



United States Department of the Interior
FISH AND WILDLIFE SERVICE
Juneau Fish & Wildlife Field Office
3000 Vintage Blvd., Suite 201
Juneau, Alaska 99801-7100
(907) 780-1160



September 24, 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 Renovation – Permit Application Modifications

Dear Ms. Firstencel,

In correspondence of January 26 and February 2, 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 a capped site in Gastineau Channel. We offer these additional comments under provision of the Fish and Wildlife Coordination Act.

As discussed in our previous correspondence, Douglas Harbor sediments are contaminated with mercury (Hg) (Newfields 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. In the applicant's proposed permit modifications, a six inch layer of clean sand and cobble would be deposited on the Douglas Harbor dredged material and the newly exposed dredged surface in Douglas Harbor. This proposed modification is designed to meet agencies' concerns by presumably preventing mercury exposure from dredged harbor sediments.

We commend the applicant for their efforts to prevent mercury contamination to Gastineau Channel from dredged harbor sediments. However, we have questions and comments on the design of the proposed modification. Capping of contaminated sediments has been evaluated at sites nationwide. There are numerous references

available on capping efficacy and required cap depths to prevent contaminant release. It is not clear that any of these references have been consulted, and none are cited, in the applicant's modification proposal.

Based on our literature review, a six inch cap would likely not be adequate to isolate the contaminated dredged material and prevent bioturbation by marine organisms (Weitkamp, n.d.). At least one meter of clean sand was necessary to isolate contaminated sediments in a New York Bight project (NOAA <http://www.csc.noaa.gov/benthic/mapping/applying/capping.htm>) at a Washington site (Verduin et al., 2001) and in Hamilton Harbor, Canada (Zeman and Patterson 1997). Another capping project at Commencement Bay in Washington found that after underwater placement, varying cap thickness was found as cap placement can be imprecise, leaving pits and mounds (Weitkamp, n.d.). Others recommend alternatives to granular sediment caps such as AquaBlok™, a clay mineral based capping material (Hull, et al. 1999).

Monitoring is a necessary component of a capping project to determine its effectiveness (Verduin et al., 2001). Monitoring components should include but are not limited to, cap thickness, water quality, and benthic recolonization. Predictions regarding contaminant containment are provided by one-dimensional (1-D) contaminant transport methods and models (Petrovski et al. 2005). We also recommend modeling be done to determine if a sand cap and cobble placement would disturb the underlying deposited dredged sediments, by either displacing and/or spreading them outside of the disposal area during capping operations. Models have also been used to quantify effectiveness of caps as a chemical barrier (Toma et al. 1993).

The applicant cites a NOAA report (Malecha and Stone 2003) that investigated bottom current magnitude and direction at three Juneau area locations, Auke Bay, Point Lena, and south Lena. These authors note that site specific measurements are necessary to accurately determine current characteristics. The three sites included in the NOAA report are not in or near the proposed dredge disposal area in Gastineau Channel. We believe that the sites in the NOAA report are inappropriate to use as representative of Gastineau Channel bottom current conditions. Site specific measurements must be taken at the proposed dredge disposal area to determine current variables and predict their effect on the cap and dredged material.

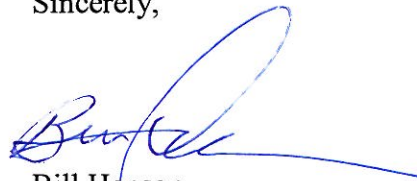
At a conference held in Savannah, Georgia, in 2007, sediment capping and monitored natural recovery were the main topics. Conference proceedings are included in: Fourth International Battelle Conference on remediation of contaminated sediment, including a comprehensive review, *State of the Art in the USA, Sediment remediation: U.S. focus on capping and monitored natural recovery* (Förstner and Apitz, 2007). This compendium of papers would be an excellent reference for determining capping options for this project.

At this time we cannot recommend in-Channel disposal of the Douglas Harbor dredged material with the permit modification's proposed capping technique. We do not believe

that the proposed capping plan would isolate the mercury-contaminated sediments from Gastineau Channel. We suggest that either an upland disposal option or a contained disposal option with an appropriate-thickness cap and monitoring plans be considered as an alternative.

We continue to 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 modification, 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,



Bill Hanson
Field Supervisor

cc:

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

References:

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Malecha, P. W. and R. P. Stone. 2003. Benthic currents at three nearshore sites near Point Lena and Auke Bay, Alaska. Auke Bay Laboratory, Alaska Fisheries Science Center National Marine Fisheries Service, National Oceanic and Atmospheric Administration Juneau, AK. 18pp.

NOAA. <http://www.csc.noaa.gov/benthic/mapping/applying/capping.htm>

Petrovski, D. M. M. K. Corcoran, J.H. May, and D. M. Patrick. 2005. Sediment Capping and Natural Recovery Contaminant Transport Fundamentals with Applications to Sediment Caps. 73 pp. Prepared for U.S. Environmental Protection Agency, Great Lakes National Program Office, Chicago, IL 60604-3511, and U.S. Army Corps of Engineers Washington, DC 20314-1000. ERDC/GSL TR-05-19

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