



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

October 4, 2004

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

Re: AA-820598
Unalaska Bay 12

Attn: Larry Reeder

Dear Col. Gallagher:

Offshore Systems Inc. (OSI) has applied for a modification to the existing permit to provide additional berthing facilities and storage for seafood products at its Captain's Bay facility. This modification would allow additional fill to be placed at the site, and would eliminate the requirement to place a 40' breach in the existing access ramp as required by special condition in the Department of the Army permit modification W-8200598. The applicant previously agreed to this special condition as mitigation for filling in tidal waters for an earlier phase of the project, following many months of discussions with the resource agencies and the Corps of Engineers (Corps).

In October of 2002, the Corps denied a similar proposal. The Corps contends that this decision was primarily "based on resource agency concerns that the structure would adversely impact nearshore circulation patterns in Captain's Bay and result in increased mortality of juvenile salmon." Rather, the National Marine Fisheries Service (NMFS) maintains that throughout our lengthy involvement in this project our major concern has been the loss of habitat and the blockage of nearshore migration of federally managed salmon and crabs.

The Corps has provided NMFS with two studies sponsored by OSI for the above referenced project: an ecological evaluation by Dr. Jon Houghton, Pentec Environmental, and a flow model by Coastline Engineering. Our review includes the enclosed scientific assessment from the NMFS Alaska Fisheries Science Center.

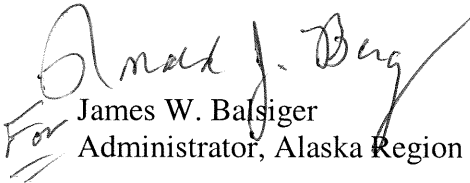
After reviewing the studies, NMFS remains concerned that the proposed action will adversely affect habitat for salmon and crabs. NMFS is familiar with many of the studies cited by the ecological evaluation, because NMFS scientists completed these studies. The information contained in the evaluation offers a new opinion using the same information originally supplied by NMFS. The flow model does offer new information. However, the model does not offer any compelling results. In fact, flow is evident through the 40' breach in conjunction with the existing offshore facility. The 40' breach would also remove the current impedance to nearshore



fish and crab migration. These reports do not change our opposition to the proposed project.

NMFS stands by our previous recommendations to deny the permit modification. In addition, we understand from discussions with your staff that the applicant is developing a mitigation package. NMFS requests an opportunity to review that information and provide comments as appropriate. Should you have any further questions, please contact Mr. Matthew Eagleton or Ms. Jeanne Hanson in Anchorage at (907) 271-5006.

Sincerely,


For James W. Balsiger
Administrator, Alaska Region

Enclosure

cc: COE, EPA, USFWS, ADFG, ADEC - Anchorage
NPFMC (Witherell)
Records (Durall)
Offshore Systems, Inc., 12019 76th Place NE, Kirkland, WA 98034 (Applicant)

Review of OSI Project; Unalaska Bay 12 (DD-1982-0598)

Prepared by: Mitch Lorenz, NMFS Fishery Research Biologist
Alaska Fisheries Science Center
Auke Bay Laboratory
Juneau, Alaska

Review:

- 1) Pentec Environmental Memorandum: Ecological Evaluation of OSI Offshore Fill in Captains Bay;
- 2) Flow Modeling in Captains Bay, Alaska prepared by Coastline Engineering;
- 3) Corps of Engineers Public Construction Notice: DD-1982-0598; Unalaska Bay 12;
- 4) Misc. Unalaska Bay 12 project documents.

In review of the Pentec report (Houghton and Starkes 2003) and other materials provided for the proposed OSI Captains Bay project, I found little new information to support the OSI proposal. The report provides no new data to support the proposal and the citations provide little evidence that the proposed development at the Unalaska site will not affect nearshore fish habitat in the project area.

I will address my comments to the three permit issues raised in the Pentec report:

- Relief from a permit requirement to breach an existing solid fill ramp;
- Biological significance of the proposed fill;
- Proposals to mitigate the effects of existing and proposed fills at the site.

Breach Access to the Offshore Facility

Due to time constraints, I am unable to comment on the full adequacy of the circulation model (Coastline Engineering 2003) that is the basis of the applicant's request for relief from breaching the existing access ramp. However, as noted by the contractor on p. 58 of their report, the use of a 3 dimensional rather than a 2 dimensional model would be preferable for the analysis and may yield very different conclusions.

I am very concerned that the information provided by the applicant's contractors (Pentec and Coastline Engineering) discounts the effect on water quality of the proposed project. Based on the stated objective of this project "to provide additional berthing facilities and ... for handling and storing seafood products" I strongly disagree with the premise that "The breach cannot change water quality because water quality is independent of the project" (Coastal Engineering 2003). In fact, development of industrial harbors have well documented negative effects on both water quality and toxicity to biota (Anderson et al. 1998; Long and Dzinbal 1998). The proposed project will contribute to both new and cumulative impacts from non-point source pollution at the site that should be addressed in both the circulation study and the ecological evaluation.

