

MARINE MAMMAL COMMISSION  
4340 EAST-WEST HIGHWAY, ROOM 700  
BETHESDA, MD 20814-4447

19 February 2008

Ms. Betty Fauber  
Administrative Director, KABATA  
550 West 7th Avenue, Suite 1850  
Anchorage, AK 99501

Dear Ms. Fauber:

On 17 November 2006 the Marine Mammal Commission commented on the Knik Arm Crossing Draft Environmental Impact Statement (DEIS) as it pertained to marine mammals that occur in Alaska and that might be affected, directly or indirectly, by the construction and use of the proposed Knik Arm bridge (see attached). The Commission also has reviewed the more recent final environmental impact statement (FEIS) on the proposed bridge and provides the following related recommendations and comments.

## RECOMMENDATIONS

The Marine Mammal Commission recommends that—

- the Knik Arm Bridge and Toll Authority and Federal Highway Administration refrain from making any irreversible or irretrievable commitment of resources related to bridge construction until the uncertain but potentially significant impact of bridge construction and use can be evaluated and the Administration can make an affirmative finding that such activities, once mitigated, will not have a more than negligible impact on the Cook Inlet beluga whale stock; and
- in view of the pending proposed rule to list the Cook Inlet beluga whale stock under the Endangered Species Act, the Knik Arm Bridge and Toll Authority initiate, in collaboration with the Federal Highway Administration, a conference with the National Marine Fisheries Service under 50 C.F.R. § 402.10 to evaluate the potential effects of bridge construction and use on this stock.

## RATIONALE

The FEIS identifies five marine mammal species that may occur in the project area. However, like the DEIS, it focuses on the Cook Inlet beluga whale stock in its assessment of the possible effects of the proposed bridge construction. This focus is appropriate because beluga whales are the marine mammals most commonly found in the proposed project area. The focus on this stock also is appropriate because it has been designated as depleted under the Marine Mammal Protection Act and has been proposed for listing as endangered under the Endangered Species Act.

Construction and use of the bridge may have a number of adverse effects on the Cook Inlet beluga whale stock. These include disturbance from the noise associated with pile driving and other construction activities. This noise might also mask natural sounds used by beluga whales for

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communication, navigation, and predator detection. The disturbance from noise may lead to alteration of habitat-use patterns, particularly in the transit corridors into and out of Knik Arm; changes in the distribution and abundance of prey resulting from changes in bottom topography and currents in the inlet; increased risk of stranding; disturbance and risks of collisions associated with increased vessel activity; and disturbance from increased use of the Knik Arm resulting from greater access to the northwestern shore of the Knik Arm area.

Unmanaged subsistence harvesting contributed significantly to the beluga whale stock's decline prior to 2000. However, the stock has not recovered as expected since the harvest was brought under management. Its failure to recover has not been explained and may reflect the combined influence of multiple risk factors. The best available evidence indicates that the stock is continuing its decline, which suggests that it is not able to tolerate yet another risk factor.

Over the past several decades, managers have repeatedly misjudged the status of this stock and its resilience. Initially, the stock's tolerance for subsistence harvesting was overestimated. Managers then incorrectly assumed that such harvesting was the only factor that needed to be taken into account to bring about recovery. After the stock failed to respond as predicted, managers identified a number of other potential risk factors but, to date, a rigorous research and management program to conserve the stock has not been established. Given the severely reduced state of the stock, we believe it has no tolerance for further misjudgment.

This current situation seems to exemplify the kind of dilemma that Congress sought to address in 1972 and 1973 when it passed the Marine Mammal Protection Act and the Endangered Species Act. From an ecological and conservation perspective, the benefits of delay in constructing the bridge far outweigh the costs. A number of the potential risks to the Cook Inlet beluga whale stock are amenable to scientific investigation. If given adequate support, such investigation should reduce the uncertainty regarding potential effects and provide the information needed to devise mitigation measures to ensure that human activities in Cook Inlet have no more than a negligible impact on the stock. The Marine Mammal Commission is in the process of publishing a report on the need for additional research funding for the most endangered marine mammal taxa in U.S. waters, including the Cook Inlet beluga whale stock, and we will forward a copy of the report to you as soon as it is available.

