

On October 22, 2008, the National Marine Fisheries Service (NMFS) determined that the Cook Inlet distinct population segment of the beluga whale (*Delphinapterus leucas*) was endangered under the Endangered Species Act (ESA) (73 Federal Register [FR] 62919). This designation occurred after beluga whale abundance in Cook Inlet as estimated by the NMFS, continued to decrease even after closure of the Native harvest on belugas.

As required by the ESA (and as interpreted by Federal courts previously), the NMFS (in this case) is obligated to designate critical habitat on the heels of listing a species/population segment. On December 2, 2009, the NMFS published its intent to designate critical habitat for the recently listed Cook Inlet beluga whale (74 FR 63080). In total, two areas comprising 7,809 square kilometers (km²) (3,016 square miles [mi²]) of marine habitat fall within the boundaries of the proposed critical habitat designation. Critical habitat designation can have significant economic consequences including but not limited to Section 7 consultation costs, additional mitigation measure costs, project modification costs, project completion delays, and community economic losses (e.g., Sunding 2003).

The purpose of this document is to:

- Assess the adequacy of the information used to formulate proposed CHD for the Cook Inlet beluga whale;
- Determine the merit of the proposed primary constituent elements (PCEs) and their parameters and to provide suggestions on updates to the PCEs;
- Analyze the adequacy of the draft regulatory impact review (RIR); and
- Identify discrepancies between the draft RIR and the Proposed Rule.

BACKGROUND

I. Scientific Basis of Critical Habitat Designation

NMFS is utilizing data that is limited and fraught with biases that make sweeping interpretations that are arguable. The species would benefit from follow-up studies.

The proposed critical habitat relies heavily on traditional ecological knowledge (TEK) of Alaska Natives and very limited scientific research for Cook Inlet beluga, which includes NMFS systematic aerial survey data, NMFS satellite tagging, and NMFS habitat modeling. These surveys are not systematic and are biased toward sampling at times to maximize visual sightings in feeding locations in upper Cook Inlet instead of maximizing seasonal and spatial coverage. Furthermore, most of the data are from surveys conducted 10 or more years ago. NMFS guidelines provided by Wade and Angliss (1997) suggest that data used for stock assessments or abundance estimation should not exceed 5 years let alone 10. In fact, most of the studies NMFS has utilized to depict beluga Critical Habitat are 6-10 years old and biased with regards to season and location making their designation of Critical Habitat questionable. Further systematic studies (abundance and satellite tagging) are needed to address the actual seasonal distribution and abundance of beluga whales surveys are required to accurately designate Critical Habitat.

The TEK survey is a qualitative review that incorporates such wording for descriptions of historical information as “great numbers” and “often,” while current-day accounts include verbiage like “a few” and “some” (Huntington 2000). Huntington does not attempt to quantify these descriptions, which is a limitation of this open-ended survey. Much of the historical data in Huntington (2000) comes from the 1930s and 1940s, when referenced, with the author making little to no reference about other specific time periods. Although the use of TEK provides an extensive understanding of the biology and ecology for Alaskan animals, including the Cook Inlet beluga whale, we suggest that the NMFS consider the

previously mentioned limitations in their interpretation and use of TEK when considering beluga habitat usage. A review of the conservation plan for the Cook Inlet beluga whale (NMFS 2008) reveals that the only TEK data was Huntington's study conducted in 1999. We suggest that a follow-up study to this comprehensive, but outdated work would have been beneficial and would have assisted in determinations of whether Alaska Natives have noticed a difference in the numbers and distribution of beluga whales since the suspension of the harvest.

The NMFS relies on temporally- and spatially-biased data for proposed CHD for Cook Inlet beluga whales.

The NMFS has conducted aerial surveys for beluga whales in Cook Inlet since 1993. This research has focused on specific time periods and geographic locations. For example, Rugh et al. (2004) conducted aerial surveys of beluga whales in Cook Inlet from June 2001 to June 2002. The researchers stated that counts rise in June; however, the NMFS researchers only conducted repeat samplings in blocks of days in June. Therefore, it appears that NMFS has focused effort during times of year and in particular locations, when animals are known to be in Cook Inlet, which is effective for abundance estimation, but not for a defensible assessment of habitat usage. When designating critical habitat, we suggest that the NMFS acknowledge the limitations of their aerial survey data, in that the survey effort is not uniform and that future studies should apply uniform sampling with regard to survey effort. Rugh et al. (2004) acknowledge that low counts could originate from ice coverage in Cook Inlet impairing visual observations. We suggest that the NMFS conduct additional survey effort in winter months to address this data limitation, and that available technology be considered, such as heat detecting methodology, to better detect beluga whales during the extreme environmental conditions of winter months.

The NMFS not only temporally focuses its effort, but also focuses effort in specific geographic areas, specifically, Upper Cook Inlet. We recommend that the NMFS consistently and equally use data that is not spatially biased to make final CHD for the Cook Inlet beluga whale.

The NMFS expects the reader to make blind acceptance of information and conclusions presented in the notice to designate proposed critical habitat. We suggest that the NMFS support its arguments with examples, conclusions, and statements with citations to the literature on beluga whales.

The NMFS sets forth background information and provides extensive citations on information related to the aforementioned studies supporting beluga whale biology and ecology. However, the NMFS typically provides only generalized statements as to what impacts could occur to beluga whales and their habitat. The lack of transparency of the data or 'best judgment' used for interpretation for the proposed CHD makes it difficult for the public to understand the quality and quantity of available data on which the NMFS is making their CHD for the Cook Inlet beluga whale. For example, the Proposed Rule does not incorporate the literature to support conclusions made by the NMFS. As another example, the NMFS notes that activities in Cook Inlet could impact foraging success. However, the NMFS does not identify specific activities, provide additional details, and cite any supporting literature for their conclusion. The reader is also left with regard to this topic the question as to how activities could specifically affect foraging success.

