days.

9. All hunters shall comply with the provisions of this agreement and any permit issued by CIMMC. Non-compliance with any provisions may result in the loss of hunting privileges for CI beluga whales and prosecution.
10. Any unauthorized striking of a CI beluga whale by a member of CIMMC shall be counted against the strikes allocated to CIMMC . If such a strike occurs prior to the hunt conducted legally under a CIMMC Harvest Permit, that Harvest Permit will be voided as follows. If the unauthorized strike is by a member of the Cook Inlet beluga hunting Community or a member of the ANMMHC, the strike shall be counted against the strike allocated to the Community or to the ANMMHC, and any unused permit issued to the Community of hunters or the ANMMHC will be voided. If the unauthorized strike is by a member of the NVT, the strike shall be counted against the strike allocated to the NVT, and any unused permit issued to the NVT will be voided.
11. In the event of any loss of beluga whales through strandings or other causes, NMFS and CIMMC shall enter into consultation to determine whether to proceed with the hunt permitted by this agreement. Such determination shall be made based upon the best available information and consistent with the primary goals of the parties as set forth in Section III of this agreement. NMFS may suspend further hunting at any time if it finds unanticipated deaths within this stock are too high to permit additional removals consistent with recovery of the CI beluga.

VI. RESPONSIBILITIES OF CIMMC

- (i0 CIMMC, in cooperation with NMFS, will manage the CI beluga whale subsistence harvest. The authority and responsibilities of CIMMC are specified by this agreement. CIMMC may provide for monitors to be aboard the whaling vessel to

verify and report on the strike.

(ii) CIMMC and NMFS shall communicate on an as-needed basis concerning matters related to the enforcement of this agreement or the Harvest Permit. Any party to this agreement which initiates an enforcement action for a violation of a prohibition involving Native take of the CI whale shall notify, as soon as practical, the other party to this agreement of the enforcement action.

C. CIMMC, in consultation with NMFS, may conduct research on the biology, natural history, and traditional knowledge of the CI population of beluga whales. NMFS personnel may participate in such data collection. All information collected under this section shall be shared between CIMMC and NMFS.

D. No financial commitment on the part of CIMMC is authorized or required by this agreement.

VII. RESPONSIBILITIES OF NMFS

A. NMFS has primary responsibility within the United States Government for the management of beluga whales. NMFS may assert its Federal authority to enforce any provisions of the MMPA that are applicable to the Native harvest of beluga whales. Such assertion of Federal authority will be preceded by consultation with CIMMC as specified in VII.B. below.

(ii) NMFS and CIMMC shall communicate on an as-needed basis concerning matters related to the enforcement of this agreement or the Harvest Permit. Any party to this agreement which initiates an enforcement action for a violation of a prohibition involving Native take of the CI whale shall notify, as soon as practical, the other party to this agreement of the enforcement action.

(i) NMFS, in consultation with CIMMC, may conduct research on the biology, natural history, and

traditional knowledge of the CI population of beluga whales. CIMMC personnel may participate in such data collection. All information collected under this section shall be shared between CIMMC and NMFS.

- (ii) No financial commitment on the part of NMFS is authorized or required by this agreement.

VIII. REGULATION AND ENFORCEMENT

NMFS recognizes the existing tribal authority to regulate tribal members during the conduct of the subsistence harvest of beluga whales. CIMMC recognizes the Secretary of Commerce's authority to enforce the provisions of the MMPA applicable to the Native harvest of beluga whales.

IX. OTHER PROVISIONS

- A. Nothing herein is intended to conflict with current NOAA or NMFS directives. If the terms of this agreement are inconsistent with existing laws, regulations, or directives of either of the Parties, then those portions which are determined to be inconsistent shall be invalid, but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect. At the first opportunity for review of the agreement, all necessary changes will be accomplished by either an amendment to this agreement or by a new agreement, whichever is deemed expedient to the interest of both Parties.
- B. Should disagreements arise over the provisions of this agreement, or amendments or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each Party and presented to the other Party for consideration. If agreement on interpretation cannot be reached within a reasonable time, a special meeting or teleconference shall be held to resolve the issues. This meeting shall include representatives of NMFS and CIMMC.

X. ADOPTION, DURATION, AND MODIFICATION

This agreement will become effective when signed by both Parties, may be amended at any time by written agreement of both Parties, and shall expire on December 31, 2002. Either Party may terminate this agreement by giving 45 days prior written Notice of Termination to the other Party.

XI. SIGNATORIES

The Parties hereto have executed this agreement as of the last written date below:

Peter Merryman
Chairman, CIMMC
Cook Inlet Marine Mammal Council
PO Box 82009
Tyonek, AK 99682

James W. Balsiger
Administrator,
Alaska Region, NMFS
P.O. Box 21688
Juneau, AK 99802-1668

Appendix C : Proposed Subsistence Harvest Regulations, October 2000, (Federal Register Notice)

FEDERAL COMMUNICATIONS COMMISSION**47 CFR Part 73**

[DA 00-2161; MM Docket No. 00-172, RM-9963]

Radio Broadcasting Services; McConnellsville, OH**AGENCY:** Federal Communications Commission.**ACTION:** Proposed rule.

SUMMARY: The Commission requests comments on a petition filed by Donald Staats proposing the allotment of Channel 279A at McConnellsville, Ohio, as the community's second local aural transmission service. Channel 279A can be allotted to McConnellsville in compliance with the Commission's minimum distance separation requirements with a site restriction of 0.7 kilometers (0.4 miles) east of city reference coordinates. The coordinates for Channel 279A at McConnellsville are 39-38-48 North Latitude and 81-50-43 West Longitude.

DATES: Comments must be filed on or before November 13, 2000, and reply comments on or before November 28, 2000.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, as follows: Donald Staats, 2503 Twelfth Ave., Vienna, WV. 26105

FOR FURTHER INFORMATION CONTACT: Arthur D. Scrutchins, Mass Media Bureau, (202) 418-2180.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 00-172; adopted September 13, 2000 and released September 22, 2000. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Information Center (Room CY-A257), 445 12th Street, SW, Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, Inc., (202) 857-3800, 1231 20th Street, NW., Washington, DC 20036.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this

one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 00-25395 Filed 10-3-00; 8:45 am]

BILLING CODE 6712-01-P

DEPARTMENT OF COMMERCE**National Oceanic and Atmospheric Administration****50 CFR Part 216**

[Docket No. 000922272-0272-01;I.D. 061600A]

RIN 0648-AO16

Taking of the Cook Inlet (CI), Alaska, Stock of Beluga Whales by Alaska Natives

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; notice of hearing; request for comments.

SUMMARY: NMFS is proposing regulations under the Marine Mammal Protection Act (MMPA) that would limit the harvest and use of CI beluga whales. The management objectives of the proposed regulations are to recover this depleted stock to its Optimum Sustainable Population (OSP) level, and to provide for the continued traditional subsistence use by Alaska Natives. The MMPA imposes a general moratorium on the taking of marine mammals; however, it provides an exception to the moratorium that allows Alaska Natives to harvest marine mammals for subsistence use or for traditional Native handicrafts. Under the MMPA, the Federal government may regulate Native subsistence harvest when the stock in question is designated as depleted pursuant to the MMPA and after regulations specific to the depleted stock are issued. NMFS designated the CI beluga whale stock as depleted on May 31, 2000 and believes that control of the harvest is necessary to promote recovery of this stock. NMFS has also prepared a National Environmental Policy Act (NEPA) Draft Environmental Impact Statement (DEIS) on this proposed action. NMFS solicits public comments on the proposed rule and the DEIS.

DATES: Comments on the proposed rule and on the DEIS must be received in the Office of Protected Resources (see **ADDRESSES**) no later than 5 pm, eastern standard time, on November 27, 2000.

NMFS has scheduled a formal on-the-record hearing regarding these proposed regulations before Administrative Law Judge Parlen McKenna, to commence at 9 am, December 5, 2000, in Anchorage, Alaska, at the Federal Building. A pre-hearing conference is scheduled at 9 am, November 15, 2000.

Filing Deadlines: By November 1, 2000, any interested person or party must file an initial notice of intent to participate in the hearing, any direct testimony and any documentary evidence. By November 15, 2000, any rebuttal testimony and documentary evidence must be filed. Interested parties should consult procedural regulations at 50 CFR part 228 (65 FR 39560, June 27, 2000) for additional deadlines and hearing procedures.

ADDRESSES: Written comments on the proposed rule and DEIS should be sent to Chief, Marine Mammal Division, Office of Protected Resources, Silver Spring, MD 20910. Comments will not be accepted if submitted via e-mail or Internet.

All filings, including those of NMFS, become part of the record. The record for the proposed rule and the DEIS are available and all original filings and written comments should be filed at: Chief, Marine Mammal Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910. One copy should also be filed at: ALJ Docketing Center, 40 South Gay Street, Room 412, Baltimore, Maryland 21202-4022. Fax copies are accepted at (410) 962-1746 or -1742. Another copy should also be filed at: Judge Parlen McKenna, U.S. Coast Guard Island, Building 54-C, Alameda, California 94501, email *PMcKenna@D11.USCG.mil*, (510) 437-3361, fax (510) 437-2717.

Also, the record for the proposed rule and the DEIS is available at NMFS Alaska Region, 709 W. 9th St, Federal Building room 461, Juneau, AK 99802. Information related to the hearing and the DEIS will be available on the NMFS, Alaska Region Protected Resources website at: <http://www.fakr.noaa.gov/protectedresources/whales/beluga.htm>

FOR FURTHER INFORMATION CONTACT: Barbara Mahoney, NOAA/NMFS, Alaska Region, Anchorage Field Office, (907) 271-5006, fax (907) 271-3030, or Michael Payne, NOAA/NMFS, Alaska Region, (907) 586-7235, fax (907) 586-7012, or Thomas Eagle, Office of

Protected Resources, (301) 713-2322, ext. 105, fax (301) 713-4060.

SUPPLEMENTARY INFORMATION:

Background

The MMPA was enacted to conserve and protect marine mammals by regulating activities of U.S. citizens and activities of all persons conducted within the jurisdiction of the United States. As such, the MMPA imposes a general moratorium on the taking of marine mammals. However, it also provides an exception to the moratorium by allowing "any Indian, Aleut or Eskimo who resides in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean . . ." to take any marine mammal if such taking is for subsistence purposes or for creating traditional Native handicrafts and is not accomplished in a wasteful manner.

Under the MMPA, the Federal government may regulate Native subsistence harvest when the stock in question is designated as depleted pursuant to the MMPA, and after regulations specific to the depleted stock are issued (16 U.S.C. 1371). Whenever a species or stock of marine mammal subject to taking by Indian, Aleut, or Eskimo has been determined to be depleted, the Secretary of Commerce (Secretary) may limit the harvest using the following procedures, which are found in section 101(b)(3) of the MMPA:

[The Secretary] may prescribe regulations upon such taking of such marine mammals by any Indian, Aleut, or Eskimo described in this subsection. Such regulations may be established with reference to species or stocks, geographical description of the area included, the season for taking, or any other factors related to the reason for establishing such regulations and consistent with the purposes of this Act. Such regulations shall be prescribed after notice and hearing required by section 103 of this title and shall be removed as soon as possible as the Secretary determines that the need for their imposition has disappeared.

On May 31, 2000, NMFS designated the CI stock of beluga whales as depleted pursuant to the MMPA (65 FR 34590). Abundance estimates from surveys conducted between 1994 and 1998 indicated that the number of individuals in this stock declined dramatically during this period. The 1998 estimate (347 animals) was nearly 50 percent lower than the 1994 estimate (653 animals). This represents a decline of 15 percent per year. The Native harvest is the only factor that has been identified to account for the observed level of decline, and, therefore, the control of the harvest is directly related

to the immediate protection for this stock.

Furthermore, reports from Alaska Native hunters and estimates derived from counts made by the Alaska Department of Fish and Game in the 1960s and 1970s indicate that the historical abundance of the stock exceeded 1,000 beluga whales. Observations of Alaska Native hunters also support these numbers. NMFS currently estimates that the maximum historical abundance of the stock is 1,300 whales. This estimate is based on the results of an abundance survey by the Alaska Department of Fish and Game (ADFG) in 1979 that resulted in a minimum abundance estimate of 1,293 whales (Calkins, 1989). Therefore, the extent of depletion (as a proportion of maximum historical abundance) is much greater than the dedicated surveys from 1994-1999 indicate.

The following information is a summary of available information on the abundance, trend and harvest levels for the CI stock of beluga whales. A more detailed discussion of this information is included in the final rule to designate the stock as depleted (65 FR 34590, May 31, 2000) and in the final determination on the status of the stock under the Endangered Species Act (ESA) (65 FR 38778, June 22, 2000).

The CI stock is genetically and geographically isolated from the other Alaskan stocks of beluga whales. When NMFS learned that the harvest may be above levels that the stock could sustain, NMFS initiated studies to document the levels of the harvest and the abundance and trend of the stock. Abundance surveys from 1994 through 1998 indicated a decline from 653 to 347 whales during that period. However, NMFS believes that the stock was in decline when the abundance surveys were initiated.

There are no reliable mortality estimates prior to 1994. Prior to 1994 the harvest estimates do not include an estimate of those struck but lost, nor do they represent a complete effort of harvest. However, Native hunter groups and some individual hunters provided NMFS with documented information on the harvest levels from 1995 through 1998. The sources of these data include estimates by ADFG, the Cook Inlet Marine Mammal Council (CIMMC), and data compiled by NMFS based on reports from hunters, and from the direct observation of harvested whales.

