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

March 10, 2006

Colonel Timothy J. Gallagher
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 Gallagher

The National Marine Fisheries Service (NMFS) has reviewed the above referenced proposal to construct a commercial fishing gear and equipment storage area and an associated loading ramp and float in Auke Nu Cove. The project 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.

NMFS has previously expressed concern regarding the impact of development projects on remnant eelgrass within Auke Nu Cove. Eelgrass is defined as a special aquatic site under the Clean Water Act Section 404 (b)(1) guidelines. Eelgrass provides habitat for a large number of marine species as well as providing important feeding and cover for juvenile salmon. NMFS has mapped the eelgrass in the vicinity of the propose project (see enclosed figure). Eelgrass beds in Auke Nu Cove have decreased in area considerably due to the cumulative effects of development.

In addition to the Public Notice, NMFS also has reviewed the "Assessment of Potential Impacts to Eelgrass from a Proposed Float and Ramp in Auke Nu Cove, Alaska" prepared by Battelle Marine Sciences Laboratory (Battelle) for PND Consulting. The report states that it evaluates potential impacts to eelgrass in the vicinity of the project from:

1) propeller wash and associated boat activity;
2) float alteration of surface currents;
3) water quality degradation;
4) shading; and
5) fill material placement.

Propeller wash and boat activity impacts are evaluated through the use of a propeller wash model. A description of the input parameters for the model is provided on page 5 of the report, and the input values used in the model are provided on page 7. Boat characteristics, propeller size and operating conditions were supplied to Battelle by PND. NMFS has concerns with the model, the report and the conclusions reached.

First, although the report indicates that Battelle received revised design drawings of the project in December 2005, it appears that the project description provided to Battelle is different than the one in the public notice. The report indicates that the revised design uses "a narrow, open grate, fixed height platform (20 ft wide) and an open-grate transfer span (16 feet wide) to access the floating dock" to reduce potential shading effects. The project description in the public notice calls for a concrete-decked steel transfer bridge and causeway, neither of which would provide light transmission through the structure. Furthermore, although the report is correct in stating that the location of the float has not changed between the original and revised plans, the orientation of the project has shifted southwest and further into the eelgrass bed. Thus, the area potentially impacted by propeller wash is different from the area that appears to have been modeled. As a result, most of the impact predictions and conclusions reached in the report are not directly valid for the project described in the public notice.

Second, the vessel for which the propeller wash model was run is referred to as a landing craft. The model was run with the vessel placed at the four corners of the dock and with the stern of the vessel toward and away from shore. These operating conditions are more consistent with a vessel that would be moored to the dock (e.g. fishing vessel) and not a landing craft that will, presumably, be utilizing the landing craft loading ramp on the northeast shore of the property. A landing craft utilizing the ramp would be operating in much shallower water than the water where the proposed dock will be situated, and its propeller wash would be directed outward from the shore. Directly offshore from the landing craft dock is an eelgrass area that likely will be impacted both by the grounding of the landing craft and by propeller scour. No analysis of the impacts of a landing craft operating in shallow water is provided in the report.

The vessel analysis also is based on a boat that is stationary at the dock rather than a maneuvering vessel and, if the vessel characteristics are truly those of a landing craft, on a shallow versus deep draft vessel. These assumptions are inconsistent with the majority of vessels that would be utilizing the facility and with the manner in which they will be operated. NMFS understands that the facility is meant to be a short-term loading and off-loading facility for fishing vessels. Most of these vessels have drafts of 6 feet or more. The vessels will be maneuvering into and away from the dock, and also will be maintaining position to wait for a clear space at the dock. The weight of the vessel and the depth of the vessel hull, and therefore the depth of the propeller under water, are significant factors contributing to wave energy and turbulence. Heavier, deeper-draft vessels generate larger waves and more turbulence than shallower draft vessels. Vessels that are maneuvering also cause more turbulence and re-suspension of sediments than stationary vessels. All of these considerations suggest that the results of the analysis may greatly underestimate the likely effect of the proposed facility on eelgrass beds.

Third, NMFS questions the accuracy of the propeller wash model velocity profiles. Figure 7 shows the modeled bottom velocities and predicted eelgrass damage with a landing craft oriented at various locations on the mooring float. The velocity profiles from the model have been overlaid over the proposed project fill in Figures 7a and 7b. Although the propeller wash impacts the intertidal fill in both these scenarios, it does not appear to be deflected by the fill. Rather it retains its pattern as if the fill were not there. In fact, some of the highest modeled bottom velocities are actually within the proposed bulkhead. This appears to defy common sense and basic physics which argue that the turbulent flow of the propeller wash would change as a result of encountering a solid object, such as a bulkhead or

armored shoreline. The bulkhead fill would redirect some of the force in a lateral direction away from the bulkhead and into the adjacent eelgrass. Since the anticipated level of eelgrass damage is based on the velocity profiles derived in the model, NMFS questions whether a model that does not take into account shore and fill effects can provide an accurate representation of the potential eelgrass impacts.

