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

October 19, 2005

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

Re: POA-1976-144-P
Sitka Harbor 64

Attn: John Klutz

Dear Colonel Gallagher:

The National Marine Fisheries Service (NMFS) has reviewed the above referenced proposal by the City and Borough of Sitka to replace the internal structures of the old Thomsen Harbor facility and remove a submerged bedrock obstruction. Work would include removal of docks, piers, access ramps and pilings. These structures would be replaced with a new main pier and finger floats, including 87 steel pilings. Blasting would be used in socketing an unspecified number of these pilings. In addition, dredging of approximately 65 cubic yards of native materials from an 85 foot wide and six foot deep trench would be done to install submerged water lines. The lines would be bedded with 15 cubic yards of new material around the pipe and the backfill of approximately 50 cubic yards of native materials previously dredged. Excavated material would be removed from the waterway and stockpiled at an upland location. A rock outcrop of approximately 200 X 250 feet would be blasted and then dredged to an approximate elevation of -13 feet Mean Lower Low Water. Several eelgrass beds are present in the shallow areas of the harbor, but direct impacts would be avoided by the configuration of the submerged utility line and new dock alignment.

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 potential adverse effects. Several anadromous fish streams are located within five miles of the project site. Consequently, juvenile salmon use the inshore areas of Sitka Sound during spring and early summer for feeding and predator avoidance prior to migration out to sea. Your public notice for this project further notes that the project may adversely affect approximately 11 acres (harbor interior) of EFH for juvenile/adult salmon and crab and associated species, such as major prey or predator species, not covered by a fishery management plan.

We offer the following EFH Conservation Recommendations pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act:

1. For the wooden components of the new structures (float sections and approach docks), the use of any wood that has been surface or pressure-treated with creosote or treated

with pentachlorophenol should be prohibited and alternatives to treated wood that have no or reduced toxicity should be used wherever practicable.

2. Any wood that comes in contact with marine or aquatic environments should be treated with waterborne preservatives approved for use in aquatic and/or marine environments. These include, but are not limited to: Chromated Copper Arsenic (CCA) Type C, Ammoniacal Copper Zinc Arsenate (ACZA), Alkaline Copper Quat (ACQ), Copper Boron Azole (CBA) or Copper Azole (CA). The applicant should only use wood that has been treated in accordance with best management practices developed by the Western Wood Preservers Institute. Treated wood should be inspected before installation to ensure that no superficial deposits of preservative material occur on the wood.
3. Over-water wood structures should be designed to prevent abrasion and splintering of wood.
4. All cutting and boring of treated wood should take place in upland areas; all waste materials should be kept out of the aquatic environment and be properly disposed of upland. Treated wood materials should not be stored in-water. Any cut wood, chips or sawdust from treated wood should be collected promptly and disposed of at an acceptable upland site.
5. To protect the eelgrass beds from inadvertent dredging or other construction related disturbance, the bed boundaries should be flagged at approximately 3 foot intervals and construction crews informed of the location and importance of avoiding disturbing the beds.
6. All work below the high tide line should be limited to low tidal stages to reduce turbidity.
7. No in-water blasting or other in-water work should be permitted from April 1 through June 15 of any year to protect out migrating salmon.

For pile driving activities, we offer the following recommendations to reduce sound pressure levels that may harm fish.

8. Drive piles with a vibratory hammer. If an impact hammer is required because of substrate type or the need for seismic stability, piles should be driven as deep as possible with a vibratory hammer before the impact hammer is used. Vibratory hammers generally produce less intense sounds than impact hammers (NMFS, 2005). Futher, fish have been observed to avoid sounds similar to those produced by vibratory hammers and to remain within the field of harmful sound associated with an impact hammer (Dolat, 1997).
9. Surround piles with an air bubble system. The use of both confined and unconfined air bubble systems may attenuate underwater sound pressure levels up to 28 dB re:1μ Pa (NMFS 2005).
10. Reduce force used to drive the pile by using a smaller hammer or a hydraulic hammer for which the force of the hammer blow can be controlled (NMFS 2005).

For blasting operations, we offer the following recommendations (see Keevin and Hempen, 1997; https://www.denix.osd.mil/denix/Public/ES-ograms/Conservation/WaterX/water1.html).

11. Charges should be confined.
12. Plan the blasting program to minimize the total weight of explosive charges per shot and the number of shots for the project.
13. Use angular stemming material of sufficient length in drill holes to reduce energy dispersal in the aquatic environment.
14. Subdivide the charge, using detonating caps with delays or delay connectors with detonating cord, to reduce total pressure. We recommend a minimum delay of 100 msec. This is consistent with the findings of Ogawa et al. (1976) that fish response time to pressure was on the order of 100msec.
15. Use decking when possible in lengthy drill holes to reduce total pressure. Large charges should be subdivided into a series of smaller charges using time-delay detonation initiators (blasting caps) to reduce the overall detonation to a series of smaller discrete detonations or explosions.
16. Use shaped charges to focus the blast energy when submerged surface charges are necessary, reducing energy released to the aquatic environment during demolition.
17. If a blasting plan is prepared please provide NMFS the opportunity to review and comment on this document.

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.