Absent such investigation, any conclusion that construction and operation of the proposed Knik Arm bridge will have a negligible impact on Cook Inlet beluga whales would necessarily be based on speculation, as is evident from the lack of definitive data in both the DEIS and the FEIS. We believe such a conclusion is inconsistent with the requirements of the Marine Mammal Protection Act and would create a substantial risk of extending the pattern of misjudgments about (a) stock status, (b) threat factors, (c) adequacy of research, and (d) adequacy of management measures to ensure recovery.

Loss of this stock would clearly constitute a significant and likely irreversible degradation of the Cook Inlet ecosystem. All other beluga stocks in Alaska waters are geographically separated from this region by the Alaska Peninsula, and recolonization could take centuries or more, if it were to

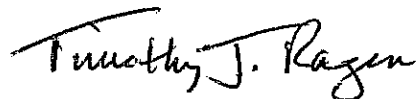
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occur at all. At a time when marine mammals in Alaska waters are already vulnerable to multiple adverse effects of human activities, we believe a reasonable measure of caution is needed. For all these reasons, the Marine Mammal Commission recommends that the Knik Arm Bridge and Toll Authority and the Federal Highway Administration refrain from making any irreversible or irremediable commitment of resources related to bridge construction until the uncertain but potentially significant impacts of bridge construction and use can be evaluated and the Administration can make an affirmative finding that such activities, once mitigated, will not have a more than negligible impact on the Cook Inlet beluga whale stock.

In addition, as we have indicated to the National Marine Fisheries Service and others, the Commission believes that the Cook Inlet stock of beluga whales warrants listing under the Endangered Species Act. Based on its rapid decline, small size, failure to recover, and vulnerability to poorly understood and unmanaged or poorly managed risk factors, this stock has an elevated risk of extinction and is in need of the protection provided under the Endangered Species Act. Although the National Marine Fisheries Service has yet to make its final decision on the proposed listing of the stock, publication of the proposed rule is sufficient to trigger the conference requirement set forth under 50 C.F.R. § 402.10, which is designed to help ensure eventual compliance with section 7 of the Endangered Species Act, should the listing be finalized. Such a conference should be designed to provide a more robust framework for evaluating potential effects of bridge construction and use, will help identify key areas of research to characterize risks, and will help identify measures to avoid or minimize those risks. To that end, the Marine Mammal Commission recommends that the Knik Arm Bridge and Toll Authority work with the Federal Highway Administration and initiate a conference with the National Marine Fisheries Service under 50 C.F.R. § 402.10 to evaluate the potential effects of bridge construction and use on this stock.

Please contact me if you have any questions concerning these recommendations and comments.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director

Enclosure

cc: Mr. Andrew J. Niemiec, Executive Director, KABATA  
Mr. John Lohrey, Field Operations Engineer, FHWA

MARINE MAMMAL COMMISSION  
4340 EAST-WEST HIGHWAY, ROOM 905  
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17 November 2006

Ms. Edrie Vinson  
Environmental Project Manager  
Federal Highway Administration  
709 W. 9th Street, Room 851  
P.O. Box 21648  
Juneau, AK 99802

Dear Ms. Vinson:

The Marine Mammal Commission is an independent federal agency charged with developing, reviewing, and making recommendations on domestic and international actions and policies of all federal agencies with respect to marine mammal protection and conservation. As such, the Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the portions of the Knik Arm Crossing Draft Environmental Impact Statement (DEIS) that pertain to marine mammals and provides the following comments.

The DEIS identifies five marine mammal species that may occur in the project area but focuses on the Cook Inlet beluga whale in its assessment of the possible effects of the proposed bridge construction. This focus is appropriate given the extent to which beluga whales utilize the project area and the status of the Cook Inlet beluga whale stock, which has been designated as depleted under the Marine Mammal Protection Act and which is a candidate for listing under the Endangered Species Act.

The DEIS discusses several possible impacts to beluga whales from bridge construction. These include disturbance from pile driving and other construction activities; masking of natural sounds used by beluga whales for communication, navigation, and predator detection; alteration of habitat-use patterns, particularly in the transit corridors into and out of Knik Arm; changes in the distribution and abundance of prey; increased risks of stranding; disturbance and risks of collisions associated with increased vessel activity; and disturbance from increased use of the Knik Arm area.

