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FISH AND WILDLIFE SERVICE
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February 2, 2010

Heidi Firstencel
US Army Corps of Engineers
Juneau Field Office
Regulatory Division (1145)
CE-POA- RD
8800 Glacier Highway, Suite 106
Juneau, Alaska 99801

Re: POA-2000-495-M3, Gastineau Channel, Douglas Harbor Improvements

Dear Ms. Firstencel,

In a letter dated January 26, 2010, the U.S. Fish and Wildlife Service (USFWS) provided review comments on the above referenced public notice. The applicant, the City and Borough of Juneau, proposes to dredge 30,000 cubic yards of sediments from the 5.2 acre Douglas Harbor and dispose of them in an uncontained site in Gastineau Channel. We offer these additional comments under provision of the Fish and Wildlife Coordination Act (48 Stat 401, as amended: 16USC, 661 et seq.).

Douglas Harbor sediments are contaminated with mercury (Hg) (Newfields, March 2009; Rudis 1996). USFWS is concerned about the potential for Hg bioaccumulation in crab, shrimp, groundfish, and salmon, and the associated risks to other species (including humans) that use these resources for food. Mercury will continue to bioaccumulate in the marine food web as organisms are consumed or when they die and are consumed by decomposers. Fish carcasses can be an important source of Hg in aquatic food webs (Sarica et al. 2004). Mercury may also be transferred into the terrestrial environment when carcasses of fish or other marine organisms are consumed by terrestrial scavengers such as gulls, bald eagles, and other avian or mammalian scavengers. Mercury has a plethora of toxic effects on both aquatic and terrestrial organisms, including developmental and reproductive abnormalities, adverse effects to metabolism, blood chemistry, osmoregulation and behavior (Eisler 1987). Because crustacean embryos and larvae are more susceptible to contaminants than adults (Connor 1972), toxicity to juveniles can result in higher rates of mortality due to reduced growth and behavioral changes leading to increased predation (Eisler 1987).

Additional Hg should not be added to the marine environment via contaminated sediment disposal in Gastineau Channel as it can result in an increase of Hg mobilization into the food web. Conversion to methylmercury, the more toxic Hg form, is increased with Hg mobilization. Methylmercury concentrations reported in Douglas Harbor sediments are equivalent to those reported from an Hg-contaminated salt marsh in Georgia, where food web trophic transfers resulted in Hg biomagnifications (Gardner et al. 1978).

As we stated in our earlier correspondence, the 28-day bioaccumulation study Newfields conducted to evaluate sediment toxicity (Newfields, June 2009a, June 2009b) was not adequate to determine that Hg bioaccumulation steady state was attained.

Bioaccumulation studies on crab have demonstrated Hg uptake over a longer time period (Reichmuth et al. 2010). A longer exposure period would result in higher Hg concentrations in test organisms (Reichmuth et al. 2010, Gardner et al. 1978). If crabs, shrimp, and other higher trophic level organisms have different bioaccumulation rates than the lower trophic level test organisms, Hg uptake could be greater than that of the test organisms.

The Corps, EPA, NMFS and FWS have cooperatively signed *Sediment Evaluation Framework for the Pacific Northwest* (May 2009). This document, http://www.nwp.usace.army.mil/pm/e/rset/sef/2009-Final_SEF.pdf includes Hg bioaccumulation criteria for population-level protection of aquatic-dependent wildlife species. Mercury bioaccumulation criteria for great blue heron, belted kingfisher, spotted sandpiper, and bald eagle, are listed in this document. All of these species use nearshore habitat near the proposed disposal area. These avian species as well as mergansers, scoters, harlequin ducks and river otters all feed on fish and /or crustaceans which are Hg-bioaccumulating organisms.

The *Sediment Evaluation Framework for the Pacific Northwest* (May 2009) used species-specific life history parameters to calculate the total tissue levels (TTLs) for aquatic-dependent wildlife. Mercury TTLs for aquatic life are 0.11 mg/kg and are 0.12 mg/kg for deep water wildlife. The Hg TTLs for recreational anglers (human health) are 0.04 mg/kg. These values are more stringent than the 0.32 ppm concentration that was provided by the Alaska Department of Environmental Conservation and used by the City and Borough of Juneau in evaluating Douglas Harbor sediments.

USFWS does not agree that unconfined sediment disposal in Gastineau Channel is the best disposal option. In the June 25, 2009 report, *Douglas Harbor Dredge Material Disposal Practicable Alternative Analysis Report* (POA 2000-495-M3), (PND Engineers, June 2009) a number of alternatives to Gastineau Channel sediment disposal were evaluated. Other disposal alternatives would have far fewer detrimental effects to the marine ecosystem of Gastineau Channel than in-channel sediment disposal that would add Hg to this environment. None of the alternatives are discussed in combination, which could be another choice for sediment disposal. The National Marine Fisheries Service (Mecum letter to Koenig, Sept. 9, 2009) suggested a combination strategy of disposal options. A combination of selected confined intertidal fill areas (e.g., Treadwell Mine cave-in) and upland disposal sites would be good alternative disposal sites to minimize introduction of additional Hg in to Gastineau Channel and the associated food web.

According to test composites from the CBJ Newfields reports, only certain harbor sediment areas have Hg concentrations of concern. Mercury-contaminated sediments can be isolated and removed separately. These contaminated sediments can be used as upland fill or in a confined disposal site such as the Treadwell Mine cave-in. If there are uncontaminated sediments, they could be dumped into Gastineau Channel as an open-water disposal option.

Because Douglas Boat Harbor will require maintenance dredging ten to twenty years from now, future dredging will also require a viable disposal option. Other Juneau harbors also require periodic maintenance dredging, as glacial uplift and sedimentation from the Mendenhall River's input continues to alter harbor depths and sediment loads. This is an opportune time to discuss future disposal plans for dredged harbor sediment from all Juneau boat harbor facilities.

The U.S. Fish and Wildlife Service requests that this permit be modified so that Hg-contaminated sediment disposal in Gastineau Channel is not allowed. Due to the significance of the resources at risk and the impacts likely to result from the project, we believe that approval of the current proposal may result in substantial and unacceptable impacts to aquatic resources of national importance. The Service recommends that the permit, as currently proposed, be denied. These comments satisfy the procedural requirements of Part IV, paragraph 3(a) the 1992 404(q) Memorandum of Agreement between the Department of Interior and the Department of the Army. If you choose not to follow these recommendations, please notify this office in accordance with the local procedures agreed to by our respective agencies. If you have any questions about our comments or requests, please contact Deborah Rudis of my staff at Deborah_rudis@fws.gov or at 907-780-1183. Thank you for considering these comments.

Sincerely,



Steve Brockmann
Acting Field Office Supervisor

cc:

Chris Meade, EPA
Chiska Derr, NMFS
Teri Camery, CBJ
John Stone, CBJ
Carrie Bohan, ADNR, DCOM
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William Ashton, ADEC
Alex Dugaqua, ADNR, DMLW

References:

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http://www.nwp.usace.army.mil/pm/e/rset/sef/2009-Final_SEF.pdf