NMFS is also responsible for administering the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). We consulted with a Sitka marine mammal expert, Ms. Jan Straley (phone number 907-747-7779), regarding the potential for species protected under these statutes to occur in the project area. Ms. Straley indicated that within Sitka Channel and the Thomsen Harbor area, threatened Steller sea lions (*Eumetopias jubatus*) are present year round. These particular animals are known to feed on waste from fish cleaning stations and are therefore acclimated to the presence of humans and vessels. In addition, harbor seals (*Phoca vitulina*) and killer whales (*Orcinus orca*) may occur unpredictably in the area at any time of year. The latter species are protected under the MMPA from harassment or injury.

This project would use pile driving techniques and blasting to set pilings and blasting to remove the bedrock outcropping. Pile driving may introduce high levels of pulsed or continuous noise into the water column with the potential to harass or injure marine mammals. Sound pressure levels in the range of 130-135 dB re: 1μPa have been measured up to one kilometer from an active pile driver (Johnson et al. 1986). Humpback whales have been observed to react to sound pressure levels greater than 115-129 dB re:1μPa within 200 meters of a sound source (Zoidis, pers. comm.). The type and intensity of noise produced during pile driving depends on a variety of factors, including the type and size of pile, the firmness of substrate into which the pile is being driven, the depth of water, bottom characteristics, and the size and type of the pile-driving hammer.

Explosions may produce underwater shock waves that can cause severe injury to marine mammals (Richardson et al., 1995). Pressures associated with explosions vary based on charge size, water depth, bottom characteristics, and other factors. Pinnipeds (e.g., Steller sea lions) are generally tolerant of explosions, especially when engaged in feeding. Close proximity to these explosions may cause hearing damage or other injuries (Bohne et al. 1985 and Behne et al. 1986), and larger charges can kill them (Richardson et al. 1995 and Trasky 1976). Cetaceans generally show no strong behavioral reaction to distant explosions, however, exposure to charges, depending on their size and distance from the animal may cause disturbance, hearing damage, other injuries, or death. While such effects may be felt over relatively long distances, these can be mitigated by the physical site conditions (blasting inside the confines of a closed breakwater system) and special conditions outlined as EFH recommendation provided for fish, which should also minimize impacts to marine mammals. However, the best approach would be to avoid blasting operations when marine mammals are present in Sitka Channel. This should be feasible because killer whales and harbor seals are expected to be only intermittently present in the area.

We offer the following recommendations to protect marine mammals from disturbance due to pile driving and blasting.

1.) The applicant should drive at least one test pile prior to construction. During installation of the test pile, sound pressure levels should be monitored to determine the area in which they are ≥160 dB re: 1μ Pa if an impact hammer (pulsed noise) is used or ≥120 dB re: 1μPa if a vibratory hammer (continuous noise) is used (i.e., impact area). Equipment and materials consistent with project construction should be used. A sufficient number of piles should be driven to reasonably estimate the size and location of the area. Results of this work should be presented to NMFS' Juneau office with the applicant's estimate of the extent of the impact area. Test piles should not be driven if marine mammals are observed within 200 meters of the sound source. This recommendation is based on observed responses of humpback whales to sound sources (Zoidis, pers. comm..) and measurements of sound pressure levels at 159 dB re: 1μ Pa approximately 200 meters from a pile driver driving a 14-inch diameter hollow steel pile.

2.) A NMFS-approved qualified marine mammal observer, who has stop work authority, should scan the area for the presence of killer whales, harbor seals and Steller sea lions. The observer should direct pile driving to cease when marine mammals are observed within the impact area. The observer should direct pile driving to cease if the activity, including test pile driving, is disturbing marine mammals at any distance from the sound source.

3.) Sitka Channel should be monitored by a NMFS-approved qualified marine mammal observer, who has stop work authority should scan the area for the presence of killer whales, Steller sea lions and harbor seals for 30 minutes prior to detonation. Depending on charge weights, maximum water depths of Sitka Channel (simulated depth of marine mammal) and depth of detonation charge, safe ranges for lethal effects can be calculated for marine mammals (Keevin and Hempen, 1997). These are doubled for non-lethal

effects. However, because Japonski and other islands in the area will function as physical barriers to blast impacts, monitoring of open water areas within and up to island barriers within Sitka Channel, for up to one mile from the harbor, should be sufficiently protective based on NMFS standard procedures for protecting sea turtles and marine mammals from detonations in the Gulf of Mexico (Gitschlag and Herczeg, 1994).

4.) Steller sea lions should be discouraged from the area by limiting fish waste feeding. The City and Borough of Sitka should explore what means it may have to either prohibit or educate the public to cease direct feeding of Steller sea lions and fish waste cleaning that attracts them, particularly before the use of explosives.

The recommended conditions will reduce the likelihood that this work may injure or harass marine mammals. However, the MMPA prohibits the taking, including unintentional harassment, of marine mammals unless otherwise authorized. The applicant should be advised of the availability of small take permits under section 101 (a) (5) of the MMPA which allows citizens of the United States to take marine mammals provided such take is incidental but not intentional and involves no more than a negligible impact to the species. Information on these authorizations may be found on our website at http:/www.nmfs.noaa.gov/pr/permits.

If you have any further questions, please contact Linda Shaw at 907-586-7643.

Sincerely,

Robert D. Mecum
Acting Administrator, Alaska Region

cc: Applicant
*EPA Juneau, Chris Meade
*ADF&G, Tom Schumacher
ADEC, ADNR, USFWS, Juneau
*email

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