Based on this information, NMFS estimated that the average annual take in this harvest, including whales that were struck and lost, was 65 whales per year from 1994 through 1998. The estimated annual average harvest from

1995 thru 1997 (including struck but lost) was 87 whales. Annual harvest estimates for 1994 thru 1998 are 21 whales (1994), 68 whales (1995), 123 whales (1996), 70 whales (1997) and 42 whales (1998). The harvest, which was as high as 20 percent of the stock in 1996, was sufficiently high to account for the 14 percent annual rate of decline in the stock during the period from 1994 through 1998. The numbers of animals harvested between 1994 and 1998 can account for the estimated decline of the stock during that interval. Therefore, the annual harvest estimates and rate of decline from 1994 through 1998 clearly indicate that the harvest was unsustainable prior to restriction in 1999. Therefore, the protection of this stock of beluga whales is directly related to the control of the harvest.

In 1999, there was no subsistence harvest. On May 21, 1999, President Clinton signed into effect Pub. L. 106-31, 113 Stat. 100 (hereafter referred to as Pub. L. 106-31). As a result of this legislation, and in combination with the voluntary moratorium by the hunters in spring, there were no CI beluga whales harvested in 1999. NMFS and CIMMC have negotiated a co-management agreement under this legislation that authorized the harvest of a single beluga whale in Cook Inlet in 2000.

The 1999 abundance estimate was 357 whales. Although a single year under the restricted harvest is insufficient to detect a population response, the lack of continued decline is an encouraging indication that restricting the harvest could promote recovery of the stock.

The Proposed Regulations

The depleted determination on May 31, 2000 (65 FR 34590), was a preliminary step for the Federal government to regulate the taking of marine mammals by Alaska Natives. NMFS is proposing to regulate the harvest of CI beluga whales by Alaska Natives under section 101(b)(3) of the MMPA. Because Native harvest is believed to be responsible for the observed level of decline, NMFS believes this action is necessary to recover this stock to its OSP level. This proposed rule would provide a long-term mechanism to control the harvest.

NMFS is proposing to regulate the harvest of CI beluga whales by Alaska Natives by requiring: (1) that subsistence hunting can only occur under an agreement between NMFS and an Alaska Native organization pursuant to section 119 of the MMPA; (2) that the harvest shall be limited to no more than two strikes annually until the stock is no longer considered depleted under the MMPA; (3) that the sale of CI beluga

whale products shall be prohibited; (4) that all hunting shall occur after July 15, to minimize the harvest of pregnant females; and (5) that the taking of newborn calves, or adult whales with maternally dependent calves shall be prohibited (calves may remain dependent for several years after birth). The following discussion describes the regulatory measures contained in the proposed rule and the justification for their implementation.

(1) *Subsistence hunting of CI beluga whales can occur only under an agreement between NMFS and an Alaska Native organization pursuant to section 119 of the MMPA*: This provision is based upon Pub. L. 106-31, which provides that the taking of a Cook Inlet beluga whale under (MMPA section 101(b)) shall be a violation of (the MMPA) unless such taking occurs pursuant to a cooperative agreement between (NMFS) and affected (ANOs). It eliminates the primary threat to CI beluga whales because it prohibits hunting CI beluga whales except under an agreement between NMFS and an ANO.

(2) *The harvest shall be limited to no more than 2 strikes annually*: The best estimate of abundance for this stock is currently 357 animals (from 1999 survey). NMFS developed a logistic growth population model to project the recovery of the population (expressed in terms of years to recovery) under various levels of annual harvest and compared this to a no-harvest scenario. Annual changes in the population were then modeled using the following population parameters:

Maximum net productivity rate = 4 percent per year,
 carrying capacity (K) = 1,300 individuals, and
 starting population size = 357 whales (based on NMFS 1999 survey results).

Using this model, the size of the population and recovery time can be estimated for any year, simulating the impacts of differing levels of harvest on recovery times. The results of these analyses are described in detail in the DEIS. Without a harvest, this population should recover to a level where it would no longer be depleted under the MMPA in 22 years (i.e., to the lower level of OSP). In this case, the lower level of OSP would be equal to 60 percent of K (1,300) or 780 whales.

With a harvest of 1 whale per year the population should reach 780 whales in 23 years (a delay in recovery of 1 year). A harvest of 2 whales per year should require approximately 25 years for the population to recover to OSP. Under either harvest scenario, the population is predicted to double in size over the

next 2 decades and reach OSP in 23-25 years (See DEIS for further information).

NMFS' management objectives for CI beluga whales are to recover this stock while still providing an opportunity for a traditional harvest that does not significantly increase the amount of time to recovery. A harvest level of either 1 or 2 whales per year would meet both of those objectives. NMFS will review the harvest and its effect on the stock on a periodic basis, and, if appropriate, may adjust the number of allowable annual strikes through notice and comment rulemaking.

(3) *Prohibition on the sale of Cook Inlet beluga whale products*: The sale of edible portions of subsistence-harvested marine mammals is allowed under certain conditions by the MMPA. Some muktuk (the skin and a thin layer of blubber) from subsistence harvests has appeared in Native food stores in the Anchorage area in recent years. At least some of this muktuk was identified by DNA analyses as having come from CI beluga whales. Some hunters have sold beluga whale meat and muktuk by word-of-mouth within the local Native community. One Native hunter said he supported his family by hunting beluga whales and selling the meat and muktuk to Native families (Anchorage Daily News, 1994). While the amount of CI beluga whale products sold commercially in Anchorage and elsewhere has not been determined, one local Anchorage retailer estimated selling approximately 3,000 lb (1,360.8 kg) of beluga muktuk annually. A single adult beluga may provide 200 lb (90.72 kg) of muktuk. By this measure, the retailer may have sold the muktuk from 15 beluga whales per year.

Some of this product might have come from beluga whales from other stocks. However, NMFS analyzed nine samples of beluga whale muktuk sold in Anchorage from June through November, 1998. The genetic analysis of these samples determined that they came from 5 individual beluga whales, all of which came from the CI population.

NMFS believes that allowing the sale of CI beluga whale products or meat may provide an incentive that is unacceptable given the current depleted status of the population. The concentration of more than 20,000 Alaska Natives in the Anchorage area apparently creates a demand for beluga products that exceeds the level of harvest that the small, isolated stock of CI beluga whales can sustain. Therefore, as part of the regulations on the harvest, NMFS would prohibit the sale of edible portions of CI beluga whales. NMFS will also prohibit the sale of CI beluga whale

products under this rule. NMFS intends to provide for a traditional harvest while eliminating any commercial incentive;

(4) *All hunting shall occur after July 15 of each year*: Calving by beluga whales in CI is generally complete by July 1 of each year; therefore, a harvest season beginning July 15 would minimize the probability of killing a pregnant female. This is consistent with the intent to promote recovery of this stock of whales yet allowing a harvest to occur.

(5) *The taking of calves or adult whales with calves is prohibited*: This prohibition is necessary to ensure that cow-calf pairs are not disturbed. For the purposes of this proposed rule a calf is any beluga whale that is maternally dependent (maternally dependent animals may be a year or more of age). The season limitation and prohibition on taking calves and adults with calves should protect reproductively active adult females.

Other harvest specifics, including specific locations or techniques for taking whales, can be established through a co-management agreement rather than through regulation. This restricts the scope of the regulations to the population effects of the harvest.

Required Procedure for Proposed Regulations

Section 101(b) and section 103(d) of the MMPA require that regulations prescribed to limit the subsistence harvest of Alaska Natives be made on the record after opportunity for an agency hearing.

Notice of Hearing: Newly re-established regulations at 50 CFR part 228 (65 FR 39560, June 27, 2000) contain detailed requirements for the procedures for conducting an agency hearing on the proposed regulations to limit the harvest. People interested in participating in the hearing are advised to review these procedural regulations. The procedures require specific information to be included in the notice of the hearing, and that information follows.

(1) *The nature of the hearing*: The purpose of the hearing is to allow parties affected by the agency's proposed regulations to present additional testimony and evidence for inclusion in the administrative record. At the conclusion of the hearing and after consideration of the whole record, the Administrative Law Judge shall make a recommendation to the Secretary regarding adoption of the regulations.

(2) *The place and date of the hearing*: (see ADDRESSES and DATES).

(3) *The legal authority for the hearing:* The hearing is held under the authority of Section 103 of the MMPA (16 U.S.C. 1373) and implementing regulations (50 CFR part 228).

(4) *The proposed regulations and statements required by section 103(d) of the Act (16 U.S.C. 1373(d)):* See the proposed regulatory text at the end of this document.

(a) *Estimated existing levels of the species and stock:* The worldwide abundance of beluga whales is unknown but, according to International Whaling Commission estimates, exceeds 100,000 whales. Based on the 1999 surveys, the abundance estimate for the CI beluga whale stock, which is discrete and genetically isolated from other stocks of beluga whales in waters under U.S. jurisdiction, is 357 animals.

(b) *Expected impact of the proposed regulations on the OSP of the stock:* The proposed regulations are not expected to alter the existing estimates of the OSP levels of the stocks. The proposed regulations are expected to allow the stock to recover to OSP levels in about 25 years.

(c) *Description of the evidence before the Secretary:*

Related to stock structure: results of a multi-year study on the molecular genetics of beluga whales.

Related to carrying capacity (K): ADFG surveys producing direct counts of beluga whales in CI in the 1960s and 1970s, observations of Alaska Native hunters.

Related to current abundance (1994-1999): results of dedicated aerial surveys conducted by NMFS scientists.

Related to mortality estimates: reports from NMFS contract with CIMMC and NMFS harvest estimates.

Related to productivity rates: life history traits comparable to other small cetaceans and use of the general default value for cetacean maximum net productivity levels.

(d) *Studies by or for the Secretary or recommendations by or for the Marine Mammal Commission (MMC):* Relevant studies include those on stock structure (O'Corry-Crowe, *et al.* 1997), abundance estimates (Hobbs *et al.* in press), Alaska Native harvest (NMFS and CIMMC contract report). Relevant recommendations include those by the Alaska Scientific Review Group (SRG)—list of recommendations related to the harvest regulations; and those by the MMC—see item 17 below. Note that the Alaska SRG was established by NMFS pursuant to the 1994 amendments to the MMPA to provide advice on marine mammal research and conservation to the Secretary.

(5) *Issues of fact which may be involved in the hearing:* Public comments related to the status review and subsequent actions related to CI beluga whales indicate that there may be several disputed facts regarding the biology and conservation of the Cook Inlet Beluga whale populations. Among the potential factual issues are the following:

(A) What is the carrying capacity of the Cook Inlet Beluga whale stock?;

(B) How many Cook Inlet Beluga whales currently exist?; and

(C) Should the subsistence harvest of Cook Inlet Beluga whales be restricted to no more than two annually?

(6) *Draft Environmental Impact Statement (DEIS):* The DEIS is available and may be viewed upon request (see **ADDRESSES**).

(7) *Written advice received from the MMC:* The following summarizes a record of three letters forwarded to NMFS by the MMC with recommendations specific to the CI beluga whale stock. These letters contained additional advice on CI beluga whales (e.g., recommendations to list under the ESA). However, these recommendations did not pertain to the harvest regulations nor directly to the information needed to implement these regulations. Therefore, the additional advice is not included in this summary.

Letter dated January 22, 1999

1. A brief summary of the information that NMFS has reported in various outlets (SRG meetings, reports, Stock Assessment Reports).

2. MMC stated that "Clearly, a main part of the problem with the Cook Inlet beluga population is the fact that the number of animals being killed by Alaska Natives greatly exceeds the number that can be supported by the population on a sustainable basis."

3. The sale of muktuk in Anchorage compounds the problem; therefore, the sale of CI beluga products should be prohibited.

4. MMC stated that the preferred approach for addressing overharvest should be through a co-management agreement.

5. NMFS should act quickly and decisively to protect the stock through rulemaking under the ESA and MMPA to limit the harvest. The process could be completed in as little as 6 weeks; therefore, in time to address the 1999 harvest.

6. If a regulatory approach to limit the harvest is not feasible in a timely manner, NMFS should work with Congress to seek a legislative solution.

7. NMFS should implement a marking, tagging and reporting program for CI beluga.

Letter dated July 23, 1999

1. Based upon the portions of the preliminary analyses provided to the MMC, the MMC advised that the limited information that NMFS had provided would not adequately support a depletion finding.

2. Despite the lack of detailed analyses provided by NMFS, the MMC advised that the population is likely below its OSP and, therefore, should be designated as depleted.

3. The MMC advised to incorporate a discussion of historical abundance or carrying capacity, an estimate of the percentage of historical populations size that would correspond to the maximum net productivity level, and to compare the current population size to the best estimates of historical abundance and MNPL.

Letter dated December 21, 1999

1. The MMC acknowledged the proposed depletion rule and advised to publish a final rule as quickly as possible after the comment period is closed.

2. The MMC recognized that the overharvest by Alaska Natives for subsistence purposes was the primary factor contributing to the decline, acknowledged the special legislation that restricted harvest until October 1, 2000, and recommended that NMFS make it a high priority to implement regulations to govern the harvest by the expiration of the legislation.

3. MMC advised that the co-management process is the preferred approach to establishing harvest limits; however, NMFS should pursue regulations and additional legislation to ensure no gap in protection of the stock.

(8) *Places where records and submitted direct testimony will be kept for public inspection:* See **ADDRESSES**.

(9) *Final date for filing with the Assistant Administrator a notice of intent to participate in the hearing:* See **DATES**.

(10) *Final date for submission of direct testimony on the proposed regulations and the number of copies required:* Parties must submit the original and two copies of all filings. All documents and exhibits must be clearly marked with the docket number of the proceedings (see below). See **ADDRESSES** and **DATES** for deadlines and addresses for filings.

(11) *Docket number assigned to the case:* 000922272-0272-01.