NMFS also is concerned that model results may be inaccurate and incomplete. For example, in table 1 on page 7, the prop diameter (D_p)value used in the model is given as 0.8128 m, or approximately 32.04 inches (2.67 feet). However, the prop depth (H_p), which is defined on page 5 as "the depth of the center of the propeller below the water surface" is only 0.1397 m, or approximately 5.52 inches (0.46 feet). At a minimum, one would expect the prop depth to be greater than the radius of the prop. At depths apparently used in the model, a significant amount of the propeller actually would be out of the water. It is unlikely that this is a reasonable boat operation scenario and appears either to be an error in the running of the model, or an error in the report. The report does not indicate what operating conditions were being modeled (e.g. idling, maneuvering, full throttle). Since vessels will be approaching an departing the dock, a variety of operating conditions should have been evaluated.

Page 7 further states that the model was run at various settings: with the boat placed at the four corners of the dock, and with the stern of the vessel toward and away from shore. The report does not indicate whether the model was run at different tidal depths or identify the water depth that was used to generate the model outputs shown in the report. Yet the authors conclude that "(d)amage to eelgrass from propeller scour would ... be reduced by generally limiting operations to higher water conditions." Since depth of water beneath the propeller is one of the primary variables affecting bottom velocities generated by propeller wash, the failure to indicate the depth at which the model results were obtained raises serious questions regarding model outputs and the estimates of impacted eelgrass area based on those outputs.

Finally, the report states that PND described the sediment at the site as sandy-gravel. As a result, the model was run using grain sizes from 1 mm to 8 mm in size. Although there are patches of sandy substrate in the vicinity of the project, the majority of the sediment at the project site, and the substrate in which the eelgrass is growing, is composed of fine-particulate silty mud. The grain size of this sediment is likely between 0.0156 mm (silt) to a maximum of 0.25 mm (fine sand). NMFS suspects that the scour profile from the propeller wash model would be significantly different from the report results if a more realistic grain size was used in the model runs. In addition, the report references the work by Thom (1996) concluding that bottom velocities of less than 50 cm/s did not result in damage to eelgrass in the vicinity of the Vashon Island Ferry Terminal; however, the report fails to indicate the grain-size of the sediment to which this reference velocity applies. NMFS questions whether these velocity effects are independent of sediment grain size, as implied.

The authors of the report were unable to a reach a conclusion on potential impacts with respect to alterations of surface currents and water quality degradation, although the report does state on page 9 under Water Quality Degradation that turbidity may be increased due to the re-suspension of fine sediments during boat operations.

The report's evaluation of the potential shading effect of the facility on eelgrass was not based on the project as described in the public notice. The causeway and transfer bridge of the facility evaluated in

the report are open-grate while in the public notice they are described as "concrete-decked." Therefore, the report's conclusions regarding light transference and eelgrass survivability are inapplicable.

The propeller wash model, as presented in the report, contains sufficient uncertainties and potential errors that NMFS is unable to concur with the report conclusions regarding potential eelgrass impacts. Also, the report's conclusions with regard to the potential effects of shading on eelgrass are inapplicable to the project as described in the public notice and significantly underestimate the amount of eelgrass that would be affected by shading.

NMFS has calculated the amount of eelgrass anticipated to be adversely affected by the proposed project to be 4106.25 m^2 as follows:

1) All eelgrass on the east side of the causeway and transfer bridge, and seaward of the landing craft ramp, (447.32 m^2) would be lost due to vessel operations, shading, and as a result of vessel grounding and propeller scour.
2) All eelgrass located directly in the project footprint (617.65 m^2) would be lost due to burial by fill or mortality through shading.
3) At a minimum, 2402.05 m^2 of eelgrass west of the causeway and transfer bridge will be lost as a result of propeller scour from vessels tied to the float.
4) At a minimum. 1086.55 m^2 of eelgrass will be lost as a result of vessels maneuvering on the northwest side of the dock[1].

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 recommendations:

1) The permit for the project should be denied unless both of the following are incorporated into the project proposal and design:

    a. The applicant should install and maintain pilings to prevent boats from maneuvering over the eelgrass bed. These piles should be installed in a line running along the seaward extent of the eelgrass bed as delineated by NMFS. The pilings should commence at the seaward intersection of the structure and end at the seaward extent of the tidelands lease (see enclosed figure). The distance between the pilings should be sufficient to prevent vessels using the facility from moving between them. The pilings should be marked to indicate that they are protecting sensitive habitat and that vessels should not moor to or approach the pilings. (Reference similar requirement in Tongass Narrows 475, M-900492)

[1] Eelgrass values in for stationary and maneuvering vessels were extrapolated using the velocity profiles from the propeller wash model. As NMFS' has indicated above, there are significant errors and omissions in the propeller wash model as applied, thus this estimate of eelgrass loss is conservative. The applicant should rerun the propeller wash model using accurate inputs for boat characteristics, propeller depth, water depth, sediment grain size and the relationship between scour velocities and sediment disturbance to obtain a more accurate estimate of potential loss.

b. The use of any wood that has been surface or pressure-treated with creosote or treated with pentachlorophenol should be prohibited, including wood used in pilings or decking.
c. The applicant should develop a plan for mitigating the permanent direct and indirect loss of approximately 4106.25 m^2 of eelgrass habitat. The plan should be submitted to NMFS for review, approved by the Corps, and required as a condition of the permit. NMFS staff is available to assist with development of the plan as required.

