UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

September 7, 2006

Colonel Kevin J. Wilson
District Engineer
U.S. Army Corps of Engineers
P.O. Box 898
Anchorage, Alaska 99506-0898

Re: POA-2005-2019-2
Auke Nu Cove

Attn: Randal P. Vigil

Dear Colonel Wilson:

The National Marine Fisheries Service (NMFS) has reviewed the applicant's May 9, 2006 response to our March 10, 2006 review of a proposal to construct a commercial fishing gear and equipment storage area and associated loading ramp and float in Auke Nu Cove. NMFS received this response from the Corps via a letter on July 24, 2006. The response is a report entitled "Assessment of Potential Impacts to Eelgrass from a Proposed Float and Ramp in Auke Nu Cove, Alaska – Concept 7" by the Batelle Marine Sciences Laboratory. The applicant has now proposed another project concept, labeled Concept No. 8A, that does not include some of the mitigating features that were included in Concept 7 and thus the analyses of potential effects in the report are not directly applicable to the new proposal. The applicant proposes no mitigation for the direct loss of eelgrass and does not consider the effects of increased turbidity on eelgrass.

Given the certainty that this project will result in the loss of eelgrass habitat and other intertidal habitat at a sensitive and already impacted site, NMFS continues to recommend that the Corps deny this permit application. The alternative analysis should be revisited to evaluate the feasibility of options to reduce impacts to sensitive habitats.

Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NMFS on all actions that may adversely affect Essential Fish Habitat (EFH). NMFS is required to make conservation recommendations, which may include measures to avoid, minimize, mitigate or otherwise offset adverse effects. In accordance with Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS makes the following conservation recommendation:

> The permit for the project should be denied unless the applicant provides suitable mitigation for the direct loss of about 6000 ft^2 of eelgrass habitat, eelgrass habitat indirectly impacted from increased turbidity and sedimentation and the loss of unvegetated intertidal habitat. The mitigation plan should be submitted to NMFS for review, approved by the Corps, and required as a condition of the permit. NMFS staff continues to be available to assist with development of a mitigation plan.

Under section 305(b)(4) of the Magnuson-Stevens Act, the Corps is required to respond to NMFS EFH recommendations in writing within 30 days. If the Corps will not make a decision within 30 days of receiving NMFS EFH Conservation Recommendations, the Corps should provide NMFS with a letter within 30 days to that effect, and indicate when a full response will be provided.

Our technical comments on the applicant's report are enclosed. Please contact Susan Walker at (907) 586-7646 if you have any questions.

Sincerely,

Robert D. Mecum
Acting Administrator, Alaska Region

Enclosure
cc: Applicant
EPA Juneau, Chris Meade
ADF&G, Jackie Timothy
ADNR, USFWS, Juneau, Richard Enruquez
CBJ, Community Development, Peter Freer
CBJ Wetland Review Board, K Koski

National Marine Fisheries Service Comments on the "Assessment of Potential Impacts to Eelgrass from a Proposed Float and Ramp in Auke Nu Cove, Alaska – Concept 7.

The report discusses many of NMFS concerns, including discussion of many limitations of the model used to estimate the effects of the project on eelgrass habitat, but addresses many important issues incompletely. The project as currently proposed will have adverse effects to intertidal habitat, and both direct and indirect effects to important eelgrass habitat.

The project as originally proposed would include discharge of approximately 78,330 cubic yards of material into approximately 3.18 acres below the high tide line, construction of a 50-foot wide by 200-foot long pile-supported float connected to a 20-foot wide by 140-foot long concrete-decked, steel transfer bridge secured to the proposed fill by a 20-foot wide by 225-foot long pile-supported concrete-decked, steel causeway. A written description of the currently proposed project has not been provided to NMFS or the Corps with updated estimates of total wetland fill and other impacts and construction details. Concept 8A does not include floating booms and silt curtains that were intended to mitigate for prop wash and increased turbidity and does not propose any mitigation for the unavoidable impacts to eelgrass that would result from construction and operation of this proposed project. Major design changes from the original proposal to Concept 8A include use of open metal grate decking instead of concrete on the boarding float, reducing the surface area of the storage area by 15,000 square feet, adding a floating boom suspended between piles at the – 8' contour, installation of a "Keep Out" navigation sign to limit boat access to shallow eelgrass areas, and construction of a rip rap breakwater southwest of the landing craft ramp.