Although the DEIS has identified most of the possible sources of impact, by and large, the analyses of those factors largely discount the potential effects on the Cook Inlet beluga whale population. Among the conclusions reached in the DEIS are that—

- beluga whales are likely to continue to transit through the construction area to preferred habitat farther up Knik Arm,
- noise-related disturbance would not be permanent and is not expected to have long-term effects,
- “many” beluga whales would habituate to sound pressure levels of 160-170 dB near the construction site and would not significantly change their behavior or distribution,

- there is only a "small chance" that the risks of strandings would increase,
- the intermittent nature of the noise from impact pile driving and other construction activities will reduce the importance of masking,
- the frequencies resulting from vibratory pile driving and other activities are above the range used by beluga whales and are unlikely to cause masking,
- beluga whales are habituated to the presence of both large and small vessels, with no apparent adverse effects,
- beluga whales are expected to adapt to vehicular traffic resulting from bridge construction and would continue to frequent the area,
- increased use of the shoreline resulting from the bridge would have no adverse impact on beluga whale behavior in nearshore waters, and
- the proposed mitigation measures will reduce the potential adverse impacts of bridge construction on beluga whales to negligible levels.

Except for a brief acknowledgement in the summary conclusions (pp. 4-310 to 4-312) of possible cumulative effects of bridge construction in combination with other factors, the DEIS does not discuss the potential for these bridge-related activities cumulatively to have significant adverse impacts on beluga whales.

Some of the optimistic conclusions made in the DEIS may stem from a basic misunderstanding of the status of the Cook Inlet beluga whale. On page 3-209, the DEIS notes that the population declined precipitously between 1994 and 1998 but states that "[f]or the past several years the population is thought to have stabilized, with an estimated 300 to 500 beluga whales now inhabit[ing] Cook Inlet." This assessment of the population and its trends is in stark contrast to the conclusions reached in a recent study published by IUCN-The World Conservation Union, which found the population to be "critically endangered" (Lowry et al. 2006).

Using data from the National Marine Fisheries Service's abundance surveys conducted since 1994, the IUCN assessment found there to be a 95 percent probability that the population numbers between 278 and 388 animals and, using the mode of that distribution (329), it estimated that there are only 207 mature individuals in the population. The assessment also found that "the underlying growth rate is so low that there is a 71% probability that if present conditions persist the population cannot withstand any take, and will decline in the future." The assessment concluded that "Cook Inlet belugas face a suite of risks common to small populations, including those related to demographic, environmental, and genetic stochasticity, amplified by the tendency of belugas to return annually to specific areas and to congregate in compact herds." It also noted the limited knowledge of this population's ecology, life history, and reproductive potential, as well as the uncertainty regarding current factors adversely affecting the population and its habitat. All of these findings demonstrate the precarious situation of Cook Inlet beluga whales.

Based on the IUCN assessment, the population's abundance is significantly lower than indicated in the DEIS and has not "stabilized." In fact, the population has declined since 1998 and, in all likelihood, is continuing to decline even without additional stressors such as construction of a

large bridge in the vicinity of one of the key habitats used by the population. To provide decision-makers with the best possible understanding of the status of this population, it is essential that the DEIS be revised to include the more accurate assessment of population trends in the IUCN study and to incorporate the most recent population estimates resulting from annual surveys conducted by the National Marine Fisheries Service. In this regard, it is expected that the 2006 estimate will be published in the next few months. The analyses also should discuss the existing risks to the beluga whale population in Cook Inlet generally and recognize that any additional perturbations might exacerbate an already dire situation. Until we have a better understanding of the factor or factors that are causing or contributing to the ongoing decline, it is inappropriate to assume that the effects of additional sources of disturbance and habitat modification can be discounted.