In addition to making general statements as to the fact that activities could affect PCEs, and in turn, critical habitat, the NMFS specifically calls out that unspecified actions could restrict or deter the use of specific areas by Cook Inlet beluga whales. For example, the reader is left asking what specific activities could restrict or deter the use of or access to Area 1. Furthermore, the NMFS has not answered the question as to how the unidentified activities could affect beluga whale use of or access to this specific geographic location. The agency does not identify or cite any supporting literature to make the

conclusion that use or access could be inhibited. The NMFS also identifies specific impacts that could occur in Area 1 including impairment of prey capture, increases to predation by killer whales, and reduction of calving success. Again, these impacts do not include any literature citations or expanded explanations.

The NMFS does not uniformly apply information when considering critical habitat for the beluga whale.

For example, the NMFS uses Hobbs et al. (2005) to designate Area 2 as critical habitat; however, we suggest that the NMFS use this same satellite-tagging data to look at the occurrence of beluga whales in other areas that may also be important habitat. Hobbs et al. (2005) suggest that beluga whales conduct deeper dives and are at the surface less frequently in Area 2 as compared with Area 1; thus, individuals are less frequently observed. The use of this information in the Proposed Rule leaves the reader with questions such as are Cook Inlet belugas being missed in other areas and in turn, creating emphasis in only particular areas, especially in fall and winter months. As discussed earlier, the information from the scientific studies is limited and outdated. Furthermore, we suggest that the NMFS apply scientific information in a logical, consistent manner for final CHD.

II. Critique of PCEs

Some of the PCEs have not been adequately defined by the NMFS and/or relies on hypotheses/modeling instead of defined parameters. We suggest that the NMFS update this information to include defined parameters.

Intertidal and Subtidal Habitats

We suggest that the NMFS provide additional details on how they determined intertidal and subtidal waters as a PCE (intertidal and subtidal waters of Cook Inlet with depths <30 feet (9.1 m) (MLLW) and within 5 miles (8.0 km) of high and medium flow accumulation anadromous fish streams) as a feature essential to the conservation of the DPS; specific references also need to be provided. It appears that this designation is based on one study (Goetz et al. 2007), which relies on digital elevation models. We believe that designating a PCE based on collected data rather than predicted data would be more substantial. The reader was required to infer the use of the study by Goetz et al. (2007). Additionally, “high and medium flow accumulation anadromous streams” is not a commonly-used term. They are defined in the study by Goetz et al. (2007), which is the basis for this PCE. We suggest that the NMFS provide a definition of “high and medium flow accumulation anadromous streams” since a definition in the Proposed Rule is currently lacking.

According to the NMFS: “Research has found beluga distribution in Cook Inlet is significantly greater near mudflats and medium and high flow accumulation rivers” (74 FR 63080). However, the NMFS fails to document the research, including when it occurred. The NMFS recognizes: “Their winter distribution does not appear to be associated with river mouths” (74 FR63080), which is in accordance with Rugh et al. (2004) and Hobbs et al. (2005). Rugh et al. (2004) found that from January through April, there was a higher concentration of beluga whales in the deeper waters of mid-Cook Inlet than in other areas. To a lesser extent, belugas are known to access areas near mudflats and river mouths during winter months (December through March) despite thick sea-ice cover (Hobbs et al. 2005). According to the above

studies, beluga whales have been found to inhabit deeper waters during the winter months and thus, waters less than 30 feet MLLW may only be important seasonally and might not constitute a feature essential to the conservation of the DPS. We suggest that the NMFS perform research year-round to determine the location of beluga whales to determine which physical features are essential to the conservation of the species.

Furthermore, NMFS indicates that “high and medium flow anadromous fish streams support important beluga feeding because of their shallow depths and bottom structure” (74 FR 63080). The addition of this statement reduces the clarity of the wording of this PCE for two reasons. First, the PCE is “intertidal and subtidal water,” which does not address physical attributes that seem to be important to beluga feeding. If the physical attributes of shallow depths and bottom structure are the important features, it seems that the PCE is incorrectly worded as “intertidal and subtidal waters,” and should be rewritten to reflect the importance of the structure. We do not support a change to “mudflats,” as the NMFS indicates that “mudflats” are identified as “shallow and nearshore waters proximate to certain tributary streams” (74 FR 63080). In addition to the discussion above, the NMFS (2008) has documented whales feeding along riprap; belugas in Cook Inlet are known to tolerate rock-armored shorelines, port facilities, and oil and gas production platforms (KABATA 2010). We suggest that mudflats do not require any special management or protection relative to beluga whale foraging.

Second, the NMFS offers no explanation as to how “<30 feet (MLLW)” was chosen to represent the maximum depth of water which are important to beluga whales. The depth of waters less than 30 feet seems to contradict NMFS assertions that “high and medium flow anadromous fish support important beluga feeding habitat because of their shallow depths and bottom structure...” (74 FR 63080). According to Huntington (2000), large belugas congregate in deeper water at the edge of the Susitna River delta. Huntington does not quantify the word “deep,” but at a minimum, the reader can infer that deeper water may be important to larger beluga whales. Therefore, we suggest that the NMFS reevaluate water less than 30 feet, because it may not be essential to the conservation of the Cook Inlet beluga whale.

In the area of the proposed KAC project, Cook Inlet beluga whales are most frequently sighted moving through the location during low tide, regardless of season. Data indicates that this area is primarily used for deep water foraging by adults and for transit to other locations, and not as a resting or nursery area (Funk et al. 2005). The adult beluga whales’ ability to feed in deep water as well as in shallow water, may indicate that intertidal and subtidal waters less than 30 feet MLLW are not an essential feature.

The NMFS stated in its proposal to list the Cook Inlet beluga under the ESA: “No information exists that beluga habitat has been modified or curtailed to an extent that it is likely to have caused the population declines observed within Cook Inlet” (72 FR 19858). Moreover, the NMFS states in the Proposed Rule for CHD for the Cook Inlet beluga whale: “The intent of Congress to protect these features indicates that they may require special management considerations or protection (74 FR 63080).” The reader infers from this statement that current stringent State and Federal regulations to protect “intertidal and subtidal water of Cook Inlet with depths <30 feet (9.1 m) (MLLW) and within 5 miles (8.0 km) of high and medium flow accumulation anadromous fish streams (74 FR 63080)” are insufficient. In response to the NMFS’ proposal to list the Cook Inlet beluga whale, the State of Alaska (2007) argues:

“the proposed rule fails to also acknowledge the important and comprehensive regulatory measures that the State and Federal agencies provide for the ongoing and future developments and activities in Cook

Inlet. Instead, the rule is based on unsubstantiated speculation that developments and cumulative effects on habitat will increase beluga mortality. There are no scientific or commercial data or any other rational basis for concluding that present or future habitat conditions are slowing recovery of beluga whales or that they will result in cumulative impacts that affect its continued existence. To the contrary, today's habitat protection standards are no less effective than past standards, and in some cases are superior, resulting in restoration of Cook Inlet habitat."