(12) *Place and date of the pre-hearing conference:* (see **ADDRESSES** and **DATES**).

Prior to the conference, the ALJ will determine whether parties may participate by telephone as well as the location of the conference if personal appearances are necessary.

Section 103(e) also requires that NMFS conduct a periodic review of the regulations promulgated pursuant to this section, and modifications may be made in such a manner as the Secretary deems consistent with and necessary to carry out purposes of the Act. This review will compare the results of the survey data with the management of the harvest to determine that the CI beluga whale population is increasing as projected, and to determine whether changes in the harvest or level of harvest could occur without compromising the recovery of the population. NMFS has also scheduled a hearing on the record, consistent with the requirements of this section of the MMPA (see **DATES**).

Discussion

Throughout this process, NMFS has provided an opportunity for comment during the status review of CI beluga whales, following the proposed depleted determination, and at the initiation of the NEPA process. NMFS has also convened workshops and public meetings on this subject. It remains the intent of NMFS to insure that the depleted determination, and any proposed regulations subsequent to this determination, be as accurate and as effective as possible. Therefore, comments or suggestions from the public, Native organizations, other governmental agencies, the scientific community, industry, or other interested parties concerning these issues have always been solicited and taken into account prior to any final action. Throughout this process there has been considerable comment provided on the subsistence harvest of beluga whales in Cook Inlet and its impact on the stock. Some of the most common comments received by NMFS on this subject are reviewed in this section.

The most immediate concerns by those who petitioned NMFS to list the CI beluga whale population under the ESA were (1) the level of mortality as a result of subsistence harvest, and (2) the inability of NMFS, at the time of the petition, to control this harvest. The petitioners further stated that the MMPA was inadequate to protect CI beluga whales. They stated that, under the MMPA, NMFS can pursue a co-management agreement with the tribes in the Cook Inlet region. However, the petitioners noted that such an agreement provided no additional legal

authority to NMFS to prosecute violations of the MMPA. Therefore, there was no guarantee that a harvest would not occur outside of the agreement by Native hunters who were not part of the agreement. Even with a co-management agreement in place, neither NMFS, nor the co-management body, can enforce its recommendations if hunters choose not to comply. As such, the petitioners stated that a co-management agreement was unlikely to reduce the Native hunt to sustainable levels.

NMFS agreed, generally, that the management of the CI beluga whale stock could be achieved through voluntary and cooperative efforts within a traditional Native community, or through a co-management agreement. However, Anchorage provides an exception to what is generally considered as a traditional Native community. Although tribal authority may apply to Alaska Natives who live in local communities, there is a lack of area-wide tribal authorities or traditional Native laws that would apply to the harvest of CI beluga whales by Alaska Natives of non-local origin and now reside in Anchorage. Because of this, and prior to Pub. L. 106-31, an Alaska Native could have harvested beluga whales from Cook Inlet without the approval of local tribal authorities or governing bodies. For this reason, and in this particular situation, NMFS agreed with the petitioners in stating that a co-management agreement would not necessarily provide the level of authority that would ensure that over harvest would not occur outside an agreement.

NMFS received several recommendations to expeditiously enter into a co-management agreement with an Alaska Native Organization (ANO) and most of these suggested that NMFS should coordinate this agreement with CIMMC. A few commenters thought the most effective way to achieve conservation and subsistence goals for CI beluga whales is through a single, comprehensive co-management agreement and this should be an agency priority. A few commenters stated the agreement should strictly limit hunting to personal and family subsistence and ban the sale of beluga whale products.

NMFS agrees that a co-management agreement with an ANO is both desirable and necessary, and has signed into an agreement with CIMMC for the harvest of one CI beluga whale for the year 2000. Further, NMFS has authority to co-manage subsistence harvest under section 119 of the MMPA. However, any restrictions on the level of subsistence harvest through a co-management

agreement would be enforced by tribal authority, not by Federal regulation, unless specific regulations are established under section 101(b) and 103 of the MMPA. As stated earlier, NMFS believes that a co-management agreement would not necessarily provide the level of authority that would ensure that over-harvest would not occur outside of an agreement. Therefore, NMFS believes that the recovery of this stock requires not only the authority of a co-management agreement, but also a Federal authority to protect and conserve CI beluga whales. For that reason, NMFS is proposing these regulations on the subsistence harvest.

One commenter on the proposed depleted determination indicated that if NMFS designates CI beluga whales as depleted, NMFS will regulate the harvest with little regard for the opinions of Alaska Native hunters. NMFS does not believe it is possible to effectively manage the CI beluga whale stock without input from local Native groups in Cook Inlet. Also, NMFS does not want to unilaterally manage CI beluga whales without input from local Natives. NMFS recognizes the importance of beluga whales to the Native Cook Inlet communities. NMFS believes it should work with them to develop a co-management agreement that protects and conserves CI beluga whales while preserving traditional beluga subsistence hunting activities. Co-management will involve both Federal and Tribal authorities.

With these proposed regulations, Federal authority is established to enforce harvest regulation at levels that are sustainable while assuring that the stock can recover. This proposed rule establishes harvest levels until such time the stock reaches the lower level of OSP, i.e., until it is no longer depleted. These regulations will be reviewed and modified as appropriate but remain in effect unless otherwise rescinded or modified through notice and comment rulemaking.

Classification

NEPA

NMFS has prepared an Draft Environmental Impact Statement (DEIS) under the requirements of NEPA. Because the CI beluga whale stock is depleted, NMFS believes that any long term federally-approved harvest plan constitutes a major action subject to the requirements of NEPA. Therefore, these proposed regulations will not be finalized until an Environmental Impact Statement has been finalized and a Record of Decision is made. NMFS has

prepared a DEIS to address actions taken by NMFS to manage and recover this stock. The primary management action proposed is to limit Native subsistence harvest of CI beluga whales. The impact of this action was evaluated in the DEIS through a model that examines the length of time it would take for the stock to recover under different harvest alternatives. The preferred harvest plan provides for the cultural needs of Alaska Natives by allowing up to 2 strikes (multiple strikes on one whale equals one strike), while not significantly extending the time required for this stock to recover. The DEIS also presents an assessment of the impacts of other anthropogenic activities, which occur in Cook Inlet, that might impact the CI beluga whales, or their habitat. This assessment includes a discussion of the cumulative impacts and evaluates the need for measures for the protection and conservation of important CI beluga whale habitat.

Paperwork Reduction Act

This proposed rule does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act of 1980.

ESA

The ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by NMFS (for most marine species) and the U.S. Fish and Wildlife Service (for terrestrial and freshwater species). The ESA provides for listing species as either threatened or endangered, based on the biological health of a species. Threatened species are those likely to become endangered in the foreseeable future (16 U.S.C. 1532(20)). Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range (16 U.S.C. 1532(20)). The Secretary, acting through NMFS, is authorized to list selected marine mammals, including beluga whales, and fish species.

On March 3, 1999, NMFS received a petition from seven organizations and one individual to list the CI stock of beluga whale as "endangered" under the ESA. This petition requested emergency listing under section 4(b)(7) of the ESA, designation of critical habitat, and immediate action to implement regulations to regulate the subsistence harvest of these whales. NMFS determined that these petitions presented substantial information which indicated the petitioned actions may be warranted in April 1999 (64 FR 17347).

Upon further review, and taking into account legislative and management measures put in place to regulate the subsistence harvest following receipt of the petition, and measures proposed in this regulation, NMFS, on June 22, 2000, determined that an ESA listing is not warranted at this time. Based on that determination, this proposed rule does not impact any ESA listed species or its habitat.

Executive Order 12866—Regulatory Planning and Review

This proposed rule has been determined to be not significant for purposes of Executive Order 12866.

Regulatory Flexibility Act

The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed action would not have a significant economic impact on a substantial number of small entities as follows:

The proposed rule would limit the subsistence harvest of Cook Inlet, Alaska, beluga whales and require that subsistence hunting can only occur under an agreement between the National Marine Fisheries Service (NMFS) and Alaska Native organizations pursuant to section 119 of the MMPA.

The MMPA imposes a general moratorium on the taking of marine mammals. However, section 101(b) of the MMPA provides an exemption to the taking by allowing Alaskan Natives to harvest marine mammals for subsistence use or for purposes of traditional Native handicraft. Under the MMPA, the Federal Government may regulate Native subsistence harvest after the stock in question is designated as depleted and after formal rulemaking.

NMFS designated the CI beluga whale stock as depleted on May 31, 2000 (65 FR 34590), due to a 50 percent decline in the abundance of the stock between 1994 and 1998. Native harvest is believed to be responsible for the observed decline, and NMFS believes that the control of the harvest is necessary to provide continued protection for this stock.

Therefore, a regulatory flexibility analysis was not prepared.

Executive Order 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Section 4-4, Subsistence Consumption of Fish and Wildlife, of Executive Order 12898, requires Federal agencies to ensure protection of populations with differential patterns of subsistence consumption of fish and wildlife and to communicate to the public the human health risks of those consumption patterns. NMFS has monitored and evaluated contaminant loads in all

populations of beluga whales in Alaska for nearly a decade, and has reported this information to Alaska Native communities as these analyses have become available. A summary is available in the DEIS.

Consultation with State and Local Government Agencies

In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual State and Federal interest, NMFS has conferred with state and local government agencies in the course of assessing the status of CI beluga whales. State and local governments have expressed support for the conservation of this stock of beluga whales. Dialogue with state and local agencies included an exchange and discussion of scientific information regarding beluga whales, factors that may be affecting them, and their status under the ESA and MMPA.

Executive Order 13084—Consultation and Coordination with Indian Tribal Governments

This proposed rule is consistent with policies and guidance established in Executive Order 13084 of May 14, 1998 (63 FR 27655). Executive Order 13084 requires that if NMFS issues a regulation that significantly or uniquely affects the communities of Indian tribal governments and imposes substantial direct compliance costs on those communities, NMFS must consult with those governments, or the Federal government must provide the funds necessary to pay the direct compliance costs incurred by the tribal governments. NMFS has taken several steps to consult and inform affected tribal governments and solicit their input during development of these proposed regulations including the development of a co-management agreement with the Cook Inlet Marine Mammal Council which provides for the harvest of 1 whale during 2000. This proposed rule does not impose substantial direct compliance costs on the communities of Indian tribal governments.

List of Subjects in 50 CFR Part 216

Administrative practice and procedure, Exports, Imports, Marine mammals, Transportation.

Dated: September 26, 2000.

William T. Hogarth,

Deputy Assistant Administrator for Fisheries, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 216 is proposed to be amended as follows:

**PART 216—REGULATIONS
GOVERNING THE TAKING AND
IMPORTING OF MARINE MAMMALS**

1. The authority citation for part 216 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*, unless otherwise noted.

2. In § 216.23, paragraph (f) is added to read as follows:

§ 216.23 Native exceptions.

* * * * *

(f) *Cook Inlet beluga whales.*

(1) *Cooperative Agreement.*

Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, any taking of a Cook Inlet beluga whale by an Alaska Native must be authorized under a cooperative agreement between the National Marine Fisheries Service and an Alaska Native organization(s). The Cook Inlet beluga whale stock includes all beluga whales occurring in waters of the Gulf of Alaska north of 58 degrees North latitude including, but not limited to, Cook Inlet, Kamishak Bay, Chinitna Bay, Tuxedni Bay, Prince William Sound, Yakutat Bay, Shelikof Strait, and off Kodiak Island and freshwater tributaries to these waters.

(2) *Limitations on the Number of Cook Inlet Beluga Whales Taken for Subsistence.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, the number of whales that may be taken (killed or struck and lost) each year from the Cook Inlet, Alaska, stock of beluga whales for subsistence purposes shall be limited to no more than two (2) strikes annually until the stock is no longer designated as depleted.

(3) *Prohibition on the Sale of Cook Inlet Beluga Whale.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (b) of this section, the sale of products or foodstuffs from Cook Inlet beluga whales is prohibited.

(4) *Season.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, all hunting shall only occur after July 15 of each year.

(5) *Beluga calves or adult belugas with calves.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, the taking of beluga whale newborn calves, or adult whales with older, maternally dependent calves is prohibited.

[FR Doc. 00-25481 Filed 10-3-00; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 981022265-8265-01; I.D. 101698L]

RIN 0648-AL93

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Fishing in the EEZ Seaward of Navassa Island

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS issues this proposed rule to prohibit fishing and anchoring of fishing vessels in the exclusive economic zone (EEZ) within 15 nautical miles (nm) seaward from the baseline of Navassa Island.

DATES: Comments must be received no later than 4:30 p.m., eastern daylight savings time, on November 3, 2000.

ADDRESSES: Written comments regarding this proposed rule must be sent to, and copies of a draft environmental assessment supporting this action, may be obtained from Michael Barnette, Southeast Regional Office, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702. Comments also may be sent via fax to 727-570-5583. Comments will not be accepted if submitted via e-mail or Internet. Comments on any ambiguity or unnecessary complexity arising from the language used in this rule should be addressed to Rod Dalton, Southeast Regional Office, NMFS, at the above address.

FOR FURTHER INFORMATION CONTACT: Michael Barnette, telephone: 727-570-5305, fax: 727-570-5583, e-mail: Michael.Barnette@noaa.gov.

SUPPLEMENTARY INFORMATION: The U.S. Territory of Navassa Island is located in the Caribbean Sea approximately 60 nm northeast of Jamaica and 34 nm west of Haiti. The uninhabited island covers an area of approximately 2 square miles (518 hectares).

NMFS has received several inquiries regarding whether fishing activities are permitted in the EEZ seaward of Navassa Island. In addition, a recent scientific expedition to Navassa Island publicized the unique and unprotected marine resources of the area. Important marine resources of this area include reef fish and invertebrates, especially

coral, live rock, sponges, queen conch, and spiny lobsters. NMFS believes these resources are in a relatively pristine condition due to the isolation of this area and its distance from the commercial fishing grounds of the major fishing nations.