The Commission also questions whether the mitigation measures proposed on pages 4-245 and 4-246 of the DEIS will be sufficient to bring the bridge construction project into compliance with the requirements of the Marine Mammal Protection Act. The Commission has addressed these points in separate comments submitted to the National Marine Fisheries Service in response to a 23 August 2006 *Federal Register* notice describing the Knik Arm Bridge and Toll Authority's (the KABATA) request for an incidental take authorization. We enclose a copy of our 22 September 2006 letter so that these points can be considered in the context of the DEIS as well. One of the issues raised in our comments was the need for site-specific information sufficient to predict the reactions of beluga whales at the proposed bridge site and in adjacent areas. KABATA has begun to collect some of the needed information through the one-year study of beluga whale movements in Knik Arm and at the proposed construction site conducted by LGL Alaska Research Associates, Inc., as referenced on page 3-210 of the DEIS (LGL 2006).

Although this is a good start, the Commission questions whether data from a single year are sufficient to draw generally applicable conclusions about beluga whale habitat-use patterns in and around Knik Arm. In addition, at least some of the results of the LGL studies may not be as clear-cut as portrayed in the DEIS. For example, the conclusion that "beluga use of Knik Arm is infrequent during mid-December-March" may be an artifact of several possible biases in the studies. Among other possible explanations for the observed results were that (1) there was less sighting effort at many locations during the winter (none at West Crossing and Fort Richardson; see p. 4-3 of the report), (2) sighting conditions were recorded as being poorer during that period, December-March (see p. 4-9 of the report), (3) sea ice was present during November-February, which likely reduced detection rates (see p. 4-9 of the report), and (4) the surfacing behavior of whales changed beginning in November in such a way that it would likely reduce sighting rates (see p. 5-47 of the report). These factors suggest that the LGL shore-based observations may not provide an unbiased measure of seasonal whale occurrence. Furthermore, figure 4-7 of the LGL report indicates that the mean estimated maximum sighting distances for shore-based observers are in the range of four to five miles. The report does not explain how these distances were determined, but they are at odds with those reported by other observers. Beluga whales more than a mile from the centerline of a transect are hard to detect from an aircraft at an altitude of 1,000 feet. Even at closer distances, detection drops off sharply in conditions of Beaufort 2 or greater (small wavelets) (DeMaster et al. 2000).

A better indication of beluga whale distribution that is not susceptible to the problems associated with shore-based sighting effort is the satellite tracking data reported by Hobbs et al. (in press). These researchers found that beluga whales use Knik Arm in all months from August through March.

Additional insight into beluga whale distribution and habitat use patterns may be gleaned from another recent study, Goetz et al. (in press). This study, which examined beluga whale habitat-use patterns in Cook Inlet based on proximity to various environmental features, identified all of Knik Arm, including the area around the proposed construction site, as high-use areas.

In light of the biases identified in the LGL report and the other sources of information noted above, the Commission believes that the DEIS places too much faith in these shore-based observations for describing beluga whale distribution and movements within Knik Arm and around the project area. A more complete and up-to-date description is needed.

#### Specific Comments

Page 3-209, third par. – The final sentence of this paragraph notes that the “Study Area” falls within habitats identified by the National Marine Fisheries Service as “High Value/High Sensitivity” and “High Value.” This discussion should be expanded to explain the features that make this such valuable habitat.

Page 3-211, first par. The final sentence in this paragraph indicates that the Federal Highway Administration is seeking an incidental take authorization from the National Marine Fisheries Service. The placement of this statement here suggests that the take authorization is somehow related to the referenced marine fish and benthos studies or to obtaining fish samples in areas used by beluga whales. Presumably, the DEIS is referencing the authorization being sought for the taking of marine mammals incidental to the construction activities. If so, this needs to be clarified and probably warrants a separate paragraph.

Page 4-240, section 4.8.8.4.1, second par. – This final sentence should be revised to indicate that the Marine Mammal Protection Act prohibits the harassment of all marine mammals, not just beluga whales.

Page 4-240, section 4.8.8.4.1, fourth par. – In the first sentence, the drafters presumably meant that the Southern Alignment bridge is not expected to have adverse effects on harbor porpoises. In addition, as discussed in our comments to the National Marine Fisheries Service on the small-take request, it is not clear that takings would be limited to Level B harassment or that the proposed construction activities would have no effect on beluga whales.

Page 4-240, section 4.8.8.4.2, second par. – Despite this characterization, data presented in the referenced report (see p. 8-11, fig. 8-8) show a substantial amount of observed resting and feeding activity at the two sites closest to the project area. Thus, even if “most” sightings involved animals

transiting the area, a conclusion that the only impacts would be on beluga whale movements is unwarranted and likely inaccurate.