Prey

The NMFS published a comprehensive list of prey species for the beluga whale in the Proposed Rule, which includes four species of Pacific salmon (Chinook [*Oncorhynchus tshawytscha*], sockeye [*Oncorhynchus nerka*], chum [*Oncorhynchus nerka*], and coho [*Oncorhynchus kisutch*]), Pacific eulachon (*Thaleichthys pacificus*), Pacific cod (*Gadus macrocephalus*), walleye pollock (*Theragra chalcogramma*), saffron cod (*Eleginus gracilis*), and yellowfin sole (*Limanda aspera*). However, in NMFS (2008) NMFS indicates that "belugas are opportunistic feeders and prey on a wide variety of animals" and provides a more comprehensive list of Cook Inlet beluga whale prey species. The NMFS provides little justification for the designation of these species listed in the Proposed Rule as primary prey, citing that these species were identified through research, TEK, and stomach content analysis, yet with no supporting references/documentation for these data. The NMFS also provides no justification for omitting pink salmon (*Oncorhynchus gorbuscha*) from the list; Huntington (2000) identifies the seasonal presence of this species and suggests the TEK has identified that Cook Inlet beluga whales prey on the species. We recommend that the NMFS provides more information about the "primary prey species" and ensure that the Final Rule accurately describes the prey species types, including quantifying how primary prey species were determined.

The NMFS does not characterize the extent of beluga usage of each prey species within Areas 1 and 2 of the proposed critical habitat. For example, the only groundfish that have been captured in Knik Arm are saffron cod, yellowfin sole, and walleye pollock (FHWA and ADOT&PF 1983; Houghton et al. 2005). Walleye pollock populations within Knik Arm are considered to be too small to provide a food source for beluga whales (Houghton et al. 2005). As such, the species proposed as primary prey species, might not actually constitute primary prey species for all of Cook Inlet.

We also recommend that the NMFS provide explicit details about prey species where applicable. For example, the statement "[t]hese regulatory efforts indicate that these four fish species may require special management considerations or protection" (74 FR 63080) is made; however, the reader is left wondering to which four species the agency is referencing and what specific considerations and protections are required.

A seasonal component exists to prey distribution and abundance in the Cook Inlet and belugas feed on the primary prey species that is available in each season. Emphasis is made in the Proposed Rule regarding "summer/ice-free periods" for exploited primary prey species (74 FR 63080). We recommend that the NMFS also address winter and ice-prone periods as a review of the literature, particularly since TEK accounts show that beluga whales feed year-round.

Characterization of foraging in times of scarce prey resources is not addressed. The NMFS (2008) indicates that demersal fish such as cod, Pacific staghorn sculpin, and flatfishes such as starry flounder and yellowfin sole are important prey when anadromous fish runs begin to decline. The NMFS (2008) also indicates that stomach samples are not available from December through March. Based on Hobbs et al. (2005) data, they hypothesize that during the winter whales are feeding in deeper waters, possibly on

such prey species as flatfish, cod, sculpin, and pollock. Not enough data are currently available to confirm importance of winter prey species (NMFS 2008).

As previously noted, the Proposed Rule does not incorporate the literature to support conclusions that the agency discusses, which includes, in relation to the second PCE, the conclusion that primary prey species are “overexploited” (74 FR 63080). We suggest that the NMFS provide the appropriate supporting documentation. The NMFS implies that this “overexploitation” is either negatively impacting or has the potential to affect Cook Inlet beluga whales. We find this correlation to be yet unsubstantiated. Moreover, the NMFS states “Known salmon escapement numbers and commercial harvests have fluctuated widely throughout the last 40 years...” (74 FR 63080); however, the NMFS does not provide the source of the citation. The State of Alaska in 2007, in its comments to the NMFS regarding proposed listing of the Cook Inlet beluga whale under the ESA, however, noted “...fisheries management by the State beginning in the 1960s stabilized fish returns so there were less cyclic highs and lows which may be related to historical accounts of beluga population oscillations”.. (State of Alaska 2007). The discrepancies that exist between assessments provided by the State of Alaska and the NMFS merit some explanation.

The State of Alaska (2009) provided the following information in response to the NMFS’ request for information regarding plans for CHD. Since the mid-1990s, Cook Inlet salmon management plans have become more tightly restrictive of commercial fishing and remain very restrictive compared to management in the 1980s. Between 1998 through 2001, sockeye salmon runs were weak, but generally sufficient to meet escapement goals. Since 2001, sockeye salmon runs have rebounded. Escapement has been stable and consistent since the 1980s (State of Alaska 2009). The 2002 escapement counts of chum salmon in Susitna River tributary weirs were the highest ever observed for these systems, while the 2001 chum salmon escapement in the Little Susitna River was the second largest ever observed. Although there is a limited amount of information available for assessing chum salmon stocks in Upper Cook Inlet, there are no obvious concerns at this time. In general, pink salmon stocks in the Upper Cook Inlet are maintaining their even-year dominance and continue to return in numbers that reveal that there are no obvious problems with the stock. Upper Cook Inlet’s coho salmon stocks generally benefited from excellent production throughout most of the 1980s and early 1990s. Since 1997, the drainage-wide coho salmon smolt emigrations have stabilized and coho salmon runs have also stabilized. Upper Cook Inlet Chinook salmon stocks are relatively stable. The NMFS implies that the existing State and Federal fisheries management plans are not adequate and that beluga prey species require special considerations and protection. We suggest that the NMFS address the disparity between the NMFS’ conclusions and the State of Alaska’s comments, and provide citations to support NMFS’ conclusions.