Fishing in the EEZ seaward of Navassa Island is subject to regulation under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. 1801 *et seq.*) and the Atlantic Tuna Conventions Act (16 U.S.C. 971 *et seq.*). The Caribbean Fishery Management Council (Council) has authority only over the fisheries in the EEZ of the Caribbean Sea and Atlantic Ocean seaward of the U.S. Virgin Islands and the Commonwealth of Puerto Rico. An amendment to the Magnuson-Stevens Act would be necessary to extend the Council's authority to the EEZ seaward of Navassa Island. However, the Secretary of Commerce has the authority under section 305(d) of the Magnuson-Stevens Act to promulgate such regulations as may be necessary to carry out the provisions and purposes of that act, including conserving and managing the fishery resources in the EEZ not within the authority of a regional fishery management council such as in the EEZ seaward of Navassa Island.

As a precautionary approach to fisheries management, NMFS is proposing this rule to protect the fishery resources in the EEZ seaward of Navassa Island from unregulated harvests until the Magnuson-Stevens Act can be amended to give the Council authority over the fishery resources of the EEZ seaward of Navassa Island, and until conservation and management measures, as recommended by the Council and approved and implemented by NMFS, are in effect. This rule would prohibit all fishing, including fishing for Atlantic highly migratory species, and anchoring of fishing vessels in the EEZ within 15 nm seaward from the baseline of Navassa Island. These measures would apply to vessels of the United States and to all foreign vessels except vessels of the Republic of Haiti.

This proposed rule is intended to protect coral reef resources from directed fishing or bycatch mortality and to prevent possible damage from unregulated fishing gear or from harmful fishing practices, such as the use of explosives or poisons. Establishment of a no-fishing zone would simplify and facilitate enforcement in this remote area. The anchoring prohibition would protect coral habitats from physical damage and facilitate enforcement of the fishing ban.

Appendix D:

Record of Decision: UNITED STATES DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. IN THE MATTER OF: PROPOSED REGULATION GOVERNING THE TAKING OF CI, ALASKA, BELUGA WHALES BY ALASKA NATIVES. DOCKET NUMBER 000922272-0272-01. RECOMMENDED DECISION. Before: Hon. Parlen L. McKenna, Administrative Law Judge, United States Coast Guard.

(I) PRELIMINARY STATEMENT

The National Marine Fisheries Services (NMFS), of the United States Department of Commerce's National Oceanic & Atmospheric Administration (NOAA), initiated this formal rulemaking proceeding. The purpose of this rulemaking is to regulate the subsistence harvest of CI beluga whales (*Delphinapterus leucas*) by Alaska Natives under the Marine Mammal Protection Act (MMPA), as amended and codified at 16 U.S.C. §§ 1361-1407. NMFS instituted this proceeding by publishing a notice of proposed rulemaking in the Federal Register on October 4, 2000. See Taking of Cook Inlet (CI), Alaska, Stock of Beluga Whales by Alaska Natives, 65 FR 59164-59170 (proposed October 4, 2000) (to be codified at 50 C.F.R. Part 216). The proposed rule's objective is to recover depleted stock of CI beluga whales to its optimum sustainable population level while preserving the traditional subsistence use of the marine mammals by Alaska Natives to support their cultural, spiritual, social, economic and nutritional needs.

The proposed rule provides that: (1) Subsistence harvest can only occur under an agreement between NMFS and an Alaska Native organization (ANO) pursuant to section 119 of the MMPA; (2) Subsistence harvest shall be limited to no more than two strikes annually until the stock is no longer considered depleted under the MMPA; (3) The sale of CI beluga whale products shall be prohibited; (4) All hunting for subsistence purposes shall occur after July 15 each year; and (5) The harvest of newborn calves, or adult whales with maternally dependent calves shall be prohibited.

In accordance with the Administrative Procedure Act, 5 U.S.C. § 551-559, and the Reinstatement of Procedures for Hearings Conducted Pursuant to Section 103(d) of the MMPA, 65 FR 39560-39564 (published on June 27, 2000) (to be codified at 50 C.F.R. Part 228), a public evidentiary hearing was held before the undersigned Judge in Anchorage, Alaska on December 5, 2000 through December 8, 2000. The following participants appeared at the hearing represented by either legal counsel or a designated

non-attorney representative: NMFS (Proponent) Thomas J. Meyer, Esq., NOAA General Counsel; Marine Mammal Commission, Michael L. Gosliner, Esq., General Counsel, Marine Mammal Commission; Joel and Debra Blatchford (J.B.), Pro Se; Alaska Oil and Gas Association (AOGA), Judith M. Brady, Executive; John M. Starkey, Esq.; Trustees for Alaska, Jack K. Sterne, Esq., Trustees for Alaska, Ocean Conservancy (formerly the Center for Marine Conservation); Cook Inlet Treaty Tribes (CITT), Lee Stephan.¹

The following exhibits were introduced and admitted into evidence at the hearing:

Offered By	Exhibit	Description
The parties in this matter	Joint 1	Stipulations of the Parties
ALJ	ALJ 1	Proposed Rule on Taking of the CI, Alaska Stock of Beluga Whales by Alaska Natives, 65 Fed. Reg. 59164-59170 (published October 4, 2000)
	ALJ 2	Final Agenda on Taking of the CI, Alaska Stock of Beluga Whales by Alaska Natives, 65 Fed. Reg, 75230-75232 (December 1, 2000)
NMFS	NMFS 1	Draft Environmental Impact Statement (DEIS)
	NMFS 2	Curriculum Vitae of Douglas P. DeMaster, Ph.D.
	NMFS 3	Declaration of Douglas P. DeMaster, Ph.D.
	NMFS 4	Responses to Determination of Issues
	NMFS 5	Declaration of Mr. P. Michael Payne
	NMFS 6	CITT Comments on Proposed Regulations dated Sept. 5, 2000
	NMFS 7	Cook Inlet Marine Mammal Council (CIMMC) Comments dated August 31, 2000
	NMFS 8	MMC Letters dated Jul. 31, 2000; Jan. 22, 1999; Jul. 23, 1999; and Dec. 21, 1999
	NMFS 9	NMFS Office of Protected Resources Letter dated Jul. 10, 2000
	NMFS 10	Co-Management Agreement
	NMFS 11	DEIS Comments
	NMFS 12	Field Notes of N. Murray & K. Bunch

¹David A. Voluck of Landye, Bennett and Blumstein, LLP initially represented CITT in these proceedings.

Joel and Debra Blatchford	J.B. 1	Anchorage Daily News article dated Sunday, Aug. 14, 1994
	J.B. 2	Notice of Intent to Participated in Hearings and Direct Testimony of Joel Blatchford
	J.B. 3	Direct Testimony of Debra Blatchford
	J.B. 4	DEIS Comments
	J.B. 5	Letter to Percy Blatchford dated May 26, 1999
	J.B. 6	Rosita Worl article, "The North Slope Inupiat Whaling Complex"
Alaska Oil and Gas Association	AOGA 1	Reply to the National Marine Fisheries Service's Responses to Determination of Issues
	AOGA 2	Notice of Intent to Participate in Hearing and Direct Testimony of Judith Brady
	AOGA 3	Rebuttal Testimony of Judith M. Brady
Marine Mammal Commission	MMC 1	Reply to the National Marine Fisheries Service's Responses to Determination of Issues
	MMC 2	Notice of Intent to Participate in Hearing Letter dated Nov. 1, 2000
	MMC 3	Declaration of Daniel Goodman, Ph.D.
	MMC 4	Curriculum Vitae of Daniel Goodman, Ph.D
	MMC 5	Chart
	MMC 6	Proposed Decision Rules for CI Beluga Subsistence Harvest
Native Village of Tyonek	Tyonek 1	Answers to NMFS Responses to Determination of Issues
	Tyonek 2	Declaration of Peter Merryman
	Tyonek 3	Articles titled, "Shem Pete's Alaska: The Territory of the Upper CI Dena'ia;" "Beluga Hunting in the Tyonek Area;" "Quyushi Uqu Ch'el'ani: Beluga Hunting;" and "The Upper Inlet Tania: Patterns of Leadership among Alaskan Athabaskan People, 1741-1918"
	Tyonek 4	Rebuttal Document
Trustees for Alaska	TA 1	Answer to NMFS Responses to Determination of Issues
	TA 2	Declaration of Trustees
	TA 3	D1-H4 Exhibits

	TA 4	Letters dated Jun. 8, 1998; Oct. 29, 1999; and Nov. 30, 1999 ²
CI Treaty Tribes	Calcote 1	Affidavit of Delice Calcote, Secretary of Cook Inlet Marine Mammal Council
	CITT 1	Responses to Determination of Issues

The documentary evidence and testimony of expert witnesses conclusively demonstrate that there exists an appreciable degree of uncertainty concerning the population dynamics of the CI beluga whales. Therefore, at the conclusion of the hearing, the parties were ordered to convene a scientific review committee to establish a scientifically acceptable subsistence harvest quota that would take into account the uncertain parameters surrounding the CI beluga whales.

Based on the findings of the scientific review committee, the parties, except for the Trustees for Alaska, entered into the following stipulation: *Six strikes over the next four years (2001-2004) to be allocated by NMFS through co-management agreements. Four of the strikes, not to exceed one per year, are to be allocated to the Native Village of Tyonek. The remaining two strikes will be allocated to other CI subsistence hunters, with no more than one strike being allocated during any single year.*

The parties further stipulated that the presiding Judge retain jurisdiction over the rulemaking pending the gathering of data by NMFS, in consultation with the other parties to this proceeding, so that a regime can be developed for establishing appropriate harvest levels for 2005 and subsequent years. The parties also agreed that NMFS would submit a final recommendation on the long-term harvest regime for 2005 and subsequent years to the judge and all parties. NMFS agreed to submit the long-term harvest regime to the judge and all parties no later than March 15, 2004. See (Joint Stipulations 1). Based on these stipulations and the evidence adduced at the hearing, it is recommended that the proposed regulation be amended and modified to promote additional scientific research and population data collection and analysis of the CI beluga whale stock and their habitat.³

²This exhibit was originally marked as TA-3 at the hearing. The corrected exhibit number is TA.

³The parties originally agreed that the final recommendation on the long-term harvest regime would be submitted by NMFS on March

(II) PROCEDURAL HISTORY

The MMPA authorizes NMFS, acting on behalf of the Secretary of Commerce, to regulate Alaska Native subsistence harvest of depleted marine mammal stock after regulations specific to the depleted stock are issued and an opportunity for notice and hearing on the record has been provided.⁴ 16 U.S.C. § 1371(b)(3). As preliminary step toward regulating the Alaska Native subsistence harvest, NMFS issued a Final Rule on May 31, 2000 (65 FR 34590) designating the CI beluga whales as depleted within the meaning of Section 3(1) of the MMPA, as amended and codified at 16 U.S.C. § 1362(1), and the underlying regulations codified at 50 C.F.R. Part 216. However, NMFS determined that listing the CI beluga whales as "endangered" or "threatened" under the Endangered Species Act was not warranted based on the best scientific and commercial data available. See *Regulations Governing the Taking and Importing of Marine Mammals; Endangered and Threatened Fish and Wildlife; CI Beluga Whales*, 65 FR 38778-38790 (June 22, 2000).⁵

On October 4, 2000 (65 FR 59164), NMFS issued proposed regulations that would limit subsistence harvest of the CI beluga whales by Alaska Natives. The proposed regulations read as follows: *PART 216-REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS*

1. The authority citation for part 216 continues to read as follows: Authority: 16 U.S.C. 1361, et seq., unless otherwise noted.
2. In § 216.23, paragraph (f) is added to read as follows: § 216.23 Native exceptions.

13, 2004. However, since that date falls on a Saturday, the final recommendation shall be submitted no later than the next business day which is Monday, March 15, 2004.

⁴In May 1999, Congress enacted a temporary moratorium on Alaska Native subsistence harvesting. Pub. L. 106-31, § 3022, 113 Stat 57, 1000 (May 21, 1999). The temporary moratorium prohibited Alaska Native subsistence harvesting of CI beluga whales in the absence of a cooperative/co-management agreement between NMFS and an Alaska Native organization. *Id.* The moratorium became permanent in December 2000. Pub. L. 106-553, §1(a)(2), 114 Stat. 2762 (Dec. 21, 2000).

⁵NMFS' determination to list the CI beluga whales as depleted under the MMPA, but not as "endangered" or "threatened" under the Endangered Species Act (ESA) was upheld by the United States District Court for the District of Columbia. *Cook Inlet Beluga Whale v. Daley*, 156 F. Supp. 2d 16 (D.C. Cir. 2001).

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f) CI beluga whales.

(1) *Cooperative Agreement.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, any taking of a CI beluga whale by an Alaska Native must be authorized under a cooperative agreement between the National Marine Fisheries Service and an Alaska Native organization(s). The CI beluga whale stock includes all beluga whales occurring in waters of the Gulf of Alaska north of 58 degrees North latitude including, but not limited to, CI, Kamishak Bay, Chinitna Bay, Tuxedni Bay, Prince William Sound, Yakutat Bay, Shelikof Strait, and off Kodiak Island and freshwater tributaries to these waters.

(2) *Limitations on the Number of CI Beluga Whales Taken for Subsistence.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, the number of whales that may be taken (killed or struck and lost) each year from the CI, Alaska, stock of beluga whales for subsistence purposes shall be limited to no more than two (2) strikes annually until the stock is no longer designated as depleted.

(3) *Prohibition on the Sale of CI Beluga Whale.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (b) of this section, the sale of products or foodstuffs from CI beluga whales is prohibited.