Page 4-242, third par. – This paragraph concludes that “[d]isplacement of beluga whales by noise... would not be expected to have long-term effects.” Further explanation is needed. This population is small and declining, and it needs to be recognized that a season or two of reduced nutrition/productivity could have serious population-level consequences, even if it resulted in only a small decrease in the number of births that would have occurred otherwise.

Page 4-243, second full par. – This paragraph concludes that there is a “small chance” that belugas could be exposed to greater risks of stranding at low tide. The basis for concluding that the increased risk of strandings is small is not apparent from the discussion and should be provided. In addition, the DEIS should recognize that pile driving and other construction activities also may cause beluga whales to remain longer in deepwater areas than they might otherwise, thereby making them more susceptible to killer whale predation or other hazards.

Page 4-244, first par. – The first sentence states that little is known about beluga whale behavioral responses to pile driving. It would be more accurate to state that nothing about such responses is known.

Pages 4-244-245, carryover par. – The second sentence of this paragraph indicates that repeated exposure to noise associated with construction activities could change beluga whale behavior or distribution but not sufficiently to constitute Level B harassment. If KABATA is suggesting that some types of behavioral changes, particularly those that cause distributional shifts, do not constitute harassment under the Marine Mammal Protection Act’s definition of that term, the basis for that view should be provided. Further in this context, the DEIS should note that the applicable definition merely requires the “potential” for injury or disturbance that causes disruption of behavioral patterns.

Page 4-245, third full par. – This paragraph notes that incidents of beluga whale harassment are rarely reported and likely occur only sporadically. It does not necessarily follow that simply because they are not reported, they do not occur. Also, the logic of the final sentence escapes us. It would seem that incidents of harassment, both intentional and unintentional, would increase as human presence in an area increases, whether such incidents constitute violations of law or not. This is particularly true in an area such as Knik Arm, where access and enforcement capabilities are limited.

Page 4-310, last par., and page 312, first full par. – The DEIS concludes that “[c]umulative effects on one marine mammal, the beluga whale, could be substantial.” Likewise, the DEIS recognizes that the direct and indirect effects of the proposed activities, in combination with the impacts of other actions in the area, “would have an adverse cumulative effect on [the Cook Inlet beluga whale] population.” The Commission agrees with these assessments. Unless and until the impacts on the Cook Inlet beluga whale can be reduced to the point where they would have no more than a negligible impact on the stock, we do not see how an incidental take authorization under section



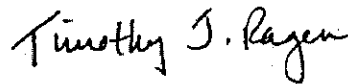
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101(a)(5) of the Marine Mammal Protection Act can be issued. As such, it is essential that the points raised in this letter and our comments to the National Marine Fisheries Service in the enclosed letter be addressed satisfactorily in both the EIS and in any proposed incidental take authorization.

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Please contact me if you have any questions concerning these comments.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director

References:

- DeMaster, D. P., L. F. Lowry, K. J. Frost, and J. A. Bengtson. 2000. The effect of sea state on estimates of abundance for beluga whales (*Delphinapterus leucas*) in Norton Sound, Alaska. *Fishery Bulletin* 99:197-201.
- Goetz, K. T., D. J. Rugh, A. J. Read, and R. C. Hobbs. In press. Habitat Use in a Marine Ecosystem: Beluga Whales in Cook Inlet, Alaska. *Marine Ecology Progress Series*.
- Hobbs, R., K. L. Laidre, D. J. Vos, B. A. Mahoney, and M. Eagleton. In press. Movements and area use of beluga whale, *Delphinapterus leucas*, in Cook Inlet, Alaska. *Arctic*.
- LGL Alaska Research Associates Inc. 2006. Baseline studies of beluga whale habitat use in Knik Arm, Upper Cook Inlet, Alaska, July 2004-July 2005.
- Lowry, L., G. O'Corry-Crowe, and D. Goodman. 2006. *Delphinapterus leucas* (Cook Inlet population). In IUCN 2006. 2006 IUCN Red List of Threatened Species.

Enclosure

cc: Mr. Henry Springer, Executive Director, KABATA