Furthermore, we suggest that the fatty acid analysis on which the bulk of this PCE is proposed, be available for peer-review. The information is unavailable for review and therefore, the public cannot determine whether the designation of broad swaths of habitat is relevant, without this data.

NMFS acknowledges in the Beluga Whale Conservation Plan that regime change may have affected fish community composition available to belugas, but this is not mentioned in the Proposed Critical Habitat Designation. This disparity could be an issue because of increased sedimentation from glacial runoff from climate change or change in phase of the Pacific Decadal Oscillation (PDO). Changes in fish community composition that changed the most widely available prey from a lipid-rich species to a lipid-poor one have been implicated in the decline of other marine mammal species (e.g., Steller sea lion [*Eumetopias jubatus*]). This issue has been inadequately addressed and should be resolved before this PCE is included in the Final Rule. There is no evidence to date that impacts to habitat have caused declines in prey species availability to belugas.

Unrestricted Passage

The third PCE is defined as “unrestricted passage within or between the critical habitat areas,” which is paradoxical because critical habitat is part of the provided definition. Critical habitat means the specific areas within the geographic area currently occupied by a species, on which are found those physical or biological features essential to the conservation of the species. A literal interpretation of this PCE suggests that the door is left open by the NMFS to designate as critical habitat, the remainder of Cook Inlet. On the other hand, it could be interpreted to suggest that the NMFS is specifically targeting one project – the proposed KAC project. It is imperative that the NMFS elaborate on, and clearly define, what is meant by “unrestricted access.”

The NMFS considered certain actions and structures to reduce or prevent beluga whales from being capable of accessing habitat. These potential obstructions include physical (i.e., dams and causeways) and behavioral barriers (i.e., noise and other disturbance or harassment that may inhibit whales from reaching areas with ease, or may cause the whales to completely abandon the affected area) (74 FR 63080). While this appears to be an important PCE to the NMFS, it is not supported by any scientific evidence in the Proposed Rule itself. We suggest that the NMFS include the literature or data to support this conclusion in the Final Rule.

KABATA commissioned a white paper¹ to investigate beluga whale response to in-water structures (KABATA 2010 – incorporated herein by reference). Evidence indicates that beluga whales are capable of traveling beneath bridges with narrower spans, lower deck heights, and shallower and more constricted water bodies in Cook Inlet than the proposed KAC project (e.g., Hobbs et al. 2005; Huntington 2000; KABATA 2010). Beluga whales have been sighted in seven rivers above 13 bridges in the Cook Inlet watershed (KABATA 2010):

- (1) **Kenai River** (upriver of the Warren Ames Bridge located at river mile [RM] 5;
- (2) **Beluga River** (upriver of the bridge located near RM 6);
- (3) **Knik River** (upriver of the north- and southbound bridges of the Glenn Highway and the Alaska Railroad Bridge);
- (4) **Twentymile River** (upriver of the Seward Highway Bridge and Alaska Railroad Bridge);
- (5) **Placer River** (upriver of the Seward Highway Bridge and Alaska Railroad Bridge);
- (6) **Glacier Creek** (upriver of the Seward Highway Bridge and Alaska Railroad Bridge); and
- (7) **Bird Creek** (upriver of the Seward Highway Bridge and Alaska Railroad Bridge).

In addition to these observations, whale groups have also been seen adjacent to bridges in Turnagain Arm at the mouth of Indian, Peterson, and Ingram Creeks (Hobbs et al. 2005) and Portage Creek (Hobbs et al. 2005).

Cook Inlet beluga whales are generally found to tolerate the presence of in-water structures other than bridges as well. Belugas in Cook Inlet are known to tolerate rock-armored shorelines, port facilities, and oil and gas production platforms. Since fish are not expected to change their movement patterns due to the physical presence of the bridge, overriding motivation exists for belugas to travel under the bridge and continue using upper Knik Arm for feeding (and other) purposes.

¹ [A Review of Beluga Whale Response to In-Water Structures Beluga Whitepaper](#)

Absence of Toxins:

The NMFS defines the fourth PCE as the “absence of toxins;” however, this “absence” and the associated parameters are not defined. Furthermore, the question exists as to how the NMFS will evaluate the absence of toxins in an area that the NMFS has identified as the most populous and developed region of Alaska (74 FR 63080). Just how this absence would be determined or administered is particularly uncertain. Knik Arm experiences the second-largest tidal range in the world, with fluctuations as high as 40 feet (12 m). Tidal energy is the most dominant force driving water circulation in Knik Arm (KABATA 2006). Given the tremendous tidal flush, it is difficult to imagine the presence of toxins in any appreciable detectable amount that could possibly harm the whales. Consequently, it is impossible to predict how this PCE would be measured against or applied to project impact evaluation.

Toxicology analysis for Cook Inlet belugas comes from tissues from both stranded and harvested individuals (e.g., Becker et al. 2000). The use of only individuals targeted by Alaska Natives means that the information obtained on toxicology only comes from one subset of the population: the large males. On the other hand, stranded specimens comprise a portion of the population that is likely exhibiting health problems such as disease, parasitic infection, or injury and other conditions such as exhaustion, disorientation, separation, and human interactions, although some exceptions exist. Toxins are lower in Cook Inlet belugas as compared with other populations.

While it is well-known that throughout the U.S., the NMFS partners to evaluate the health and disease status of marine mammals through live-capture programs, no such assessments for the Cook Inlet beluga population exist or are planned. How will NMFS assess the health of beluga whales and the toxin levels if they will not authorize live captures and health assessments to be performed?

While it has been documented that most concentrations of measured toxins are lower in Cook Inlet belugas as compared with other populations, the actual impacts of contaminants on beluga whales in Cook Inlet are generally unknown (NMFS 2008). Research is needed to determine the effect of contaminants on population recruitment for this declining population (NMFS 2008; Becker et al 2000). Becker et al. (2000) states that: “Due to the lower concentrations in the Cook Inlet beluga whales, the effects of PCBs and chlorinated pesticides on animal health may be of less significance for the Cook Inlet animals than for the other beluga whale stocks.” We suggest that NMFS consider not only the baseline of the “absence of toxins,” but also the potential impacts, or lack thereof, from contaminants in the final CHD and making a final determination on this PCE.

