



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

August 19, 2004

Colonel Timothy J. Gallagher
District Engineer, Alaska District
Army Corps of Engineers
P.O. Box 6898
Elmendorf AFB, Alaska 99506-6898

Re: Berners Bay 4;
POA-1997-245-2

Attn: John Leeds

Dear Colonel Gallagher:

The National Marine Fisheries Service (NMFS) has reviewed the project plans described in the June 21, 2004 public notice regarding Goldbelt, Incorporated's request for authorization to dredge approximately 23,000 cubic yards of material from an area of approximately 1.6 acres (70,000 square feet) below high tide line, discharge approximately 29,000 cubic yards of fill material within about 1.3 acres of intertidal and subtidal zones to construct a 125 foot wide by 425 foot long breakwater, and construct a moorage facility (20 pilings, 120 foot long dock, 80 foot long gangway, and 100 foot long float) at Cascade Point in Berners Bay about 45 miles north of Juneau, Alaska.

The Berners Bay ecosystem is a pristine, sensitive environmental area that provides habitat for many sensitive species of fish and wildlife. All five species of anadromous salmon utilize Berners Bay, along with very important stocks of Pacific herring, eulachon, Pacific halibut, and Pacific sandlance. Marine mammals are abundant in Berners Bay and include humpback whale, killer whale, harbor porpoise, harbor seal, and Steller sea lion. The humpback whale and Steller sea lion are listed as endangered and threatened species, respectively, under the Endangered Species Act. The project site at Cascade Point is important spawning habitat for the depressed Lynn Canal Pacific herring stock. The site of proposed intertidal and subtidal fill consists of dense stands of large-bladed kelps that are important for herring spawn and provide habitat for a diverse variety of marine invertebrate species. This site, lacking only rooted submerged vegetation, has all the other characteristics of a Special Aquatic Site and should be valued as such.

The Corps has made preliminary determinations that the proposed work would not affect threatened or endangered species or their critical habitat, and will not adversely affect Essential Fish Habitat (EFH) including anadromous fish and Federally managed fishery resources. NMFS disagrees with both of these determinations. In our February 25, 1998 letter to the Corps (attached) commenting on a similar dock construction and operation project proposed by the



same applicant at the same location, NMFS commented in detail about the impacts of the proposed project on the Pacific herring and marine mammal populations of Berners Bay. NMFS recommended that the applicant submit an application that did not require permanent fill and minimized construction within the intertidal areas of Berners Bay, and advised the Corps that consultation under Section 7 of the Endangered Species Act (ESA) was necessary. NMFS concluded that the project may have substantial and unacceptable impacts to aquatic resources of national importance as defined in Part IV of the Memorandum of Agreement between the Department of Commerce and the Department of the Army (August 11, 1992). Pursuant to Part IV. 3 (a) of that agreement, NMFS recommended that the permit be denied.

NMFS has reviewed the currently proposed project relative to additional recent scientific information and finds again that the currently proposed project may adversely affect EFH and may affect endangered humpback whales, threatened Steller sea lions which are protected from harm under the ESA, and may harm other marine mammals what are afforded protection from harm under the Marine Mammal Protection Act. NMFS requests the Corps to prepare an EFH assessment in accordance with the requirements of 50 CFR 600.920(e) and begine consultation under Section 7 of the ESA. The Biological Assessment that was prepared by the Corps for the previously denied proposal is outdated and should be revised with new information specific to Berners Bay.

NMFS has previously expressed concern about the potential effects of hydrocarbon inputs to the sensitive waters of Berners Bay from the dock and associated boat, parking and fueling operations especially in regard to the potential effects of spawning Pacific herring. Hydrocarbon inputs from gasoline and diesel fuels contain polycyclic aromatic hydrocarbons (PAHs) that have been shown to have serious deleterious effects of development of herring embryos and larvae. As part of its *Exxon Valdez* oil spill investigations, the Alaska Fisheries Science Center's Auke Bay Laboratory (ABL) conducted laboratory tests on pre-spawn herring that showed that herring were negatively impacted by exposure to oil, principally by suppression of the immune system and increased expression of disease. Exposure of incubating eggs to comparably weathered oil caused significant morphological defects at 9 ppb, and effects of more weathered oil were significant at concentrations as low as 0.2 ppb PAH; chromosomal aberrations were observed at 0.7 parts per billion (ppb) (Carls et al. 1997). Most of the toxicity models currently in use for fish assume a disruption of the nervous system leading to narcosis and eventual death. Recent research indicates that PAHs are unlikely to act as narcotic agents in early life stages of fish that have been chronically exposed as embryos. Instead embryonic exposures result in edema of the yolk sac, hemorrhaging, disruption of cardiac function, binding of aryl hydrocarbon receptors, enzyme induction, mutation and heritable changes in progeny, craniofacial and spinal deformities, neuronal cell death, anemia, reduced growth, and impaired swimming (Barron et al. 2003, Billiard et al. 1999, 2002, Brinkworth et al. 2003, Marty et al. 1997, Incardona et al. in press: all cited in Barron et al. 2004). Exposure to sunlight results in a 48-fold increase in toxicity of PAH

to herring larvae (Barron et al. 2003) and resulted in 2 ppb becoming toxic to calanoid copepods (Duesterloh et al. 2002).

PAHs, particularly the higher molecular weight compounds, also tend to adsorb to organic or inorganic matter in sediments, where they can be trapped in long-term reservoirs. A portion of sediment-adsorbed PAH is readily bioavailable to marine organisms and there is substantial uptake of these compounds by resident benthic fish through diet, through direct absorption from the water column, and from exposure to sediment. Benthic invertebrate prey are a particularly important source of PAH exposure to marine fishes, as PAHs are bioaccumulated in many invertebrate species (Varanasi et al. 1989, 1992; Meador et al. 1995).