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.

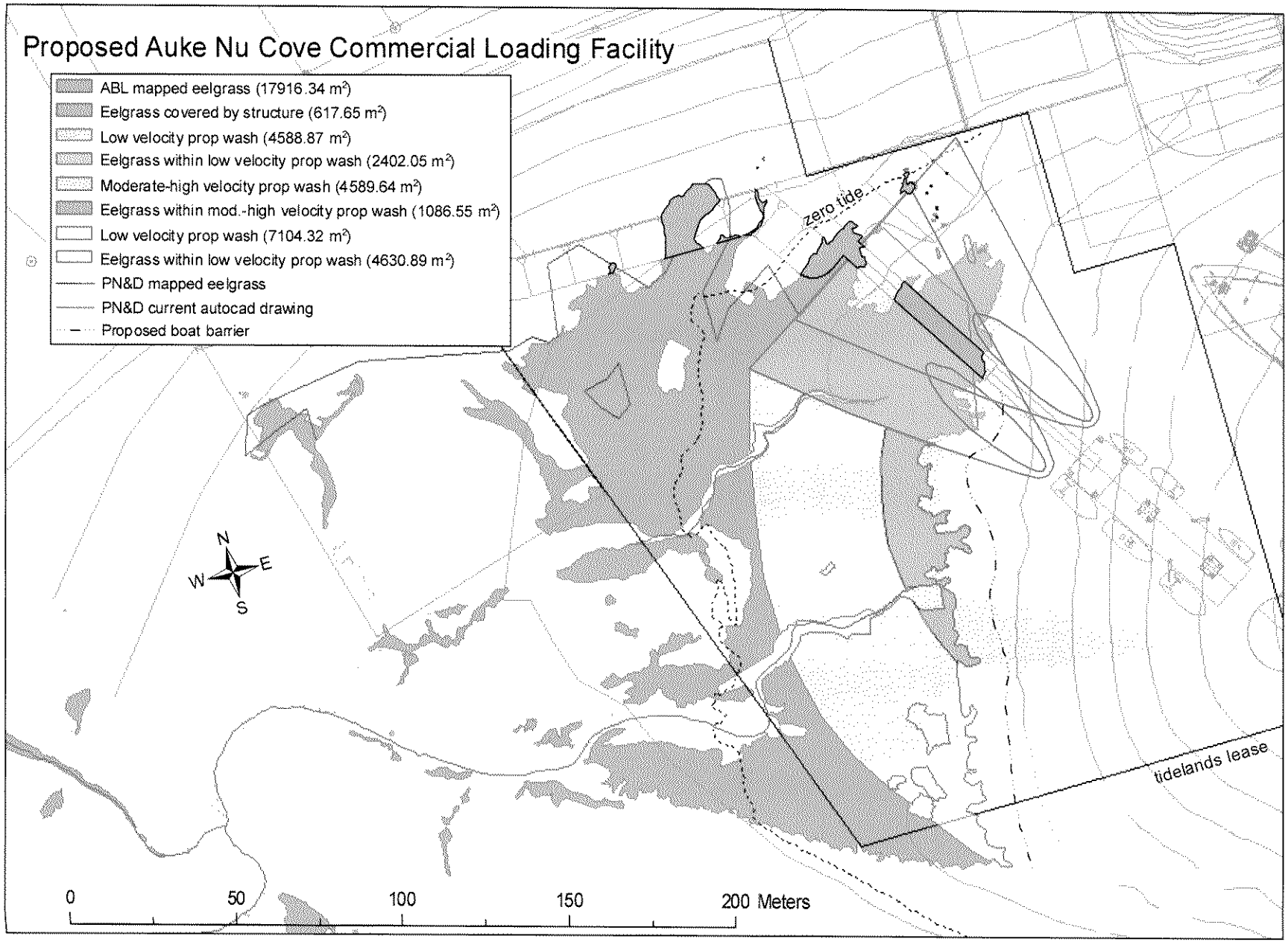
The applicant has proposed no mitigation for project impacts. NMFS has concluded that the project, as designed, will result in substantial and unacceptable impacts to aquatic resources of national significance as defined in Part IV of the 1992 Memorandum of Agreement between the Department of Commerce and the Department of the Army under Section 404(q) of the Clean Water Act. Please notify our office of the Corps decision regarding this permit application in accordance with Part IV, paragraph 3(c) of this Agreement.

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
ADEC, AADGC, ADNR, USFWS, Juneau



Prepared by the National Marine Fisheries Service, March 2006