The NMFS reports: “Area 1 also has...the greatest potential for adverse impact from anthropogenic threats”, however; they fail to identify any “anthropogenic threats” (74 FR 63080). Area 1 includes Anchorage, which is the most populated city in Alaska, as well as the Port of Anchorage and Port MacKenzie. Stringent water quality requirements are in place to protect Area 1. For example, nonpoint source pollution also discharges to Knik Arm, primarily in the form of stormwater runoff from Anchorage and from airport deicing (NMFS 2008). Anchorage and ADOT&PF operate under a National Pollutant Discharge Elimination System (NPDES) stormwater permit, to discharge stormwater to Cook Inlet. To maintain this permit, the City of Anchorage is obligated to provide specific stormwater systems information and to meet particular performance constraints. Deicing and anti-icing operations occur from October through May at Ted Stevens Anchorage International Airport, Merrill Field, Elmendorf Air Force Base, and Lake Hood Seaplane Base. Deicing activities use different chemicals for different applications, and all of the deicing materials or their breakdown products eventually migrate into Cook Inlet (NMFS 2008).

In addition, Knik Arm is not on the Clean Water Act, Section 303 (d) list of impaired water for any parameter, indicating the stringent water quality requirements noted above are very successful. While we believe that this PCE is unnecessary given the current conditions of water in Cook Inlet, we encourage NMFS to use the best available science and relevant research to make decisions, such as NCHRP Report 474 regarding bridge deck runoff.

“Absence of Noise”

In general, there is a lack of consistency in NMFS’s handling of noise. This lack of consistency is also apparent within the proposed rule. Throughout the Proposed Rule (74 FR 63080), the NMFS is not clear on whether impacts on PCE 5 should be assessed with regard to abandonment, acoustic harassment, or harm. On page 63087 of the Proposed Rule, PCE 5 is defined as “absence of in-water noise at levels resulting in the abandonment of habitat by Cook Inlet beluga whales.” The NMFS also states on page 63088 of the Proposed Rule: “We consider the threshold for acoustic harassment as to be 160 dB re: 1 μ Pa for impulsive sounds (e.g., pile driving) and 120 dB re: 1 μ Pa for continuous noise.” and “Because of the importance of the ability to use sound to Cook Inlet beluga whales, the absence of in-water noise at levels harmful to the beluga is an essential feature that may require special management.” These three before-mentioned statements provide different direction measures to determine if a project would impact critical habitat. The issue is further compounded, because the NMFS does not define “absence of noise,” “abandonment,” or “harm.”

When considering the “absence of in-water noise it is important to note that the NMFS has never finalized acoustic threshold criteria for impacts of noise on marine mammals (70 FR 1871). The NMFS indicates that generic sound exposure thresholds have been used since 1997 to determine when an underwater signal might result in impacts to a marine mammal, such that a take by harassment might occur (an ‘acoustic’ take). In 2005, the NMFS announced its intent to prepare an EIS analyzing the potential impacts of applying new criteria in guidelines to determine what constitutes a “take” of a marine mammal under the MMPA and ESA (70 FR 1871). To date, a draft EIS has not been issued. The NMFS argues that these new science-based thresholds would serve to improve and replace the current generic exposure level thresholds (70 FR 1871).

Currently, the NMFS uses underwater “do-not-exceed” criteria for exposure of marine mammals to various underwater sound sources.

Level A Harassment – injury by continuous or impulse noise: 180 dB re 1 μ Pa rms for cetaceans; 190 dB re 1 μ Pa rms for pinnipeds

Level B Harassment – harassment by impulse noise: 160 dB re 1 μ Pa rms

Level B Harassment – harassment by continuous noise: 120 dB re 1 μ Pa rms

These standards are used unless otherwise stipulated, such as the current case for a number of entities like the U.S. Navy (DoN 2009) or the Port of Anchorage (NMFS 2009). The current guidelines do not take into account whether the signal is perceptible to the animal. The criteria also do not differentiate potential auditory harm by duration of exposure, where increased duration typically results in increased impairment. For example, a 180 dB re 1 μ Pa signal is considered a Level A take, whereas an exposure of two hours to a 178 dB re 1 μ Pa signal is classified as a lesser Level B take, regardless of the increased harm of the later signal.

The NMFS is currently considering revisions to these thresholds based on recent scientific research. For example, Southall et al. (2007) theorized that beluga whales subjected to a single pulse or multiple pulse events will not be injured at SPLs of less than 230 dB re 1 μ Pa. The NMFS has projected that these new criteria would replace the current Level A and Level B harassment thresholds with guidelines based on exposure characteristics derived from empirical data and tailored to particular species groups and sound types. The NMFS envisioned the noise exposure guidelines to be based on a set of criteria, many of which were addressed in Southall et al. (2007). The NMFS describes six possible acoustic threshold criteria alternatives (70 FR 1871).

These proposed criteria alternatives may vary greatly from current acoustic criteria, as related to Cook Inlet belugas. Under one of the NMFS' proposed alternatives (based on estimated levels for permanent threshold shifts and measured temporary threshold shifts in belugas and bottlenose dolphins (*Tursiops truncatus*) (Finneran et al 2002) with reductions of those levels by 6 dB), the proposed criteria would be 209 dB re 1 μ Pa²(s) and 189 dB re 1 μ Pa²(s) for Level A and Level B takes, respectively (70 FR 1871).

Uncertainty in appropriate noise threshold criteria is also evidenced in the NMFS' decision to not use noise as a PCE for consideration in designating critical habitat for the DPS of the killer whale (*Orcinus orca*), known as the Southern Resident killer whale (SRKW) (71 FR 69054):

"We acknowledge the many observations about the potential for sound to startle or even physically injure killer whales. These effects, however, are direct effects to the animal itself and not to its habitat....Continuous sounds may interfere with the whales' echolocation and communication. At this time, however, we lack sufficient information to include sound as a PCE of killer whale critical habitat" (71 FR 69055).

Yet, when similarly considering critical habitat designation for beluga whales in the Cook Inlet they include sound as a PCE. It seems that designating "absence of noise" as a PCE would be just as inappropriate for beluga whales, as it is for SRKW. It seems that at this time, information is just as insufficient to designate "absence of noise" for Cook Inlet beluga whale, as it is for SRKW.