(4) *Season.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, all hunting shall only occur after July 15 of each year.

(5) *Beluga calves or adult belugas with calves.* Notwithstanding the provisions of 16 U.S.C. 1371(b) or paragraph (a) of this section, the taking of beluga whale newborn calves, or adult whales with older, maternally dependent calves is prohibited.

In accordance with Section 103(d) of the MMPA, interested persons were provided an opportunity to file an initial notice of intent to participate in the hearing scheduled in Anchorage, Alaska on December 5, 2000, and to submit written testimony together with other documentary exhibits. Interested persons were also provided an opportunity to submit written comments on the proposed rule and Draft Environmental Impact Statement (DEIS) prepared by NMFS in accordance with the National Environmental Policy Act, as amended and codified in 42 U.S.C. §§ 4321-4370e.

The DEIS assesses various environmental, biological, and man-induced factors that presently, or potentially, impact the CI beluga whales and concludes that over-harvest of beluga whales in CI for subsistence purpose is the primary factor responsible for the demonstrated decline of the stock. The DEIS also evaluates the impacts of the following six (6) different subsistence harvest strategies: Alternative 1: zero

harvest until the stock recovers to its Maximum Net Productivity Level (MNPL), which corresponds with the lower limit of the stock's OSP. Alternative 2: one strike annually until the stock recovers to its MNPL. Alternative 3: one strike annually for eight consecutive years, after which time the annual harvest would increase to two strikes until the stock recovers to its MNPL. Preferred Alternative 4: two strikes annually until the stock recovered to its MNPL. Alternative 5: a fixed-percentage harvest dependent on the estimated size of the population. Alternative 6: No Action.

After examining all of the aforementioned harvest strategies, NMFS proposed adoption of Preferred Alternative 4. (NMFS Exhibit 1- DEIS).

Seven (7) notices of intent to participate in the hearing were received from the public. One notice, however, was subsequently withdrawn and, by Order dated November 30, 2000, direct testimony of one witness was reconstituted as comments to the DEIS. Twelve (12) letters were also received from the public during the comment period on the DEIS. While a majority of commentators support NMFS' proposal to restrict the Alaska Native subsistence harvest of CI beluga whales, a significant number of commentators - - some of whom are in support of the subsistence harvest limitation and some of whom are against the harvest limitation - - state that the DEIS does not fully and adequately consider the cumulative impacts of various human activities on beluga whales and their habitat. (See NMFS Exhibit 11). Succinctly stated, these commentators advocate the need for more scientific analysis and population data in order to create the most effective and appropriate regulatory harvest regime. (*Id.*). The point is well taken. A careful review of the entire record, including documentary evidence and witness testimony, shows that the scientific data available regarding the population dynamics of the CI beluga whales is inconclusive.

(III) ISSUES OF FACT AND LAW

On December 1, 2000 (65 FR 75230), pursuant to 50 C.F.R. § 228.11(a) and (b), the issues of fact and law involved in this proceeding were published in the Federal Register as follows:

A. Population Estimates

1. What numbers are appropriate to use for:
 - a. Carrying capacity (K)
 - b. Current Population size (N_{2000})
 - c. Intrinsic rate of growth (R_{max})
 - d. The lower bound of the optimum sustainable population level (MNPL) relative to the carrying capacity

2. Whether 2000 Survey Data will be available. If so, why aren't they being used?

3. Whether the recovery times projected by NMFS under different harvest regimes are appropriate?

a. Whether recovery factor used by the NMFS is too conservative? If so, what is the appropriate recovery factor?

b. Whether there is a consistent formula for estimating the recovery time?

c. Have past formulas for population been developed? If so, what are the formulas and why weren't they adopted?

4. What factors, other than Native harvest of CI beluga whales, possibly contributed to the observed declines or slower than projected potential recovery of the stock?

a. Whether the estimate of annual removals by Alaska Native subsistence hunters in CI is accurate? Is the CI Marine Mammal Council's report on 1998 harvest levels available?*

b. Whether the NMFS has adequately accounted for risks to the population from orca predation, strandings, oil spills, and other stochastic events in calculating potential harvest removals and recovery times?

c. Is there an Inlet-based decline in the availability of food or prey for the Beluga? If so, in what way has this affected the decline and potential recovery of the population?

5. Whether a more flexible model that accounts for uncertainty in key population parameters is available? If so, why wasn't it used?

6. What resources are available for monitoring beluga population and harvest?

a. Will the beluga population be evaluated on an annual basis?

b. Whether the regulations should contain a provision for altering the number of Native harvest strikes if new, valid information changes the analysis of CI beluga population?

7. Should a more flexible harvest regime be adopted? If so, what should it be?

B. Co-Management and Enforcement

1. What is the definition of the term "Alaska Native Organization (ANO)?"

a. How is an ANO recognized?

b. Are there any ANOs in CI with area-wide tribal authority to enforce laws against all members of the area tribes and enter into agreements on behalf of said tribes? How many exist and who are they? Which ANO can enter into co-management agreement with NMFS?

2. What mechanisms are available to enforce the Native harvest limitation and prohibition on the sale of products and foodstuff from CI beluga whales?

a. Who has authority to enforce the proposed regulations, if adopted? Will enforcement authority be shared between NMFS and the ANO(s)?

b. What effect, if any, does the recent ruling in Alaska v. Native Village of Venetie Tribal Government, 522 U.S. 520 (1998) have on a tribal government's ability to enforce tribal laws on individuals?

c. How will the strikes under the proposed regulation be allocated? Who will monitor the harvest of CI beluga whales to ensure that the season is concluded as soon as the second strike has been made? How will the hunters and tribes be notified of season's closure.

3. Are there methods to increase efficiency?

4. Will there be sufficient funding for enforcement and prosecution?

C. Method and Means of Hunting

1. Will illegal takings be counted against the two-strike Native harvest limitation?

2. Will the NMFS be able to stop Native harvest of CI beluga whales under emergency circumstances of rule making? Will there be a legal mechanism to stop Native harvest of CI beluga whales in the event of unrelated mortality that would affect the population recovery?

3. Should juvenile whales be taken instead of mature adults if it is shown to enhance chances of population recovery?

4. Should the proposed July 15 annual commencement date for Native harvest of beluga whales be moved forward to July 1 in view of deteriorating weather conditions?

D. Sale of CI beluga whale products

1. Whether the term "sale" should include barter and other types of quasi-commercial transactions?

2. Should attempts to sell CI beluga whale products and/or foodstuff be deemed a violation? Should the purchase and attempts to purchase CI beluga whale products or foodstuff be deemed a violation?

3. For enforcement purposes, should the restriction on the sale of CI beluga whale products and/or foodstuff be expanded to prohibit the sale of products and/or foodstuff from other beluga whale stock?

4. Should restrictions be in place for all CI beluga whale products, or just edible portions?

E. Cultural Interests

1. Are there ways to encourage full utilization of those belugas taken pursuant to the proposed regulations?
2. Is there sufficient emphasis on the importance of Native subsistence harvest in terms of balancing in favor of permitting the proposed harvest?

A majority of the issues of law and fact have been resolved by party stipulation and the parties have agreed to defer a determination on remaining issues until such time that more reliable scientific and commercial data regarding the population dynamics of the CI beluga whales becomes available.

(IV) FINDINGS OF FACT

1. The CI beluga whale is a genetically distinct and geographically isolated marine mammal stock occurring in the Gulf of Alaska. (*NMFS Exhibit 1-DEIS*, at 15; *Tr. 147-148, 218-219*).
2. In the late 1970s and early 1980s, up to 1,300 beluga whales inhabited CI. However, the exact number is unknown. (*NMFS Exhibit 3- Declaration of Dr. Douglas P. DeMaster*, at 5-6; *NMFS Exhibit 5- Declaration of Mr. P. Michael Payne*, at 3-4; *Tr. 35, 433*).
3. Between 1994 and 1998, the CI beluga whale population experienced a drastic decline falling from an abundance estimate of 653 whales in 1994 to 347 whales in 1998. (*NMFS Exhibit 1-DEIS*, 1-3; *NMFS Exhibit 3-Dr. DeMaster's Declaration*, at 2; *Tr. 34-36, 39, 153*).
4. By 1999, an estimated population between 240 and 500 beluga whales inhabited CI. (*NMFS Exhibit 3-Dr. DeMaster's Declaration*, at 2, *Tr. 37-39, 618-619*).
5. Alaska Native subsistence harvesting of CI beluga whales was the major significant factor contributing to the depletion of the marine mammal population. (*NMFS Exhibit 1-DEIS*).
6. While Alaska Native subsistence harvest levels of beluga whales in CI historically has been largely unreported, data compiled by NMFS and the CIMMC in 1995 through 1997 indicates that an estimated average between 75 and 100 CI beluga whales were annually harvested for subsistence purposes. (*NMFS Exhibit 1 - DEIS*, at 40-41; *NMFS Exhibit 3-Dr. DeMaster's Declaration*, at 2-4, 6; *NMFS Exhibit 8; MMC Exhibit 3-Declaration of Dr. Daniel Goodman*, at 5; *Tr. 153-155*).
7. Although Alaska Native subsistence hunting is the major significant factor contributing to the decline of the CI beluga whale, there may be additional factors significantly attributing to the decline. (*NMFS Exhibit 1-DEIS; NMFS Exhibit 3-Dr. DeMaster's Declaration*, at 3; *NMFS Exhibit 6-CITT Comments on Proposed Regulations dated Sept. 5, 2000; Blatchford Exhibit 4; MMC Exhibit 3-Dr. Goodman's Declaration*, at 5; *Calcote 1; Tr. 96-102; 132-136, 138-144, 183-184, 207-210, 268-272, 341-352, 432-434, 450-451, 457-458, 466, 749, 759-760*).
8. Reliably determining the carrying capacity of the CI beluga whale population is essential in establishing the most

appropriate Alaska Native subsistence harvest regime that promotes recovery of the marine mammal to its optimum sustainable population (OSP) level while preserving the Alaska Native's traditional subsistence use to support their cultural, spiritual, social, economic and nutritional needs. (NMFS Exhibit 3-Dr. DeMaster's Declaration, at 3; Tr. 35-205; MMC Exhibit 3-Dr. Goodman's Declaration).

9. NMFS defines OSP as 60% of carrying capacity. (NMFS Exhibit 3-Dr. DeMaster's Declaration, at 3; MMC Exhibit 3-Dr. Goodman's Declaration, at 6; AOGA 3; Tr. 35-36).

10. Carrying capacity represents the long-term equilibrium average population supportable in the ecosystem if mammals were not removed for purposes of harvesting or incidental to commercial fishing. (NMFS Exhibit 1-DEIS, at 30; Tr. 35).

11. Because historical abundance estimates of CI beluga whales prior to 1994 were often incomplete and involving non-systematic counts of concentrations of the marine mammal observed in the river and along the upper Inlet, the information necessary to reliably estimate the carrying capacity of CI beluga whales is insufficient and the reliability of the data is questionable. (NMFS Exhibit 1-DEIS, at 17; NMFS Exhibit 3-Dr. DeMaster's Declaration, at 4-5; Tr. 34, 135; Tyonek Exhibit 1; MMC Exhibit 1 and 3; AOGA 1; Joint Stipulations 1).

12. In order to determine the carrying capacity of the CI beluga whale population with any reliable degree of certainty, a number of years of annual abundance estimates must be collected. However, based on the testimony of Dr. DeMaster, the parties have agreed to collect abundance data for a period of six (6) years to see whether the population is recovering above the scientifically predicted trajectory. (NMFS Exhibit 4; MMC Exhibits 5 and 6; Joint Exhibit 1; Tr. 115-118, 128-132, 139, 180-183, 195-196, 631-636, 709).

13. According to the most current abundance estimate, conducted in 2000, there are approximately 435 CI beluga whales. In 1999, the abundance estimate was 357 whales. To determine whether the number of CI beluga whales is increasing, the best strategy is to monitor the population closely and look at the scientifically predicted trajectory. See Doug O'Harra, "Count sees no Decline in Belugas," Anchorage Daily News, January 19, 2001; see also (Tr. 139).

14. NMFS' current estimates of abundance are conservative. The actual number of beluga whales in CI may vary by approximately 60% in either direction from NMFS' abundance estimates. Therefore, based on the estimate derived for 1999 - - for example - - there may be between 200 to 500 CI beluga whales. (MMC Exhibit 3-Dr. Goodman's Declaration, at 3-4; Tr. 37, 79).

15. Several correction factors have been used since 1994 in developing current abundance estimates to account for: (1) animals missed by an observer even though the marine mammal was at the surface of water; (2) animals below the surface of the water using, among other things, information from radio tagging

data; and (3) estimates by observers of the number of marine mammals seen in a group. The correction factor currently used by NMFS has not been peer reviewed. (AOGA 2; Tr. 71-72, 167-175, 621-625).

16. The intrinsic rate of growth (R_{max}) for CI beluga whales is unknown because life history, mortality and harvest data is insufficient. However, using population data and information from cetacean populations similar in size to the CI beluga whales, 4% - - amounting to approximately 10 to 12 marine mammals being added to the population through reproduction - - appears to be a reasonable default value of R_{max} . In order to reliably determine R_{max} for CI beluga whales, the population must be observed over a longer period of time. (NMFS Exhibit 1-DEIS, at 30; NMFS Exhibit 4; Tyonek Exhibit 1; MMC Exhibit 1 and 3; Joint Stipulations 1; Tr. 41-43, 85, 93-96, 98, 118-119).