A notable feature of PAHs is that they are metabolized extensively in vertebrates, including fishes, unlike many chlorinated hydrocarbons, which bioaccumulate in tissues. Cellular metabolism of PAHs (Varanasi et al. 1989) converts these hydrophobic compounds into polar, water-soluble forms that can be readily excreted from the organism. Consequently, parent PAHs generally do not bioaccumulate in fish or other vertebrates, although metabolites present in food are bioavailable to the consumer (McElroy et al. 1991, James et al. 1991) and PAH-DNA adducts accumulate in the liver of fish exposed to sediment associated PAHs (Reichert et al. 1998). While metabolism serves mainly as a pathway of detoxication for PAHs, some of the metabolites that are intermediates in this process exhibit carcinogenic, mutagenic, and cytotoxic activity.

Research on the effects of PAHs on federally managed species with designated EFH, especially English sole, has been conducted by the NMFS Northwest Fisheries Science Center. This research concludes that English sole from PAH contaminated embayments are highly susceptible to the development of liver cancer and related lesions (Myers et al. 1994, 1998a), and also appear to be prone to a number of other adverse health effects, including reproductive abnormalities, immune dysfunction, and alterations in growth and development (Arkoosh et al. 1996; Johnson et al. 1998).

NMFS ABL also has conducted research on the long-term effects of PAHs from the *Exxon Valdez* oil spill on pink salmon. This research has verified that pink salmon embryos are sensitive to long-term exposures to weathered oil in the low ppb range of PAH. Mortalities, abnormalities, histopathological damage, and other biological effects increased with embryo exposure to low ppb concentrations of PAH. Delayed impacts on marine growth and survival were measured in returning adults exposed as embryos to low ppb concentrations of weathered oil, further evidence that the embryo is vulnerable and sensitive to PAHs at low ppb concentrations.

A list of references to research by NMFS and others on bioaccumulation and effects of PAHs on EFH, listed species, and their prey is attached.

The Public Notice lacks specific information needed to assess the effects of the proposed project on listed species and EFH. The information in the Public Notice is not sufficient to allow adequate analysis of a federal action that may significantly affect the environment. A Draft Environmental Impact Statement (DEIS) prepared by the U.S.D.A.

Forest Service (USFS) for this and the related Kensington Mine Project (subject to concurrent Public Notice Lynn Canal 31; POA-1990-592-M) has been reviewed by NMFS. Our comments and EFH Conservation Recommendations for that DEIS included selection of a different alternative for marine access than is proposed in the permit application; we assume that the proposed action is the defacto preferred alternative for that DEIS. NMFS recommended to the USFS that the Cascade Point site not be selected for dock construction due to loss and degradation of Pacific herring spawning habitat that would result from the intertidal fill necessary for construction and the adverse effects to spawning, incubating and rearing larval herring that would be expected from acute and chronic inputs of hydrocarbons associated with boat operations and fueling at the Cascade Dock site.

Historically, Pacific herring spawned along the shoreline where the marine facility is proposed. Project effects along the shoreline where the marine facility is proposed. Project effects on Pacific herring are a major concern. The Pacific herring stock in Lynn Canal has been in a state of decline since the 1970s, with current estimates suggesting that the population of mature adult fish has fallen to less than 500 tons. The linear area (miles) of Pacific herring spawning activity has been reduced to a fraction of its historic extent. The Lynn Canal herring fishery has been closed since 1982 without recovery, suggesting that factors other than harvesting are now influencing the population and may be inhibiting growth to previous levels. In many areas, such as Auke Nu Cove, Auke Bay, Long Island and Port Frederick, development has encroached on documented herring spawning habitat and apparently resulted in cessation of spawning in those areas.

The proposed project is part of a series of interrelated activities planned by the applicant that in conjunction with reasonably foreseen development of homes and businesses, daily commuter ferry service, mining and road building will result in the degradation and impairment of the Bay's living marine resources unless proper advance planning is conducted.


NMFS review of the proposed project indicates that information necessary to review the proposed project is incomplete. The Corps needs to complete an EFH assessment for NMFS review, begin consultation under Section 7 of the ESA, and assure compliance with the MMPA to avoid harming the considerable marine mammal resources of Berners Bay. Prior to any federal decision on authorizations for permits or other actions affecting Berners Bay, a comprehensive environmental impact statement should be completed to evaluate the cumulative effects of such actions on fish and wildlife resources. This would comply iwht NEPA and fulfill federal responsibilities to assure conservation of living marine resources. Less damaging alternatives to the proposed project are likely to exist and have not been fully explored in the documentation provided for NMFS review.

As proposed, the project may have substantial and unacceptable impacts on aquatic resources of national importance as defined in Part IV of the Memorandum of Agreement

between the Department of Commerce and the Department of the Army. NMFS recommends that this permit be denied pursuant to Part IV, 3(a) of that agreement.

Please contact Susan Walker (907-586-7646 or susan.walker@noaa.gov) with questions regarding this project.

Sincerely,


for James W. Balsiger
Regional Administrator

Cc: USFWS, Juneau
ADFG, Douglas
COE Juneau, John Leeds
EPA Juneau, Chris Meade
ADEC, Juneau
USFS, Minerals Group, Juneau
CBJ
ADNR – OHMP, Juneau
SEACC, Juneau, Sue Schrader

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