Additionally, the "absence of noise" has not been defined in the proposed rule. A definition for the "absence of noise" is important because Cook Inlet beluga whales already live in a noisy environment. These high levels of ambient noise do not appear to be aversive to the animals, as evidenced by their continued usage of the Cook Inlet. High levels of ambient noise do not currently deter beluga whales from important habitat, including feeding grounds. Ambient underwater noise levels throughout the Cook Inlet are both variable and high, primarily because of natural and anthropogenic reasons. Natural causes of high ambient noise include extreme tidal activity, high winds and seasonally the presence of ice. Anthropogenic sources include vessel activity, construction (including pile driving), noise, oil and gas drilling and production, marine seismic surveys, dredging, and air traffic. Ambient noise from naturally occurring sources is generally highest during the rising tide and during periods of strong winds. Additionally, the variable bottom composition (sandy, muddy, or rock-covered) and shallow depth of the Cook Inlet combine to produce a complex acoustic transmission environment further resulting in a highly variable ambient noise field.

The NMFS states:

"We consider 'quiet' areas in which noise levels do not interfere with important life history functions and behaviors...to be an essential feature of this critical habitat. This feature is found in both areas 1 and 2" (74 FR 63080).

The NMFS needs to define and identify quiet areas. Measured ambient noise levels in throughout the Cook Inlet range from 80 to 150 dB re 1 μ Pa (Blackwell and Greene 2002; Blackwell 2005; URS 2007; SFS 2009). Underwater acoustical studies conducted in the Knik Arm (Area 1 in Proposed Rule) have

recorded ambient noise levels near or above 120 dB re 1 μ Pa (Blackwell and Greene 2002; Blackwell 2005; URS 2007; SFS 2009). The higher noise levels in that area range up to 150 dB re 1 μ Pa in industrial areas. SFS (2009) reported very high ambient noise levels near the Port of Anchorage, ranging from 120 to 150 dB re 1 μ Pa, with a mean of 133 dB re 1 μ Pa. During the 6 hours that SFS sampled the ambient noise, the noise levels were at or below 120 dB for only 1.4 percent of the time. At the northern end of the Knik Arm, away from significant industrial noise sources, the ambient noise levels were approximately 95 to 112 dB re 1 μ Pa. Blackwell and Greene (2002) recorded broadband ambient levels in Cook Inlet in 2001 at eight locations in Knik Arm and the main body of the Cook Inlet with and without industrial noise. Ambient noise levels remote from industrial activity ranged from approximately 95 dB re 1 μ Pa at Birchwood in Knik Arm and 100 dB re 1 μ Pa the mouth of the Little Susitna River in the main body of the Inlet to approximately 120 dB re 1 μ Pa for locations near Elmendorf Air Force Base and north of Point Possession. The high ambient noise level north of Point Possession was recorded during the incoming tide. This follows a common pattern throughout the Cook Inlet -- the extraordinarily high tides can generate high ambient noise levels.

III. Economic Impacts, Draft RIR 4(b)(2) Analysis Comments

The Draft Regulatory Impact Review (RIR) prepared for NMFS is deficient and does not adequately quantify the costs and benefits of the proposed CHD nor the impacts of the proposed action on each group affected. EO12866 requires that OMB review proposed regulatory programs that are considered to be significant. Significant is further defined as having an annual effect on the economy of \$100 million or more or adversely affecting in a material way the economy, productivity, competition and jobs, among others.

KABATA provided comments in May 2009 to NMFS regarding the potential impacts on the regional economy and the Project if the CHD and PCEs were to delay or alter the Knik Arm Crossing Project. Those comments were not addressed by NMFS or their consultant, Entrix, in formulating the Draft RIR. Instead, Entrix contacted the Anchorage Metropolitan Area Transportation Solutions, or AMATS, the Anchorage Metropolitan Planning Organization, and arrived at a conclusion that the Knik Arm Bridge would not be constructed within the 10-year time horizon under evaluation. KABATA, a public corporation and component unit of the State of Alaska, is the Project owner. KABATA was not contacted to discuss the Project status and timing, nor the comments and socio-economic study it provided, although it offered a briefing to Entrix on several occasions.

The Knik Arm Crossing was and is included in the State Transportation Improvement Plan, the AMATS Transportation Improvement Plan and Long-Range Transportation Plan, or LRTP (in the short-term portion of the LRTP). The Project is of regional significance, and the State of Alaska has stated that the Knik Arm Crossing is a priority project. The Alaska Department of Transportation and Public Facilities has recently written the Mayor of Anchorage that the Project is a State priority and that it does not support delay of the Project by moving it into the long term portion of the AMATS LRTP. Further, the State of Alaska and FHWA have invested approximately \$50 million in developing the Project and completing preliminary engineering and NEPA requirements. NMFS and their consultant disregarded the best available commercial data as to the potential timing of the bridge Project and thereby avoided addressing the comments and socio-economic study provided to them by KABATA in the May 2009 comment period and incorporating those comments into the Draft RIR/4(b)2 analysis.

Because NMFS has stated that the five PCEs may require special management considerations or protections and that those would be determined in a subsequent rulemaking, it is very difficult for KABATA to determine Project or societal economic impacts. Impacts that could add to Project and socio-economic costs (beyond the cost of consultation) include modified construction techniques, delays to the Project opening, and loss or delay of use and the resultant societal costs.

Management considerations or protections to be implemented in subsequent rulemaking that are presently unknown to government or industry in the region could result in costly Project and societal economic impacts. For example, protections could result in work stoppages and seasonal down time during construction when belugas are present in the area, as well as requiring more expensive construction techniques being adopted to minimize negative impacts to PCEs. If for example the requirements of the proposed critical habitat designation and special management considerations or protections for the proposed PCEs results in a one year delay to opening the Knik Arm Crossing Project, the quantifiable economic costs to KABATA and the State of Alaska, as Project owner, could amount to an estimated \$97.1 million, including the following:

Project Economic Impacts:

- \$25.0 million estimated inflation cost effect for one-year of delay²;
- \$50.0 million in more expensive construction techniques, shutdowns, and beluga monitoring costs³;
- \$20.1 million in one-year of delayed toll revenue⁴;
- \$2.0 million in professional and engineering support for consultation costs⁵.