17. The maximum net productivity level (MNPL) of CI beluga whales hinges on carrying capacity. MNPL is defined as the lower bound of the OSP relative to carrying capacity taking into account additions to the population as a result of reproduction and less any population losses due to mortality. (NMFS Exhibit 1-DEIS, at 30; NMFS Exhibit 3-Dr. DeMaster's Declaration, at 8; MMC Exhibit 3-Dr. Goodman's Declaration, at 6; Tr. 62-67).

18. Scientific data and research establishes that the MNPL for marine mammals is between 50 and 85%. However, because of the lack of reliable data and information, where the peak of production curve occurs for marine mammals is unknown. (NMFS Exhibit 4; Tyonek Exhibit 1; MMC Exhibit 1; Joint Stipulations 1; Tr. 63-67).

19. The reliability of the expected recovery time of the CI beluga whale population and MNPL is directly linked to the stocks carrying capacity and growth rate, which are unknown. (NMFS Exhibit 4; MMC Exhibit 3-Dr. Goodman's Declaration, at 10-11; Tr. 59-60, 245, 627-630).

20. The marine mammal management model adopted by NMFS and used in developing the proposed subsistence harvest regime for the CI beluga whale population that was published in the Federal Register on October 4, 2000 does not adequately take into account the uncertainty that exists concerning the CI beluga whale population. (TA Exhibit 1-3; MMC Exhibit 1 and 3; Tr. 107-115, 137-144, 616, 682).

21. None of the six (6) Alternative subsistence harvest strategies considered by NMFS in the DEIS adequately takes into account the uncertainty that exists concerning the population dynamics of the CI beluga whale and its habitat. (Tr. 225-234, 616).

22. Under the preferred Alternative 4 subsistence harvest strategy adopted by NMFS in the DEIS and published in the proposed rule in October 2000, a fixed harvest of two strikes annually would allow the CI beluga whale to recover in 25 years and thus extend the recovery time by only three years when compared to Alternative 1 advocating no subsistence harvest.

However, the preferred Alternative 4 subsistence harvest strategy does not account for the uncertainties surrounding the dynamics of the CI beluga whale and its habitat. (NMFS Exhibit 1-DEIS, at 6-8, 29-38; Tr. 43, 108-109, 233-234).

23. Of the six Alternative subsistence harvest strategies considered by NMFS in the DEIS, Alternative 5, which would allow a fixed percentage of CI whales harvested based on the annual recruitment level, is the only alternative that provides any degree of flexibility. The major problem with Alternative 5 is the estimated recovery time is unreasonably long: 55 years. Therefore, Alternative 5 is not a viable harvest strategy. (Tr. 231-232, 262-263).

24. A better alternative subsistence harvest strategy, which was not considered by NMFS in the DEIS, is to establish an interim harvest regime in which a total of six strikes of CI beluga whales would be allocated pursuant to a co-management agreement over the next four years. Pursuant to the parties stipulations, four of the strikes, not to exceed one per year, would be allocated to the Native Village of Tyonek and the remaining two strikes would be allocated to another CI Alaska Native subsistence hunter (ANO) with no more than one strike being allocated during every other year. During the interim harvest period, the CI whale population would be monitored and evaluated to determine whether the beluga whales are recovering above the scientifically predicted trajectory. Following the interim harvest period, the collected abundance data would be used to establish a long-term harvest regime for subsequent years. (MMC Exhibit 5 and 6; Joint Exhibit 1; Tr. 91, 115-118, 128-132, 139, 180-183, 195-196, 631-636, 709).

25. Because of a moratorium on Alaska Native subsistence harvesting of beluga whales since 1999, the number of harvested CI beluga whales has been significantly reduced. In 1999 and 2000 no beluga whales were harvested and only one beluga whale was harvested in 2001 pursuant to a co-management agreement with a ANO (Tyonek). Thus, population estimates have increased appreciable since 1999. Based on the current trend, by the year 2005, NMFS should be able to scientifically determine whether the CI beluga whale stock is recovering in a manner consistent with the scientifically predicted trajectory. See Doug O'Harra, "Count sees no Decline in Belugas," Anchorage Daily News, January 19, 2001; see also (NMFS Exhibit 3- Dr. DeMaster's Declaration, at 6-7; Tr. 36, 91, 115-118, 128-132, 139, 180-183, 195-196, 635-636).

26. The interim subsistence harvest strategy agreed to by the parties is conservative and will not result in a significant retardation of the recovery of the marine mammal population. (NMFS Exhibit 3-Dr. DeMaster's Declaration, at 7-9; Tyonek Exhibit 1; AOGA 2; Joint Stipulations 1; Tr.82-83, 86-87, 124, 155-156, 199, 201-202).

27. Unusual mortalities, illegal harvesting, and/or stochastic or catastrophic events have the potential to threaten the recovery

of the CI beluga whale population. Thus, it is essential that an emergency provision be incorporated into the proposed rule to respond to those events that potentially threaten the recovery of the CI beluga whale population. (NMFS Exhibit 3-DeMaster's Declaration, at 8-9; Joint Stipulations 1; Tr. 43-47, 138, 275-279, 797-799).

28. Periodically monitoring the CI beluga whale population, developing a conservation plan, implementing protective measures, and developing viable enforcement mechanisms are essential to the recovery effort. (NMFS Exhibit 4; Tyonek Exhibit 1; MMC Exhibit 1; Joint Stipulations 1; Tr. 46-48, 103-106, 189-191, 194, 275-279, 320-333, 338-340, 367, 404, 414-420, 434-435, 449-450, 695-697;).

29. Co-management agreements are the best way to promote efficient Alaska Native subsistence harvesting of CI beluga whales and thereby reducing or otherwise minimizing the amount of whales struck and lost and preventing "wasteful takings" of CI beluga whales. Co-management agreements are also the best method for selecting which tribal or Eskimo group(s) should be permitted to engage in Alaska Native subsistence harvesting in a particular year and allocating the strikes. (Tyonek 1; AOGA 2; Joint Stipulations 1; Tr. 229-230, 236-243, 273-275, 285, 291-300, 362-366, 435-436, 439, 750).

(V) ULTIMATE FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. The CI beluga whale stock is a "depleted" marine mammal population within the meaning of the MMPA. 16 U.S.C. § 1362(1).

2. The Alaskan Natives' subsistence harvest of CI beluga whales is subject to regulation in accordance with 16 U.S.C. § 1371(b).

3. The proposed regulation published in the Federal Register on October 4, 2000 should be amended and modified in such a way as to promote additional scientific research and data collection and analysis of the CI beluga whales and their habitat so that the most scientifically acceptable subsistence harvest regime can be established.

4. The best scientific evidence available and the parties stipulations show that since an appreciable degree of scientific uncertainty exists concerning the population dynamics of the CI beluga whales an interim subsistence harvest regime should be established over the next four years (2001-2004) which provides for the allocation of a total of six strikes of CI beluga whales pursuant to co-management agreements and also provides for the collection and analysis of scientific data which can be used to establish a more scientifically acceptable harvest regime for future years.

5. Based on the parties' stipulations, over the next four years (2001-2004) four strikes, not to exceed one per year, will be allocated to the Native Village of Tyonek pursuant to a co-management agreement. The remaining two strikes, with no more than one strike being allocated during every other year, will be allocated to another Alaska Native subsistence hunter group. NMFS will use its best efforts to qualify such a group as an ANO and

enter into a co-management agreement with the United States Government so that such a group can reap the benefits of the second strike this summer. Should NMFS be unable to complete these prerequisites, it shall so report to the presiding judge as soon as practicable. Any such delay shall result in the carryover of such strike until an ANO is qualified and a co-management agreement concluded.

6. The best scientific evidence available demonstrates that the interim harvest regime agreed to by the parties will not significantly disadvantage the CI beluga whale population.

7. Based on the parties' stipulations and the best scientific evidence available, the Judge should retain jurisdiction over the rulemaking pending data collection and developments by NMFS in consultation with the other parties to this proceeding of a regime for determining allowable subsistence harvest levels for 2005 and subsequent years.

8. Based on the parties' stipulations, NMFS should submit a final recommendation on the long-term subsistence harvest regime for 2005 and subsequent years to the judge and the other parties no later than Monday, March 15, 2004.

(VI) DECISION

The MMPA was enacted in 1972 to protect marine mammals from extinction or depletion resulting from man's activities.⁶ 16 U.S.C. § 1361(1). Congress intended to prevent marine mammals from diminishing below their optimum sustainable population level thereby ceasing to be a significant functioning element in the ecosystem. 16 U.S.C. § 1361(2). As a result, Congress imposed a broad moratorium on the taking of marine mammals.⁷ 16 U.S.C. § 1371(b).

While the primary objective of the MMPA is to protect marine mammals, Congress recognized that Alaskan Natives required special attention because the Natives have historically depended on traditional hunting of marine mammals for their

⁶"The term 'marine mammal' means any mammal which (a) is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia and Cetacea), or (b) primarily inhabits the marine environment (such as the polar bear); and . . . includes any part of any such marine mammal, including its raw, dressed, or dyed fur or skin." 16 U.S.C. § 1362(6).

⁷Under the MMPA, "the term 'moratorium' means a complete cessation of the taking of marine mammals and a complete ban on the importation into the United States of marine mammals and marine mammal products, except as provided [under the MMPA]." 16 U.S.C. § 1362(8). "The term 'take' means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal." 16 U.S.C. § 1362(13).

sustenance and as a means of preserving social unity. S. Report 93-307 (1973), *reprinted in* 1973 USCCAN 2989, 2993. Congress did not intend to eliminate or otherwise destroy the Alaskan Natives cultural heritage, livelihood and economy in the process of enacting the MMPA. H.R. Rep. 92-707 (1971), *reprinted in* 1972 USCAAN 4144; see also *Sea Mammal Protection Hearings in Alaska Before the Senate Commerce Committee*, 118 Cong. Rec. 17550 (1972); *Marine Mammal Protection Act of 1972*, 118 Cong. Rec. at 25258-25267 (Remarks of Sen. Ted Stevens); *The Marine Mammal Protection Act-Alaskans Express their Opinions*, 118 Cong. Rec. 13597-13603 (Extensions of Remarks of Rep. Nick Begich). On the contrary, Congress sought a balance. Congress established an exemption for Alaska Natives, which authorizes the taking of marine mammals for subsistence purposes or for making traditional Native handicraft and clothing so long as the take is not conducted in a wasteful manner. 16 U.S.C. § 1371(b).

In creating the exemption, Congress intended to preserve the Alaskan Natives traditional subsistence customs. S. Rep. No. 707 (1971), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4151-4152. This protection was nonetheless tempered by the Secretary of Commerce's ("Secretary") authority to restrict the Alaskan Natives subsistence harvest whenever a species or stock of marine mammal is designated as "depleted" and after regulations specific to the depleted species or stock are issued following public notice and a hearing. 16 U.S.C. § 1371(b). However, Congress also ensured that a proper balance was struck between the competing policy considerations of protecting marine mammals and preserving Alaskan Natives subsistence harvest rights by requiring the Secretary to lift any regulations governing subsistence harvesting once the species or stock of marine mammal are no longer depleted. *Id.*

Title 16 U.S.C. § 1371(b), governing exemptions for Alaskan Natives, reads as follows:
Except as provided in section 1379 of this title, the provisions of this chapter shall not apply with respect to the taking of any marine mammal by any Indian, Aleut, or Eskimo who resides in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean if such taking-

- (1) is for subsistence purposes; or
- (2) is done for purposes of creating and selling authentic Native articles of handicrafts and clothing: *Provided*, That only authentic Native articles of handicrafts and clothing may be sold in interstate commerce: *And provided further*, That any edible portion of marine mammals may be sold in Native villages and towns in Alaska or for Native consumption. For the purposes of this subsection, the term "authentic Native articles of handicrafts and clothing" means items composed wholly or in some significant respect of natural materials, and which are produced, decorated, or fashioned in the exercise of traditional Native handicrafts without the use of pantographs, multiple carvers, or other mass copying devices. Traditional Native handicrafts

include, but are not limited to weaving, carving, stitching, sewing, lacing, beading, drawing, and painting; and (3) in each case, is not accomplished in a wasteful manner.

Notwithstanding the preceding provisions of this subsection, when . . . the Secretary determines any species or stock of marine mammal subject to taking by Indians, Aleuts, or Eskimos to be depleted, he may prescribe regulations upon the taking of such marine mammals by any Indians, Aleut, or Eskimo described in this subsection. Such regulations may be established with reference to species or stocks, geographical description of the area included, the season for taking, or any other factors related to the reason for establishing such regulations and consistent with the purposes of this chapter. Such regulations shall be prescribed after notice and hearing required by section 1373 of this title and shall be removed as soon as the Secretary determines that the need for their imposition has disappeared. In promulgating any regulation or making any assessment pursuant to a hearing or proceeding under this subsection or finding regarding unmitigable adverse impacts under subsection (a)(5) that affects stocks or persons to which this subsection applies, the Secretary shall be responsible for demonstrating that such regulation, assessment, determination, or finding is supported by substantial evidence on the basis of the record as a whole. The preceding sentence shall only be applicable in an action brought by one or more Alaska Natives organizations representing persons to which this subsection applies. (Emphasis added).