Further, conjecture that a breach of the access ramp would increase predation by char in the area is speculative. Dolly Varden are just as likely to corner juvenile salmon in the existing embayment.

Biological Effect of the Proposed Fill

Based on the reviewed information, I can conclude that the proposed project would further decrease nearshore habitat complexity in the OSI development area and will create conditions unfavorable to important biota including juvenile salmon in the project area.

As noted in the Pentec memo, proposed fill placement will divert migrating juvenile salmon into deeper water in the project area. While there is little direct evidence that forcing salmon into steeper areas increases predation, studies of juvenile salmon behavior in low gradient versus steeper gradient habitats indicate behavioral changes that are likely a result of increased predation. Juvenile salmon along steep beaches tend to aggregate more than along shallower gradient shores and will even school with other species (Celewycz and Wertheimer 1994; Toft et al. 2004) - behavioral changes that are attributed to greater exposure to predation from adjacent deep water areas by both authors.

Contrary to the implications of the Pentec report, the loss of shallow water rearing habitat for the early marine life stages of juvenile salmon is not trivial. This proposed project will eliminate lower gradient habitat with well established epibenthos and replace it with newly quarried substrate placed at a much steeper gradient (> 45%). A cursory review of the literature provides evidence that during the early marine life history, pink and particularly chum salmon prefer and probably require habitat similar to that lost during the proposed project. There are many pertinent studies including several that evaluate juvenile salmon habitat use, feeding, and behavior along marine beach slopes in Alaska ranging from less than 10 percent to more than 50 percent grade. Those studies indicate that the proposed project will result in significant habitat loss for juvenile salmon and may also affect their food supply and increase their exposure to predation in the project area.

Juvenile salmon habitat surveys in Prince William Sound show that chum salmon primarily use nearshore areas of less than 25 percent slope (Sturdevant et al. 1994) and so few use steeper shorelines (> 45% slope) that researchers are unable to locate or catch enough to evaluate growth in those areas (Celewycz and Wertheimer 1994). In those surveys pink salmon abundance and catches were also significantly lower ($p < .05$) in areas with slopes greater than 45 percent (Celewycz and Wertheimer 1994).

The project is also likely to affect the abundance and productivity of both salmon and salmon food organisms in that area. Studies in Prince William Sound determined that both pink and chum salmon feed on a diverse diet of zooplankton, epibenthos, and drift insects while in low to medium gradient habitats (< 10% - 25% slope) whereas pink salmon feed predominately on

pelagic zooplankton and chum salmon did not feed in steeper areas (Sturdevant et. al 1996). Further, placement of newly quarried riprap as proposed will certainly limit availability of epibenthic salmon prey in the short term and could also have deleterious long-term effects. For example, a recent study of epibenthic productivity on manmade structures including riprap (Sobocinsky 2003) indicated a general decline in diversity of juvenile salmon food organisms associated with shoreline armoring and development even after 20 years in place. I would conclude that any loss of low gradient habitat or native substrate caused by the project is likely to have a negative effect on salmon rearing in the area.

The availability of pelagic zooplankton in the project area may also decline due to the loss of circulation in the nearshore area, as predicted by the applicant's circulation model. Pelagic zooplankton are an important nearshore food source for juvenile pink and chum salmon (Landingham 1982; Sturdevant et al. 1996) and their distribution and abundance is dependent on currents that advect pelagic zooplankton from offshore areas to nearshore areas (Cooney 1984).

The focus of the Pentec report is salmonid habitat, however, I would certainly not limit the potential effects of the proposed fill to juvenile salmon habitat. In addition to NMFS concerns regarding crab habitat previously expressed to USACE (letter of 19 Dec. 1998), I would also point out that the project would have other effects on EFH. For example, the placement of steep riprap would certainly eliminate flatfish rearing habitat within the project area. Juvenile flatfish that rear in nearshore areas have specific depth, slope, and substrate preferences (Norcross et al. 1995; Moles & Norcross 1995) that limit their distribution and abundance. Flatfish habitat preferences vary somewhat by species, but can be generally described as intertidal to shallow subtidal areas with substrate conditions that allow the animal to easily bury itself.

Alternatives and Mitigation

I find little in the Pentec report to support the project as proposed. However, if the project is permitted and mitigation is required, I would recommend the following:

- The applicant must avoid or minimize fill and be required to provide mitigation and site management practices adequate to protect marine resources on the project site rather than off site.
- The access ramp must be breached. However, there may be some merit in reconsidering the design of the access ramp breach (p.7 of the Pentec report) to improve water circulation and provide additional littoral habitat.
- The best alternative to provide deep-water access for ships along the existing riprap and any new fill is the construction of narrow piers along the margin of riprap fill. For the purpose of providing habitat for juvenile salmon, this is a better alternative than either sheet pile or wider pier structures.

- All existing and proposed fill margins, where deep-water access is not required, must be designed and constructed to restore water circulation and low gradient littoral habitat to conditions similar to that observed in pre-project surveys (NMFS letters to USACE of 6 & 19 December 1989).

References

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