The quantifiable economic costs of a one-year delay to the Knik Arm Crossing Project to the citizens of Alaska, as beneficiaries of the bridge infrastructure, are estimated at \$336.9 million, including the following monetary and intangible environmental costs:

Socio-Economic Costs to Alaskans:

- \$35.9 million of additional vehicle operating costs for one-year delay in opening⁶;
- \$66.1 million value of 3.8 million hours of time lost driving⁷;
- (\$20.1) million savings from avoided tolls⁴;
- 9.3 million gallons of additional fuel consumed unnecessarily, increasing dependence on oil⁸;
- 85.1 million metric tons of carbon emissions that could have been avoided⁹;
- \$255.0 million in lost wages because of deferring for one year 5,000 jobs enabled by the bridge,¹⁰

² FHWA Major Projects Cost Estimate Review by PBS&J estimate of annual cost impact of inflation.

³ HDR, PND and KABATA Chief Engineer estimate.

⁴ Wilbur Smith Associates ([WSA](#)) [Final Draft Traffic & Toll Revenue Forecast September 2007](#) base case toll revenue in opening year.

⁵ KABATA estimate of incremental consulting support costs.

⁶ [WSA Bridge Travel Savings Letter May 30, 2008](#) (assuming \$3.53 per gallon of gasoline for additional vehicle operating costs).

⁷ [WSA Bridge Travel Savings Letter May 30, 2008](#) and [RSG Knik Arm Stated Preference Traffic Survey Report](#).

⁸ [WSA Bridge Travel Savings Letter May 30, 2008](#) miles of travel assuming 22.5 miles per gallon for passenger vehicles and 6.7 miles per gallon for commercial vehicles (EPA fleet average and CAFE Standards and fleet turnover statistics applied).

⁹ [WSA Bridge Travel Savings Letter May 30, 2008](#) and EPA carbon per gallon of gasoline and diesel consumed time gallons of fuel consumed weighted for fleet average diesel and gasoline mix.

- Reduced competitiveness because of limited transportation infrastructure for the movement of people and freight.

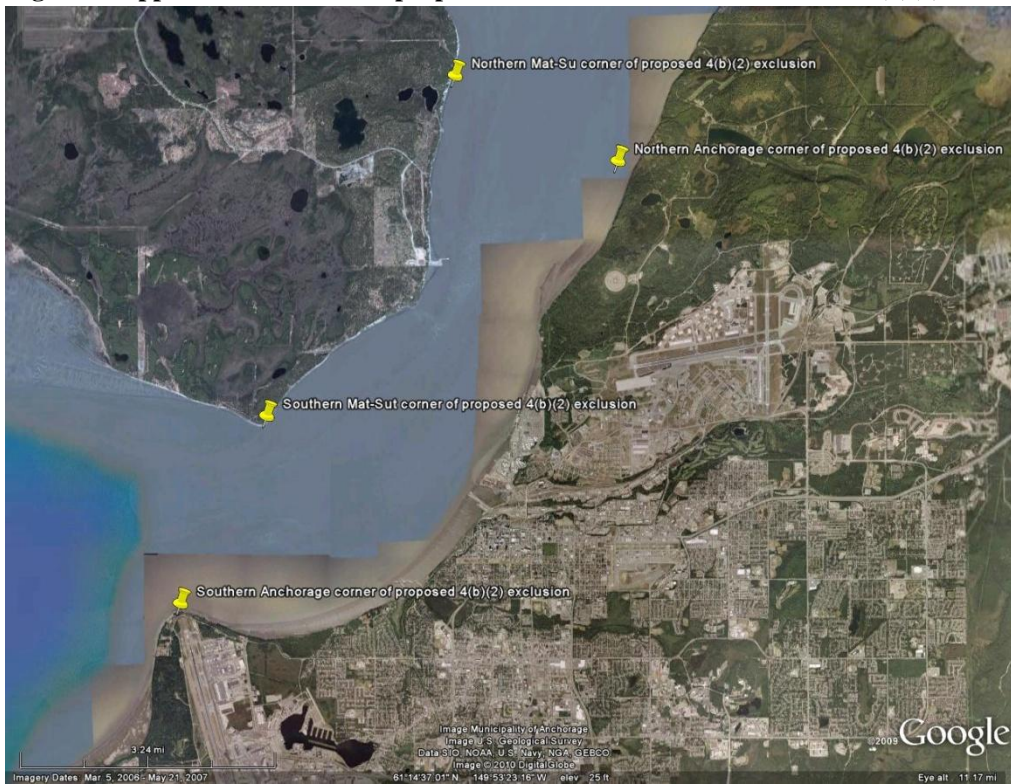
Delays of over a year, if they were to occur because of the CHD or management considerations or protections for the PCEs would only increase these potential net negative economic impacts on the region. (footnoted documents are incorporated herein by reference)

In the nearby vicinity of the proposed bridge, 53% of Alaska's population resides within the Anchorage MSA (Anchorage and Mat-Su). The POA received about 90% of the freight to the State serving 85% of Alaskans – people not served by an interstate highway system like the contiguous 48 states. Port MacKenzie and its industrial district are directly across the inlet. The two ports and associated deep water shipping channel are a couple of miles to the south of the proposed bridge. NMFS has proposed designating 3,016 square miles of the 8,000 square mile Cook Inlet, primarily in the most populated northern portion of the Inlet where over 60% of the State's population resides (Kenai Borough and the Anchorage MSA). This is the economic and population hub of Alaska. NMFS has not demonstrated that the proposed critical habitat is threatened or that the status of the PCEs in the Inlet is not healthy. To the contrary, NMFS own studies show that Cook Inlet belugas are fat and healthy with among the lowest toxicity levels recorded in the species anywhere in the world. Only subsistence overharvest during the 1990s and, possibly, predation by killer whales have been cited as cause of the decline in stocks and the population of Cook Inlet belugas has rebounded since the subsistence harvest was curtailed.