In these formal rulemaking proceedings, regulations on the taking of marine mammals must be based on the "best scientific evidence available" and the burden is on NMFS to ensure that the taking will not disadvantage those species or stock of marine mammals. 16 U.S.C. § 1373(a). When the "best scientific evidence available" standard was created, Congress recognized that there is inadequate knowledge of the ecology and population dynamics of marine mammals and of the factors that affect their ability to successfully reproduce. 16 U.S.C. § 1361(3); H.R. Rep. 92-707, reprinted in 1972 USCAAN 4144, 4148. 118 Cong. Rec. at 25273 and 25253. Congress envisioned the possibility that, in a given situation, there would be a lack of scientific information. Federation of Japan Salmon Fisheries Cooperative Association v. Balderidge, 679 F. Supp. 37, 46 (D. DC 1987). In such instances, the "best scientific evidence available" standard is satisfied "[i]f the weight of authority suggests a certain figure is most likely." Friends of Animals, Inc. v. Federation of Japan Salmon Fisheries Cooperative Association, 1982 U.S. Dist. LEXIS 18171, at 13 (D. DC 1982). In other words, the regulations must be supported by reliable, probative and substantial evidence. 5 U.S.C. § 556(d); see also Steadman v. SEC, 450 U.S. 91, 100-103 (1981) (holding that 5 U.S.C. § 556(d) establishes a preponderance of the evidence

standard of proof); Concrete Pipe & Products v. Constr. Laborers Pension Trust, 508 U.S. 602, 622 (1993) (holding that the "preponderance of the evidence standard of proof requires a party to show that the existence of a fact is more probable than its non-existence").

With this in mind, Congress requires the Secretary, in consultation with the Marine Mammal Commission, to discover and make available critical information concerning the species or stock of marine mammals subject to regulation. 16 U.S.C. § 1373. In formulating regulations, the Secretary shall give full consideration to all factors which may affect the extent to which such animals may be taken or imported, including but not limited to the effect of such regulations on-

- (1) existing and future levels of marine mammal species and population stocks;
- (2) existing international treaty and agreement obligations of the United States;
- (3) the marine ecosystem and related environmental considerations;
- (4) the conservation, development and utilization of fishery resources; and
- (5) the economic and technological feasibility of implementation.

16 U.S.C. § 1373(b). Moreover, prior to or concurrent with the publication of the notice of proposed rulemaking in the Federal Register, the Secretary is required to publish:

- (1) a statement of the estimated existing levels of the species and population stocks of the marine mammal concerned;
- (2) a statement of the expected impact of the proposed regulations on the optimum sustainable population of such species or population stock;
- (3) a statement describing the evidence before the secretary upon which he proposes to base such regulations; and
- (4) any studies made by or for the Secretary of an recommendations made by or for the Secretary or the Marine Mammal Commission which relate to the establishment of such regulations.

16 U.S.C. § 1373(d). Furthermore, when issuing regulations pursuant to section 1373, the onus is on NMFS to keep in mind the competing concerns of Congress, i.e., protecting marine mammals and preserving Alaskan Natives subsistence harvesting. 16 U.S.C. § 1373(a).⁸

⁸Section 1373(a) provides in pertinent part:
The Secretary, on the basis of the best scientific evidence available and in consultation with the Marine Mammal Commission, shall prescribe such regulations with respect to the taking and importing of animals from each species or marine mammal . . . as he deems necessary and appropriate to insure that such taking will not be to the disadvantage of those species and population

In this proceeding to regulate the Alaskan Natives' subsistence harvest of CI beluga whales, every variable that went into NMFS' proposed regulation was subject to a significant degree of scientific uncertainty. The issues of law and fact identified by the parties in the December 1, 2000 Federal Register notice (65 FR 75230) and addressed at the hearing involved: (A) population estimates; (B) co-management and enforcement; (C) method and means of hunting; (D) sale of CI beluga whale products; and (E) cultural interests.

Since the data and information regarding the population dynamics of the CI beluga whale stock was so speculative, the parties, based in part on information provided by the scientific review committee, have resolved all of the issues via stipulation and agree that the proposed regulation should be amended in such away as to promote additional scientific research and population data collection and analysis of the CI whale stock and their habitat. The parties stipulated to the following:

- (1) Subsistence harvest can only occur under a cooperative agreement between NMFS and an Alaskan Native Organization(s);
- (2) During the years 2001-2004, unless subject to emergency suspension, a total of six (6) strikes of CI beluga whales is to be allocated for subsistence harvest through co-management agreement(s). Four of the strikes, not to exceed one per year, are to be allocated to the Native Village Tyonek and the two remaining strikes will be allocated pursuant to a co-management agreement(s) with other CI community hunters, with no more than one strike being allocated during every other year;
- (3) Taking of beluga whales for subsistence harvest shall be suspended if unusual mortalities occur in any given year and the suspension shall be in effect until the population has recovered;
- (4) Authentic Native articles of handicrafts and clothing made from non-edible by-products of whales taken in accordance with the regulations may be sold in interstate commerce; but, the sale of any other part or product, including food stuffs, from CI beluga whales is prohibited, except customary and traditional subsistence practices of barter and sharing of CI beluga parts or products is not prohibited;
- (5) All hunting for subsistence purposes shall occur no earlier than July 1 each year;
- (6) The taking of a maternally dependent calf, or an adult whale accompanied by a maternally dependent calf is prohibited; and
- (7) The presiding administrative law judge should retain jurisdiction over the rulemaking pending developments by NMFS, in consultation with the other parties to this proceeding, of a regime for determining allowable harvest levels for 2005 and subsequent years.

stocks and will be consistent with the purposes and policies set forth in section 1361 of this title. (emphasis added).

The only party that did not join in the stipulation is the Trustees for Alaska. The Trustees raise two objections. First, the Trustees argue that the taking of a maternally dependant calf or an adult whale accompanied by a dependent calf should be counted as two strikes, rather than one to better reflect the biological reality that two whales were taken from the population. Second, the Trustees object to moving the hunting season forward to July 1. The Trustees argue that there is no evidence that deteriorating weather conditions support moving the hunting season to July 1, and that the July 15 date originally proposed by NMFS affords greater protection for breeding female whales. The Trustees comments are well thought out and might be something that the parties want to adopt for the post 2004 timeframe. However, during this short information gathering period there is more than ample protection for the CI beluga whale protection. Finally, the facts adduced at the hearing clearly support the parties' stipulations.

A. Population Estimates

(1) What numbers are appropriate to use?

Pursuant to 16 U.S.C. § 1373, NMFS evaluated various population data and empirical evidence to determine the CI beluga whales' carrying capacity, current population size, intrinsic rate of growth, and lower bound of the optimum sustainable population level (MNPL) relative to carrying capacity. The parties agree that the reliability of all of the figures is at issue and a significant degree of scientific uncertainty exists. Thus, without the weight of authority suggesting a certain figure is most likely, the undersigned is unable to recommend that the Secretary adopt any one figure until further scientific data is collected. This is especially true in light of the parties' stipulations.

(a) Carrying Capacity (K)

With respect to the population estimates, all of the scientific experts, including NMFS' own scientific expert - - Dr. DeMaster's, expressed reservations about the reliability of the data. Based on the evidence adduced at the hearing, the estimated carrying capacity of the CI beluga whales could range anywhere from 653 whales to 2,000 whales. (NMFS Exhibit 3-Dr. DeMaster's Declaration, at 5-6; Tr. 33-35, 51-57, 17-198).

Dr. DeMaster's admitted that none of the four independent estimates of carrying capacity considered by NMFS were fully reliable. According to Dr. DeMaster's, all of the estimates are imprecise and severely negatively biased. (NMFS Exhibit 3-Dr. DeMaster's Declaration, at 6; Tr. 33-35, 54-61, 146-165, 200-201). For instance, the reliability of the Calkins' study, which NMFS maintains provides a reasonable estimate of carrying capacity is, at best, questionable. The field notes from the aerial survey indicates that only 441 whales and not the reported 479 whales were observed in CI in 1979. In addition, it came to light at the hearing that critical areas were missed by Calkins during the aerial survey, which may account for an

unknown underestimate of the total number of beluga whales. Moreover, the variance in Calkins' study cannot be replicated because he did not use techniques that would allow one to properly estimate the variance. (NMFS Exhibit 4 and 12; AOGA 1; Tr. 54-57, 146-150, 159-165, 197-198, 619-620, 625-626).

Without the ability to reliably ascertain the carrying capacity of the CI beluga whales, a single point estimate cannot be selected for carrying capacity and, thus, a single value cannot be selected as the OSP. The OSP is defined as "the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." 16 U.S.C. § 1362(8). The Secretary is required under 16 U.S.C. § 1373 to make a finding concerning the OSP when implementing regulations on the taking of marine mammals. Kokechick Fishermen's Assoc. v. Commerce, 839 F.2d 795, 801 (D.C. Cir. 1988), cert. denied 488 U.S. 1004 (1989).

Based on the evidence adduced at the hearing, NMFS would need a number of years of annual abundance estimates to determine the carrying capacity of CI beluga whales with any reliable degree of certainty. (NMFS Exhibit 4; Tr. 132). Instead of relying on a single point estimate for carrying capacity, MMC recommends adoption of a range incorporating the entire distribution to adequately characterize the scientific uncertainty that exists concerning the population appraisal of the CI beluga whales. (MMC Exhibit 1; Tr. 627-628). The single point estimates relied upon by NMFS in developing the proposed regulation simply does not take into account such scientific uncertainty. (TA Exhibit 1; MMC Exhibit 1, 3, and 5; Tr. 107-115, 137-144, 616, 682). MMC further recommends that NMFS undertake a Monte Carlo analysis, which is a standard, widely used, and recognized model that accounts for uncertainty through a predictive calculation. (MMC Exhibit 3; TR. 616-617, 671-672, 683-684, 708). During the hearing, NMFS admitted that in developing the proposed Alaskan Natives harvest regime they did not have the benefits of MMC's expert witness', analyses. Accordingly, the parties have agreed to defer the issue concerning carrying capacity to a later date. This would provide NMFS and MMC a reasonable opportunity to work together, as contemplated by 16 U.S.C. § 1373.

(b) Current Population Size

The parties also agreed to defer a ruling on the current population size. According to the most current abundant estimate, conducted in 2000, there are approximately 435 CI beluga whales. See Doug O'Harra, "Count sees no Decline in Belugas," Anchorage Daily News, January 19, 2001. In 1999, the abundance estimate was 357. (NMFS Exhibit 3; Tr. 36, 115). The evidence shows that NMFS' current abundance estimates are conservative and may vary by 60% in either direction from the true number of beluga whales living in CI. For instance, based

on the 1999 abundance estimate, there may be as few as 200 and as much as 500 beluga whales in CI. (*MMC Exhibit 3; Tr. 37, 79*). Since 1994, NMFS has used several correction factors for computing abundance estimate and the current correction developed by Rob Hobbs is in the process of being peer reviewed. (*AOGA 2; Tr. 71-72, 167-175, 621-625*). The parties' decision to defer this issue to a later date provides NMFS with an opportunity to test and validate the scientific methodology of its correction factors through the peer review process. It also provides NMFS with an opportunity to observe the CI beluga whales and evaluate whether the stock is recovering in a manner consistent with the scientifically predicted trajectory and verify whether subsistence harvest was the sole cause of the depletion of the CI beluga whales.

(c) Intrinsic Rate of Growth

In practice, the intrinsic rate of growth, also referred to the maximum net reproduction rate or R_{max} , is estimated by evaluating life history and mortality data. It is also estimated from a time series of abundance and harvest data. (*NMFS Exhibit 4*). NMFS admits, and the parties recognize, that the intrinsic rate of growth for CI beluga whales is not empirically established. (*NMFS Exhibit 1 and 4; Tyonek Exhibit 1; MMC Exhibit 1 and 3; Tr. 41-43*). Lacking sufficient abundance estimates, life history and mortality data, NMFS determined that 4% - - amounting to 10 to 12 marine mammals being added to the population on an annual basis through reproduction - - is a reasonable estimate for cetacean populations similar in size to the CI beluga whales. (*Id.*; *Tr. 93-96, 98, 118-119*). The parties' decision to defer a ruling on this issue provides an opportunity for NMFS to gather more information, which allows the agency to better determine the intrinsic rate of growth for the CI beluga whales.

(d) The lower bound of the optimum sustainable population level (MNPL) relative to the carrying capacity

The maximum net productivity level or OSP of the CI beluga whales hinges on its carrying capacity. MNPL is defined as the lower bound of the OSP relative to carrying capacity taking into account additions to the population as a result of reproduction and less any population losses due to mortality. (*NMFS Exhibit 1 and 3; MMC Exhibit 3; Tr. 62-67*). Scientific data and research establishes that the MNPL for marine mammals is between 50 and 85%. However, since there is a lack of reliable data and information, where the production peak occurs for marine mammals is generally unknown. (*NMFS Exhibit 4; Tyonek Exhibit 1; MMC Exhibit 1; Tr. 63-67*). In its "Response to Determination of Issues," NMFS admits that reliably estimating MNPL from population data requires estimates of the population growth rate over a range of abundance levels or a long time series of abundance estimates. (*NMFS Exhibit 4*).

NMFS arbitrarily adopts 60% for OSP. (*NMFS Exhibit 3-DeMaster's Declaration, at 3; MMC Exhibit 3-Dr.*

Goodman's Declaration, at 6; AOGA 3; Tr. 35-36). Dr. DeMasters testified that 60% was a reasonable estimate, but admitted that there was "just no data" to determine the reliability of this figure. (Tr. 63-67). Therefore, the parties have stipulated that this issue should be deferred to a latter date so that reliable estimates can be made based upon empirical data.

(2) Whether the 2000 survey data will be available. If so, why aren't they being used?

The parties have stipulated that this issue should be eliminated. The issue is now moot since NMFS has officially released the 2000 survey data.

(3) Whether the recovery times projected by the NMFS under different harvest regimes are appropriate?