The paper acknowledges the many limits of the propeller model which are likely to underestimate the effects of propeller wash including failure to account for rudder effects. Though boats will clearly be turning and there will be rudder effects that increase the velocity of the jet through deflection, the increased erosional effects of rudder action are not estimated. The model is also limited by not accounting for another boundary effect on the jet plume as the model assumes the site is flat bottomed, yet the seafloor at this site is sloped. An upward slope will confine flows and increase velocity, exacerbating the effects of propeller wash. The model also does not account for variables such as prop pitch, blade shape, area rations, and number of blades – and only one propeller is modeled.

The analysis assumes on page 18, Figure 9 and on page 21 that the floating silt boom will be in place and will attenuate prop wash and storm surge. The floating silt boom is not currently being proposed by the applicant for Alternative 8a, although NMFS, the Corps and the applicant's engineer were all encouraged that this feature could mitigate for prop wash, attenuate storm surge, and reduce siltation on eelgrass if the curtain could be designed and built to withstand site conditions.

The report assumes that erosion threshold velocity was about 50 cm/s based on Thom et al (1996) from field studies conducted at the Vashon Island ferry terminal and in the laboratory. The applicant's report are suggests that because eelgrass has been found to grow in 50 cm/s flow speeds [and higher], that this particular bed should withstand those currents. This is inaccurate for several reasons. First, beds that occur in high current flows developed under those conditions and have attributes (patch shape, size and rhizome mat development) that are not found in beds that developed in quiescent areas. Thus, the ability

of a bed that develops in high current flows to resist prop wash would almost certainly be much greater than one that has developed under comparatively quiescent conditions.

Fonseca and Bell (1998) have demonstrated that the erosion threshold of fine sand in seagrass beds is much lower than 50 cm/s. Erosion of eelgrass beds tends to occur at bed margins - an effect not discussed or modeled here. An aperiodic heavy thrust and propeller wash can initiate bed margin erosion and lead to scarp development - which often pro-grades into and under the shallow eelgrass rhizomes. This is especially true if the return interval of such scour events is high. The "worst case scenario" as described in Figure 13 and the discussion of low water operations with the prop one foot off the bottom represents the likely effects of acute events such as when the wind is blowing, something goes amiss and extreme power must be applied to maintain control of the vessel. The cumulative impact of these excursion events will probably be the events that determine the long-term effects of the prop wash on the eelgrass bed.

Suspended sediment settlement times are estimated using post-suspension quiet water conditions that are unlikely to occur in the field setting, therefore settlement times are not realistic and are likely much longer than the estimated 28 hours to settle 20 feet. Chronic turbidity with reduced light penetration is likely to occur from boat operations at this facility as well as direct sedimentation of eelgrass. Eelgrass photosynthesis, like that of all plants, responds in a near-linear fashion to change in light. Therefore, time-averaged reductions in light availability due to increased turbidity will result in a corresponding decline in photosynthesis. Ecologically, this increased turbidity will reduce the depth to which eelgrass can grow, and the eelgrass bed will become smaller.

While the discussion of harbor flushing is likely correct in concluding that the flushing efficiency of Auke Nu Cove is likely quite high, page eight of the report states that there is no stream into Auke Nu Cove and thus density stratification would be related to rain and runoff and must be determined by physical or numerical experiments. This is inaccurate as a small freshwater stream does run through the estuarine habitat into Auke Nu Cove, however, the shoreline of southeast Alaska does have typical characteristic seasonal density stratification profiles and shallow water mixing profiles that are described for Auke Bay by Bruce et al (1977).

Tidal stages used in the model as agreed to by NMFS and the applicant were intended to be used to model prop wash as it was thought that boat operations at this tidal height would result in the greatest impacts to eelgrass. The report misinterprets this tidal stage to be the shallowest expected operation condition. Page 21 states that: "At P3, vessel is in 17 [below] MTL *the shallowest expected operation* though the threshold velocity of the sediment is exceeded for a distance of about 56 ft astern, *the silt barrier at about 35 ft blocks and deflects the propeller jet."* Operations are certain to occur at tidal heights resulting in water depths of less than 17 ft MTL at P3, resulting in increased suspension of bottom sediments, especially fines, and increased turbidity with detrimental effects on eelgrass. NMFS originally requested that sediment samples be collected from the bottom of Auke Nu Cove at the impact sites (and offered use of NOAA divers to collect the samples) from 17' MTL, but the sediment samples were collected from intertidal sites. It is likely that the bottom substrate at these subtidal sites is topped by a silt layer having a high proportion of fines, and operations at low tidal stages will result in suspension of these fine sediments with resulting increases in turbidity and sedimentation.

Bruce, HE; McLain, DR; Wing, L. 1977 Annual Physical and Chemical Oceanographic Cycles of Auke Bay, Southeastern Alaska. Technical Report NMFS SSRF-712, May. 14 p, 16 fig, 1 tab, 25 ref.