As urged in our comments submitted in May, 2009, the Secretary should consider excluding an economic corridor from CHD under Section 4(b)(2) of the ESA in the vicinity of the proposed Knik Arm Bridge, the POA, Port Mackenzie, and the nearby deep water shipping channel because the potential detrimental economic impact of CHD to these facilities and the Alaskans they serve will likely be substantial and significantly outweighs the environmental benefits, which have been stated by NMFS in their proposed designation to be largely qualitative in the form of educational value and awareness created by the designation. We strongly encourage the Secretary to exercise his discretion under Section 4(b)(2) to exclude an economic corridor of approximately 15 square miles in this area because the economic costs significantly exceed the benefits of designating the area as CHD and such exclusion will not jeopardize the survival of the Cook Inlet beluga whales. The area KABATA recommends for exclusion under 4(b)(2) is depicted in the satellite map at Figure 1, below. This area represents about one-half of one percent of the proposed CHD and is bounded by approximately the described coordinates, more or less:

¹⁰ [Insight Research Corp. MSA Traffic and Toll Revenue Investment Grade Study: Independent Economic Overview & Development Forecast May 2007](#)

Figure 1: Approximate bounds of proposed economic exclusion zone under 4(b)(2)



Northern Mat-Su 61°18'0.47" N, 149°54'48.35" W
 Northern Anchorage 61°17'3.7" N, 149°51'4.71" W
 Southern Mat-Su 61°12'11.61" N, 150°01'6.14" W
 Southern Anchorage 61°12'59.27" N, 149°55'33.60" W

IV. Other Considerations

The FHWA and KABATA provided over \$2.7 million in funding to support research as applied to beluga whales in the area. Research funded by FHWA and KABATA combined with the NMFS survey data and satellite-tagging efforts have made important contributions to the general understanding of beluga (and other marine mammal species) occurrence in upper Cook Inlet. The following table provides an overview of marine mammal-related research funded by KABATA to date. (all of which is incorporated by reference)

Description of research
Beluga whale research in Knik Arm (Funk et al. 2005)
Beluga whale research in Eagle Bay and the Sixmile Area (Ireland et al. 2005)
Beluga whale behavior in relation to in-water structures (KABATA 2010)
Marine fish and benthos studies in Knik Arm (Houghton et al. 2005)

V. **Summary and Comments on the Proposed Rule for Critical Habitat Designation for the Cook Inlet Beluga Whale (74 FR 63080)**

1. The NMFS is utilizing limited, outdated information for CHD for the Cook Inlet beluga whale.
2. The NMFS expects the reader to blindly accept information and conclusions presented in the notice for proposed CHD. We suggest that the NMFS more fully support their arguments with examples, conclusions, and statements with citations to the literature on beluga whales.
3. Some of the PCEs have not been adequately defined by the NMFS and/or rely on hypotheses/modeling instead of defined parameters. We suggest that the NMFS update this information to include defined parameters.
4. The NMFS included a comprehensive list of prey species for the beluga whale. In addition to the species identified, we suggest that the NMFS add pink salmon to the list.
5. The Proposed Rule repeatedly refers to unpublished data and provides generalized statements. We suggest that the NMFS provide more information about the “primary prey species” and ensure that the Final Rule accurately describes the prey species types.
6. We suggest that the NMFS provide explicit details about prey species where applicable. For example, the statement “[t]hese regulatory efforts indicate that these four fish species may require special management considerations or protection” (74 FR 63080) is made; however, the reader is left to wonder, to which four species the agency is referencing and what specific considerations and protections are required.
7. Emphasis is made in the Proposed Rule about the primary prey species that are exploited during “summer/ice-free periods” (74 FR 63080). We suggest that the NMFS also address winter and ice-prone periods as a review of the literature, and particularly by TEK accounts, demonstrate that beluga whales feed year-round.
8. We suggest that the NMFS provide the appropriate supporting documentation that the potential exists that certain prey resources may be “overexploited” and that the “overexploitation” is either negatively impacting or has the potential to affect Cook Inlet beluga whales.
9. The NMFS implies that the existing State and Federal fisheries management plans are not adequate and that beluga prey species require special considerations and protection. We suggest the NMFS address the disparity between the NMFS, conclusions and the State of Alaska’s comments and provide citations to support their conclusions.
10. The proposed designation for Cook Inlet beluga whale critical habitat appears to place a moratorium on construction of any infrastructure in Upper Cook Inlet. “Manmade structure” is vague, and we suggest that the NMFS actually include the footprint (i.e., acoustic), similar to an exclusion buffer. Since construction has mitigation/monitoring zones, we suggest that the NMFS treat new construction that is not currently permitted similarly (i.e., application of exclusion buffer).
11. Portions of the analysis related to critical habitat and PCEs in the Proposed Rule appear to be contradictory. We suggest that the NMFS ensure that the information presented is consistent.
12. The NMFS indicates that all PCEs may require special management considerations or protections; yet, they do not establish what this statement means. We suggest that the NMFS expand on the special considerations and protections and discuss how the environmental regulations already in place (ex. MMPA, ESA, etc) are not adequate.
13. There is a lack of consistency in how the NMFS has handled noise as a PCE (or potential PCE) for marine mammals. We suggest that the NMFS revise the critical habitat to be consistent with other marine mammal CHDs.

- VI. Although the NMFS commissioned a regulatory impact review (RIR), the draft economic analysis does not adequately address and analyze proposed activities in Cook Inlet. Furthermore, there is inconsistency between the draft RIR and the Proposed Rule. We recommend that NMFS revise the draft RIR and correct or clarify inconsistencies between the

- two documents for the final RIR and Final Rule. Additionally, we recommend that the Secretary consider designating an economic excluded area under Section 4(b)(2) of the Act as further described under III Economic Impacts, Draft RIR 4(b)(2) Analysis Comments.
14. A review of the Proposed Rule indicates that the NMFS is using the proposed CHD to address water quality concerns in the region. We consider this conservation measure to be outside the purview of the ESA.
 15. The five fish species identified in the Proposed Rule have EFH designated in Cook Inlet. Thus, the NMFS is overlapping requirements of the ESA with the Magnuson-Stevens Fishery Conservation and Management Act (MSA). We recommend that the NMFS address this duplication of effort and management.

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