Under the proposed Alaskan Natives subsistence harvest regime, NMFS estimates a 13% delay in recovery time for the CI beluga whale and expects the whales to recover to the lower level of OSP by 2025 if 2 whales are annually harvested assuming the carrying capacity is 1,300 whales. (NMFS Exhibit 1-DEIS, at 30; NMFS Exhibit 3-Dr. DeMaster's Declaration, at 7-8; NMFS Exhibit 4-NMFS' Responses to Determination of Issues, at 3-4; Tr. 43, 108,233-247). Since the estimated recovery times was established using the variables which have already been found to be subject to an appreciable degree of scientific uncertainty, the parties agreed to defer a ruling on NMFS projected recovery times. According to the testimony of NMFS' expert witness and based on population data collected on CI beluga whales since 1999, within 4 to 6 years or by no earlier than 2004 there should be enough information and data available to determine whether the whales are recovering in a manner consistent with the scientifically predicted trajectory, which will justify adjustment of the Alaskan Natives subsistence harvest quota. (Tr.115-118, 180-183, 195-196, 635-636).

(4) What factors, other than Native harvest of CI beluga whales, possibly contributing to the observed declines or slower than projected potential recovery of the stock?

The parties have agreed to strike all matters relating to this issue from the proceeding. It has been established by a preponderance of reliable and credible evidence that Alaskan Natives subsistence harvesting of CI beluga whales significantly contributed to the observed decline of the marine mammal population.

(5) Whether a more flexible model that accounts for uncertainty in key population parameters is available? If so, why wasn't it used?

During the hearing, Marine Mammal Commission proposed using the Monte Carlo in evaluating the CI beluga whale population. (TA Exhibit 2 and 3; MMC Exhibit 3-Dr. Goodman's Declaration, at 9-13; Tr. 152,616-617, 671-672, 683-684, 708). However, the parties agreed to defer resolution of this issue to afford NMFS, MMC, and the scientific review committee an opportunity to select the most appropriate and scientifically

acceptable marine mammal management model.

(6) What resources are available for monitoring beluga population and harvest?

The parties have stipulated that the resources available for monitoring the beluga population and harvest include, but are not limited to: (i) NMFS regional and Anchorage field staff; (ii) scientists from the Alaska Fisheries Science Center in Seattle, Washington; (iii) Alaska Natives organizations party co-management agreements and enforcement officials; (iv) existing programs for tracking belugas; (v) genetic-based studies; and (vi) annual population surveys and funding of Native co-management agreements. (*Joint Stipulations 1*). NMFS further agreed to continue to identify new areas of study and seek appropriate funding. *Id.*

(a) Will the beluga population be evaluated on an annual basis?

The parties have stipulated that the beluga population will be evaluated on an annual basis. *Id.* Pursuant to sections 103(f) and 117(c) of the MMPA, NMFS is required to conduct marine mammal stock assessments and report the current status of the marine mammal to the public in the Federal Register and to Congress. 16 U.S.C. §§ 1373(f) and 1386(c). Thus, this issue is moot.

(b) Whether the regulations should contain a provision for altering the number of Native harvest strikes if new, valid information changes the analysis of the CI beluga population

Based on the testimony of Dr. DeMaster, the parties have agreed to defer this issue. (*Joint Stipulations 1*). To include a provision that would alter the number of strikes allocated for Alaskan Native subsistence harvest based on the evidence presented at the hearing would be speculative at this juncture. This issue is best resolve at a later date once more information and data becomes available.

(7) Should a more flexible harvest regime adopted? If so, what should it be

By party stipulation, this issue has been deferred. *Id.* The information that will be collected and analyzed during the interim harvest period should be used by NMFS to develop the most appropriate Alaskan Natives harvest regime.

B. Co-Management and Enforcement

The parties have left three issues concerning co-management and enforcement for judicial resolution. The issues involve: (1) allocation of strikes; (2) monitoring the harvest to ensure that the season is concluded as soon as the second strike

has been made; and (3) notifying Alaskan Native hunters and tribes of season closure. The parties have agreed to strike all other remaining issues from the proceeding. Those issues will be addressed in the co-management agreement.

With respect to the allocation of strikes, the parties have agreed that during the interim Alaskan Natives subsistence harvest period, four of the six strikes of CI beluga whales shall be allocated to Tyonek. (*Joint Stipulations 1*). However, the regulation does not have any criteria on how the remaining strikes should be allocated to an ANO. Based on the evidence adduced at the hearing, the best method to allocate the two remaining strikes is through co-management agreement, which has previously been successful. (*NMFS Exhibit 4 and 10; Tr.13-16,291-317*).

Furthermore, the best method for monitoring the harvest of CI beluga whales to ensure that the season is concluded as soon as the second strike has been made is through co-management agreement. (*NMFS Exhibit 10*). Based on such agreement, the ANO is required to notify NMFS 48 hours before subsistence harvesting so that enforcement agents would be available to observe and monitor the harvest. (*NMFS Exhibit10; Tr. 320-322, 365*). In an effort to further monitor Alaskan Natives subsistence harvest, NMFS issued an interim final rule that was published in the Federal Register on May 24, 1999 (64 FR 27925), requiring Alaskan Natives to provide NMFS with the lower left jawbone of harvested CI beluga whales and provide a report on the circumstances of the harvest. (*NMFS Exhibit 4 and 10; Tr. 47*).

Last, with respect to notifying the Alaskan Native hunters and tribes of seasonal closure once the two strikes have been made, the evidence establishes that NMFS will continue to publish and relate information concerning the Alaskan Natives subsistence harvesting and seasonal closure and will set out the manner of additional notification in the co-management agreement. (*NMFS Exhibit 4*).

C. Method and Means of Hunting

(1) Will illegal takings be counted against the two-strike Native harvest limitation?

The parties have agreed that illegal strikes will not be counted against the Alaskan Natives subsistence harvest limitation, but believe that this issue should be addressed in the co-management agreement. (*Joint Stipulations 1*).

(2) Will the NMFS be able to stop Native harvest of CI beluga whales under emergency circumstances of rule making?

An emergency cessation provision has been added to the recommended proposed rule. (*Joint Stipulations 1*). In deciding to recommend the emergency cessation provision, the parties recognize that unusual mortalities, illegal harvesting, and/or stochastic or catastrophic events have the potential to threaten the recovery of the CI beluga whales. (*NMFS Exhibit 3-DeMaster's Declaration, at 8-9; Joint Stipulations 1; Tr. 43-47,*

138, 275-279, 797-799). Therefore, the parties agreed that the Alaskan Native subsistence harvest will be temporarily suspended if unusual mortalities, including illegal takes, exceed six whales per year. (*Joint Stipulations 1*).

(3) Should juvenile whales be taken instead of mature adult whales if it is shown to enhance the chances of population recovery?

During the hearing, Dr. DeMaster's testified that if juvenile whales age 4 years and younger are harvested, the recovery time increases. (*Tr. 103*). As such, the parties have agreed that juvenile whales should not be harvested. (*Joint Stipulations 1*).

(4) Should the proposed July 15 annual commencement date for Native harvest of beluga whales be moved forward to July 1 in view of deteriorating weather conditions?

The parties, except the Trustees, have agreed that the date for the commencement of the Alaskan Natives harvest of CI beluga whales should be moved forward to July 1. (*Joint Stipulations 1*). Furthermore, it has already been decided that the Trustee's objection to the moving of the date of the subsistence harvest season is best entertained once more scientific and commercial data becomes available.

D. Sale of CI Beluga Whale Products

(1) Whether the term "sale" should include barter and other types of quasi-commercial transactions?

Based on the evidence adduced at the hearing, the parties agree that the term "sale" should not include barter and other types of quasi-commercial transactions. (*Joint Stipulations 1*).

(2) Should the attempts to sell CI beluga whale products and/or foodstuff be deemed a violation?

The parties agree that sale of CI beluga whale products and/or foodstuff should be deemed a violation. (*Joint Stipulations 1*). However, the parties agree that authentic Native articles of handicrafts and clothing made from non-edible by-products are exempt. *Id.*

(3) For enforcement purposes, should the restriction on the sale of CI beluga whale products and/or foodstuff be expanded to prohibit the sale of products and or foodstuff from other beluga whale stocks?

The parties have agreed to defer ruling on this issue. *Id.*

(4) Should the restrictions be in place for all beluga whale products, or just edible portions?

The parties agree that the restriction should be in place for all beluga whale parts and products, except to the extent that the products are used for authentic Native articles of handicrafts and clothing. (*Joint Stipulations 1*).

E. Cultural Interests

(1) Are there ways to encourage full utilization of those belugas taken pursuant to the proposed regulations?

The parties agree that this issue is best resolved in the co-management agreement. (*Joint Stipulations 1*).

(2) Is there sufficient emphasis on the importance of Native subsistence harvest in terms of balancing in favor of permitting the proposed harvest?

The parties agree and NMFS recognizes that subsistence harvesting of beluga whales during the recovery phase is essential to the Alaskan Natives way of life. (*Joint Stipulations 1*).

(VII) CONCLUSION

After careful review of the entire record of this proceeding and in light of the parties joint stipulations, it is recommended that the proposed regulation published in the Federal Register on October 4, 2000 should be modified and amended to reflect the agreement of the parties and to promote additional scientific research and data collection on the population dynamics of the CI beluga whale stock and their habitat.

WHEREFORE,

(VIII) RECOMMENDATION

IT IS HEREBY RECOMMENDED THAT the proposed regulations should be amended to read as follows:

PART 216-REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

1. The authority citation for part 216 continues to read as follows:

Authority: 16 U.S.C. 1361, *et seq.*, unless otherwise noted.

2. In § 216.23, paragraph (f) is added to read as follows:

§ 216.23 Native exceptions.

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* *

(f) *CI beluga whales.*

(1) Co-Management Agreement(s). Subject to the provisions of 16 U.S.C. 1371(b) and any further limitations set forth in this paragraph or other paragraphs of this section (section 216.23), any taking of a CI beluga whale by an Alaska Native must be authorized under a cooperative agreement for the co-management of subsistence uses (hereinafter in this paragraph "co-management agreement") between the National Marine Fisheries Service and an Alaska Native Organization(s).

(2) *Limitations on the Number of CI Beluga Whales Taken for Subsistence.*

(A) Taking during 2001-2004. Subject to the suspension provision of clause (c), a total of six (6) strikes, which could result in up to six landings, is to be allocated through the co-management agreement(s). Four of the strikes, not to exceed one per year, are allocated to the Native Village of Tyonek. The remaining two strikes will be allocated over the time period through a co-management agreement to other CI community hunters, with no more than one strike being allocated during every other year.

(B) Taking during 2005 and subsequent years. [Reserved].

(C) Emergency Provision for Suspension of Takings during 2001-

2004. Takings of beluga whales authorized under this paragraph will be suspended if unusual mortalities occur as follows:

(i) "Unusual mortalities" will include all documented human-caused mortality (including illegal takings and net entanglements), and all documented mortality resulting from unknown or natural causes that occur above normal levels, considered for the purposes of this provision to be 12 per year.

(ii) Calculating level of unusual mortalities. The level of unusual mortalities shall be calculated by documenting mortality for the calendar year and subtracting 12. The sum of this result and the carry over of the previous year is the level of unusual mortalities.

(iii) Emergency Suspension. If in any year the unusual mortalities exceed six (6) whales per year, no strikes will be allowed in subsequent years until the population has recovered from those mortalities.

(iv) Recovery. Recovery from unusual mortalities will be based on a yearly forward projection of the recruitment of six (6) whales per year so that the carryover to the following year will be the total unusual mortalities less six (6) whales.

(3) *Sale of CI Beluga Whale Parts and Products.* Authentic Native articles of handicrafts and clothing made from non-edible by-products of whales taken in accordance with the provisions of this paragraph may be sold in interstate commerce. The sale of any other part or product, including food stuffs, from CI beluga whales is prohibited, provided that nothing herein shall be interpreted to prohibit or restrict customary and traditional subsistence practices of barter and sharing of CI beluga parts and products.

(4) *Season.* All takings of beluga whales authorized under this paragraph shall occur no earlier than July 1 of each year.

(5) *Beluga Whale Calves or Adult Beluga Whales with Calves.* The taking of a maternally dependent calf, or an adult whale accompanied by a maternally dependent calf is prohibited.

Pursuant to Stipulation of the parties the undersigned hereby retains jurisdiction of this matter. HON. PARLEN L. MCKENNA. Administrative Law Judge. United States Coast Guard. Done and dated this 29 day of March 2002

Certificate of Service: I hereby certify that I have this day served the foregoing Recommended Decision by Federal Express to: Assistant Administrator. National Marine Fisheries Service. 1315 East-West Highway. Silver Spring, MD 20910.

CINDY J. ROBERSON. Legal Assistant to the Hon. Parlen L. McKenna. Done and dated this 29 day of March 2002.

List of Subjects in 50 CFR Part 216

Administrative practice and procedure, Exports, Imports, Marine mammals, Transportation.

Dated []

William T. Hogarth,

*Assistant Administrator for Fisheries
National Marine Fisheries Service.*

Agreement between the Cook Inlet Marine Mammal Council and the National Marine Fisheries Service Entered into Pursuant to Section 119 of the Marine Mammal Protection Act of 1972, As Amended.

Appendix A

List of Tribally-authorized Organizations Providing Authorizing Resolutions to the Cook Inlet Marine Mammal Council. This list may be amended from time to time if additional authorizing resolutions are received from tribally authorized organizations representing CI beluga whale hunters, and with CIMMC approval.

<u>Tribally Authorized Organization</u>	<u>Resolution Date</u>
Cook Inlet Treat Tribes	
Kenaitze Indian Tribe	
Knik Tribe	
Native Village of Chickaloon	
Native Village of Eklutna	
Native Village of Tyonek	
Ninilchik Traditional Council	
Qutekcok Native Tribe	
Seldovia Village Tribe	

**Appendix E Comments received by NMFS on the Draft
Environmental Impact Statement and
Proposed Regulations**

The comments received are appended in their entirety.